DRAFT
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

FOR THE
INLAND EMPIRE UTILITIES AGENCY
PEACE II PROJECT

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List of Abbreviations and Acronyms

µg/L	micrograms per liter
1,1,1-TCA	1,1,1-trichloroethane
1,1-DCE	1,1-dichloroethene
1,2,3-TCP	1,2,3-trichloropropane
1,2-DCA	1,2-dichloroethane
AAQS	ambient air quality standards
acre-ft/yr	acre-feet per year
ACOE	U.S. Army Corps of Engineers (Corps)
ADFM	accumulated departure from mean precipitation
AF	acre-feet
AFY	acre-feet per year
AMSL	above mean sea level
APCD	Air Pollution Control District
APE	area of potential effect
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ASR	aquifer storage and recovery
Basin	Chino Groundwater Basin
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BMP	Best Management Practices
B&V	Black & Veatch, Inc.
CAA	Clean Air Act
CAGN	coastal California gnatcatcher
Caltrans	California Department of Transportation
CAO	Cleanup and Abatement Order
CARB	California Air Resources Board
CBDC	Chino Basin Data Collection
CBFIP	Chino Basin Facilities Improvement Program
CBWCD	Chino Basin Water Conservation District
CBWM ID	Chino Basin Watermaster Well Identification

List of Abbreviations and Acronyms (continued)

CBWRMS	Chino Basin Water Resources Management Study
CCAA	California Clean Air Act
CCWF	Chino Creek Well Field
CDA	Chino Desalter Authority
CDFG	California Department of Fish and Game
CDFM	cumulative departure from mean precipitation
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
Chino	City of Chino
CIM	California Institution for Men
cis-1,2-DCE	cis-1,2-dichloroethene
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
COPC	Constituents of Potential Concern
CURO	cumulative unmet replenishment obligation
CVWD	Cucamonga Valley Water District
CWA	Clean Water Act
DLR	detection limit for reporting
DTSC	California Department of Toxic Substances Control
DWR	California Department of Water Resources
DYYP	Dry Year Yield Program
EIR	Environmental Impact Report
EMP	Evaluation Monitoring Program
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
ft	feet

List of Abbreviations and Acronyms (continued)

ft-bgs	feet below ground surface
ft-brp	feet below reference point (e.g., static surveyed measurement point)
FWC	Fontana Water Company
GE	General Electric
GHG	greenhouse gases
GIS	Geographic Information System
GRCC	Groundwater Recharge Coordination Committee
HANS	Habitat Evaluation and Acquisition and Negotiation Strategy
HCMP	Hydraulic Control Monitoring Program
HI	hazard index
IEUA	Inland Empire Utilities Agency
IMP	Interim Monitoring Program
InSAR	Synthetic Aperture Radar Interferometry
ISOB	Initial State of the Basin
JCSD	Jurupa Community Services District
JECSI	JE Compliance Services, Inc.
JPR	Joint Project Review
kWh	kilowatts per hour
LBV	least Bell's vireo
LEED	Leadership in Energy and Environmental Design
LID	Low Impact Development
LST	localized significance thresholds
MCL	maximum contaminant levels
MGD	million gallons per day
mg/L	milligrams per liter
M&RP	Monitoring and Reporting Program
MSHCP	Riverside County Multiple Species Habitat Conservation Plan
MSL	Milliken Sanitary Landfill
MVSL	Mid-Valley Sanitary Landfill
MVWD	Monte Vista Water District

List of Abbreviations and Acronyms (continued)

MWDSC	Metropolitan Water District of Southern California
MZ	Management Zone
NAHC	Native American Heritage Commission
NDMA	N-nitrosodimethylamine
NO_3-N	Nitrate expressed as nitrogen
NOI	Notice of Intent
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRWL	Non-Reclaimable Water Line
OBMP	Optimum Basin Management Plan
OCSD	Orange County Sanitation District
OEHHA	Office of Environmental Health Hazard Assessment
OIA	Ontario International Airport
Ontario	City of Ontario
PBMZ	Prado Basin Management Zone
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PEIR	Program Environmental Impact Report
Pomona	City of Pomona
POTWs	publicly-owned treatment plants
PRP	Potentially Responsible Parties
RCA	Regional Conservation Authority
ROC	reactive organic compounds
ROD	Records of Decision
RP	Regional Plant
RWQCB	Regional Water Quality Control Board, Santa Ana Region
SAR	Santa Ana River
SARI	Santa Ana Regional Interceptor

List of Abbreviations and Acronyms (continued)

SARWC	Santa Ana River Water Company
SAWPA	Santa Ana Watershed Project Authority
SBKR	San Bernardino kangaroo rat
SCADA	System Control and Data Acquisition
SCAQMD	South Coast Air Quality Management District
SEIR	Subsequent Environmental Impact Report
SFS	Supplemental Feasibility Study
SOB	State of the Basin
SoCAB	South Coast Air Basin
SUSMP	Standard Urban Stormwater Management Plan
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWQIS	State Water Quality Information System
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TCE	trichloroethene
TDA	Tom Dodson & Associates
TDS	total dissolved solids
THMs	trihalomethanes
TIN	total inorganic nitrogen
TOC	total organic compounds
TPY	tons per year
Upland	City of Upland
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
USL	Upland Sanitary Landfill
VOC	volatile organic compounds
Watermaster	Chino Basin Watermaster

List of Abbreviations and Acronyms (continued)

WDR	Waste Discharge Report
WEI	Wildermuth Environmental, Inc.
WMWD	Western Municipal Water District (or Western)
WQMP	Water Quality Management Plan
WQS	water quality standard

]CHAPTER 1 – EXECUTIVE SUMMARY

1.1 INTRODUCTION

This Executive Summary for the Peace II Agreement Draft Subsequent Environmental Impact Report (DSEIR) summarizes the environmental effects that are forecast to occur from implementation of the Peace II Agreement, i.e., the proposed project. It also contains a summary of the project background, project objectives, and project description. As required by the State California Environmental Quality Act (CEQA, Section 15123), this chapter of the DSEIR contains a summary of environmental findings and mitigation measures. A tabular summary of impacts and mitigation measures is included at the end of this Executive Summary. Chapter 2 provides an Introduction to the DSEIR and Chapter 3 provides a detailed Project Description. Chapters 4 through 6 contain the evaluation of potential environmental effects from implementing the proposed project, and a comparison between the available and feasible alternatives.

The Peace II Agreement (Peace II) program is considered a modification of the Optimum Basin Management Program (Peace I) adopted by the Chino Basin Watermaster (Watermaster) and stakeholders in the Chino Basin in the year 2000. Inland Empire Utilities Agency (IEUA) served as the CEQA Lead Agency for the Optimum Basin Management Program (OBMP) Program EIR (PEIR, SCH#2000041047), which was certified by IEUA in July 2000. The Peace II program elements are described below, but for the purposes of complying with CEQA for this new program, Watermaster and IEUA concluded that a Subsequent EIR should be prepared to address the potential significant adverse environmental impacts that may result from implementing the Peace II program. Also, because the OBMP PEIR is now ten years old, a decision was made to update the environmental data base for continued implementation of the OBMP, as modified by the Peace II program

The CEQA Guidelines Section 15162 provides the following test for determining if a subsequent EIR or Negative Declaration is required:

(a) *When an EIR has been certified or negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:*

(1) *Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;*

(2) *Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or*

(3) *New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the*

previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

In evaluating the Peace II program, IEUA's focus was two-fold. First, IEUA compared the proposed project with the list of the project issue areas set forth in the 2000 PEIR (listed in the Initial Study which is provided as Subchapter 8.1 of this DSEIR). Second, IEUA reviewed the 2000 PEIR to determine what items discussed therein could be further clarified or elaborated due to the proposed project modifications and due to the passage of time since the certification of the original OBMP PEIR. It was determined that circumstances had changed substantially since the 2000 PEIR was certified for some issues and that with the proposed modifications to the OBMP by the Peace II program, new or additional significant environmental impacts might occur. As a result of this review, IEUA determined that the conditions described in Section 15162 (a) of the CEQA Guidelines would occur as a result of implementing the proposed project; thus, IEUA, in consultation with Watermaster and stakeholders authorized preparation of this DSEIR for implementation of the Peace II program modifications to the OBMP.

This DSEIR has been prepared to address the issues identified in Subchapter 8.1 that were identified as having a potential to cause significant adverse environmental impacts. This DSEIR serves an informational document intended for use by IEUA, Watermaster and Chino Groundwater Basin stakeholders (interested and responsible agencies and parties), and the general public in evaluating the potential environmental effects of implementing this project. Based on the information in the Peace II program Initial Study (Subchapter 8.1), IEUA concluded that potential impacts associated with implementation of this project were less than significant or could be mitigated to a less than significant level with implementation of mitigation measures provided for all issues evaluated except; ***Air Quality, Biological Resources, Geology and Soils, Hydrology and Water Quality, Land Use and Planning and Utilities and Service Systems.*** Note that Land Use/Planning has been combined with Biological Resources (Subchapter 4.4) because the only Land Use or Planning issue of concern is potential conflict between the proposed project and adopted habitat conservation plans. Similarly, the only Geology and Soil issues that were not resolved or mitigated to a level of non-significance were issues related to potential impacts associated with liquefaction or subsidence. These issues will be addressed in the Hydrology and Water Quality section (Subchapter 4.3) of the DSEIR in conjunction with the discussion of the project's potential to cause changes in groundwater levels that could cause liquefaction or subsidence. The only Utilities and Service Systems' outstanding issue concerns the SARI line's transport capacity and treatment capacity at the Orange County treatment facility. As this issue is closely tied to water quality, it is addressed in the Hydrology and Water Quality section (Subchapter 4.3) of the DSEIR.

The IEUA serves as the CEQA Lead Agency pursuant to the State CEQA Guidelines Section 15015(b) (1). This DSEIR has been prepared by Tom Dodson & Associates (TDA) under contract to IEUA. TDA was retained to assist IEUA to perform the independent review of the project required by CEQA before the DSEIR is released. IEUA has reviewed the content of the DSEIR and concurs with the conclusions and findings contained herein.

1.2 INTENDED USE OF THIS ENVIRONMENTAL IMPACT REPORT

This DSEIR has been prepared in accordance with the California Environmental Quality Act (CEQA) Statutes and Guidelines, 2009, pursuant to Section 21151 of CEQA. The Inland Empire Utilities Agency is the local Lead Agency for the Project and has supervised the preparation of this DSEIR. This DSEIR is an information document prepared to inform public agency decision makers and the general public of the potential environmental effects of implementing the proposed project, including significant adverse environmental effects that may be caused by implementing the proposed project. This document also includes an evaluation of possible ways to minimize significant effects of the proposed project and reasonable alternatives to the proposed project are also identified and evaluated in the DSEIR. This document assesses the impacts, including unavoidable significant adverse impacts and cumulative impacts, related to the continued implementation of the OBMP, as modified by the Peace II Agreement. This DSEIR is also intended to support the implementation of future specific OBMP/Peace II Agreement water infrastructure facilities as Tier 2 projects under the modified OBMP. It may be used by IEUA as the Lead Agency or by Chino Basin stakeholders as CEQA Responsible Agencies for compliance with CEQA for such future projects.

1.3 PROJECT BACKGROUND

IEUA, the Chino Basin Watermaster and Chino Basin stakeholders have made a decision to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original Peace Agreement, which enabled the implementation of the OBMP, termed the “Peace II Agreement.” The Peace II Agreement, approved by the Court on December 21, 2007, redefines the future programs and actions required to implement the OBMP based on the past nine years of experience and accomplishments in implementing the OBMP.

The following is a brief summary description of the activities proposed by the Peace II Agreement being evaluated in this Draft Subsequent Environmental Impact Report.

Watermaster and the parties to the Judgment have been working to develop changes to the original Peace Agreement that, among other things, provide for Re-Operation and the attainment of hydraulic control for the Chino Groundwater Basin. “Hydraulic control” is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair the beneficial uses designated for water quality of the Santa Ana River downstream of Prado Dam. “Re-Operation” means the increase in controlled overdraft of the Chino Basin, as defined in the Judgment, from

200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030. Both of these program components, hydraulic control through desalter expansion in the southwestern portion of the Chino Basin and Re-operation (controlled overdraft over the whole of the Chino Basin) are required to achieve hydraulic control, which is the primary objective of the Peace II Agreement. Hydraulic control would be achieved through expansion of the desalter program from its current approximate 27,000 acre feet per year (afy) of production to 40,000 afy, and additional groundwater extractions throughout the Basin to increase overdraft to 600,000 acre-feet (total cumulative overdraft) through 2030.

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 afy and that the pumping will occur in amounts and at locations (southwestern Chino Basin) that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) by an additional 400,000 acre-feet (cumulative total overdraft of 600,000 through 2030) that, along with the expanded desalter program, substantially achieves hydraulic control for the Chino Groundwater Basin.

Expansion of the desalter program would be accomplished with the installation and operation of a new well field, referred to as the Chino Creek Well Field (CCWF). The actual capacity of the CCWF will be determined during the design of the well field, but the available groundwater data estimates the capacity of this well field could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. Groundwater produced at the CCWF will be conveyed to Desalter I. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The volume of groundwater pumped at existing Desalter I wells 13, 14, and 15 and presently conveyed to Desalter I, will be reduced and/or redirected to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The difference between the potable water production volume and raw water volume pumped consists of the reject water that is discharged through the Santa Ana Regional Interceptor (SARI) line to a treatment facility in Orange County. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting to Desalter I wells 13, 14, and 15. The specific location of new wells is not presently known, only the aggregate capacity of these wells is evaluated in this DSEIR.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are also unknown at this time.

The expansion of groundwater storage and recovery programs, such as the Dry Year Yield Programs, if not sensitive to the needs of hydraulic control, could cause groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The proposed project will be analyzed with groundwater storage programs up to 150,000 acre-ft, utilizing various storage and recovery strategies.

These actions and the physical facilities to support these actions are termed the “proposed project” in this Draft Subsequent Environmental Impact Report. The OBMP Peace II Agreement physical facilities will be located within the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset in Figure 3-1. Figure 3-1 illustrates the boundary of the Chino Groundwater Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.*

1.4 PROJECT OBJECTIVES

The Watermaster, IEUA and stakeholders in the Chino Basin have been implementing the OBMP under Peace I since the year 2000. In order to achieve one of the key OBMP objectives, hydraulic control of the Chino Basin, the program must be modified as proposed under the Peace II Agreement. However, by implementing the hydraulic control objective through expanding the existing desalters and Re-operation, several specific water resource objectives will be facilitated. These are:

- Recycled water use in the Basin can be assured because the “maximum benefit” objective of the 2004 Basin Plan Amendments can be fulfilled;
- Expanding desalter operations removes more total dissolved solids from the Chino Basin and the product water produced by the desalters further offsets the need to pump high quality groundwater or import additional water for potable water supply;
- Substantial energy savings will accrue to Chino Basin stakeholders by reducing the need to import water to for replenishment to offset groundwater extractions; and
- Implementation of hydraulic control will create new water yield for the Chino Basin.

1.5 IMPACTS

Based on data provided in this DSEIR, it is concluded the proposed project could result in significant adverse environmental impact to the following environmental resource: air pollutant emissions and exceeding air pollutant emission significance thresholds established by the South Coast Air Quality Management District (SCAQMD). All other potential environmental issues evaluated in this DSEIR were determined to be less than significant impacts, either without mitigation or with implementation of the mitigation measures identified in this DSEIR or the attached Initial Study (Subchapter 8.1). Note that the cumulative significant impacts are evaluated and determined in this document based on a determination that the proposed project’s contributions to such impacts are evaluated as being cumulatively considerable, which is the threshold identified in Section 15130 of the State CEQA Guidelines. Table 1.5-1 summarizes the environmental impacts and proposed mitigation measures.

The following issues have been determined to experience **less than significant impacts** in the Initial Study (Subchapter 8.1), with or without mitigation.

1. Aesthetics/Visual: Due to the installation of future above-ground water facilities in visually sensitive locations, a potential for significant aesthetic/visual impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study

(Subchapter 8.1). A total of six mitigation measures were identified to minimize visual contrast and night-lighting impacts were identified for implementation. With implementation of mitigation measures the project-related aesthetic/visual impacts can be reduced to a less than significant impact level.

2. Agricultural Resources: Due to the substantial agricultural resources located within the Chino Basin and the installation of future water infrastructure facilities, a potential for significant agricultural resource impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study (Subchapter 8.1). A single mitigation measure was identified to minimize agricultural resource impacts. With implementation of this mitigation measure, the project-related agricultural resource impacts can be reduced to a less than significant impact level.

3. Cultural Resources: Due to the substantial cultural resources located within the Chino Basin and the installation of future water infrastructure facilities, a potential for significant cultural resource impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study (Subchapter 8.1). A total of seven mitigation measures were identified to minimize cultural resource impacts. With implementation of these mitigation measures, the project-related cultural resource impacts can be reduced to a less than significant impact level.

4. Geology and Soils Resources: The Chino Basin contains substantial geological and soils constraints. Due to these substantial constraints and the installation of future water infrastructure facilities in locations where such constraints may occur, a potential for significant geology and soils resources impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). A total of twelve mitigation measures were identified to minimize geology and soils resources impacts. With implementation of these mitigation measures, the project-related geology and soils resources impacts can be reduced to a less than significant impact level.

5. Hazards and Hazardous Materials Issues: The Chino Basin contains substantial hazards and hazardous materials issue constraints. Due to these substantial constraints and the installation of future water infrastructure facilities in locations where such constraints may exist, a potential for significant hazards and hazardous materials issue impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). A total of fifteen mitigation measures were identified to minimize hazards and hazardous materials issue impacts. With implementation of these mitigation measures, the project-related hazards and hazardous material issues impacts can be reduced to a less than significant impact level.

6. Hydrology and Water Quality Issues: The Chino Basin contains substantial surface hydrology hazard constraints, alteration of drainage patterns and exposure to mudflows. Due to these substantial constraints and the installation of future water infrastructure facilities in locations where such constraints may exist, a potential for significant alteration of drainage pattern impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). Further, no potential was identified for the Peace II Agreement to place housing within a 100-year flood hazard area because no housing is associated with the proposed project. A total of three mitigation measures were identified to minimize drainage pattern modification impacts and exposure to mudflows. With implementation of these mitigation measures, the project-related drainage pattern and mudflow impacts can be reduced to a less than significant impact level.

7. Land Use and Planning: Due to a potential to physically divide established communities and to conflict with adjacent land uses or land use plans and due to the installation of future water infrastructure facilities, a potential for significant land use and planning impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study (Subchapter 8.1). A single mitigation measure was identified to minimize land use and planning impacts. Additional mitigation measures associated with land use conflicts, such as noise, were acknowledged as being required to minimize land use conflicts in the future. With implementation of these mitigation measures, the project-related land use and planning impacts can be reduced to a less than significant impact level.

8. Mineral Resources: Limited mineral resource occur in the northern portion of the Chino Basin and the installation of future water infrastructure facilities was determined to pose a less than significant impact to such resources without mitigation.

9. Noise Issues: The Chino Basin contains extensive areas with noise sensitive land uses. Due to these substantial noise constraints and the installation of future noise-producing water infrastructure facilities in locations where such noise sensitive uses may exist, a potential for significant noise impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). A total of thirteen mitigation measures were identified to minimize exposure of sensitive noise receptors to significant noise impacts. With implementation of these mitigation measures, the project-related noise impacts can be reduced to a less than significant impact level.

10. Population and Housing Issues: The Initial Study concluded that implementation of the OBMP, as modified by the Peace II Agreement, would not significantly induce growth within the Chino Basin. Therefore, potential population impacts were found to be less than significant without mitigation. Since housing occupies much of the Chino Basin and the installation of future water infrastructure facilities in locations where such housing may be proposed or exist, a potential for significant housing impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). A single mitigation measure was identified to minimize future OBMP-related water infrastructure from significantly impacting such housing resources. With implementation of this mitigation measure, the project-related housing impacts can be reduced to a less than significant impact level.

11. Public Services Issues: The Initial Study concluded that implementation of the OBMP, as modified by the Peace II Agreement, would not significantly impact fire protection, schools, recreation/parks or other public facilities. Therefore, these potential public service impacts were found to be less than significant without mitigation. Since the installation of future water infrastructure facilities can create potential trespass opportunities, a potential for significant police protection impacts from implementation of the OBMP, as modified by the Peace II Agreement, were identified in the Initial Study (Subchapter 8.1). A single mitigation measure was identified to minimize future police protection impacts. With implementation of this mitigation measure, the project-related police protection impacts can be reduced to a less than significant impact level.

12. Recreation: Limited recreation resources occur in the Chino Basin and the installation of future water infrastructure facilities was determined to pose a less than significant impact to such resources without mitigation.

13. Transportation/Traffic Issues: The Initial Study concluded that implementation of the OBMP, as modified by the Peace II Agreement, would not significantly impact any airports or air traffic patterns. Therefore, potential air traffic transportation impacts were found to be less than significant without mitigation. Since transportation system facilities occur throughout much of

the Chino Basin and the installation of future water infrastructure facilities can directly impact roadways or traffic on such roadways, a potential for significant transportation/traffic impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study (Subchapter 8.1). A total of eleven mitigation measures were identified to minimize future OBMP-related transportation/traffic system impacts. With implementation of these mitigation measures, the project-related transportation/traffic impacts can be reduced to a less than significant impact level.

14. Utilities and Service Systems Issues: The Initial Study concluded that implementation of the OBMP, as modified by the Peace II Agreement, would not significantly impact any solid waste management issues. Therefore, potential solid waste service system impacts were found to be less than significant without mitigation. Since the installation of future water infrastructure facilities may require construction of new stormwater drainage facilities, a potential for significant drainage system impacts from implementation of the OBMP, as modified by the Peace II Agreement, was identified in the Initial Study (Subchapter 8.1). A total of two mitigation measures were identified to minimize future OBMP-related stormwater runoff/drainage system impacts. With implementation of these mitigation measures, the project-related stormwater runoff/drainage system impacts can be reduced to a less than significant impact level.

The following issues have been determined to experience **less than significant impacts** in the Draft Subsequent Environmental Impact Report (DSEIR), Chapter 4, with mitigation.

1. Geology and Soils: After detailed evaluation of the potential for the OBMP, as modified by the Peace II Agreement, to impact liquefaction and subsidence, the DSEIR evaluation concluded that these impacts could be mitigated to a less than significant impact level. A total of four mitigation measures were identified to minimize future OBMP-related liquefaction and subsidence impacts within the Chino Basin. With implementation of these mitigation measures, the project related liquefaction and subsidence impacts can be reduced or controlled to a less than significant impact level.

2. Hydrology and Water Quality: After detailed evaluation of all hydrology/water quality issues in the DSEIR, it was concluded that all hydrology and water quality impacts can be controlled to a less than significant impact level. Detailed assumptions regarding future water management activities are included in this finding, for example pumping locations must be optimized, the future location of groundwater recharge must be optimized, additional imported water must be brought into the Basin over the next 20 years to offset cumulative unmet replenishment obligation (CURO), and hydraulic control of the Basin must be accomplished. Regardless, under these assumptions, all hydrology and water quality impacts can be offset or otherwise mitigated, and the hydrology and water quality impacts (including those identified under Utilities and Services Systems) have been found to be less than significant, on a project specific and cumulative basis.

3. Biological Resources: After detailed evaluation of the potential for the OBMP, as modified by the Peace II Agreement, to impact biological resources, including conflict with habitat conservation plans, the DSEIR evaluation concluded that these impacts could be mitigated to a less than significant impact level. A total of fourteen mitigation measures were identified to minimize future OBMP/Peace II-related biology resource impacts within the Chino Basin. With implementation of these mitigation measures, the project related biology resource impacts can be reduced or controlled to a less than significant impact level.

Based on the analysis contained in the DSEIR, the **following impacts have been determined to have a potential for significant impact:**

1. Air Quality: The air quality analysis in the DSEIR indicates that this proposed project will generate cumulatively considerable air emissions during both the short- and long-term. Refer to Subchapter 4.2 for a more detailed discussion of this issue. With mitigation measures, the future individual projects are not forecast to result in significant adverse impacts on air quality. Short-term impacts of construction are unavoidable but with mitigation, and due to their short duration, would not be considered significant. Long-term impacts of the project would place the roadway closer to existing sensitive receptors. The analysis reached the same finding for air quality impacts from future individual OBMP- and Peace II-related projects. The emission forecasts in the analysis above indicate that on a case-by-case basis air quality impacts would not be considered an unavoidable and significant impact.

   However, as summarized in Section 4.2.5 above, the potential exists for future OBMP and Peace II construction activities and equipment electricity consumption to generate cumulative considerable criteria pollutant emissions within the SoCAB. This finding results in a potential cumulatively significant unavoidable adverse impact for future implementation of OBMP and Peace II programs when compared to the SCAQMD construction and operational emission thresholds of significance.

1.6 ALTERNATIVES

The California Environmental Quality Act (CEQA) and the State CEQA Guidelines require an evaluation of alternatives to the proposed action. Section 15126 of the State CEQA Guidelines indicates that the “discussion of alternatives shall focus on alternatives capable of eliminating any significant adverse environmental effects or reducing them to a level of not significant....” In this case a single environmental issue, air quality, is identified as causing potential or actual significant adverse impacts if the proposed Project is implemented as proposed. The State Guidelines also state that “a range of reasonable alternatives to the project....which could feasibly attain the basic objectives of the project” and “The range of alternatives required in an EIR is governed by “rule of reason” that requires the EIR to set forth only those alternatives necessary to permit a reasoned choice.” For this project, the no project and Baseline Alternative project are essentially the same alternative. This conclusion is based on the fact that if the no project alternative were adopted, the Baseline Alternative is already approved and it is assumed that IEUA, Watermaster and stakeholders would continue to manage the Chino Groundwater Basin under the adopted OBMP, which is the Baseline Alternative. Thus, the No Project/Baseline Alternative was selected for evaluation in an effort to reduce the proposed Project impacts to a less than significant level.

The potential for an alternative location was evaluated and determined not to be feasible since the Chino Groundwater Basin and its management cannot be accomplished at an alternative groundwater basin. Further, since the No Project/Baseline Alternative will not achieve hydraulic control of the Chino Basin and air quality impacts remain the approximately the same under the No Project/Baseline Alternative, this alternative was found to be less environmentally superior than the proposed project, as well as being an infeasible alternative because it will not meet the project objectives outlined above.

The DSEIR Chapter 1 Environmental Impact Summary table (Table 1.5-1) follows. Also, please refer to Chapter 2 for the required discussion of areas of controversy associated with the proposed project (Subchapter 2.2.5) and a discussion of issues to be resolved (Subchapter 2.2.4).

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Air Quality	Construction-related air pollutant emissions	4.2-1 Water active grading sites and haul roads at least three times daily and when dust is observed migrating from the site. This is a modification of measure 4.6-1 from the OBMP. 4.2-2 Pave or apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas. More frequent watering will occur if dust is observed migrating from the site during grading activities. 4.2-3 Enclose, cover, or water twice daily, or apply non-toxic soil binders, to any onsite stockpiles of debris, dirt or other dusty material. 4.2-4 Suspend all grading and excavation operations when wind speeds exceed 25 mph. This is measure 4.6-2 from the OBMP. 4.2-5 Replace ground cover or pave disturbed areas immediately after construction is completed in the affected area. This is measure 4.6-4 from the OBMP. 4.2-6 Hydro-seed, apply non-toxic chemical soil stabilizers or otherwise stabilize any cleared area which is to remain inactive for more than 10 days after clearing is completed. This is a modification of measure 4.6-3 from the OBMP. 4.2-7 Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard. 4.2-8 Sweep or wash any site access points daily of any visible dirt deposition on any public roadway. This is a modification of measure 4.6-5 from the OBMP.	With implementation of identified air quality mitigation measures, construction emissions from future individual projects implemented in support of the Peace II Agreement. However, cumulative Peace II-related project construction emissions are forecast to exceed SCAQMD regional emission thresholds for NOx even after applying all available mitigation measures. Thus, project-related construction air quality impacts are considered to be cumulatively considerable and an unavoidable significant adverse impact.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Air Quality (continued)		4.2-9 Reduce traffic speeds on unpaved roads to less than 15 mph. 4.2-10 Install sandbags or other erosion control measures to prevent silt runoff to public roadways. 4.2-11 Limit the area subject to excavation, grading and other construction activity at any one time. 4.2-12 Require the use of diesel particulate filters, diesel oxidation catalysts, and aqueous diesel fuel on construction vehicles. 4.2-13 All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications. 4.2-14 General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions. 4.2-15 Require 90-day low NOx tune-ups for off road equipment. 4.2-16 Use Tier3-rated engines during site grading for all equipment exceeding 100 horsepower if available. 4.2-17 Utilize equipment whose engines are equipped with diesel oxidation catalysts if available. 4.2-18 Utilize diesel particulate filer on heavy equipment where feasible. 4.2-19 During construction, trucks and vehicles in loading and unloading queues would be kept with their engines off, when not in use, to reduce vehicle emissions.	

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Air Quality (continued)		4.2-20 Limit allowable idling to 5 minutes for trucks and heavy equipment. 4.2-21 Encourage car pooling for construction workers. 4.2-22 Limit lane closures to off-peak travel periods, when possible. 4.2-23 Park construction vehicles off traveled roadways. 4.2-24 Encourage receipt of materials during non-peak traffic hours.	
	Project-related operational emissions	4.2-25 IEUA/Watermaster/Stakeholders shall establish a monitoring program to track future OBMP and Peace II program construction activities for specific project components. To the extent feasible and using this monitoring data, future specific project construction activities shall be scheduled in sequence or to minimize overlap of maximum emissions from each construction activity. 4.2-26 IEUA/Watermaster/Stakeholders shall establish a monitoring program to track future OBMP and Peace II electricity consumption for specific project components. As part of this monitoring program, those non-GHG emitting electrical generation projects implemented by all parties shall be quantified to demonstrate the specific reductions in both criteria pollutants and GHG relative that which would occur from relying on electricity delivered by the Southern California Edison (SCE) grid. To the extent feasible and consistent with each agency's ability, criteria pollutant and GHG emissions should be offset by 50% relative to reliance on the SCE grid to power future OBMP and Peace II equipment.	With implementation of identified air quality mitigation measures, cumulative Peace II-related program operating emissions are forecast to exceed SCAQMD regional emission thresholds for NOx. Thus, program-related air quality impacts are considered to be a cumulatively considerable and unavoidable significant adverse impact.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Air Quality (continued)		4.2-27 To the extent feasible, the IEUA/Watermaster/Stake-holders shall select landscaping that is fast-growing to create visual buffers at future OBMP and Peace II sites and to offset GHG emissions. Where landscaping is feasible, a landscape plan designed to initiate carbon sequestration and these plants shall be periodically harvested and/or replanted to maintain carbon seques-tration. Alternatively, these agencies may choose to purchase annual or permanent carbon credits from the available carbon banks at the time that a facility begins operation. 4.2-28 To the extent feasible, the IEUA/Watermaster/Stake-holders shall select equipment for future OBMP and Peace II project that minimize electricity consumption. Documentation of such efforts shall be retained in project files to verify that electricity consumption of such equip-ment has been given consideration before selecting a specific piece of equipment, such as a booster pump. This measure is not intended to dictate selection of equipment that minimizes electricity consumption, only to ensure that this criterion is clearly given consideration in the selection of such equipment.	
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems		<u>Water Quality</u> 4.3-1 Under the direction of the Watermaster, if any well intercepts a contamination plume, the affected well will be connected to a treatment unit to remove the plume pollutants to a level that meets potable/drinking water quality standards. If this cannot be achieved, the well will be removed from production.	

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	Implementation of the Peace II Agreement has a potential to violate existing water quality standards established by the 2004 Basin Plan Amendment for the Chino Basin.	Water Quality 4.3-2 Prior to cleaning out, refurbishing or capping a well, samples will be obtained and chemically analyzed to ensure that the discharge does not contain any contaminants exceeding regulatory thresholds. If contaminants are discovered, then they shall be removed or lowered below the regulatory threshold prior to discharge to the environment. Discharge of non-stormwater into storm drains will require a NPDES permit. 4.3-3 When closing abandoned wells in the Chino Basin the entity closing the well shall, where technically feasible, sample and analyze the well water to determine whether the groundwater in the well is contaminated. If contamination is identified, the entity shall report the discovery to the appropriate parties, including the owner (if known) and the regulatory agencies. The Watermaster shall monitor the status of the well until residual contamination is remediated.	The DSEIR evaluation reached a finding that through the implementation of the Peace II Agreement, particularly hydraulic control and expansion of the desalters to increase the removal of salt from the Chino Basin, the Peace II programs will not cause any project specific or cumulative violation of existing water quality standards. This impact is less than significant without mitigation.
	Implementation of the Peace II Agreement will increase groundwater extractions to achieve hydraulic control and has a potential to deplete groundwater supplies.	4.3-4 Under no circumstance shall discharge of recharge water (e.g., SPW, recycled water, etc) cause or contribute to a cumulative violation of the 2004 Basin Plan maximum benefit objectives or interfere with a designated beneficial use for a water or groundwater body. In addition to monitoring, the Watermaster and stakeholders will use models to forecast future TDS and Nitrate concentrations pursuant to the Basin Plan and recharge permit requirements. Watermaster and the stakeholders will, based on monitoring, begin the planning to develop measures to either protect beneficial uses of groundwater or to treat groundwater to meet beneficial use requirements. This is a requirement of the 2004 Basin Plan. This is a modification of mitigation measures 4.5-12 and 4.5-14 from the OBMP.	The DSEIR evaluation concluded that with implementation of the Peace II program, as proposed and of the pertinent mitigation measures identified in the document, no significant depletion of groundwater will occur and the program should enhance the recharge of the Chino Basin. This impact is significant with mitigation implementation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	Peace II-related future site specific projects have a potential to modify drainages and cause substantial erosion and sedimentation. Based on the location of proposed facilities, Peace II-related future site specific projects have a potential to modify drainages that could result of flooding on- and offsite.	Water Quality 4.3-5 Hydrogeologic studies, including modeling, will be completed for each recharge site, including ASR wells, to define the recharge impacts on known groundwater quality anomalies (contaminated groundwater plumes). If modeling demonstrates that the rate of contaminated plume expansion or secondary effects associated with such expansion will adversely impact groundwater or water production capabilities, the recharge facility shall be moved to an alternative location where such impacts will not occur or else impacted production facilities will be replaced. The threshold for adverse impacts will be if existing domestic water production wells will be impacted by the plume a minimum of one year earlier than under pre-existing conditions, or if significant quantities of additional groundwater (more than 5,000 acre-feet) will become contaminated within a five year period due to the recharge of water. This is a modification of mitigation measure 4.5-15 from the OBMP. 4.3-6 When recharge of recycled water is proposed for a specific location, the entity proposing such recycling shall determine whether recharge would cause a violation of current DHS requirements at any existing production wells or critical water supply aquifers. If impacts will affect existing wells or critical water supply aquifers, the entity proposing to discharge recycled water shall fund the provision of a comparable quality and quantity of potable water through installing new wells, direct water deliveries (for example from desalters), or comparable measures. This is mitigation measure 4.5-13 from the OBMP.	The DSEIR evaluation and the evaluation in the Initial Study reached a finding that with mitigation the future site specific Peace II project impacts on drainage systems and associated erosion and can be controlled to a less than significant impact level. This impact is less than significant without mitigation. The DSEIR evaluation reached a finding that through the implementation of the Peace II Agreement could generate additional runoff, mitigation is available to prevent future Peace II-related specific projects from causing any project specific or cumulative flooding on- or offsite. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)		Water Quality 4.3-7 All water recharge operations shall be monitored, and if impacts that were not forecast to occur demonstrate that the recharge operations are causing a significant adverse impact on the groundwater aquifer, the recharge operations shall be terminated or modified to eliminate the adverse impact.	
	Based on the location of proposed facilities, Peace II-related future site specific projects have a potential to modify drainages that could generate substantial sources of pollute runoff.	Groundwater Levels 4.3-8 Under the direction of the Watermaster, the stakeholders shall continue to implement adaptive management in conjunction with the Peace II Program. The adaptive management program performance standard is to offset any actual loss of storage beyond the 600,000 AF allowed through the OBMP and Re-Operation (measured or modeled by the Watermaster) by reduced takes or increased puts (or an alternative method deemed equivalent by the Watermaster to reduced takes or increased puts) measured over each ten year period of the Program. To the extent feasible or as determined by the Watermaster in consultation with stakeholders, a lowering of groundwater table in any portion of the Chino Basin attributable to the Peace II Program beyond that which, pursuant to the Judgment, is prescribed through Re-Operation to achieve hydraulic control shall be offset by a reduction in takes and/or puts or an alternative.	The DSEIR evaluation and the evaluation in the Initial Study reached a finding that with mitigation the future site specific Peace II project impacts could generate surface runoff that could contain polluted runoff, primarily eroded materials and construction related pollutants. However, potential erosion and accidental release of pollutants can be controlled to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	Due to the presence of contaminated groundwater plumes in the Chino Basin, implementation of the Peace II Agreement has a potential to otherwise degrade water quality.	Groundwater Levels These were included as optional measures in the Initial Study. Depending on results of hydrology, maybe include as required. 4.3-9 Continue to identify and study subsidence hazards and susceptible areas, and propose mitigation technology that is appropriate to the findings of the monitoring study. The implementation of Peace II facilities shall not in any way contribute to subsidence conditions in pre-existing subsidence zones (as shown in Figure 4.3-69). Peace II will not cause or contribute to any new, significant subsidence impacts greater than a total of six inches in magnitude over the planning period. New inelastic subsidence less than six inches in the Non-MZ1 Managed Area is considered to be less than significant.	The DSEIR evaluation and the evaluation in the Initial Study reached a finding that with mitigation the future groundwater extractions could contribute to migration of pollutant plumes. However, potential groundwater degradation from this activity can be controlled to a less than significant impact level. This impact is less than significant with mitigation.
	The proposed project is not forecast to place any housing within 100-year flood hazard areas.	4.3-10 If modeling conducted for the expanded CDA desalter wellfield demonstrates that such pumping will contribute to inelastic subsidence in the MZ1 Managed Area, then a potentially significant impact can occur, and a subsequent environmental document will be prepared. No OBMP/Peace II activities allowed under this document will be permitted to cause or contribute to inelastic subsidence that causes adverse effects to facilities at the ground surface within the MZ1 Managed Area defined in the OBMP Phase 1 Report and Figure 4.3-69 of this DSEIR.	No potential exists for the implementation of Peace II Agreement programs to expose any housing to 100-year flood hazards. This impact is less than significant without mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	Based on the location of proposed facilities, Peace II-related future site specific projects have a potential to be located within 100-year flood hazard areas.	Groundwater Levels 4.3-11 To ensure that pumping impacts in the vicinity of the desalter well field do not have an adverse impact on water levels and subsidence issues, the following performance standards shall be used to evaluate the desalters: a. Water level declines in areas surrounding the desalter pumping locations will not be allowed to decline to the extent that pumping capabilities for surrounding wells incur material physical injury. If surrounding wells and producers are impacted by declines in water levels, alternative access to equivalent quantity and quality of water will be provided to affected surrounding parties. This water may be provided through distribution of funding to affected parties for the deepening of existing wells, or may be provided through the delivery (paid for by the implementing agency) of comparable or improved quality and quantity of water from other sources. b. If desalter well fields are demonstrated to cause new inelastic subsidence impacts within the MZ1 Managed Area by a decline of over six inches in ground level at a 1/4 mile radius, or at the radius of the nearest non-OBMP/Peace II-participating structure, then pumping patterns for the desalters shall be modified to reduce impacts to cause no more than six inches of inelastic subsidence at the smallest of the two radii.	The DSEIR evaluation and the evaluation in the Initial Study reached a finding that with mitigation the future site specific Peace II project impacts could by located within 100-year flood hazard areas and be exposed to significant damage or redirect flood flows. However, potential effects on exposed facilities or redirect flood flows can be controlled to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	The proposed project is not forecast to place any housing within 100-year flood hazard areas. The proposed project is not forecast to increase liquefaction hazards within the Chino Basin because the groundwater table will be lowered throughout the Basin to achieve hydraulic control.	<u>Groundwater Levels</u> 4.3-12 Requires site-specific geotechnical investigations of proposed development to include an assessment of potential impacts and mitigation measures related to expansive and reactive soils and liquefaction. Under Peace II, Watermaster will continue to monitor the areas with potential liquefaction hazards and will work with local jurisdictions to ensure that any future structures are constructed with the appropriate foundations to address increased liquefaction potentials apropos to the specific area. This mitigation measure will reduce impacts to a less than significant level. <u>Erosion Control</u> 4.3-13 To minimize potential ground disturbances associated with installation and maintenance of proposed monitoring equipment on existing wells, the equipment shall be installed within or along existing disturbed easements or right-of-way or otherwise disturbed areas, including access roads and pipeline or existing utility easements, whenever feasible. This is a modification of mitigation measure 4.5-1 from the OBMP. 4.3-14 For long-term mitigation of site disturbances at Peace II facility locations, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation and/or man-made landscape areas (for example, grass). Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a two year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows. These measures and requirements shall be applied to closure of abandoned well site disturbed areas.	No potential exists for the implementation of Peace II Agreement programs to directly expose any people or structures to significant risk from failure of a levee or dam. This impact is less than significant without mitigation. No potential exists for the implementation of Peace II Agreement programs to increase exposure of people or structures to significant risk from liquefaction hazards. This impact is less than significant without mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)	Peace II-related future facilities have no potential to be exposed to inundation by seiche or tsunami. A potential exists for mudflows in major stream channels to be exposed to mudflow impacts.	Flood Control 4.3-15 The Watermaster or other agencies implementing recharge programs shall confer with the San Bernardino County Department of Transportation and Flood Control or the Riverside County Flood Control and Water Conservation District and for any flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define the amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as volume of water that can be diverted into each basin). This will ensure that recharge activities do not conflict with flood control operations at any flood control basins. Variable pooling and recharge schedules that are coordinated with storm forecasting to halt deliveries during storm events will ensure that flood-related hazards remain less than significant. This is a modification of mitigation measure 4.5-2 from the OBMP. 4.3.16 Within each facility or project associated with the Peace II Program that will impact more than one half acre, surface runoff shall be collected and retained (for use onsite) or detained and percolated into the ground on the site such that site development results in no net increase in offsite stormwater flows. Detainment shall be achieved through Low Impact Development techniques whenever possible, and shall include techniques that remove the majority of urban storm runoff pollutants, such as petroleum products and sediment. The purpose of this measure is to remove the onsite contribution to cumulative urban storm runoff and ensure the discharge from the sites is treated to reduce contributions of urban pollutants to downstream flows and to groundwater. The onsite percolation shall be measured whenever….	Through mitigation future Peace II-related facilities that are of critical value will not be placed in areas that may be exposed to significant mudflows. Thus, this impact is less than significant with mitigation.

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Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Hydrology / Water Quality, Geology / Soils, Utilities / Service Systems (continued)		Flood Control 4.3-16 (cont.) possible such that any new yield can be calculated for possible blending credit with recharge of higher TDS water. If it is not possible to eliminate stormwater flows off of a site, the facility shall not be constructed until a drainage study has been conducted that verifies that there will be no adverse impacts to downstream stormwater management from implementation of the site development.	
	Peace II-related groundwater extracting activities have a potential to increase subsidence within the Chino Basin.	4.3-17 Prior to implementation of any recharge projects as either existing or new basins, a management plan will be established to the satisfaction of SBCFCD. This plan shall be created specifically for each individual basin to ensure the safety of surrounding property and people from undue risks associated with water-related hazards (i.e. flooding). The management plan will firmly establish a priority of flood-control functions over and above recharge-related operations. Weather forecasts of upcoming storm events will be carefully monitored and in the event of a significant forecasted storm-event, recharge deliveries the basins will be ceased until further notice is received from SBCFCD that it is safe for deliveries to resume. Additionally, no more than three days' percolative capacity of water will be allowed to sit in a basin at a time if such basin is also used for flood control activities. Additionally, each SBCFCD basin will have a specific management plan developed, so as to coordinate flood control with recharge. This mitigation measure will ensure that people and property are not subject to additional risk associated with water-related hazards in the Basin, and will allow SBCFCD to make full utilization of the basin's flood control capacity in the event of a storm.	The DSEIR evaluation reached a finding that with mitigation the future groundwater extractions associate with Peace II programs could increase subsidence in localized areas within the Chino Basin. However, potential effects from subsidence hazards can be controlled to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Biological Resources / Land Use & Planning	Peace II-related future site specific projects have a potential to adversely impact listed and sensitive plant and animal species located within the Chino Basin. Peace II-related future site specific projects have a potential to adversely impact riparian habitat or other sensitive natural communities located within the Chino Basin.	4.4-1 Where future project-related impacts will impact undeveloped land, future surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/ compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken: a. The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species. b. An endowment, to be determined at the time the impact is proposed, shall be provided by the project proponent and this endowment shall be adequate to fund ongoing management requirements for the property purchased. c. The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFG for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological resource impacts at a project site with sensitive biological resources has been accomplished.	The DSEIR evaluation reached a finding that with mitigation the future potential site specific Peace II project impacts to listed and sensitive species could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation. The DSEIR evaluation reached a finding that with mitigation the future potential site specific Peace II project impacts to riparian habitat or other sensitive natural communities could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures		Impact After Mitigation
Biological Resources / Land Use & Planning (continued)	Peace II-related future site specific projects have a potential to adversely impact federally protected wetlands. Peace II-related future site specific projects have a potential to adversely interfere with the movement of native resident or migratory fish or wildlife species or impede the use of native wildlife nursery sites.	4.4-2	Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and the California Department of Fish and Game. Any future project that must discharge fill into a channel or otherwise alter a streambed shall be mitigated. Mitigation can be provided by purchasing into any authorized mitigation bank; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or be acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A revegetation plan using native riparian vegetation common to the project area shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and CDFG) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but the IEUA will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.	The DSEIR evaluation reached a finding that with mitigation the future potential site specific Peace II project impacts to federally protected wetlands could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation. The DSEIR evaluation reached a finding that with mitigation the future potential site specific Peace II project interference with the movement of native resident or migratory fish or wildlife species or impeded the use of native wildlife nursery sites could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Biological Resources / Land Use & Planning (continued)	Peace II-related future site specific projects have a potential to conflict with local policies such as tree preservation.	4.4-3 IEUA shall coordinate with all stakeholders to ensure that discharges from its wastewater treatment plants exceed 20,000 acre-feet during the period May 1 through October 1 of each calendar year. This will ensure adequate surface flows into Prado Basin during summer periods and during droughts. 4.4-4 To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is February 1 through September 1). Alternatively, project impact areas will be evaluated by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities. 4.4-5 Prior to commencement of construction activity in locations that are not fully developed, a clearance survey will be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed by the biologist that will protect the burrow in place or provide for relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFG guidelines. Active nests must be avoided until all nestlings have fledged. 4.4-6 Future Peace II facilities that are proposed to be located within wildlife movement corridors within Chino Basin shall be sited at locations that avoid significant adverse impacts to such corridors, or shall be mitigated by restoring the corridor values to approximately original condition after a Peace II facility is installed.	The DSEIR and Initial Study evaluation reached a finding that with mitigation the future potential site specific Peace II project conflicts with local policies regarding biological resources could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation.

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Biological Resources / Land Use & Planning (continued)	Peace II-related future site specific projects have a potential to conflict with provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan, specifically the Western Riverside County Multiple Species Habitat Conservation Plan.	4.4-7 Prior to commencement of construction activity on Peace II project within MSHCP areas in Riverside County, a consistency analysis shall be prepared and reviewed with Riverside County Regional Conservation Authority (RCA). Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with the MSHCP. 4.4-8 Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management., which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area. 4.4-9 Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of pipelines and other facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific project. This measure is 4.8-1 from the OBMP PEIR.	The DSEIR evaluation reached a finding that with mitigation the future potential site specific Peace II project conflicts with provisions of an adopted Habitat Conservation Plan or Natural Community Conservation Plan could be avoided or reduced to a less than significant impact level. This impact is less than significant with mitigation.

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SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Biological Resources / Land Use & Planning (continued)		4.4-10 When determining which portion of a facility site should be retained in open space, give emphasis to the preservation of habitat areas and linkages, avoiding destruction of viable, sensitive habitat areas and linkages as a trade-off for preserving open space for purely aesthetic purposes. Further, whenever feasible, avoid impacts and disturbances to individuals and species considered sensitive by jurisdictional agencies. This measure is 4.8-2 from the OBMP PEIR. 4.4-11 Require facility designs to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions. a. Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources. b. Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are pre-served in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources. c. Within habitats of plants listed by the CNDDB or CNPS as “special” or “of concern,” require that new facilities not result in a reduction in the number of these plants, if they are present. This measure is 4.8-4 from the OBMP PEIR.	

Table 1.5-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES DISCUSSED IN THIS DRAFT SEIR

Environmental Category / Issue	Impact Description	Mitigation Measures	Impact After Mitigation
Biological Resources / Land Use & Planning (continued)		4.4-12 Maximize the preservation of individual oak, sycamore and walnut trees within proposed development sites. This measure is 4.8-4 from the OBMP PEIR. 4.4-13 Prohibit the use of motorized vehicles within sensitive habitat areas and linkages except for crucial maintenance and/or construction activities. This measure is 4.8-5 from the OBMP PEIR. 4.4-14 Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource. This measure is 4.8-6 from the OBMP PEIR.	

CHAPTER 2 – INTRODUCTION

2.1 BACKGROUND

The Inland Empire Utilities Agency (IEUA or Agency) serves as the State Water Contractor for the Chino Basin, provides industrial/municipal wastewater collection and treatment and other related utility services for the western portion of the Santa Ana River watershed in the southwestern-most portion of San Bernardino County. Current services provided or programs supported by IEUA also include: production of recycled water; sewage collection and treatment; distribution of imported and recycled water supplies; co-composting of manure and municipal biosolids; desalinization of groundwater supplies; renewable energy generation; and disposal of non-reclaimable industrial wastewater and brine.

In July 2000, the IEUA certified a Program Environmental Impact Report (PEIR) for the Optimum Basin Management Program (OBMP), which was based on the Peace I Agreement between stakeholders in the Chino Groundwater Basin. The OBMP addresses water quality and water supply issues in the Chino Groundwater Basin (Basin) and provides a framework for developing a cooperative groundwater management program among agencies and stakeholders which use, manage or regulate water resources in the Basin as required under the Peace I Agreement approved by the Court in 2000. The OBMP consists of recommended studies, programs and facilities to further the objective of developing cost-effective, reliable, potable water supplies for the long-term while enhancing and protecting the yield and quality of the Basin groundwater aquifers and downstream uses. A detailed discussion of OBMP program goals and accomplishments over the past eight years of implementation is provided in Chapter 3 of this document, the Project Description. The OBMP is still in the process of being implemented by IEUA, Watermaster and Basin stakeholders.

The PEIR provides a baseline and cumulative environmental evaluation and environmental findings for the activities envisioned under the OBMP. It is important to note that the OBMP is an integrated program which collectively relies upon implementation of all of the program elements to achieve the Program's objectives. For example, proposed groundwater extraction and treatment activities in the southern portion of the Basin must be balanced by recharge activities in the upper portions of the Basin. This balance is required to ensure that the recharge of imported water, stormwater and recycled water in the Basin will be offset over time through gradual removal of salts; that safe yield can be maintained; and that water demand can be met for all water consumers within the Basin.

While the OBMP continues to be implemented, the OBMP PEIR is now nine years old and determining consistency of specific projects with the PEIR in accordance with Section 15162 and 15163 of the State California Environmental Quality Act (CEQA) Guidelines has become more difficult to achieve. Thus, IEUA, the Chino Basin Watermaster and stakeholders have made a decision to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original Peace I Agreement, which enabled the implementation of the OBMP. This update is termed the "Peace II Agreement." The Peace II Agreement, approved by the Court on December 21, 2007, redefines the future programs and actions required to implement the OBMP, based on the past nine years of experience and accomplishments in implementing the OBMP.

The following is a brief summary description of the activities proposed by the Peace II Agreement being evaluated in this Draft Subsequent Environmental Impact Report (DSEIR).

Watermaster and the parties to the Judgment have been working to develop changes to the original Peace I Agreement that, among other things, provide for Re-Operation and the attainment of hydraulic control for the Chino Groundwater Basin. “Hydraulic control” is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. “Re-Operation” means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030. Both of these program components, desalter expansion and Re-operation are required to achieve hydraulic control and would be achieved through expansion of the desalter program from its current approximate 27,000 afy of production and additional groundwater extractions throughout in the Basin.

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 afy and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin.

Expansion of the desalter program would be accomplished with the installation and operation of a new well field, referred to as the Chino Creek Well Field (CCWF). The actual capacity of the CCWF will be determined during the design of the well field, but the available groundwater data estimates the capacity of this well field could range from about 5,000 afy to 7,700 afy. Groundwater produced at the CCWF will be conveyed to Desalter I. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The volume of groundwater pumped at existing Desalter I wells 13, 14, and 15 and presently conveyed to Desalter I will be reduced to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 afy to about 21,000 afy, which corresponds to the raw water pumping requirement of 11,800 afy expanding to 23,900 afy. The difference between potable water production and raw water pumped consists of the reject water that is discharged through the Santa Ana Regional Interceptor (SARI) line to the treatment facility in Orange County. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting to Desalter I wells 13, 14, and 15.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are unknown at this time.

The expansion of storage and recovery programs such as the Dry Year Yield Programs, if not sensitive to the needs of hydraulic control, could cause groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The proposed project will be analyzed with storage programs up to 150,000 acre-ft, utilizing various storage and recovery strategies.

In addition to those issues discussed above, a number of environmental circumstances or conditions in the Basin have changed since the original OBMP evaluation. These changes in environmental circumstances contributed to the determination to evaluate some of the effects on the environment of the Peace II Agreement project in a DSEIR. These circumstances include changes in the regulatory framework or regulatory requirements (water quality, air quality, biological resources), changes in the required and available recharge capacity (hydrology) and changes in the reliability of State Project water (hydrology) for import into the Chino Basin. The potential for the Peace II Agreement to adversely impact the environment in light of these changed circumstances will also be analyzed herein.

2.2 PURPOSE AND USE OF AN EIR

CEQA was adopted to assist with the goal of maintaining the quality of the environment for the people of the State. Compliance with CEQA, and its implementing State CEQA Guidelines, requires that an agency making a decision on a project must consider its potential environmental effects/impacts before granting an approval. Further, the state adopted a policy "that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." Thus, an agency, in this case the IEUA, must examine feasible alternatives and identify feasible mitigation measures as part of the environmental review process. CEQA also states "that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof." (§ 21002, Public Resources Code)

When applied to a specific project, such as the Peace II Agreement programs and activities, the reviewing agency is required to identify the potential environmental impacts of the project and, where potential significant impacts are identified, must determine whether there are feasible mitigation measures or alternatives that can be implemented to avoid or substantially lessen significant environmental effects of a project.

Section 15162 of the State CEQA Guidelines states: (a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless that lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or Negative Declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternatives; or

(D) Mitigation measures or alternatives previously which are considerably different from hose analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Section 15163 requires a supplement to an EIR in the following circumstances:

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if;

(1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and

(2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

An additional test that may be used to determine whether a revised project, such as the Peace II Agreement under the OBMP, falls within the scope of a certified EIR is to determine whether new circumstances or reassessment of previously identified impacts may result in new significant impacts. As the text in Section 15162(a) indicates, “no subsequent EIR shall be prepared for that project unless that lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:” (Paraphrases of the State CEQA Guidelines follow)

1. Substantial changes in the project that may cause new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken and which may result in new significant environmental effects or substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance shows the project will have one or more significant effects not previously discussed. (See specific project description)

As mentioned previously, IEUA, the Chino Basin Watermaster and stakeholders have decided to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original OBMP/Peace I Agreement, termed the "Peace II Agreement." The IEUA will serve as the Lead Agency under CEQA and will coordinate the preparation of the appropriate CEQA document that will evaluate the potential significant environmental impacts that may result from implementing the Peace II Agreement, including Re-Operation, desalter expansion and associated hydraulic control, within its service area. An Initial Study was prepared for the proposed project by IEUA which identified the potentially significant environmental impacts of the project and determined that a focused DSEIR was the appropriate document to analyze the potentially significant impacts associated with the Peace II Agreement programs and activities.

The DSEIR will also serve to update the Optimum Basin Management Program, Program Environmental Impact Report (OBMP PEIR) that was certified by IEUA in 2000. As is permitted by Section 15150 of the State CEQA Guidelines, the IEUA incorporated the certified PEIR for the Optimum Basin Management Program (SCH #2000041047, July 12, 2000) as part of the Initial Study. The PEIR is thereby incorporated by reference into this DSEIR. The required summaries of the pertinent data for all issues are provided in the DSEIR evaluation in Chapter 4 or in the Initial Study, which is attached as Section 8.1 to this document. Copies of the PEIR are available at the Inland Empire Utilities Agency office at 6075 Kimball Avenue in Chino, California for review upon request.

Based on the information in the Initial Study, the IEUA concluded that potential impacts associated with implementation of this project were less than significant or could be mitigated to a less than significant level with implementation of mitigation measures provided for all issues evaluated except; ***Air Quality, Biological Resources, Geology and Soils, Hydrology and Water Quality, Land Use and Planning and Utilities and Service Systems.*** Note that Land Use/Planning has been combined with Biological Resources (Subchapter 4.4) because the only land use or planning issue of concern is potential conflict between the project and adopted habitat conservation plans.

Similarly, the only Geology and Soil issues that were not resolved or mitigated to a level of non-significance were issues related to potential impacts associated with liquefaction or subsidence. These issues will be addressed in the Hydrology and Water Quality section (Subchapter 4.3) of the DSEIR in conjunction with the discussion of the project's potential to cause changes in groundwater levels that could cause or contribute to liquefaction or subsidence. The only Utilities and Service Systems' outstanding issue concerns the SARI line's transport capacity and treatment capacity at the Orange County treatment facility. As this issue is closely tied to water quality, it is addressed in the Hydrology and Water Quality section (Subchapter 4.3) of the DSEIR.

Impacts associated with the above referenced issues were determined to have the potential to result in significant adverse impacts to the environment based on the preliminary analysis. Therefore, these issues will be the topics evaluated in the DSEIR for this project.

The IEUA prepared and circulated a Notice of Preparation (NOP) for the proposed project. The detailed Initial Study with substantiation was attached to the NOP to assist reviewers in providing comments on the scope of the DSEIR. The NOP review period began on February 24, 2009 and ended 30 days later, March 25, 2009. Respondents were requested to send their suggestions for and comments on environmental information and issues that should be addressed in the DSEIR no later than thirty days after receipt of the NOP. The NOP, along with the Initial Study, was distributed to interested agencies, the State Clearinghouse, and other parties of interest. A scoping meeting was conducted for this project on March 11, 2009 in the IEUA Board Room from 6:00 p.m. to 7:30 p.m.

No comments were provided at the scoping meeting. Six letter responses to the NOP were received during the response period. Two of the letters were received from the California Department of Fish and Game, and those comments and responses are addressed in Letter Five. Copies of the NOP and six letters are included in Section 8.2 of this document, respectively. A summary of issues and responses to the comments raised are provided in the following section.

As previously indicated, this DSEIR has been prepared to address the issues identified above and provide an informational document intended for use by the IEUA, interested and responsible agencies and parties, and the general public in evaluating the potential environmental effects of implementing this project. Technical documents relied upon for the analyses are provided in the appendices in Volume 2 of this DSEIR. Air quality emissions forecast was provided by JE Compliance Services, Inc.; hydrology and water quality analyses were provided by Wildermuth Environmental; and biological analysis was provided by Tom Dodson & Associates. As noted above, a copy of the Initial Study is provided in Chapter 8, Section 8.1, and copies the NOP and comment letters is provided Section 8.2 of this DSEIR.

CEQA requires that the IEUA, the CEQA Lead Agency, consider the environmental information in the project record, including this DSEIR, prior to making a decision on the proposed project. The decision that will be considered by the IEUA is whether to approve the Project for implementation, or to reject the proposed project. To restate, this DSEIR evaluates the following environmental effects: ***Air Quality, Biological Resources/Land Use/Planning and Hydrology and Water Quality/Geology and Soils/Utilities and Service Systems.*** The IEUA will serve as the CEQA Lead Agency pursuant to the State CEQA Guidelines Section 15015(b)(1). This DSEIR has been prepared by Tom Dodson & Associates (TDA) under contract to the IEUA. TDA was retained to assist the IEUA to perform the independent review of the project required by CEQA before the DSEIR is released. The IEUA has reviewed the content of the DSEIR and concurs in the conclusions and findings contained herein.

2.2.1 Summary of Responses to the NOP

The following is a summary of the content of the comment letters submitted in response to the NOP and the IEUA responses:

■ **Comment Letter #1 from the County of San Bernardino Department of Public Works, February 26, 2009**

The Department notes that the discussion under stormwater facilities addresses temporary adverse impacts to stormwater facilities during construction of the proposed project. The Department requests clarification in the DSEIR as to whether the proposed project would require the construction of new or the expansion of existing stormwater drainage facilities.

Response: *The issue of flood hazards and increases in stormwater runoff were identified in the Initial Study for consideration in this DSEIR. The primary issue of concern identified in the Initial Study is exposure of future water infrastructure facilities to flood hazards. To address this issue, the evaluation in the Hydrology subchapter of Chapter 4 evaluates the Federal Emergency Management Agency (FEMA) Flood Information Rate Area maps that apply to the project area.*

In most instances, the future water infrastructure facilities will not increase storm runoff from project locations. For example, pipelines are typically installed within existing paved roadways where the existing ground surface is already impervious. Thus, installation of the pipelines would not alter future runoff, and no modification of stormwater drainage facilities would result from installing such facilities. However, there is a possibility that future Peace II facilities may increase runoff and require modification of existing stormwater drainage facilities. This issue is given more in depth evaluation in the discussion of flood hazards, and mitigation is identified to address those future instances where Peace II projects increase runoff and may require modifications to existing downstream stormwater drainage facilities.

■ **Comment Letter #2 from the Native American Heritage Commission, March 5, 2009**

The California Native American Heritage Commission (NAHC) summarized its responsibilities under state law to identify and protect historic resources and identified a standard list of concerns regarding archaeological resources and Native American religious or sacred sites, including unknown buried resources. The NAHC provided guidelines for identifying and preserving such resources if encountered. A list of Native American contacts was also provided.

Response: *Detailed cultural resource surveys will be required for future project activities as identified in mitigation measures V-1 through V-7 in the Initial Study. As stated in mitigation measure V-5, "*Before any projects are located, and before any construction activities begin, any proposed project that will result in ground disturbance to any area that does not have a complete cultural resource survey on record with either the AIC or the EIC offices will conduct a site specific cultural resource evaluation and report prior to any ground breaking activity." *This measure and the other aforementioned measures establish specific performance standards for* *future inventory, assessment, monitoring, data recovery, project siting and mitigation. IEUA determined in the Initial Study that no significant adverse impacts to cultural resources will occur with implementation of mitigation measures V-1 through VI-7.*

- **Comment Letter #3 from California Department of Public Health, March 23, 2009**

Comment 1: California Department of Public Health (CDPH) states that it is responsible for issuing water supply permits administered under the Safe Drinking Water Program and funds various loan and grant programs for drinking water related infrastructure projects. As such, CDPH would be considered a "responsible agency" if IEUA requests any permits and/or funding from CDPH for Peace II.

Response 1: Your comment is noted. CDPH will be included in the list of responsible agencies, with clarification that it would become a responsible agency if IEUA requests any permits and/or funding from CDPH for Peace II.

Comment 2: CDPH summarizes a Proposition 50 Grant Application received from IEUA entitled <u>Chino Desalter Phase III Expansion</u> dated November 15, 2007. CDPH notes that the Peace II Project description includes many aspects described in the Chino Desalter Phase III Expansion, but Peace II does not include specific details and locations. CDPH indicates that a specific well(s), pipeline(s), treatment design and other associated infrastructure components will need to be evaluated in an environmental document prior to securing any funding agreement or permit from CDPH.

Response 2: CDPH is accurate in its understanding that the Peace II EIR is intended to address broad scope impacts while specific projects would be addressed through future CEQA documents when they are considered. Any future specific infrastructure would be evaluated in a site specific environmental document, which would be provided to CDPH.

- **Comment Letter #4 from the Department of Toxic Substances Control, March 24, 2009**

Comment 1: Department of Toxic Substances Control (DTSC) commented that the information provided in the Initial Study regarding the Stringfellow perchlorate plume was not accurate. DTSC provided a link to their draft Remedial Investigation Report dated March 17, 2009.

Response 1: Thank you for the information. The Stringfellow summary in the Project Description has been revised based upon the information provided in the link as well as the information in the DTSC May 2008 Stringfellow Superfund Site Project Update Fact Sheet.

Comment 2: DTSC indicates that Figure 6 of the Initial Study (Appendix 1 to this document), a map depicting groundwater contamination plumes, does not include the perchlorate plume. DTSC also suggests that the Figure should not portray TCE concentrations below the Maximum Contaminant Level of 5ug/L. References to maps with the current extent of the plumes and contamination levels are provided.

Response 2: *Thank you for the information. The map has been modified to include the perchlorate data. However, for planning purposes we are retaining the contours for VOC values of less than 5 ug/L, which show water quality anomaly data to the lowest level that has been measured. These data indicate areas that may experience VOC levels above the MCL in the future, and we believe it is appropriate to retain contours below the MCL because this more detailed information can assist water agencies to understand the direction of plume travel and its proximity to their wells.*

Comment 3: DTSC commented that the information provided in the Initial Study regarding the Stringfellow perchlorate plume was not accurate and suggested alternative language based upon information in the draft Remedial Investigation Report dated March 17, 2009.

Response 3: *Thank you for the information. The Stringfellow summary in the Project Description has been revised based upon the information provided in the comment letter, the Remedial Investigation Report and the May 2008 Stringfellow Superfund Site Project Update Fact Sheet.*

- **Comment Letter #5 from the California Department of Fish and Game, March 24, 2009**

Comment 1: The California Department of Fish and Game (CDFG) summarized the proposed project and stated its position as a Trustee Agency for fish and wildlife resources and as a Responsible Agency regarding discretionary actions.

Response 1: *Thank you for the comment. It will be provided to the decision makers.*

Comment 2: CDFG indicates that the project has a potential to impact numerous sensitive plant and animal species and that focused surveys for sensitive species, following State and/or Federal protocols when available, should be conducted at the appropriate time of year by a qualified biologist and botanist. CDFG states that the results of the surveys should be included in the DSEIR, and that any impacts should be evaluated and mitigated. CDFG states that impacts to sensitive species is considered a significant impact under CEQA and requires avoidance, minimization and mitigation measures to reduce impacts to a less than significant level.

Response 2: *The DSEIR is intended as a broad scope analysis of the potential impacts of the project. The project description does not include specific locations of potential future projects related to Peace II. Any future specific projects would be evaluated in a site specific environmental document when it is* *considered. Mitigation is incorporated into the DSEIR that outlines specific performance standards for surveys conducted on future Peace II related projects and identifies thresholds (performance standards) for reducing impacts to sensitive species.*

Comment 3: DFG states that because of the potential for this project to have significant environmental impacts on sensitive fauna resources, including State and/or Federally-listed threatened or endangered species, the DSEIR should include an alternative analysis which focuses on environmental resources and measure to avoid, minimize and compensate significant impacts.

Response 3: Please refer to Chapter 5 for the alternatives analysis.

Comment 4: CDFG recommends updated biological studies be conducted prior to environmental or discretionary approvals and states the minimum standards for acceptable survey and report preparation, including potential mitigation measures.

Response 4: Updated biological studies will be conducted prior to environmental or discretionary approvals for site specific projects. The Peace II DSEIR is an analysis of broad impacts from project implementation, but as specific locations for infrastructure have not been selected, site specific biological surveys have not yet been conducted. This DSEIR provides an overview of the potential impacts of the Peace II project and includes mitigation measures that establish IEUA's minimum standards for acceptable biological survey and report preparation and establishes impact thresholds for sensitive species and habitat above which IEUA will require future Peace II project's to implement mitigation measures as well as performance standards for possible future mitigation.

Comment 5: CDFG recommends that the DSEIR include a thorough discussion of direct, indirect and cumulative impacts of the Peace II project. CDFG requests that Peace II impacts be analyzed relative to off-site habitats, including riparian ecosystems and corridor/movement areas.

Response 5: Please refer to Chapter 6 for an analysis of the potential cumulative impacts of the project. Potential direct and indirect impacts are also evaluated in the appropriate Sections of Chapter 4.

Comment 6: CDFG requests alternatives be considered including options that would avoid or minimize impacts to sensitive biological resources. CDFG considers Rare Natural Communities as threatened habitats with regional and local significance that should be avoided or protected from project-related impacts. Where unavoidable impacts to biological resources will occur, off-site compensation through acquisition and protection of high-quality habitat should be addressed. CDFG does not support relocation, salvage and/or transplantation as mitigation as these efforts are largely unsuccessful.

Response 6: *Your comments are noted and will be provided to the decisions makers. Please also refer to the responses for Comments 3 and 4. Section 2 of Chapter 4 discusses any Rare Natural Communities that may be impacted by the project.*

Comment 7: CDFG states that a California Endangered Species Act (CESA) Incidental Take Permit is required if the project has the potential to result in the "take" of a species listed under CESA. The environmental document must provide sufficient information with respect to impacts to listed species and a mitigation monitoring and reporting program in order for CDFG to rely on the document for its CESA permit.

Response 7: *A CESA Take Permit will be procured if any Peace II related project has the potential to result in the "take" of a listed species. Your comments as to the information required from an environmental document for reliance of the CESA permit are noted and will be provided to the decisions makers.*

Comment 8: CDFG opposes the elimination watercourses and/or conversion to subsurface drains. All wetland and watercourses should be retained with substantial setbacks to preserve the biological value. Impacts to natural flow or the bed, bank or channel of a stream requires a Lake and Streambed Alteration Agreement. The environmental document must provide sufficient information with respect to impacts to watercourses in order for CDFG to rely on the document for its Streambed Alteration Agreement.

Response 8: *Your comments are noted and will be provided to the decisions makers.*

Comment 9: CDFG requests that the DSEIR analyze the hydrologic impacts of the Peace II project on riparian and riparian transitional habitats and species supported by these habitats. *This comment was received in a separate letter sent by CDFG.*

Response 9: *Please refer to Sections 2 and 3 of Chapter 4 for discussion of the potential hydrological impacts of the project on riparian and riparian transitional habitats and species supported by these habitats. This issue will be dealt with in the cumulative impacts section.*

Note that the State Clearinghouse distributed the NOP to state agencies and assigned the project tracking number SCH#2009021104.

2.2.2 List of Issues Found to be Less Than Significant, or Less Than Significant With Mitigation Incorporated

The Initial Study evaluated all CEQA issues contained in the latest Initial Study Checklist form. The evaluation determined that either no impact or less than significant impacts would be associated with the issues of: Aesthetics, Agricultural Resources, Cultural Resources, most Geology and Soil Issues, Hazards and Hazardous Materials, Land Use and Planning (except MSHCP Issues), Mineral Resources, Noise, Population and Housing, Public Services, Recreation, Transportation, and Utilities and Service Systems (except adequate water supply and brine treatment capacity).

Extensive mitigation was brought forward into this Initial Study from the OBMP PEIR and some new measures were proposed to reduce impacts for most of these issues to a less than significant impact level. These issues were analyzed in the Initial Study (Section 8.1) and were found to be less than significant or less than significant with mitigation incorporated and, therefore, do not require further analysis in this DSEIR.

2.2.3 Areas Remaining Significant

The following issues were determined to be potentially significant and unavoidable with implementation of the proposed project:

Air Quality, Biological Resources, Geology and Soils (liquefaction and subsidence), Hydrology and Water Quality, Land Use Planning (biological resource planning), Utilities and Service Systems (adequacy of water supplies and brine treatment capacity) and cumulative impacts where the proposed project's contributions to such impacts are considered to be cumulatively considerable.

As mentioned previously, the only Land Use and Planning issue that remains to be resolved is with respect to the MSHCP. As this is a biological resource/land use planning issue, it is combined into the discussion of Biological Resources. Similarly, the only Geology and Soil issues that were not resolved or mitigated to a level of non-significance were issues related to potential impacts associated with liquefaction or subsidence. These issues are addressed in the Hydrology and Water Quality section of the DSEIR in conjunction with the discussion of the project's potential to cause changes in groundwater levels that could cause liquefaction or subsidence. The outstanding Utilities and Service Systems issues concern SARI line brine transport capacity, treatment capacity at the Orange County treatment plant, and existing water supply entitlements and water resource sufficiency. As these issues are closely tied to water quality, they will be addressed in the Hydrology and Water Quality section of the DSEIR. These environmental issues will all be addressed in the DSEIR.

2.2.4 Issues to be Resolved

The specific environmental issues/topics analyzed in this focused DSEIR are the potential impacts to ***Air Quality, Biological Resources/Land Use/Planning and Hydrology and Water Quality/Geology and Soils/Utilities and Service Systems.***

2.2.5 Areas of Any Controversy

Six comment letters were received during the NOP review period. These were letters from a variety of agencies and one County Department. Other than these potential areas of controversy (presented in Subchapter 2.2.1 above), the IEUA has not been made aware through any means, that there is potential for controversy due to project approval or implementation beyond those identified in the comment letters and the summaries previously presented.

2.3 SCOPE AND CONTENT OF THIS EIR

In accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the IEUA prepared an Initial Study to identify the environmental resources and manmade systems that could experience significant environmental impact if the proposed project is implemented. After applying mitigation measures, IEUA's Initial Study concluded that potential impacts associated with 9 of the 15 issues evaluated would be less than significant adverse impacts if the project is implemented as proposed. Refer to the discussion in Section 2.2.2.

Six issues were identified as having the potential to cause significant adverse environmental impacts. The specific environmental issues/topics analyzed in this focused DSEIR are the potential impacts to ***Air Quality, Biological Resources/Land Use/Planning and Hydrology and Water Quality/Geology and Soils/Utilities and Service Systems.*** Refer to Sections 2.2.3 and 2.2.4.

Comments on the scope of the DSEIR (refer to Section 2.2.1) were considered by the IEUA and after this consideration, the overall focus of the DSEIR remains the same as identified in the Initial Study and Notice of Preparation.

In addition to evaluating the environmental issues listed above, this DSEIR contains all of the sections mandated by the CEQA and State and City CEQA Guidelines. Table 2.3-1 provides a listing of the contents required in an EIR along with a reference to the chapter and page number where these issues can be reviewed in the document. The page number referenced is the beginning page of the chapter in which the topic is discussed. This Draft EIR is contained in two volumes. Volume 1 contains the CEQA mandated sections and some essential appendices, and Volume 2 contains the technical appendices.

Table 2.3-1
REQUIRED EIR CONTENTS

Required Section (CEQA)	Section in EIR	Page Number
Table of Contents (Section 15122)	same	ii
Summary (Section 15123)	Chapter 1	1-1
Project Description (Section 15124)	Chapter 3	3-1
Environmental Setting (Section 15125)	Chapter 4	4-1

Required Section (CEQA)	Section in EIR	Page Number
Significant Environmental Effects of Proposed Project (Section 15126a); Environmental Impacts	Chapter 4	4-1
Unavoidable Significant Environmental Effects (Section 15126b)	Chapter 4	4-1
Mitigation Measures (Section 15126c)	Chapter 4	4-1
Cumulative Impacts (Section 15130)	Chapter 4	4-1
Alternatives to the Proposed Action (Section 15126d)	Chapter 5	5-1
Growth-Inducing Impacts (Section 15126g)	Chapter 6	6-1
Irreversible Environmental Changes (Section 15126f)	Chapter 6	6-1
Effects Found Not to be Significant (Section 15128)	Chapter 2 & 8	2-1
Organizations and Persons Consulted (Section 15129)	Chapter 7	7-1
Appendices	Chapter 8	8-1

2.4 DRAFT EIR FORMAT AND ORGANIZATION

This DSEIR contains eight chapters in Volume 1 and a set of technical appendices in Volume 2 which, when considered as a whole, provide the reviewer with an evaluation of the potential significant adverse environmental impacts from implementing the proposed Peace II Project. The following paragraphs provide a summary of the content of each chapter of this DSEIR.

Chapter 1 contains the Executive Summary for the EIR. This includes an overview of the proposed project and a tabular summary of the potential adverse impacts and mitigation measures.

Chapter 2 provides the reviewer with an Introduction to the document. This chapter of the document describes the background of the proposed project, its purpose, and its organization. The CEQA process to date is summarized and the scope of the DSEIR is identified. Technical evaluations prepared for the DSEIR are discussed and the format and availability of the DSEIR are provided.

Chapter 3 contains the Project Description used to forecast environmental impacts. This chapter describes for the reviewer how the existing environment will be altered by the proposed project. This chapter sets the stage for conducting the environmental impact forecasts contained in the next several chapters.

Chapter 4 presents the environmental impact forecasts for the issues considered in this DSEIR. For each of the environmental issues identified in Section 2.3, the following impact evaluation is provided for the reviewer: the project's existing environmental setting; the potential impacts forecast to occur if the project is implemented; proposed mitigation measures; unavoidable adverse impacts; and cumulative impacts.

Chapter 5 contains the evaluation of alternatives to the proposed project. Included in this section is an analysis of the no project alternative and other project alternatives.

Chapter 6 presents the topical issues that are required in an EIR. These include: any significant irreversible environmental changes; and growth inducing effects of the project. As of January 1, 1995, the assessment of short-term benefits relative to long-term impacts is no longer required because it is considered redundant to other sections in an EIR. This change was adopted as part of SB 749 (Thompson) which became law in January 1995.

Chapter 7 describes the resources used in preparing this DSEIR. This includes persons and organizations contacted; list of preparers; and bibliography.

Chapter 8 contains those materials referenced as essential appendices to the DSEIR, such as the Initial Study and Notice of Preparation. Technical Appendices are provided in Volume 2 of the DSEIR, under separate cover. All Appendix material is referenced at appropriate locations in the text of the DSEIR.

2.5 AVAILABILITY OF THE IEUA PEACE II DSEIR

The DSEIR for this project has been distributed directly to all public agencies and interested persons identified in the NOP mailing list (see Section 8.2, Chapter 8) and the State Clearinghouse, as well as any other requesting agencies or individuals. All reviewers will be provided 45 days to review the DSEIR and submit comments to the IEUA for consideration and response. The DSEIR is also available for public review at the following locations during the 45-day review period:

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, California 91708

Ontario City Library
215 East "C" Street
Ontario, California 91764

2.6 IEUA REVIEW PROCESS

After receiving comments on the DSEIR, the IEUA will prepare a Final SEIR for certification by the IEUA Board prior to making a decision on the project. Information concerning the DSEIR public review schedule and IEUA meetings for this project can be obtained by contacting:

Inland Empire Utilities Agency
Mr. Ryan Shaw, Project Manager
6075 Kimball Avenue
Chino, California 91708
(909) 993-1600
RShaw@ieua.org

Implementation of future individual project(s) to support the Peace II Agreement programs may require a variety of approvals from other agency future actions (where required) for which this environmental document may be utilized. The following summarizes those agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds, so it should not be considered exhaustive.

- Future site-specific projects may be enacted by Peace II Stakeholders. This DSEIR and subsequent environmental documents may be reviewed by each City or Stakeholder as part of the review process for future Peace II related projects.

- California Department of Public Health (CDPH) is responsible for issuing water supply permits administered under the Safe Drinking Water Program and funds various loan and grant programs for drinking water related infrastructure projects. As such, CDPH would be considered a "responsible agency" if IEUA or other stakeholders request any permits and/or funding from CDPH for Peace II.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Board enforces the BMP requirements contained in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor under contract to IEUA or a stakeholder agency, with the Regional Board providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of "waters of the United States" and stream beds of the State of California. Regulatory permits to allow these fill and/or alteration activities will be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Game (CDFG). A Section 404 permit for the discharge of fill material into "waters of the United States" will be required from the ACOE; a Section 401 Water Quality Certification will be required from the Regional Board; and a 1600 Streambed Alteration Agreement will be required from the CDFG.

- The U.S. Fish and Wildlife Service (USFWS) and CDFG will be consulted regarding threatened and endangered species documented to occur within the area of potential effect for future individual projects.

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as BNSF Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

This is considered to be a partial list of other permitting agencies for future Peace II Agreement future individual projects.

CHAPTER 3 – PROJECT DESCRIPTION

All Chapter 3 figures are located at the end of this chapter, not immediately following their reference in text.

3.1 INTRODUCTION

This chapter contains a detailed description of the proposed project, the Peace II Agreement, with focus on those characteristics and activities that can cause physical changes in the environment. As discussed in Chapter 2, the project description focuses on the activities and facilities of the proposed Peace II Agreement program that would be implemented if the proposed project is approved.

Relying on data contained in the Initial Study, the IEUA determined that development and operation of the facilities allowed by implementation of Peace II Agreement projects could result in significant adverse impacts to the physical environment for six environmental issues: Air Quality, Biological Resources/Land Use and Planning, and Hydrology and Water Quality/Geology and Soils/ Utilities and Service Systems.

Land Use/Planning was combined with Biological Resources while Geology/Soils and Utilities and Service Systems were combined with Hydrology and Water Quality because the issues of concern under these sections are nearly identical. After review of all comment letters submitted in response to the Notice of Preparation, the scope of the Draft Subsequent Environmental Impact Report (DSEIR) remains unchanged. Thus, this DSEIR has been prepared to address the physical changes to the environment authorized by project approval relative to these six environmental issues that the IEUA, Chino Basin Watermaster and stakeholders would implement, if the proposed project is approved. The IEUA will serve as the Lead Agency for purposes of complying with the California Environmental Quality Act (CEQA) and the Chino Basin Watermaster and stakeholders of the Peace II Agreement and regulatory agencies that will function as CEQA Responsible Agencies will have the option of relying upon the certified Final SEIR for any action they take in support of the proposed project.

3.2 PROJECT LOCATION

The Optimum Basin Management Program (OBMP), which was based on the Peace I Agreement in the Chino Groundwater Basin, focuses on management actions within the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset in Figure 3-1. Figure 3-1 illustrates the boundary of the Chino Groundwater Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.* Figure 3-1 also shows the Regional Water Quality Control Board, Santa Ana Region (Regional Board) management zones as established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the San Gabriel foothills to about 500 feet near Prado Dam. The Chino Basin is bounded as follows:

- on the north by the San Gabriel Mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills and the Pedley Hills;
- on the south by the La Sierra area, the Santa Ana River and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Pomona and Claremont Basins.

The principal drainage course for the Basin is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam and flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: San Antonio Creek, Chino Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Figure 3-2 for the location of drainages.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, the passage of Pacific storm fronts that typically occur from October through April. IEUA discharges year-round flows of approximately 10 million gallons per day (MGD) to Chino Creek (from Carbon Canyon RWRF) and of approximately 30 MGD to Cucamonga Channel (from Regional Plants No. 1 and No. 4 (RP-1 and RP-4). The actual volume of discharges varies seasonally and is expected to attenuated in the future by a combination of water conservation measures being implemented by water users and through diversion of flows for delivery as recycled water to future users that can utilize this source of water, including landscape irrigation, industrial operations, and recharge into the Chino Basin groundwater aquifer.

At the present time, year-round flow occurs along the entire reach of the Santa Ana River in the Basin, partially due to year-round surface inflows at Riverside Narrows (upstream wastewater reclamation facility discharges), discharges from municipal water reclamation facilities that intercept the Santa Ana River between the Narrows and Prado Dam, and rising groundwater. Rising groundwater occurs in Chino Creek, in the Santa Ana River at Prado Dam, and potentially at other locations on the Santa Ana River, depending on climate and season.

The Chino Basin is mapped within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps.

<u>Groundwater Management Zones</u>
While still considered to be a single basin, the Chino Groundwater Basin has been divided into five management zones in the OBMP (Management Zones 1 through 5) based upon Basin hydrologic characteristics, and into four Management Zones (Chino North, Chino East, Chino South and the Prado Basin Management Zones) for water quality management purposes in the Basin Plan. Please refer to Figure 3-1 for a graphic of the management zones according to these two systems.

The five management zones described in the OBMP are based on the observation of five distinct groundwater flow systems that are characterized by similar hydrologic characteristics, which allow the potential for each region to be individually managed (OBMP Phase I Report, Section 2-3). The water resource management activities that occur in each flow system have little to no impact on the other systems. These management zones are used to characterize the groundwater level, storage, production, and water quality conditions within the Chino Basin. The Basin boundary and the five management zones are not intended to represent absolute barriers or isolation mechanisms, rather these divisions have been made based on observed flow characteristics and general patterns that can be interpolated from existing groundwater data. The groundwater flow, shown in Figure 3-3, is the basis from which observations were made to establish the management zone boundaries.

Water in Management Zone 1 (MZ-1) flows generally to the south, with some localized flows to the west in response to groundwater production. Sources of water to MZ-1 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in spreading basins, and subsurface inflow from the Pomona, Claremont Heights and Cucamonga Basins. Discharge is through groundwater production and as rising groundwater in Chino Creek and the Santa Ana River upstream of Prado Dam.

Water in Management Zone 2 (MZ-2) flows generally in a southwesterly direction in the northern half of the zone, and then it flows due south in the southern half of the zone. Sources of water to MZ-2 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in the spreading basins, and subsurface inflow from the part of the Rialto Basin northwest of Barrier J and the Cucamonga Basin. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater at Prado Dam.

Water in Management Zone 3 (MZ-3) flows primarily in a southwesterly direction. Sources of water include direct percolation of precipitation, returns from irrigation, and subsurface inflow from the part of the Rialto Basin southeast of Barrier J. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater at Prado Dam.

Water in Management Zone 4 (MZ-4) flows in a westerly direction. Sources of water to MZ-4 include direct percolation of precipitation, and returns from irrigation. Discharge is through groundwater production.

Water in Management Zone 5 (MZ-5) has sources of water including streambed percolation of the Santa Ana River, direct percolation of precipitation, returns from irrigation and subsurface inflow from the Temescal Basin. Discharge is through groundwater production, consumptive use by phreatophytes (plants with roots tapped into the groundwater table or soil just above it) and rising groundwater at Prado Dam.

In the OBMP PEIR, the Chino Groundwater Basin was identified as one of the largest groundwater basins in southern California, containing about 5,000,000 acre-feet (acre-ft) of groundwater in storage, with an additional, unused storage capacity of about 1,000,000 acre-ft (Department of Water Resources Bulletin 118, “California Groundwater Basins”). More recent data published by Wildermuth Environmental, Inc. (WEI, 2008) indicates that storage capacity of the Basin may by 6,000,000 acre-ft, based on the Basin being deeper in the west than previously believed. Cities and other water supply entities produce groundwater for all or part of their municipal and industrial supplies from the Chino Basin. Agricultural users also produce groundwater from the Basin, but irrigated agriculture has declined substantially in recent years and is projected to be only 5,000 acre-ft per year by 2020.

3.3 OBMP CHARACTERISTICS

In order to ensure a continuing water supply for the long-term beneficial use of all Watermaster stakeholders, an OBMP consisting of two phases was developed for implementation. Phase I of the OBMP consisted of defining the state of the Chino Groundwater Basin, establishing goals concerning major issues identified by stakeholders, and affirming a management plan for the achievement of said goals. Phase I also provided a process that facilitated periodic reviews, public comments, and necessary updates.

Section 2 of the OBMP Phase I Report included the identification of the physical state of the Chino Groundwater Basin, the predicted future water demands, and the determination of problematic issues associated with the management of the Chino Groundwater Basin.

Section 3 of the OBMP Phase I Report established the goals of the OBMP. A mission statement combined with a listing of values, issues, needs and interests deemed important by stakeholders was also contained within this section of the OBMP. The mission statement for the OBMP is as follows:

> *The purpose of the Optimum Basin Management Program is to develop a groundwater management program that enhances the safe yield[1] and the water quality of the basin, enabling all groundwater users to produce water from the Basin in a cost-effective manner.*
>
> [1] Defined in Section 3.3.1 of this document.

Section 4 of the OBMP Phase I Report described the Management Program and Program Elements for implementation under the OBMP.

Phase II of the OBMP was defined in the OBMP PEIR as the development of the specific implementation plans that allow for the physical construction, operation, management and monitoring of OBMP facilities. This Phase consisted of a series of Memoranda of Agreements, Technical Memoranda, Facility Reports, Policy Documents, and development of Water Supply Plans, Recharge Master Plans, Joint Powers Authority Agreements, Safe Yield and other related documents that were to be completed during implementation of the OBMP over the 20-year planning period as defined in the PEIR. When complete, these documents either do or will provide detailed plans for the implementation of Program Elements and the achievement of OBMP Goals listed below. Collectively these documents are designed to facilitate successful implementation of Phase II of the OBMP. It is intended that the OBMP be flexible enough that changes in future demands, and situations, can be dealt with through program adjustments, as necessary.

The OBMP is being implemented pursuant to the Judgment and a 1998 ruling of the Court in its exercise of continuing jurisdiction over the Judgment. The original Peace I Agreement, which enabled the implementation of the OBMP, was completed and approved by the Court in 2000. Watermaster and the parties to the Judgment have been working to develop changes to the adopted Peace I Agreement that, among other things, provide for the expansion of the desalter program to about 40,000 acre-ft/yr of desalter groundwater production, Re-Operation and attainment of hydraulic control (defined in Section 3.3.1 of this document.) The Peace II Agreement was approved by the Court on December 21, 2007 (Court Order). The original

OBMP environmental review assumed the desalter program would be expanded to 40,000 acre-ft/yr; however, it did not define all of the additional facilities and Basin management modifications that would be required to achieve the Peace II Agreement objectives.

3.3.1 Definition of Terms

To understand the Peace II Agreement the following terms need to be defined.

Replenishment: Replenishment Water is defined by the Judgment, as "Supplemental water used to recharge the Basin pursuant to the Physical Solution, either directly by percolating the water into the Basin or indirectly by delivering the water for use in lieu of production and use of safe yield or Operating Safe Yield." Thus, replenishment is defined by the Watermaster, and in this document, as water that is put into the ground specifically to mitigate overproduction pursuant to the Chino Basin Judgment. Note that the term “recharge” is a broader term that encompasses the total capacity to percolate stormwater, imported water and recycled water back into the Basin groundwater aquifer. Other potential sources of recharge are agricultural return flows and local irrigation precipitation within urban/suburban areas.

Hydraulic Control: “Hydraulic control” is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair (degrade water quality) the beneficial uses of the Santa Ana River downstream of Prado Dam, which are defined by the Regional Board. Achieving hydraulic control also maximizes the safe yield of the Chino Basin. Two reports by WEI, prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b). Without hydraulic control, IEUA and could have to cease the use of recycled water in the Chino Basin (due to constraints imposed by the Regional Board through the 2004 Basin Plan Amendment) and will have to mitigate the effects of using recycled water back to the adoption of the Basin Plan Amendment, which is December 2004. Please refer to Program Element 7 of this document for a more detailed discussion of the 2004 Basin Plan Amendment.

Re-Operation: “Re-Operation” means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030 with the 400,000 acre-ft increase allocated specifically to the meet the replenishment obligation of the desalters. According to the Watermaster, desalters in the Chino Basin are without a permanent water right. Therefore, any water pumped by the desalters is subject to a replenishment obligation. So far the stakeholders have come up with water that has been committed to meeting this obligation. At the point when all allocated waters are gone, the Chino Desalter Authority (CDA) will be obligated to pay for all production through a replenishment assessment from Watermaster. Previous investigations (WEI 2006, 2006a and November 2007) have shown that Re-Operation is required to achieve hydraulic control.

Maximum Benefit Objectives: “Maximum benefit” water quality objectives were established for the Chino Basin in the 2004 Basin Plan Amendment and apply if specific objectives identified in the Basin Plan Amendment are met that ensure that antidegradation requirements are satisfied. The agencies recommending maximum benefit objectives had to demonstrate that beneficial uses would continue to be protected and that water quality consistent with maximum benefit to the people of the State would be maintained. If these objectives are not met, the Regional Board can require that the agencies revert to complying with the stricter antidegradation water quality objectives. Please refer to Program Element 7 of this document for a more detailed discussion of the maximum benefit requirement in the 2004 Basin Plan Amendment.

Assimilative Capacity: Assimilative Capacity is the capacity of a natural body of water (lake, river, sea, etc.) to receive wastewaters or toxic materials without deleterious effects and without damage to aquatic life or humans who inhabit, rely upon or consume the water.

New Yield: Water available within the Basin as a result of water management strategies that was not available prior to the Peace Agreement. For example, if stormwater that would have left the Basin as runoff is managed so that it percolates into the Basin, this is considered to be new yield. Another potential source of new yield includes new inflow from the Santa Ana River that is forecast to result from achieving hydraulic control of the Basin. This includes both reduction in rising water and capture of a limited volume of surface water in the Santa Ana that is induced to percolate into the Chino Basin upstream of Prado Dam.

Safe Yield: As with the first Peace Agreement, implementation of Peace II is intrinsically tied to understanding and maintaining the safe yield of the Basin. Simply stated, "safe yield" of a groundwater basin is defined as "the amount of water which can be withdrawn from it annually without producing an undesired result." (Todd 1967) The safe yield of the Chino Basin was established in the 1978 Judgment to be 140,000 acre-ft/year. The basis for this estimate is described by William J. Carroll in his testimony on December 19 and 20, 1977, during the adjudication process. The calculation considers the total amount of recharge: boundary inflows, recharge from streams or creeks, supplemental recharge (imported or recycled water), stormwater recharge and areal recharge (deep percolation of precipitation and applied water), as well as the total amount of discharge: evapotranspiration, discharge to streams and creeks and groundwater pumping. Carroll's safe yield determination was based on the following equation: *safe yield = average extraction + average change in storage*

Watermaster, pursuant to the Peace II Agreement, will estimate the safe yield in 2011 (for 2010) and every ten years thereafter (Peace II Agreement, Exhibit B, page 45). The year 2010/11 was selected in the Peace II Agreement as it is the first year that Watermaster believes it will have at least ten years of good concurrent estimates of groundwater pumping and groundwater levels from which it can estimate safe yield. However, at the request of Watermaster, WEI prepared the *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description* to evaluate the potential impacts to the groundwater system from implementing the Peace II Agreement. Based on this investigation, the safe yield calculation referenced above was modified to the following:

safe yield = (total extraction – total replenishment + change in storage) / Δt

3.3.2 Peace II Agreement Alternatives

Two alternatives were investigated in the final analysis of the Peace II process. These alternatives were developed from the Peace II Project Description as of October 17, 2007, described in the Response to Condition Subsequent No. 7 Final Report (WEI, November 2008) and include the following:

Baseline Alternative – Expansion of Desalter Capacity and the 100,000 acre-ft Dry Year Yield (DYY) Program. Desalter groundwater production would increase from the current level of about 27,000 acre-ft/year (2006/07) to the full capacity of the existing desalters at about 40,000 acre-ft/yr. This corresponds to an expansion of the "product water" capacity of about 24.2 million gallons per day (MGD) to about 33.2 MGD. Product water is the term used to refer to the processed water ready to be delivered to its intended users after desalting or other treatment. This alternative includes the existing 100,000 acre-ft Dry Year Yield (DYY) Program. This alternative will serve as the baseline as it is currently authorized and is representative of what would occur without the adoption of the Peace II Agreement programs.

Alternative 1 – Expansion of the Desalters, Re-Operation, and the 100,000 acre-ft DYY Program. As with the Baseline Alternative, Alternative 1 includes an increase in desalter groundwater production from the current level of about 28,000 acre-ft/yr (2006/07) to the full capacity of the existing desalters at about 40,000 acre-ft/yr. Again, this corresponds to an expansion of the product water capacity of about 24.2 MGD to about 33.2 MGD. In contrast to the Baseline Alternative, Re-Operation would occur as part of Alternative 1 wherein up to 400,000 acre-ft of the desalter replenishment obligation would be met by reductions in ground-water storage. This alternative, like the Baseline Alternative, includes the existing 100,000 acre-ft DYY Program.

As stated previously, investigations (WEI 2006, 2006a and November 2007) have shown that Re-Operation is required to achieve hydraulic control. Achieving hydraulic control requires that the groundwater level in the southern portion of the Basin be lowered sufficiently through strategic pumping to allow groundwater flow to reverse and thereby prevent outflow from the Basin. One of the consequences of reducing groundwater levels in the Chino Basin is that rather than rising groundwater flowing from the Chino Basin into the Santa Ana River and downstream through Prado Dam, as is constrained by the 2004 Basin Plan Amendment, water from the Santa Ana River will be induced to flow into the newly lowered Chino Basin, constituting new yield. This projected new yield from the Santa Ana River includes both a reduction in groundwater discharge from the Chino Basin to the Santa Ana River and the new induced recharge of the Basin from the Santa Ana River.

Table 3-1
INITIAL CORRECTED SCHEDULE UPDATED TO SHOW DESALTER REPLENISHMENT ACCOUNTING AND SANTA ANA RIVER INFLOW FROM 2000/01 – 2029/30, SHORTFALL DEDUCTED FROM THE NON-WMWD RE-OPERATION ACCOUNT[1]

(acre-ft)

Fiscal Year	Desalter Produciton	New Yield[2]	Desalter Replenishment				Residual Replenishment Obligation
				Re-Operation			
			Desalter (aka Kaiser) Account	Replenishment Allocation for Peace II Desalter Expansion	Replenishment Allocation to Pre-Peace II Desalters CDA	Balance	
2001	7,989	0	3,995	0	0	0	3,995
2002	9,458	0	4,729	0	0	0	4,729
2003	10,439	0	5,220	0	0	0	5,220
2004	10,605	0	5,303	0	0	0	5,303
2005	9,854	0	4,927	0	0	0	4,927
2006	16,476	0	11,579	0	0	400,000	4,897
2007	26,356	0	608	0	25,748	374,252	0
2008	26,356	0	0	0	26,356	347,896	0
2009	26,356	0	0	0	55,426	292,470	-29,070
2010	26,356	0	0	0	26,356	266,114	0
2011	28,965	0	0	0	28,965	237,149	0
2012	31,574	75	0	0	31,500	205,649	0
2013	34,182	442	0	5,000	28,740	171,909	0
2014	36,791	962	0	10,000	1,909	160,000	23,920
2015	39,320	1,629	0	10,000	0	150,000	27,691
2016	39,320	2,255	0	10,000	0	140,000	27,065
2017	39,320	2,771	0	10,000	0	130,000	26,549
2018	39,320	3,275	0	10,000	0	120,000	26,045
2019	39,320	3,767	0	10,000	0	110,000	25,553
2020	39,320	4,283	0	10,000	0	100,000	25,037
2021	39,320	4,764	0	10,000	0	90,000	24,556
2022	39,320	5,198	0	10,000	0	80,000	24,122
2023	39,320	5,570	0	10,000	0	70,000	23,750
2024	39,320	5,854	0	10,000	0	60,000	23,466
2025	39,320	5,959	0	10,000	0	50,000	23,361
2026	39,320	5,834	0	10,000	0	40,000	23,486
2027	39,320	5,698	0	10,000	0	30,000	23,622
2028	39,320	5,546	0	10,000	0	20,000	23,774
2029	39,320	5,479	0	10,000	0	10,000	23,841
2030	39,320	5,594	0	10,000	0	0	23,726
Totals	930,877	74,953	36,360	175,000	225,000		419,565

1. Source: WEI, Response to Condition Subsequent Number 7, November 2008

2. Note that the new yield projection shown above relates only to the storage reduction caused by the use of the re-operation water listed in this schedule. There was over 60,000 acre-ft of additional storage reduction that occurred during 2000/01 and 2005/06 that is not reflected in the new yield schedule. In the near future, Watermaster will determine the additional new yield created by the pre-Peace II reductions in storage and will include a new schedule for yield.

Source: Wildermuth Environmental, Inc. "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report)", November 2009

Alternative 1 assumes the rapid depletion of the 400,000 acre-ft of water that is made available through Re-Operation. However, this alternative assumes that the new yield from the Santa Ana River corresponds to the calculated new yield from the Santa Ana River that was derived during the modeling process. The new yield calculation required iterating several times with the model until the assumed new yield from the Santa Ana River closely approximated the model calculated yield. **Peace II would implement Alternative 1.**

The planning data for the Baseline Alternative was input to the groundwater model and simulated from 2005/06 through 2059/60. Interpretation of the model results suggests that the safe yield of the Basin could decline in the future from the currently used value of 140,000 acre-ft/yr to about 120,000 acre-ft/yr at the end of the planning period (2030). This model allows for a projection of safe yield and replenishment obligation as they change over time.

The decline in the projected safe yield is due to reductions in the deep percolation of applied water and precipitation and a reduction in stormwater recharge. The reduction in recharge is caused by historical and projected changes in land use, concrete lining of stream channels, and associated water use patterns from the conversion of agricultural and vacant land uses to urban uses through 2025. Changes in future climate may also play a role in decline of projected safe yield, but this issue is considered speculative since the climate forecast models are not accurate enough to identify specific climate changes for southern California at this time. Groundwater recharge may occur through a number of methods including improvements to recharge basins, use of aquifer storage and recovery (ASR) wells and Low Impact Development methods that could be used to increase percolation in developed environments.

IEUA, Watermaster and other stakeholders recently (November 2009) approved an expansion of the DYY Program (from 100,000 acre-feet to 150,000 acre-feet). Discussions were held with the Watermaster and WEI regarding the scope of modeling to ensure that the existing modeling included this additional 50,000 acre-feet of conjunctive use within the Basin. It was determined that the modeling already includes a previous commitment to 100,000 acre-feet of conjunctive use allocated to the Metropolitan Water District of Southern California, which ensures that the additional 50,000 acre-feet of DYY Program storage and extraction activities are adequately addressed in the modeling. Based on this information, IEUA concluded that adequate cumulative impact analysis of conjunctive use activities within the Basin is provided in the WEI modeling effort, and additional modeling would not be required to address the recently expanded DYY Program.

3.3.3 OBMP Implementation to Date

The OBMP is implemented through nine Program Elements that are described in the OBMP Report (WEI, 1999) and that are contained in the implementation plan of the Peace I Agreement. These nine Program Elements were evaluated for potential environmental impacts in the OBMP PEIR adopted in 2000. Over the past nine years (2000 through 2008) the Watermaster and stakeholders have aggressively implemented individual projects under the Program Elements. In order to understand what progress has been made to date and to identify the additional level of effort required to implement the program elements, the following text provides a summary of OBMP accomplishments through 2008.

Program Element 1: Develop and Implement a Comprehensive Monitoring Program

The comprehensive monitoring program consists of monitoring activities that provide information required for the successful implementation of the other OBMP program elements. The comprehensive monitoring program includes groundwater–level monitoring; groundwater-quality monitoring; groundwater-production monitoring; surface water discharge and quality monitoring; land surface monitoring; and well construction, abandonment, and destruction monitoring.

Groundwater-Production Monitoring

Nearly all active wells in the Agricultural Pool (except for minimum user wells, which are defined as those extracting less than 10 acre-ft/year) are metered. Watermaster reads the production data from these meters on a quarterly basis. Watermaster also requests and collects production data from the Appropriative Pool (municipal) and Overlying Non-Agricultural Pool (industrial) users. Watermaster staff enters these data into Watermaster's relational database.

Groundwater Monitoring

Groundwater-Quality Monitoring. Watermaster obtains groundwater quality samples and data that are required for the triennial ambient water quality update mandated by the Basin Plan and for the Hydraulic Control Monitoring Program (HCMP), a maximum benefit requirement in the Basin Plan. These data are also used for the State of the Basin report and for periodic updates of the Chino Basin Groundwater Model. Groundwater quality data are also used to monitor non-point source groundwater contamination, to monitor plumes associated with point source discharges, and to assess the overall health of the groundwater basin.

Watermaster obtains the requisite data through several groundwater quality monitoring programs:

- **Key Well Monitoring Program**. Watermaster collects groundwater quality samples from a network of about 120 private wells in the southern portion of Chino Basin. About half of these wells are sampled in a given year; the remaining wells are sampled the following year, such that all wells in the Key Well Program are sampled every two years. Watermaster continually analyzes and revises the Key Well Program as private wells are abandoned and new constituents of concern are identified.

- **Chino Basin Data Collection (CBDC)**. Watermaster's program routinely and proactively collects groundwater quality data from municipal producers and other government agencies. Water quality data are also obtained from special studies and monitoring that takes place under the orders of the Regional Board (landfills, groundwater quality investigations), the California Department of Toxic Substances Control (Stringfellow NPL site), the US Geological Survey, and others.

- **Hydraulic Control Monitoring Program (HCMP)**. In January 2004, the Regional Board amended the 1995 Basin Plan for the Santa Ana River Basin to incorporate an updated total dissolved solids (TDS) and nitrogen (N) management plan. The Basin Plan Amendment includes both "antidegradation" and "maximum benefit" objectives for TDS and nitrate-nitrogen for the Chino and Cucamonga groundwater management zones. The application of the “maximum benefit” objectives relies on Watermaster and IEUA’s implementation of a specific program of projects and requirements, which are an integral part of the OBMP. Please refer to Program Element 7 of this document for a more detailed discussion of the 2004 Basin Plan Amendment requirements. On April 15, 2005, the Regional Board adopted resolution R8-2005-0064; thus approving the Surface Water Monitoring Program and Groundwater Monitoring Program in support of maximum benefit commitments in the Chino and Cucamonga Basins. Watermaster collects groundwater quality samples from nine sets of monitoring wells that are currently part of the HCMP. Watermaster is evaluating whether additional monitoring wells will be required to continue to determine if hydraulic control has been achieved.

- **As Needed Monitoring Programs**. Watermaster develops and executes other groundwater quality monitoring programs on an as-needed basis in order to assess and understand the health of the groundwater basin and to provide the necessary information to actively manage the basin to optimize supply and water quality. As an example, Watermaster has conducted a perchlorate isotope study to determine whether the source of widespread, generally low-concentration perchlorate is of synthetic or Chilean fertilizer in origin. Watermaster has also recently completed a groundwater quality study of MZ-3.

Watermaster conducts a quality assurance/quality control program prior to uploading data into Watermaster’s relational database management system. Watermaster has worked closely with the Appropriative Pool members and their state-certified laboratories in order to obtain water quality data as an electronic data deliverable, which, after additional QA/QC checks, are then entered directly into Watermaster’s database.

Groundwater Level Monitoring. Watermaster has three active groundwater level monitoring programs operating in the Chino Basin: (1) A semiannual Basin-wide well monitoring program; (2) a key well monitoring program associated with the Chino I/II Desalter well fields and the HCMP; and (3) a piezometric monitoring program associated with land subsidence and ground fissuring in MZ-1. The data collected from the first two programs are required for the triennial ambient water quality update mandated by the Basin Plan and for the HCMP. The data are also used for the State of the Basin report and for the Chino Basin Groundwater Model and computation of safe yield model updates. The frequency of groundwater level monitoring varies with each program, depending on the intended use of the data. Increasingly, Watermaster is installing pressure transducers/data loggers at key wells to collect groundwater-level data once every 15 minutes, which provides higher-quality and higher-resolution data and increases the usefulness of the data sets. The groundwater level monitoring programs also rely on municipal producers, other government agencies, and private entities to supply their groundwater level measurements on a cooperative basis. Watermaster digitizes all these measurements and combines them into a relational database.

<u>Surface Water Discharge and Quality Monitoring</u>

Water Quality and Quantity in Recharge Basins. Watermaster measures the quantity and quality of storm and supplemental water entering the recharge basins. Pressure transducers or staff gauges are used to measure water levels during recharge operations. In addition to these quantity measurements, imported water quality values for State Water Project water are obtained from Metropolitan and recycled water quality values for the RP1 and RP4 treatment plant effluents are obtained from IEUA. Watermaster monitors the stormwater quality in the eight major channels (San Antonio, West Cucamonga, Cucamonga, Deer Creek, Day Creek, San Sevaine, West Fontana, and DeClez) usually after each major storm event. Combining the measured flow data with the respective water quality characteristics enables the calculation of the blended water quality in each recharge basin, the "new yield" to the Chino Basin, and the adequate dilution of recycled water.

Surface Water Monitoring in Santa Ana River Component of the HCMP. As mandated in the Basin Plan, Watermaster measures the discharge and collects grab samples for water quality analyses at selected surface water stations on the Santa Ana River, Temescal Creek, Cucamonga Creek, Hole Lake, and certain Publically Owned Treatment Works. These data are used to determine those reaches of the Santa Ana River that are gaining or losing groundwater from the Chino Basin in an attempt to assess the extent of hydraulic control.

WEI has conducted an extensive scientific review of four years of data generated by the surface water component of the HCMP and has concluded that these data do not meaningfully add to the remaining body of data generated by the HCMP in supporting the objective of the program. Furthermore, Watermaster intends to expand the scope of the groundwater monitoring component of the HCMP. WEI's analysis concludes that the groundwater data (water quality and elevation), together with the Watermaster Groundwater Model are necessary and sufficient to demonstrate whether hydraulic control is attained or not; whereas the surface water monitoring in the Santa Ana River does not contribute to understanding the attainment of hydraulic control.

HCMP Annual Report. In partial fulfillment of maximum benefit commitments, Watermaster submits quarterly data reports to the Regional Board and completes the HCMP Annual Report and submits it to the Regional Board on April 15th each year. Key provisions of the Peace II agreement discussed in Program Elements 3, 5, 6 and 7 and evaluated in this document provide further information with respect to compliance with maximum benefit commitments.

Chino Basin Groundwater Recharge Program. The IEUA, Watermaster, Chino Basin Water Conservation District, and the San Bernardino County Flood Control District jointly sponsor the Chino Basin Groundwater Recharge Program. This is a comprehensive water supply program to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino Groundwater Basin by increasing the recharge of stormwater, imported water, and recycled water. The recharge program is regulated under Regional Board Order No. R8-2009-0057, and its related Monitoring and Reporting Program. Please refer to Figure 3-2 for locations of the recharge basins.

Watermaster and the IEUA collect weekly and bi-weekly water quality samples from basins that are actively recharging recycled water from lysimeters installed within those basins. Monitoring wells located down gradient of the recharge basins are sampled every two weeks during the reporting period for a total of about 100 samples. Please refer to Program Element 2 for more details on the Recharge Program.

Land Surface Monitoring

Because of the historical occurrence of pumping-induced land subsidence and ground fissuring, Watermaster developed a multifaceted land surface monitoring program to develop data for a long-term management plan for land subsidence in a part of MZ-1. Please refer to Figure 3-4.

From 2001-2005, Watermaster developed, coordinated, and conducted an Interim Monitoring Program (IMP) under the guidance of the MZ-1 Technical Committee composed of representatives from all major MZ-1 producers and their technical consultants. The IMP was an aquifer-system and land subsidence investigation focused in the southwestern region of MZ-1 that would support the development of a long-term management plan to minimize and abate subsidence and fissuring. The IMP involved the construction of highly-sophisticated monitoring facilities, such as deep borehole extensometers and piezometers, the monitoring of land surface displacements through dual traditional ground-level surveys and remote-sensing techniques, the detailed monitoring of the aquifer system with water-level-recording transducers installed at an array of production and monitoring wells, and the purposeful stressing of the aquifer system through multiple controlled pumping tests. The IMP provided the information to develop a management program for the managed MZ-1 area, as is discussed in more detail under Program Element 4.

The MZ-1 monitoring program continues with the scope and frequency of monitoring that was implemented during the IMP within the Managed Area, as identified in Figure 3-4. The monitoring program has been expanded to monitor the aquifer system and land subsidence in other areas of MZ-1 and Chino Basin where the IMP indicated concern for future subsidence and ground fissuring. Watermaster and the MZ-1 Technical Committee will further evaluate the contribution of pumping in the central and northern portions of MZ-1 on groundwater conditions, continue testing and monitoring to refine the Guidance Criteria, and monitor in detail horizontal strain across the historical fissure zone. Further discussion of the MZ-1 Management Program is provided in Program Element 4.

Summary

The monitoring programs have been established and ongoing monitoring is required to achieve the goals of the OBMP. Ongoing monitoring includes monitoring general groundwater levels, groundwater quality, inputs into the Basin, extractions from the Basin, and recycled water quality. Each recharge site that will receive recycled water will have lysimeters and a few monitoring wells near the recharge basin. Most of this monitoring equipment has already been installed, but IEUA will install additional monitoring infrastructure in the future as part of Peace II. This program element has been and continues to be implemented in a manner consistent with the original OBMP evaluation and is subject to compliance with the Regional Board and Department of Public Health permit conditions.

Program Element 2: Develop and Implement a Comprehensive Recharge Program

The Chino Basin Groundwater Recharge Program is a jointly sponsored comprehensive program designed to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino Groundwater Basin by increasing the recharge of stormwater, imported water, and recycled water. This element involves the planning, design, construction, and operation of groundwater recharge facilities, such as pipeline and channel turnouts, recharge basins, and system control and data acquisition (SCADA) systems. The original OBMP evaluation of recharge capacity was based upon the understanding at the time that the required capacity was forecast to range from about 63,000 to 88,000 acre-ft/yr.

The required recharge capacity is calculated based upon the need to maintain the Chino Groundwater Basin's operational safe yield. The *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description* prepared by WEI found that the safe yield could decline from the 140,000 acre-ft/yr determined in the Judgment to slightly less than 120,000 acre-ft/yr by 2059/60. This required an adjustment in the replenishment plan for the Baseline Alternative (described above). WEI estimated that the total required recharge capacity could be as much as 104,000 acre-ft/yr by 2019/20. This capacity could be accomplished with the recharge facilities that are currently available or will be available pursuant to the Chino Basin Facilities Improvement Project (CBFIP). No specific new recharge locations are identified in this document, but the cumulative effect of raising recharge to about 110,000 acre-ft/yr is considered (see following paragraphs). Follow-on environmental documentation will be prepared if new recharge facilities are proposed in the future.

Construction on the CBFIP Phase I was completed on December 31, 2005. A CBFIP Phase II list of projects was developed by Watermaster and the IEUA, including monitoring wells, lysimeters, recycled water connections, SCADA system expansions, one new and improvements to two Metropolitan turnouts, and berm heightening and hardening at several recharge basins. With the completion of the Phase II facilities in winter of 2009/10, the total recharge capacity is about 110,000 acre-ft assuming that the basins would be offline one month during every summer for maintenance. By the start of FY 2009/10, most of the spreading basins are used near year round to recharge combinations of storm, imported, and recycled water (rather than 9 months/year) with occasional downtime for infiltration rate restoration and maintenance, (e.g., silt and clay removal and control of algae). The total recharge capacity of the basins increases from 91,000 acre-ft/yr to about 145,800 acre-ft/yr by reducing the maintenance period from three months to one.

As part of the CBFIP improvements, 19 recharge sites were developed and/or modified to receive a combination of recycled water, imported water, and storm water. Of the 19 sites, only 14 are permitted to receive recycled water for groundwater recharge. Of the five not permitted, four are in too close proximity to potable water production wells, and one is used solely for storage and water transfer.

A total 16,150 lineal feet of new lateral pipeline was projected in the OBMP to be installed to support the recharge of recycled water at the 14 recharge sites. Pipeline infrastructure is permitted but not yet installed at the following basins: Victoria, San Sevaine, Lower Day, Declez and Etiwanda Debris Basins. The OBMP evaluated the potential impacts from implementing improvements and/or modifications to these basins and the recharge of up to 88,000 acre-ft /yr of recycled water, stormwater and State Water Project ("SWP"). A quantitative summary of actual recharge since implementation of the CBFIP improvements, as well as a long-term forecast for recharge within the Chino Basin is provided in Section 4.3, Hydrology and Water Quality.

The major drainage channels in the Chino Basin have previously been converted to concrete-lined storm channels. This channel lining effort occurred from the late-1950s and continued through the 1990s. Natural stormwater recharge declined following the channel linings and was reduced to negligible quantities by the year 2000 (WEI, 2007). The CBFIP basin system improvements have allowed for the capture and recharge stormwater. In general, lower volume storm flows are captured within the recharge basins, but the less frequent higher volume storm events cannot be entirely captured due to recharge basin storage volume limits. Further recharge basin enhancements to storage capacity would provide greater stormwater volume capture during the higher volume storms.

All the parties to Peace II understand that additional recharge facilities may be required in the future, but the types and locations of additional recharge facilities have not been identified at this time. Any additional recharge facilities will be analyzed in a future, second-tier, project-specific evaluation under CEQA. As noted above, this document examines the cumulative recharge of up to 145,800 acre-ft/yr as part of the Peace II project. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Because of the drought, Sacramento delta water quality, and endangered species issues, Metropolitan has been unable to meet previously committed deliveries of State Project water (SWP) to southern California since May 1, 2007. This restricts IEUA's ability to recharge recycled water, since the California Department of Public Health requires about two parts of diluent water (imported or stormwater) to be blended with each part of recycled water. Metropolitan previously projected that it would be able to provide the requested SWP water 70-80% of the time; however, Metropolitan recently reduced its projected ability to meet demand to 30% of the time. An evaluation of the recharge capacity and of water supplies in the context of the replenishment obligation that will result from implementation of the Peace II Agreement is provided in Section 4.3, Hydrology and Water Quality.

A more recent emphasis in stormwater recharge efforts has been increasing groundwater recharge through Low Impact Development (LID) methods. LID techniques capture storm flows on residential and commercial properties by directing stormwater to depressed locations within the property for percolation. This can be accomplished through the use of grass swales or other recessed landscaping features and through the use of permeable pavement or gravel in place of pavement. LID measures can be up to 100% effective at eliminating storm flows from a site and have been found to be less expensive than and aesthetically superior to traditional stormwater conveyance structures (Horner, 2008).

Traditional stormwater management has been shown to reduce groundwater recharge by about 50% (Horner, 2008). LID enabled groundwater recharge is recognized as one of the least energy intensive methods for supplementing water supplies, which has positive ramifications for both energy consumption and greenhouse gas emissions. Water quality permits, including the recent MS4 permits (Riverside County, RB-2010-0033 and San Bernardino County, RB-2010-0036) adopted by the Santa Ana Regional Water Quality Control Board, are beginning to require implementation of LID measures for new development (refer to Sections XII.D. and E and XI.D. and E. of the new permits, respectively), which could increase groundwater recharge in future developed environments without requiring further changes to existing recharge basins.

As one example of LID measures, IEUA is developing a “Pilot Incentive Rebate Program” to encourage the use of pervious concrete in the Chino Basin. The incentive would offset about 50% of the additional cost of installing pervious concrete versus traditional concrete. The pilot program would be marketed towards cities and community groups for commercial, industrial, residential or civic property with the expectation of selecting several sites to serve as demonstration areas. The outcome and information gathered from the pilot project would be used to develop a model pervious paving program to be made available for use by interested agencies. Estimates of the additional stormwater runoff percolated as a result of LID programs may be used as blending water to be credited as offset for recycled water.

Finally, achieving hydraulic control of the Basin, as required by the Judgment, may result in additional induced recharge from the Santa Ana River. As discussed in the Section 3.3.2, Peace II Agreement Alternatives, achieving hydraulic control requires that the groundwater level in the southern portion of the Basin be lowered sufficiently and pumped strategically to allow groundwater flow to reverse towards the new wells and thereby prevent outflow from the Basin.

One of the consequences of reducing groundwater levels in the Chino Basin is that rather than groundwater flowing from the Chino Basin into the Santa Ana River, which the 2004 Basin Plan Amendment seeks to eliminate, water from the Santa Ana River will be the induced to flow into the newly lowered Chino Basin. “*Santa Ana River recharge increases by about 18,000 acre-ft/yr over the planning period and the rising ground water to the Santa Ana River decreases by about 7,000 acre-ft/yr, netting an increase of about 25,000 acre-ft….The Santa Ana River recharge is project to increase by about 6,000 acre-ft/yr over the planning period with implementation of the Peace II Alternative (25,000 minus 19,000). In sum, the increased recharge into the Chino Basin from the Santa Ana River and the decrease in discharge to the Santa Ana River and evapotranspiration total about 63,000 acre-ft over the planning period.”* (WEI, 2009) Re-Operation is the controlled reduction of storage in the northern two-thirds of the Basin that is required to assure that hydraulic control will be robust.

Summary

All the parties to the Peace II Agreement understand that additional recharge facilities may be required in the future, but the type and location of facilities have not been identified at this time. Any additional recharge facilities will be analyzed in a subsequent CEQA evaluation. The change in the months of operation of recharge basins, the reliability of SWP and associated required OBMP recharge capacity, emphasis on LID methods and induced recharge from the Santa Ana River are changes from the original OBMP evaluation. Peace II will be evaluated in the context of these changes to determine the potential for Peace II projects to result in adverse physical impacts to the environment. Estimates of additional storage, pump stations, pipeline, and other facilities needed to accomplish increased recharge will be discussed in Chapter 4 of this DSEIR.

Program Element 3: Develop and Implement Water Supply Plan for the Impaired Areas of the Basin; and
Program Element 5: Develop and Implement Regional Supplemental Water Program

These elements have been combined since the plan is to expand the capacities of the Chino I and Chino II Desalters and their associated well fields so as to increase potable water supplies, maintain groundwater production in an area of rapid urbanization, and remediate legacy contaminant plumes. The desalter plant expansion will continue to discharge brine through the Santa Ana Regional Interceptor (SARI) and the Chino Basin Non-Reclaimable Water Line (NRWL), thereby removing salt from the Basin and enabling the recharge basins to accept recycled water.

The SARI and NRWL transport brine wastes out of the Basin for treatment and disposal to the ocean. They are a significant component of industrial waste management within the Basin and are essential for operation of desalters in the upper watersheds. The SARI line, owned by SAWPA, extends from the San Bernardino Area southwesterly to the Orange County Line near Prado Dam where it connects to the Orange County Sanitation District treatment facilities (OCSD). The NRWL, owned by IEUA, extends from the City of Fontana westerly to the Los Angeles County Sanitation District sewer system in the Pomona area.

The sources of supplemental water available to Watermaster are SWP water, purchased from Metropolitan, and recycled water, purchased from the IEUA. Recycled water comes from municipal wastewater treated at the existing treatments plants and does not require desalting as it meets Title 22 requirements and the Regional Board's discharge requirements. Water conserved through measures that increase efficiency and decrease waste also provide a source of supplemental water, as does treatment/desalinization of poor quality groundwater (desalting). The Chino Basin Desalters recover and treat impaired groundwater and deliver the treated, potable quality water to municipal water purveyors in the Chino Basin.

As discussed previously, Metropolitan has not always been able to deliver enough SWP to meet replenishment demand in the past and will likely have shortages of SWP water in the future. These shortages occur, in part, due to capacity limitations in the Rialto Reach of Metropolitan's Foothill feeder and from shortages of the SWP system itself. As noted above, previous studies found that SWP water would be available to provide the requested water 70-80% of the time. However, the drought, Sacramento delta water quality and endangered species issues, have resulted in Metropolitan reducing its projected ability to meet replenishment demand to 30% of the time.

Recycled Water

As of December 2009, the wastewater treatment plants in the IEUA service area were producing about 58 million gallons per day (67,760 acre-ft/yr) of recycled water. The 1969 Court Judgment requires IEUA with Western Municipal Water District to maintain a minimum discharge of 34,000 acre-feet/yr of recycled water to the Santa Ana River. Currently, the Santa Ana River base flow is approximately 120,000 acre-feet/yr (Santa Ana River Watermaster Annual Report, April, 2009). As IEUA expands recycled water infrastructure improvements that allow for increased consumption of recycled water for direct-use customers within the Basin and for groundwater recharge, discharge into the Santa Ana River is expected to decrease while still complying with the Judgment. The Santa Ana Watershed Project Authority (SAWPA) recently published a White Paper (WEI, 2010) on the current flows in the Santa Ana River and the finding that drought periods marginally affect the base flow at Prado Dam

IEUA's Recycled Water System Feasibility Study identifies five phases for implementing the system: Phase I, 2001-2003; Phase II, 2003 and 2004; Phase III, 2004-2006; Phase IV, 2006-

2010; and Phase V, 2010. Phases I through IV are complete and have resulted in the installation of pump stations with the capacity to deliver about 73,100 acre-ft/yr of recycled water and of new storage reservoirs with a capacity of 10 MG of storage. In 2007 IEUA adopted a Recycled Water Three Year Business Plan with an accelerated implementation plan that envisions installation of additional pipelines, pump stations and reservoirs in the North Etiwanda area, the area between the Cities of Rancho Cucamonga and Upland, in the City of Chino Hills and in Southwest Fontana. The business plan calls for two additional pump stations and four new storage reservoirs with a storage capacity of 20 million gallons.

Up to 400,000 LF of pipelines were identified for installation in support of the Recycled Water Management Plan through 2011. Currently, 165,000 LF of pipeline have been installed and up to 235,000 LF may be installed through 2020.

As of January 2010, the actual recycled water connected capacity within the Basin, including both direct users and groundwater recharge, was 32,226 acre-ft/yr with an additional 4,000 acre-ft/yr of capacity expected to be on-line by June 2010. The IEUA is on track to meet its goal to establish 46,000 acre-ft/yr of connected capacity by September of 2010 and maintains a goal of establishing 50,000 acre-ft/yr of connections by June of 2012, of which approximately 15,000 acre-ft/yr is expected to be groundwater recharge and 35,000 acre-ft/yr direct user connections. (WEI, 2010) Please refer to Figure 3-5 for a status map of the IEUA recycled water program. The balance between available recycled water and demand is discussed in Section 4.3, Hydrology and Water Quality. Table 3-2 provides a very general estimate of recycled water program projections.

Table 3-2
REGIONAL RECYCLED WATER PROGRAM THROUGH 2020*

Type of Usage	Current Connected Demand (AFY)	Short Term 2012 (AFY)	Ultimate Connected Demand (AFY)
Recharge	7,190	17,000	28,000
Landscape	9,291	12,000	51,000
Agricultural	14,535	19,500	7,000
Industrial	1,210	1,500	6,000
Total Connected Demand (AFY)	32,226	50,000	92,000

Water Conservation

Since 2002, water conservation efforts within the Chino Basin have resulted in the installation of over 159,686 water saving devices through rebate and distribution programs. The devices are estimated to save over 2,800 acre-ft/yr and will result in saving approximately 40,745 acre-ft over the life of the devices. Rebate and distribution programs have targeted residential, commercial, institutional, industrial, and public sector water users by providing incentives for the installation of high efficiency toilets, and washing machines, waterless urinals, weather based irrigation controllers, centralized computer irrigation controllers, water brooms, synthetic turf, turf removal, x-ray film processors, and conductivity controllers. Table 3-3 provides an annual breakdown of device installation and water savings. Water conservation programs have been advertised through utility bill inserts, multi-lingual newspapers, trade magazines, special events, direct mailings, banners, point of sale displays, radio and television public service announcements, school educational outreach programs and adult educational and training workshops. IEUA outreach programs in area schools have reached 110,544 students and 4,319 teachers between FY 2002/03 and 2007/08.

Table 3-3
ANNUAL BREAKDOWN OF WATER CONSERVATION DEVICE INSTALLATION AND WATER SAVINGS

	District Devices/ Rebates	Gallons Saved (year)	acre-ft Saved (year)	acre-ft Saved Over Lifetime of Device
FY 1994-2002	--	--	--	11,603
FY 2002-2003	6,164	111,082,834	341	4,319
FY 2003-2004	8,968	120,135,627	368.7	6,090
FY 2004-2005	8,354	103,635,008	318	5,742
FY 2005-2006	10,777	130,404,462	400.2	7,762
FY 2006-2007	12,944	191,739,852	588.4	10,266
FY 2007-2008	10,168	155,846,856	478.3	6,568
FY 2008-2009	8,985	309,581,960	963.1	12,376
Total	66,360	1,122,426,599	3,458	64,725

It is estimated that more than 60% of potable water consumption in the Chino Basin is for the benefit of irrigating landscaping. AB 1881 (Laird, 2006) requires city and county governments to establish a model landscape ordinance that meets or exceeds requirements defined by the California Department of Water Resources (DWR). A Final Regional Model Ordinance was endorsed by the Landscape Alliance Board in February 2009 to provide a model ordinance in compliance with AB 1881. The Landscape Model Ordinance is intended to reduce potable water consumption for landscape irrigation by some unquantifiable amount.

<u>Assembly Bill 1420</u>
Signed into law on October 13, 2007, and effective January 1, 2009, Assembly Bill 1420 (Laird/Feuer) makes award of all state water management grants and loans (including State Revolving Fund monies that support IEUA's regional recycled water program) contingent on compliance with the implementation of water demand management practices described in the Urban Water Management Planning (UWMP) Act.

<u>Senate Bill No. 7 Water Conservation (Part of the Comprehensive Water Package)</u>
SB 7 creates a framework for future planning and actions by urban and agricultural water suppliers to reduce California's water use. For the first time in California's history, this bill requires the development of agricultural water management plans and requires urban water agencies to reduce statewide per capita water consumption 20% by 2020.

<u>Desalters</u>

Construction on the Chino I Desalter Expansion and the Chino II Desalter facilities was completed in February 2006 and an application has been made for $1.6 M in Proposition 50 funds to add 8 MGD of ion exchange capacity to the Chino II Desalter, as is proposed in the project description herein. As currently configured, the Chino I Desalter provides 2.6 MGD of treated (air stripping for VOC removal) water from Wells Nos. 1-4, 4.9 MGD of treated (ion exchange for nitrate removal) water from Wells Nos. 5-15, and 6.7 MGD of treated (reverse osmosis for nitrate and TDS removal) water from Wells Nos. 5-15 for a total of 14.2 MGD (16,000 acre-ft/yr). The Chino II Desalter provides 4.0 MGD of ion exchange treated water and 6.0 MGD of reverse osmosis treated water from 8 additional wells for a total of 10.0 MGD (11,000 acre-ft/yr). Western Municipal Water District joined the CDA in December 2008 and will be a strategic partner in the expansion the Chino II Desalter by 10.5 MGD (10,600 acre-ft/yr) proposed herein. Raw water will be drawn from existing Chino II Desalter wells and, if needed, from new wells. In addition, a new Chino Creek Well Field, required to achieve hydraulic control, will provide additional raw water to the Chino I Desalter, enabling existing Desalter Well Nos. 13, 14, and 15 to shift production to the expanded Chino II Desalter facility if necessary. Please refer to the Section 3.4 of this document for further details.

Summary

The original OBMP environmental review assumed the desalter program would be expanded to 40,000 acre-ft/yr. *As noted above, the volume of potable water presently being produced by Chino Desalters I and II is approximately 27,000 acre-ft/yr, and the remaining 13,000 acre-ft/yr of potable water generation will be evaluated in this document in the context of the current Basin groundwater setting.* ***The proposed facilities required to meet the increase in Desalter production will be evaluated in this environmental document at a general, not site specific level, as specific locations for these facilities have not been identified.***

The balance between available recycled water and demand will be discussed in Chapter 4 of this DSEIR. Conservation devices installed as of 2008 have resulted in approximately 40,745 acre-ft of potable water saved over lifetime of devices. *The details of additional infrastructure required to support the above programs are described to the extent feasible in the Section 3.4 of this DSEIR, and the potential impacts from installation and operation of these facilities will be evaluated in Chapter 4 of this DSEIR. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.*

Program Element 4: Develop and Implement a Comprehensive Groundwater Management Plan for Management Zone 1

Because of the historical occurrence of pumping-induced land subsidence and ground fissuring in southwestern Chino Basin (southern MZ-1), the OBMP called for the development and implementation of an interim management plan for MZ-1 that would:

- Minimize subsidence and fissuring in the short-term.
- Collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring.
- Formulate a management plan to reduce to tolerable levels or abate future subsidence and fissuring.

As discussed under Program Element 1, Watermaster developed, coordinated, and conducted an Interim Monitoring Program of the aquifer-system and a land subsidence investigation was focused in the southwestern region of MZ-1 that would support the development of a long-term management plan to minimize and abate subsidence and fissuring. The investigation methods, results, and conclusions are described in detail in the MZ-1 Summary Report (WEI, February 2006). The investigation provided enough information for Watermaster to develop guidance criteria for the MZ-1 producers in the area of concern that, if followed, would minimize the potential for land subsidence and fissuring during the completion of the MZ-1 Long-term Management Plan (MZ-1 Plan). The MZ-1 Summary Report and the guidance criteria were adopted by the Watermaster Board in May 2006. The guidance criteria formed the basis for the MZ-1 Long-term Management Plan, which was approved by Watermaster in October 2007. The Court approved the MZ-1 Plan in November 2007 and ordered its implementation.

A comprehensive data collection program is ongoing that collects both groundwater-level data and land-subsidence data in MZ-1, where the most concern exists about land subsidence and ground fissuring (refer to Figure 3-4). The land-subsidence monitoring data suggests that current rates of permanent land subsidence are very low within MZ-1 and across the entire Chino Basin. All the data collected and analyzed during the IMP indicate that since the early 1990s there has been very little permanent subsidence in the Southeast Area (east of Ayala Park) and minor but persistent permanent subsidence in the Northeast Area. In MZ-1, the decline in the rate of permanent subsidence is attributed to decreased pumping and increased recharge. Recharge includes both wet water, referring to water that is literally recharged in the area, and in-lieu recharge, referring to water that is not pumped from the ground because surface water or other transfers are consumed in-lieu of the groundwater. The implementation of the MZ-1 Plan also has provided the MZ-1 pumpers with criteria to manage their groundwater levels without causing additional permanent land subsidence. Ongoing program management includes development of alternative pumping plans for the MZ-1 producers impacted by the MZ-1 Plan.

Summary

This program element has been and continues to be implemented in a manner consistent with the original OBMP evaluation. No additional specific facilities have been identified that require evaluation in this DSEIR.

Program Element 6: Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management; and
Program Element 7: Develop and Implement a Salt Management Program

Program Element 6 has evolved into a cooperative effort with the Regional Board, Santa Ana Region, to investigate and/or remediate the legacy plumes found in the Chino Basin. There are a number of known water quality plumes within the Chino Basin. The major plumes currently being investigated are the VOC plume south of Ontario International Airport, the Kaiser plume, the Stringfellow perchlorate plume, and the Chino Airport plume. Remedial efforts are currently underway at the GE Flat Iron plume, the GE Test Cell plume, Milliken Sanitary Landfill and the Stringfellow Site. A request for No Further Action is pending for the PCE Plume at the California Institute for Men. Summaries for several of these plumes are presented below. Others, such as Crown Coach, Pomona, and area landfill plumes, also contribute to Basin contamination and the effects of implementing the Peace II programs on these plumes will be evaluated in the DSEIR. Please refer to Figure 3-6 for a map of plume locations and contaminants updated in April of 2009.

<u>Chino Airport Plume</u> The Chino Airport, managed by the San Bernardino County Department of Airports (SBCDA), occupies about 895 acres is located approximately four miles east of the City of Chino and six miles south of Ontario International Airport. Past and present operations at the site have included the modification of military aircraft; crop-dusting; aircraft-engine repair; aircraft painting, stripping, and washing; dispensing of fire-retardant chemicals to fight forest fires; and general aircraft maintenance. Groundwater quality investigations dating to the 1980's revealed the presence of VOCs above maximum contaminant levels (MCLs) in six wells down gradient of Chino Airport (WEI 2008b). The plume is extends approximately 14,200 feet from the airport's northern boundary in a south to southwestern direction and is up to 3,600 feet wide (WEI 2008b).

The consulting engineer for the SBCDA successfully characterized the horizontal extent of TCE contamination, and submitted a work plan on December 10, 2007 to determine the vertical extent of contamination. Their work plan calls for installing 3 wells up to 300' in depth along the plume axis; to be followed by two wells ranging in depth from 100'-200' in order to sample the highest TCE concentrations. The SBCDA proposed to construct the wells in April 2008. Watermaster met with RWQCB and SBCDA to discuss joint remediation of the VOC plume from the airport. Watermaster agreed to provide a database containing well construction information, water quality, water levels and production for wells located southwest of the Chino airport. In addition, Watermaster provided results from sampling all the wells at this location to provide up-to-date analytical data on all the possible contaminants in these wells. Analysis and remediation design are on-going.

The general location of the Chino Creek Well Field proposed as part of Peace II has been selected in order to achieve hydraulic control. The expected location of the wells would intercept the Chino Airport VOC plume. The presence of the plume would cause additional costs relative to operation of the well field without the presence of the plume. Recovery of the contaminated water would allow for treatment of the water and proper disposal of the contaminants, but it has yet to be determined who will be responsible for the increased costs caused by the plume.

<u>Ontario International Airport (OIA) Plume</u> A VOC plume, primarily containing TCE, extends from about State Route 60 south of the Ontario Airport approximately 20,450 feet and is up to 17,700 feet wide (WEI, 2008b). The Potentially Responsible Parties (PRPs) have been working with Watermaster to quantify the depth and extent of the TCE plume. Watermaster provided water quality, water level and well construction data from more than 400 private wells and 200 public wells to the Regional Board, and thereby the PRPs. The PRPs submitted a Work Plan in May

2007 for installing and sampling four groundwater monitoring wells, with two wells down gradient of the OIA and two wells down gradient of the Milliken Landfill. Watermaster and the Regional Board approved the Work Plan; and the PRPs began drilling their monitoring wells in March 2008.

Stringfellow Plume A plume of contaminated ground water has migrated southerly approximately 4 miles from the Stringfellow site at 3450 Pyrite Street in Riverside to near the Santa Ana River. DTSC indicates that most contaminants are stopped within the first 3,000 feet of the plume extent, near the 60 Freeway. The site-related contaminants that are detected in the southern portion of the plume are trichloroethylene (TCE), chloroform and perchlorate. There are only a few remaining locations where the TCE contamination exceeds the maximum contaminant levels allowed in drinking water.

DTSC indicates that remediation efforts include approximately 80 extraction wells and 400 monitoring wells throughout the plume and that the extraction wells have effectively reduced plume migration. Water extracted by the wells removed contaminants through treatment facilities and the effluent from the facilities is tested and discharged to the SARI for further treatment by Orange County Water District.

DTSC is investigating the perchlorate plume discovered in 2001 that extends toward the Santa Ana River. Study has found that the plume does not enter the River, but rather a portion of it biologically degrades into harmless constituents and the remaining portion joins the groundwater flow and concentration drops below the maximum concentration level of 6 micrograms per liter for potable water. To eliminate the potential for human exposure to the plume through water wells, DTSC provided bottled water to residents with private wells upon the discovery of the perchlorate plume and worked with Jurupa Community Services District to provide municipal water service to the potentially impacted areas. Remediation efforts have reduced the perchlorate contamination concentration levels by 30-50%.

The DTSC May 2008 Fact Sheet indicates that the State is planning to replace the existing Stringfellow Pre-Treatment Plant with a modern treatment plant capable of remediating new and emerging contaminants by 2013.

Kaiser Steel Fontana Steel Plume The Kaiser Steel Corporation steel manufacturing facility in Fontana discharged brine wastewater to surface holding ponds from which it was allowed to percolate into the soil operation between 1945-1974 (WEI 2008b.) Groundwater sampling since 1983 indicates that inorganic dissolved solids and low molecular weight organic compounds are the major contaminants of the plume, which had migrated almost entirely off the Kaiser site by 1991 (WEI 2008b.) Based on limited samples, the plume is estimated to extend about 17,500 feet from northeast to southwest and is up to 3,400 feet wide (WEI 2008b.)

The former Kaiser plume has been incorporated into an overall monitoring program for the MZ-3 area. The MZ-3 monitoring program is also assessing the groundwater quality impairment from TDS, nitrate, and perchlorate. The perchlorate may have originated from the Mid-Valley Landfill (in Rialto Basin, across the Rialto-Colton fault) or it may be a non-point source that resulted from the historical application of Chilean fertilizer. Four rounds of quarterly samples have been collected from 22 wells, including former Kaiser wells that Watermaster previously renovated: MP2 and KOFS. The MP2 cluster of wells (four depths) was in the heart of the Kaiser plume when the well was constructed; while KOFS was just beyond the leading edge of the plume. MP2 continues to show an impact from the Kaiser plume and the KOFS well is now impacted. Based on the analytical results, two new monitoring wells were constructed in fiscal year 2007-08 and conducted a quarterly groundwater monitoring program.

General Electric's Flat Iron Facility The General Electric (GE) Flatiron Facility occupied the site at 234 East Main Street in Ontario from the early 1900s to 1982 after which it was converted to an industrial park. Groundwater sampling since 1987, when the plume was discovered, has indicated that VOCs and total dissolved chromium are the major groundwater contaminants. The plume is up to 3,400 feet wide and extends about 9,000 feet south-southwest from the southern border of the site (WEI 2008b).

Watermaster continues to monitor the activities of General Electric's (GE) remediation at the Flat Iron facility and their efforts to develop a new location for recharge of their treated effluent. Currently, GE discharges their effluent into the Ely Basins, where it percolates back into the groundwater aquifer. However, this operation limits Watermaster's ability to recharge recycled water into the Ely Basins and Watermaster has asked that GE develop alternative disposal means. GE conducted a screening of options and is pursuing construction of groundwater injection wells that would be operated in conjunction with their own recharge basin.

GE Test Cell Facility The GE Engine Cell Facility is located at 1923 East Avon in Ontario. Groundwater and soil sampling since 1991 has indicated that VOCs exist in the soil and groundwater beneath the Facility and have migrated offsite. The plume extends approximately 10,300 feet from the Facility in a southwesterly direction and is up to 2,400 feet wide (WEI 2008b.) The remedial alternative recommended for the site consists of in situ soil vapor extraction to reduce VOC levels at the known source areas of the site. Groundwater investigation and cleanup will be under the oversight of the RWQCB.

Milliken Sanitary Landfill The Milliken Sanitary Landfill (MSL) is a Class III Municipal Solid Waste Management Unit owned by the County of San Bernardino, located near the intersections of Milliken Avenue and Mission Boulevard in the City of Ontario. Groundwater monitoring since 1987 indicates that the MSL had released organic and inorganic compounds to the underlying groundwater with VOCs as the major constituents of release. The plume extends about 2,100 feet south of the MSL's southern border and is up to 1,800 feet wide (WEI 2008b).

2004 Basin Plan Amendment

Program Element 7 consists of the Watermaster's TDS and nitrogen management efforts pursuant to the Peace I Agreement implementation plan. These efforts included the development of TDS and nitrogen management goals, accounting of the TDS and nitrogen loading to the Basin, and the monitoring of TDS and nitrogen in the Basin to determine progress in attaining TDS and nitrogen management goals. In 2002 through 2003 the Watermaster and the IEUA, working with the Santa Ana Regional Board and other Chino Basin stakeholders, developed a detailed TDS and nitrogen management plan for the Basin that has been demonstrated to provide the maximum benefit to the Chino Basin stakeholders and to the people of California.

Water quality objectives are established by the Regional Board to preserve the beneficial uses of both the Chino Basin and the Orange County Basin, which is located downstream of the

Chino Basin. Prior to the 2004 Amendment, the 1995 Basin Plan contained restrictions on the use of recycled water for irrigation and groundwater recharge within the Chino Basin. The 1995 Basin Plan contained TDS “anti-degradation” objectives that ranged from 220 to 330 mg/L over most of the Chino Basin. Because ambient TDS concentrations slightly exceeded the anti-degradation objectives, there was no assimilative capacity for TDS. Thus, the use of the IEUA’s recycled water for irrigation and groundwater recharge would have required mitigation even though the impact of this reuse would not have materially impacted future TDS concentrations or impaired the beneficial uses of Chino Basin groundwater. The recharge of SWP water would also be restricted with the anti-degradation objectives making it difficult for Watermaster to implement the physical solution with the Judgment.

In 1995, the Regional Board initiated a collaborative study with 22 water supply and wastewater agencies, including the Watermaster and the IEUA, to devise a new TDS and nitrogen (total inorganic nitrogen or TIN) control strategy for the Santa Ana Watershed. This study culminated in the Regional Board’s adoption of the Basin Plan Amendment in January 2004 (Santa Ana Regional Water Quality Control Board, 2004). The 2004 Basin Plan Amendment included two sets of TDS objectives: anti-degradation objectives that ranged between 280, 250 and 260 mg/L for CBWM’s Management Zones 1, 2, and 3, respectively; and a maximum benefit based TDS objective of 420 mg/L for the Regional Board’s Chino North Management Zone, which consists of almost all of CBWM’s Management Zones 1, 2, and 3.

The relationship of the Management Zones that was developed for the OBMP and the maximum benefit based management zones is shown in Figure 3-1. Under the maximum benefit based objective, the new TDS concentration limit for recycled water that is to be used for recharge and other direct uses is 550 mg/L as a 12-month average. This discharge requirement has been incorporated into the IEUA’s National Pollutant Discharge Elimination System (NPDES) permits for its wastewater treatment facilities.

In order for the IEUA and Watermaster to gain access to the assimilative capacity afforded by the maximum benefit based objectives, they have to demonstrate that the maximum beneficial use of the waters of the State is being achieved. The 2004 Basin Plan Amendment contains a series of commitments that must be met in order to demonstrate that the maximum benefit is being achieved. These commitments include:

1. The implementation of a surface water monitoring program
2. The implementation of groundwater monitoring programs
3. The expansion of Desalter I to 10 MGD and the construction of a 10 MGD Desalter II
4. The commitment to future desalters pursuant to the OBMP and the Peace Agreement
5. The completion of the recharge facilities included in the Chino Basin Facilities Improvement Program (CBFIP)
6. The management of recycled water quality
7. The management of the volume-weighted TDS and nitrogen in artificial recharge to less than or equal to the maximum benefit objectives
8. The achievement and maintenance of hydraulic control of the subsurface outflows from the Chino Basin to protect Santa Ana River water quality
9. The determination of ambient TDS and nitrogen concentrations in the Chino Basin every three years

The IEUA and Watermaster have previously demonstrated compliance with all of these requirements with the sole exception of hydraulic control. Hydraulic control is defined as the reduction of groundwater discharge from the Regional Board's Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Regional Board's Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. Achieving hydraulic control also maximizes the safe yield of the Chino Basin as required by Paragraphs 30 and 41 of the Judgment. Two reports by WEI, prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b).

Without hydraulic control, the IEUA and Watermaster may have to cease the use of recycled water in the Chino Basin and will have to mitigate the effects of using recycled water back to the adoption of the 2004 Basin Plan Amendment, which occurred in December 2004. The demand for recycled water in the Chino Basin is projected to increase as detailed under Program Elements 3 and 5. Recycled water reduces the demand for State Water Project (SWP) water by an equal amount, thereby reducing the demand on the Sacramento Delta and reducing energy consumption. Recycled water is a critical element of the OBMP and water supply reliability in the Chino Basin area, as it is becoming throughout the State.

Failure to achieve hydraulic control will lead to restrictions from the Regional Board on the use of imported SWP water for recharge when the TDS concentration in SWP water exceeds the antidegradation objectives because there would be no assimilative capacity if the Chino Basin antidegradation objectives were in force. Restrictions on the recharge of SWP water would occur about 35, 52, and 50 percent of the time for CBWM's Management Zones 1, 2, and 3, respectively. With the maximum benefit based TDS objective in the Chino Basin, there is assimilative capacity, and there would be no such restriction on the recharge of imported water.

The Regional Board is using its discretion in granting maximum benefit based objectives even though hydraulic control has not yet been demonstrated. This document assumes that the Regional Board will continue to use maximum benefit based objectives in the Chino Basin as long as the IEUA and Watermaster continue to develop and implement, in a timely manner, the OBMP desalter program as described in the project description below.

The IEUA and Chino Basin Watermaster maximum benefit proposal commits to the initiation of construction of additional Chino Basin desalter capacity when the TDS in IEUA's average effluent discharge reaches 545 mg/L for three consecutive months. Present TDS effluent discharge TDS is approximately 500 mg/L. The Peace II project proposed desalter expansion in this document is designed to fulfill the 40,000 acre-feet extraction commitment in the original OBMP (Peace I) and to assist the Chino Basin stakeholders to achieve hydraulic control. In this instance the proposed expansion of the existing desalters replaces the installation of another desalter.

IEUA's overall commitment to reduce the salts entering IEUA's wastewater treatment plants includes the following management program as provided in the 2004 Basin Plan Amendment.

"1. connection of new industries that have wastewater discharges with TDS greater than 550 mg/L to the brine line;

2. regulation of the use of new and existing water softeners to the extent allowed by law, with incentives provided for the removal of on-site regenerative water softeners and the use of exchange canisters or other off-site regenerative systems;
3. connection of existing domestic system industries with high TDS waste discharges to the brine lines;
4. percolation of State Water Project water into the Chino Basin when that water is low in TDS; and
5. development of a plan for sewering areas presently served by septic tanks to reduce the nitrogen loading into the Chino and Cucamonga Management Zones.

These limits implement the waste load allocations for IEUA surface water discharges and are not contingent on the "maximum benefit" objectives or demonstration. Surface water discharges by IEUA do not affect the groundwater management zones for which "maximum benefit" objectives are specified. Thus, the waste load allocations do not vary depending on whether or not the "maximum benefit" objectives apply."

Water Softeners

In accordance with the maximum benefit commitments, IEUA launched a pilot water softener rebate program in September 2008 to provide incentives for the voluntary removal of residential water softeners from the IEUA service area. Water softeners replace calcium and magnesium with sodium, thereby increasing the salt load of wastewater and, after reclamation, recycled water. It has been estimated that removing all self-regenerating water softeners would reduce the TDS content of recycled water in the Chino Basin by about 15-25 mg/L.

Assembly Bill 1366, introduced by Assemblymen Feuer, Cabballero and Strickland in 2009, would have allowed entities that oversee wastewater to ban water softeners. Current law allows local agencies to prevent the installation of softeners but not to order mandatory removal of existing devices. AB 1336 passed both the California Senate and Assembly, and was signed by the Governor in October 2009.

Organics

Regional Board Order No. R8-2007-0001 General Waste Discharge Requirements for Concentrated Animal Feeding Operations (NPDES No. CAG018001) explicitly requires animal feeding operations to demonstrate that discharges are addressed by the OBMP or show how discharges that are not addressed by the OBMP will be offset.

Organic wastes (organics) that are handled and processed within the IEUA service area include biosolids, dairy manure, green materials from yards and food wastes. Organics are handled, processed and either reused or disposed of through a variety of methods and by a number of agencies. The IEUA plays a significant role in the existing system of organics management and has developed an Organics Management Plan (OMP) to define its future role in managing organic wastes within its service area. IEUA management of organics lowers the TDS and nitrates that would otherwise be released into the Basin and reduces air quality emissions by managing dust and odors and by reducing energy consumption associated with processing organics, as is discussed below.

Biosolids, the solid portion of the waste that remains after wastewater has been treated, were produced in the IEUA service area at a rate of over 64,000 TPY in 2002 and are forecast to increase to over 74,000 TPY by the year 2015. In 2002 there were over 300,000 milk cows and other livestock located in the Chino Basin that produced more than 1 million tons of manure per year. As a result of urbanization, the rate of manure generation is anticipated to be reduced to 547,000 TPY by the year 2015 compared to the 1 million tons in 2002. Other organic material in the Chino Basin includes green material from yards and food wastes. These wastes are regulated under State Law AB 939 that mandates the reduction of materials entering the waste steam and being disposed of in landfills. The law requires a 50 percent reduction in landfilled material by 2000, as compared with the base year inventory in 1990. In 2002, approximately 43,000 TPY of food waste was produced with the expectation of producing 50,000 TPY by 2015.

The key elements of the OMP are: (a) biosolids processing and energy production; (b) co-composting; and (c) manure processing. In co-generation, engines or turbines are run on biogas to produce energy. The waste heat is reused in the anaerobic digesters to heat the biosolids. The waste solids from this process are then available as input to the composting process, at 50 percent of their original mass. Biosolids management facilities have been installed at RP-5 for anaerobic digestion and subsequent co-generation.

Methane gas is a natural by-product of anaerobic digestion, which is captured and then run through generators. At IEUA, about 60 percent of its wastewater treatment operations at two plants (RP-1 and RP-2) are currently powered by this independent energy source. One goal of the OMP is to combine and convert all of the Chino Basin waste streams through anaerobic digestion into power. There is a potential for generating up to 50 megawatts of electrical energy through this method. IEUA's goal is to develop alternative energy which can be utilized to run as many of the facilities as practical and to assist the Agency to become energy independent over the next five to ten years.

An estimated 323,000 TPY of corral dried manure is forecast to be available in 2015 for biogas conversion. This amount would yield an estimated 25 megawatts of energy, or about one-half of the target amount identified in the OMP. After processing, the resultant solids would be reduced to about one-half of the volume, or 161,500 TPY.

Several alternative biosolids treatment processes are in the process of being tested with pilot projects, including the following: (a) heat drying and pelletizing of biosolids and manure to evaluate product quality and market potential, (b) aerated static pile composting at the existing co-composting facility to establish type and amount of bulking material, porosity and resulting improvement in compost quality, (c) anaerobic digestion of manure at RP-1 to establish process parameters, and (d) elutriation (salt extraction) of manure to reduce salt content.

Summary

The 2004 Basin Plan Amendment and the General Waste Discharge Requirements for Concentrated Animal Feeding Operations constitute changes from the baseline condition that was evaluated in the original OBMP EIR. Thus, the potential for Peace II projects to adversely impact the environment in the context of these changed circumstances will be analyzed herein. As part of the DSEIR an estimate of pollutants removed from the Basin by desalters to date will be provided. As previously noted, hydraulic control was discussed in the original OBMP EIR, *but it has yet to be achieved and it will also be analyzed in Chapter 4 of this DSEIR with updated information.*

Program Element 8: Develop and Implement a Groundwater Storage Management Program; and
Program Element 9: Develop and Implement a Storage and Recovery Program

The 100,000 acre-ft DYY Program with Metropolitan is one of the groundwater storage and recovery programs currently operating in the Chino Basin. As previously noted, the IEUA recently completed CEQA compliance and approved the expansion of this program to include an additional 50,000 acre-ft. This proposal is termed the DYY Expansion Program and it has also been approved by the Watermaster. Metropolitan has not yet approved the DYY Expansion Program as of the date of publication of this document. Watermaster is also considering an additional 150,000 acre-ft in programs with non-party water agencies. Also, a 100,000 acre-foot conjunctive use program was also previously approved for Metropolitan. The total volume of groundwater storage allocated to storage programs that could overlay the Basin is about 400,000 acre-ft. However, within the context of the Peace II Agreement, a total conjunctive use program of 200,000 acre-feet has been incorporated into the modeling to address the cumulative effects of this program.

There have been no planning investigations that articulate the expansion from the 150,000 acre-ft program to 300,000 acre-ft, and an evaluation of this issue at this time would be speculative. Section 15145 of the State CEQA Guidelines states that, "If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact." As such, the potential expansion of storage and recovery programs from 150,000 acre-ft program to 300,000 acre-ft is not evaluated in this document.

The storage and recovery programs, if not sensitive to the needs of hydraulic control, could contribute to groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The storage and recovery program operating strategies, including optimization of pumping, and their potential affect on hydraulic control are addressed in Section 4.3, Hydrology and Water Quality.

The DYY Expansion Program is a proposed conjunctive use program between the Metropolitan, IEUA, WMWD, The Three Valleys Municipal Water District, Chino Basin Watermaster and the Chino Basin appropriators. The participants would increase or decrease imported water purchases from Metropolitan, dependent upon normal, wet or dry year conditions. The Program includes facilities that would allow Metropolitan to store, or "put", water into the Basin by groundwater recharge through surface spreading, in-lieu deliveries, or ASR wells in cooperation with the local entities. A combination of new wells, wellhead treatment facilities, conveyance facilities, and inter-agency transfers are proposed to be developed to allow the Chino Basin appropriators to increase imported water deliveries during wet years and increase groundwater production during dry years.

The existing Metropolitan DYY Program has a maximum storage capacity of 100,000 acre-feet. Water can be "put" into and "taken" out of the Basin (stored and recovered) at a maximum rate of 25,000 acre-feet per year and 33,000 acre-feet per year, respectively. The DYY Expansion

Program Mitigated Negative Declaration was approved in December 2008 by IEUA and the Agency expressed support for the Program. The DYY Expansion Program allows an additional maximum recovery, or “take”, of up to 25,000 acre-feet in a single dry-year, which when combined with the existing DYY Program’s contracted “take” of 33,000 acre-feet per year, yields a total potential maximum “take” of 58,000 acre-feet per year. If this maximum potential “put” were initiated each year over the same three-year dry period, up to 174,000 acre-feet could be stored in Metropolitan’s account. Please refer to Table 3-4 for a summary of the initial and proposed expanded DYY Program. The maximum storage volume allowed and maximum annual “put” and “take” values are constrained by the following Basin management strategies:

- Maintain hydraulic control of the Basin
- Minimize/control movement or migration of contaminant plumes
- Minimize impact of water levels at key appropriator production wells
- Minimize subsidence

Table 3-4
SUMMARY OF INITIAL AND EXPANDED DYY PROGRAM PARTICIPANTS AND PROPOSED PUT/TAKE CAPACITIES

Agency	**Initial DYY Program** (1)		**DYY Program Expansion** (2)	
	Put Capacity (afy)	**Take Capacity (afy)**	**Put Capacity (afy)**(4)	**Take Capacity (afy)**
City of Chino	(3)	1,159	500-1,000	2,000
City of Chino Hills		1,448 (5)	--	1,000
Cucamonga Valley Water District		11,353	4,000-5,000	None
Fontana Water Company		0	--	2,000
Jurupa Community Services District		2,000	--	2,000
Monte Vista Water District		3,963	3,000-4,000	3,000-5,000
City of Ontario		8,076	2,000-3,000	None
City of Pomona		2,000	--	2,000
City of Upland		3,001	--	1,000
Three Valleys Municipal Water District		0	1,000-2,000	None
Western Municipal Water District		0	--	8,000-10,000
Total	25,000	33,000	10,500–15,000	21,000-25,000

Notes: (1) Initial 100,000 AF DYY Program includes maximum 25,000 afy “put” over a four-year period of surplus and a maximum 33,000 afy “take” over a three-year dry period.
(2) DYY Program Expansion includes increases in total storage, “put” capacity, and “take” capacity.
(3) “Puts” for the initial DYY Program are accomplished by a combination of direct recharge and in-lieu deliveries.
(4) Does not include basin-wide in-lieu deliveries and direct recharge.
(5) MVWD assumed Chino Hills’ shift obligation of 1,448 afy per an amendment to the agreement between the agencies dated March 5, 2007.

As of December 31, 2007, about 88,434 acre-ft had been stored in the Basin in Metropolitan’s existing DYY Program account. Subsequently, dry conditions caused Metropolitan to initiate a “take” cycle. Metropolitan has carried out takes from the Chino Basin over the past two years and now has a DYY Storage Account Balance of approximately 19,178 acre-feet. Note that the parties to the DYY Program can adjust storage and recovery programs in real-time to meet the basic management strategies outlined above and ensure that these essential objectives are met on an ongoing basis.

Summary

The specific characteristics of the DYY programs, the Re-Operation/hydraulic control and the proposed expansion of the desalters constitute changes from the baseline that was evaluated in the original OBMP EIR. Thus, the potential for Peace II to adversely impact the environment based upon these changed circumstances will be analyzed herein. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.

3.4 PROJECT DESCRIPTION FOR THE CHINO BASIN OPTIMUM BASIN MANAGEMENT PROGRAM PEACE II DESALTER AND RE-OPERATION PROGRAM

This section contains the project description for the Chino Basin Desalter Expansion and Re-Operation programs, which have been synthesized from the Peace II Agreement and various planning investigations as of February 2008. The key features of the Peace II Agreement as they pertain to desalter expansion and re-operation are discussed. These features implement some of the requirements of the 2004 Basin Plan Amendment, described in detail under Program Element 7, which are fundamental to water supply reliability for producers that rely on the Chino Basin. Finally, the project is described.

3.4.1 Peace II Implementing Measures

Under Watermaster oversight, the Chino Basin OBMP stakeholders have been engaged in complying with the Peace Agreement provision regarding the planning and financing of the expansion of the OBMP desalting program to its full planned capacity generally referred to as "Future Desalters" (see Peace Agreement Article VII). As part of the original OBMP, the stakeholders evaluated various alternatives and produced the Stakeholders' Non-Binding Term Sheet that was transmitted to the Court along with a request by Watermaster for further technical review by the Assistant to the Special Referee in May of 2006. The Assistant's review was completed in March of 2007.

The Non-Binding Term Sheet includes several items that are carried forward under Peace II. The two items of interest to this project description are: the expansion of the desalting program and "Basin Re-Operation," which are both physically described in Section II, Refined Basin Management Strategy, subsections A and B; and Section IV, Future Desalters.

The construction of a new desalter well field will be sized and located to achieve hydraulic control as substantiated by piezometric data. The expanded desalter program will produce at least 9 MGD of product water for treatment at Desalter 2. New groundwater production for the expanded desalter program will occur in the southern end of the Basin. Some of this new desalter supply will come from the new well field, the Chino Creek Well Field, that will be constructed in a location among and west of Desalter I wells 1 through 4. Refer to Figure 3-7 for a generalized location of the Chino Creek Well Field. These wells will be constructed to pump groundwater from the shallow part of the aquifer system, which is the saturated zone that occurs within about 300 feet of the ground surface. The total groundwater pumping for all of the desalters authorized in the term sheet will be about 40,000 acre-ft/yr.

Re-Operation means the increase in controlled overdraft, as defined in the Judgment, from a cumulative total of 200,000 acre-ft over the period of 1978 through 2017, to a cumulative total of 600,000 acre-ft through 2030. The 400,000 acre-ft cumulative increase would be allocated specifically to the meet the replenishment obligation of the desalters. The expanded desalter facilities would be the means for extracting the 400,000 acre-ft of overdraft. <u>Re-Operation is required to achieve hydraulic control.</u>

Re-Operation and Watermaster's apportionment of controlled overdraft will not be suspended in the event Hydraulic Control is secured in any year before the full 400,000 acre-feet has been produced so long as: (i) Watermaster has prepared, adopted and the Court has approved a contingency plan that establishes conditions and protective measures to avoid Material Physical Injury and that equitably addresses this contingency, and (ii) Watermaster continues to demonstrate credible material progress toward obtaining sufficient capacity to recharge sufficient quantities of water to cause the Basin to return to a new equilibrium at the conclusion of the Re-Operation period. In addition to contributing to the achievement of hydraulic control, Re-Operation will contribute to the creation of new yield. Watermaster has the discretion to apportion the 400,000 acre-feet increase in controlled overdraft under a schedule for Re-Operation that best meets the needs of the Parties and the conditions of the Basin over the Initial Term of the Peace Agreement (before June 30, 2030).

At the conclusion of Re-Operation, the Basin will be operated at a new equilibrium in accordance with the Peace II Agreement. New equilibrium, as stated in the Judgment Amendment to Exhibit I, means managing the Basin in a state of balanced recharge and discharge identical to the intent of the original Judgment. With the exception of the 200,000 acre-ft controlled overdraft provision, the 1978 Judgment requires the Basin to be operated such that total Basin discharge (groundwater production and other outflows) is equal to recharge (natural and artificial). The Judgment provided for changes in production rights in response to changes in the safe yield with the changes in safe yield being either credited or debited to the appropriator parties.

This balanced recharge and discharge management plan will continue during the Re-Operation period with the exceptions of the original 200,000 acre-ft of controlled overdraft provided in the Judgment and the additional 400,000 acre-ft of new controlled overdraft provided for in Peace II. At the conclusion of the period of Re-Operation, the controlled overdraft will be complete and the Watermaster will operate the Basin to balance recharge and discharge in the Basin. In other words, Watermaster will measure groundwater production annually and estimate groundwater production in excess of the safe yield (overproduction). Watermaster will acquire supplemental water equal to the overproduction and recharge this water into the Basin (replenishment) in the subsequent year or years.

3.4.2 Project Characteristics

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin.

The Expanded Desalting Program. A new well field, referred to as the Chino Creek Well Field (CCWF), will be installed and operated. The capacity of this well field could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. The actual capacity of the CCWF will be determined during the design of the well field, but the available groundwater data indicate the 5,000-7,700 acre-ft/yr estimate is considered reasonable. Groundwater produced at the CCWF will be conveyed to Desalter I. The approximate location of the CCWF is shown in Figure 3-7. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The product water capacity of Desalter I is about 14,200 acre-ft/yr which corresponds to a raw water pumping requirement of about 16,100 acre-ft/yr. The volume of groundwater pumped at existing Desalter I wells 13, 14, and 15 and conveyed to Desalter I will be reduced to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting Desalter I wells 13, 14, and 15 to Desalter II.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District (JCSD), the City of Ontario, and/or Western Municipal Water District (WMWD) through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are unknown at this time.

The most current working description of these facilities is contained in a report that was prepared for the City of Ontario and WMWD, entitled Chino Desalter Phase 3 Alternatives Evaluation (Carollo, 2007). The City of Ontario and the WMWD are working with the JCSD and others to refine the alternatives in the Carollo report. The assumed startup for the expanded desalters is January 2013.

In summary, desalter groundwater well production would increase from the existing 27,900 acre-ft/yr to about 40,000 acre-ft/yr and desalter product water deliveries would increase from the current 24,600 acre-ft/yr to about 34,800 acre-ft/yr. The 40,000 acre-ft/yr value was determined from the prior desalter modeling investigations in support of the OBMP.

Re-Operation. Through Re-Operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft of groundwater to off-set desalter replenishment through 2030. After the 400,000 acre-ft is exhausted and the period of Re-Operation is complete, Watermaster will recalculate the safe yield of the Basin. The Re-Operation will have no adverse impact on Operating Safe Yield or on the parties' respective rights thereto.

The new yield as defined by the Peace II Agreement, attributable to the authorized desalters and the reduction in storage from Re-Operation, will be assigned to the authorized desalters. The resulting replenishment obligation assigned to the authorized desalters will then be handled as any other replenishment obligation pursuant to the Judgment. The new yield is expected to come from a reduction in groundwater discharge from the Chino Basin to the Santa Ana River within the reservoir created by Prado Dam and from new induced recharge of the Santa Ana River upstream of Prado Dam. There is no direct way to measure the increase in new yield created by Re-Operation. New yield created by Re-Operation can only be assessed through the use of groundwater flow models.

Other important facility and operational plans that will occur concurrently with the proposed project:

Expansion of Artificial Recharge Capacity. Watermaster and the IEUA may need to expand artificial recharge capacity in the Chino Basin. Combined with the physical recharge spreading capacity of 110,000 acre-ft, the total potential recharge capacity available with ASR wells and overall Basin Management activities (conjunctive use) is about 145,000 acre-ft annually. As noted previously in Program Element 2, the required recharge capacity could be as much as 104,000 acre-ft/yr by 2020. All the parties to Peace II understand that additional recharge facilities may be required in the future, but the types and locations of additional recharge facilities have not been identified at this time. Future expansion will occur through the construction of new spreading basins, improvements to existing spreading basins and stormwater retention facilities, and ASR wells. The proposed project will be analyzed without identifying specific recharge expansion projects. Increased recharge capacity will be fully evaluated in the update of the Recharge Master Plan (to be completed in 2010). Any additional recharge facilities will be analyzed in a future, a second-tier, project-specific evaluation under CEQA. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Expansion of Storage and Recovery Programs. As discussed previously, there are currently two groundwater storage programs (conjunctive use) approved by IEUA in the Chino Basin: the 100,000 acre-ft DYY Program with Metropolitan and the Expanded DYY Program that would allow an additional 50,000 acre-ft of storage for a total of 150,000 acre-ft. The 100,000 acre-ft DYY Program is also approved by Watermaster, Metropolitan and the participating entities. The 50,000 acre-ft program was approved by IEUA in December 2008 and has been approved by Watermaster and submitted to Metropolitan. Metropolitan has not approved the DYY Program Expansion as of the date of publication of this DSEIR. Watermaster is also considering an additional 150,000 acre-ft in storage and recovery programs with non-party water agencies. The total volume of groundwater storage allocated to storage programs that could overlay the proposed project is about 300,000 acre-ft.

There have been no planning investigations that articulate the expansion from the 150,000 acre-ft program to 300,000 acre-ft, and an evaluation of this issue at this time would be speculative. Section 15145 of the State CEQA Guidelines states that, “If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.” As such, the potential expansion of storage and recovery programs from 150,000 acre-ft program to 300,000 acre-ft is not a part of this project description, nor is it evaluated in the DSEIR.

The storage and recovery programs, if not sensitive to the needs of hydraulic control, could contribute to groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. As previously indicated, the storage and recovery program operating strategies, including optimization of pumping, will be evaluated to determine the effect on hydraulic control in Section 4.3, Hydrology and Water Quality.

3.4.3 Construction Scenario

The types, configuration and location of future specific projects that will be constructed in support of Peace II have not been determined. However, it is possible to foresee some of the infrastructure that is likely to be constructed and to project the maximum expected impacts that would result from construction and operation of the infrastructure. Impacts associated with specific future projects would be evaluated in subsequent CEQA evaluations to determine if the actual impacts fall within the impacts forecast by this analysis, or require subsequent CEQA evaluations and determinations.

It is assumed for all activities that construction would take place during 10-hour workdays for a six-day workweek, but not all equipment would be operating continuously over the 10-hour daily work period. Small electric tools would be connected to the utility grid, but welders and other large electric equipment would be powered by an on-site generator. The number of construction workers and daily equipment-operating scenarios would vary according to the type and phase of construction project. It is further assumed that each worker would commute using his or her own vehicle and the average commute would be approximately 20 miles one way. Emissions from the planting of landscape materials and screening wall construction are expected to be minimal and have not been calculated.

Pipelines

Up to 235,000 LF of pipeline may be installed in support of Peace II through 2020, an average of 21,400 feet per year (assumes 11 years). The maximum pipe length that would be installed in a single year under the Chino Desalters Phase 3 Expansion Project would be 64,000 LF, which is the total pipeline length currently associated with Chino Desalters Phase 3 Expansion Project.

It is forecast that most of the pipe will range from 12 to 16-inch diameter. Trucks delivering the pipe and appurtenant equipment can carry an average of about 900 feet of 12 and 16-inch pipe per load and installation of up to 64,000 LF of pipe in a year will require about 71 truck deliveries per year. It is anticipated that the majority of the pipe and equipment will come from the Fontana, Ontario, Mira Loma area by way of the freeways. Such deliveries will result in round-trips that average about 40 miles at an average speed of about 40 mph.

Typically, up to 900 feet of pipeline trench could be excavated, the pipe installed, backfilled, and compacted each day during pipeline installation in undeveloped areas whereas only 300 ft per day can be installed in developed roadways. In either case equipment would be operated for roughly the same portion of the day and daily equipment emissions would be the same, except that undeveloped areas would not require pavement removal and reinstallation.

Ground disturbance emissions assume roughly half an acre of land would be actively excavated on a given day. It is anticipated that installation of pipeline in developed locations will require the use of a backhoe, crane, compactor, roller/vibrator, pavement cutter, grinder, haul truck and two dump trucks operating 6 hours per day; a water truck and excavator operating 4 hours per day and a paving machine and compacter operating 2 hours per day. Installation of pipeline in undeveloped locations would require the same equipment without the paving equipment (cutter, grinder, paving machine). Materials delivery would require approximately one truck per day for unimproved area and one truck every three days for improved alignment installation. This phase of construction will require up to two truck trips per day with an estimated average round trip of 40 miles delivering construction materials and equipment (concrete, steel, pipe, etc.) Calculations assume twelve workers will each commute 40 miles round-trip to the work site, and that only one work crew is installing pipeline at a time.

The pipelines that would be installed in support of the Desalter Expansion Project would use push-on joints (e.g., gasketed bell-and-spigot) that do not require welding. However, the Contractor may occasionally use a portable generator and welder for equipment repairs or incidental uses. Other pipelines that may be installed in support of Peace II implementation area expected to require similar impact support.

Reservoirs

The Desalter program has constructed two reservoirs to date: a 5 MG reservoir located in Jurupa Community Service's District service area and a 3 MG reservoir located in the City of Chino's service area. There are no plans to construct any additional reservoirs at this time; however, impacts associated with reservoir construction are included in the event that future circumstances require the construction of reservoirs to support recycled water programs.

It is forecast that for site preparation of a reservoir and access road, no more than 2 acres will be actively graded on a given day. It is anticipated that grading activities will occur over a 10-15 day period and will require one bull dozer, front end loader, water truck, grader, excavator and two dump/haul trucks operating 6 hours per day. Calculations assume eight workers will each commute 40 miles round-trip to the work site.

Construction of the reservoir will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst case day with an average round trip of 20 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Installation of the reservoir would occur over about 30 days and would require the use a crane, forklift, backhoe, front loader and two haul trucks operating 6 hours per day. Calculations assume six workers will each commute 40 miles round-trip to the work site.

In addition to the above construction equipment, heavy duty trucks will be employed for on-site deliveries. Smaller trucks and automobiles will be utilized for on-site supervision and employee commuting. The diesel delivery trucks were assumed to require 300 on-road miles per day.

Typically, the exteriors of reservoirs are coated with a primer and enamel coats both to prevent corrosion and for aesthetic purposes. South Coast Air Quality Management District Rule 1113, as amended, sets limits on the volatile reactive organic compounds (VOC or ROC) that can be released by coatings sold within the District. The largest reservoir that has been constructed for desalter facilities is a 5 million gallon tank, thus impact estimates will assume that this would be the largest future reservoir and that it would be coated to a 6 mil thickness.

Booster Stations

The Chino Desalter program has constructed four booster stations outside of the treatment facilities located in the City's of Chino (1), Chino Hills (1) and Ontario (2). Pump stations to be constructed as part of the Desalter Expansion Project include:

A. Chino Desalter II Transfer Pumps: expand/modify existing on-site internal pumping.
B. Chino Desalter II Product Water Pump Stations: One or two (existing site).
C. Milliken Pump Station: One (existing site).
D. Western Municipal Water District distribution: None required under the Hamner pipe route option; one or two required for Riverside/Corona Feeder option (new sites).

It is forecast that no more than 0.5 acres will be actively graded on a given day for site preparation of each booster station. It is anticipated that grading activities will occur over a 5-day period and will require one bull dozer or motor grader operating 8 hours per day, one water truck operating 4 hours per day and one dump truck operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

Construction of each pump station will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst case day with an average round trip of 20 miles delivering construction materials and equipment (concrete, steel, pipe, etc.). Installation of the booster station will require the use a crane, forklift, backhoe and front loader operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

The Desalter Expansion Project pump stations are at sites that have permanent power available for construction and a generator is not required for welding at these sites.

Wells

The Chino Desalter program has installed 22 wells to date. Up to 30 new wells were expected to be installed as part of the OBMP. The Desalter Expansion Project is anticipated to result in the installation of 6 new production wells in the Chino Creek Well Field and 3 or 4 new production wells to be located at new well sites for Desalter II.

All of Re-Operation pumping will occur through the Desalter wells. Re-Operation could begin after certification of this environmental document and completion of any future environmental documentation to address site specific environmental issues. The Re-Operation objective of reducing stored groundwater by 400,000 acre-feet is proposed to be accomplished by not replenishing water extracted using the existing and expanded desalter facilities. The capacity of the Chino Creek Well Field (CCWF) could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. For the purposes of the air quality analysis, it is assumed that the capacity of the CCWF will be 7,700 acre-ft/yr.

Development of up to ten new wells during a given year, assuming all wells were constructed in a single year, will require the delivery and set up of the drilling rig. It is anticipated these wells will be drilled at different times and the drilling equipment will be transported to and from the sites on separate occasions. For the purposes of this evaluation, it is forecast that delivery of the drilling equipment ten times in a year will result in ten 50 mile round-trips at an average speed of 30 mph.

The drilling and development of each well to an average depth of 850 feet will take approximately 45 days, of which 15 to 20 days would include 24-hour drill activity. Delivery of the well casings, pumps, motors, etc. for each well is forecast to result in about 1,000 miles being traveled by trucks averaging about 45 mph. Calculations assume two workers will each commute 40 miles round-trip to the work site. Typically, well drilling requires only minimal earth movement and/or grading. The well casings are expected to be welded and it will be assumed that well development and installation will require two weeks of a diesel generator.

ASR well development has essentially the same construction impacts as production well development. The primary physical difference between ASR and production wells is that different valve options are installed according to the type of well.

Monitoring Wells

The OBMP estimated 50 monitoring wells would be installed; to date there have been 61 monitoring wells installed. It is anticipated that approximately 30 more wells will be installed as part of the OBMP, with one or two installed in a given year. The Chino Desalter Program has installed 3 monitoring wells to date, included in the total number of OBMP wells, and anticipates installing two additional monitoring wells as part of the Chino Creek Well Field.

Monitoring wells may be installed to monitor groundwater quality in the future. Typically these are drilled to shallower depths than water production wells and do not require test pumping, thus they require less development time and fewer materials to construct. It is forecast that development of a single monitoring well would result in air emissions equal to one half the emissions associated with development of a single production well.

Regenerable and Non-regenerable Treatment Facilities

Regenerable and non-regenerable treatment facilities have been and are anticipated to be installed as part of the Dry Year Yield Program and could be installed as part of other future activities associated with Peace II. These facilities are typically installed to remove moderate amounts of contaminants from individual or a small number of wells. These facilities are typically small, co-located with other water infrastructure and disturb less than 0.5 acres of land.

It is forecast that for site preparation for each treatment facility; no more than 0.5 acres will be actively graded on a given day. It is anticipated that grading activities will occur over a 5 day period and will require one bull dozer operating 8 hours per day, one water truck operating 4 hours per day and one dump truck operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

Construction of each treatment facility will require the delivery and installation of equipment and materials. This phase of construction will result in 6 truck trips on the worst case day with an average round trip of 20 miles delivering construction materials and equipment (concrete, steel, pipe, etc.) Installation of the treatment facility will require the use a crane, forklift, backhoe and front loader operating 4 hours per day. Calculations assume five workers will each commute 40 miles round-trip to the work site.

Desalter Facilities

Treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. Desalter expansion would occur within an existing facility and would not require grading or site preparation. Installation of the expansion equipment would require a maximum of 20 workers and typical construction site equipment (cranes for setting ion exchange vessels, front end loaders, fork lifts, etc.) Impact estimates will assume one vehicle trip per worker and 5-10 deliveries per day over a 12 months construction period.

OPERATIONS

Operational air quality impacts would consist of vehicle trips to service the proposed facilities and energy required to power the proposed facilities. Operational impacts vary depending upon the type of infrastructure proposed. Most water related infrastructure, including wells, pump stations and pipelines, require very few vehicle trips for maintenance and operation, typically less than one trip per day per facility.

Booster Stations

Energy consumption for booster stations depends on the location within the basin to be pumped to and from and the volume of water to be pumped. An estimated average power requirement for booster stations is 380 kW per hour. Assuming a booster station runs 6 hours per day, the energy consumption would be 2300 kWhr per day. Total maximum daily electrical consumption is estimated to be 4.3 MW for each booster station.

Wells

Energy consumption for wells depends on where the wells are located within the basin and how much water the wells are pumping. In general, wells located in the north part of the Chino Basin require more pumping power due to deeper groundwater. The power required for the wells ranges from 60-500 kW per hour. Assuming the wells are run 6 hours per day, the energy consumption would be 360-3000 kW-hr per day. The total maximum daily electrical consumption is estimated to be 3 MW per day for each well.

Future Peace II projects are likely to include ASR wells. ASR wells operate by gravity flow and require no pumping to place water in the aquifer. The combination of the minimum water pressure of 20psi required at the ground surface for fire flow and the weight of the water creates more than sufficient pressure with no additional pumping required.

There is no energy consumption for a monitoring well.

Regenerable and Non-regenerable Treatment Facilities

The estimated power requirement for both regenerable and non-regenerable treatment facilities would be less than 100 kilowatts per hour (kWh) per facility, including groundwater pumping and facility operation energy requirements.

Periodic deliveries of salt (sodium chloride) to the regenerable facilities are required to maintain continuous operation. The solution would be delivered in bulk by chemical trucks. It is conservatively estimated that a maximum of one truck trip per day per facility would be required.

The frequency of resin change-out at the non-regenerable facilities could vary between 6 and 12 months, depending on contaminant concentration and use of the facility. When the resin from a non-regenerable facility is exhausted, it is either removed and regenerated off-site for use elsewhere, or disposed of in an appropriately licensed landfill, complete with leachate protection, etc. Ongoing maintenance and oversight of the facilities would conservatively require one visit by an agency employee to every above-ground facility (pipelines are excluded) each day. The total maximum daily electrical consumption is estimated to be 1.1 MW per day for each treatment unit.

Desalter Facilities

Desalter groundwater well production would increase from the existing 27,900 acre-ft/yr to about 40,000 acre-ft/yr and desalter product water deliveries would increase from the current 24,600 acre-ft/yr to about 35,200 acre-ft/yr. The 12,100 acre-ft/yr expansion is a 43-percent increase over existing capacity. Based on a recent Southern California Edison efficiency test, the energy consumption at the existing Desalter facilities per acre-ft of water is provided in Table 3-5.

Table 3-5
EXISTING DESALTER FACILITIES ENERGY CONSUMPTION PER ACRE-FT

	Chino/Desalter I	Chino/Desalter II
Wells	492 kWh/AF	581 kWh/AF
Reverse Osmosis	850 kWh/AF	623 kWh/AF
Pumping	367 kWh/AF	484 kWh/AF
Total	1,709 kWh/AF	1,688 kWh/AF

The expansion of the Chino/Desalter II facility would add 10.5 MGD of product water capacity with continuous operation, which would be about 32 acre-feet per day. The process expansion requires adding a connected load of roughly 1,000 kW of power to the existing electrical equipment load. The continuous process load required to produce the 10.5 MGD is about 520 kW per hour of power. The energy requirement for continuous operation over 24 hours is about 12,500 kWh (energy). Therefore, the unit energy requirement for the expansion is 390 kWh/acre-feet (energy/volume). Historically, the Chino II Desalter has had an operating factor of approximately 90 percent. Thus, the average energy consumption is within roughly 10 percent of the maximum at the Desalters.

The new Chino Creek Well Field water would be conveyed to Desalter I, therefore some existing Desalter I wells production may be rerouted from Desalter I to Desalter II for greatest efficiency and least environmental impact (shorter pipeline length, etc.) If existing Chino I wells (e.g., Wells I-13, I-14 and I-15) are transferred to Chino II, no new pump stations would be required. The well pumps would be re-staged or replaced to provide for the higher head required for delivery to Chino II Desalter.

New product water developed by the expanded desalter facilities would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines, in most cases through gravity lines.

It is anticipated that no additional personnel will be required to operate the expanded desalter facilities.

Summary

In summary, the total maximum daily operational electrical consumption is estimated to be

- 1.1 MW per day for the treatment units
- 3 MW per day for production wells
- 4.3 MW for booster stations
- 390 kWh/acre-feet for desalter expansion

3.5 CHANGED CIRCUMSTANCES

The change in the months of operation of recharge basins, induced recharge from the Santa Ana River, required OBMP recharge capacity and the reliability of SWP are all changes from the original OBMP evaluation. The 2004 Basin Plan Amendment and the General Waste Discharge Requirements for Concentrated Animal Feeding Operations constitute changes in the project from the baseline that was evaluated in the original OBMP EIR. The DYY Expansion Program, storage and recovery program and Re-Operation constitute changes from the baseline that was evaluated in the original OBMP EIR. Hydraulic control was discussed in the original OBMP EIR, but as it has yet to be fully achieved, it will also be analyzed herein with updated information. The potential for Peace II to adversely impact the environment in light of these changed circumstances will be analyzed herein.

3.6 FUTURE CAPITAL IMPROVEMENTS / APPROVALS

The IEUA Board will serve as the Lead Agency for compliance with the California Environmental Quality Act on behalf of the Peace II Agreement and OBMP subsequent environmental document. Assuming the DSEIR is certified, the IEUA and program stakeholders can implement capital improvement projects that will implement the overall hydraulic control, Re-Operation and other Peace II Agreement programs. As individual projects are funded by IEUA or program stakeholders, each specific capital improvement project will require a second-tier evaluation to verify that the potential environmental effects of such projects fall within the scope of the approved Peace II Agreement programs. As each second-tier project is approved by program stakeholders, a new Notice of Determination must be filed before such project(s) can be funded and implemented.

3.7 OTHER AGENCY APPROVALS AND USES OF THIS ENVIRONMENTAL DOCUMENT

Implementation of future individual project(s) to support the Peace II Agreement programs may require a variety of approvals from other agencies. The following summarizes those agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds, but it should not be considered exhaustive.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Board enforces the BMP requirements described in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor, with the Regional Board providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States” and stream beds of the State of California Regulatory permits to allow these fill and/or alteration activities will be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Game (CDFG). A Section 404 permit for the discharge of fill material into “waters of the United States” will be required from the ACOE; a Section 401 Water Quality Certification will be required from the Regional Board; and a 1600 Streambed Alteration Agreement will be required from the CDFG.

- The U.S. Fish and Wildlife Service (USFWS) and CDFG will be consulted regarding threatened and endangered species documented to occur within the area of potential effect for future individual projects.

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as BNSF Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

- California Department of Public Health will be a responsible agency if permits or funding are requested from their department.

This is considered to be a partial list of other permitting agencies for future Peace II Agreement future individual projects.

3.8 CUMULATIVE PROJECTS

The only other public project with focus on the Chino Groundwater Basin is the Dry Year Yield Expansion Project which recently completed compliance with the California Environmental Quality Act. This program, as well as other OBMP program-related projects, may be implemented concurrently with the proposed Peace II Agreement future individual projects. These projects will be further defined as part of this evaluation on a case-by-case project and locational basis.

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FIGURE 3-1
Comparison of OBMP Management Zones & RWQCB Basin Plan Management Zones

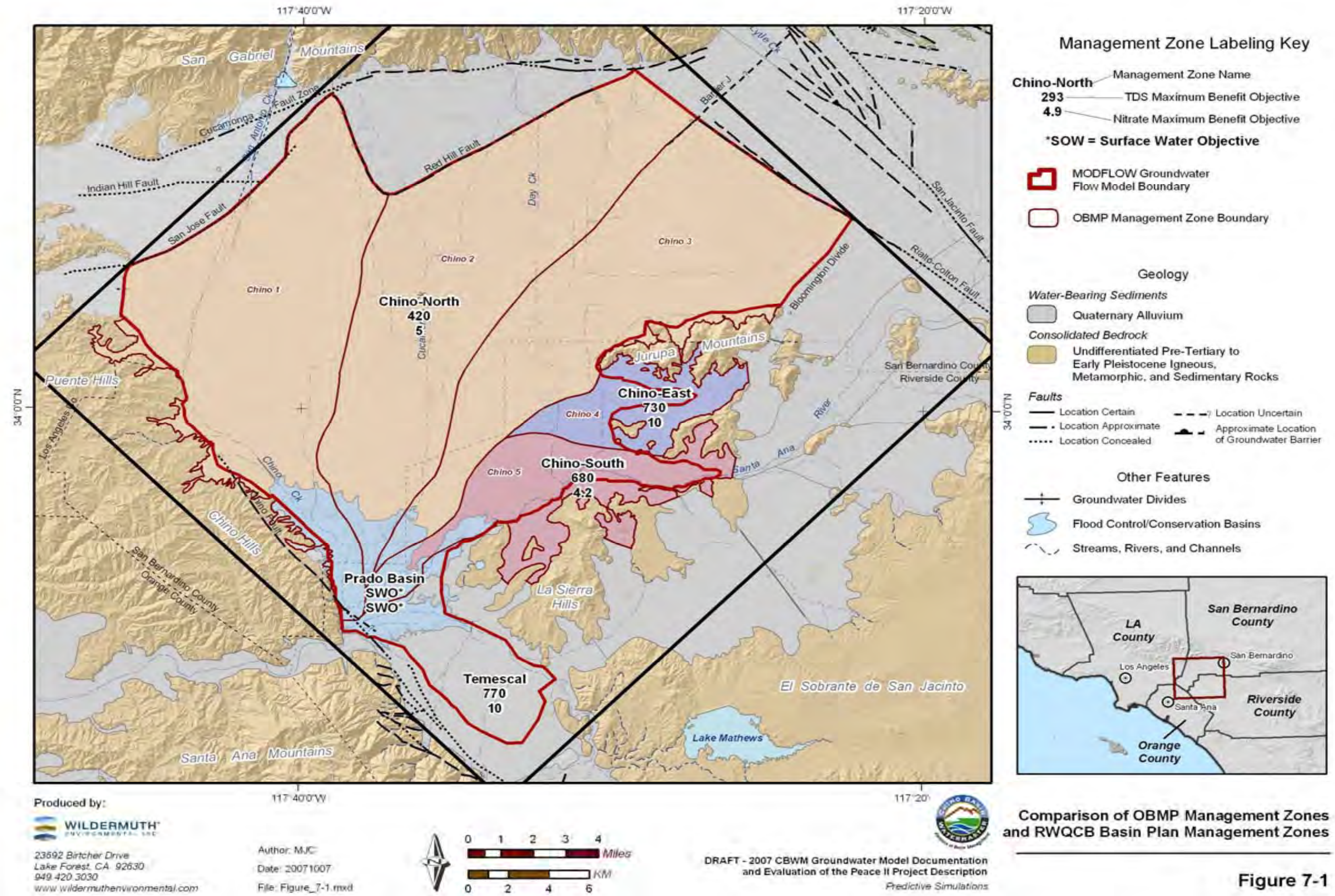


FIGURE 3-2
Recycled Water Project Status Map

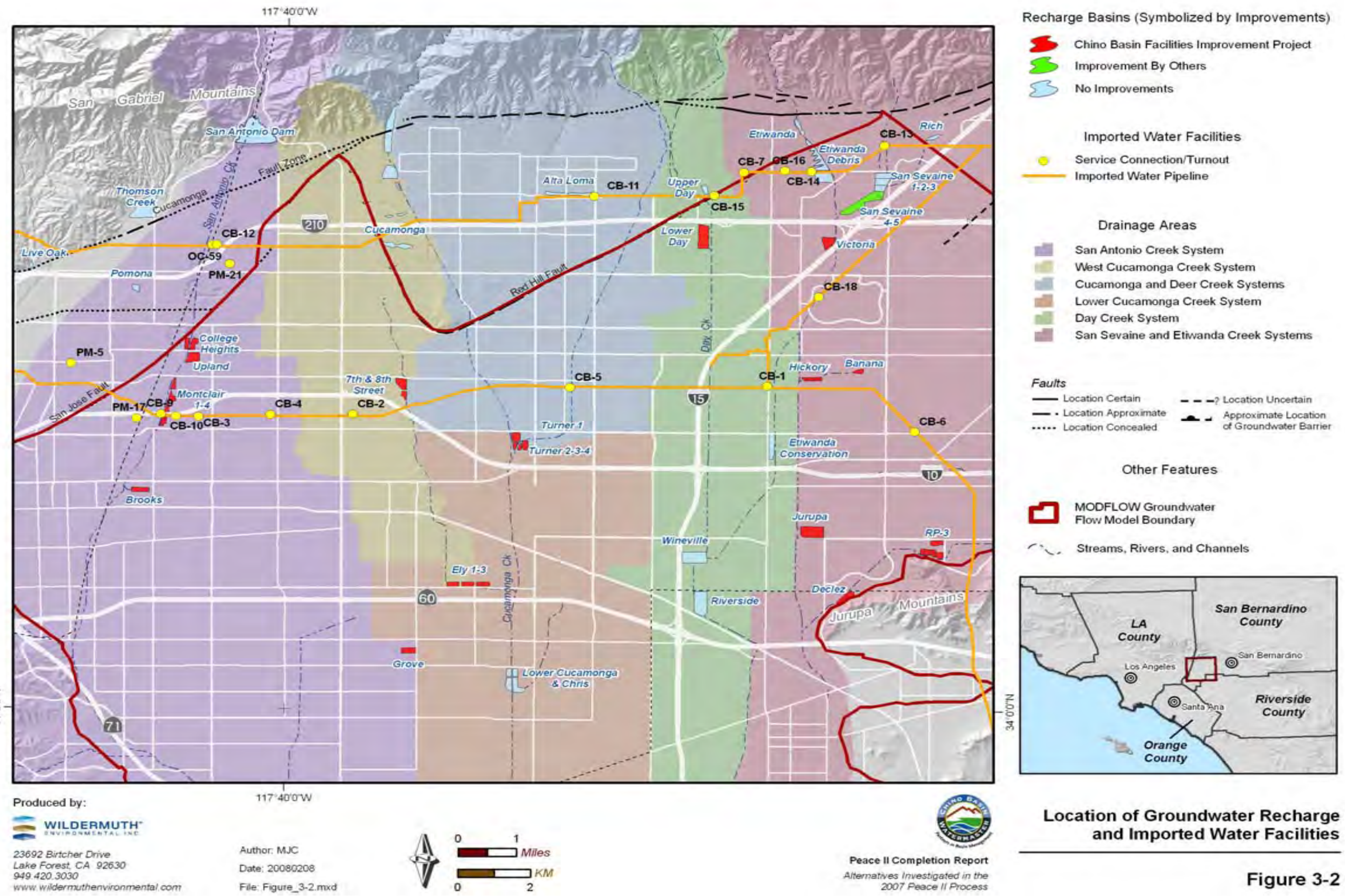


FIGURE 3-3
Groundwater Elevation Contours

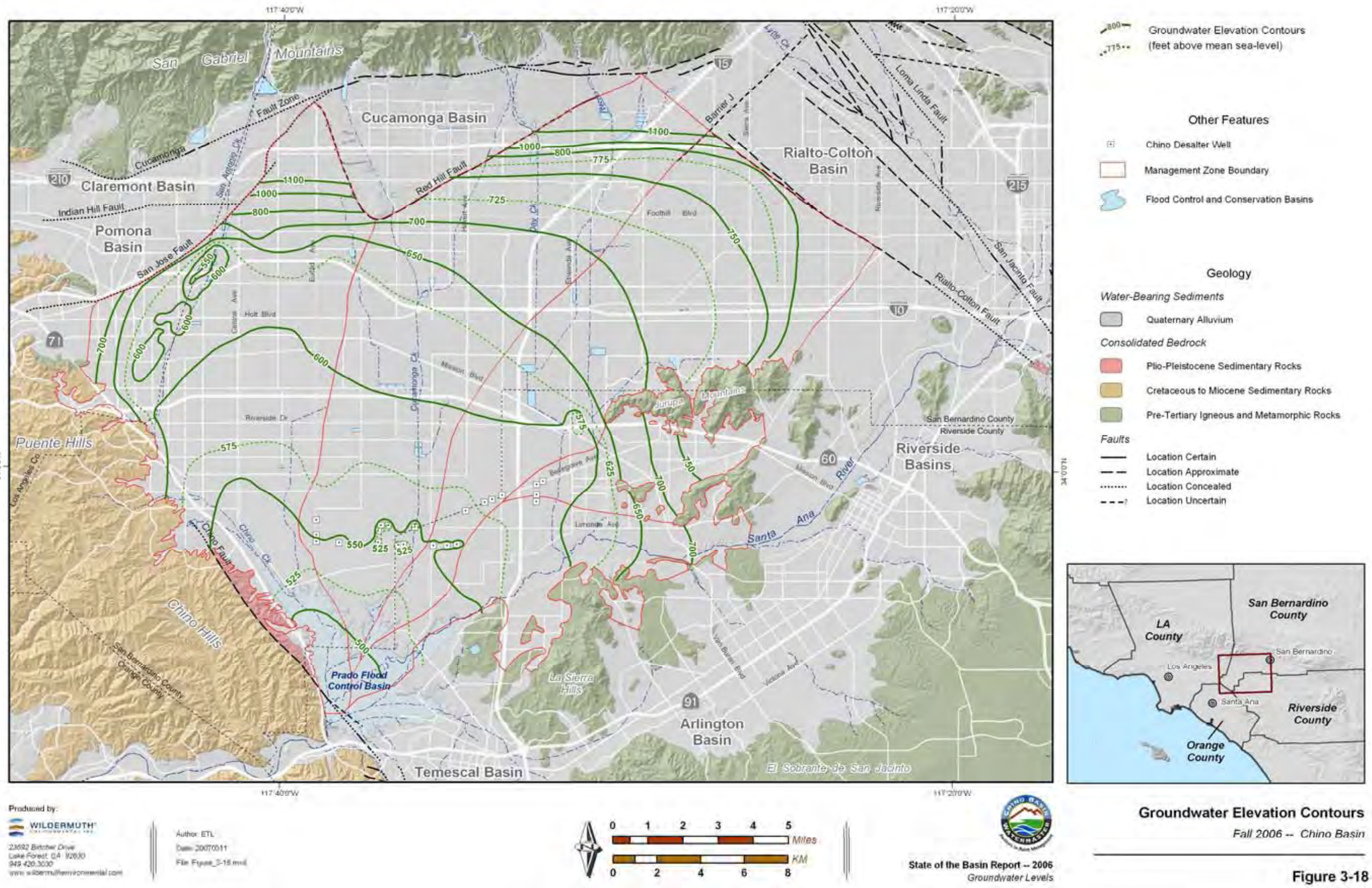


FIGURE 3-4
Subsidence Management Areas

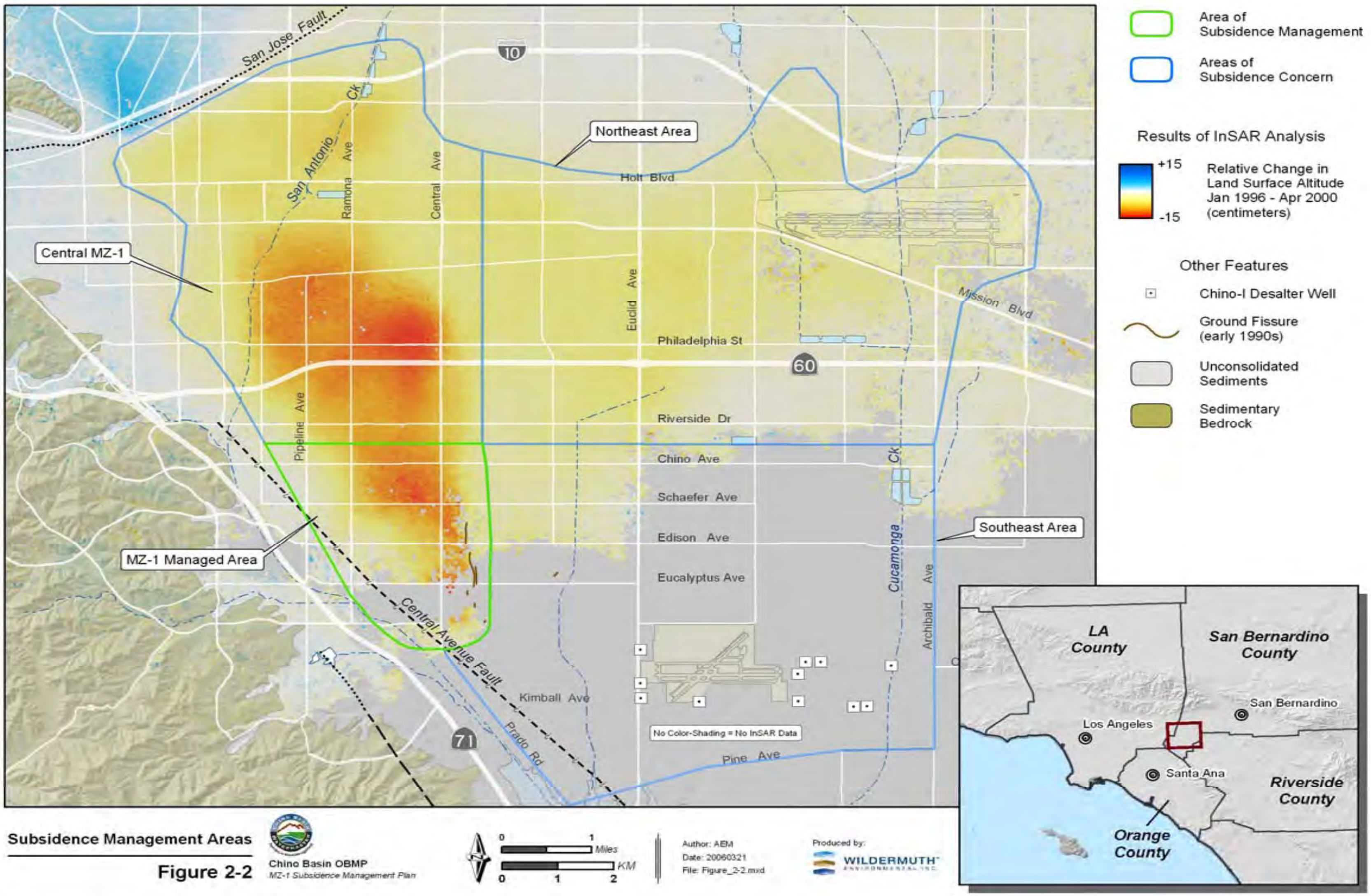


FIGURE 3-5
Recycled Water Project Status Map

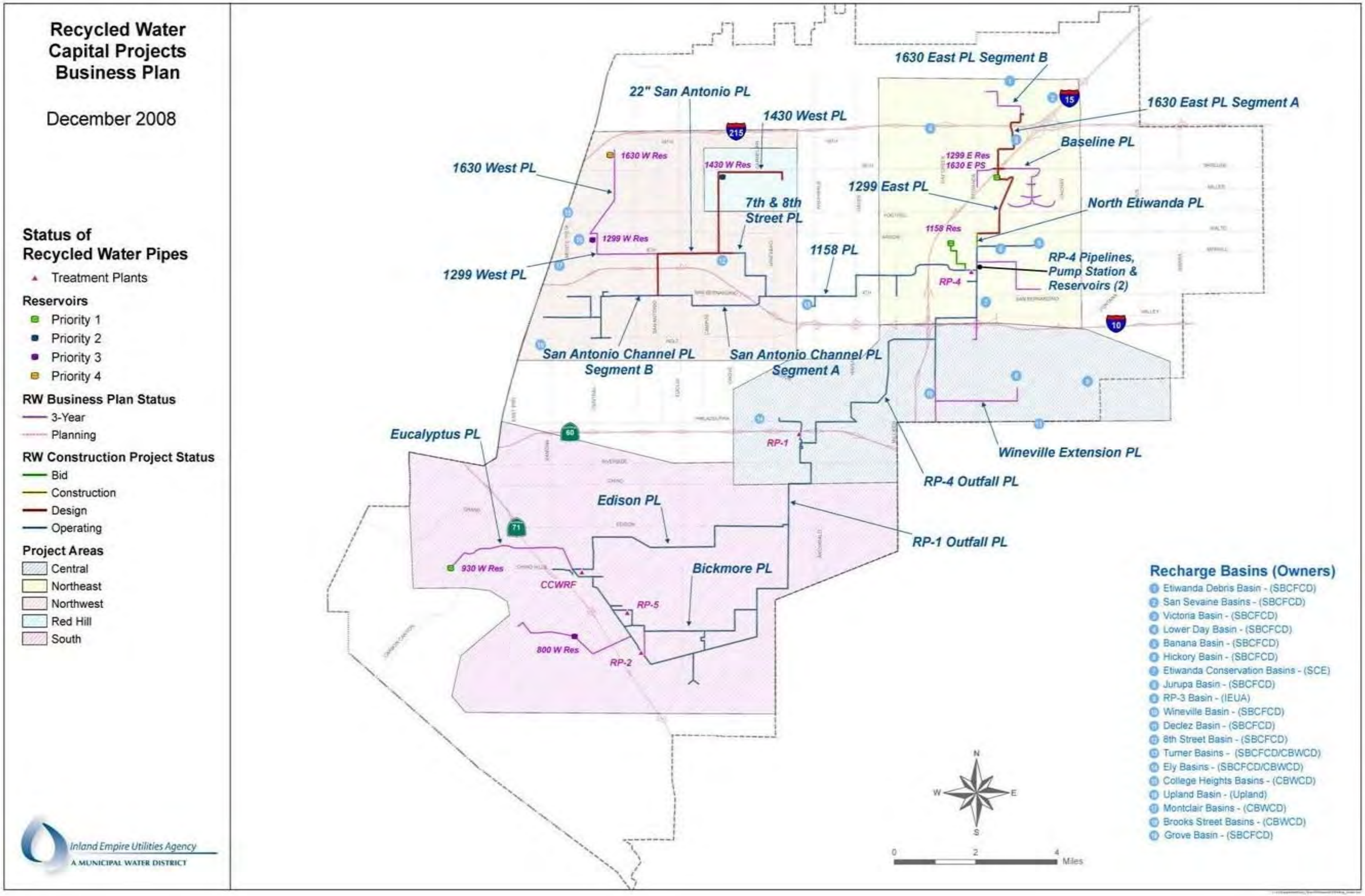


FIGURE 3-6
Groundwater Contamination Plumes

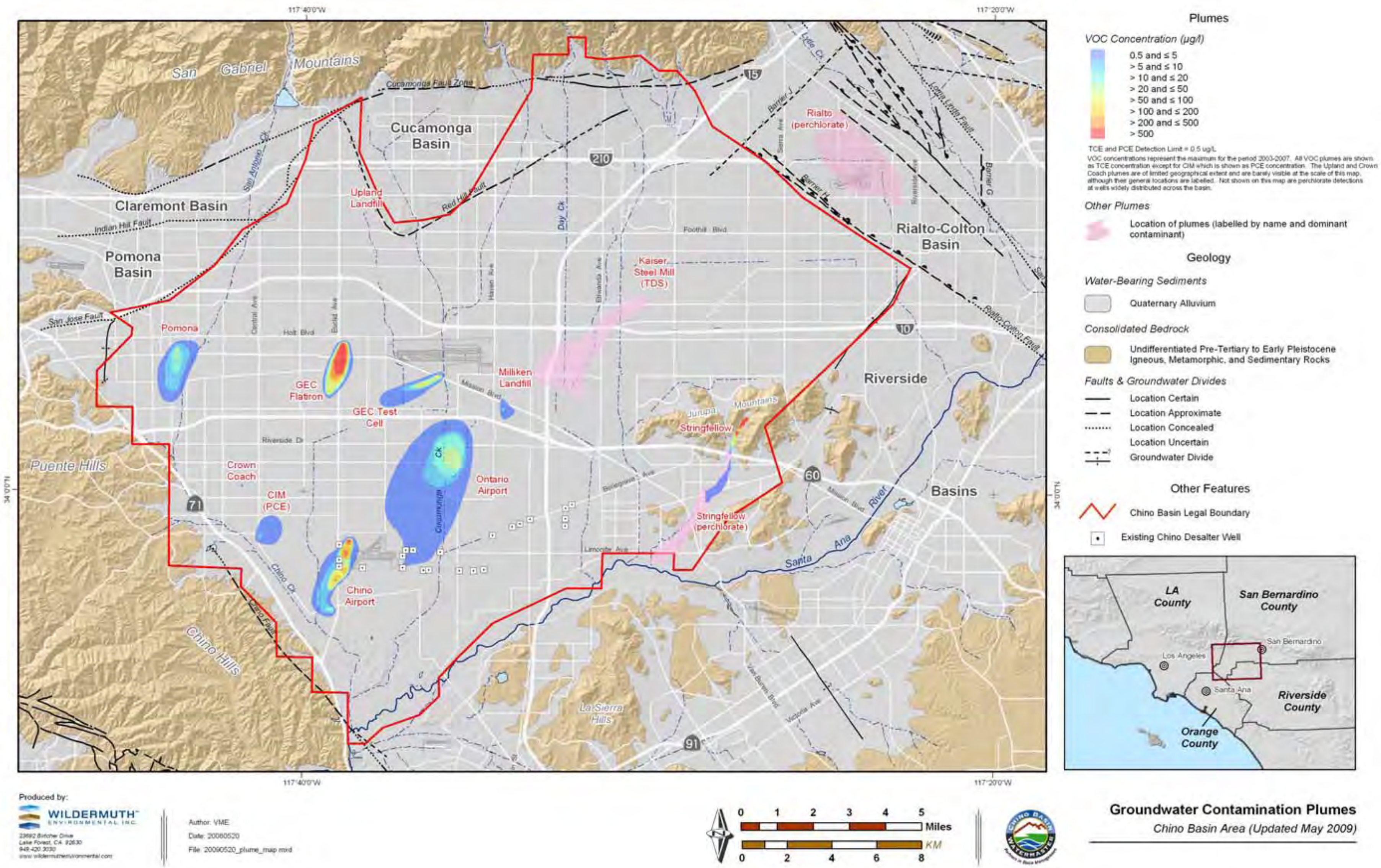
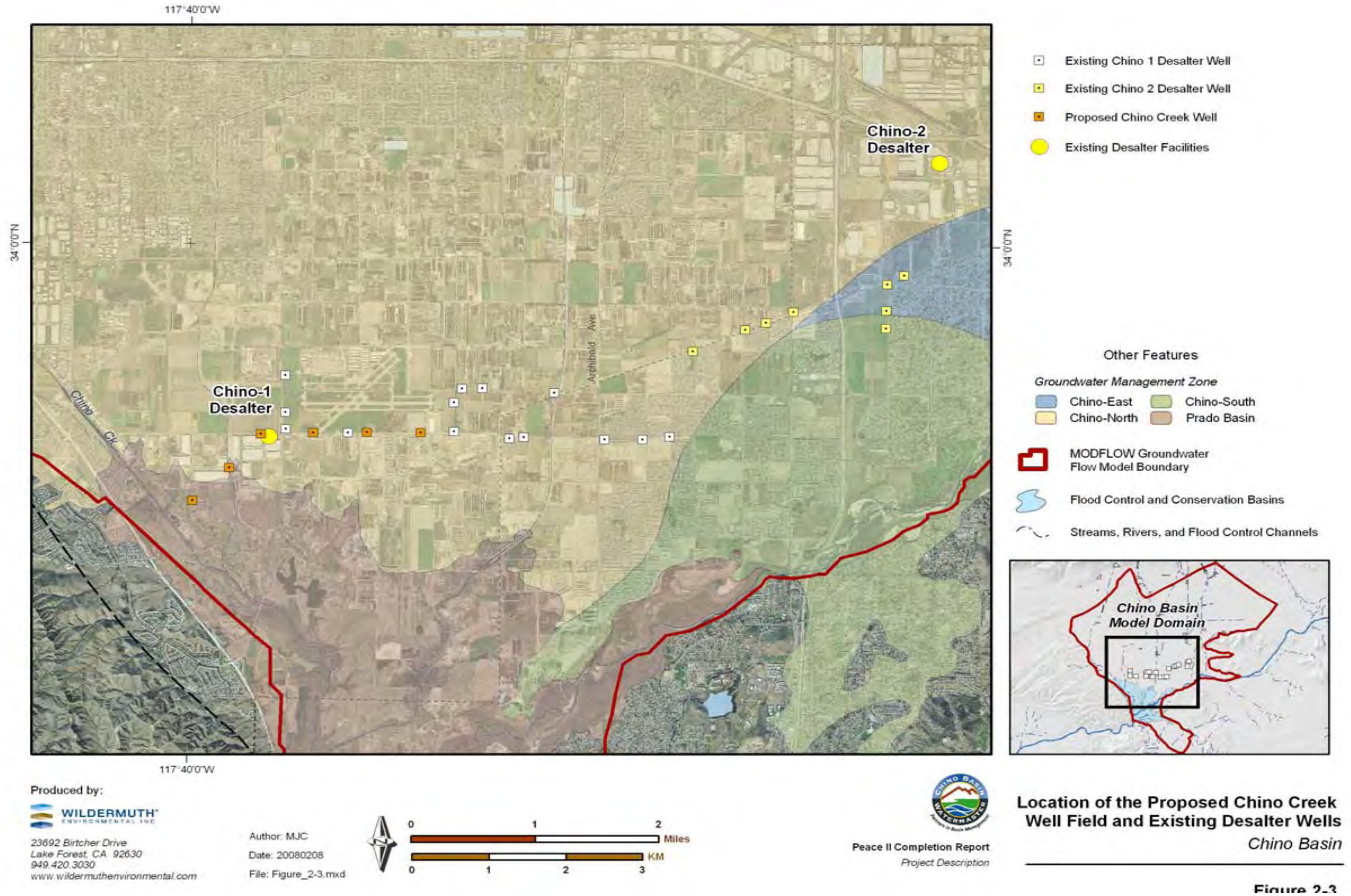


FIGURE 3-7
Recycled Water Project Status Map



CHAPTER 4 – ENVIRONMENTAL IMPACT EVALUATION

All Chapter 4 figures are located at the end of each subchapter, not immediately following their reference in text.

4.1 INTRODUCTION

The Inland Empire Utilities Agency (IEUA or Agency) will serve as the Lead Agency under the California Environmental Quality Act (CEQA) and will coordinate the preparation of a Subsequent Environmental Impact Report that will evaluate the potential significant environmental impacts that may result from constructing and operating the "Project." The OBMP PEIR is now nine years old and determining consistency of specific projects with the PEIR in accordance with Section 15162 and 15163 of the State California Environmental Quality Act (CEQA) Guidelines has become more difficult to achieve. Thus, IEUA, the Chino Basin Watermaster and stakeholders have made a decision to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original Peace Agreement, which enabled the implementation of the OBMP, termed the "Peace II Agreement." The Peace II Agreement, approved by the Court on December 21, 2007 for implementation, redefines the future programs and actions required to implement the OBMP, based on the past nine years of experience and accomplishments in implementing the OBMP.

Watermaster and the parties to the Judgment have been working to develop changes to the original Peace Agreement that, among other things, provide for Re-operation and the attainment of hydraulic control for the Chino Groundwater Basin. "Hydraulic control" is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. "Re-operation" means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030. Both of these objectives would be achieved through expansion of the existing desalter program.

The proposed Project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin.

Based on the findings of the Initial Study, the Agency, Watermaster and stakeholders concluded that a "Subsequent" Environmental Impact Report (DSEIR) must be prepared. This Draft DSEIR (DDSEIR) has been prepared to fulfill this commitment. Section 15162 of the State CEQA Guidelines provides guidance on the type of environmental documentation required when a second tier project (in this case the proposed activities defined in the Peace II Agreement) is considered by the CEQA lead agency. The conditions which determine whether a Subsequent EIR is required are defined in Section 15162 as follows:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environ-

mental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time of the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration;
b. Significant effects previously examined will be substantially more severe than shown in the previous EIR;
c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

The decision to prepare a DDSEIR is documented in the Initial Study, which is provided in this document as Subchapter 8.1. The decision to prepare a DDSEIR was based on the following findings: (1) substantial changes are proposed in the project which will require major revisions of the previous EIR; (2) substantial changes have occurred with respect to the circumstances under which the project is undertaken which may require major revisions of the previous EIR; and (3) new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time of the previous EIR was certified as complete, has been identified. Specifically, the project may have one or more significant effects not discussed in the previous EIR; significant effects previously examined may be more severe than shown in the previous EIR; and mitigation measures which are considerably different from those analyzed in the previous EIR may be required.

This chapter of the Draft Subsequent Environmental Impact Report (DDSEIR) provides the detailed information used to forecast the type and significance of potential environmental impacts that implementation of the Project and related actions can cause if the project is implemented as described in Chapter 3, the Project Description.

In the following subchapters, each of the environmental topics identified in the Initial Study as having a potential to cause significant impact is evaluated. The environmental impact analysis section for each environmental topic is arranged in the following manner:

a. An introduction that summarizes the specific issues of concern for each subchapter, identified in the Initial Study and Notice of Preparation scoping process;

b. A summary of the current or existing environmental setting for each physical resource or human infrastructure system is presented as the baseline from which impacts will be forecast;

c. Based on stated assumptions, the potential direct and indirect impacts are forecast and the significance of impacts is assessed without applying any mitigation using identified criteria or thresholds of significance;

d. Recommended measures that can be implemented to substantially lessen potential environmental impacts are identified, and their effectiveness in reducing impacts to non-significant levels is evaluated;

e. Potential cumulative environmental impacts are assessed under each environmental topic, where applicable; and

f. Significant and unavoidable environmental impacts and any significant impacts that may be caused by implementing mitigation measures are addressed.

To provide the reviewer with a criterion or set of criteria with which to evaluate the significance of potential environmental impacts, this document provides issue specific criteria, i.e. thresholds of significance, for each topic considered in this DDSEIR. These criteria are either standard thresholds, established by law or policy (such as ambient air quality standards) or project-specific evaluation thresholds that are developed with the Agency, Watermaster and stake-holder staffs and used specifically for this project. After comparing the forecasted physical changes in the environment that may be caused by implementing the proposed Project with the issue specific significance threshold criterion or criteria, a conclusion is reached on whether the proposed Project has the potential to cause a significant environmental impact for the issue being evaluated.

Measures to reduce significant environmental impacts are identified and described in this section of the DDSEIR. Over the past several years, mitigation has evolved in scope and complexity. As environmental issues are addressed in a progressive and adaptive manner, previous measures developed to mitigate project specific impacts are eventually integrated into local, regional, state and federal statutes, rules and regulations, such as the Uniform Building Code or Water Quality Management Plans. Mitigation measures that become statutes or rules and regulations become mandatory requirements (not discretionary) and they no longer need to be identified as additional mitigation applicable to the Project, although they are often referenced to demonstrate that identified environmental impacts are mitigated.

The text in the following subchapters summarizes all of the various measures anticipated to be incorporated into the project to reduce potential significant environmental effects, either to the extent feasible or to a level of non-significance. After determining the degree of mitigation that can be achieved by the proposed measures and after identifying any significant impacts that the mitigation measures can cause, a conclusion is provided regarding the significant and/or unavoidable adverse impact for each environmental topic.

This document utilizes conservative (worst case) assumptions in making impact forecasts based on the assumption that the impact forecasts should over-predict (if they cannot be absolutely quantified) consequences, rather than under-predict them. Many technical studies were prepared for this document and they are incorporated by summarizing the technical information in this document to ensure technical accuracy. These technical studies themselves are compiled in a separate volume of the DDSEIR (Volume 2) and copies of Volume 2 will be distributed in electronic form and made available to all parties on distribution upon request. The information used and analyses performed to make impact forecasts are provided in depth in this document to allow reviewers to follow a chain of logic for each impact conclusion and to allow the reader to reach independent conclusions regarding the significance of the potential impacts described in the following subchapters.

4.2 AIR QUALITY

4.2.1 Introduction

This section of the DSEIR focuses on the assessment of potential air quality impacts on the environment that may result from the implementation of the Peace II Agreement Program. The general impacts to air quality resources of the overall Chino Basin groundwater management program were forecast in Subchapter 4.6 on pages 4-270 to 4-295 of the original OBMP PEIR. The PEIR determined that implementation of the OBMP could cause adverse impacts on air quality, primarily from nitrogen oxides (NOx), due to electricity consumption for pumps and other facilities that consume electricity in support of moving groundwater to the surface and within the Basin. Depending upon the type and location of facilities being implemented, mitigation was identified to reduce construction-related air emission impacts from OBMP implementation to a level of nonsignificance. The PEIR concluded that air quality impacts from OBMP implement-tation could be reduced to a less than significant impact level for construction activities (through a combination of emission controls and scheduling), but the long-term impact of air emissions associated with future OBMP operations would be unavoidably significant and adverse.

Air quality background circumstances have changed substantially since the 2000 OBMP PEIR was prepared. Specifically, background air quality has changed over the past eight years; the state and federal ambient air quality standards for particulate matter (PM_{10} and $PM_{2.5}$) and ozone have been revised; greenhouse gas emissions [carbon dioxide (CO_2) and methane (CH_4)] and climate change have been identified as emissions of concern; and the emission forecast model used by the South Coast Air Quality Management District (SCAQMD), URBEMIS, has been updated and local significance thresholds have been established by SCAQMD to further refine the potential air quality impact forecast of projects within the South Coast Air Basin (SoCAB). As a result, a new air emission forecast is needed to update the air quality impacts of continuing to implement the OBMP and the new Peace II programs.

No issues related to air quality issues were raised in the responses to the Notice of Preparation or at the scoping meeting.

4.2.2 Environmental Setting

An Air Quality Impact Analysis prepared by JE Compliance Services, Inc for the project is the basis for much of the information provided in this section. The Air Quality Technical Study is provided in Volume 2, Technical Appendices, to this document. The project is located entirely within the SoCAB which is under the jurisdiction of the SCAQMD. The air quality regulatory jurisdictions within the project area include the U.S. Environmental Protection Agency (EPA), the California EPA, specifically the California Air Resources Board (CARB), and the SCAQMD.

4.2.2.1 Meteorology/Climate Setting

Climate in the project area is characterized by warm, dry summers, low precipitation, and mild winters. Average daily maximum winter temperature is 70°F, and average daily maximum summer temperature is 94°F. Temperatures typically range from winter lows near 40°F to summer highs of over 100°F. More than three-quarters of annual rainfall occurs from December through March. Little rain falls between May and November, due to the semi-permanent Pacific high pressure system that limits passing frontal storms from entering southern California.

The SoCAB, within which the project is located, experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the semi-permanent high pressure over the Pacific Ocean. This inversion limits the vertical dispersion of air contaminants produces in the air basin, trapping them relatively near the ground. Pollutants generated in the coastal portions of the basin undergo photochemical reactions converting them to smog that are then transported inland by the prevailing daytime onshore winds. The project area typically has poor air quality in the summer and good air quality in the winter due to the combination of onshore and offshore winds, summer inversions and high levels of air pollutant emissions generated within the air basin.

The project is located entirely within the SoCAB which is under the jurisdiction of the SCAQMD. The SCAQMD has jurisdiction over the air basin in which the proposed project is located and is responsible for regulating stationary source emissions. The District has also been given the authority to regulate mobile emissions as an indirect source.

4.2.2.2 Air Quality Setting

Ambient Air Quality Standards (AAQS)

Ambient air quality standards (AAQS) are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and safety. They are designed to protect those people most susceptible to respiratory distress, such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and people engaged in strenuous work or exercise, called "sensitive receptors." Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed. Recent research suggests, however, that long-term exposure to air pollution at levels that meet air quality standards may nevertheless have adverse health effects. For example, ozone exposure even at levels close to the ambient standard may lead to adverse respiratory health.

The federal Clean Air Act (CAA), the California Clean Air Act (CCAA), and the Air Quality Management Plan (AQMP), prepared and adopted by the SCAQMD, regulate air quality in the air basin. The following discussion describes the regulatory authority of the federal, state and local jurisdictions.

Federal Clean Air Act

The Federal CAA Amendments of 1990 required that the U.S. EPA review all national AAQS with respect to health impacts and propose modifications or new rules as appropriate. In addition, the amendments of the 1990 federal CAA are associated with the attainment and maintenance of air quality standards, permits and enforcement, toxic air pollutants, acid deposition, stratospheric ozone protection and motor vehicles and fuels.

The goal of Title I, the non-attainment provision, is to attain air quality standards for six criteria pollutants: ozone, oxides of nitrogen, oxides of sulfur, particulate matter (PM_{10}), carbon monoxide, and lead. All non-attainment areas are designated or classified based on the severity of their non- attainment problem. These classifications determine the extent to which remedial actions must be taken within a given air quality planning area. The SoCAB is an air quality planning area designated non-attainment by federal and state standards for ozone (O_3) and particulate matter ($PM_{2.5}$ and PM_{10}).

Federal ambient air quality standards are summarized in Table 4.2 -1.

Table 4.2-1
STATE OF CALIFORNIA AIR RESOURCES BOARD AMBIENT AIR QUALITY STANDARDS

Pollutant	Average Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O3)	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	–	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.08 ppm (157 µg/m3)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		–		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	15 µg/m3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		–	–	–
Nitrogen Dioxide (NO2) *	Annual Arithmetic Mean	0.030 ppm (56 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (338 µg/m3		–		
Sulfur Dioxide (SO2)	Annual Arithmetic Mean	–	Ultraviolet Fluorescence	0.030 ppm (80 µg/m3)	–	Spectrophotometry (Paraosaniline Method)
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm (365 µg/m3)	–	
	3 Hour	–		–	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		–	–	–

<table>
<tr><th rowspan="2">Pollutant</th><th rowspan="2">Average Time</th><th colspan="2">California Standards [1]</th><th colspan="3">National Standards [2]</th></tr>
<tr><th>Concentration [3]</th><th>Method [4]</th><th>Primary [3,5]</th><th>Secondary [3,6]</th><th>Method [7]</th></tr>
<tr><td rowspan="2">Lead 8</td><td>30-Day Average</td><td>1.5 µg/m3</td><td rowspan="2"></td><td>–</td><td>–</td><td>–</td></tr>
<tr><td>Calendar Quarter</td><td>–</td><td>1.5 µg/m3</td><td>Same as Primary Standard</td><td>High Volume Sampler and Atomic Absorption</td></tr>
<tr><td>Visibility Reducing Particles</td><td>8 Hour</td><td colspan="2">Extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more (0.07 - 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.</td><td colspan="3" rowspan="4">No Federal Standards</td></tr>
<tr><td>Sulfates</td><td>24 Hour</td><td>25 µg/m3</td><td>Ion Chromatography</td></tr>
<tr><td>Hydrogen Sulfide</td><td>1 Hour</td><td>0.03 ppm (42 µg/m3)</td><td>Ultraviolet Fluorescence</td></tr>
<tr><td>Vinyl Chloride 8</td><td>24 Hour</td><td>0.01 ppm (26 µg/m3)</td><td>Gas Chromatography</td></tr>
</table>

Note: * On February 19, 2008, the Office of Administrative Law approved a new Nitrogen Dioxide ambient air quality standard, which lowers the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes will become effective March 20, 2008.

Footnotes

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2 National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3 Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4 Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5 National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6 National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7 Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8 The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (02/21/08)

California Clean Air Act

The CCAA, passed by the California Legislature and signed into law by the Governor in 1988, is a comprehensive air pollution control agenda for the state of California. State standards are, in most cases, more stringent than federal standards. The goal of the CCAA is to attain state air quality standards by the earliest practical date. Because California established AAQS several years before the federal action and because of unique air quality problems introduced by the restrictive dispersion meteorology in much of California, there is a considerable difference between state and national clean air standards. Those standards currently in effect in California are shown on Table 4.2-1.

The CCAA requires each air pollution control district of an air basin designated as in non-attainment of state ambient air quality standards to prepare and submit a plan for attaining and maintaining state standards. After further review of the relationship between fine particulate matter and human health effects, the California Air Resources Board (CARB) adopted new state standards on June 20, 2002 for $PM_{2.5}$ that are more stringent that the federal standards. No specific control programs are in place to achieve this much more stringent standard. However, it does represent an air quality goal to dramatically reduce the adverse health effects from small-particle air pollution. Health effects from air pollutants are summarized in Table 4.2-2.

Each attainment plan must define the present and anticipated extent of non-attainment, including adopted and proposed measures to reduce emissions of the pollutant and/or its precursors, and their anticipated effectiveness; the availability and effectiveness of additional control measures; the earliest practicable attainment date; any legal, technological, or administrative impediment to developing and implementing an attainment plan; the relative significance of both natural and windblown emissions; and any additional information needed with respect to ambient air monitoring and air quality computer modeling, and estimated budgetary requirements to obtain the information.

Some of the CCAA requirements include reducing pollutants contributing to non-attainment by 5 percent per year, or 15 percent over a 3-year period, achieving an average commuter ridership of 1.3 persons per vehicle, reducing non-attainment pollutant exposures by 30 percent, and ranking control measures by implementation priorities.

There are no AAQS for non-criteria pollutants (such as diesel exhaust–the ARB identified diesel exhaust as a toxic air contaminant in 1998). Therefore, other guidelines are used to evaluate the potential air quality impact of diesel exhaust. For non-cancer effects, the California AB 2588 Air Toxics Hot Spots program criteria identify a hazard index. The hazard index (HI) is the ratio of a modeled concentration to a concentration (termed the reference exposure level) determined by the State of California Office of Environmental Health Hazard Assessment (OEHHA) below which no adverse health effects are expected to occur. This reference concentration for diesel exhaust is 5 ug/m^3. If the hazard index is less than 1.0, then health effects are not expected. For cancer effects, Proposition 65 established the criteria of no significant risk level of 10 incremental cancers per one million exposed persons (10×10^{-6}).

Table 4.2-2
HEALTH EFFECTS SUMMARY FOR AIR POLLUTANTS

Pollutants	Sources	Primary Effects
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	Aggravation of respiratory and cardio-vascular diseases. Irrigation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide	Motor vehicle exhaust. High temperature. Stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impair-ment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart disease (angina).
Fine Particulate Matter (PM-10)	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest dis-comfort. Soiling. Reduced visibility.
Fine Particulate Matter (PM-2.5)	Fuel combustion in motor vehicles, equipment and industrial sources. Residential and agricultural burning. Industrial processes. Also, formed from photochemical reactions of other pollutants, including NOx, sulfur oxides and organics.	Increases respiratory disease. Lung damage. Cancer and premature death. Reduces visibility and results in surface soiling.
Sulfur Dioxide	Combustion of sulfur-containing fossil fuels. Smelting of sulfur-bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, leather, finishes, coating, etc.
Lead	Contaminated soil.	Impairment of blood functions and nerve construction. Behavioral and hearing problems in children.

Source: California Air Resources Board, 2002.

<u>Air Quality Planning</u>

The CARB coordinates and oversees both State and federal air pollution control programs in California, and has divided the State into 15 air basins. Significant authority for air quality control within each basin has been given to local Air Pollution Control Districts (APCD) or Air Quality Management Districts (AQMD) that regulate stationary source emissions and develop local non-attainment plans. The SCAQMD has jurisdiction over the air basin in which the proposed project is located and is responsible for regulating stationary source emissions, and has been given the authority to regulate mobile emissions as an indirect source.

The SCAQMD jurisdiction includes the South Coast Air Basin, portions of the Mojave Desert Air Basin and the Salton Sea Air Basin. The SoCAB includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties and includes the project location. The SoCAB has an area of 6,800 sq. miles and a 2005 population estimated to be 16 million people.

Regional Air Quality

Monitoring of air quality in the project area is the responsibility of the SCAQMD. The SCAQMD monitors concentrations of criteria air pollutants throughout Los Angeles, Orange, Riverside and San Bernardino County at 33 monitoring stations. SCAQMD monitoring stations representative of the Chino Basin are the Norco/Corona Station (No.22), Metropolitan Riverside County Stations 1 and 2 (No.23), Northwest San Bernardino Valley Station (No.32), Southwest San Bernardino Valley Station (No.33) and Central San Bernardino Valley Stations 1 and 2 (No.34). The air quality monitoring data from these stations is provided on Table 4.2-3. Pollutant concentrations exceed the federal and State standards for ozone and particulate matter. Consequently, the SoCAB is in exceedance of standards for ozone, PM_{10} and $PM_{2.5}$. The Basin is the only air basin in the nation classified as in “extreme” non-attainment for ozone.

The SoCAB air quality problems are caused by: its location in a large urban area where substantial air pollutant emissions are generated on a daily basis; meteorological conditions and topographical constraints that slow down dispersal of pollutants out of the basin; a low ability to disperse pollutants vertically in the atmosphere; and a sunny climate that provides the photo-chemical energy that increases creation of ozone and other pollutants. Though there has been overall improvement in the SoCAB during the last several decades, it still has some of the poorest air quality in the nation.

The SoCAB is in non-attainment for ozone and particulate matter, but primary pollutants such as carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide, sulfate, and lead do not exceed allowable levels and the SoCAB is in attainment for these criteria pollutants. Certain attainment pollutants are managed under a maintenance plan.

Table 4.2-3
NUMBER OF DAYS ABOVE THE STANDARD AND MAXIMUM OBSERVED CONCENTRATIONS IN 2007

Pollutant/Standard	St. 22 Norco/Corona	St. 23 Metro Riv Co 1	St. 23 Metro Riv Co 2	St. 32 NW San Brdo Valley	St. 33 SW San Brdo Valley	St. 34 Central San Brdo Valley 1	St. 34 Central San Brdo Valley 2
Ozone							
1-Hour > 0.09 ppm (S)	-	31	-	32	-	40	48
1-Hour > 0.12 ppm (F)*	-	2	-	7	-	9	8
8-Hour > 0.07 ppm (S)	-	69	-	55	-	60	74
8-Hour > 0.075 ppm (F)	-	46	-	35	-	43	51
Max. 1-Hour Conc. (ppm)	-	0.131	-	0.145	-	0.144	0.153
Carbon Monoxide							
1-Hour > 20 ppm (S)	-	0	0	0	-	0	0
8-Hour > 9 ppm (S,F)	-	0	0	0	-	0	0
Max. 1-Hour Conc. (ppm)	-	4.0	4.0	2.0	-	3.0	4.0
Max. 8-Hour Conc. (ppm)	-	2.9	2.1	1.7	-	1.8	2.3
Nitrogen Dioxide							
1-Hour > 0.18 ppm (S)	-	0	-	0	-	0	0
Max. 1-Hour Conc. (ppm)	-	0.07	-	0.10	-	0.09	0.08
Inhalable Particulates (PM10)							
24-Hour > 50 mg/m3 (S)#	17%	57%	-	-	24%	59%	49%
24-Hour > 150 mg/m3 (F)	0	0	-	-	0	0	0
Max. 24-Hour Conc. (ug/m3)	93	118	-	-	115	111	136
Ultra-Fine Particulates (PM2.5)							
24-Hour > 65 mg/m3 (F)#	-	11.2%	7.9%	-	5.9%	9.3%	11.1%
Max. 24-Hour Conc. (ug/m3)	-	75.7	68.6	-	72.8	77.5	72.1

Notes: * standard revoked in 2006; (S) - State ambient standard; (F) - Federal ambient standard
data represent % of samples exceeding standards

Source: SCAQMD 2007 Air Quality Monitoring Summary; note the 2008 Summary has not yet been released

4.2.3 Project Impacts

This section assesses potentially significant environmental impacts to air quality resulting from implementing the Peace II Program. Section 4.2.3.1 sets forth the threshold criteria used to determine the significance of air quality impacts under State CEQA Guidelines, as well as under regional SCAQMD policies.

4.2.3.1 Significance Criteria

Appendix G of the California CEQA Guidelines offers the tests of air quality impact significance that are included in the standard Initial Study checklist. The Initial Study evaluated and eliminated several of the standard checklist items with respect to air quality. Three issues were carried forward to the DDSEIR for further analysis.

Air quality impacts are considered significant if they cause clean air standards to be violated where they are currently met, or if they will measurably contribute to an existing violation of standards. Any substantial emissions of air contaminants for which there is no safe exposure, or nuisance emissions such as dust or odors, may also be considered a significant impact.

Appendix G of the California CEQA Guidelines offers the following five tests of air quality impact significance. A project would have a potentially significant impact on air quality if it:

a. Conflicts with or obstructs implementation of the applicable air quality plan,

b. Violates any air quality standard or contributes substantially to an existing or projected air quality violation,

c. Results in a cumulatively considerable net increase in any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors),

d. Exposes sensitive receptors to substantial pollutant concentrations, and

e. Has a substantial, demonstrable negative aesthetic effect.

Further, Appendix I of the California CEQA guidelines states that a project could have a significant impact on air quality if it:

- Creates objectionable odors affecting a substantial number of people, and
- Alters air movement, moisture, or temperature, or causes a change in climate, either locally or regionally.

The potential for the project to create objectionable odors was evaluated in the Initial Study and determined to be less than significant. Potential impact on climate will be discussed herein.

The SCAQMD CEQA Air Quality Handbook (1993) identifies specific quantitative emission thresholds that are recommended to local agencies for determining significance of air emissions from a specific project. These thresholds are listed in Tables 4.2-4 and 4.2-5.

Table 4.2-4
CONSTRUCTION THRESHOLDS

Pollutant	Threshold (lb/day)	Threshold (tons/quarter)
Carbon Monoxide (CO)	550	24.75
Sulfur Oxides (SO_2)	150	6.75
Reactive Organic Compounds (ROC)	75	2.5
Nitrogen Oxide (NOx)	100	2.5
Particulate Matter (PM_{10})	150	6.75

Operation or occupancy related air emissions are considered to be significant in the SoCAB if they exceed any of the thresholds shown on Table 4.2-5 after a development becomes occupied.

Table 4.2-5
OPERATIONAL SIGNIFICANCE THRESHOLDS

Pollutant	Threshold (lb/day)
Carbon Monoxide (CO)	550
Sulfur Oxides (SO_2)	150
Reactive Organic Compounds (ROC)	55
Nitrogen Oxide (NOx)	55
Particulate Matter (PM_{10})	150

SCAQMD states the following additional indicators should be used as screening criteria to determine if a project needs additional air quality evaluation:

- Project could interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation
- Project could generate vehicle trips that cause a CO hot spot.
- Project could result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year

4.2.3.2 Project Impact Analysis

Potential short-term air quality impacts attributable to the project are generally due to grading and construction, including onsite generation of fugitive dust, equipment exhaust, off-gasing of paving materials, and offsite emissions from construction employee commuting and/or trucks delivering building materials. Potential long-term air quality impacts are generally due to increased electrical consumption from equipment that provides water treatment and supply. The project involves the following project components: installation of approximately 235,000 lineal feet of pipeline over the life of the project; installation of future reservoirs, evaluated generically for this document as the installation of a new five million gallon reservoir; installation of future booster stations (one at a time); installation of production and monitoring wells (one at a time); installation of regenerable and non-regenerable facilities (one at a time); and a future expansion of desalter facilities at the Chino Basin Desalters. Emissions from these activities were calculated in an air quality technical report prepared by JE Compliance Services, Inc., which is provided as Appendix 1 in Volume 2, Technical Appendices, to this DSEIR. Much of this information is brought forward in the following analysis to allow the reviewer to ascertain how the project emissions were forecast.

- **Would the proposed project interfere with the attainment of the federal or state ambient air quality standards by either violating or contributing to an existing or projected air quality violation? Would it conflict with or obstruct implementation of the applicable air quality plan?**

Short-term Construction Emissions

Construction activities include: demolition (such as pavement), grading (site preparation for water infrastructure facilities), excavation (foundations and water pipelines), infrastructure installation (water pipelines), well drilling, road re-construction, installation of equipment, such as pumps, and construction of other water infrastructures (reservoirs). Heavy equipment is used to demolish, grade, excavate and level. Trucks are used to haul away excavation material and to bring construction equipment and materials to the site. Equipment activity levels vary considerably throughout the construction of a project as well as on any given day. However, based on the construction scenario identified in Chapter 3, Project Description, the following air emission forecast has been compiled (refer to Volume 2, Technical Appendices).

Pipeline Phase

The pipeline phase will consist of up to a total of 300 feet of pipeline being installed in developed areas and 900 feet of pipeline installed in undeveloped areas each day. Soil hauling activities will occur due to the excavation of soil. Approximately 200 cubic feet of soil will be exported from the site each day. Emissions from excavation activities were estimated using an emission factor of 10 pounds per acre-day and an expected disturbed area of 0.5 acres. The pipeline phase will also consist of indirect carbon dioxide emissions from the manufacturing of steel. Volatile organic compounds (VOC) emissions are also expected to occur as a result of paving operations. The maximum number of acres paved per day during the pipeline phase will be 0.6 acre and the maximum amount of pipeline installed per day will be five tons.

Emissions from pipeline installation occur from fugitive dust, equipment exhaust, worker trips, pavement off-gas and carbon dioxide emissions due to the manufacture of steel. Maximum daily emissions from fugitive dust and pavement off-gas were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using the CARB (California Air Resources Board) off-road model emission factors[1] and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles[2]. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors. The schedule of off-road equipment, on-road equipment, and steel usage is based on information provided by TDA. Mitigation measures for the pipeline phase involve watering the active areas of the site two times daily. Criteria pollutant emissions from pipeline activities are summarized in Table 4.2-6.

Reservoir Phase

The reservoir phase of the project will include the installation and coating of a five million gallon reservoir. Emissions from reservoir construction occur from fugitive dust due to mass grading activities, equipment exhaust, worker trips, cement and steel manufacturing, and architectural coating activities. Mass grading activities will consist of approximately two acres of soil being disturbed each day and 250 cubic feet of soil being exported from the site each day. VOC emissions are also expected to occur as a result of paving operations. The maximum number of acres paved per day during the reservoir phase will be 0.3 acres per day.

[1] http://www.aqmd.gov/ceqa/handbook/offroad/offroad.html
[2] http://www.aqmd.gov/CEQA/handbook/onroad/onroad.html

Maximum daily emissions from fugitive dust and pavement off-gas were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using the CARB off-road model emission factors and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using United States Environmental Protection Agency (USEPA) emission factors[3].

The emissions of VOC due to architectural coating were calculated using an emission factor for pounds of VOC per surface area coated from URBEMIS 2007 and the surface area of the reservoir. The emission factor assumed that the painting VOC content was 250 g/L and the paint thickness was six millimeters. The schedule of off-road equipment, on-road equipment, concrete usage, steel usage, and architectural coating usage for the grading phase and construction phase is based on information provided by TDA. Mitigation measures during the mass grading activities of the reservoir phase involves watering the active areas of the site two times daily. The schedule of off-road equipment and on-road equipment for the foundation and paving phases was based on default URBEMIS 2007 equipment.

Operational emissions due to maintenance of architectural coating on the reservoir are expected. VOC operational emissions due to the maintenance coating of the reservoir were calculated using an emission factor for pounds of VOC per surface area coated from URBEMIS 2007 and the surface area of the reservoir. The emission factor assumed that the painting VOC content was 250 g/L and the paint thickness was six millimeters. It is assumed that approximately 10% of the reservoir will be repainted each year to maintain the architectural coating on the reservoir. Criteria pollutant emissions from reservoir construction activities are summarized in Table 4.2-7.

Booster Station Phase

The booster station phase of the project will include the installation of a booster station. Emissions from booster station construction occur from fugitive dust due to mass grading activities, equipment exhaust, worker trips, cement and steel manufacturing, and architectural coating activities. Mass grading activities will consist of approximately one half an acre of soil being disturbed each day and 100 cubic feet of soil being exported from the site each day.

Maximum daily emissions from fugitive dust were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using the CARB off-road model emission factor and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using USEPA emission factors. Mitigation measures during the mass grading activities of the booster station phase involve watering the active areas of the site two times daily.

[3] http://www.epa.gov/ttnchie1/conference/ei13/ghg/hanle.pdf

Table 4.2-6
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR PIPELINE CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Pipeline construction	Fugitive dust	0	0	0	0	5.23	0	5.23	1.10	0	1.10	0	0
Pipeline construction	Off-road equipment	7.30	52.72	25.04	0.06	0	3.16	3.16	0	2.81	2.81	4,999.27	0.66
Pipeline construction	On-road equipment	0.73	9.17	2.87	0.01	0.44	0.41	0.84	0.38	0.37	0.76	1,010.69	0.03
Pipeline construction	Worker trips	0.44	0.44	3.97	0.01	0.04	0	0.04	0.03	0	0.03	525.93	0.04
Pipeline construction	Steel manufacturing	0	0	0	0	0	0	0	0	0	0	17,500.00	0
Pipeline construction	Off-gas	1.56	0	0	0	0	0	0	0	0	0	0	0
Maximum Daily Emissions		10.03	62.33	31.87	0.07	5.72	3.56	9.28	1.51	3.19	4.69	24,035.89	0.73
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Table 4.2-7
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR RESERVOIR CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Reservoir construction	Mass grading	7.23	62.44	28.47	0.07	20.49	2.91	23.40	4.62	2.60	7.22	6,404.92	0.62
Reservoir construction	Foundation	1.65	11.82	7.80	0.02	0.24	0.71	0.95	0.21	0.64	0.84	62,130.00	0.13
Reservoir construction	Paving	4.16	21.96	13.09	0.02	0.24	1.45	1.69	0.20	1.30	1.50	2,251.10	0.29
Reservoir construction	Construction	4.48	26.26	16.26	0.03	0.24	1.79	2.03	0.21	1.60	1.81	877,763.06	0.39
Reservoir construction	Architectural coating	32.96	0.18	1.65	2.15E-03	0.02	0	0.02	0.01	0	0.01	219.14	0.02
Maximum Daily Emissions		32.96	62.44	28.47	0.07	20.49	2.91	23.40	4.62	2.60	7.22	877,763.06	0.62
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Operational emissions due to electricity usage were calculated using emission factors from the Climate Action Registry[4] and the California Environmental Quality Act Handbook[5]. Emissions from employee vehicles were calculated using EMFAC 2007 emission factors for on-road vehicles. The schedule of off-road equipment, on-road equipment, concrete usage, steel usage, and architectural coating usage for the grading and construction phases is based on information provided by TDA. The schedule of off-road equipment and on-road equipment for the foundation and trenching phases was based on default URBEMIS 2007 equipment. Criteria pollutant emissions from booster station construction activities are summarized in Table 4.2-8.

Production Wells
The production wells phase of the project will include the installation of production wells. Emissions from production well construction occur from fugitive dust due to soil hauling activities, equipment exhaust, worker trips, and cement and steel manufacturing. Soil hauling activities will consist of approximately one half an acre of soil being disturbed each day and ten cubic feet of soil being exported from the site each day.

Maximum daily emissions from soil hauling were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using CARB off-road model emission factors and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using USEPA emission factors.

Operational emissions from the production wells due to electricity usage were calculated using emission factors from the Climate Action Registry and the California Environmental Quality Handbook. Emissions from employee vehicles were calculated using EMFAC 2007 emission factors for on-road vehicles. The schedule of off-road equipment, on-road equipment, concrete usage and steel usage for production well installation is based on information provided by TDA. Criteria pollutant emissions from production well construction are summarized in Table 4.2-9.

Monitoring Wells
The monitoring wells phase of the project will include the installation of monitoring wells. Emissions from monitoring well construction occur from fugitive dust due to soil hauling activities, equipment exhaust, worker trips, and cement and steel manufacturing. Soil hauling activities will consist of approximately one half an acre of soil being disturbed each day and ten cubic feet of soil being exported from the site each day.

Maximum daily emissions from soil hauling were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using CARB off-road model emission factors and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using USEPA emission factors.

[4] California Climate Action Registry, Appendix C, June 2007.
[5] CEQA Air Quality Handbook, SCAQMD, April 1993.

Table 4.2-8
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR BOOSTER STATION CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Booster station construction	Mass grading	4.23	37.73	17.26	0.04	5.20	1.56	6.76	1.22	1.40	2.62	3,623.98	0.37
Booster station construction	Foundation	1.62	11.79	7.47	0.02	0.24	0.71	0.95	0.20	0.64	0.84	26,165.86	0.13
Booster station construction	Trenching	2.47	18.90	9.55	0.02	0.02	1.01	1.03	0.01	0.90	0.91	1,971.50	0.22
Booster station construction	Construction	3.06	23.66	12.08	0.03	0.24	1.36	1.60	0.20	1.22	1.42	37,465.87	0.26
Booster station construction	Architectural coating	49.48	0.18	1.65	2.15E-03	0.02	0	0.02	0.01	0	0.01	219.14	0.02
Maximum Daily Emissions		49.48	37.73	17.26	0.04	5.20	1.56	6.76	1.22	1.40	2.62	37,465.87	0.37
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Table 4.2-9
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR PRODUCTION WELL CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Production well construction	Fugitive dust	0	0	0	0	5.00	0	5.00	1.05	0	1.05	0	0
Production well construction	Off-road equipment	5.98	54.88	24.54	0.07	0.00	2.76	2.76	0	2.45	2.45	6,563.18	0.54
Production well construction	On-road equipment	0.33	4.20	1.32	4.54E-03	0.20	0.19	0.39	0.18	0.18	0.35	463.23	0.02
Production well construction	Worker trips	0.07	0.07	0.66	8.62E-04	0.01	0	0.01	4.38E-03	0	4.38E-03	87.65	0.01
Production well construction	Steel manufacturing	0	0	0	0	0	0	0	0	0	0	35,000.00	0
Production well construction	Concrete manufacturing	0	0	0	0	0	0	0	0	0	0	4,940.94	0
Maximum Daily Emissions		6.39	59.16	26.52	0.08	5.21	2.94	8.15	1.23	2.63	3.86	47,055.01	0.56
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Operational emissions from the monitoring wells due to emissions from employee vehicles were calculated using EMFAC 2007 emission factors for on-road vehicles. The schedule of off-road equipment, on-road equipment, concrete usage and steel usage for monitoring well installation is based on information provided by TDA. Criteria pollutant emissions from monitoring well construction are summarized in Table 4.2-10.

Regenerable and Non-regenerable Treatment Facilities
The regenerable and non-regenerable treatment facilities phase of the project will include the installation of a regenerable and non-regenerable treatment facilities and equipment. Emissions from regenerable and non-regenerable treatment facilities construction occur from fugitive dust due to mass grading activities, equipment exhaust, worker trips, and cement and steel manufacturing. Mass grading activities will consist of approximately one half an acre of soil being disturbed each day and 500 cubic feet of soil being exported from the site each day.

Maximum daily emissions from fugitive dust were generated using emission factors from URBEMIS 2007. Maximum daily emissions from off-road equipment were calculated using the CARB off-road model emission factors and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using USEPA emission factors. Mitigation measures during the mass grading activities of the regenerable and non regenerable treatment facilities phase involves watering the active areas of the site two times daily.

Operational emissions due to electricity usage were calculated using emission factors from the Climate Action Registry and the California Environmental Quality Handbook. Emissions from employee vehicles were calculated using EMFAC 2007 emission factors for on-road vehicles. The schedule of off-road equipment, on-road equipment, concrete usage, steel usage, and architectural coating usage for grading and construction activities is based on information provided by TDA. The schedule of off-road equipment and on-road equipment for the foundation and trenching phases was based on default URBEMIS 2007 equipment. Criteria pollutant emissions from regenerable and non-regenerable treatment facilities construction activities are summarized in Table 4.2-11.

Desalter Facilities
The desalter facilities phase of the project will include the expansion of the desalter facilities to treat up to 40,000 acre-ft/y of contaminated groundwater for deliver to domestic water consumers within the Chino Basin. Emissions from the desalter facilities expansion occur from fugitive dust due to soil hauling activities, equipment exhaust, worker trips, and cement and steel manufacturing. Soil hauling activities will consist of approximately one half an acre of soil being disturbed each day and 100 cubic feet of soil being exported from the site each day. Maximum daily emissions from soil hauling were generated using emission factors from URBEMIS 2007.

Table 4.2-10
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR MONITORING WELL CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Monitoring well construction	Fugitive dust	0	0	0	0	5.00	0	5.00	1.05	0	1.05	0	0
Monitoring well construction	Off-road equipment	5.98	54.88	24.54	0.07	0	2.76	2.76	0	2.45	2.45	6,563.18	0.54
Monitoring well construction	On-road equipment	0.33	4.20	1.32	4.54E-03	0.20	0.19	0.39	0.18	0.18	0.35	463.23	0.02
Monitoring well construction	Worker trips	0.07	0.07	0.66	8.62E-04	0.01	0	0.01	4.38E-03	0.00	4.38E-03	87.65	0.01
Monitoring well construction	Steel manufacturing	0	0	0	0	0	0	0	0	0	0	35,000.00	0
Monitoring well construction	Concrete manufacturing	0	0	0	0	0	0	0	0	0	0	4,940.94	0
Maximum Daily Emissions		6.39	59.16	26.52	0.08	5.21	2.94	8.15	1.23	2.63	3.86	47,055.01	0.56
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Table 4.2-11
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR TREATMENT FACILITY CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Treatment facility construction	Mass grading	5.81	57.61	23.47	0.06	6.15	2.44	8.59	2.05	2.20	4.26	5,813.81	0.44
Treatment facility construction	Foundation	1.62	11.79	7.47	0.02	0.24	0.71	0.95	0.20	0.64	0.84	124,984.61	0.13
Treatment facility construction	Trenching	2.47	18.90	9.55	0.02	0.02	1.01	1.03	0.01	0.90	0.91	1,971.50	0.22
Treatment facility construction	Construction	2.85	24.07	11.06	0.03	0.38	1.33	1.71	0.33	1.20	1.52	352,471.14	0.23
Maximum Daily Emissions		5.81	57.61	23.47	0.06	6.15	2.44	8.59	2.05	2.20	4.26	352,471.14	0.44
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Maximum daily emissions from off-road equipment were calculated using the CARB off-road model emission factors and worker trips were generated using EMFAC 2007 emission factors for on-road vehicles. Indirect emissions of carbon dioxide from the manufacturing of steel were calculated using GHG Protocol emission factors and emissions of carbon dioxide due to the manufacture of cement were calculated using USEPA emission factors.

Operational emissions due to increased electricity usage were calculated using emission factors from the Climate Action Registry and the California Environmental Quality Handbook. Emissions from employee vehicles were calculated using EMFAC 2007 emission factors for on-road vehicles. The schedule of concrete usage, steel usage, and architectural coating usage for construction is based on information provided by TDA. The schedule of off-road equipment and on-road equipment for the construction phase is based on default URBEMIS 2007 equipment. Criteria pollutant emissions from desalter facility expansion activities are summarized in Table 4.2-12.

Long-Term Operation Emissions

The unmitigated criteria pollutant emissions from the operational phases of the project are provided in the following tables: Table 4.2-13 through 4.2-18.

Evaluation of Emissions

Comparing the emission forecasts contained in Tables 4.2-6 through 4.2-12 to the SCAQMD emission thresholds in Tables 4.2-4 and 4.2-5, the unmitigated emissions of criteria pollutants from the construction phase of the project do not exceed the regional significance thresholds. Therefore, on a case-by-case project basis construction emissions are not considered to result in significant adverse impacts. The potential for cumulative emissions from several projects underway at any given time to generate emissions above SCAQMD significance thresholds is evaluated below in the cumulative impact discussion.

Comparing the emission forecasts contained in Tables 4.2-13 through 4.2-18 to the SCAQMD emission thresholds in Tables 4.2-4 and 4.2-5, the unmitigated emissions of criteria pollutants from the operational phases of the project do not exceed the regional significance thresholds.

A comparison to localized significance thresholds (LSTs) is not included as part of this evaluation. This is due to the fact that LSTs calculations are designed to forecast emissions from each individual site construction scenario for the use in evaluating impacts from future projects. Since the scope of the project phases and the location of the specific future projects relative to sensitive receptors are not known at this time, it is not possible to compare the project phase emissions to LSTs.

Federal Conformity

The SoCAB is designated as a non-attainment area for $PM_{2.5}$ and PM_{10} and ozone. The SoCAB is designated as an attainment area with a maintenance plan for carbon monoxide (CO) and nitrogen dioxide (NO_2). The basin is designated as an attainment area for SO_2. The attainment status of the criteria pollutants is summarized in Table 4.2-19.

Table 4.2-12
MAXIMUM DAILY UNMITIGATED CONSTRUCTION EMISSIONS FOR DESALTER FACILITY CONSTRUCTION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Desalter expansion	Fugitive dust	0	0	0	0	0	5.23	5.23	0	1.10	1.10	0	0
Desalter expansion	Off-road equipment	6.62	49.18	23.90	0.05	0	3.03	3.03	0	2.70	2.70	4,592.29	0.60
Desalter expansion	On-road equipment	1.52	19.11	5.98	0.02	0.91	0.85	1.76	0.80	0.78	1.58	2,105.60	0.07
Desalter expansion	Worker trips	0.73	0.73	6.61	0.01	0.07	0	0.07	0.04	0	0.04	876.55	0.07
Desalter expansion	Steel manufacturing	0	0	0	0	0	0	0	0	0	0	35,000.00	0
Desalter expansion	Cement manufacturing	0	0	0	0	0	0	0	0	0	0	24,704.69	0
Maximum Daily Emissions		8.87	69.02	36.49	0.09	0.98	9.12	10.10	0.84	4.57	5.41	67,279.13	0.73
Regional significance threshold		75	100	550	150	150	150	150	55	55	55	-	-

Table 4.2-13
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM RESERVOIR OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Reservoir coating	Architectural coating	0.04	0	0	0	0	0	0	0	0	0	0	0
	Maximum Daily Emissions	0.04	0	0	0	0	0	0	0	0	0	0	0
	Regional significance threshold	55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-14
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM BOOSTER STATION OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Booster station operations	Electricity consumption	0.02	2.65	0.46	0.28	0	0.09	0.09	0	0	0	1,850.44	0.02
Booster station operations	Vehicle trips	0.02	0.02	0.17	2.20E-04	1.74E-03	0	1.74E-03	1.10E-03	0	1.10E-03	21.91	1.63E-03
Booster station operations	Architectural coating	0.03	0	0	0	0	0	0	0	0	0	0	0
	Maximum Daily Emissions	0.04	2.67	0.63	0.28	1.74E-03	0.09	0.09	1.10E-03	0	1.10E-03	1,872.35	0.02
	Regional significance threshold	55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-15
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM PRODUCTION WELL OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Production well operations	Electricity consumption	0.03	3.45	0.60	0.36	0	0.12	0.12	0	0	0	2,413.62	0.02
Production well operations	Vehicle trips	0.02	0.02	0.17	2.20E-04	1.74E-03	0	1.74E-03	1.10E-03	0	1.10E-03	21.91	1.63E-03
	Maximum Daily Emissions	0.05	3.47	0.77	0.36	1.74E-03	0.12	0.12	1.10E-03	0	1.10E-03	2,435.53	0.02
	Regional significance threshold	55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-16
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM MONITORING WELL OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Monitoring well operations	Vehicle trips	0.02	0.02	0.17	2.20E-04	1.74E-03	0	1.74E-03	1.10E-03	0	1.10E-03	21.91	1.63E-03
Maximum Daily Emissions		0.02	0.02	0.17	2.20E-04	1.74E-03	0	1.74E-03	1.10E-03	0	1.10E-03	21.91	1.63E-03
Regional significance threshold		55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-17
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM TREATMENT FACILITY OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Treatment facility operations	Electricity consumption	0.01	1.27	0.22	0.13	0	0.04	0.04	0	0	0	884.99	0.01
Treatment facility operations	Vehicle trips	2.46	30.61	9.90	0.03	1.46	1.35	2.81	1.28	1.25	2.53	3,412.79	0.11
Maximum Daily Emissions		2.47	31.88	10.12	0.17	1.46	1.39	2.86	1.28	1.25	2.53	4,297.78	0.12
Regional significance threshold		55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-18
MAXIMUM DAILY UNMITIGATED OPERATIONAL EMISSIONS FROM DESALTER FACILITY OPERATION (2010), lbs/day

Activity	Source	VOC	NOx	CO	SO2	PM10 (Dust)	PM10 (Exh)	PM10 (Total)	PM2.5 (Dust)	PM2.5 (Exh)	PM2.5 (Total)	CO2	CH4
Desalter facility operations	Electricity consumption	0.06	6.90	1.20	0.72	0	0.24	0.24	0	0	0	4,827.24	0.04
Desalter facility operations	Vehicle trips	0.04	0.04	0.33	4.30E-04	3.48E-03	0	3.48E-03	2.19E-03	0	2.19E-03	43.83	3.26E-03
Maximum Daily Emissions		0.10	6.94	1.53	0.72	3.48E-03	0.24	0.24	2.19E-03	0	2.19E-03	4,871.07	0.04
Regional significance threshold		55	55	550	150	150	150	150	55	55	55	-	-

Table 4.2-19
ATTAINMENT STATUS FOR CRITERIA POLLUTANTS

Pollutants	Status
CO	Attainment (maintenance plan)
SOx	Attainment
NOx	Attainment (maintenance plan)
PM10	Non-attainment (serious)
PM2.5	Non-attainment
Ozone (1-hour)	Non-attainment (extreme)
Ozone (8-hour)	Non-attainment (extreme)

Construction and operational emissions do not exceed the *de minimus* thresholds established in 40 CFR 93.153. Construction and operational emissions (in tons per year) for the proposed project and the corresponding *de minimis* thresholds are provided in the air quality technical study, Appendix 1 of Volume 2 of this document (Table 22 through Table 24). The emissions from construction and operation (in tons per year) are below 10 percent of the emission inventories for the SoCAB.

<u>Toxic Air Contaminants (TACs)</u>
Construction equipment exhaust contains carcinogenic compounds within the diesel exhaust particulates. The toxicity of diesel exhaust is evaluated relative to a 24-hour per day, 365 days per year, 70-year lifetime exposure. Public exposure to heavy equipment operating in the distance for limited periods of time will be an extremely small fraction of the above dosage assumption. The sensitive receptors along the project alignment would be exposed to a much greater amount of diesel particulates over a much longer period of time by routine roadway operations. Based on the short-term of potential diesel exhaust emissions at any given location for the project components outlined above, future construction-related heavy equipment operations exhaust would not pose a significant public health risk.

During future operations only two sources of emissions may be generated. The first source, electricity consumption, does not result in localized toxic emissions from any sources within the SoCAB. Therefore, no significant TAC emissions are forecast to occur from project implementation and no adverse long-term public health impacts are forecast to result from such emissions.

The second, possible source of TAC emissions from future operations may be generated by the regenerable or non-regenerable treatment units associated with treatment of groundwater. Although the potential is low for future groundwater pumped in conjunction with OBMP and Peace II implementation to generate TACS, a potential does exist, for example, for treatment and emission of volatile organic compounds (VOC), such as trichlorethylene, a solvent that has contaminated certain portions of the Chino Basin groundwater aquifer. However, until the concentrations of VOC in groundwater are identified and the treatment method identified, the potential for emissions of VOC TACs cannot be forecast. A mitigation measure is provided below to address future instances when such treatment units may emit TACs to ensure that the emissions do no pose a public health hazard to any sensitive receptors.

In summary, with or without the use of mitigation measures to control air pollutant emission, peak daily construction activity emissions for specific project will be below CEQA SCAQMD thresholds. However, the non-attainment status of the SoCAB requires that best management practices be employed to minimize dust and equipment exhaust emissions. Construction emissions of air contaminants would be temporary and cease when each project is fully constructed. Mitigation measures to reduce temporary impacts of construction are included in Section 4.2.4 below, as are measures to minimize emissions from electricity consumption at future OBMP and Peace II facilities.

- **Would the proposed project result in a cumulatively considerable net increase in any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

As discussed in the previous section, the SoCAB exceeds standards for ozone, PM_{10} and $PM_{2.5}$. The basin is the only air basin in the nation classified as in “extreme” non-attainment for ozone. The SoCAB air quality problems are caused by the following factors; its location in a large urban area that generates substantial air pollutant emissions each day; meteorological conditions and topographical constraints that slow down dispersal of pollutants out of the basin; a low ability to disperse pollutants vertically in the atmosphere; and a sunny climate that provides the photochemical creation of ozone and other pollutants. Though there has been an overall improvement in the SoCAB during the last three decades, it continues to have some of the worst air quality in the nation.

As detailed above in Tables 4.2-6 through 4.2-12, emissions associated with construction of the individual project components fall below the SCAQMD CEQA significance thresholds for all criteria pollutants, with or without the use of mitigation. Because of the non-attainment status of the air basin, best management practices are required to be employed to minimize dust and equipment exhaust emissions. However, the project’s emissions may be considered to be cumulatively considerable based on more than one phase of construction activity occurring at the same time in the future. For example, Tables 4.2-7 and 4.2-8 indicate that concurrent construction of a reservoir and booster station would approach or exceed the NOx emission threshold of 100 lbs/day. Mitigation measures are identified below to reduce emissions to the lowest achievable levels, including a measure to avoid concurrent construction of project components that would exceed the SoCAB construction activity significance thresholds.

The same potential significance finding applies to future operational air emissions for Peace II and other OBMP facilities. Assuming that all of the proposed facilities are brought on line in the future that will rely upon the electricity grid, cumulative electricity consumption emissions may exceed the 55 lb/day NOx emission threshold for operations. This is based on several treatment systems, the desalter expansion and several new wells and booster stations being installed in support of the proposed project. This finding is also consistent with the previous finding in the OBMP PEIR, which concluded that cumulative electricity consumption in support of the OBMP would result in the SCAQMD operations significance threshold being exceeded.

However, to address overall air quality concerns, the air quality analysis needs to take into consideration impacts of the proposed project with respect to water sources. When local supplies are insufficient to meet demand, water is imported to the region via the State Water Project and/or the Colorado River Aqueduct. Because this water is conveyed a great distance and must be pumped over mountains, accessing this water requires considerable energy and therefore produces considerable emissions. It's estimated that it requires 3 MWh per acre foot to pump SWP water and 2 MWh per acre foot to pump Colorado River Aqueduct water to southern California (NRDC 2004.) The California Energy Commission reports that the SWP consumes an average of 5 billion kWh/yr, accounting for 2-3% of the total energy consumption of the state of California (NRDC 2004.) Attachment 1: Description of Emissions Reduction Measure Form to Richard Horner's 2008 *"Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices for Ventura County"* provides the following calculations estimating the CO_2 associated with importing one acre-foot of water to the southern California area via either of these pipelines.

> (.313 metric ton CO_2) x (3 MWh for SWP water) = 0.94 metric ton of CO_2 per acre-foot of water imported through the SWP.
>
> (.313 metric ton CO_2) x (2 MWh for Colorado River Aqueduct) = 0.63 metric ton of CO_2 per acre-foot of water imported from the Colorado River Aqueduct.

With implementation of the OBMP and the proposed Peace II project components, stakeholders have displaced some highly energy intensive water supply (SWP) with locally sourced water that requires less energy to provide. Less energy intensive water sources include that provided by additional storm water recharge, recycled water, water conservation, and desalinated brackish water. All of these measures contribute to reducing the energy required to provide an acre-foot of water and thereby reduce emissions associated with creating the energy to supports the water supply. Implementation of Peace II would provide additional locally sourced water that could be consumed instead of State Project or Colorado River water. This includes Re-operation, which would provide 400,000 AF of local water source. Based upon existing operations, pumping and desalinization of water at Desalter II requires less energy than importing State Project or Colorado River water.

Water conservation devices installed as of 2008 are forecast to result in approximately 40,745 acre-ft of potable water saved (cumulative savings) over lifetime of devices (IEUA). All water savings devices reduce energy consumption by requiring less import of energy intensive water. Water saving devices that reduce consumption of heated water (clothes washing machines, dishwashers, water heaters, etc.) further reduce the energy consumption by reducing the quantity of water that needs to be heated.

In addition to water infrastructure improvements that reduce electrical consumption, IEUA has taken steps to reduce its consumption of energy and its dependence upon energy sources with high emissions. In 2004 IEUA's new headquarters building was the first public building in the nation to receive Leadership in Energy and Environmental Design (LEED) Platinum designation, the highest available rating. LEED ratings evaluate construction location and materials as well as operating requirements based upon measures of sustainability, efficiency and environmental quality. Structures awarded higher ratings are energy and water-efficient and are healthier working environments (e.g., indoor air quality) and less consumptive of resources (e.g., storm water management, electricity, etc) than conventionally built structures.

IEUA's goal is to develop alternative energy which can be utilized to run as many of the facilities as practical and to assist the Agency to become energy independent over the next five to ten years. IEUA recently partnered with Sun Power to install solar panels on the roofs and grounds of IEUA and Inland Empire Regional Composting Authority facilities. The solar panels, which began operating in 2008, are capable of producing up to 3.5 MW, which accounts for approximately 10% of total IEUA electric consumption. The solar panels provide energy that replaces conventionally generated electricity resulting in a projected reduction in carbon emissions of more than 230 million pounds over the next 30 years (SunPower 2009.)

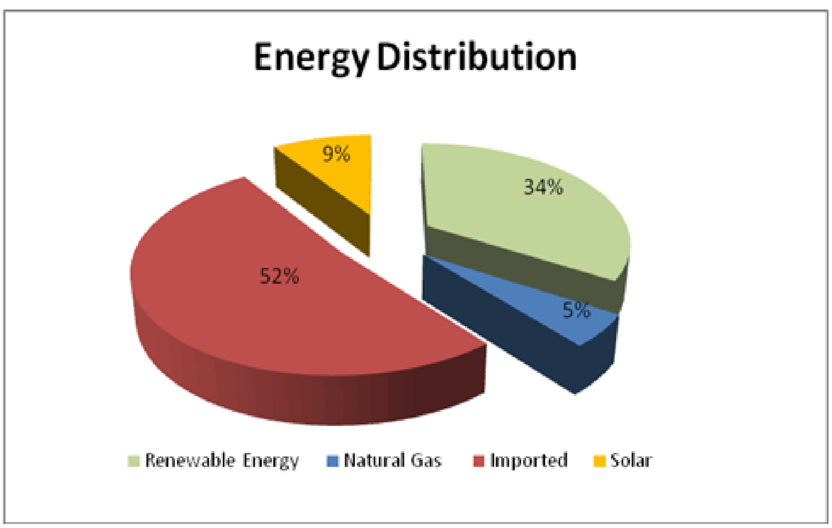
IEUA produces renewable energy from methane gas at its wastewater reclamation facilities. Methane gas, a natural by-product of anaerobic digestion, is captured and then run through generators to produce electrical energy. At IEUA, about 60 percent of its wastewater treatment operations at two plants (RP-1 and RP-2) are currently powered by this independent energy source. IEUA estimates in its Organic Management Plan that it has the potential for generating up to 50 megawatts of electrical energy through this method. IEUA currently produces approximately half of its required energy from alternative sources, including solar panels and methane generation/combustion. Please refer to Table 4.2-20 and Figure 4.2-1 for a breakdown of current IEUA energy sources. IEUA management of organic wastes not only generates energy, thereby reducing emissions associated with conventional electrical energy production, but it also reduces air quality emissions by managing dust and odors.

Table 4.2-20
ENERGY PRODUCTION BY SOURCE AT IEUA IN kWh

Energy Source	Renewable Energy	Natural Gas	Imported	Solar
kWh	26,688,284	3,999,932	47,924,067	7,390,000
Percent of Total	34%	5%	52%	9%

Source: IEUA 2009

FIGURE 4.2-1



Source: IEUA 2009

While many aspects of Peace II are beneficial with respect to lowering the energy required to provide water, Re-operation will also lower the groundwater table thereby increasing the depth from which future groundwater must be pumped. This will increase the energy required to extract the groundwater.

One final issue remains to be addressed regarding energy. There will be a difference in electricity consumption for pumping groundwater under the Baseline and Peace II alternatives. This is due to a minor lowering of the pumping levels in wells under Peace II. Figure 4.2-2 illustrates this difference over the planning period until 2030. As the graph in Figure 4.2-2 indicates Peace II initially uses less or comparable amounts of electricity to pump groundwater, but it quickly increases and consumes slightly more energy over the 20 year planning period. Estimates provided by Wildermuth Environmental Inc. indicate that in 2030 the additional energy required to pump groundwater under the Peace II alternative is about 4.47%, or about 6,487,400 kWh.

It is reasonable to assume that over the next 20 years energy production will shift from fossil fuels to renewable and nuclear energy sources. However, for comparison purposes, using Table A9-11 of the SCAQMD CEQA Handbook (Emissions from Electricity Consumption by Land Uses), which forecasts electricity emissions based on the current mix of sources, the increased emissions in 2030 for the Peace II alternative would be approximately: CO = 1,297 lbs/year or about 3.6 lbs/day; ROG = 65 lbs/year or <1 lb/day; NOx = 7,460 lbs/year or about 20 lbs/day; SOx = about 2.1 lbs/day; and PM10 = 260 lbs/year or <1 lb/day. These are small volumes of emissions that do not exceed any SCAQMD thresholds of significance. Based on these data, the Peace II alternative does not substantially increase air emissions within the Basin.

In summary, implementation of the OBMP and Peace II by IEUA, Chino Basin Watermaster and stakeholders has a mixed effect on cumulative air pollution emissions, including energy savings some of which are unquantifiable. For purposes of making a finding in this document, IEUA, Watermaster and stakeholders find that the potential does exist for cumulative NOx emissions to exceed both the SCAQMD construction and operations significance thresholds outlined in Tables 4.2-4 and 4.2-5. Mitigation is presented below to require an accumulative summary of OBMP and Peace II projects under construction at any given time in the future. If the cumulative concurrent construction emissions are below the significance thresholds when a project is proposed, this finding will be noted and used in compiling any second tier environmental evaluations. Otherwise, a finding of significant cumulative construction emissions will be utilized in second tier evaluations based on the analysis in this document.

Regarding operations, a similar accumulative summary of OBMP and Peace II electricity consumption and consumption related emissions will be maintained by IEUA. If the cumulative concurrent operational emissions are below the significance thresholds when a project is proposed, this finding will be noted and used in compiling any second tier environmental evaluations. Otherwise, a finding of significant cumulative construction emissions will be utilized based on the analysis in this document.

- **Would the proposed project expose sensitive receptors to substantial pollutant concentrations?**

There are "sensitive receptors," including residences, schools, hospitals and natural open space that have the potential to be located within 1/4 mile of future Peace II Project components. The only predictable short-term toxic emissions associated with the proposed project would be those associated with diesel fuel consumed by construction equipment and operating vehicles on the roadway after completion. As discussed above, TAC emissions for the proposed project are considered less than significant during both construction and operational activities associated with the OBMP and Peace II programs.

The SCAQMD published the Multiple Air Toxics Exposure Study (MATES-II) for the South Coast Air Basin in March 2000. The study included air monitoring of toxic contaminants from ten fixed sites in the SoCAB. The greatest health risks from air toxics were generally associated with the bi-products of burning diesel fuels, nickel, hexavalent chromium, and volatile organic compounds. According to the study, areas next to freeways, freeway interchanges, airports, and industrial areas pose the greatest risk of exposure to air toxics. Recent regulations in response to the increased understanding of the hazards require that new diesel equipment emit fewer emissions, thus as older equipment is replaced with new models the emissions per vehicle and associated hazards will be reduced.

In response to Governing Board's Environmental Justice Enhancement Initiative, the SCAQMD has developed and adopted analysis parameters and methodology to evaluate ambient air quality on a local level in addition to the more regional emissions-based thresholds of significance. These analysis elements, called Local Significance Thresholds (LSTs), indicate the level at which the emissions from the project would become significant locally even if they are not significant regionally. As required by mitigation measures presented below, LSTs will be evaluated on a case-by-case basis as second tier projects are identified; however, the relatively low emissions associated with the project's implementation indicates that LSTs will not be exceeded, especially after implementation of the mitigation measures identified below.

- **Would the proposed project generate vehicle trips that cause a CO hot spot?**

The SCAQMD has demonstrated in the CO attainment redesignation request to the EPA that there is no CO "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worst congestion, and much higher background CO levels than anywhere in San Bernardino County. Regardless, the proposed project does not include generation of substantial traffic in conjunction with any of the proposed future OBMP and Peace II project operations (about 100 trips per day at most). If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts near the Peace II facilities will be well below thresholds with an even larger margin of safety.

- **Would the proposed project alter air movement, moisture, or temperature, or cause a change in climate, either locally or regionally?**

The environmental review process continues to evolve, with additional issues being considered as society redefines resources and their physical change as "environmental impacts." California has determined that the emission of greenhouse gas is a significant adverse effect on the environment and has established a program to reduce these emissions, both relatively and absolutely. Assembly Bill 32 (AB 32) adopted by the state legislature requires the Air

Resources Board to adopt regulations limiting global warming emissions statewide, but to date, the state has not provided regulatory guidance on what constitutes a significant source of greenhouse gas (GHG) emissions. Similarly, CEQA provides no new guidance on significance criteria other than the existing SCAQMD daily emission thresholds of significance. Therefore, it is not possible to make a definitive determination on the significance of a project's GHG emissions.

Implementation of the proposed project would generate short-term GHG emissions and OBMP and Peace II program operations will generate long-term increases in GHGs, primarily as a result of electricity consumption, but also some mobile sources related to operations and maintenance activities. For purposes of analysis, it was assumed that non-CO_2 GHG emissions are negligible, and that short-term GHG emissions would result from construction activities characterized in Tables 4.2-6 through 4.2-12. During project construction, the computer estimate predicts that a peak activity day will generate substantial CO2 emissions, particularly when using steel and concrete to construct a reservoir. Table 4.2-7 identifies peak day emissions of 877,763 (approximately 438 tons of CO_2) when a five million gallon reservoir is constructed. Other project components (pipelines, wells, etc.) utilize materials the manufacture of which generates substantial GHGs, so construction or installation of many of the future projects in support of the OBMP and Peace II generate substantial volumes of GHGs one time only (during the actual construction).

To place the project construction GHG emissions in context, in 2004 the statewide annual GHG inventory in CO_2-equivalent levels (including all non-CO_2 gases weighted by their thermal absorption potential) was 492,000,000 metric tons (541,000,000 short tons). The worst-case project construction impact (438 tons on a peak day for reservoir construction) represents slightly more than 0.00008 percent of the statewide annual burden.

Tables 4.2-13 through 4.2-18 identify the operational GHG emissions associated with specific facilities. The estimated daily operating GHG emissions range from 0 (pipelines) to 4,871 lbs/day (Desalter). Using the values identified in Tables 4.2-13 through 4.2-18, the estimated daily GHG emissions from the following facilities (booster station production well, monitoring well, treatment facility and desalter) would be about 13,500 lbs/day, or 6.75 tons per day. Annual GHG emissions from these project components are estimated to be 2,464 tons. Based on the suite of equipment listed above, the annual project operations GHG impact (2,464 tons) represents slightly more than 0.0005 percent of the statewide annual burden based on the 2004 statewide annual GHG inventory.

The proposed project operation emissions of GHG are substantially below the 10,000 metric ton per year suggested by the CARB as a GHG significance threshold for industrial facilities. Nevertheless, the globally cumulative nature of GHG impacts and the ever-rising cost of energy require that any reasonably available control measures for energy conservation be implemented in operation of existing and future OBMP and Peace II facility operations. Using the 10,000 metric ton threshold, the future operational emissions from OBMP and Peace II facilities would not be considered a significant adverse impact to global climate change.

However, given the cumulative nature of the global warming issue, GHG emphasis on a project-specific level should be to incorporate project design features that reduce energy consumption and reduce vehicular travel as well as using cleaner burning fuels and alternative forms of energy. Where feasible, IEUA, Watermaster and stakeholders should shift electricity consumption to sources that minimize or eliminate GHG generation, such as solar. Also, the use methane generated from wastewater treatment operations and biosolids management should be implemented to the extent feasible. As noted in discussions above, IEUA already implements such programs and intends to expand such programs in the future to reduce reliance on the electrical grid and electricity produced by GHG generating combustion sources. Project-specific mitigation measures developed for the project, such as the use of Tier 3 grading and construction equipment would help reduce greenhouse gas emissions and their pre-cursors.

It is also appropriate to consider the potential effects of global warming on future OBMP and Peace II programs. In the world's current state of global warming, the outlook for California's ongoing drought is complicated and may be adverse. There are vast ranges of global warming models that all predict the global temperature is rising as GHGs persist. Even if anthropogenic GHG emissions were to cease tomorrow, the world would be in a state of warming for the next few decades at least. In the models assuming a rapid shift in fossil fuel emissions over the next century, the temperature could increase 4 to 5 degrees Fahrenheit. However, in the more aggressive model assuming that population's growth will more than triple, and fossil fuel emissions are not forecast to decrease until the end of the century, the predicted temperature increase is 8 to 10 degrees Fahrenheit.

What this means for California is that the atmosphere will be warmer, and therefore, will be able to hold more moisture. If this is the case, then there could be more precipitation and precipitation events could be more extreme than what is presently normal. In fact, there is increasing evidence of extreme rainfall events such as El Niño that could become the mean for the state in the future. El Niño is the result of reverse circulation in the ocean resulting in intense downpour in the eastern Pacific Ocean and more dry conditions in the western Pacific – i.e., California could become wet, but warm. Heavy downpour leads to more runoff, which creates an opportunity for flooding. However, because the atmosphere is warming, the type of precipitation that occurs most frequently will be rain, possibly in places that it may have snowed frequently in the past. Warming will cause snowfall to decline at lower elevations, and most importantly the snow pack, that currently is vital to California's summer water supply, may decrease. The unfortunate possibility is that by the end of the 21st century, 90 percent of California's pack may have diminished.

It is important to note that climate change models for temperature are vastly more accurate than models predicting resulting precipitation. Additionally, many of the models do not agree on whether there will be increasing or decreasing precipitation because precipitation patterns are difficult to understand at present. Some models predict what is suggested above, but some predict that areas such as southern California that are traditionally dry will get drier, and areas that are traditionally wet, such as northern California, will get wetter. This prediction is based on global warming creating extreme weather – hence extreme drought and extreme rainfall. Climate change increases global circulation cells that encourage downward air movement in traditionally dry areas which could lead to severe droughts ever 6-7 years by the end of the century. Thus, despite the extreme rainfall, the water supply should slowly decrease as global warming continues.

Given the equivocal state of future predictions regarding precipitation in California, the above summary provides the various stakeholder decision-makers with the range of future precipitation effects of global warming climate changes. Because such modeling remains so nebulous at this time, this document finds that it is too speculative at this time (Section 15145, State CEQA Guidelines) to reach firm conclusions and findings regarding climate change effects on the proposed project. Regardless, the implementation of more effective management of the Chino Groundwater Basin, including recharge of various sources including recycled water and stormwater, would be part of a management strategy to minimize reliance on imported water sources and supply of water to future potable water customers in the Basin.

It is highly improbable that any measurable change in air movement, moisture, temperature, or climate change would occur as a direct result of future project implementation.

- **Would the proposed project creates objectionable odors affecting a substantial number of people or otherwise have a substantial, demonstrable negative aesthetic effect?**

During construction and operation, the proposed project would include vehicle operation with odors associated with exhaust emissions from the consumption of petroleum products (gasoline, diesel, etc.). During construction, odors associated with paving could also occur, but would be very short-term. None of these odors are normally considered so offensive as to cause sensitive receptors to complain. Both based on the short-term nature of some of these emissions and the characteristics of all of these emissions, no significant short-term odor impacts are forecast to result from implementing the proposed project. None of the proposed facilities has any odors associated with their future operation.

- **Would the proposed project result in population increases within the regional statistical area which would be in excess of that projected in the AQMP and in other than planned locations for the project's build-out year?**

The Initial Study found that the proposed Peace II Agreement program implementation would have a less than significant impact with respect to causing or contributing to population increases, either directly or indirectly. The Initial Study also found that little or no displacement of housing, which might necessitate an increase in housing in another location, had occurred as a result of the OBMP or would be expected to occur as a result of Peace II. A full discussion of this topic can be found in Section XII, Population and Housing, of the Initial Study. Because the potential for the project to result in population growth or displacement has already been addressed and found to be less than significant or less than significant with mitigation, no significant adverse impact is projected with respect to the Air Quality Management Plan. No further analysis is warranted with respect to induced population and the Air Quality Management Plan. No mitigation is required under this item.

4.2.4 Mitigation Measures

The proposed project would generate dust and gaseous emissions within close proximity to homes and other sensitive land uses. Impacts are therefore considered potentially adverse even if significance thresholds are not exceeded. Because of the non-attainment status of the air basin, Best Available Control Measures (BACMs) are required to be employed to minimize dust and equipment exhaust emissions. The implementation of these measures would also ensure that LST are not exceeded. These BACMs are listed as follows:

4.2-1 ***Water active grading sites and haul roads at least three times daily and when dust is observed migrating from the site.*** *This is a modification of measure 4.6-1 from the OBMP.*

4.2-2 ***Pave or apply water three times daily, or apply non-toxic soil stabilizers on all unpaved access roads, parking areas, and staging areas. More frequent watering will occur if dust is observed migrating from the site during grading activities.***

4.2-3 ***Enclose, cover, or water twice daily, or apply non-toxic soil binders, to any onsite stockpiles of debris, dirt or other dusty material.***

4.2-4 ***Suspend all grading and excavation operations when wind speeds exceed 25 mph.*** *This is measure 4.6-2 from the OBMP.*

4.2-5 ***Replace ground cover or pave disturbed areas immediately after construction is completed in the affected area.*** *This is measure 4.6-4 from the OBMP.*

4.2-6 ***Hydro-seed, apply non-toxic chemical soil stabilizers or otherwise stabilize any cleared area which is to remain inactive for more than 10 days after clearing is completed.*** *This is a modification of measure 4.6-3 from the OBMP.*

4.2-7 ***Cover all trucks hauling soil, sand and other loose materials or require all trucks to maintain at least two feet of freeboard.***

4.2-8 ***Sweep or wash any site access points daily of any visible dirt deposition on any public roadway.*** *This is a modification of measure 4.6-5 from the OBMP.*

4.2-9 ***Reduce traffic speeds on unpaved roads to less than 15 mph.***

4.2-10 ***Install sandbags or other erosion control measures to prevent silt runoff to public roadways.***

4.2-11 ***Limit the area subject to excavation, grading and other construction activity at any one time.***

4.2-12 ***Require the use of diesel particulate filters, diesel oxidation catalysts, and aqueous diesel fuel on construction vehicles.***

The following mitigation measures are also recommended to reduce NOx and VOC emissions from construction equipment.

4.2-13 ***All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.***

4.2-14 ***General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.***

4.2-15 ***Require 90-day low NOx tune-ups for off road equipment.***

4.2-16 ***Use Tier3-rated engines during site grading for all equipment exceeding 100 horsepower if available.***

4.2-17 ***Utilize equipment whose engines are equipped with diesel oxidation catalysts if available.***

4.2-18 ***Utilize diesel particulate filer on heavy equipment where feasible.***

4.2-19 ***During construction, trucks and vehicles in loading and unloading queues would be kept with their engines off, when not in use, to reduce vehicle emissions.***

4.2-20 ***Limit allowable idling to 5 minutes for trucks and heavy equipment.***

The following mitigation measures are recommended to reduce construction emissions off the project site.

4.2-21 ***Encourage car pooling for construction workers.***

4.2-22 ***Limit lane closures to off-peak travel periods, when possible.***

4.2-23 ***Park construction vehicles off traveled roadways.***

4.2-24 ***Encourage receipt of materials during non-peak traffic hours.***

The following mitigation measures are recommended to assist IEUA, Watermaster and stakeholders in the OBMP and Peace II programs to minimize potential cumulative significant future criteria pollutant and GHG emissions.

4.2-25 ***IEUA/Watermaster/Stakeholders shall establish a monitoring program to track future OBMP and Peace II program construction activities for specific project components. To the extent feasible and using this monitoring data, future specific project construction activities shall be scheduled in sequence or to minimize overlap of maximum emissions from each construction activity.***

4.2-26 ***IEUA/Watermaster/Stakeholders shall establish a monitoring program to track future OBMP and Peace II electricity consumption for specific project components. As part of this monitoring program, those non-GHG emitting electrical generation projects implemented by all parties shall be quantified to demonstrate the specific reductions in both criteria pollutants and GHG relative that which would occur from relying on electricity delivered by the Southern California Edison (SCE) grid. To the extent feasible and consistent with each agency's ability, criteria pollutant and GHG emissions should be offset by 50% relative to reliance on the SCE grid to power future OBMP and Peace II equipment.***

4.2-27 ***To the extent feasible, the IEUA/Watermaster/Stakeholders shall select landscaping that is fast-growing to create visual buffers at future OBMP and Peace II sites and to offset GHG emissions. Where landscaping is feasible, a landscape plan designed to initiate carbon sequestration and these plants shall be periodically harvested and/or replanted to maintain carbon sequestration. Alternatively, these agencies may choose to purchase annual or permanent carbon credits from the available carbon banks at the time that a facility begins operation.***

4.2-28 ***To the extent feasible, the IEUA/Watermaster/Stakeholders shall select equipment for future OBMP and Peace II project that minimize electricity consumption. Documentation of such efforts shall be retained in project files to verify that electricity consumption of such equipment has been given consideration before selecting a specific piece of equipment, such as a booster pump. This measure is not intended to dictate selection of equipment that minimizes electricity consumption, only to ensure that this criterion is clearly given consideration in the selection of such equipment.***

With the implementation of the above measures, air emissions from future OBMP and Peace II construction activities carried out in support of the proposed project can be reduced or controlled to the maximum extent feasible. Please refer to Tables 14 through 20 of the air quality technical report (Appendix 1, Volume 2) for a summary of emissions that would result from implementing individual OBMP and Peace II facilities in the future. These emissions assume that the individual project construction emissions are controlled using the measures identified above.

4.2.5 Cumulative Impacts

A majority of the air pollution in the SCAQMD is directly caused by human activities. These activities include motor vehicle use, industrial emissions, and fugitive dust from disturbing native soil cover or other soil. The proposed project is located within an air basin with some of the worst air quality in the United States for ozone and small particulates. However, the proposed project does not propose any uses, or intensity of uses, that are not already authorized and anticipated under the existing AQMP and local and regional growth management plans.

Mitigation measures have been identified to minimize future emissions during construction and operation of OBMP and Peace II project components. Mitigation has also been identified to reduce electricity consumption to the extent feasible when operating complex water and wastewater management systems. Regardless, a potential exists for future OBMP and Peace II construction activities and equipment electricity consumption to generate cumulative considerable criteria pollutant emissions within the SoCAB. This finding results in a potential cumulatively significant unavoidable adverse impact for future implementation of OBMP and Peace II Agreement programs when compared to the SCAQMD construction and operational emission thresholds of significance.

4.2.6 Unavoidable and Adverse Impacts

With mitigation measures, the individual projects are not forecast to result in significant adverse impacts on air quality. Short-term impacts of construction are unavoidable but with mitigation, and due to their short duration, would not be considered significant. Long-term impacts of the project would place the roadway closer to existing sensitive receptors. The analysis reached the same finding for air quality impacts from future individual OBMP- and Peace II-related projects. The emission forecasts in the analysis above indicate that, on a case-by-case basis or specific project basis, air quality impacts would not be considered an unavoidable and significant impact.

However, as summarized in Section 4.2.5 above, the potential exists for future OBMP and Peace II construction activities and equipment electricity consumption to generate cumulative considerable criteria pollutant emissions within the SoCAB. This finding results in a potential cumulatively significant unavoidable adverse impact for future implementation of OBMP and Peace II programs when compared to the SCAQMD construction and operational emission thresholds of significance.

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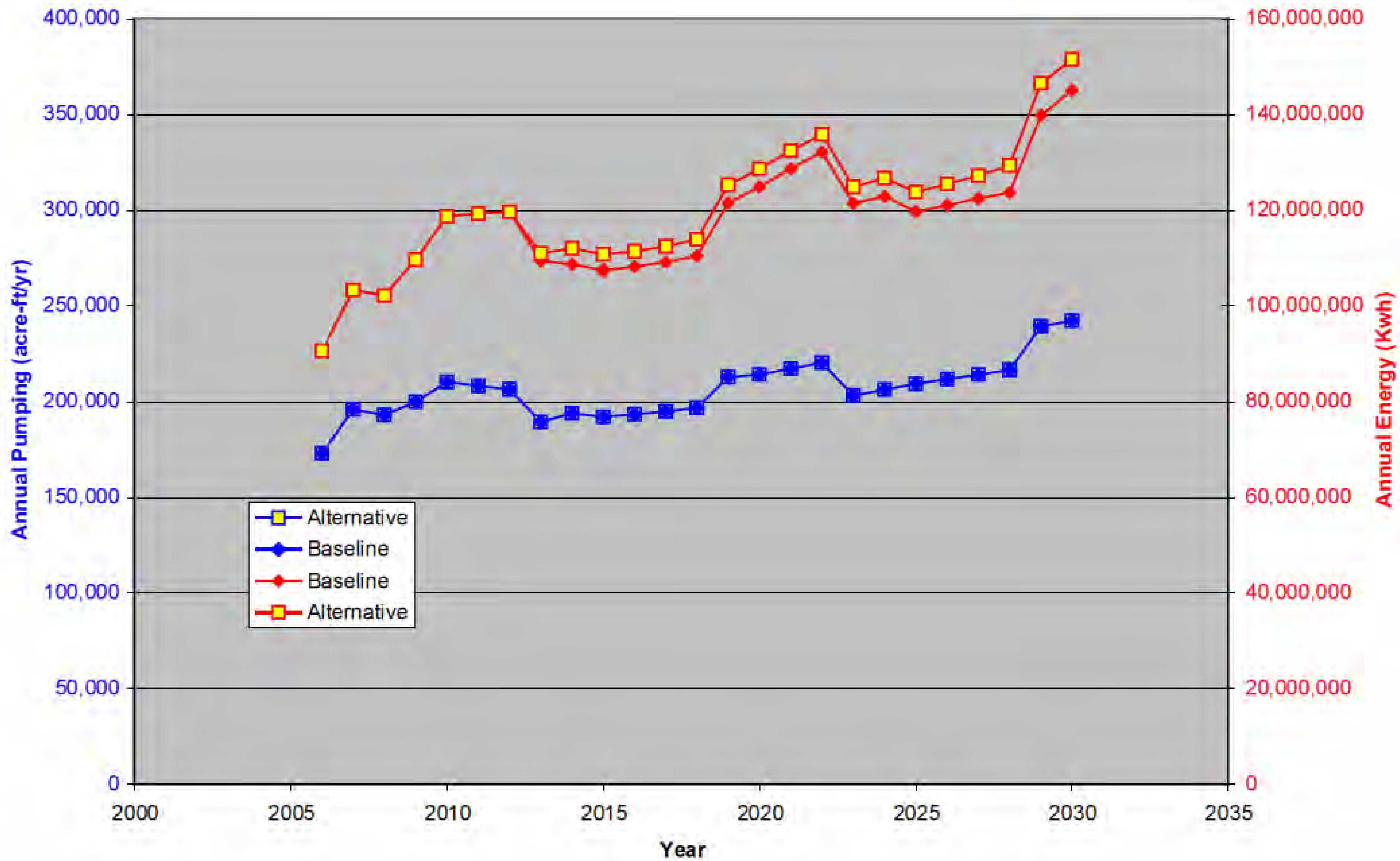
FIGURE 4.2-2
Comparison of Baseline and Alternative



Source: Wildermuth Environmental, Inc.

4.3 HYDROLOGY / WATER QUALITY, GEOLOGY / SOILS, UTILITIES / SERVICE SYSTEMS

4.3.1 Introduction

The analysis in this section focuses on potential hydrology and water quality impacts associated with implementing the Peace II Project. This section will evaluate the available information about the background hydrology and water quality and forecast the type of impacts that may occur, and more importantly, to identify mitigation measures that can ensure potential impacts from constructing and operating facilities and related activities will not reach a level of significant impact.

The Regional Water Quality Control Board (RWQCB or Regional Board) was contacted for information with respect to toxic groundwater plumes in the project area. Additional documents reviewed include: the RWQCB Santa Ana Basin Water Quality Control Plan, Drainage and Hydrology reports prepared for the project and available in the Technical Appendices, Volume 2, and agency websites.

The following comments regarding hydrology and water quality, geology/soils and utilities/service systems issues were received in response to the NOP.

- **Comment Letter from the County of San Bernardino Department of Public Works, February 26, 2009**

  The Department notes that the discussion under stormwater facilities addresses temporary adverse impacts to stormwater facilities during construction of the proposed project. The Department requests clarification in the DSEIR as to whether the proposed project would require the construction of new or the expansion of existing stormwater drainage facilities.

  Response: *The issue of flood hazards and increases in stormwater runoff were identified in the Initial Study for consideration in this DSEIR. The primary issue of concern identified in the Initial Study is exposure of future water infrastructure facilities to flood hazards. To address this issue, the evaluation in the Hydrology subchapter of Chapter 4 evaluates the Federal Emergency Management Agency (FEMA) Flood Information Rate Area maps that apply to the project area.*

  In most instances, the future water infrastructure facilities will not increase storm runoff from project locations. For example, pipelines are typically installed within existing paved roadways where the existing ground surface is already impervious. Thus, installation of the pipelines would not alter future runoff, and no modification of stormwater drainage facilities would result from installing such facilities. However, there is a possibility that future Peace II facilities may increase runoff and require modification of existing stormwater drainage facilities. This issue is given more in depth evaluation in the discussion of flood hazards, and mitigation is identified to address those future instances where Peace II projects *increase runoff and may require modifications to existing downstream stormwater drainage facilities.*

- **Comment Letter from the Department of Toxic Substances Control, March 24, 2009**

Comment 1: Department of Toxic Substances Control (DTSC) commented that the information provided in the Initial Study regarding the Stringfellow perchlorate plume was not accurate. DTSC provided a link to their draft Remedial Investigation Report dated March 17, 2009.

Response 1: Thank you for the information. The Stringfellow summary in the Project Description has been revised based upon the information provided in the link as well as the information in the DTSC May 2008 Stringfellow Superfund Site Project Update Fact Sheet.

Comment 2: DTSC indicates that Figure 6 of the Initial Study, a map depicting groundwater contamination plumes, does not include the perchlorate plume. DTSC also suggests that the Figure should not portray TCE concentrations below the Maximum Contaminant Level of 5ug/L. References to maps with the current extent of the plumes and contamination levels are provided.

Response 2: Thank you for the information. The map has been modified to include the perchlorate data. However, for planning purposes we are retaining the contours for VOC values less than 5 ug/L which show water quality anomaly data to the lowest level that have been measured. This data indicates areas that may experience VOC levels above the MCL in the future, and we believe it is appropriate to retain contours below the MCL because this more detailed information can assist water agencies to understand the direction of plume travel and its proximity to their wells.

Comment 3: DTSC commented that the information provided in the Initial Study regarding the Stringfellow perchlorate plume was not accurate and suggested alternative language based upon information in the draft Remedial Investigation Report dated March 17, 2009.

Response 3: Thank you for the information. The Stringfellow summary in the Project Description has been revised based upon the information provided in the comment letter, the Remedial Investigation Report and the May 2008 Stringfellow Superfund Site Project Update Fact Sheet.

4.3.2 Environmental Setting

The general impacts to hydrology and water quality of the overall Chino Basin groundwater management programs were forecast in Section 4.5 on pages 4-87 to 4-166 of the OBMP PEIR. The OBMP PEIR includes detailed historical groundwater information and hydrology data as understood prior to implementation of the OBMP, included herein by reference. The Project Description (Chapter 3, Section B.1) includes a description of the groundwater Basin including the management zones as defined by both the Regional Board and the OBMP. Please refer to Figure 3-1 for a map of the Basin zones.

The basic hydrology information from the OBMP is provided as Appendix 2, Volume 2 Technical Appendices. This includes all of Chapter 4.5, the Hydrology Subchapter of the OBMP PEIR. The hydrology data used in the OBMP PEIR is now about ten to twelve years old and the following text provides an update to the original data. A summary of the original data and a reference to the section where the original discussion was conducted is incorporated into the following text. The updated information regarding hydrology of the Chino Basin is abstracted from the "2008 State of the Basin Report," (2008 Report) published in November 2009 by Wildermuth Environmental Inc. (WEI) on behalf of the Chino Basin Watermaster. Where text is abstracted from the 2008 Report for presentation in this document, it is printed in italics in the following text. Note that figure and table numbers have been edited in the cited WEI text to conform to the figure numbering sequence in this EIR.

4.3.2.1 Surface Waters

<u>Precipitation</u>

<u>OBMP PEIR</u>

A detailed discussion of precipitation was not provided in the OBMP PEIR. The following text describes the amount of rainfall received within the Chino Basin and how it contributes to both surface runoff and groundwater percolation. According to the following description, the primary change that has occurred over the past 8-12 years is that additional urban-suburban development has occurred within the Chino Basin, resulting in a greater volume of runoff due to increased impervious surface. This trend is expected to be offset by the recent Regional Board MS4 requirements (and the emphasis on Low Impact Development (LID) practices designed to retain runoff within new development and percolate surface water to the regional groundwater aquifer.

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The Chino Basin has a semi-arid Mediterranean climate. Precipitation is a major source of local groundwater recharge for the Basin and thus, the availability of this recharge can be understood by analyzing long-term precipitation records. Four precipitation stations in the Basin were used to characterize the long-term precipitation patterns in the Basin. The location of the precipitation station used herein to construct the Claremont/Montclair hybrid (combined records of 1034 and 1137) station and the Ontario hybrid (combined records of 1017 and 1075) station records are shown in Figure 4.3-1. A third station of historical prominence in the Santa Ana watershed, the San Bernardino Hospital station, was used to characterize the historical precipitation upstream of the Chino Basin. The location of the San Bernardino Hospital station (2146) is shown in Figure 4.3-1. Table 4.3-1 lists annual statistics for the stations utilized in this characterization.

Figure 4.3-2 illustrates the annual precipitation time series and the cumulative departure from the mean (CDFM) precipitation for the 1900 to 2008 period at the Claremont/Montclair hybrid precipitation station. During this period, four series of dry-wet cycles are apparent: prior to 1904 through 1922; 1922 through 1946; 1946 through 1983, and 1983 through 1998. A fifth cycle *appears to have started in 1998 and continues through present. The records of the Ontario hybrid and San Bernardino Hospital stations also show the same patterns of dry-wet cycles as the Claremont/Montclair hybrid station during the historic period.* Refer to Appendix 3 of Volume 2.

The long-term average annual precipitation for these stations are 17.8 inches at the Claremont/Montclair hybrid station (1900 through 2008), 15.4 inches at the Ontario hybrid station (1914 through 2008) and 16.4 inches at the and San Bernardino Hospital station (1900 through 2008). The ratio of dry years to wet years is about three to two. That is, for every ten years about six years will have below average precipitation and four years will have greater than average precipitation.

Table 4.3-1
ANNUAL STATISTICS OF LONG-TERM RECORDS AT PRECIPITATION STATIONS IN THE CHINO BASIN (inches)

Area	Montclair/Claremont	S B Hospital	Ontario
Period of Record	1900 to 2008	1900 to 2008	1914 to 2008
Annual Average	17.78	16.36	15.38
Maximum	37.58	35.65	37.41
Minimum	5.39	5.95	3.84
Standard Deviation	7.66	6.83	7.05
Mean + 1 Standard Deviation	25.44	23.19	22.43
Coefficient of variation	43%	42%	46%

The safe yield of the Chino Basin is based on the hydrology during 1965 through 1974, a period of ten years (base period). This base period contains two wet years in 1965 and 1969 with annual precipitation depths of 24 and 26 inches, respectively, at the Claremont/Montclair hybrid station, and 19.8 and 25.6 inches, respectively at the Ontario hybrid station. This base period falls within the longest dry period on record (1946 to 1976). The average annual precipitation for the base period at the Claremont/Montclair hybrid station was 16.3 inches, or 1.5 inches less than the long-term annual average. The average annual precipitation for the base period at the Ontario hybrid station was 14.7 inches, or 0.6 inches less than the long-term annual average. The base period was preceded by a 20-year dry period that was punctuated with a few wet years (1952, 1954, 1957 and 1958).

The Peace Agreement period runs from 2000 to the present, an eight-year period. The Peace Agreement period contains three wet years in 2001, 2004, and 2005 with 19.7, 22.1, and 29.2 inches, respectively, as measured at the Claremont/Montclair hybrid station. The Peace Agreement period lies within a dry period that appears to have started in 1998 and continues to the present. The average annual precipitation for the Peace Agreement period at the Claremont/Montclair hybrid station was 16.6 inches, or 1.2 inches less than the long-term annual average.

Surface Water

OBMP PEIR
Surface water resources were described on pages 4-90 through 4-93 of the OBMP PEIR. Limited detail regarding surface water resources was available in 2000. The primary focus was

on describing the major flow systems in each Management Zone and linking surface water resources to groundwater recharge. Even in 2000, the primary sources of surface runoff consisted of precipitation during the winter and treated effluent from wastewater reclamation facilities during the remainder of the year. Nuisance flows from landscape irrigation comprised a substantial portion of surface runoff during the summer upstream of the wastewater reclamation facilities in the Chino Basin.

<u>2008 Report</u>

The principal drainage course through the Chino Basin is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Basin at the Riverside Narrows and flows along the southern boundary of the Basin to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam and from the Dam the River flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral, intermittent and perennial streams that include: Chino Creek, San Antonio Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Please refer to Figure 3-2 for the location of drainages and Figure 4.3-1, which shows the location of the Santa Ana River Watershed and the Chino Basin Boundary.

These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, intermittent storms that typically occur from October through April. IEUA discharges year-round average flows of approximately 10 million gallons per day (MGD) to Chino Creek (from Carbon Canyon RWRF) and approximately 30 MGD to Cucamonga Channel (from RP-1 and RP-4). Actual volumes of discharges vary seasonally; will decrease gradually as more recycled water is utilized within the Chino Basin; and will also continue to decrease as water conservation efforts reduce water use per capita within the Chino Basin. Data available from WEI and provided in Table 4.4-2 of the Biological Resources Chapter shows projected wastewater discharges into the Santa Ana River for 2010 and 2020 based upon Agency calculations made in 2008 (column 7). Based upon these data, the total projected effluent discharged into the Santa Ana River is 188.1 MGD (210,698 AF/yr) in 2010 and 196.4 MGD (219,995 AF/yr) in 2020. Annual discharge projections provide information on the minimum expected annual flows into the Santa Ana River and Prado Basin because effluent would be discharged regardless of rainfall, unlike storm flows.

Even in drought conditions when potable water is rationed, primary emphasis is on reducing outdoor water use, which generally does not contribute to wastewater flows. Year-round flow occurs along the entire reach of the Santa Ana River in the Chino Basin due to year-round surface inflows at Riverside Narrows, discharges from municipal water reclamation facilities that intercept the Santa Ana River between the Narrows and Prado Dam, and rising groundwater. Rising groundwater occurs in Chino Creek, in the Santa Ana River at Prado Dam, and potentially at other locations on the Santa Ana River, depending on climate and season. With the exception of storm flows during periods of high precipitation, the Santa Ana River and all of the Basin tributaries currently function as effluent dominated streams.

Effluent discharge into the Santa Ana River from wastewater treatment facilities is projected to grow with increased population. However, actual future effluent discharge may also be reduced through increased direct reuse of recycled water and reduced per capita water consumption of potable water, if implemented.

As stated in the Project Description, investigations (WEI 2006, 2006A and November 2007) have shown that Re-operation is required to achieve hydraulic control within the Basin. Achieving hydraulic control requires that the groundwater level in the southern portion of the Basin be lowered sufficiently and pumped strategically to allow groundwater flow to be reversed, and thereby prevent outflow from the Basin. To be specific, the objective of hydraulic control is to capture all of the rising groundwater behind Prado Dam at the low point in the Basin and induce surface water in the Santa Ana River to reverse flow and recharge the lower portion of the Basin. Thus, one of the consequences of reducing groundwater levels in the Chino Basin is that rather than groundwater flowing from the Chino Basin into the Santa Ana River, as is described by the 2004 Basin Plan Amendment, water from the Santa Ana River will be the induced to flow into the newly lowered Chino Basin, constituting new yield. This forecast Santa Ana River percolation into the Chino Basin constitutes new yield. It includes both a reduction in groundwater discharge from the Chino Basin to the Santa Ana River within the reservoir created by Prado Dam and the new induced recharge of the Chino Basin upstream of Prado Dam. The volume of water produced through hydraulic control is estimated to be approximately 30 percent of the desalter well production.

Figure 4.3-1 shows the locations of two USGS discharge monitoring stations, one located at the MWD Upper Feeder Crossing of the Santa Ana River (11066460) that measures the discharge into the Chino Basin, and one located just downstream of Prado Dam (11074000) that measures the discharge exiting the watershed at the downstream end of the from the Chino and Temescal Basins.

Figure 4.3-3 shows the annual time history of storm flow for the Santa Ana River at below Prado Dam from water year 1919/20 to 2007/08 (October to September). Figure 4.3-3 also has a plot of the Cumulative Departure From Mean (CDFM) for precipitation at the Ontario hybrid station. Figure 4.3-3 demonstrates that the relationship of precipitation to stormwater runoff changed significantly around water year 1977/78, such that more runoff per unit of precipitation was produced after 1977/78. To see this, note the positive slope of the CDFM (indicative of a wet period) during the 1936/37 to 1944/45 period. During this period, about 49 inches of precipitation occurred above the mean precipitation of 15.4 inches per year. From 1977/78 to 1982/83, another wet period, there was about 51 inches of precipitation above the mean but there was much more storm water discharge than occurred between 1937 and 1945. A similar observation can be made about the 1991/92 to 1997/98 period.

Two observations can be regarding the time history of surface water discharge of the Santa Ana River: 1) there is a steady increase in the baseflow of the river starting around the 1970s and 2) there is an increase in the magnitude of storm water discharge starting in the late 1970s. These changes in discharge have occurred due to urbanization of the watershed. The increase in non-stormwater discharge is due to primarily to increases in recycled water discharges to the Santa Ana River. The increase in stormwater discharge is due to the modification of the land surface caused by the conversion from agricultural to urban uses, lining of stream channels, and other associated improvements in drainage systems.

The hydrologic regime in the Chino Basin has important implications for water supply and groundwater management. The occurrence of long dry periods, characteristic of the region's climate, limit the recharge of precipitation and storm water recharge for years at a time and requires management strategies that conserve precipitation and storm water recharge whenever available. The amount of stormwater produced per unit of precipitation has increased over time due to urbanization and will continue to increase in the future as the remaining undeveloped and agricultural land uses are converted to developed uses.

4.3.2.2 Water Quality

<u>OBMP PEIR</u>

Water quality is described in the OBMP PEIR on pages 4-107 through 4-114. Contaminated groundwater plumes are further discussed under the Hazards Chapter of the OBMP PEIR, Subchapter 4.10, on pages 4-353 through 4-360. Water quality has not substantially degraded over the past 8-12 years since the data for water quality in the Chino Basin was compiled in the OBMP PEIR. The same contaminated groundwater plumes remain a concern and they have not migrated substantially over the period of concern. Also, since 1998, the concept of Total Maximum Daily Loads (TMDLs) has evolved to address those locations where water quality exceeds existing standards or "maximum contaminant levels" and to identify water quality management actions using the concept of "carrying capacity" for each contaminated surface water body.

<u>2008 Report</u>

The State Water Resources Control Board regulates California's water quality and administers water rights through its nine regional boards. The Santa Ana RWQCB (or Santa Ana Board) is the regional agency empowered to protect water quality in the project area. The Santa Ana Board formulates water quality plans and enforces requirements on all domestic and industrial waste discharges. Stormwater runoff associated with the proposed project has the potential to affect water quality in the watershed.

The 1972 Clean Water Act (CWA) established the National Pollutant Discharge Elimination System (NPDES) permit program to regulate the discharge of pollutants from point sources (wastewater treatment plants, factories) to waters of the United States. The National Urban Runoff Program final report to the Congress (USEPA, 1983) concluded that the goals of the CWA could not be achieved without addressing urban runoff discharges. In recognition of the significant contribution of pollutants from non-point sources such as urban stormwater runoff, the 1987 CWA Amendments, specifically Section 402(p), were adopted establishing a framework for regulating urban runoff. Pursuant to these amendments, the Santa Ana Board began regulating municipal stormwater runoff in 1990.

The Initial Study determined that water quality impacts from construction activities and storm water could be mitigated to a less than significant level with implementation of the provided mitigation measures. These issues are not restated in this document.

Outstanding water quality issues are associated with implementation of the Peace II Program. Past and current residential, commercial, industrial, military and agricultural land uses have impacted water quality in the Chino Basin. The Santa Ana River, Cucamonga Creek, San Jose Creek, Chino Creek and Mill Creek are considered impaired waters [303(d) List] within the Chino Basin according to the EPA Enviromapper website. Cucamonga Creek is impaired by high coliform counts attributable to unknown non-point source pollution. The Santa Ana River is impaired by pathogens attributed to dairies. San Jose Creek is impaired by algae and high coliform counts attributable to non-point source pollution. Chino Creek is impaired by nutrients and pathogens attributable to agriculture, dairies and urban runoff/storm sewers and high coliform counts of unknown origin. Mill Creek is impaired by nutrients, pathogens and suspended solids attributable to agriculture and dairies.

As discussed in more detail under Program Elements 6 and 7 of Chapter 3, there are a number of known contaminated plumes within the Chino Basin from a variety of sources. Please refer to Figure 3-7 for a map of plume locations and contaminants updated in April of 2009.

The Santa Ana River Basin Plan establishes “beneficial uses” for specific segments of the Santa Ana River, as well as associated numerical water quality objectives which are designed to protect the uses. Site runoff controls must be developed to control runoff from all new development with each jurisdiction controlling the allowable discharges within its jurisdiction.

4.3.2.3 Flood Hazards

OBMP PEIR

Flood hazards were given minimal attention in the OBMP PEIR. Since Hurricane Katrina caused such large scale damage to the Gulf Coast, the Federal Emergency Management Agency (FEMA) has placed greater emphasis on exposure of critical infrastructure resources within areas exposed to flood hazards greater than the 100-year flood. This issue is addressed in the current document in greater detail to ensure that future critical/essential water infrastructure facilities are adequately protected from 100-year flood hazards.

2008 Report

Because of high evaporation and percolation rates associated with the surrounding soils and the climate, runoff from normal rainfall generally soaks into the ground quickly if it falls on permeable surfaces. However, during abnormally intense rainfall, localized flooding may occur with stormwater collecting in slight topographic lows or along streets due to the limited capacity of storm drains and collection systems and before being conveyed into regional stormwater facilities. As indicated above under Section 4.3.2-1, urban development within the Chino Basin resulted in greater stormwater runoff that is verified through the measured increase in volume of storm flow downstream of Prado Dam, as shown on Figure 4.3-3.

Under the Federal Emergency Management Agency (FEMA) National Flood Insurance Program has created Flood Insurance Rate Maps (FIRM) panels that delineate flood hazard areas. The FEMA FIRM panels for the Chino Basin are provided in the technical appendices in digital format. The index for San Bernardino County is found in file “06071CIND1B.tif” and for Riverside County is found in file “06065CIND1A.tif” on Disc 1 of the FEMA FIRM panels. These panels are provided in Volume 2 of the DSEIR, Technical Appendices, Appendix 4. The index maps provide the panel number for specific areas within each county, which if located within the

Chino Basin are provided on the disc listed by panel number. By referencing these maps, it can be determined if proposed future projects associated with Peace II will be located within flood hazard areas.

4.3.2.4 Groundwater

<u>OBMP PEIR</u>

Groundwater resources are described in the OBMP PEIR on pages 4-93 through 4-104. This included groundwater levels and storage in each of the Management Zones; and a time history of groundwater storage and losses. These issues are revisited in the following text.

<u>2008 Report</u>

4.3.2.4.1 <u>Introduction</u>

A description of the Chino Groundwater Basin was included in the OBMP PEIR, Section 4.5. Key elements of this description are updated in the following text. The source of the updated groundwater information is the 2008 State of the Basin Report (2009) which is provided as Appendix 3 in the Technical Appendices to this EIR, Volume 2. The analysis of groundwater impacts, presented in the following section, is based on a new report compiled by Wildermuth Environmental, Inc. (WEI), which is provided in Volume 2 of the DSEIR, the Technical Appendices, Appendix 3. The following information establishes the foundation for the analysis of impacts to groundwater resources in the Chino Basin contained in the WEI document.

4.3.2.4.2 <u>Description of the Basin</u>

The Chino Basin consists of about 235 square miles of the upper Santa Ana River watershed. Figures 4.3-1 and 4.3-4 illustrate the boundary of the Chino Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District vs. the City of Chino et al. Figure 4.3-1 also shows the hydrologic boundary of the Basin, which is slightly different from the adjudicated boundary. Chino Basin is an alluvial valley that is relatively flat from east to west and slopes from the north to the south at a one to two percent grade. Valley elevation ranges from about 2,000 feet in the foothills to about 500 feet near Prado Dam. Chino Basin is bounded: on the north by the San Gabriel Mountains and the Cucamonga Basin; on the east by the Rialto-Colton Basin, Jurupa Hills, and the Pedley Hills; on the south by the La Sierra area and the Temescal basin; and on the west by the Chino Hills, Puente Hills, and the Pomona and Claremont Basins.

The Chino Basin is one of the largest groundwater basins in southern California. The OBMP PEIR provide an estimate of groundwater in storage of about 5,000,000 acre-ft of water in the Basin and an unused storage capacity of about 1,000,000 acre-ft. More recent work by WEI indicates the actual groundwater volume stored in the Basin may be 6,000,000 acre-ft or greater. Cities and other water supply entities produce groundwater for all or part of their municipal and industrial supplies; and about 300 to 400 agricultural users produce groundwater from the Basin. The Chino Basin is an integral part of the regional and statewide water supply system. Prior to 1978, the Basin was in overdraft. After 1978, the Basin has been operated as described in the 1978 Judgment in Chino Basin Municipal Water District vs. City of Chino et al. (Chino Judgment or Judgment) and the OBMP.

4.3.2.4.3 Basin Operations and Groundwater Monitoring

This section describes the physical state of the Chino Basin with respect to groundwater pumping, artificial recharge, groundwater levels, and groundwater storage. Special attention is given to changes that have occurred since the implementation of the OBMP (2000) and since the last State of the Basin Report (2006).

Groundwater Flow System

The physical nature of groundwater occurrence and movement with regard to basin boundaries, recharge, groundwater flow, and discharge is described below.

Groundwater Recharge, Flow, and Discharge

While considered one basin from geologic and legal perspectives, the Chino Basin can be hydrologically subdivided into at least five flow systems that act as separate and distinct hydrologic units. Each flow system can be considered a management zone, and the management zones delineated in the OBMP were determined based on these hydrologic units (WEI, 1999), as shown in Figure 4.3-5. Each management zone has a unique hydrology, and water resource management activities that occur in one management zone have limited impacts on the other management zones.

The predominant sources of recharge to Chino Basin groundwater reservoirs are percolation of direct precipitation and returns from applied water. The following is a list of other potential sources of recharge:

- *Infiltration of flow within unlined stream channels overlying the basin*
- *Underflow from fractures within the bounding mountains and hills*
- *Artificial recharge of urban runoff, storm water, imported water, and recycled water at recharge basins*
- *Underflow from seepage across the bounding faults, including the Red Hill Fault (from Cucamonga basin), the San Jose Fault (from the Claremont Heights and Pomona basins), and the Rialto-Colton Fault (from the Rialto-Colton Basin)*
- *Deep percolation of precipitation and returns from use*
- *Intermittent underflow from the Temescal Basin*

In general, groundwater flow mimics surface drainage patterns: groundwater flows from the forebay areas of high elevation (areas in the north and east flanking the San Gabriel and Jurupa Mountains) towards areas of discharge near the Santa Ana River within the Prado Flood Control Basin.

In detail, groundwater discharge throughout Chino Basin primarily occurs via:

- *Groundwater production*
- *Rising water within Prado Basin (and potentially other locations along the Santa Ana River, depending on climate and season)*

- *Evapotranspiration within Prado Basin (and potentially other locations along the Santa Ana River, depending on climate and season) where groundwater is near or at the ground surface*
- *Intermittent underflow to the Temescal Basin*

Monitoring Programs

Groundwater Pumping Monitoring

Since its establishment in 1978, Watermaster has collected information to develop groundwater production estimates. Appropriative Pool and Overlying Non-Agricultural Pool estimates are based on flow meter data that are provided by producers on a quarterly basis. Agricultural Pool estimates are based on water duty methods and meter data. The Watermaster Rules and Regulations require groundwater producers that produce in excess of 10 acre-feet per year (AFY) to install and maintain meters on their well(s). In 2000, Watermaster initiated a meter installation program for Agricultural Pool wells and a meter-reading program that required at least one reading per year.

In the OBMP Phase I Report (WEI, 1999), it was estimated that up to 600 private wells would need to be equipped with meters. Watermaster staff completed meter installation on the majority of these wells and began reading meters in 2003. Some agricultural wells were not metered due to the anticipated conversion of land from agricultural to urban uses. As of December 2008, Watermaster had installed or repaired meters at 326 active agricultural wells. Watermaster records production data from these meters on a quarterly basis. These data are then entered into Watermaster's database. Figure 4.3-6 shows the locations of all active wells in fiscal 2007/08 by pool.

Artificial Recharge Monitoring

Figure 4.3-7 shows the locations of the basins used for artificial recharge in the Chino Basin. There are four types of water recharged within Chino Basin: imported water from the State Water Project (SWP), storm water, urban runoff, and recycled water. Deliveries of SWP water are monitored using water delivery records supplied by the Metropolitan Water District of Southern California (MWDSC) and the IEUA. Historically, the recharge of storm water and urban runoff was incidental to flood control operations, and many opportunities to measure and record this recharge were missed. Since the implementation of the OBMP, water level data sensors have been installed in each recharge basin. Recorded changes in recharge basin water levels during storm events coupled with elevation-area-volume curves and elevation-outflow relationships allow for the calculation of storm water and urban runoff recharge. Recycled water is recharged at seventeen of the recharge sites, most of which have multiple basins. The IEUA monitors and reports recycled water quality and recharge volumes. Groundwater quality within the vicinity of the recycled water recharge basins is measured and reported quarterly by the IEUA.

Groundwater Level Monitoring

Groundwater level monitoring was inadequate prior to OBMP implementation. Problems with historical groundwater level monitoring included an inadequate areal distribution of wells in monitoring programs, short time histories, questionable data quality, and insufficient resources to develop and conduct a comprehensive program.

The OBMP defined a new, comprehensive groundwater level monitoring program. The program start-up occurred in two steps: an initial survey from 1998 to 2001, followed by long-term monitoring at a set of key wells.

Watermaster has three active groundwater level monitoring programs operating in the Chino Basin: (1) a semiannual basin-wide well monitoring program, (2) a key well monitoring program that is associated with the Chino I/II Desalter well fields and the HCMP, and (3) a piezometric monitoring program that is associated with land subsidence and ground fissuring in Management Zone 1 (MZ1). Monitoring frequency varies with each program. Figure 4.3-8 shows the locations and measurement frequencies of all the wells that are currently used in Watermaster's groundwater level monitoring programs. In addition to its field programs, Watermaster collects groundwater level data from municipal producers, government agencies, and private entities. All collected water level measurements are entered into Watermaster's relational database.

Basin-wide Groundwater Level Monitoring Program

The objective of the basin-wide groundwater level monitoring program is to collect groundwater level data from all wells in the Chino Basin that can be reliably monitored. These wells are shown in Figure 3-2, symbolized by their measurement frequencies. Wells in the other groundwater level monitoring programs (see below, Key Well and MZ1 monitoring program discussions) are, by definition, also part of the basin-wide monitoring program. In total, the basin-wide program consists of about 900 wells. Watermaster staff measures water levels at about 450 private wells at least twice per year (spring and fall). At the remaining wells, water levels are measured by other agencies, including:

- *California Department of Toxic Substances and Control (Stringfellow Superfund Site)*
- *Orange County Water District (Prado Basin)*
- *Santa Ana Regional Water Quality Control Board (various remediation sites)*
- *USGS (special investigations)*
- *County of San Bernardino (landfill monitoring)*
- *Private Consultants (various remediation sites)*

Watermaster collects data for these wells twice per year; though, for some of these wells, data are collected more frequently as part of other monitoring programs (see below).

Key Well Water Level Program

Watermaster developed and implemented a key well monitoring program in the southern portion of the Chino Basin. The objective of this program is to increase measurement frequency and data quality at a reduced but representative network of wells. This network of wells and the monitoring program must satisfy the requirements for monitoring desalter impacts to local producers and for determining hydraulic control (see section below regarding "Assessment of Hydraulic Control" for a description of the Hydraulic Control Monitoring Program (HCMP)).

In the Chino Basin, development has led to the conversion of land from agricultural to urban uses and has resulted in the destruction of wells that were previously included in Watermaster's key well water level monitoring program. As key wells are lost to development, nearby wells are evaluated for suitability as key well replacements. Currently, there are 159 wells in the key well *water level monitoring program. Manual water levels measurements are done monthly at 95 of these wells. The remaining 64 wells contain pressure transducers/data loggers that automatically record water levels once every 15 minutes.*

<u>MZ1 Monitoring Program</u>
The MZ1 monitoring program is an intensive aquifer-system monitoring program that was implemented beginning in Watermaster fiscal year 2001/02 to provide information that could be used by Watermaster to determine the causes of subsidence in MZ1 and develop a long-term subsidence management plan for MZ1. In fiscal 2002/03, an aquifer system monitoring facility was constructed at Ayala Park in the City of Chino. This facility includes multi-depth piezometers that record depth-specific head once every 15 minutes. In addition, about 30 production and monitoring wells that surround this facility are equipped with pressure transducers that record water levels once every 15 minutes. All of these data are uploaded to Watermaster's water level database. Several of these wells are also included in the key well water level monitoring program.

<u>Groundwater Pumping</u>

<u>OBMP PEIR</u>

Groundwater production in the Chino Basin is summarized on pages 4-104 through 4-107 of the OBMP PEIR. The historic production and production after the 1978 Judgment are summarized and are placed into context if the following text. Based on the data in the 2008 Report, groundwater in storage has been reduced by approximately 62,000 acre-feet since approval of the OBMP PEIR in the year 2000.

<u>2008 Report</u>

Historical Groundwater Pumping
Table 4.3-2 lists Watermaster's records of Chino Basin production by pool for the period fiscal 1977/78 through fiscal 2007/08. Figure 4.3-9 depicts the distribution of production by pool. Over this period, annual groundwater production has ranged from a high of about 198,000 AF (fiscal 2006/07) to a low of about 123,000 AF (fiscal 1982/83) and has averaged about 154,000 AFY since fiscal 1977/78.

The distribution of production by pool has shifted since 1977. Agricultural Pool production, which is mainly concentrated in the southern portion of the basin, dropped from about 54 percent of total production in 1977-78 to about 19 percent in 2007/08. During the same period, Appropriative Pool production, which is mainly concentrated in the northern half of the basin, increased from about 40 percent of total production in 1977-78 to about 79 percent in 2007/08 (sum of production for the appropriative pool and the Chino Desalter Authority [CDA]). Increases in Appropriative Pool production have approximately kept pace with declines in agricultural production. Production in the Overlying Non-Agricultural Pool declined from about 5 percent of total production in fiscal 1977/78 to about 2 percent in the mid-1980s, rose to about 4 percent through the 1990s, and recently decreased to about 2 percent in 2003-04 where it remained through fiscal 2007/08.

Table 4.3-2

Summary of Recharge and Discharge

(acre-ft)

Fiscal Year	Wet Water Recharge to the Chino Basin									Discharge[7]										
	Safe Yield	Wet Water Recharge[1]							Total Inflow	Pumping						Pumping Distribution (% of Total)				
		Replenish	Cyclic or Conj Use	MZ1 Program	Recycled	New Storm Water[5]	Desalter Induced SAR Inflow[6]	Total		Appropriative Pool less CDA Desalters[2, 3, 4]	Chino Desalter Authority	Total Appropriative Pool	Agricultural Pool	Overlying Non-Ag Pool	Total	Appropriative Pool less CDA Desalters[2, 3, 4]	Chino Desalter Authority	Total Appropriative Pool	Agricultural Pool	Overlying Non-Ag Pool
1977 - 1978	140,000	10,680	0	0	0	0	0	10,680	150,680	60,659	0	60,659	83,934	10,082	154,675	39%	0%	39%	54%	7%
1978 - 1979	140,000	12,638	15,757	0	0	0	0	28,395	168,395	60,597	0	60,597	73,688	7,127	141,412	43%	0%	43%	52%	5%
1979 - 1980	140,000	2,507	14,243	0	0	0	0	16,751	156,751	63,834	0	63,834	69,369	7,363	140,566	45%	0%	45%	49%	5%
1980 - 1981	140,000	12,228	8,662	0	0	0	0	20,890	160,890	70,726	0	70,726	68,040	5,650	144,416	49%	0%	49%	47%	4%
1981 - 1982	140,000	16,609	5,047	0	0	0	0	21,656	161,656	66,731	0	66,731	65,117	5,684	137,532	49%	0%	49%	47%	4%
1982 - 1983	140,000	13,188	15,501	0	0	0	0	28,689	168,689	63,481	0	63,481	56,759	2,395	122,635	52%	0%	52%	46%	2%
1983 - 1984	140,000	13,777	7,960	0	0	0	0	21,737	161,737	70,558	0	70,558	59,033	3,208	132,799	53%	0%	53%	44%	2%
1984 - 1985	140,000	12,188	8,709	0	0	0	0	20,897	160,897	76,912	0	76,912	55,543	2,415	134,870	57%	0%	57%	41%	2%
1985 - 1986	140,000	16,332	2,095	0	0	0	0	18,427	158,427	80,859	0	80,859	52,061	3,193	136,113	59%	0%	59%	38%	2%
1986 - 1987	140,000	10,086	9,921	0	0	0	0	20,007	160,007	84,662	0	84,662	59,847	2,559	147,068	58%	0%	58%	41%	2%
1987 - 1988	140,000	2,494	0	0	0	0	0	2,494	142,494	91,579	0	91,579	57,865	2,958	152,402	60%	0%	60%	38%	2%
1988 - 1989	140,000	7,407	0	0	0	0	0	7,407	147,407	93,617	0	93,617	46,762	3,619	143,998	65%	0%	65%	32%	3%
1989 - 1990	140,000	0	0	0	0	0	0	0	140,000	101,344	0	101,344	48,420	4,856	154,620	66%	0%	66%	31%	3%
1990 - 1991	140,000	3,291	503	0	0	0	0	3,793	143,793	86,658	0	86,658	48,085	5,407	140,150	62%	0%	62%	34%	4%
1991 - 1992	140,000	3,790	1,761	0	0	0	0	5,551	145,551	91,982	0	91,982	44,682	5,240	141,904	65%	0%	65%	31%	4%
1992 - 1993	140,000	12,535	1,677	0	0	9,041	0	23,253	163,253	86,367	0	86,367	44,092	5,464	135,923	64%	0%	64%	32%	4%
1993 - 1994	140,000	8,859	7,634	0	0	0	0	16,493	156,493	80,798	0	80,798	44,298	4,586	129,682	62%	0%	62%	34%	4%
1994 - 1995	140,000	0	10,300	0	0	0	0	10,300	150,300	93,419	0	93,419	55,022	4,327	152,768	61%	0%	61%	36%	3%
1995 - 1996	140,000	82	0	0	0	0	0	82	140,082	101,606	0	101,606	43,639	5,424	150,669	67%	0%	67%	29%	4%
1996 - 1997	140,000	0	17	0	0	0	0	17	140,017	110,163	0	110,163	44,809	6,309	161,281	68%	0%	68%	28%	4%
1997 - 1998	140,000	8,323	0	0	0	0	0	8,323	148,323	97,435	0	97,435	43,344	4,955	145,734	67%	0%	67%	30%	3%
1998 - 1999	140,000	5,697	0	0	0	0	0	5,697	145,697	107,723	0	107,723	47,538	7,006	162,267	66%	0%	66%	29%	4%
1999 - 2000	140,000	1,001	0	0	507	0	0	1,508	141,508	126,645	0	126,645	44,401	7,774	178,820	71%	0%	71%	25%	4%
2000 - 2001	140,000	30	0	6,500	500	0	3,995	7,030	147,030	113,437	7,989	121,426	39,954	8,084	169,464	67%	5%	72%	24%	5%
2001 - 2002	140,000	0	0	6,500	505	0	4,729	7,005	147,005	121,489	9,458	130,947	39,494	5,548	175,989	69%	5%	74%	22%	3%
2002 - 2003	140,000	0	0	6,499	185	0	5,220	6,684	146,684	120,557	10,439	130,996	38,487	4,853	174,336	69%	6%	75%	22%	3%
2003 - 2004	140,000	4,020	2,463	3,558	48	0	5,303	10,089	150,089	136,834	10,605	147,439	41,978	2,915	192,332	71%	6%	77%	22%	2%
2004 - 2005	140,000	4,380	0	7,877	158	12,500	4,927	24,915	164,915	127,811	9,854	137,665	34,450	2,327	174,441	73%	6%	79%	20%	1%
2005 - 2006	140,000	33,756	0	1,554	1,304	12,999	4,944	49,613	189,613	124,315	16,479	140,794	33,900	3,026	177,720	70%	9%	79%	19%	2%
2006 - 2007	140,000	32,991	0	0	2,989	4,770	7,907	40,750	180,750	130,826	26,356	157,182	37,295	3,369	197,846	66%	13%	79%	19%	2%
2007 - 2008	140,000	0	0	0	2,340	10,243	8,092	12,583	152,583	103,078	26,972	130,050	30,910	3,440	164,400	63%	16%	79%	19%	2%
Totals	4,340,000	248,888	112,249	32,489	8,536	49,553	45,114	451,715	4,791,715	2,946,702	118,152	3,064,853	1,552,816	151,162	4,768,832					
Average	140,000	8,029	3,621	1,048	275	1,598	1,455	14,571	154,571	95,055	14,769	98,866	50,091	4,876	153,833	59%	8%	63%	35%	3%
Max	140,000	33,756	15,757	7,877	2,989	12,999	8,092	49,613	189,613	136,834	26,972	157,182	83,934	10,082	197,846	73%	16%	79%	55%	7%
Min	140,000	0	0	0	0	0	0	0	140,000	60,597	0	60,597	33,900	2,327	122,635	39%	0%	39%	19%	1%

[1] Includes only water actually spread

[2] Includes only actual water produced and does not include MWD exchanges

[3] Includes adjustment for Ontario production of 633 AF in FY 2001-02

[4] Includes adjustment for Jurupa, Niagara, and Chino production correction of 1,030 AF in FY 2002-03

[5] Includes 9,041 acre-ft of surface water recharge in the Chino Basin that would otherwise have recharged the Claremont Heights Basin in FY 1992-93; and CBFIP stormwater capture of 12,500 acre-ft/yr beginning in FY 2004-05.

[6] Watermaster has assumed that half of the desalter pumping has been replenished by induced recharge in the Santa Ana River through FY 2004-05 and that 30 percent of the desalter pumping has been replenished by induced recharge in the Santa Ana River in FY 2005-06

[7] The only discharge considered herein is pumping, the other discharges are assumed netted out in the safe yield

Figures 4.3-10 through 4.3-14 illustrate the location and magnitude of groundwater production at wells in the Chino Basin for fiscal years 1977/78, 1999/2000, 2005/06, 2006/07, and 2007/08, respectively. A close review of these figures indicates:

- *There was a basin-wide increase in the number of wells producing over 1,000 AFY between 1978 and 2008. This is consistent with (1) the land use transition from agricultural to urban, (2) the trend of increasing imported water costs, and (3) the use of desalters.*
- *Since the implementation of the OBMP in 2000, the number of active production wells just north of the Santa Ana River has decreased. This is consistent with the land use transition from agricultural to urban that has been occurring in the area.*
- *Since the implementation of the OBMP in 2000, desalter pumping has commenced and progressively increased; in fiscal 2007/08, desalter pumping reached a historical high of 26,972 AFY.*
- *Since the implementation of the OBMP in 2000, the number of wells that produce over 1,000 AFY on the west side of Chino Basin (west of Euclid Avenue) has decreased. This is consistent with (1) the implementation of the MZ1 Interim Management Plan, which reduced pumping by up to 3,000 AFY in the Chino area, and (2) reduced pumping by the City of Pomona, the Monte Vista Water District, and the City of Chino Hills from 2003 to 2008, as these agencies have been participating in in-lieu recharge for the Dry-Year Yield Program*

Agricultural Pool Pumping
Agricultural Pool pumping has declined steadily since 1978 (see Figure 4.3-6). In fiscal 2007/08, total production for the Agricultural Pool fell to 30,910 AF—the Agricultural Pool's lowest production on record. Since OBMP implementation in 2000, Agricultural Pool production has decreased from about 40,000 AF in fiscal 2000/01 (24 percent of total basin production) to about 31,000 AF in fiscal 2007/08 (19 percent of total basin production).

Overlying Non-Agricultural Pool Pumping
Since OBMP implementation in 2000, Overlying Non-Agricultural Pool production has accounted for less than 5 percent of total basin production, ranging from about 2,300 AF (1 percent of total production in fiscal 2004/05) to 8,000 AF (5 percent of total production in fiscal 2000/01). In fiscal 2007/08, Overlying Non-Agricultural production of about 3,400 AF accounted for 2 percent of total basin production.

Appropriative Pool Pumping
Since OBMP implementation in 2000, average production by the Appropriative Pool, excluding desalter production, has been about 122,000 AFY, which accounts for about 70 percent of total basin production.

The CDA operates two desalter facilities (Chino I and Chino II) that are supplied with raw groundwater from 22 wells. The desalter facilities belong to the Appropriative Pool. In fiscal 2007/08, the CDA desalters produced more water than in any previous year (26,972 AF). Since the CDA began pumping in 2000, its production has accounted for about 16 percent of total Appropriative Pool production and about 8 percent of total basin production. During 2005/06, the Chino II Desalter facility became operational, and as a result, CDA groundwater production *increased by about 60 percent from the previous year. Average annual production by the CDA since 2000 has been about 14,800 AFY.*

Since OBMP implementation in 2000, average annual production by the Appropriative Pool, including desalter production, has been about 137,000 AFY. Approximately 130,000 AF were produced in fiscal 2007/08. As a percent of total basin production, Appropriative Pool production increased from about 72 percent in fiscal 2000/01 to about 79 percent in fiscal 2007/08.

Artificial Recharge

Watermaster initiated the Chino Basin Groundwater Recharge Program as required by the Peace Agreement. This program is an integral part of Watermaster's OBMP and is summarized in the OBMP Recharge Master Plan. This comprehensive program aims to enhance water supply reliability and improve the groundwater quality of local drinking water wells throughout the Chino Basin by increasing the recharge of storm water, imported water, and recycled water. Below, the physical volumes of water percolated at recharge basins in the Chino Basin are discussed. Specific source waters include storm water and supplemental water, which consists of State Water Project (SWP) water and recycled water.

Recharge Facilities

There are 21 recharge facilities described in the OBMP Recharge Master Plan, Phase II Report (B&V & WEI, 2001). Table 4.3-3 lists the operable recharge facilities in the Chino Basin and summarizes annual wet water recharge (by type) for the period of July 1, 2000 through June 30, 2008. Figure 4.3-7 shows the locations of the groundwater recharge facilities. Detailed descriptions of these facilities and their operating characteristics can be found in Chino Basin Recharge Facilities Operating Procedures (GRCC, 2006).

Regulatory Requirements for Recharge in the Chino Basin

The general recharge requirements for the Chino Basin are outlined in Section 5.1 of the Chino Basin Peace Agreement – Recharge and Replenishment. The requirements of the Peace Agreement are further discussed and expanded on in the OBMP Recharge Master Plan (WEI, 2001).

The Recycled Water Groundwater Recharge Program, which is being implemented by the IEUA and Watermaster, is subject to the following requirements:

- *California Regional Water Quality Control Board, Santa Ana Region. Monitoring and Reporting Program (M&RP) No. R8-2005-0033 for IEUA and Chino Basin Watermaster. Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County. April 15, 2005.*
- *California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2007-0039. Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster, Chino Basin Recycled Groundwater Recharge Program, Phase I and Phase II Projects, San Bernardino County. June 29, 2007.*

Table 4.3-3

Summary of Annual Wet Water Recharge in the Chino Basin

Basin Name	2000/2001				2001/2002				2002/2003				2003/2004			
	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge
Banana Basin	390	0	0	390	184	0	0	184	366	0	0	366	188	0	0	188
Declez Basin	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Etiwanda Conservation Ponds	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Hickory Basin	37	0	0	37	105	0	0	105	551	0	0	551	224	0	0	224
Jurupa Basin	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
RP-3 Basins	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Turner Basin	167	0	0	167	100	0	0	100	192	0	0	192	0	0	0	0
7^{th} and 8^{th} Street Basins	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Brooks Street Basin	0	0	0	0	104	0	0	104	676	0	0	676	--	0	0	0
College Heights Basins	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Ely Basins	--	0	500	500	--	0	505	505	--	0	185	185	--	0	48	48
Etiwanda Spreading Basins	--	0	0	0	--	0	0	0	--	0	0	0	--	2,812	0	2,812
Lower Day Basin	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Montclair Basins	2,890	6,530	0	9,420	773	6,500	0	7,273	1,328	6,499	0	7,827	--	3,558	0	3,558
San Sevaine	--	0	0	0	--	0	0	0	--	0	0	0	--	1,211	0	1,211
Upland Basin	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Victoria Basin	--	0	0	0	--	0	0	0	--	0	0	0	--	0	0	0
Totals:	3,484	6,530	500	10,514	1,266	6,500	505	8,271	3,113	6,499	185	9,797	412	7,582	48	8,042

Basin Name	2004/2005				2005/2006				2006/2007				2007/2008			
	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge	Storm Water	Imported Water	Recycled Water	Total Recharge
Banana Basin	459	0	0	459	221	206	529	956	226	783	643	1,652	278	0	157	435
Declez Basin	--	0	0	0	737	0	0	737	0	0	0	0	730	0	0	730
Etiwanda Conservation Ponds	--	197	0	197	--	0	0	0	0	0	0	0	0	0	0	0
Hickory Basin	653	0	0	653	517	623	586	1,726	536	212	646	1,394	949	0	625	1,574
Jurupa Basin	--	0	0	0	--	0	0	0	0	0	0	0	0	0	0	0
RP-3 Basins	--	0	0	0	767	0	0	767	802	0	0	802	511	0	0	511
Turner Basin	297	310	0	607	2,575	346	0	2,921	406	313	1237	1,956	1542	0	0	1,542
7^{th} and 8^{th} Street Basins	--	0	0	0	1,271	0	0	1,271	640	0	0	640	959	0	1,054	2,013
Brooks Street Basin	--	0	0	0	524	2033	0	2,557	205	1604	0	1,809	475	0	0	475
College Heights Basins	--	0	0	0	108	5,432	0	5,540	1	3,125	0	3,126	172	0	0	172
Ely Basins	--	0	158	158	1,531	0	188	1,719	631	0	466	1,097	1,603	0	562	2,165
Etiwanda Spreading Basins	--	2,137	0	2,137	20	2,488	0	2,508	0	1,160	0	1,160	10	0	0	10
Lower Day Basin	--	107	0	107	624	2,810	0	3,434	78	2,266	0	2,344	303	0	0	303
Montclair Basins	--	7,887	0	7,887	1,296	5,536	0	6,832	355	10,681	0	11,036	859	0	0	859
San Sevaine	--	1,621	0	1,621	2,072	9,172	0	11,244	244	5,749	0	5,993	749	0	0	749
Upland Basin	--	0	0	0	214	5,922	0	6,136	195	7068	0	7,263	312	0	0	312
Victoria Basin	--	0	0	0	330	0	0	330	260	0	0	260	427	0	0	427
Totals:	1,409	12,258	158	13,825	12,807	34,568	1,303	48,678	4,579	32,961	2,992	40,532	9,879	0	2,398	12,277

Historical Recharge

Storm Water Recharge

Storm Water recharge is monitored by the IEUA pursuant to the Chino Basin Recharge Facilities Operating Procedures (GRCC, 2006). Transducers have been installed in each recharge basin that receives storm water. The percolation rate in each basin is measured directly and used in conjunction with established elevation-storage-area tables to calculate recharge.

Since 2000, total storm water recharge has averaged approximately 4,600 AFY. During fiscal years 2006/07 and 2007/08, total storm water recharge in Chino Basin was approximately 4,600 and 9,900 AF, respectively (see Table 4.3-3).

Supplemental Water Recharge

SWP water for artificial recharge is currently available to the region from the MWDSC. The MWDSC delivers SWP water into the Chino Basin from the Foothill Feeder, which flows from east to west across the northern half of the Chino Basin. During fiscal 2006/07, total SWP water recharge in Chino Basin was approximately 6,500 AF. During fiscal 2007/08, there was no SWP water recharge in the Chino Basin. The aggregate average SWP water recharge that has occurred since the OBMP was implemented is about 10,100 AFY.

During fiscal 2007/08, the Banana, Hickory, 7th and 8th Street, and Ely Basins were used to recharge recycled water. During fiscal years 2006/07 and 2007/08, total recycled water recharge in Chino Basin was approximately 3,000 and 2,400 AF, respectively. The aggregate average recycled water recharge that has occurred since the OBMP was implemented is about 1,000 AFY.

During fiscal years 2006/07 and 2007/08, supplemental water recharge—consisting of imported and recycled waters—was approximately 6,350 and 2,400 AF, respectively. The aggregate average supplemental water recharge that has occurred since the OBMP was implemented is about 11,500 AFY.

Groundwater Levels

This subsection analyzes groundwater levels at wells in the various management zones (MZs) throughout the Chino Basin and discusses changes in groundwater storage since the implementation of the OBMP in 2000 and since the 2006 State of the Basin report.

Historical Groundwater Level Trends

Figure 4.3-15 shows the locations of wells with groundwater level time histories discussed herein and the Chino Basin management zone boundaries. Wells were selected based on length of record, density of data points, quality of data, geographical distribution, and aquifer system. Wells are identified by their local name (usually owner abbreviation and well number) or their Watermaster ID (CBWM ID) if privately owned.

Figures 4.3-16 through 3-20 are groundwater level time history charts for the wells shown in Figure 4.3-15. Some of the short-term groundwater level fluctuations shown in these figures result from the inclusion of static and dynamic observations. Below, by management zone, the *behavior of groundwater levels at specific wells is compared to climate, groundwater production, wet water recharge activities, and other factors as appropriate.*

To compare groundwater levels to climate, a cumulative departure from mean precipitation (CDFM) curve has been plotted on the groundwater level time history charts. Positive sloping lines on the CDFM curve show wet years or wet periods. Negatively sloping lines show dry years or dry periods. For example, the period from 1978 to 1983 was an extremely wet period, and it is represented by a positively sloping line. To compare groundwater levels to pumping and recharge activities, bar charts that show groundwater production and wet water recharge by management zone have been superimposed on the groundwater level time history charts.

Management Zone 1

MZ1 is an elongate region, running generally north-south, and comprises the westernmost area of the Chino Basin. It is bounded by MZ2 to the east, various basin-boundary faults to the north, and sedimentary bedrock outcrops to the west and south.

Figure 4.3-16 shows groundwater level time histories for the following wells: Monte Vista Water District Well 10 (MVWD-10), City of Pomona Well 11 (P-11), City of Chino Well 10 (C-10), and Chino Hills Wells 15A and 16 (CH-15A and CH-16). The Montclair, College Heights, Upland, and Brooks Street Basins are located in the northern portion of MZ1 and are the primary sites for artificial recharge.

Wells MVWD-10 and P-11 exhibit representative groundwater levels for the northern portion of MZ1. An analysis of static groundwater levels at these wells shows a decline from 1995 to 2001, a period of increased groundwater production in MZ1. Since 2001, water levels have risen by about 100 feet at MVWD-10 and by about 45 feet at P-11. This increase is most likely attributed to a decrease in local production and an increase in wet water recharge in MZ1 since 2001.

Well C-10 is located in central MZ1. Water levels at C-10 peak in the mid-1990s but decline by about 20 feet from 1995 to 2000, which is likely due to increased groundwater production in MZ1. Unlike other wells in MZ1 that experienced significant water level recovery from 2000 to 2006, C-10's water levels remained essentially unchanged. Since 2006, water levels have risen by approximately 20 feet. This increase is due to a decrease in local production and an increase in wet water recharge.

Water levels measured at CH-15A are representative of the shallow aquifer system in the southern portion of MZ1. The recent land subsidence investigation (Section 5) has shown that in southern MZ1, the aquifer system is hydrologically stratified. The shallow aquifer system is unconfined to semi-confined while the deep aquifer system is confined. Water levels in CH-15A have historically been stable at around 80-90 ft-bgs and have experienced small variations in response to nearby pumping. Though, since 2000, water levels have risen by about 10 feet. This is primarily due to the decrease in local production associated with the MZ1 Interim Management Plan.

CH-16 is perforated in the confined deep aquifer system, which is characterized by large changes in piezometric pressure due to nearby pumping. In 2003 and 2004, during a series of pumping tests conducted by Watermaster in southern MZ1, water levels in CH-16 dropped by approximately 100 feet, and the period of recovery lasted several months. These tests *demonstrated that piezometric levels in CH-16 (and the deep aquifer system in general) are heavily influenced by changes in pumping from local wells screened within the deep aquifer system. The static water levels at CH-16 declined by about 100 feet from 1995 to 2000 and subsequently recovered by about 140 feet from 2000 to 2006. At the end of 2008, static water levels had declined by about 30 feet from the 2006 highs with a maximum drawdown of about 60 feet observed in the summer of 2008.*

<u>Management Zone 2</u>

Management Zone 2 (MZ2) is a large, central, elongate area of the Chino Basin (see Figure 4.3-15). Figure 4.3-17 shows groundwater level time histories for Cucamonga Valley Water District (CVWD) Wells CB-3 and CB-5 (CVWD CB-3 and CVWD CB-5), City of Ontario Well 16 (O-16), CBWM ID 600394, and Hydraulic Control Monitoring Program Wells 2/1 and 2/2 (HCMP-2/1, and HCMP-2/2). These wells are aligned north to south, approximately along a groundwater flow line. The San Sevaine, Etiwanda, Lower Day, Victoria, Turner, and Ely Basins are located in the northern and central regions of MZ2 and are the primary sites for artificial recharge.

The groundwater level time histories for the northernmost wells—CVWD CB-3 and CB-5 and O-16—show a general water level increase following 1978, which is likely due to a combination of the 1978 to 1983 wet period, the reduction in overdraft following the implementation of the Chino Basin Judgment, and the start of artificial replenishment with imported water in the San Sevaine and Etiwanda Basins. Following the early 1990s, water levels at these wells began to decrease and have continued to decrease to present. The static water levels at CB-3 and CB-5 decreased by approximately 30 feet between 2003 and 2006. Long-term water level decreases in this area of MZ2 are likely due to decreased wet water recharge from 1996 to 2003 and increased groundwater production from 1995 to present.

Well CBWM ID 600394 is located in the central portion of MZ2, north of the Chino I Desalter well field. Water levels at this well have decreased by about 15 feet since 2000.

Wells HCMP 2/1 and HCMP 2/2 are located at the southern end of MZ2 near the Chino I Desalter well field. These wells were completed and the first measurements were recorded in early 2005. HCMP 2/1 is perforated in the shallow aquifer system, and HCMP 2/2 is perforated in the deep aquifer system. Contrary to that of MZ1, the deeper aquifer in this MZ behaves much more like the shallow, unconfined aquifer, which is indicative of a greater degree of hydraulic communication between the two aquifer systems. Both wells exhibited similar groundwater level increases (15-20 feet) from 2005 to 2006. It is likely that this was due to changes in local production—especially at some of the nearby Chino I Desalter wells, which experienced a production decrease in 2005 and 2006. Since 2006, water levels have decreased by 5-10 feet in both wells.

<u>Management Zone 3</u>

Management Zone 3 (MZ3) consists of the area along the eastern boundary of the Chino Basin. It is bounded by MZ2 to the west, Chino-East (MZ4) and Chino-South (MZ5) to the south, and the Rialto-Colton Fault to the east (see Figure 4.3-15). Figure 4.3-18 shows water level time histories for Fontana Water Company Wells F30A and F35A (F30A and F35A), Milliken Landfill Well M-3 (M-3), County of San Bernardino MIL M-06B, CBWM ID 3602468, and HCMP Well 7/1 (HCMP 7/1). These wells are aligned northeast to southwest, approximately along a *groundwater flow line. The RP-3 and Declez Basins are located in the central region of MZ3 and are the primary sites for artificial recharge.*

Wells F30A and F35A are located in the northeastern portion of MZ3. The groundwater level time histories of these two wells show relatively stable water levels from 1978 until the late 1990s. From 2000 to 2006, the wells experienced a progressive decline in water levels of about 25 feet. This decline is likely due to increased production in MZ3. Their lack of responsiveness to climate is likely due to the absence of significant sources of recharge. Since 2006, water levels at F35A have remained relatively unchanged, and water levels at F30A have fluctuated ±5 to 10 feet.

Wells M-3/M-06B and CBWM ID 3602468 are located in the central portion of MZ3. From 2000 to 2006, a groundwater decline of about 30 feet was observed at these wells.

The southernmost well, HCMP-7/1, experienced a groundwater level decline of about 20 feet from 2005 to the end of 2008. Similar water level declines can be observed in most wells throughout MZ3. This regional drawdown in MZ3 is likely due to the steady increase in production within MZ3 over the past 30 years and a lack of artificial recharge.

Management Zone 4

MZ4 – also known as Chino-East – is bounded by the Jurupa Hills to the north, the Pedley Hills to the east, MZ5 to the south, and MZ3 to the west (see Figure 4.3-15). Figure 4.3-19 shows groundwater level time histories for HCMP Well 9/1 (HCMP-9/1), Jurupa Community Services District Well 10 (JCSD-10), and CBWM ID 3300718. There are no major recharge basins in MZ4, and very little groundwater production occurs in this area.

Groundwater levels at these wells decreased by about 30 feet between 2000 and 2008. These declines are likely due to groundwater production at nearby wells, including the Chino II desalter well field, which is located near the western boundary of the MZ.

Management Zone 5

MZ5 – also known as Chino-South – is bounded by MZ4 to the north, MZ3 to the west, the Riverside Narrows to the east, and various unnamed hills to the south (see Figure 4.3-10). Figure 4.3-20 shows groundwater level time histories for USGS Well Archibald-1, HCMP Well 8/1 (HCMP 8/1), and Santa Ana River Water Company Well 07 (SARWC-07). There are no groundwater recharge basins in MZ5, but the Santa Ana River is a major source of groundwater recharge.

These wells exhibit very little groundwater level variation due to the stabilizing effects of the Santa Ana River. Production in MZ5 decreased steadily from 1978 to 2008 due to the destruction of many private agricultural wells. Current production is approximately 3,000 AFY (see Figure 4.3-20). Groundwater levels in HCMP-8/1 and SARWC-07 have declined about 10-15 feet since 2006. This decline is likely due to the onset of pumping at nearby Chino II Desalter wells.

Current Groundwater Levels

The groundwater level data collected from the various monitoring programs described in Section 3.3 were used to create groundwater level elevation contour maps of the Chino Basin for fall

2000 (Figure 4.3-21), fall 2003 (Figure 4.3-22), fall 2006 (Figure 4.3-23), and fall 2008 (Figure 4.3-24). Appendix A (Appendix 3, Volume 2, Technical Appendices) is an E-sized water level map that includes the point data used to contour the fall 2008 groundwater levels. The following procedures were used in the creation of these maps:

- *Extract the entire time history of groundwater level data from Watermaster's groundwater level database for all wells in the Chino Basin.*
- *Plot and explore groundwater elevation time histories for all wells.*
- *Choose one "static" groundwater level elevation data point per well that is representative of the fall 2008 period.*
- *Plot groundwater level elevation data on maps with background geologic/hydrologic features.*
- *Contour and digitize groundwater elevation data.*

The groundwater elevation contours for fall 2008 (Figure 4.3-24) are generally consistent with past groundwater elevation contour maps (see, for example, Figures 4.3-21, 4.3-22, and 4.3-23). These maps show that groundwater generally flows in a south-southwest direction from the primary areas of recharge in the northern parts of the basin toward the Prado Flood Control Basin in the south. There are notable pumping depressions in the groundwater level surface that interrupt the general flow patterns in the northern portion of MZ1 (Montclair and Pomona areas) and directly southwest of the Jurupa Hills. There is a discernible depression in groundwater levels surrounding the Chino I & Chino II Desalter well fields.

Close inspection of the groundwater level data used to construct these maps suggests the existence of hydraulically distinct aquifer systems—primarily in MZ1 and the western parts of MZ2. Previous investigations have concluded that two distinct aquifer systems exist in these areas: a shallow unconfined to semi-confined aquifer and deeper confined aquifer. The groundwater levels shown in these maps correspond to the shallow aquifer system and do not reflect the piezometric levels of the deeper aquifers.

Changes in Groundwater Storage

Watermaster developed a GIS model to estimate groundwater storage changes from the groundwater level contour maps discussed above. In preparing this model, Watermaster compiled a comprehensive library of well driller's logs for wells in the Chino Basin. Lithologic descriptions of borehole cuttings and associated depth intervals were digitized and added to Watermaster's database. All lithologic descriptions were then assigned a value of specific yield based on USGS investigations (Johnson, 1967). These data were then used to estimate the average specific yield across each hydrostratigraphic layer in the Chino Basin (see Section 2 of this report for additional details).

The storage change model and the procedures for estimating storage change include:

- *Create groundwater elevation contour maps of the Chino Basin for the beginning and ending of the period for which a storage change will be estimated (e.g. fall 2000, fall 2003, and fall 2006).*
- *Create three-dimensional raster surfaces (ESRI grids) of the groundwater elevation contour maps.*

- *Create a 400-meter by 400-meter grid (polygon shapefile) of the Chino Basin.*
- *Assign attributes to each grid cell for (1) surface area, (2) overlying management zone, (3) beginning groundwater elevation surface (e.g. fall 2003), (4) ending groundwater elevation surface (e.g. fall 2006), (5) top and bottom elevations for the model layers, and (6) the specific yield of sediments for each model layer.*
- *Export the attribute table of the 400-meter grid to spreadsheet format to calculate the volumetric storage change.*

Figure 4.3-25 shows the 400x400-meter grid, symbolized by the storage change between fall 2000 and fall 2003. Basin-wide, the groundwater storage model estimates a change in storage of about -93,400 AF over this three-year period. Based on this figure, the following sub-areas experienced a decrease in storage:

- *In the northwest near Pomona and Montclair*
- *In the northeast near Fontana and eastern Ontario and Rancho Cucamonga*
- *Near the Chino I Desalter well field, which began producing groundwater in 2000*

And, the following sub-areas experienced an increase in storage:

- *In the southwest within the City of Chino where pumping decreased in association with the land subsidence investigation and the Forbearance Agreement*
- *In the south, just north of the Santa Ana River, where many agricultural wells are being destroyed as land use transitions from agricultural to urban*

Figure 4.3-26 shows the 400x400-meter grid, symbolized by the storage change between fall 2003 and fall 2006. Basin-wide, the groundwater storage model estimates a change in storage of about +46,500 AF over this three-year period. Based on this figure, the following sub-areas experienced a decrease in storage:

- *In the northeast near Fontana as well as in eastern Ontario and Rancho Cucamonga in MZ2 and MZ3*
- *In the area directly west of the Jurupa Mountains in MZ3*
- *In the area immediately surrounding the eastern portions of the Chino I Desalter well field (During this period, increased production in this area was mainly due to the onset of pumping at the Chino I Desalter expansion wells.)*

And, the following sub-areas experienced an increase in storage:

- *In the northwest near Pomona and Montclair in MZ1 where pumping decreased in association with in-lieu recharge for the Dry-Year Yield program*
- *In the southwest within the City of Chino where pumping decreased in association with the land subsidence investigation and the Forbearance Agreement*
- *In the southern region of MZ2 on the west side of the Chino I Desalter well field*
- *In the south, just north of the Santa Ana River, where many agricultural wells are being destroyed as land use transitions from agricultural to urban*

Figure 4.3-27 shows the 400x400-meter grid, symbolized by the storage change between fall 2006 and fall 2008. Basin-wide, the groundwater storage model estimates a change in storage of about -53,600 AF over this two-year period. Based on this figure, the following sub-areas experienced a decrease in storage:

- *In the area directly west and southwest of the Jurupa Mountains in MZ3 (This area is influenced by groundwater production at wells owned by the Jurupa Community Services District.)*
- *In the area immediately surrounding the eastern portion of the Chino I Desalter well field (During this period, increased production in this area was mainly due to the continued pumping at the Chino I Desalter expansion wells.)*
- *In the area immediately surrounding the Chino II Desalter well field (During this period, increased production in this area was due to increased pumping at the Chino II Desalter wells.)*

And, the following sub-areas experienced an increase in storage:

- *In the northwest near Pomona and Montclair in MZ1 where pumping decreased in association with in-lieu recharge for the Dry-Year Yield program*
- *In the southwest where pumping decreased in association with the land subsidence investigation and the Forbearance Agreement*
- *In the south, just north of the Santa Ana River, where many agricultural wells are being destroyed as land use transitions from agricultural to urban*

The total change in storage since implementation of the OBMP (2000-08) is approximately -62,000 AF.

Assessment of Hydraulic Control

The hydrologic conceptual model of Chino Basin describes an aquifer system where groundwater flows from areas of recharge in the Chino-North MZ (a grouping of the northern portions of MZs 1, 2, and 3) toward areas of historical surface discharge in the south near the Prado Basin and the Santa Ana River (WEI, 2006a). One of the intended purposes of the Chino Desalter well fields is to intercept (capture) groundwater originating in the Chino-North MZ before discharges to the Prado Basin or the Santa Ana River as surface water.

Piezometric data collected from monitoring and production wells in the southern portion of the Chino Basin during the period of 1997 through 2008 were analyzed to determine the state of hydraulic control. For a full discussion of hydraulic control, see the Chino Basin Maximum Benefit Monitoring Program 2008 Annual Report (WEI, 2009). Figure 4.3-28 shows groundwater elevation contours and data for the shallow aquifer system in spring 2000—prior to any significant pumping by the Chino I Desalter wells. The contours depict regional groundwater flow from the northeast to the southwest. Figure 4.3-29 shows groundwater elevation contours and data for the shallow aquifer system in spring 2006—after six years of pumping from the Chino I Desalter wells but prior to any significant pumping from the Chino II Desalter wells. Note that desalter pumping in 2006 interrupts the regional flow pattern of 2000. Refer to Figure 4.3-30. Specifically, the contours to the north and southeast of the desalter well field swing in towards the eastern half of the well field where the desalter wells are perforated primarily within *the shallow aquifer system. Figure 4.3-31 shows groundwater elevation contours and data for the shallow aquifer system in spring 2008, approximately eight years after the commencement of Chino I Desalter pumping and two years after the commencement of Chino II Desalter pumping. The Chino II Desalter well field began producing groundwater in mid-2006, causing the contours to swing in toward the well field from the north and the southeast. The data continue to suggest a reduction in the southward component of the hydraulic gradient around the western half of the Chino I Desalter well field; however, the contours do not indicate a gradient reversal and, hence, do not provide compelling evidence for hydraulic control in this region.*

Since 2000, pumping at the Chino I Desalter well field has generally flattened the regional hydraulic gradient within the shallow aquifer system around the western half of the Chino I Desalter well field and has created a capture zone surrounding the eastern half of the well field. Around the western half of the Chino I Desalter well field, piezometric data suggest a significant reduction in the southward component of the hydraulic gradient but do not indicate a gradient reversal (northward component) and, hence, do not yet provide compelling evidence for complete hydraulic control at the Chino I Desalter well field. Pumping at the Chino II Desalter well field, where all wells are perforated within the shallow and deep aquifer systems, began in mid-2006. A depression continues to develop in the piezometric surface. The ultimate fate of groundwater that flows past the western portion of the Chino I Desalter well field is continued flow southward toward the Prado Basin where groundwater rises to become surface water in the tributaries of the Prado Basin.

4.3.2.4.4 Groundwater Quality

Water Quality Conditions

Sources of water quality degradation can be classified into point and non-point sources. Point sources are confined to point discharges to the soil, groundwater, or stream systems. Examples include conventional wastewater and industrial discharges to streams or ponds, and leaky underground storage tanks. Non-point sources are areal discharges to soil, groundwater and surface waters, such as land application of waste and fertilizers and atmospheric deposition of contaminants to the soil and water bodies. The discussion below describes the water quality state of the Basin as it exists today for specific constituents of concern. The constituents described below are regulated for drinking water purposes in California Code of Regulations, Title 22 or are regulated in the 2005 Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

Since 2000 two land use trends have modified land uses in the Basin. Throughout the Basin urbanization progressed rapidly, including substantial changes in the southern portion of the Basin in areas annexed by the City of Chino and City of Ontario, San Bernardino County and in the Riverside County portion of the Basin. Agricultural uses, particularly dairies, are gradually being removed from the southern portion of the Chino Basin and are being replaced with suburban uses, primarily residential subdivisions.

Background

Chino Basin groundwater is not only a critical resource to overlying water producers; it is a critical resource to the entire Santa Ana Watershed. From a regulatory perspective, the use of Chino Basin groundwater to serve potable demands is limited by drinking water standards, *groundwater basin water quality objectives, and Santa Ana River water quality objectives. In August 1999, Phase 1 of the OBMP established that groundwater monitoring must be conducted in order to obtain current water quality and water level data in Chino Basin (WEI, 1999). These data are necessary for defining and evaluating specific strategies and locations for the mitigation of nitrate, TDS, and other Constituents of Potential Concern (COPCs); new recharge sites; and pumping patterns that result from the implementation of the OBMP.*

In the past, various entities have collected groundwater quality data. Municipal and agricultural water supply entities have collected groundwater quality data to comply with the Department of Health Services' requirements in the California Code of Regulations, Title 22, or for programs that range from irregular study-oriented measurements to long-term periodic measurements. Groundwater quality observations have been made by the DWR, by participants in the 1969 Judgment on the Santa Ana River (Orange County Water District vs. City of Chino et al.), by dischargers under orders from the RWQCB, and by the County of San Bernardino. The DWR and the San Bernardino County Flood Control District were very active in collecting groundwater quality data in the Chino Basin prior to the adjudication of the Chino Basin. After the Judgment was entered in 1978, monitoring south of State Route 60 stopped almost completely with the exception of that conducted by the Cities of Chino, Chino Hills, and Norco; the Jurupa Community Services District (JCSD); and the Santa Ana River Water Company. Most of the pre-1978 measurements were digitized by the DWR. In 1986, the MWDSC conducted the first comprehensive survey of groundwater quality, covering all constituents regulated under Title 22. Watermaster initiated a regular monitoring program for Chino Basin in 1989. Groundwater quality data has been obtained periodically since 1990.

Water Quality Monitoring Programs

Watermaster began conducting a more robust monitoring program as part of the initial OBMP implementation. Watermaster's program relies on municipal producers, government agencies, and private consultants to supply their groundwater quality data on a cooperative basis. Watermaster supplements these data with data obtained through its own sampling and analysis program of private wells in the area generally south of State Route 60. Water quality data are also obtained from special studies and monitoring programs that take place under the orders of the RWQCB, the California Department of Toxic Substances Control (DTSC), and others. Watermaster has combined previously digitized groundwater quality data from all known sources into a comprehensive database.

Water Quality Monitoring Programs for Wells Owned by Municipal Water Suppliers

Water quality samples are collected from Appropriative Pool wells and some overlying Non-Agricultural Pool wells as part of formalized monitoring programs. Constituents include (i) those regulated for drinking water purposes in the California Code of Regulations, Title 22; (ii) those regulated in the 1995 Water Quality Control Plan for the Santa Ana River Basin (Basin Plan); or (iii) those that are of special interest to the pumper.

Water Quality Monitoring Programs for Private Water Supply Wells

Historically, private wells were sampled less methodically and less frequently than wells owned by members of the Appropriative Pool. As a result, there is little historical (pre-1999) groundwater quality information for most of the 600 private wells in the southern part of the Chino Basin. As mentioned above, the MWDSC conducted an assessment of water quality and *water levels in the private wells south of State Route 60 in 1986. This assessment was a component of the Chino Basin groundwater storage program Environmental Impact Report (MWDSC et al., 1988). Nevertheless, the historical quality of groundwater produced at the majority of the wells in the southern Chino Basin is unknown.*

In 1999, the Comprehensive Monitoring Program initiated the systematic sampling of private wells south of State Route 60 in the Chino Basin. Over a three-year period, Watermaster sampled all available wells at least twice to develop a robust baseline data set. This program has since been reduced to approximately 110 private key wells, and about half of these wells are sampled every other year. Groundwater quality samples are analyzed for general minerals, physical properties, and for regional COPCs (e.g. perchlorate, and volatile organic chemicals [VOCs] in the vicinity of known VOC plumes). This key well monitoring program provides a good representation of the areal groundwater quality in this portion of the basin.

Water Quality Monitoring Programs Conducted Pursuant to Regulatory Orders

Groundwater monitoring is conducted by private and public entities as part of regulatory orders and voluntary cleanups. These programs consist of networks of monitoring wells designed specifically to delineate and characterize the extent of the responsible party's contamination. These monitoring programs may include monthly, quarterly, and/or annual sampling frequencies. The following is a summary of all the regulatory and voluntary contamination monitoring in Chino Basin
:

- ***Plume:*** *Alumax Aluminum Recycling Facility*
  Constituent of Concern: *TDS, sulfate, nitrate, chloride*
  Order: *RWQCB Cleanup and Abatement Order 99-38*

- ***Plume:*** *Chino Airport*
  Constituent of Concern: *VOCs*
  Order: *RWQCB Cleanup and Abatement Order 90-134*

- ***Plume:*** *California Institute for Men*
  Constituent of Concern: *VOCs*
  Order: *Voluntary Cleanup Monitoring*

- ***Plume:*** *Crown Coach International Facility*
  Constituent of Concern: *VOCs and Solvents*
  Order: *Voluntary Cleanup Monitoring*

- ***Plume:*** *General Electric Flatiron Facility*
  Constituent of Concern: *VOCs*
  Order: *Voluntary Cleanup Monitoring*

- ***Plume:*** *General Electric Test Cell Facility*
  Constituent of Concern: *VOCs*
  Order: *Voluntary Cleanup Monitoring*

- ***Plume:*** *Kaiser Steel Fontana Site*
  Constituent of Concern: *TDS/total organic carbon (TOC)*
  Order: *See discussion in Section 4.36.7.*

- ***Plume:*** *Milliken Sanitary Landfill*
  Constituent of Concern: *VOCs*
  Order: *RWQCB Order No. 81-003*

- ***Plume:*** *Upland Sanitary Landfill*
  Constituent of Concern: *VOCs*
  Order *RWQCB Order No 98-99-07*

- ***Plume:*** *Ontario International Airport (VOC Plume – South of Ontario Airport)*
  Constituent of Concern: *VOC*
  Order: *This plume is currently being voluntarily investigated by a group of potentially responsible parties.*

- ***Plume:*** *Stringfellow National Priorities List (NPL) Site*
  Constituent of Concern: *VOCs, perchlorate, N-nitrosodimethylamine (NDMA), heavy metals*
  Order: *The Stringfellow Site is the subject of US Environmental Protection Agency (EPA) Records of Decision (RODs): EPA/ROD/R09-84/007, EPA/ROD/R09-83/005, EPA/ROD/R09-87/016, and EPA/ROD/R09-90/048.*

Other Water Quality Monitoring Programs

In a letter dated July 13, 2000, the RWQCB expressed their concern to the IEUA that the historical recharge of recycled water at IEUA Regional Plant No. 3 (RP3) may have caused groundwater contamination at down-gradient wells. Other sources of groundwater contamination in the area include the Kaiser Steel Mill, Alumax, other industries, and historical agricultural activities, including citrus groves and hog feed lots. Several municipal wells have been shut down in MZ3 due to perchlorate and nitrate in groundwater. MZ3 includes areas that underlie all or part of the Fontana Water Company, the Marygold Mutual Water Company, the CVWD, and the City of Ontario. The MZ3 groundwater is tributary to wells owned by the JCSD.

To characterize groundwater levels and quality in MZ3, Watermaster and the IEUA performed an investigation. The objectives of this investigation were to develop a groundwater sampling program, install two sentry wells at the distal end of the Kaiser plume, and perform further characterization of groundwater quality. Sampling was conducted at twenty-two selected key wells from late 2005 to 2007. Where possible, four quarterly samples and one annual sample were collected. In 2007, two triple-nested wells (MZ3-1 and MZ3-2) were installed down gradient of the Kaiser plume. These wells were sampled quarterly for one year. The sampling results provided data to further characterize the water quality patterns for contaminants of concern in the study area, including TDS, nitrate, sulfate, chloride, and perchlorate. And, the results from well MZ3-1/3 redefined the extent of the Kaiser plume.

Groundwater Quality in Chino Basin

Figure 4-3-32 shows all wells with groundwater quality monitoring results for the 5-year period of July 2003 to June 2008.

Inorganic and organic constituents detected in groundwater samples from wells in the Chino Basin through June 2008 were analyzed synoptically. This analysis included all available data from production and monitoring wells. Hence, the data do not represent a programmatic investigation of potential sources nor do they represent a randomized study that was designed to ascertain the water quality status of the Chino Basin. These data do, however, represent the most comprehensive information available to date.

Monitoring wells targeted at potential sources tend to have greater concentrations than municipal or agricultural production wells. Wells with constituent concentrations greater than one-half of the MCL represent areas that warrant concern and inclusion in a long-term monitoring *program. In addition, groundwater in the vicinity of wells with samples greater than the MCL may be impaired from a beneficial use standpoint.*

Numerous water quality standards have been put in place by federal and state agencies. Primary MCLs are enforceable criteria that are set due to health effects. Secondary standards are related to the aesthetic qualities of the water, such as taste and odor. For some chemicals, there is "Notification Level" criteria that are set by the CDPH. When notification levels are exceeded, the CDPH recommends that the utility inform its customers and consumers about the presence of the contaminant and any health concerns associated with exposure. The level at which the CDPH recommends the drinking water system remove the affected drinking water source from service is the "Response Level." These levels range from 10 to 100 times the notification level, depending on the chemical. The following constituents exceeded at least one water quality criteria in more than 10 wells within the Chino Basin for the period of July 2003 through June 2008:

Analyte Group/Constituent		Wells with Exceedance
Inorganic Constituents		
	Total Dissolved Solids	221
	Nitrate-Nitrogen	395
	Aluminum	153
	Arsenic	24
	Chloride	25
	Chromium	30
	Iron	185
	Manganese	58
	Perchlorate	188
	Sulfate	41
	Vanadium	25
General Physical		
	Color	21
	Odor	28
	pH	14
	Specific Conductance	121
	Turbidity	78
Chlorinated VOCs		
	1,1-Dichloroethane	11
	1,1-Dichloroethene	31
	1,2,3-Trichloropropane	23
	1,2-Dichloroethane	17
	cis-1,2-Dichloroethene	10
	Tetrachloroethene (PCE)	37
	Trichloroethene (TCE)	115

For all figures (Section 4 and Appendix B (2008 State of the Basin Report)) that depict water quality distributions in the Chino Basin, the following convention is typically followed in setting class intervals in the legend (where WQS is the applicable water quality standard [see table below]). Variations of this convention may be employed to highlight certain aspects of the data.

Symbol	Class Interval
	Not Detected
	<0.5x WQS, but detected
	0.5x WQS to WQS
	WQS to 2x WQS
	2x WQS to 4x WQS
	> 4x WQS

Total Dissolved Solids

In Title 22, TDS is regulated as a secondary contaminant. The California secondary drinking water MCL for TDS is 500 mg/L. Figure 4-3-33 shows the distribution of the maximum TDS concentrations in Chino Basin from July 2003 through June 2008. During this period, maximum TDS concentrations ranged from 48 mg/L to 4,790 mg/L with average and median concentrations of approximately 550 mg/L and 380 mg/L, respectively. The highest concentrations are located south of State Route 60 where the impacts from agriculture are greatest, which is consistent with the data reported in the 2006 State of the Basin Report.

The impacts of agriculture on TDS in groundwater are primarily caused by dairy waste disposal, consumptive use, and fertilizer use on crops. As irrigation efficiency increases, the impact of consumptive use on TDS in groundwater also increases. For example, if source water has a TDS concentration of 250 mg/L and the irrigation efficiency is about fifty percent (flood irrigation), the resulting TDS concentration in returns to groundwater would be 500 mg/L, which is exclusive of the mineral increments from fertilizer. If irrigation efficiency is increased to seventy-five percent, the resulting TDS concentration in the returns to groundwater would be 1,000 mg/L, which is also exclusive of the mineral increments from fertilizer. For modern irrigated agriculture, the TDS impacts of consumptive use are more significant than mineral increments from fertilizers.

Wells with low TDS concentrations in close proximity to wells with higher TDS concentrations suggests a vertical stratification of water quality. However, there is a paucity of information concerning well construction/perforation intervals; thus, the vertical differences in water quality are currently unverifiable.

Nitrate-Nitrogen

In Title 22, the primary MCL for nitrate as nitrogen (NO3-N) in drinking water is 10 mg/L. By convention, all nitrate values are expressed in this report as NO3-N. Figure 4.3-34 displays the distribution of maximum NO3-N concentrations in the Chino Basin from July 2003 through June 2008.

Areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated nitrate concentrations. The primary areas of nitrate degradation were formerly or are currently overlain by:

- *Citrus (the northern parts of the Chino-North MZ)*
- *Dairy and irrigated agriculture (the southern parts of the Chino-North MZ, the Chino-South MZ, the Chino-East MZ, and the Prado Basin MZ [PBMZ])*

Nitrate concentrations in groundwater have increased slightly or remained relatively constant in the northern parts of the Chino-North MZ from 1960 to present. These areas were formerly occupied by citrus groves and vineyards. The nitrate concentrations underlying these areas rarely exceed 10 mg/L (as nitrogen). Over the same period, nitrate concentrations increased significantly in the southern parts of the Chino-North MZ, the Chino-South MZ, the Chino-East MZ, and the PBMZ. In these areas, land use was progressively converted from irrigated/non-irrigated agricultural land to dairies, and nitrate concentrations typically exceed the 10 mg/L MCL and frequently exceed 40 mg/L.

Other Constituents of Potential Concern

Section 4.3.3 discusses the constituents with water quality standards that were exceeded in ten or more wells in Chino Basin, with the exception of nitrate and TDS. The details of these exceedances are displayed graphically in Figures 4-4 through 4-17, and in Appendix B (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices). Figure 4.3-35 shows the location of "Groundwater Contamination Plumes" from previous releases of hazardous or toxic contaminated material into the soil and ultimately into the Chino Basin groundwater aquifer.

A query was developed to analyze water quality data in the Chino Basin from July 2003 through June 2008 that is in exceedance of any water quality standard. The results of this query are provided in a summary table in Appendix C (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), including:

- *Chemical Constituents (listed alphabetically)*
- *Reporting Units*
- *Water Quality Standards (detailed explanations are provided in the table's footnote):*
    - *EPA Primary MCL*
    - *EPA Secondary MCL*
    - *California Primary MCL*
    - *California Secondary MCL*
    - *California Notification Level*
- *Minimum – the minimum concentration of the given constituent for the given time period. Non-detect values were assigned a value of zero.*
- *Lower or First Quartile – the first value that divides the items of a frequency distribution or ordered data set into four classes with each containing one fourth of the total population.*

- *Median or Second Quartile – the second value that divides the items of a frequency distribution or ordered data set into four classes with each containing one fourth of the total population.*
- *Upper or Third Quartile – the third value that divides the items of a frequency distribution or ordered data set into four classes with each containing one fourth of the total population.*
- *Maximum – the maximum concentration of the given constituent for the given time period. Non-detect values were assigned a value of zero.*
- *Average – the average concentration of the given constituent for the given time period. Non-detect values were assigned a value of zero.*
- *Number of Samples – the total number of samples for the given constituent for the given time period.*
- *Number of Wells Sampled – the number of wells sampled in the given time period, not the number of samples collected.*
- *Number of Wells with Detects – the number of wells in the period wherein the constituent was detected at any concentration.*
- Number of Wells with Exceedances – the number of wells in the given time period with any value that exceeded any of the five water quality standards.

VOCs

The following seven VOCs were detected at or above their MCL in more than 10 wells in the Chino Basin:

- *1,1-dichloroethane (1,1-DCA)*
- *1,1-dichloroethene (1,1-DCE)*
- *1,2,3-trichloropropane (1,2,3-TCP)*
- *1,2-dichloroethane (1,2-DCA)*
- *cis-1,2-dichloroethene (cis-1,2-DCE)*
- *tetrachloroethene (PCE)*
- *trichloroethene (TCE)*

■ Trichloroethene and Tetrachloroethene

Trichloroethene (TCE) and tetrachloroethene (PCE) were/are widely used industrial solvents. Both PCE and TCE are used as metal degreasers in the automotive and other metal working industries. PCE is commonly used in the dry-cleaning industry. TCE was commonly used as a food extractant. The areal distributions of TCE and PCE are shown in Figures 4-4 and 4-5 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), respectively. In general, PCE is below the detection limit for wells in the Chino Basin. Wells with detectable levels tend to occur in clusters, such as those around the Milliken Landfill, south and west of the Ontario Airport, and along the margins of the Chino Hills. The spatial distribution of TCE resembles that of PCE. TCE was not detectable in most of the wells in the basin, and similar clusters of wells occur around the Milliken Landfill, south and west of Ontario International Airport (OIA), south of Chino Airport, and in the Stringfellow plume.

Figure 4-19 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the ratio of TCE, PCE, and their breakdown products in monitoring wells associated with the VOC plumes in the southern Chino Basin. The unique characteristics of these plumes can *be seen by comparing TCE and PCE concentrations and dispersion. For example, the Milliken Landfill plume and the GE plumes near Ontario Airport have significant concentrations of both TCE and PCE while the Chino Airport and Stingfellow plumes have significant concentrations of TCE and only minor detections of PCE, and the OIA plume is characterized solely by TCE. These unique characteristics allow for differentiation between the plumes and determining the intermingling of plumes.*

- <u>1,1-Dichloroethene, 1,2-Dichloroethane, and cis-1,2-Dichloroethene</u>

1,1-Dichloroethene (1,1-DCE), 1,2-Dichloroethane (1,2-DCA), and cis-1,2-Dichloroethene (cis-1,2-DCE) are degradation by-products of PCE and TCE (Dragun, 1988) that are formed by reductive dehalogenation. The areal distributions of 1,1-DCE, 1,2-DCA, and cis-1,2-DCE are shown in Figures 4-6 through 4-8 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), respectively. 1,1-DCE, 1,2-DCA, and cis-1,2-DCE have not been detected in the majority of wells in the Chino Basin. 1,1-DCE is found near the Milliken Landfill, south and west of OIA, at the former Crown Coach Facility, and at the head of the Stringfellow plume. 1,2-DCA and cis-1,2-DCE are found in the same general locations

.

- <u>1,1-Dichloroethane</u>

1,1,-Dichloroethane (1,1-DCA) is a colorless oily liquid that is used as a solvent for plastics, as a degreaser, as a halon in fire extinguishers, and in the cementing of rubber, and is a degradation by-product of 1,1,1-TCA. Figure 4-9 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the areal distribution of 1,1-DCA in the Chino Basin. Eleven wells were in exceedance of the primary CA MCL of 5 µg/L for 1,1-DCA for the period of July 2003 through June 2008. The majority of these wells are monitoring wells at the former Crown Coach Facility.

- <u>1,2,3-Trichloropropane</u>

1,2,3-TCP is a colorless liquid that is used primarily as a chemical intermediate in the production of polysulfone liquid polymers and dichloropropene, and in the synthesis of hexafluoropropylene and as a cross linking agent in the synthesis of polysulfides. It has been used as a solvent, an extractive agent, a paint and varnish remover, and a cleaning and degreasing agent, and it has been formulated with dichloropropene in the manufacturing of soil fumigants, such as D-D.

The current California State Notification Level for 1,2,3-TCP is 0.005 µg/L. The adoption of the Unregulated Chemicals Monitoring Requirements regulations occurred before a method capable of achieving the required detection limit for reporting (DLR) was available. According to the CDPH, some utilities moved ahead with monitoring, and samples were analyzed using higher DLRs. Unfortunately, findings of non-detect with a DLR higher than 0.005 µg/L do not provide the CDPH with the information needed for setting a standard. New methodologies with a DLR of 0.005 µg/L have since been developed, and the CDPH has requested that any utility with 1,2,3-TCP findings of non-detect with reporting levels of 0.01 µg/L or higher do follow-up sampling using a DLR of 0.005 µg/L. Because 1,2,3-TCP may be a basin-wide water quality issue, private and public wells are continuing to be retested at the lower detection limit (0.005 µg/L).

Figure 4-10 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the distribution of 1,2,3-TCP in Chino Basin, based on the data limitations discussed above. High 1,2,3-TCP values are associated with the Chino Airport Plume. Of particular note, there is a cluster of wells with 1,2,3-TCP concentrations greater than the Notification Level in *the Jurupa region and a scattering of wells that exceed the Notification Level on the western margins of the basin. Watermaster will continue to monitor and investigate this constituent.*

Iron, Arsenic, and Vanadium

Iron, arsenic, and vanadium concentrations depend on mineral solubility, ion exchange reactions, surface complexations, and soluble ligands. These speciation and mineralization reactions, in turn, depend on pH, oxidation-reduction potential, and temperature.

- Iron

In general, iron is not detected across the Chino Basin, but there are some scattered detectable concentrations that are above regulatory limits (see Appendix B). Iron concentrations are elevated in the vicinity of the Stringfellow Plume. Outside of the Stringfellow Plume, there were 85 wells with iron concentrations that exceed the MCL. Nevertheless, these exceedances may be an artifact of sampling methodology; relatively high concentrations of iron and trace metals are often the result of the dissolution of aluminosilicate particulate matter and colloids, which is caused by the acid preservative in unfiltered samples.

- Arsenic

The US EPA implemented a new primary MCL for arsenic in 2006, decreasing the MCL from 50 µg/L to 10 µg/L. In November 2008, the Primary CA MCL was also changed from 50 µg/L to 10 µg/L. Figure 4-11 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the distribution of arsenic in the Chino Basin. Eleven wells in the basin had arsenic concentrations that exceeded the MCL. Of these wells, three are associated with the Stringfellow Plume, and three are associated with Chino Airport Plume. Higher concentrations of arsenic are found in the Chino/Chino Hills area in the lower aquifer at depths greater than about 350 ft-bgs.

- Vanadium

In the Chino Basin, vanadium has been detected above regulatory limits in some scattered wells. In groundwater, vanadium can result from mining and industrial activities or be of natural occurrence. While elemental vanadium does not occur in nature, vanadium compounds are found in fossil fuels and exist in over 60 different mineral ores. The primary industrial use of vanadium is in the steel industry where it is used to strengthen steel. Figure 4-12 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the areal distribution of vanadium in the Chino Basin. The majority of the 25 wells in exceedance of the California Notification Level (0.05 mg/L) are associated with the Stringfellow Plume. Other exceedances are found near the Milliken Landfill, in deep wells in the Chino/Chino Hills area, and in one well near the Jurupa Mountains.

Perchlorate

Perchlorate has recently been detected in several wells in the Chino Basin (Figure 4-13, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), in other basins in California, and in other states in the west. The most probable reason why perchlorate was not detected in groundwater until recently is that analytical methodologies that could attain a low enough detection limit did not previously exist. Prior to 1996, the method detection limit for perchlorate was 400 µg/L. In March 1997, an ion chromatographic method was developed with a detection limit of 1 µg/L and a reporting limit of 4 µg/L.

As an environmental contaminant, perchlorate (ClO_4^-) originates from the solid salts of ammonium perchlorate (NH_4ClO_4), potassium perchlorate ($KClO_4$), or sodium perchlorate ($NaClO_4$). Perchlorate salts are quite soluble in water. The perchlorate anion (ClO_4^-) is exceedingly mobile in soil and groundwater environments. Because of its resistance to react with other available constituents, it can persist for many decades under typical groundwater and surface water conditions. Perchlorate is a kinetically stable ion, which means that reduction of the chlorine atom from a +7 oxidation state in perchlorate to a -1 oxidation state as a chloride ion requires activation energy or the presence of a catalyst to facilitate the reaction. Since perchlorate is chemically stable in the environment, natural chemical reduction is not expected to be significant.

Possible sources of perchlorate contamination are synthetic (ammonium perchlorate used in the manufacturing of solid propellant used for rockets, missiles, and fireworks) and natural (perchlorate derived from Chilean caliche that was used for fertilizer).

Fertilizers derived from Chilean caliche are currently used in small quantities on specialized crops, including tobacco, cotton, fruits, and vegetables (Renner, 1999). However, evidence suggests that usage may have been widespread for citrus crops in Southern California from the late 1800s through the 1930s.

The current CDPH Notification Level for perchlorate is 6 µg/L, which was established on March 11, 2004.

Perchlorate has been detected in 188 wells in the Chino Basin at levels greater than 6 µg/L. Perchlorate Notification Level exceedances occur in the following areas of the Chino Basin (Figure 4-13, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices):

- *Rialto-Colton Basin (There is a significant perchlorate plume in the Rialto-Colton Basin. The RWQCB is investigating the source of this plume, which appears to be near the Mid-Valley Sanitary Landfill. According to the RWQCB, several companies—including B.F. Goodrich, Kwikset Locks, American Promotional Events, and Denova Environmental—operated nearby and used or produced perchlorate. These companies were located on a 160-acre parcel at T1N R5W S21 SW1/4. Denova Environmental also operated on a 10-acre lot at T1N R5W S20 S1/2 (along the boundary between Sections 20 and 29). Perchlorate in the Fontana area of Chino Basin may be the result of (i) the Rialto-Colton perchlorate plume migrating across the Rialto-Colton fault, (ii) other point sources in Chino Basin, and/or (iii) the non-point application of Chilean nitrate fertilizer in citrus groves.)*
- *Downgradient of the Stringfellow Superfund Site (Concentrations have exceeded 600,000 µg/L at onsite observation wells. The plume has likely reached the Pedley Hills and may extend as far as Limonite Avenue.)*
- *City of Pomona well field (source[s] unknown)*
- *Wells in the City of Ontario water service area, south of OIA (source[s] unknown)*
- *Scattered wells in the Monte Vista water service area (source[s] unknown)*
- *Scattered wells in the City of Chino water service area (source[s] unknown)*

A forensic isotope study was conducted to determine the source of perchlorate in Chino Basin groundwater. This forensic technique was developed using comprehensive stable isotope analyses (37Cl/35Cl and 18O/17O/16O) of perchlorate to determine the origin of the perchlorate (synthetic vs. naturally occurring). Stable isotope analyses of perchlorate from known man-made (e.g. samples derived from electrochemically synthesized ammonium- and potassium-perchlorate salts) and natural (e.g. samples from the nitrate salt deposits of the Atacama Desert in Chile) sources reveal systematic differences in isotopic characteristics that are related to the formation mechanisms (Bao & Gu, 2004; Böhlke et al., 2005; Sturchio et al., 2006). There is considerable anecdotal evidence that large quantities of Chilean nitrate fertilizer were imported into the Chino Basin in the early 1900s for the citrus industry, which covered the north, west and central portions of the basin.

The perchlorate isotope study consisted of 10 groundwater samples that were collected throughout the Chino Basin. The sampling points included private wells and municipal production wells. Samples were collected using a flow-through column with a highly perchlorate-selective anion-exchange resin. The exchange resin concentrates low levels of perchlorate in groundwater such that a sufficient amount can be acquired and for isotopic analysis. Results confirmed that most of the perchlorate in the west and central portions of the Chino Basin was derived from Chilean nitrate fertilizer. One sample collected south of the OIA is a potential mixture of natural and synthetic sources.

<u>Total Chromium and Hexavalent Chromium</u>

Figure 4-14 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the areal distribution of total chromium in the Chino Basin. Thirty wells were found to be in exceedance of the CA MCL of 50 µg/L. The majority of these wells are associated with the Milliken Sanitary Landfill, the Stringfellow Plume, and the GE Test Cell Plume. The remaining wells include isolated wells near the Jurupa Mountains and in the southern Chino Basin and City of Pomona wells. Chromium in groundwater results from natural and anthropogenic sources.

Hexavalent chromium is currently regulated under the MCL for total chromium. In 1999, the CDPH identified that hexavalent chromium needed an individual MCL, and concerns over its carcinogenicity grew. Subsequently, the CDPH included it on the list of unregulated chemicals that require monitoring. California Health and Safety Codes (§116365.5 and §1163659a) compelled the adoption of a hexavalent chromium MCL by January 1, 2004, and required it to be close to the public health goals (PHG) established by the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA). At present, the PHG has not been established, and the CDPH cannot proceed with the MCL process. Figure 4-15 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the areal distribution of hexavalent chromium in the Chino Basin. Only three wells in the Chino Basin were in exceedence of the CA MCL for total chromium. In the near future hexavalent chromium may become a more significant contaminant of concern in the Chino Basin when a lower MCL is determined by CDPH, and more wells are sampled for hexavalent chromium.

Chloride and Sulfate

Chloride and sulfate both exceeded secondary MCLs. As discussed previously, secondary MCLs apply to chemicals in drinking water that adversely affect its aesthetic qualities and are not based on the direct health effects associated with the chemical. Chloride and sulfate are major anions associated with TDS. All wells in the basin had detectable levels of sulfate (Figure 4-16, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), but most had concentrations that were less then 125 mg/L (one-half the water quality standard). A total of 41 wells had concentrations at or above the sulfate secondary MCL. In general, these wells are distributed in the southern portion of the basin, in the Stringfellow plume, and along the margins of the Chino Hills. All wells had detectable levels of chloride (Figure 4-17, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), but most had concentrations that were less 125 mg/L (one-half the MCL). The secondary MCL for chloride was exceeded in 25 wells; almost all of which are located in the southern portion of the basin.

Color, Odor, and Turbidity

In the last 5 years, color, odor, and turbidity have been detected above their secondary MCLs in more than 10 wells within the Chino Basin (see Appendix B, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices). These parameters are monitored purely for aesthetic reasons and should not substantially impair water quality in the Chino Basin.

Point Sources of Concern

The water quality discussion above described water quality conditions across the entire basin. The discussion below describes the water quality plumes associated with known point *source discharges to groundwater. Figure 4.3-34 shows the locations of various point sources and associated areas of water quality degradation. Figure 4-19 (see Appendix B, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) shows the VOC plumes and features pie charts that display the relative percent of TCE, PCE, and other VOCs detected at groundwater wells within plume impacted areas. The pie charts demonstrate the chemical differentiation between the VOC plumes in the southern portion of Chino Basin.*

A more detailed discussion of contaminated plumes and point sources of water quality degradation is presented in the Project Impact evaluation, Section 4.3.3, following this Section of the DEIR. This includes a detailed description of each contaminated area and plume and the potential for the Peace II program to impact or mobilize these plumes.

Water Quality by Management Zone

Figure 4.3-36 shows the locations of wells with groundwater quality time histories discussed herein and the five Chino Basin management zone boundaries. Wells were selected based on length of record, completeness of record, quality of data, and geographical distribution. Wells are identified by their local name (usually owner abbreviation and well number) or their X Reference ID (X Ref ID) if privately owned. The HCMP wells were selected because they are sampled at multiple depths and have a consistent water quality record for the past four years. Figures 4.3-37 through 4.3-44 are TDS and NO3-N time histories for the wells shown in Figure 4.3-35 from 1970 to 2008. These time histories illustrate water quality variation and trends within each management zone and the current state of water quality compared to historical trends.

Management Zone 1

MZ1 is an elongate region in the westernmost part of the Chino Basin. Figures 4.3-37 and 4.3-38 show TDS and NO3-N time histories for three wells representative of the northern portion of MZ1 (City of Upland well 8 [Upland 08], Monte Vista Water District well 5 [MVWD 05], and City of Upland well 20 [Upland 20]), two wells representative of the central region (City of Chino 5 [Chino 05] and City of Pomona well 23 [Pomona 23]), and two wells representative of the southern portion (Chino Institution for Men well 13 [CIM 13] and HCMP 3). In the northern portion of MZ1, NO3-N and TDS values have remained steady or decreased slightly over the time period depicted. Upland 08 exhibits NO3-N concentrations above the MCL (10 mg/L); however, slightly towards the west, near the Upland, Montclair, and College Heights Recharge Basins, NO3-N values drop below the MCL, as demonstrated by MVWD 05. TDS levels also decrease near the recharge basins. In the central region of MZ1, TDS and NO3-N concentrations have increased slightly over the last 30 years, but they are still below the MCLs. In the southern portion, NO3-N and TDS concentrations have increased significantly since 1990 and are above the MCLs, which is the trend seen in the majority of wells south of Highway 60. Quarterly sampling at HCMP 3 shows that TDS and NO3-N concentrations have remained stable over the past four years. HCMP 3 also shows the variation of water quality from the shallow to deeper aquifers. Overall, NO3-N and TDS concentrations in MZ1 escalate from north to south but have not increased over the last five years.

Management Zone 2

MZ2 is an elongate region in the center part of the Chino Basin. Figures 4.3-39 and 4.3-40 show TDS and NO3-N time histories for two wells representative of the northern portion of MZ2 (CVWD Well 5 [CVWD 05] and City of Ontario well 24 [ONT 24]), one well representative of the central region (City of Ontario well 17 [ONT 17]), and three wells representative of the southern portion (X Ref 29, HCMP 1, and X Ref 5333). Similar to MZ1, NO3-N and TDS values increase from north to south. Over the time period depicted, NO3-N and TDS concentrations have remained stable in the northern portion of MZ2, increased slightly in the central region, and increased considerably in the southern portion. At X Ref 5333 and HCMP 1, in the southern portion of MZ2, TDS concentrations are currently greater than twice the MCL (500 mg/L), and NO3-N concentrations are twice the MCL (10mg/L) or greater. In addition, HCMP 1 exemplifies the variation of high TDS and NO3-N levels in the shallow aquifer and low levels in the deeper aquifer. Overall, NO3-N and TDS concentrations have not increased over the last five years with the exception well X Ref 5333.

Management Zone 3

MZ3 is an elongate region that borders the majority of the Chino Basin's eastern boundary. Figures 4.3-41 and 4.3-42 show TDS and NO3-N time histories for one well representative of the northern portion (City of Fontana 37A [F37A]), one well representative of the central region (City of Ontario well 31 [ONT 31]), and two wells representative of the southern portion (Jurupa Community Service District well 16 [JCSD 16], and X Ref 5736). Similar to MZ1 and MZ2, NO3-N and TDS values increase from north to south. In the northern and central areas of MZ3, TDS values have slightly increased since 1980 but still remain below the MCL (500 mg/L). Over the time period depicted, NO3-N concentrations increase in all regions of MZ3. Well F37A, in the northern region, exhibits NO3-N concentrations slightly above the MCL (10 mg/L). In the southern portion of MZ3, current TDS and NO3-N concentrations are near double the MCLs. At JCSD 16, NO3-N and TDS concentrations have increased significantly since 1990. In general, NO3-N and TDS concentrations have not increased over the last five years.

Management Zone 4

MZ4 – also known as Chino-East – is a wedge shaped region, bounded by the Jurupa Hills to the northeast, the Pedley Hills to the southeast, Management Zone 5 to the south, and Management Zone 3 to the west. Figures 4.3-43 and 4.3-44 show TDS and NO3-N time-histories for one well representative of the western region (HCMP-9), one well representative of the northern region (Jurupa Community Service District Well 24 [JCSD 24]), and one well representative of the eastern region (CDPH Stringfellow monitoring well [CTP-TW1]). In the western portion of MZ4, at HCMP-9, TDS and NO3-N concentrations are above the MCLs in the shallow aquifer but quite low in the deeper aquifer. The TDS and NO3 concentrations at JCSD 24 are slightly lower than those in the western portion, but they are slightly below or equal to the MCLs. In the eastern portion, at CTP-TW1, TDS and NO3-N concentrations are significantly above the MCLs. High TDS and NO3-N concentrations in the eastern portion of MZ4 are predominantly associated with the Stringfellow plume. Pre-1990 water quality data was not available for wells in this region. Since 1990, MZ4 TDS and NO3-N levels have remained relatively stable and decreased slightly over the last few years.

Management Zone 5

MZ5 – also known as Chino-South – is a small region towards the southeastern boundary of the Chino Basin. It is bordered by MZ4 to the north and MZ3 to the east. Figures 4.3-43 and 4.3-44 show TDS and NO3-N time histories for three wells representative of the northern portion of MZ5 (San Ana River Water Company Well 1A [SARWC 01A], JCSD 01, and HCMP-8). None of the wells in the southern region of MZ5 have sampling records that are complete enough to be considered representative. At JCSD 01 and SARWC 01A, TDS concentrations have historically been above the MCL (500 mg/L) and began to notably increase in 1990. Starting in 1995, NO3-N concentrations at JCSD 01 and SARWC 01A began to increase slightly above the MCL. Water quality sampling at these two wells ceased around 2005; however, HCMP-8 shows that TDS and NO3-N concentrations have decreased significantly since then.

Current State of Groundwater Quality in Chino Basin

The groundwater quality in Chino Basin is generally very good with better groundwater quality found in the north where recharge occurs. In the southern portion of the basin, TDS and NO3-N concentrations increase. Between July 2003 and June 2008, 32 percent of the wells sampled south of Highway 60 had TDS concentrations below the secondary MCL, an improvement from the 20 percent reported in the 2006 State of the Basin Report (period of July 2001 through June 2006). In some places, wells with low TDS concentrations are proximate to wells with higher TDS concentrations, suggesting a vertical stratification of water quality. Between July 2003 and June 2008, about 69 percent of the wells sampled south of Highway 60 had NO3-N concentrations greater than the MCL, an improvement from the 80 percent reported in the 2006 State of the Basin Report (period of July 2001 through June 2006). However, please note that these statistical improvements may be an artifact of sampling occurrence and frequency.

Other constituents that impact groundwater quality from a regulatory or Basin Plan standpoint include certain VOCs, arsenic, and perchlorate. As discussed in Section 4.3.4 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices), there are a number of point source releases of VOCs in the Chino Basin that are in various stages of investigation or cleanup. There are also known point source releases of perchlorate (MVSL area, Stringfellow, etc.), and non-point source related perchlorate contamination appears to have resulted from natural and anthropogenic sources. Arsenic at levels above the WQS appears to be limited to *the deeper aquifer zone near the City of Chino Hills. Hexavalent chromium, while not currently a groundwater quality issue in the Chino Basin, may become so, depending on the promulgation of future standards.*

4.3.2.4.5 Ground-Level (Subsidence) Monitoring Program

OBMP PEIR

Subsidence issues are described in the Geology Chapter of the OBMP PEIR, which can be found in Subchapter 4.4, pages 4-64 and 4-65. Subsidence was a major concern of the OBMP PEIR, but the data summarized in the 2008 Report below indicates that management actions by the Watermaster and stakeholders have minimized subsidence over the past 10 years.

2008 Report

In 1999, the OBMP Phase I Report (WEI, 1999) identified pumping-induced drawdown and subsequent aquifer-system compaction as the most likely cause of land subsidence and ground fissuring observed in MZ1. Program Element 4 of the OBMP, Develop and Implement a Comprehensive Groundwater Management Plan for Management Zone 1, called for the development and implementation of an interim management plan for MZ1 that would:

- *Minimize subsidence and fissuring in the short-term.*
- *Collect the information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring.*
- *Formulate a management plan to abate future subsidence and fissuring or reduce it to tolerable levels.*

In 2000, the Implementation Plan in the Peace Agreement called for an aquifer-system and land subsidence investigation in the southwestern region of MZ1 to support the development of a management plan for MZ1 (second and third bullets above). This investigation was titled the MZ1 Interim Monitoring Program (IMP). From 2001-2005, Watermaster developed, coordinated, and conducted the IMP under the guidance of the MZ1 Technical Committee, which is composed of representatives from all major MZ1 producers and their technical consultants. Specifically, the producers represented on the MZ1 Technical Committee include: the Agricultural Pool, the Cities of Chino, Chino Hills, Ontario, Pomona, and Upland; the Monte Vista Water District; the Southern California Water Company; and the State of California (CIM). The main conclusions derived from the IMP were:

1. *Groundwater production from the deep confined aquifer system in this area causes the greatest stress to the aquifer system. In other words, pumping of the deep aquifer system causes water level drawdowns that are much greater in magnitude and lateral extent than drawdowns caused by pumping of the shallow aquifer system.*
2. *Water level drawdowns due to pumping of the deep aquifer system can cause inelastic (permanent) compaction of the aquifer-system sediments, which results in permanent land subsidence. The initiation of inelastic compaction within the aquifer system was identified during this investigation when water levels fell below a depth of about 250 feet in the PA-7 piezometer at Ayala Park.*

3. *The current state of aquifer-system deformation in south MZ1 (in the vicinity of Ayala Park) is essentially elastic. Very little inelastic (permanent) compaction is now occurring in this area, which is in contrast to the recent past when about 2.2 feet of land subsidence, accompanied by ground fissuring, occurred from about 1987 to 1995.*
4. *During this study, a previously undetected barrier to groundwater flow was identified. This barrier is located within the deep aquifer system and is aligned with the historical zone of ground fissuring. Pumping from the deep aquifer system is limited to the area west of the barrier, and the resulting drawdowns do not propagate eastward across the barrier. Thus, compaction occurs within the deep system on the west side of the barrier but not on the east side, which causes concentrated differential subsidence across the barrier and creates the potential for ground fissuring.*
5. *InSAR and ground level survey data indicate that permanent subsidence in the central region of MZ1 (north of Ayala Park) has occurred in the past and continues to occur today. The InSAR data also suggest that the groundwater barrier extends northward into central MZ1. These observations suggest that the conditions that very likely caused ground fissuring near Ayala Park in the 1990s are also present in central MZ1 and should be studied in more detail.*

The investigation methods, results, and conclusions (listed above) are described in detail in the MZ1 Summary Report (WEI, 2006b). The investigation provided enough information for Watermaster to develop Guidance Criteria for the MZ1 producers in the investigation area that, if followed, would minimize the potential for subsidence and fissuring during the completion of the MZ1 Subsidence Management Plan (MZ1 Plan). The Guidance Criteria formed the basis for the MZ1 Plan, which was developed by the MZ1 Technical Committee and approved by Watermaster in October 2007. In November 2007, the California Superior Court, which retains continuing jurisdiction over the Chino Basin Adjudication, approved the MZ1 Plan and ordered its implementation.

The MZ1 Plan includes a listing of Managed Wells subject to the plan, a map of the so-called Managed Area in southern MZ1, an initial threshold water level (Guidance Level) at an index well in the Managed Area (245 feet below the top of the PA-7 well casing at Ayala Park in Chino [ft-brp]), and a plan for ongoing monitoring and annual reporting.

Ground-Level Monitoring Program

Implementation of the MZ1 Plan began in 2008. The MZ1 Plan calls for (1) the continued scope and frequency of monitoring implemented during the IMP within the MZ1 Managed Area and (2) expanded monitoring of the aquifer system and land subsidence in other areas of the Chino Basin where the IMP indicated concern for future subsidence and ground fissuring. The expanded monitoring efforts outside of the MZ1 Managed Area are consistent with the requirements PE1.

Watermaster's current ground-level monitoring program includes:

- *Piezometric Levels. Piezometric levels are an important part of the ground-level monitoring program because piezometric changes are the mechanism for aquifer-system deformation and land subsidence. Watermaster monitors piezometric levels at* *about 33 wells in MZ1. Currently, a pressure-transducer/data-logger is installed at each of these wells and records one water level reading every 15 minutes. And, Watermaster records depth-specific water levels at the piezometers located at the Ayala Park Extensometer facility every 15 minutes.*

- *Aquifer-System Deformation. Watermaster records aquifer-system deformation at the Ayala Park Extensometer facility (see Figure 4.3-45). At this facility, two extensometers, completed at 550 ft-bgs and 1,400 ft-bgs, record the vertical component of aquifer-system compression and/or expansion once every 15 minutes (synchronized with the piezometric measurements).*
- *Vertical Ground-Surface Deformation. Watermaster monitors vertical ground-surface deformation via the ground-level surveying and remote sensing (InSAR) techniques established during the IMP. Currently, ground-level surveys are being conducted in the MZ1 Managed Area once per year. InSAR is the only monitoring technique being employed outside the MZ1 Managed Area, and InSAR data is analyzed once per year.*
- *Horizontal Ground-Surface Deformation. Watermaster monitors horizontal ground-surface displacement across the eastern side of the subsidence trough and the adjacent area east of the barrier/fissure zone. These data, obtained by electronic distance measurements (EDMs), are used to characterize the horizontal component of land surface displacement caused by groundwater production on either side of the fissure zone. Currently, Watermaster is collecting EDMs at a semiannual frequency (Spring/Fall) between east/west aligned benchmarks on Eucalyptus, Edison, Schaefer, and Philadelphia Avenues.*

<u>Results of Ground-Level Monitoring Program</u>

At the conclusion of each fiscal year, the MZ1 Plan requires that Watermaster produce an MZ1 Annual Report that includes the results of the past year's monitoring. The 2008 MZ1 Annual Report (currently in preparation) will be the first such report published by Watermaster and will focus primarily on the intensive monitoring being conducted in the MZ1 Managed Area.

The ground-level monitoring results described below will focus primarily on the ground-level survey and InSAR monitoring being conducted across the entire Chino Basin (PE1).

InSAR

Figure 4.3-46 is a map of the Chino Basin that shows InSAR results for 2005-2008. The InSAR data are generally coherent and useful in the northern urbanized areas of the basin but are generally incoherent and not as useful in the southern agricultural areas (light brown areas in Figure 4.3-46). This pattern of "coherence" relative to land use is typical of InSAR data.

Figure 4.3-46 shows that ground motion during 2005-2008 was relatively minor (less than about -0.02 ft of subsidence) in the northeastern parts of the basin, such as Fontana and Rancho Cucamonga. However, in northwestern parts of the basin, land subsidence of over -0.14 ft and -0.12 ft has been measured by InSAR in Pomona and Ontario, respectively.

Figure 4.3-46 also shows that ground motion is influenced by geologic faults that cut through the aquifer system and act as barriers to groundwater flow. For instance, the land surface elevation has increased (uplift) in the southern portion of the Cucamonga Basin—just north of the Red Hill Fault. The San Jose Fault is clearly influencing the pattern of ground motion in the Claremont, Pomona, and Chino Basins. Of most concern, with respect to the potential for ground fissuring, *is the differential ground motion across the San Jose Fault between the Pomona and Chino Basins.*

Historically, the City of Chino has experienced the most land subsidence (e.g. over -2.0 ft of subsidence within the MZ1 Managed Area during 1987-1999), but for 2005-2008, the InSAR data indicate that land subsidence was relatively minor in this area (less than about -0.04 ft).

Ground-Level Surveys

Figure 4.3-47 is a map of the western half of Chino Basin that shows both the InSAR and ground-level survey results for 2005-2008. The ground-level survey data generally corroborate the patterns and magnitude of ground motion shown in the InSAR data with a few exceptions:

- *The ground-level survey data indicate a greater magnitude of land subsidence in the MZ1 Managed Area (maximum subsidence = -0.10 ft) than the InSAR data (maximum subsidence = -0.05 ft).*
- *In some areas, the ground-level survey data indicate minor subsidence while the InSAR data indicate minor uplift. In these instances, the difference between the ground-level survey and InSAR data is generally less than about 0.05 ft.*

One advantage of the ground-level survey data is that it can provide information on ground motion in areas where InSAR data is absent. See, for example, the area shown on Figure 4.3-47 near at the intersection of Euclid Avenue and Kimball Avenue where the Chino I Desalter wells pump groundwater from the deep aquifer system. The survey data indicated maximum land subsidence of -0.24 ft in this area during 2005-2008.

Analysis of Ground Surface Displacement

Historical ground motion data (shown in Figure 4.3-45) and recent ground motion data (shown in Figures 4.3-46 and 4.3-47) indicate that land subsidence concerns in the Chino Basin are confined to certain portions of MZ1 and MZ2. These "areas of subsidence concern" are delineated and labeled in Figures 4.3-46 and 4.3-47. Besides the MZ1 Managed Area, Watermaster has designated four additional areas of subsidence concern: the Central MZ1 Area, the Pomona Area, the Ontario Area, and the Southeast Area.

The recent land subsidence that has been occurring in each of these areas is mainly controlled by recent and/or historical changes in groundwater levels, which, in turn, are mainly controlled by pumping and recharge.

Below, the relationships between groundwater pumping, aquifer recharge, groundwater levels, and ground motion, which help to reveal cause and effect; the current state of ground motion; and the nature of current land subsidence (i.e. elastic and/or inelastic, differential, etc.), are discussed by area of concern.

MZ1 Managed Area

Within the MZ1 Managed Area, pumping of the deep confined aquifer system causes water level drawdowns that are much greater in magnitude and lateral extent than drawdowns caused by pumping of the shallow aquifer system. Artificial recharge in the northern portions of MZ1 appears to have no immediate impact on groundwater levels in the deep aquifer system in the MZ1 Managed Area. These conclusions were established during the IMP (WEI, 2006b) and are *shown graphically in Figure 5-4 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices).*

Figures 5-4 and 5-5 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) also show vertical ground motion at the Deep Extensometer at Ayala Park and at a benchmark monument (137/53) at the corner of Schaefer Avenue and Central Avenue. About -2.5 ft of subsidence occurred in portions of the MZ1 Managed Area from 1987-2000, but very little inelastic subsidence has occurred since 2000, and no additional ground fissuring has been observed.

Another conclusion of the IMP was that groundwater-level drawdowns due to pumping of the deep aquifer system can cause inelastic (permanent) compaction of the aquifer-system sediments, which results in permanent land subsidence. The initiation of inelastic compaction within the aquifer system was identified during the IMP when water levels fell below a depth of about 250 feet in the PA-7 piezometer at Ayala Park. From 2005 to 2008, water levels at PA-7 did not decline below 250 ft-brp , and very little, if any, inelastic compaction was recorded in the MZ1 Managed Area. Data from the MZ1 Managed Area are further analyzed in the 2008 MZ1 Annual Report (in preparation).

The IMP also identified a previously undetected barrier to groundwater flow on the east side of the MZ1 Managed Area. This barrier is located within the deep aquifer system and is aligned with the historical zone of ground fissuring (see Figure 5-3). Pumping from the deep aquifer system has been limited to the area west of the barrier, and the resulting drawdowns have not propagated eastward across the barrier. Thus, historical compaction occurred within the deep system on the west side of the barrier but not on the east side. Concentrated differential subsidence across the barrier is the most likely cause of the ground fissuring observed in the early 1990s. The rate of land subsidence decreased to almost zero in the MZ1 Managed Area in the mid-1990s, and no additional ground fissuring has been observed.

Central MZ1 Area

The Central MZ1 Area is located directly north of the MZ1 Managed Area (see Figure 4.3-47). Figures 5-6 and 5-7 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) display time histories of groundwater pumping, aquifer recharge, groundwater levels, and ground motion in the Central MZ1 Area.

The ground motion time histories for Central MZ1 is similar to that of the MZ1 Managed Area—as much as -2.2 ft of inelastic subsidence occurred at the corner of Philadelphia and Monte Vista Avenue from 1987-2000, but very little inelastic subsidence has occurred since 2000. This similarity suggests a relationship to the causes of land subsidence in the MZ1 Managed Area; however, there is very little historical groundwater level data in this area to confirm this relationship.

Most of the wells with historical groundwater level records are in the northern part of Central MZ1 (see Figure 5-3) where historical subsidence was not as pronounced. From about 1935 to 1978, groundwater levels in these wells declined by about 150 ft. Groundwater levels increase by about 50 ft during the 1980s and remained relatively stable until 2005. Since 2005, groundwater levels have increased by about 25 ft, which is likely due to decreased pumping and increased recharge in MZ1.

Pomona Area

The Pomona Area is located directly north of the Central MZ1 Area (see Figure 5-3). Figures 5-8 and 5-9 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) display time histories of groundwater pumping, aquifer recharge, groundwater levels, and ground motion in the Pomona Area.

The ground motion time histories of the Pomona Area are based solely on InSAR data from 1992 to 1995, 1995 to 2000, and 2005 to 2008. These data indicate that land subsidence has occurred continuously in this area, generally at a rate of about 0.07 ft/yr. The rate of subsidence appears to be decreasing gradually with time.

From about 1935 to 1978, groundwater levels in the Pomona Area declined by about 175 ft or more. Groundwater levels increased by about 50 to 100 ft during the 1980s. From about 1990 to 2004, groundwater levels declined again by about 25 to 50 ft. And from 2004 to 2008, groundwater levels increased by about 25 to 50 ft. The groundwater level changes from 1990 to 2008 appear to be closely related to pumping and recharge in MZ1.

The observed, continuous land subsidence cannot be explained entirely by the corresponding changes in groundwater levels during this time (1992-2008). A plausible explanation for the subsidence is that thick, slowly-draining aquitards are compacting in response to the historical drawdowns that occurred from 1935 to 1978 (see Figure 5-9, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices).

Lastly, the InSAR data in Figure 4.3-47 shows a steep gradient of subsidence across the San Jose Fault, indicating the potential for the accumulation of horizontal strain in the shallow sediments and the possibility of ground fissuring. Ground fissuring is the main subsidence-related threat to infrastructure.

Ontario Area

The Ontario Area is located east of the Central MZ1 and the Pomona Areas (see Figure 4.3-47). Figures 5-10 and 5-11 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) display time histories of groundwater pumping, aquifer recharge, groundwater levels, and ground motion in the Ontario Area.

The ground motion time histories of the Ontario Area is based solely on InSAR data from 1992 to 1995, 1995 to 2000, and 2005 to 2008. These data indicate that land subsidence has occurred continuously in this area, generally at a rate of about 0.06 ft/yr. The rate of subsidence appears to be decreasing gradually with time.

From about 1935 to 1978, groundwater levels in the Ontario Area declined by about 125 ft. Groundwater levels increased by about 10 to 20 ft during the early 1980s and have remained relatively stable since then.

The observed continuous land subsidence from 1992 to 2008 is not explained by the relatively stable groundwater levels. A plausible explanation for the subsidence is that thick, slowly-draining aquitards are compacting in response to the historical drawdowns that occurred from 1935 to 1978 (see Figure 5-11, 2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices).

Southeast Area

The Southeast Area is located east of the MZ1 Managed Area (see Figure 4.3-47). Figures 5-12 and 5-13 (2008 State of the Basin Report, Appendix 3, Volume 2, Technical Appendices) display time histories of groundwater pumping, aquifer recharge, groundwater levels, and ground motion in the Southeast Area.

The ground motion time histories of the Southeast Area is based solely on ground-level surveys performed from 1987to 2008. These data indicate that land subsidence has occurred continuously and slowly in this area, generally at a rate of about 0.02 ft/yr. However, the data also indicate that from 2005 to 2008 about -0.24 ft of subsidence occurred near the western portion of the Chino I Desalter well field where these wells are pumping from and causing drawdown within the deep confined aquifer system.

There is very little historical groundwater level data for this area prior to about 1990. The data since 1990 indicate relatively stable groundwater levels.

The observed slow but continuous land subsidence from 1987 to 2008 is not explained by the relatively stable groundwater levels. A plausible explanation for the subsidence is that thick, slowly-draining aquitards are compacting in response to the historical drawdowns that likely occurred prior to 1990.

Lastly, the first ground fissures ever documented in the Chino Basin occurred in the Southeast Area in the early 1970s, but ground fissuring has not been observed in the Southeast Area since then.

Conclusions and Recommendations

The conclusions and recommendations for Watermaster's basin-wide ground-level monitoring program are provided below.

- *Land subsidence does not appear to be a concern in the eastern and northernmost portions of Chino Basin. In these areas, the underlying aquifer system is composed primarily of coarse-grained sediments that are not prone to compaction.*
- *Land subsidence and the potential for ground fissuring are major concerns in the western and southern portions of the Chino Basin. In these areas, the underlying aquifer system consists of interbedded, fine-grained sediment layers (aquitards) that can drain and compact when groundwater levels decline in the adjacent coarse-grained aquifers. Ground fissuring has occurred in the past where land subsidence was differential (i.e. steep gradient of subsidence). Ground fissuring is the main subsidence-related threat to infrastructure.*
- *Land subsidence has been persistent across most of the western and southern portions of the Chino Basin since, at least, 1987 when land subsidence monitoring began. In many of these areas, land subsidence continues even during periods of groundwater level recovery, indicating that thick, slowly-draining aquitards are compacting in response to the large historical drawdowns of 1935 to 1978.*
- *Pumping-induced drawdown has caused accelerated occurrences of land subsidence in the recent past, including subsidence in the City of Chino during the early 1990s and, currently, in the vicinity of the Chino I Desalter well field. Watermaster should*

anticipate similar occurrences of land subsidence in areas (1) that are prone to subsidence and (2) where drawdown will occur in the future.

- *Watermaster will continue its basin-wide ground-level monitoring program, using InSAR and ground-level surveys. Watermaster will consider expanding the ground-level surveys to cover the area of the proposed Chino Creek Desalter Well Field. This is an area that is prone to subsidence, where drawdown may occur near where ground fissuring has occurred in the past, and where InSAR data is not currently available. Watermaster will also consider expanding the ground-level surveys to cover the Pomona and Ontario Areas. In general, InSAR data coverage is continuous and of high quality throughout both areas, so ground-level surveys would primarily provide supporting and confirmation data for the InSAR and would occur at a frequency of once every three to five years.*
- *Watermaster will consider installing low-cost piezometer/extensometer facilities at appropriate locations in all Areas of Subsidence Concern. This type of facility has been successfully constructed and tested at Ayala Park in Chino. Such facilities record the requisite data (1) to monitor land subsidence and groundwater levels at high resolution and accuracy, (2) to provide the information necessary to characterize the elastic and/or inelastic nature of any land subsidence occurring in an area, (3) to provide the information necessary to develop criteria to manage subsidence, and (4) to provide the information necessary to characterize aquifer and aquitard properties that could be used in a predictive computer-simulation model of subsidence.*
- *Watermaster will consider building and calibrating predictive computer-simulation models of subsidence across all Areas of Subsidence Concern in the Chino Basin. These models would provide information on the rates and ultimate magnitude of land subsidence that could be associated with various basin management planning scenarios (i.e. pumping and recharge patterns). This information would be valuable to affected Watermaster parties.*
- *Because ground fissuring caused by differential land subsidence is the main threat to infrastructure, Watermaster will periodically inspect for signs of ground fissuring in areas that are experiencing differential land subsidence. In addition, Watermaster will consider monitoring the horizontal strain across these zones of potential ground fissuring in an effort to better understand and manage ground fissuring.*

4.3.3 Project Impacts

The OBMP PEIR contains a detailed evaluation of water resource issues that included assumptions about the integrated implementation of the OBMP. The impact evaluation relied upon the comprehensive implementation of the OBMP to partially mitigate potential adverse environmental effects of certain actions. For example, to reduce use of groundwater, increased direct use and recharge of recycled water was proposed and has been implemented. The PEIR evaluated water resource and water quality impacts of implementing the integrated program outlined in the OBMP and concluded that, with implementation of extensive mitigation and ongoing monitoring, the OBMP could be implemented without causing residual significant adverse impacts to these issues. Of critical importance to this issue is that the OBMP is being implemented by all of the stakeholders in accordance with or even faster than the schedule envisioned in the adopted OBMP. A status summary of OBMP implementation is provided in Chapter 3.

As noted above, the volume of potable water presently being produced by Chino Desalters I and II is approximately 27,000 acre-ft/yr, and the remaining 13,000 acre-ft/yr of potable water generation will be evaluated in this document. The proposed facilities required to meet the increase in desalter production will be evaluated in this environmental document at a general, not site specific level. The balance between available recycled water and demand will be discussed. Conservation devices installed as of 2008 are forecast to ultimately result in approximately 40,745 acre-ft of potable water saved over the lifetime of the devices. The details of additional infrastructure required to support the above programs are described to the extent feasible, and the potential hydrology related impacts from installation and operation of these facilities are evaluated below. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.

4.3.3.1 Significance Criteria

The Initial Study evaluated and eliminated several of the standard checklist items with respect to hydrology and water quality impacts. The following items were carried over to the EIR from the Initial Study and are the proposed thresholds for assessing and determining significant drainage or water quality impacts from implementing the proposed project.

Would the proposed project:

a. Violate any water quality standards or waste discharge requirements?

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?

e. 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, such as from areas of material storage, vehicle or equipment maintenance (including washing or detailing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor areas?

f. Otherwise substantially degrade water quality?

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

i. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impact.

The following issues were identified in the Utilities/Service System category of the Initial Study as having potentially significant impacts and have been carried forward into this DSEIR for review.

Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impact?

> Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
>
> Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Because these issues are so closely related to the Hydrology/Water Quality evaluation contained in this Subchapter, the Utilities/Service System issues quoted above have been integrated into this subchapter, and they are proposed as thresholds for assessing and determining the potential impacts of the proposed project on SARI line brine treatment capacity and existing water supply entitlements and resources sufficiency.

The following issues were identified in the Geology/Soils category of the Initial Study as having potentially significant impacts and have been carried forward into this DSEIR for review.

> Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?
>
> 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

Because these issues are so closely related to the Hydrology/Water Quality evaluation contained in this Subchapter, the Geology/Soils issues quoted above have been integrated into this subchapter, and they are proposed as thresholds for assessing and determining the potential impacts of the proposed project associated with liquefaction or subsidence.

Hydrology Technical Report

WEI prepared a hydrology technical report that evaluates most of the potential impacts that may result from implementing the proposed Peace II Agreement. As indicated in Section 4.1, adequate data is abstracted from the WEI report to create a chain of logic for the reviewer to follow and understand the potential water resource/hydrology effects of implementing the Peace II Agreement program and facilities. The actual text brought forward from the WEI report is presented in the following analyses in italics to distinguish it from separate analyses in this DSEIR. A copy of the full WEI report is provided in the technical appendices for those reviewers that wish to examine the more detailed water resource/hydrology information. The figure and table numbers in the cited WEI text have been revised to conform to the DSEIR sequence of presentation.

4.3.3.2 Potential Impacts for the Baseline Alternative and Peace II Agreement Alternative

This report contains an analysis of the hydrologic changes that are expected to occur through the implementation of the Peace II Project Description. In 2006 and 2007, Watermaster conducted extensive hydrologic and modeling investigations in support of the development of the Peace II Agreement and the facilities and basin operating strategies that are contained in the Peace II Agreement and, Watermaster developed a sophisticated suite of computer simulation tools that are collectively referred to as the 2007 Watermaster Model. Based on these investigations, Wildermuth Environmental Inc. (WEI), Watermaster's consultant, concluded that:

- *the safe yield of the Basin would likely decline from about 140,000 acre-ft/yr, as defined in the Judgment, to about 130,000 acre-ft/yr in 2030;*
- *projected future production may not be sustainable for some Appropriators due to excessive drawdown; and*
- *given Watermaster's traditional approach to replenishment operations, future production may have to be limited by Watermaster's existing replenishment capacity (WEI, 2007).*

In 2008, Watermaster conducted a material physical injury analysis of the proposed Dry-Year Yield Expansion—using updated groundwater production projections provided by the IEUA (IEUA, 2008a)—and reached identical conclusions regarding production sustainability and replenishment limitations (WEI, 2008a). However, in this analysis, WEI recommended additional work to optimize the location and magnitude of groundwater production and replenishment in order to maximize groundwater production capabilities.

The term "material physical injury" refers to actions by a water producer in the Chino Basin that could harm another water producer in the Basin or harm the Basin itself. Per the Peace I Agreement, material physical injury is defined as "material injury that is attributable to Recharge, Transfer, storage and recovery, management, movement or Production of water or implementation of the OBMP, including, but not limited to, degradation of water quality, liquefaction, land subsidence, increases in pump lift and adverse impacts associated with rising groundwater" (Peace Agreement, p. 8).

The Watermaster is assigned the responsibility of ensuring that the actions of one water producer does not cause harm or material physical injury to another producer. An example of material physical injury would be one producer creating a substantial local drawdown cone that reduces the production of another producer's water production infrastructure. This is another type of potential adverse impact that may be considered a significant adverse environmental impact.

The sustainability issue identified in these reports occurs because the municipal groundwater producers had not coordinated their future groundwater production plans that include new wells and increased production. In early 2009, the preparation of an environmental impact report PEIR for the Peace II Agreement commenced. Prior to evaluating the hydrologic changes that are expected to occur through the implementation of the Peace II Project Description, Watermaster conducted an analysis of existing and future projected groundwater production patterns and developed new groundwater production patterns and supplemental water recharge plans that ensure sustainability. These new groundwater production and replenishment patterns are based on optimization studies that were constrained to meet projected production requirements, to use existing and master-planned well locations, to use existing spreading basins and planned injection wells, and to balance recharge and discharge in every area and subarea (a Peace Agreement requirement).

a. Violate any water quality standards or waste discharge requirements?

Requirements of the 2004 Amendment to the Water Quality Control Plan for the Santa Ana Watershed

Water quality objectives are established by the RWQCB to preserve the beneficial uses of the Chino Basin and the Orange County Basin, located downstream of the Chino Basin. Prior to the 2004 Amendment, the Regional Water Quality Control Plan (Basin Plan) contained restrictions on the use of recycled water within the Chino Basin for irrigation and groundwater recharge. The pre-2004 Basin Plan contained "anti-degradation" TDS objectives that ranged from 220 to 330 mg/L over most of the Chino Basin. Ambient TDS concentrations slightly exceeded these objectives. There was no assimilative capacity for TDS; thus, the use of the IEUA's recycled water for irrigation and groundwater recharge would have required mitigation even though the impact of this reuse would not have materially impacted future TDS concentrations or impaired the beneficial uses of Chino Basin groundwater.

In 1995, the RWQCB initiated a collaborative study with 22 water supply and wastewater agencies, including Watermaster and the IEUA, to devise a new TDS and nitrogen (total inorganic nitrogen or TIN) control strategy for the Santa Ana Watershed. This study culminated in the RWQCB's adoption of the 2004 Basin Plan Amendment in January 2004 (RWQCB, 2004). The 2004 Basin Plan Amendment included two sets of TDS objectives: antidegradation objectives that ranged between 280, 250 and 260 mg/L for Management Zones 1, 2, and 3, respectively; and a "maximum benefit"-based TDS objective of 420 mg/L for the Chino North Management Zone, which consists of almost all of Management Zones 1, 2, and 3. The relationship between the management zones that was developed for the OBMP and the "maximum benefit"-based management zones is shown in Figure 4.3-5. Under the "maximum benefit"-based objective, the new TDS concentration limit for recycled water that is to be used for recharge and other direct uses is 550 mg/L as a 12-month average. This discharge requirement has been incorporated into the IEUA's National Pollutant Discharge Elimination System (NPDES) permits for its wastewater treatment facilities.

For the IEUA and Watermaster to gain access to the assimilative capacity afforded by the "maximum benefit"-based objectives, they have to demonstrate that the maximum beneficial use of the waters of the State is being achieved. The 2004 Basin Plan Amendment contains a series of commitments that must be met in order to demonstrate that the maximum benefit is being achieved, including:

1. *The implementation of a surface water monitoring program*
2. *The implementation of groundwater monitoring programs*
3. *The expansion of Desalter I to 10 million gallons per day (MGD) and the construction of a 10-mgd Desalter II*
4. *The commitment to future desalters pursuant to the OBMP and the Peace Agreement*
5. *The completion of the recharge facilities included in the Chino Basin Facilities Improvement Program*
6. *The management of recycled water quality*
7. *The management of the volume-weighted TDS and nitrogen in artificial recharge to less than or equal to the maximum benefit objectives*
8. *The achievement and maintenance of hydraulic control of subsurface outflows from the Chino Basin to protect the Santa Ana River water quality*
9. *The determination of the ambient TDS and nitrogen concentrations in the Chino Basin every three years*

The IEUA and Watermaster have previously demonstrated compliance with all of these requirements with the sole exception of hydraulic control. (Emphasis added) *Hydraulic control is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to de minimus quantities. Hydraulic control ensures that water management activities in the Chino North Management Zone do not result in adverse material impacts on the beneficial uses of the Santa Ana River downstream of Prado Dam. Achieving hydraulic control also maximizes the safe yield of the Chino Basin as required by paragraphs 30 and 41 of the 1978 Chino Basin Judgment (Judgment) (Case No. RCV 51010, Chino Basin Municipal Water District vs. City of Chino et al.). Two reports by Wildermuth Environmental, Inc. (WEI), prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b).*

Without hydraulic control, the IEUA and Watermaster may have to cease using recycled water in the Chino Basin and mitigate the effects of using recycled water back to the adoption of the 2004 Basin Plan Amendment (December 2004). The demand for recycled water in the Chino Basin is projected to grow from about 12,500 acre-ft/yr in 2005 to 50,000 acre-ft/yr in 2012, 68,000 acre-ft/yr in 2015, 79,000 acre-ft/yr in 2020, and 89,000 acre-ft/yr in 2025. Recycled water reduces the demand of State Water Project (SWP) water by an equal amount, thereby reducing demand on the Sacramento Delta and reducing energy consumption. Recycled water is a critical element of the OBMP and water supply reliability in the Chino Basin area.

In addition, failure to achieve hydraulic control will lead to restrictions from the RWQCB on the use of imported SWP water for replenishment when the TDS concentration exceeds the antidegradation objectives. The RWQCB has prepared a draft order that would treat the recharge of SWP water as a waste discharge. There would be no assimilative capacity if the Chino Basin antidegradation objectives were enforced. Figure 4.3-44 shows the percent of time that the TDS concentration at Devil Canyon is less than or equal to a specific value, based on observed TDS concentrations at Devil Canyon Afterbay. This restriction will occur about 35, 52, and 50 percent of the time for Management Zones 1, 2, and 3, respectively. This will affect other basins in the Santa Ana Watershed, and the RWQCB is encouraging all basin managers to propose “maximum benefit”-based objectives similar to those in the Chino Basin. With the “maximum benefit”-based TDS objective, there is assimilative capacity in the Chino Basin, and there would be no such restriction on the recharge of imported water.

The RWQCB is using its discretion in granting “maximum benefit” objectives even though hydraulic control has not been demonstrated. The RWQCB will continue to use “maximum benefit”-based objectives in the Chino Basin as long as the IEUA and Watermaster continue to develop and implement, in a timely manner, the OBMP desalter program as described in the Chapter 3 of this document.

As described in the preceding text, the OBMP programs implemented thus far meet the water quality requirements of the 2004 Basin Plan Amendment, with the exception of one component, hydraulic control. The specific objective of the Peace II Agreement program is to implement management actions that will achieve hydraulic control for the Chino Basin, that is expand desalter production to the full 40,000 acre ft per year and implement Re-operation to lower the groundwater table through an approximate 400,000 acre-ft of storage in the Basin. Thus, it is through implementation of the proposed project that IEUA, Watermaster and other Chino Basin stakeholders can fully comply with water quality standards or waste discharge requirements. Therefore, implementation of the project as proposed is not forecast to cause any significant adverse water quality impacts relative to water quality standards and waste discharge requirements. No mitigation is required.

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

In addition to the key Peace II Agreement programs (desalters, Re-operation and hydraulic control of the Chino Basin), the WEI report identifies several other issues that must be resolved to fully implement the program. These additional issues are described below based on the descriptions in the WEI report.

Other Important Facility and Operational Plans That Will Occur Concurrently with the Proposed Project

Expansion of Artificial Recharge Capacity

Watermaster and the IEUA will need to expand artificial recharge capacity in the Chino Basin to meet future replenishment obligations. This will occur independently from the proposed project. Current supplemental water recharge capacity is about 84,000 acre-ft/yr. The recharge capacity required to meet future replenishment obligations is about 150,000 acre-ft—a capacity expansion of about 66,000 acre-ft/yr. This expansion will occur through the construction of new spreading basins, improvements to existing spreading basins, and aquifer storage and recovery wells. The expansion of the artificial recharge capacity in the Chino Basin is currently underway and a revised recharge master plan will be submitted by the Watermaster to the Court before July 1, 2010. This document will be analyzed separately and due to its current draft form it is considered to speculative to be further considered in this document.

The estimated future recharge capacity requirement described above is slightly greater than the 145,800 acre-feet of capacity identified in the project description. Regardless, this value was used in the assessment of potential impacts related to operation of the Basin in the WEI study and is considered a conservative value for making impact forecasts.

Expansion of Storage and Recovery Programs

Currently, there is only one groundwater storage and recovery program approved in the Chino Basin: the 100,000 acre-ft Dry-Year Yield Program (DYYP) with the Metropolitan Water District of Southern California (MWDSC). The MWDSC, the IEUA, and Watermaster are considering expanding this program to 150,000 acre-ft over the next few years. In fact, since the Peace II Agreement was approved by the Court in December 2007, the IEUA, acting as a lead agency, has completed planning investigations and environmental documentation to expand the DYYP from 100,000 acre-ft to 150,000 acre-ft (IEUA, 2008).

Baseline Alternative and Peace II Alternative

The Baseline Alternative is the groundwater management strategy incorporated in the 2000 Peace Agreement and would be implemented in the absence of the Peace II Alternative. The Baseline Alternative includes the physical solution contained in the Judgment, the expansion of *the desalter program as described in the Peace II Alternative project description, and the MZ1 long-term subsidence management program, and the requirement that Watermaster balance recharge and discharge in every area and subarea when determining the location and magnitude of the recharge of supplemental water for replenishment purposes.*

During the summer of 2008, the IEUA developed a groundwater production projection for the Chino Basin (IEUA, 2008a) to evaluate the proposed expansion of the MWDSC DYYP. The IEUA groundwater production projection was used in the Baseline and Peace II Alternatives.

Since the 2000 Peace Agreement was approved, the availability of replenishment water from the MWDSC has been substantially reduced due to environmental and judicial constraints and drought. While no official forecast is available from the MWDSC to characterize the availability of replenishment water, MWDSC staff has presented information to its member agencies as part of its Integrated Regional Plan update (B. Goshi, personal communication, August 29, 2008; October 30, 2008), showing the impacts of different water supply and demand scenarios on the availability of surplus water for groundwater replenishment and local groundwater storage programs. MWDSC staff presented the same information at the Watermaster Strategic Planning Meeting (G. Chan, personal communication, September 29, 2008). In these presentations, the MWDSC stated that replenishment water would be available approximately three out of ten years. In contrast, prior to the 2000 Peace Agreement, the MWDSC forecasted that it would be able to provide replenishment water seven out of ten years. Furthermore, the engineering work for the OBMP and the 2000 Peace Agreement was based on the MWDSC's ability to deliver replenishment water seven out of ten years. For the current projected groundwater production plan to be sustainable, Watermaster and the parties will to need to acquire replenishment water above that which can be supplied directly from the MWDSC.

The assumed expansion of the desalting program from about 28,000 acre-ft/yr of desalter groundwater production to about 40,000 acre-ft/yr is the same for the Baseline Alternative and Peace II Alternative, as the 2000 Peace Agreement anticipated the same desalter well field expansion.

<u>Peace II Alternative</u>

The Peace II Alternative is identical to the Baseline Alternative except for replenishment operations related to Re-operation. Table 4.3-4 provides the Re-operation schedule approved by the Court in 2008. Re-operation water is divided into two blocks: the first block of about 225,000 acre-ft is dedicated for the replenishment of groundwater produced by the existing desalters and appears to be used up in 2013 and the second block of about 175,000 acre-ft is used at a rate of 10,000 acre-ft/yr to meet the replenishment obligation of the desalter expansion. New yield created by Re-operation is credited to the desalters and reduces the desalter replenishment obligation.

From a hydraulic perspective, the key difference between the Baseline and Peace II alternatives is Re-operation. Re-operation enables hydraulic control and provides access to new assimilative capacity created by the application of maximum benefit-based water quality objectives.

<u>Evaluation Approach</u>

The Baseline and Peace II Alternatives were evaluated to determine changes in groundwater level, changes in Santa Ana River discharge, changes in basin balance, hydraulic control *effectiveness, changes in safe yield, and potential subsidence. This was accomplished using the updated 2007 Watermaster Model to estimate groundwater and surface water responses to the Baseline and Peace II Alternatives. The impacts of Peace II Alternative were assessed by comparing the results of the Peace II Alternative simulation to those of the Baseline Alternative simulation. Information was extracted from the model results to produce:*

- *Groundwater level projections to determine the change in groundwater levels throughout the basin and to assess hydraulic control and potential new subsidence. Time series charts were prepared to show the projected groundwater level changes at selected wells in the basin. Maps were produced, showing the areal distribution of groundwater elevations, the change in groundwater elevations relative to the start of the planning period, and the difference in groundwater elevations caused by implementing the Peace II Agreement. Local maps were prepared in the southern end of the basin to assess hydraulic control and potential impacts on riparian vegetation*

- *Surface water discharge projections of the Santa Ana River at Prado Dam to estimate the induced Santa Ana River recharge caused by implementing the Peace II Agreement*

- *Water balance tables to determine outflow from the Chino North Management Zone to the Prado Basin Management Zone and the Santa Ana River, new recharge from the Santa Ana River to the Chino South and Prado Basin Management Zones, the change in storage, and the change in safe yield*

- *Projections of the change in direction and speed of contaminant plumes caused by implementing the Peace II Agreement*

The groundwater-level impacts are presented in a series of maps that show basin-wide and local-scale groundwater level changes, time history charts for 98 wells that belong to various municipal water supply agencies, and tabular format, which indicates groundwater level changes in selected municipal water supply agency service areas.

Projected Groundwater Production for the Planning Period

In 2008, the IEUA developed water supply plans for all municipal water supply agencies that utilize the Chino Basin (IEUA, 2008a). Figure 4.3-46 shows the service areas of the water supply agencies in the Chino Basin area. A groundwater production projection for the Chino Basin was extracted from these water supply plans. Table 4.3-5 shows projected groundwater production, and Figure 4.3-47 shows the aggregate projected groundwater production in the Chino Basin over the planning period for the Baseline Alternative. The water supply agencies' water supply plans include existing and planned wells, planned groundwater treatment facilities, existing desalters, and the planned expansion of the Chino Basin desalters. Figure 4.3-48 shows the location of existing and planned production wells in the Chino Basin. The IEUA-developed water supply plans and groundwater production plan were vetted through the Watermaster process during the summer of 2008 and accepted by the appropriators in September 2008.

Table 4.3-5 shows projected groundwater production by party for the period of 2007/08 through 2029/30. Agricultural production is estimated to be about 26,000 acre-ft/yr in 2010, is projected *to decline to about 5,000 acre-ft/yr by 2020, and remains at about 5,000 acre-ft/yr thereafter. Overlying non-agricultural pool production is estimated to remain constant over the planning period at about 3,150 acre-ft/yr. The total production of the appropriators averages about 180,000 acre-ft/yr and ranges from a low of about 145,000 acre-ft/yr to a high of about 210,000 acre-ft/yr. Groundwater production projections for the overlying agricultural pool are based on recent Watermaster projections (WEI, 2008b). Total production for the Chino Basin averages about 200,000 acre-ft/yr during this period and ranges from a low of about 174,000 acre-ft/yr to a high of about 220,000 acre-ft/yr.*

Projected Recharge and Replenishment for the Planning Period

Watermaster recharges supplemental water into the Chino Basin pursuant to the Judgment and the 2000 Peace Agreement. Total annual replenishment was calculated based on projected groundwater production, recharge facility capacity, and the following assumptions:

- *The safe yield is 140,000 acre-ft/yr through 2010 and the 2007 Watermaster Model-calculated safe yield thereafter.*
- *The Judgment allows a 5,000 acre-ft/yr controlled overdraft of the Chino Basin through 2017.*
- *Recycled water recharge was assumed to occur pursuant to Watermaster and the IEUA's recharge permit (Order R8-2007-as amended in October 2009 (Order R8-2009-0057)0039 and as projected by the IEUA: 10,000 acre-ft/yr in 2010, 15,000 acre-ft/yr in 2020, and 24,000 acre-ft/yr in 2030.*

Total production rights are about 155,000 acre-ft/yr in 2010 and vary between 150,000 acre-ft/yr to 155,000 acre-ft/yr through 2030. Watermaster's replenishment obligation was estimated using the following assumptions:

- *Water in storage accounts as of fiscal year 2007/08 is not used to meet future replenishment obligations. This is a conservative assumption that reserves discretion regarding the use of this water to individual appropriators.*
- *On a go forward basis, under-producers will transfer un-pumped rights to over-producers each year; that is, there is an efficient market that moves unused production rights from under-producers to over-producers.*

For this investigation, the average annual replenishment obligation was assumed to be equal to the greater of zero and the difference between actual production and production rights. The replenishment obligation for the Baseline Alternative is projected to be 34,000 in 2010 and about 67,000 acre-ft/yr by 2030. This assumes that under-producers will transfer un-pumped rights to over-producers each year; as stated above, there is an efficient market that moves unexercised rights from under-producers to over-producers. This assumption tends to underestimate the replenishment obligation for some years. Yet, over the long term, this assumption is valid; appropriator parties cannot store unused production rights forever, and the demand for replenishment water will provide financial incentives for unused production rights to be sold to over-producers. Figures 4.3-49 and 4.3-50 show the projected groundwater production for the Baseline and Peace II Alternatives, respectfully, as a stacked bar chart that consists of the production right and replenishment obligation for each year in the planning period.

Table 4.3-4
INITIAL CORRECTED SCHEDULE UPDATE TO SHOW DESALTER REPLENISHMENT ACCOUNTING AND SANTA ANA RIVER INFLOW FROM 2000/01 – 2029/30, SHORTFALL DEDUCTED FROM THE NON-WMWD RE-OPERATION ACCOUNT[1]

(acre-ft)

Fiscal Year	Desalter Produciton	New Yield[2]	Desalter Replenishment				Residual Replenishment Obligation
			Desalter (aka Kaiser) Account	Re-Operation			
				Replenishment Allocation for Peace II Desalter Expansion	Replenishment Allocation to Pre-Peace II Desalters CDA	Balance	
2001	7,989	0	3,995	0	0	0	3,995
2002	9,458	0	4,729	0	0	0	4,729
2003	10,439	0	5,220	0	0	0	5,220
2004	10,605	0	5,303	0	0	0	5,303
2005	9,854	0	4,927	0	0	0	4,927
2006	16,476	0	11,579	0	0	400,000	4,897
2007	26,356	0	608	0	25,748	374,252	0
2008	26,356	0	0	0	26,356	347,896	0
2009	26,356	0	0	0	55,426	292,470	-29,070
2010	26,356	0	0	0	26,356	266,114	0
2011	28,965	0	0	0	28,965	237,149	0
2012	31,574	75	0	0	31,500	205,649	0
2013	34,182	442	0	5,000	28,740	171,909	0
2014	36,791	962	0	10,000	1,909	160,000	23,920
2015	39,320	1,629	0	10,000	0	150,000	27,691
2016	39,320	2,255	0	10,000	0	140,000	27,065
2017	39,320	2,771	0	10,000	0	130,000	26,549
2018	39,320	3,275	0	10,000	0	120,000	26,045
2019	39,320	3,767	0	10,000	0	110,000	25,553
2020	39,320	4,283	0	10,000	0	100,000	25,037
2021	39,320	4,764	0	10,000	0	90,000	24,556
2022	39,320	5,198	0	10,000	0	80,000	24,122
2023	39,320	5,570	0	10,000	0	70,000	23,750
2024	39,320	5,854	0	10,000	0	60,000	23,466
2025	39,320	5,959	0	10,000	0	50,000	23,361
2026	39,320	5,834	0	10,000	0	40,000	23,486
2027	39,320	5,698	0	10,000	0	30,000	23,622
2028	39,320	5,546	0	10,000	0	20,000	23,774
2029	39,320	5,479	0	10,000	0	10,000	23,841
2030	39,320	5,594	0	10,000	0	0	23,726
Totals	930,877	74,953	36,360	175,000	225,000		419,565

1. Source: WEI, Response to Condition Subsequent Number 7, November 2008

2. Note that the new yield projection shown above relates only to the storage reduction caused by the use of the re-operation water listed in this schedule. There was over 60,000 acre-ft of additional storage reduction that occurred during 2000/01 and 2005/06 that is not reflected in the new yield schedule. In the near future, Watermaster will determine the additional new yield created by the pre-Peace II reductions in storage and will include a new schedule for yield.

Source: Wildermuth Environmental, Inc. "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report)", November 2009

Table 4.3-5
PROJECTED GROUNDWATER PRODUCTION FOR THE CHINO BASIN

(acre-ft/yr)

Producer	Production Projection					
	2007/08	2009/10	2014/15	2019/20	2024/25	2029/30
Overlying Agricultural Pool						
Combined total Agricultural Pool Production	*25,612*	*21,492*	*13,251*	*5,010*	*5,010*	*5,010*
Overlying Non-Agricultural Pool						
San Bernardino Cty (Chino Airport)	0	0	0	0	0	0
Ameron Inc	0	0	0	0	0	0
California Steel Industries Inc	1,284	1,284	1,284	1,284	1,284	1,284
Swan Lake Mobile Home Park	0	0	0	0	0	0
Vulcan Materials Company	5	5	5	5	5	5
Space Center Mira Loma Inc.	0	0	0	0	0	0
Angelica Textile Service	29	29	29	29	29	29
Sunkist Growers Inc	147	147	147	147	147	147
Praxair Inc	0	0	0	0	0	0
General Electric Company	451	451	451	451	451	451
California Speedway	621	621	621	621	621	621
Reliant Energy Etiwanda	705	705	705	705	705	705
Subtotal Overlying Non-Agricultural Pool Production	*3,241*	*3,241*	*3,241*	*3,241*	*3,241*	*3,241*
Appropriative Pool						
Arrowhead Mountain Spring Water Company	332	263	0	0	0	0
Chino Desalter Authority	26,356	26,356	39,400	39,400	39,400	39,400
City of Chino	7,608	9,971	10,844	11,811	14,900	14,900
City of Chino Hills	3,815	4,823	4,823	4,823	4,823	4,823
City of Norco	0	0	0	0	0	0
City of Ontario	26,027	28,796	27,211	32,360	37,508	42,658
City of Pomona	13,188	13,000	13,000	13,000	13,000	13,000
City of Upland	1,729	1,284	2,140	2,140	2,140	2,140
Cucamonga Valley Water District	15,294	16,598	21,229	26,729	32,229	37,729
Fontana Union Water Company	0	0	0	0	0	0
Fontana Water Company	17,407	13,500	10,000	11,000	11,500	12,000
Jurupa Community Services District	15,934	20,087	18,123	21,616	21,616	21,616
Inland Empire Utilities Agency	0	0	0	0	0	0
Marygold Mutual Water Company	544	0	0	0	0	0
Metropolitan Water District of Southern California	0	0	0	0	0	0
Monte Vista Irrigation Company	0	0	0	0	0	0
Monte Vista Water District	14,250	16,000	17,000	18,500	20,000	21,500
Mutual Water Company of Glen Avon Heights	0	0	0	0	0	0
Niagara	988	657	795	838	770	770
San Antonio Water Company	416	894	1,149	1,282	1,282	1,282
San Bernardino County (Olympic Facility)	15	13	16	17	17	17
Santa Ana River Water Company	356	263	318	335	335	335
Golden State Water Company	599	329	397	419	419	419
West End Consolidated Water Company	0	0	0	0	0	0
West Valley Water District	0	0	0	0	0	0
Subtotal Appropriators	*144,857*	*152,834*	*166,445*	*184,269*	*199,939*	*212,589*
Total Production	173,710	177,567	182,937	192,520	208,190	220,840

Source: Wildermuth Environmental, Inc. "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report)", November 2009

For the Baseline Alternative, Figure 4.3-49 shows the production rights running fairly constant between 150,000 acre-ft/yr to 155,000 acre-ft/yr and an escalating replenishment obligation running from about 32,000 acre-ft/yr in 2009 to about 67,000 acre-ft/yr in 2030. For the Peace II Alternative, Figure 4.3-50 shows the production rights approximately equal to production through 2012 and, thereafter, running fairly constant between 161,000 acre-ft/yr to 167,000 acre-ft/yr and an escalating replenishment obligation running from about 16,000 acre-ft/yr in 2013 to about 57,000 acre-ft/yr in 2030.

Recharge and Replenishment Capacity

Figure 4.3-51 shows the locations of the recharge facilities used by Watermaster, the Chino Basin Water Conservation District (CBWCD), and the IEUA for storm and supplemental water recharge. At most of these recharge facilities, supplemental water can only be recharged during non-storm periods. At dedicated conservation basins, supplemental water may be recharged during storm periods, but there is a risk that it may be lost due to overflow.

Table 4.3-6 lists the recharge facilities, their operational availability for supplemental water recharge, their supplemental water recharge capacities, and the theoretical maximum recharge capacities for supplemental water recharge. The table is organized as follows:

- *The first column lists the recharge facilities and aggregates them by OBMP management zone*
- *The next twelve columns (columns 2 through 13) show the estimated availability of the recharge facilities by month, based on the mean availability of the recharge facilities in consideration of the number of storm events each month. Availability is dependent upon operation and maintenance schedules and forecasted precipitation. For a detailed description of the mean availability concept, see 2010 Recharge Master Plan Update, Technical Memorandum: Task 5 Replenishment Projections, Task 7.1 Supplemental Water Recharge Capacity (WEI, 2009).*
- *Column 14 contains the average recharge rate for each recharge facility or group of facilities. These rates were provided by the IEUA and are based on recent operational performance.*
- *Column 15 lists the supplemental water recharge capacity.*
- *Columns 16 through 20 list details associated with MWDSC turnouts.*
    - *Column 16 indicates which MWDSC turnout is tributary to each basin.*
    - *Columns 17 and 18 provide the turnouts' maximum and useful discharge rates to the recharge facilities. The useful discharge rate is what can be used without downstream losses.*
    - *Column 19 indicates whether a turnout's capacity limits the recharge capacity of a facility; "no" means that the capacity of the turnout exceeds the recharge capacity of the facility, and a positive value indicates that the recharge capacity is limited by turnout capacity.*
    - *Column 20 shows the annual theoretical supplemental water recharge capacity constrained by turnout capacity, which is estimated as the sum of the products of operational availability for each month times the number of days in each month times the average recharge rate of a given basin or the useful discharge rate for a given basin. As the table shows, CB13 is the only turnout with a discharge capacity that is less than the downstream recharge basin's capacity. CB13 is used to supply*

> *replenishment water to the San Sevaine Basins and was designed to discharge 33 cfs despite the 50 cfs average recharge rate of the San Sevaine Basins. The total maximum supplemental water recharge capacity for the Chino Basin, constrained by turnout capacity, is about 84,600 acre-ft/yr.*

The last five columns summarize the theoretical maximum supplemental water recharge capacity per year and per quarter.

The current value of maximum supplemental water recharge capacity, estimated to be about 84,600 acre-ft/yr, is assumed to be limited by the availability of the basins to receive supplemental water. It is assumed that Watermaster will acquire imported water from Metropolitan when available and purchase other non-Metropolitan imported water and have it wheeled to the basin through Metropolitan or other infrastructure.

Projected Replenishment

Watermaster purchases replenishment water when one or more of the parties overproduces. Table 4.3-7 shows the replenishment schedule for the Baseline and Peace II Alternatives. This table contains projected groundwater production, production rights, replenishment obligation, demand for replenishment, replenishment supply, the amount of imported water spread at recharge basins, and the amount of imported water recharged by injection. As noted above, the replenishment obligation for the Baseline Alternative is projected to be 32,000 in 2009 and about 67,000 acre-ft/yr by 2030. Watermaster has traditionally met its replenishment obligations by purchasing imported water from the MWDSC and purchasing water from the appropriators. In the past, the MWDSC was typically able to supply all of the replenishment needs in its service area with replenishment water service available seven out of ten years.

Recent court rulings regarding endangered species and the drought have severely limited the ability of the MWDSC and other State Water Project contractors to obtain SWP water. In 2008, the MWDSC provided a revised replenishment water service forecast, projecting that replenishment water would be available three out of ten years. In response to the current drought, the MWDSC has depleted water stored in its various storage programs, and it is likely that when surplus water is available, some or all of it will be used to refill the MWDSC's storage assets prior to being used for groundwater replenishment. The Chino Basin and the other major groundwater basins in the MWDSC service area that depend on replenishment water service may become seriously overdrafted in the next ten to twenty years unless other replenishment supplies are found, groundwater production is reduced, or both. Watermaster has an unbounded obligation to acquire replenishment water (literal reading of the Judgment and confirmed at the Watermaster 2006 and 2009 Strategic Planning Meetings) to meet replenishment obligations and <u>now plans to acquire new non-traditional supplemental water supplies.</u> These non-traditional supplemental water supplies could consist of MWDSC Tier 1 and Tier 2 service waters, if available, and other imported supplies from the Central Valley, the Colorado River, and other basins. In this investigation, MWDSC and non-traditional supplemental water supplies were used for replenishment with the following assumptions:

- *Non-traditional supplemental water supplies were assumed to be conveyed to the Chino Basin through MWDSC infrastructure and the Azusa-Devil Canyon Pipeline.*

- *Non-traditional supplemental water supplies from the Central Valley and the Colorado River were assumed to be available six out of ten years, corresponding to years when State Water Project allocations range from 25 to 75 percent.*
- *Deliveries to the Chino Basin through MWDSC infrastructure and the Azusa-Devil Canyon Pipeline were limited to a part of the facilities' unused capacity.*
- *The new supplemental water supply was assumed to be unavailable until 2013 to allow adequate time for planning and acquisition.*

The differences between the Baseline and Peace II alternatives in Table 4.3-7 occur for the following reasons:

- There is a 333,000 acre-foot difference in project production rights between the two alternatives. This occurs because Re-operation and new yield are added to the other production rights provided for in the Judgment and the Peace Agreement. Note that some Re-operation water is used prior to the period shown on Table 4.3-7.
- There is a 300,000 acre-foot difference in projected replenishment between the two alternatives. This occurs because Re-operation water is used to meet the replenishment obligation of the desalters.
- Table 4.3-7 assumes that Watermaster will acquire imported water from Metropolitan and from other sources if Metropolitan does not have enough water.
- Table 4.3-7 also includes the assumption, based on an analysis of the 2007 DWR SWP Delivery Reliability Report, that capacity to move non-Metropolitan water in the State and Metropolitan facilities would exist in six out of ten years. Thus, the WEI analysis concentrates imported water deliveries for replenishment in six out of ten years. WEI also conducted a preliminary review of the draft 2009 DWR SWP Delivery Reliability Report and concludes that this assumption is still valid and that it may be possible to schedule replenishment in six to seven out of ten years.

In summary, the modeling results appear to indicate that the Chino Basin would be unsustainable unless one or all of the following occurs: new imported water sources are located; curtailed pumping occurs; optimized production occurs; or pre-emptive replenishment occurs. Based on the data in Tables 4.3-6 and 4.3-7, future groundwater production from the Chino Basin as desired and forecast in the stakeholders, will be sustainable if Watermaster can acquire supplemental water supplies for replenishment in quantities that meet its replenishment demand. These supplemental supplies will likely include non-Metropolitan sources as Metropolitan has clearly stated that it will not have enough supplies for replenishment unless those supplies come from Tier 2 service.

Under these assumptions, WEI concludes that production should not need to be curtailed. Optimized production and replenishment patterns will likely be required in the future to assure the stakeholders that they will be able to produce groundwater in the quantities that they project for the future. It is difficult to predict how the stakeholders would really produce groundwater without optimization. Individually, they would likely begin to encounter production challenges and modify their operations subtly and incrementally, moving towards the optimized patterns suggested in the WEI modeling analysis. Preemptive replenishment should be implemented to ensure that the CURO is kept manageable.

Table 4.3-6

Supplemental Water Recharge Capacity Estimates[1]
Availability for Supplemental Water Recharge Based on Mean Number of Storm Events

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(16)	(17)	(18)	(19)	(21)	(22)	(23)	(24)	(25)
	Supplemental Water Recharge																					
	Operational Availability for Supplemental Water Recharge												Average Recharge Rate[2]	Turn Out Capacity				Theoretical Maximum Supplemental Water Recharge Capacity				
Basin	Quarter 3			Quarter 4			Quarter 1			Quarter 2				Turn Out Name	Max Discharge Rate	Useful Discharge Rate	Turn Out Limited[3]?					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	(cfs)		(cfs)	(cfs)		Annual	Q3	Q4	Q1	Q2
																		(acre-ft/Qtr)				
Brooks Street Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	5				No	2,474	652	794	281	746
College Heights Basins	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	15				No	7,421	1,957	2,383	843	2,238
Montclair Basin 1	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	40	OC59	80	80	No	19,789	5,219	6,355	2,247	5,968
Montclair Basin 2	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
Montclair Basin 3	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
Montclair Basin 4	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
Seventh and Eighth Street Basins	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	5	CB20	30	*30*	No	2,474	652	794	281	746
Upland Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	20	OC59	80	80	No	9,895	2,610	3,177	1,124	2,984
Subtotal Management Zone 1																		***42,052***	***11,091***	***13,504***	***4,775***	***12,682***
Ely Basins	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	5	CB20	30	*30*	No	2,474	652	794	281	746
Etiwanda Spreading Area (Joint Use of Etiwanda Debris Basin)	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	7	CB14	30	*30*	No	3,463	913	1,112	393	1,044
Hickory Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	5	CB18	30	30	No	2,474	652	794	281	746
Lower Day Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	9	CB15	30	20	No	4,453	1,174	1,430	506	1,343
San Sevaine No. 1	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	50	CB13	33	33	16,326	16,326	4,306	5,243	1,854	4,924
San Sevaine No. 2	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
San Sevaine No. 3	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
San Sevaine Nos. 4 and 5	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
Turner Basins Nos. 1 and 2	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	3	CB11	40	9	No	1,484	391	477	169	448
Turner Basins Nos. 3 and 4	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77										
Victoria Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	6	CB14	30	*30*	No	2,968	783	953	337	895
Subtotal Management Zone 2																		***33,641***	***8,872***	***10,803***	***3,820***	***10,146***
Banana Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	5	CB18	30	*30*	No	2,474	652	794	281	746
Declez Basin	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	6					2,968	783	953	337	895
IEUA RP3 Ponds	0.71	0.71	0.74	0.80	0.90	0.93	0.00	0.00	0.93	0.87	0.83	0.77	7					3,463	913	1,112	393	1,044
Subtotal Management Zone 3																		***8,905***	***2,349***	***2,860***	***1,011***	***2,686***
Total																		**84,598**	**22,312**	**27,166**	**9,606**	**25,514**

1 -- Historical recharge estimates provided by IEUA. Recharge basins not optimized for storm water recharge; actual recharge performance could be improved.
2 -- Per Andy Campbell of IEUA, August 2007
3 -- Turn Out Capacity for the San Sevaine Basins is 30 cfs but is limited to 23 cfs due to operational considerations on the Rialto Feeder; 23 cfs assumed. All other turnouts exceed the recharge capacity of spreading basins.

Table 4.3-7

Projected Groundwater Production, Replenishment, and Cumulative Unmet Replenishment Obligation
Baseline and Peace II Alternatives
(acre-ft)

Fiscal Year	Baseline Alternative							Peace II Alternative						
	Projected Production	Projected Production Rights	Projected Replenishment Obligation	Projected Replenishment			Cumulative Unmet Replenishment Obligation[1]	Projected Production	Projected Production Rights	Projected Replenishment Obligation	Projected Replenishment			Cumulative Unmet Replenishment Obligation
				Spreading	Injection	Total					Spreading	Injection	Total	
2007 - 2008	167,173	162,000	5,173	0	0	0	5,173	167,173	190,128	0	0	0	0	5,173
2008 - 2009	181,868	150,000	31,868	0	0	0	127,530	181,868	182,920	0	0	0	0	20,000
2009 - 2010	188,574	155,000	33,574	0	0	0	161,105	188,574	183,910	4,664	0	0	0	24,665
2010 - 2011	186,659	153,472	33,187	0	0	0	194,292	186,659	184,971	1,688	0	0	0	26,353
2011 - 2012	184,744	153,906	30,838	0	0	0	225,130	184,744	187,645	0	0	0	0	26,353
2012 - 2013	182,828	155,281	27,547	72,386	12,193	84,579	168,099	182,828	167,190	15,638	0	0	0	41,991
2013 - 2014	187,393	154,823	32,569	71,886	12,193	84,079	116,589	187,393	164,823	22,569	12,000	0	12,000	52,560
2014 - 2015	185,477	155,390	30,087	71,386	12,193	83,579	63,097	185,477	165,390	20,087	71,386	6,170	77,556	-4,909
2015 - 2016	186,953	153,317	33,635	70,886	12,193	83,079	13,654	186,953	163,317	23,635	70,886	6,170	77,056	-58,330
2016 - 2017	188,429	154,465	33,964	70,386	12,193	82,579	-34,961	188,429	164,465	23,964	70,386	6,170	76,556	-110,922
2017 - 2018	189,905	150,488	39,417	69,886	12,193	82,079	-77,623	189,905	160,488	29,417	69,886	6,170	76,056	-157,561
2018 - 2019	191,380	151,068	40,313	0	0	0	-37,310	191,380	161,068	30,313	0	0	0	-127,249
2019 - 2020	192,856	151,384	41,472	0	0	0	4,162	192,856	161,384	31,472	0	0	0	-95,777
2020 - 2021	195,925	151,930	43,995	0	0	0	48,157	195,925	161,930	33,995	0	0	0	-61,782
2021 - 2022	198,994	152,336	46,658	0	0	0	94,815	198,994	162,336	36,658	0	0	0	-25,124
2022 - 2023	202,064	152,791	49,273	66,186	19,632	85,818	58,269	202,064	162,791	39,273	66,186	6,170	72,356	-58,207
2023 - 2024	205,133	153,046	52,086	65,286	19,632	84,918	25,437	205,133	163,046	42,086	65,286	6,170	71,456	-87,577
2024 - 2025	208,202	153,152	55,050	64,386	19,632	84,018	-3,531	208,202	163,152	45,050	64,386	6,170	70,556	-113,083
2025 - 2026	210,632	153,157	57,475	63,486	19,632	83,118	-29,175	210,632	163,157	47,475	63,486	6,170	69,656	-135,264
2026 - 2027	213,062	153,167	59,895	62,586	19,632	82,218	-51,498	213,062	163,167	49,895	62,586	6,170	68,756	-154,125
2027 - 2028	215,492	153,177	62,315	61,686	19,632	81,318	-70,502	215,492	163,177	52,315	36,000	0	36,000	-137,810
2028 - 2029	217,922	153,286	64,636	0	0	0	-5,866	217,922	163,286	54,636	0	0	0	-83,175
2029 - 2030	220,852	153,445	67,407	0	0	0	61,541	220,852	163,445	57,407	0	0	0	-25,767
Total	4,502,517	3,530,081	972,436	810,435	190,949	1,001,384		4,502,517	3,867,187	662,238	652,476	55,530	708,006	
Average	195,762	153,482	42,280	35,236	8,302	43,538		195,762	168,139	28,793	28,369	2,414	30,783	

1. In 2009 the CURO increases by an additional 107,530 acre-ft for the Baseline Alternative to account for the unsatisfied replenishment obligation that would have occurred in the absence of re-operation.

Watermaster traditionally purchases replenishment water in arrears. That is, Watermaster determines that a replenishment obligation exists after the conclusion of a fiscal year and purchases replenishment water to cover this obligation in the subsequent year. With the current and expected future constraints on the availability of supplemental water for replenishment, it is likely that a large cumulative unmet replenishment obligation (CURO) will occur and could grow so large that Watermaster may not be able to catch up. This was first predicted in the original engineering work for the Peace II process and reported in 2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description (WEI, 2007a). Furthermore, this was discussed at the Watermaster 2009 Strategic Planning Meeting, and the consensus opinion of that meeting was that Watermaster would do what it takes to ensure that projected groundwater production could be sustained with acquisitions of replenishment water. In implementation, this means that Watermaster will have to purchase and recharge supplemental water when available and in advance of replenishment obligations, referred to herein as preemptive replenishment. This will require Watermaster to use some of the available storage space in the Chino Basin to store this water in advance of overproduction. Figure 4.3-52 shows the assumed replenishment deliveries to the Chino Basin, using the assumptions described above. Replenishment deliveries occur in years when unused capacity exists in the SWP and Colorado River aqueducts, the MWDSC infrastructure and the Azusa-Devil Canyon Pipeline, and recharge facilities in the Chino Basin.

Figures 4.3-53 and 4.3-54 show the projected replenishment obligation and the CURO for the Baseline and Peace II Alternatives, using the assumptions articulated above. A positive CURO indicates an outstanding replenishment obligation. A negative CURO indicates that Watermaster has recharged more supplemental water than required to meet an annual replenishment obligation and that this water is in storage in the Chino Basin.

Production and Replenishment Optimization

In 2007, a Baseline and three Peace II alternatives were modeled. The results of this modeling work are documented in 2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description (WEI, 2007a). The Baseline Alternative projected that groundwater levels in the southern Cucamonga Valley Water District (CVWD) service area would rapidly decline. In the out years, the computational cells near some of these wells dried up, effectively eliminating production. The JCSD service area also exhibited significant water level declines. In 2008, the DYYP Expansion investigation (WEI, 2008a) yielded similar results. A baseline condition with updated groundwater production estimates—similar to the projections listed in Table 4.3-5-—was modeled. The results indicated that production could not be sustained. In both of these modeling investigations, projected groundwater production had to be reduced for some appropriators. And, even with reduced groundwater production, significant pumping depressions developed. These groundwater level depressions are the result of projected and uncoordinated increases in groundwater production.

Based on the findings of the 2007 and 2008 modeling work, research was undertaken as part of this investigation to develop a near-optimal distribution of groundwater production and replenishment that would ensure sustainable production and reduce drawdown. This involved working with individual Chino Basin appropriators to determine how they could operate their wells with potential lower groundwater levels in the future, revising the locations and capacities of some planned wells, assigning well operating priorities, and prioritizing replenishment amounts and locations to better balance recharge and discharge in the Chino Basin.

The decision variables for the optimization were production rate, production well operating priority (production well location), and replenishment amount and location. Well production was constrained to meet production goals and to ensure that groundwater levels exceeded minimum levels at specific production wells. To meet production demands and groundwater level constraints, production must be spread out from the concentrated areas of production and targeted recharge must be conducted to balance recharge and discharge. Meetings were conducted with appropriators to review projected changes in groundwater levels, how their operations contributed to excessive drawdown, the optimization process, and to define the information needs for conducting the optimization. The information obtained from the appropriators included: planned future well locations, pump settings, the quantification of drawdown constraints relative to pump settings, and well priority. Well priority is the order in which wells are utilized to meet the projected production demand. Based on these data, operating constraints were prepared.

Drawdown constraints were prepared for the CVWD, Ontario, the JCSD, and the Monte Vista Water District (MVWD), and are listed in Table 4.3-8 by well. Drawdown was limited to 40 feet above the pump bowls for the CVWD, 20 feet above the pump bowls for Ontario, 20 feet above the pump bowls for the MVWD, and 10 feet above pump bowls for the JCSD. A pump bowl is the top of the pump assembly that must remain submerged to avoid cavitation and maintain suction head. These constraints were based on input from each agency.

The optimization process consisted of several model iterations with adjustments to decision variables to meet optimization constraints. The first optimization iteration was prepared with initial well operating priorities and initial recharge basin priorities for replenishment. A manual trial-and-error approach was used to iteratively adjust decision variables and to check constraints. Figure 4.3-55 illustrates the optimization process. Each iteration consisted of running the model, evaluating total groundwater production, evaluating satisfaction of the drawdown constrains, and revising the decision variables (production rate, production well operating priority, and replenishment amount and location).

The optimization was completed for the Baseline Alternative. Optimization iterations were completed until no significant improvements could be made in meeting the drawdown constraints. The projected groundwater production could be met, but all of the drawdown constraints could not. A total of ninety-eight wells, located across the Basin, were reviewed after each model iteration. Figure 4.3-56 shows the locations of these wells. Thirty-eight wells were used to track water levels outside areas where drawdown constraints were applied. For sixty of the ninety-eight wells, a drawdown limit was adhered to as a constraint of the optimization; of these wells, ten could not meet the drawdown constraints at all times. For those wells where drawdown constraints could not be met, it was assumed that the well owners would have to lower their pumps and make operational changes to sustain production. Appendix A contains water level hydrographs for each well.

The above reference to Appendix A refers to an appendix of the WEI study which is provided in Volume 2 of this DSEIR.

Table 4.3-8
OPTIMIZATION CONSTRAINTS

Well Name	Owner	Ground Surface Elevation[1] (ft)	Pump Setting (ft bgs[3])	Pump Setting Elevation[1] (ft)	Constraint Type[2]	Drawdown Constraint Elevation[1] (ft)
ONT 17	City of Ontario	958	448	510	Pump Setting Elev. + 20 ft	530
ONT 20	City of Ontario	1047	536	511	Pump Setting Elev. + 20 ft	531
ONT 24	City of Ontario	991	492	499	Pump Setting Elev. + 20 ft	519
ONT 25	City of Ontario	981	500	481	Pump Setting Elev. + 20 ft	501
ONT 26	City of Ontario	958	440	518	Pump Setting Elev. + 20 ft	538
ONT 27	City of Ontario	906	361	545	Pump Setting Elev. + 20 ft	565
ONT 29	City of Ontario	961	440	521	Pump Setting Elev. + 20 ft	541
ONT 31	City of Ontario	938	420	518	Pump Setting Elev. + 20 ft	538
ONT 34	City of Ontario	906	500	406	Pump Setting Elev. + 20 ft	426
ONT 35	City of Ontario	977	522	455	Pump Setting Elev. + 20 ft	475
ONT 36	City of Ontario	892	420	472	Pump Setting Elev. + 20 ft	492
ONT 37	City of Ontario	978	394	584	Pump Setting Elev. + 20 ft	604
ONT 38	City of Ontario	1014	634	380	Pump Setting Elev. + 20 ft	400
ONT 39	City of Ontario	981	390	591	Pump Setting Elev. + 20 ft	611
ONT 40	City of Ontario	989	323	666	Pump Setting Elev. + 20 ft	686
ONT 41	City of Ontario	1030	455	575	Pump Setting Elev. + 20 ft	595
ONT 44	City of Ontario	1075	603	472	Pump Setting Elev. + 20 ft	492
ONT 45	City of Ontario	1023	560	463	Pump Setting Elev. + 20 ft	483
ONT 46	City of Ontario	1200	695	505	Pump Setting Elev. + 20 ft	525
ONT 47	City of Ontario	1024	500	524	Pump Setting Elev. + 20 ft	544
ONT 49	City of Ontario	903	405	498	Pump Setting Elev. + 20 ft	518
ONT 50	City of Ontario	794	316	478	Pump Setting Elev. + 20 ft	498
ONT 52	City of Ontario	1097	656	441	Pump Setting Elev. + 20 ft	461
CB-3	CVWD	1063	550	513	Pump Setting Elev. + 40 ft	553
CB-5	CVWD	1093	520	573	Pump Setting Elev. + 40 ft	613
CB-4	CVWD	1093	640	453	Pump Setting Elev. + 40 ft	493
CB-30	CVWD	1089	640	449	Pump Setting Elev. + 40 ft	489
CB-38	CVWD	1089	620	469	Pump Setting Elev. + 40 ft	509
CB-39	CVWD	1280	665	615	Pump Setting Elev. + 40 ft	655
CB-40	CVWD	1276	875	401	Pump Setting Elev. + 40 ft	441
CB-41	CVWD	1098	663	435	Pump Setting Elev. + 40 ft	475
CB-42	CVWD	1093	622	471	Pump Setting Elev. + 40 ft	511
CB-46	CVWD	1083	800	283	Pump Setting Elev. + 40 ft	323
JCSD 06	JCSD	843	301	542	Pump Setting Elev. + 10 ft	552
JCSD 08	JCSD	766	250	516	Pump Setting Elev. + 10 ft	526
JCSD 11	JCSD	774	270	504	Pump Setting Elev. + 10 ft	514
JCSD 12	JCSD	772	300	472	Pump Setting Elev. + 10 ft	482
JCSD 14	JCSD	770	260	510	Pump Setting Elev. + 10 ft	520
JCSD 15	JCSD	789	262	527	Pump Setting Elev. + 10 ft	537
JCSD 16	JCSD	777	260	517	Pump Setting Elev. + 10 ft	527
JCSD 17	JCSD	824	295	529	Pump Setting Elev. + 10 ft	539
JCSD 18	JCSD	810	365	445	Pump Setting Elev. + 10 ft	455
JCSD 19	JCSD	843	261	582	Pump Setting Elev. + 10 ft	592
JCSD 20	JCSD	830	307	523	Pump Setting Elev. + 10 ft	533
JCSD 22	JCSD	812	283	529	Pump Setting Elev. + 10 ft	539
JCSD 23	JCSD	767	262	505	Pump Setting Elev. + 10 ft	515
JCSD 24	JCSD	747	320	427	Pump Setting Elev. + 10 ft	437
JCSD 25	JCSD	805	257	548	Pump Setting Elev. + 10 ft	558
MVWD 04	MVWD	1191	690	501	Pump Setting Elev. + 20 ft	521
MVWD 05	MVWD	1172	740	432	Pump Setting Elev. + 20 ft	452
MVWD 06	MVWD	1122	620	502	Pump Setting Elev. + 20 ft	522
MVWD 10	MVWD	1057	700	357	Pump Setting Elev. + 20 ft	377
MVWD 19	MVWD	1043	620	423	Pump Setting Elev. + 20 ft	443
MVWD 26	MVWD	1119	685	434	Pump Setting Elev. + 20 ft	454
MVWD 27	MVWD	1188	700	488	Pump Setting Elev. + 20 ft	508
MVWD 28	MVWD	1053	760	293	Pump Setting Elev. + 20 ft	313
MVWD 30	MVWD	1074	585	489	Pump Setting Elev. + 20 ft	509
MVWD 31	MVWD	1196	880	316	Pump Setting Elev. + 20 ft	336
MVWD 32	MVWD	1031	600	431	Pump Setting Elev. + 20 ft	451
MVWD 33	MVWD	1101	630	471	Pump Setting Elev. + 20 ft	491

1. All elevations in feet above mean sea level
2. Constraints provided by well owner.
3. bgs = below ground surface

Source: Wildermuth Environmental, Inc. “2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report)”, November 2009

Hydrologic Balance for the Baseline Alternative

The Baseline Alternative was simulated with the 2007 Watermaster Model to evaluate the hydrologic response of the Chino Basin to implementing the Baseline Alternative. The combined hydrologic water budget for the Chino North, Chino South, Chino East, and Prado Management Zones for the Baseline Alternative is shown in Table 4.3-9. This water budget table shows outflow from the Chino Basin, recharge from the Santa Ana River, and the change in storage. At the end of fiscal 2030, the storage in the basin is about 203,000 acre-ft less than at the start of the simulation. This 203,000 acre-ft decrease includes +62,000 acre-ft of CURO and, therefore, the ending storage, adjusted for CURO, is -141,000 acre-ft.

Santa Ana River recharge increases by about 14,000 acre-ft/yr over the planning period, and rising groundwater to the Santa Ana River decreases by about 5,000 acre-ft/yr, netting an increase of about 19,000 acre-ft/yr. Some of the increase in Santa Ana River recharge discharges to the Temescal Basin in response to a projected chronic overdraft in that basin.

Projected Groundwater Levels with the Baseline Alternative

Figures 4.3-57 and 4.3-58 show the estimated groundwater elevation contours for July 2005 for model layers 1 and 2, respectively. These maps show the initial groundwater elevations throughout the basin and illustrate the initial groundwater levels for the planning period. Figures 4.3-59 and 4.3-60 show the projected groundwater elevations in July 2030, the end of the planning period, for model layers 1 and 2, respectively. And, Figures 4.3-61 and 4.3-62 show the change in groundwater levels across the basin over the planning period for model layers 1 and 2, respectively. Figures 4.3-61 and 4.3.62 also show the appropriators' water service area boundaries.

The direction of groundwater flow in the Chino Basin is generally the same in 2005 and in 2030 with groundwater flowing from the northeast and north to the southwest and south. Some areas in the Basin experience slight groundwater elevation increases, though most of the basin experiences declines. Figures 4.3-59 and 4.3-60 show a groundwater depression in the desalter well field area. Over time, groundwater elevation changes are almost identical in layers 1 and 2 in the eastern half of the basin but are different in the western part of the basin with greater declines observed in layer 2.

Groundwater Level Changes in Water Service Areas

Figure 4.3-56 shows the locations of the appropriator wells that were used in the production and replenishment optimization, discussed in Section 4.3, and for which groundwater level projections were extracted from the Baseline Alternative simulation. Appendix B contains charts that illustrate the projected groundwater elevation time series for these 98 wells. Figures 4.3-63a through 4.3-63j illustrate projected groundwater elevations at some of these appropriator wells. And, Table 4.3-10 characterizes the average, maximum, and minimum groundwater elevation changes across the water service areas of appropriators that overlie the Chino Basin from 2005 through 2030.

Table 4.3-9

Water Budget for Chino North, Chino East, Chino South, and Prado Basin Management Zones

Baseline Alternative

(acre-ft)

	Inflows								Outflows					Change in Storage	Cumulative Change in Storage
					Artificial Recharge										
	Boundary Inflow	Temescal to PBMZ	Deep Percolation of Precipitation and Applied Water	Stream Recharge	Storm	Imported Water	Recycled Water	Subtotal Inflows	Production	PBMZ to Temescal	ET	Rising Groundwater	Subtotal Outflow		
2006	32,703	6,294	86,301	25,507	11,646	24,759	2,980	190,190	151,206	2,069	14,799	15,658	183,732	6,458	6,458
2007	32,703	6,354	82,094	28,342	11,646	0	2,340	163,479	174,244	2,058	14,469	14,284	205,055	-41,576	-35,119
2008	32,703	5,926	83,013	30,153	11,646	0	5,000	168,441	167,173	2,013	14,333	13,869	197,389	-28,948	-64,066
2009	32,703	5,417	83,671	31,742	11,646	0	5,000	170,180	181,868	1,986	14,131	13,295	211,280	-41,101	-105,167
2010	32,703	5,566	82,150	33,578	11,646	0	10,000	175,643	188,574	2,235	13,943	12,459	217,212	-41,569	-146,736
2011	32,703	5,508	81,850	34,961	11,646	0	10,500	177,167	186,659	2,305	13,835	12,000	214,799	-37,632	-184,368
2012	32,703	5,263	79,177	35,997	11,646	0	11,000	175,785	184,744	2,310	13,719	11,687	212,460	-36,675	-221,043
2013	32,703	4,987	78,267	36,458	11,646	80,886	11,500	256,446	182,828	2,304	13,619	11,493	210,245	46,202	-174,841
2014	32,703	4,708	77,834	36,891	11,646	80,386	12,000	256,169	187,393	2,297	13,468	11,155	214,312	41,856	-132,985
2015	32,703	4,438	77,243	37,343	11,646	79,886	12,500	255,759	185,477	2,290	13,332	10,860	211,959	43,800	-89,185
2016	32,703	4,179	76,196	37,320	11,646	79,386	13,000	254,429	186,953	2,284	13,278	10,796	213,311	41,118	-48,067
2017	32,703	3,935	75,761	36,962	11,646	78,886	13,500	253,393	188,429	2,279	13,270	10,855	214,832	38,561	-9,506
2018	32,703	3,707	74,232	36,423	11,646	78,386	14,000	251,096	189,905	2,274	13,288	10,989	216,455	34,641	25,135
2019	32,703	3,498	73,531	35,996	11,646	0	14,500	171,874	191,380	2,269	13,316	11,140	218,106	-46,232	-21,097
2020	32,703	3,303	71,573	36,110	11,646	0	15,000	170,335	192,856	2,266	13,332	11,194	219,648	-49,313	-70,410
2021	32,703	3,120	71,111	36,489	11,646	0	15,900	170,970	195,925	2,264	13,320	11,145	222,654	-51,684	-122,095
2022	32,703	2,951	70,147	37,117	11,646	0	16,800	171,364	198,994	2,261	13,271	10,982	225,509	-54,145	-176,240
2023	32,703	2,792	68,772	37,720	11,646	85,186	17,700	256,518	202,064	2,258	13,204	10,778	228,303	28,214	-148,026
2024	32,703	2,640	67,887	37,943	11,646	84,286	18,600	255,704	205,133	2,258	13,156	10,667	231,213	24,491	-123,535
2025	32,703	2,498	66,934	38,122	11,646	83,386	19,500	254,789	208,202	2,256	13,120	10,593	234,172	20,617	-102,918
2026	32,703	2,366	66,058	38,341	11,646	82,486	20,400	254,000	210,632	2,249	13,076	10,496	236,452	17,548	-85,371
2027	32,703	2,241	65,444	38,481	11,646	81,586	21,300	253,401	213,062	2,241	13,034	10,417	238,754	14,647	-70,723
2028	32,703	2,120	64,550	38,585	11,646	80,686	22,200	252,490	215,492	2,235	13,003	10,365	241,095	11,395	-59,328
2029	32,703	2,006	64,037	38,879	11,646	0	23,100	172,372	217,922	2,229	12,969	10,277	243,397	-71,025	-130,354
2030	32,703	1,903	63,215	39,704	11,646	0	24,000	173,170	220,852	2,224	12,911	10,087	246,075	-72,904	-203,258
Total	817,567	97,720	1,851,046	895,165	291,150	1,000,194	352,320	5,305,161	4,827,967	55,713	337,198	287,541	5,508,419	-203,258	
Average	32,703	3,909	74,042	35,807	11,646	40,008	14,093	212,206	193,119	2,229	13,488	11,502	220,337	-8,130	
Maximum	32,703	6,354	86,301	39,704	11,646	85,186	24,000	256,518	220,852	2,310	14,799	15,658	246,075	46,202	
Minimum	32,703	1,903	63,215	25,507	11,646	0	2,340	163,479	151,206	1,986	12,911	10,087	183,732	-72,904	

Table 4.3-10

Summary of Groundwater Level Changes by Water Service Area, 2005 through 2030

(feet)

Agency Service Area	Initial Groundwater Elevation (07/2005)			Projected Baseline Groundwater Elevation 06/2030			Projected Peace II Alternative Groundwater Elevation 06/2030			Projected Change in Groundwater Elevation Baseline 2030-2005			Projected Change in Groundwater Elevation Peace II Alternative 2030-2005			Projected Difference in Groundwater Elevation Between Baseline and Peace II Alternative		
Layer 1	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**	**Max**	**Min**	**Average**	**Max**	**Min**	**Average**	**Max**	**Min**	**Average**
Cucamonga Valley Water District	593	798	705	601	797	690	575	786	671	-38	10	-15	-56	-7	-34	-27	-11	-19
Fontana Water Company	617	824	742	607	797	736	591	789	723	-26	7	-6	-41	-6	-19	-18	-8	-13
City of Upland	603	685	636	567	688	632	540	672	610	-43	4	-3	-70	-14	-27	-28	-17	-23
City of Pomona	548	589	565	557	592	577	529	570	552	-23	21	11	-49	-3	-14	-28	-21	-25
Monte Vista Water District	561	612	583	560	593	575	532	575	551	-43	16	-8	-71	-5	-33	-28	-16	-24
City of Ontario	527	690	588	518	679	575	508	664	556	-40	6	-13	-57	-12	-32	-27	-10	-20
City of Chino	486	598	547	486	595	539	478	579	526	-27	5	-7	-43	0	-20	-25	0	-13
Jurupa Community Services District	507	701	587	506	695	569	504	692	561	-49	0	-18	-65	1	-26	-21	0	-8
Layer 2	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**	**Min**	**Max**	**Average**	**Max**	**Min**	**Average**	**Max**	**Min**	**Average**	**Max**	**Min**	**Average**
Cucamonga Valley Water District	591	799	705	595	798	690	570	787	671	-37	14	-15	-56	-7	-34	-25	-11	-19
Fontana Water Company	617	824	742	607	797	736	590	789	723	-26	9	-6	-41	-4	-19	-18	-8	-13
City of Upland	604	684	636	566	687	632	539	670	609	-43	4	-3	-70	-14	-26	-27	-17	-23
City of Pomona	529	561	545	501	537	525	478	512	501	-32	-14	-21	-56	-38	-44	-25	-20	-23
Monte Vista Water District	533	612	566	505	585	537	482	558	514	-47	-13	-28	-73	-38	-52	-27	-18	-23
City of Ontario	529	690	584	513	680	567	493	663	548	-40	6	-17	-60	-14	-36	-26	-10	-19
City of Chino	490	558	533	480	537	509	463	518	497	-63	0	-24	-80	0	-36	-21	0	-12
Jurupa Community Services District	507	657	564	501	649	541	493	634	531	-52	0	-23	-67	-1	-33	-21	0	-10

The groundwater elevation projections in Appendix B and in Figures 4.3-63a through 4.3-63j show that groundwater production is sustainable for the Baseline Alternative. At some wells, the groundwater elevation falls below the constraints prescribed by the appropriators. For these cases, it was assumed that the pumps would be lowered to maintain production. It is also the case that, under 2005 and the years immediately following, the constraint established by the appropriator was violated and yet those wells were in use.

As shown in Table 4.3-10, the average changes in layers 1 and 2 were essentially identical in eastern half of the Basin but were significantly different in the western half of the Basin. In layer 1, the average groundwater elevation change ranges from a low of -3 feet for the City of Upland (Upland) service area to -18 feet for the JCSD service area; in layer 2, it ranges from a low of -3 feet for the Upland service area to -28 feet for the MVWD service area.

The maximum and minimum groundwater elevation changes, depicted in Table 4.3-10, were computed for each 200-foot by 200-foot model cell. For example, the maximum layer 1 groundwater elevation change in a model cell within the CVWD service area is -38 feet, a decline of 38 feet for that cell from 2005 through 2030. The corresponding minimum layer 1 groundwater elevation change in a model cell within the CVWD service area is +10 feet, an increase of 10 feet for that cell from 2005 through 2030. In layer 1, the maximum groundwater elevation change ranges from a low of -23 feet for the City of Pomona (Pomona) service area to -49 feet for the JCSD service area; in layer 2, it ranges from a low of -26 feet for the Fontana Water Company (FWC) service area to -63 feet for the Chino service area. In layer 1, the minimum change in groundwater elevation ranges from a low of zero feet for the JCSD service area to +21 feet for the Pomona service area; in layer 2, it ranges from a low of -14 feet for the Pomona service area to +14 feet for the CVWD service area.

Hydraulic Control

Hydraulic control refers to the elimination or reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to negligible levels. It is a requirement of Watermaster and the IEUA's recycled water recharge permit and a condition to gaining access to the assimilative capacity for TDS and nitrogen afforded by the maximum benefit based TDS and nitrogen objectives. Hydraulic control was assessed from groundwater elevation contour maps.

Hydraulic control is weakest when water levels are highest in the southern portion of the basin. During the planning period, groundwater levels are the highest in the southern part of the basin in 2020 for the Baseline Alternative. Figure 4.3-64 is a groundwater elevation contour map for the lower part of the Chino Basin and shows the locations of the desalter well fields, directional groundwater flow vectors for every fifth model cell, and the southern boundary of the Chino North Management Zone. This map demonstrates that groundwater flows away from the Santa Ana River upstream of the Prado Reservoir, south of the Desalter II well field, and south of the eastern part of the Desalter I well field. There is some indication that hydraulic control is /achieved by the Baseline Alternative with a maximum groundwater level depression of about 9 feet in the center of the CCWF, relative to the apparent stagnation point down-gradient of the CCWF in 2020.

Hydraulic control was assessed from groundwater elevation contour maps. Hydraulic control is weakest when water levels are highest in the southern portion of the basin. During the planning *period, groundwater levels are the highest in the southern part of the basin in 2020 for the Peace II Alternative. Figures 4.3-65 a-b are a groundwater elevation contour map for the lower part of the Chino Basin and shows the locations of the desalter well fields, directional groundwater flow vectors for every fifth model cell, and the southern boundary of the Chino North Management Zone. This map demonstrates that groundwater flows away from the Santa Ana River upstream of the Prado Reservoir, south of the Desalter II well field, and south of the eastern part of the Desalter I well field. There is clear indication that hydraulic control is achieved by the Peace II Alternative with a maximum groundwater level depression of about 15 feet in the center of the CCWF, relative to the apparent stagnation point down-gradient of the CCWF. Relative to the Baseline Alternative, the state of hydraulic control achieved by the Peace II Alternative is much more significant and reliable.*

Modifications to the Baseline Alternative Required to Describe the Peace II Alternative

The Peace II Alternative is identical to the Baseline alternative except that the replenishment schedule has been modified to use Re-operation water from the schedule shown in Table 4.3-4 and to account for new recharge from the Santa Ana River caused by Re-operation The hydrologic response of the basin to the Peace II Alternative was estimated by simulating the implementation of the Peace II Alternative with the 2007 Watermaster Model. The model results are summarized compared to the Baseline Alternative.

Note that the Peace II Alternative requires less replenishment, see Tables 4.3-10 and 4.3-11, than the Baseline Alternative due to Re-operation. Also, the cumulative change in basin storage under the Peace II Alternative (200,000 acre-feet more than the Baseline Alternative) is considered a positive benefit to the Basin because it contributes to greater hydraulic control and greater new yield.

Hydrologic Balance and Santa Ana River New Yield

The Peace II Alternative was simulated with the 2007 Watermaster Model to evaluate the hydrologic response of the Chino Basin to implementing the Peace II Alternative. The combined hydrologic water budget for the Chino North, Chino South, Chino East, and Prado Management Zones for the Peace II Alternative is shown in Table 4.3-11. This water budget table shows outflow from the Chino Basin, recharge from the Santa Ana River, and the change in storage. At the end of fiscal 2030, the storage in the basin is 408,000 acre-ft less than at the start of the simulation. This 408,000 acre-ft decrease includes -26,000 acre-ft of CURO and, therefore, the ending storage, adjusted for CURO, is -432,000 acre-ft. At the end of the planning period, the Peace II Alternative reduces storage in the basin by 291,000 acre-ft more in comparison to the Baseline Alternative (-432,000 minus -141,000).

Santa Ana River recharge increases by about 18,000 acre-ft/yr over the planning period and the rising groundwater to the Santa Ana River decreases by about 7,000 acre-ft/yr, netting an increase of about 25,000 acre-ft/yr. Some of the increase in Santa Ana River recharge discharges to the Temescal Basin in response to a projected chronic overdraft in that basin. The Santa Ana River recharge is projected to increase by about 6,000 acre-ft/yr over the planning period with the implementation of the Peace II Alternative (25,000 minus 19,000). In sum, the increased recharge into the Chino Basin from the Santa Ana River and the decrease in discharge to the Santa Ana River and evapotranspiration total about 63,000 acre-ft over the planning period.

Table 4.3-11

Water Budget for Chino North, Chino East, Chino South, and Prado Basin Management Zones

Peace II Alternative

(acre-ft)

	Inflows								Outflows						
					Artificial Recharge										
	Boundary Inflow	Temescal to PBMZ	Deep Percolation of Precipitation and Applied Water	Stream Recharge	Storm	Imported Water	Recycled Water	Subtotal Inflows	Production	PBMZ to Temescal	ET	Rising Groundwater	Subtotal Outflow	Change in Storage	Cumulative Change in Storage
2006	32,703	6,294	86,301	25,502	11,646	24,759	2,980	190,185	151,206	2,069	14,799	15,663	183,737	6,448	6,448
2007	32,703	6,355	82,094	28,349	11,646	0	2,340	163,486	174,244	2,058	14,469	14,283	205,053	-41,567	-35,119
2008	32,703	5,925	83,013	30,165	11,646	0	5,000	168,452	167,173	2,013	14,335	13,868	197,389	-28,937	-64,056
2009	32,703	5,418	83,671	31,743	11,646	0	5,000	170,181	181,868	1,986	14,132	13,299	211,285	-41,104	-105,160
2010	32,703	5,566	82,150	33,576	11,646	0	10,000	175,641	188,574	2,235	13,944	12,462	217,216	-41,575	-146,735
2011	32,703	5,509	81,850	34,952	11,646	0	10,500	177,159	186,659	2,305	13,835	12,006	214,806	-37,647	-184,382
2012	32,703	5,263	79,177	35,988	11,646	0	11,000	175,776	184,744	2,310	13,720	11,692	212,465	-36,689	-221,072
2013	32,703	4,987	78,267	36,703	11,646	0	11,500	175,806	182,828	2,304	13,614	11,453	210,198	-34,392	-255,464
2014	32,703	4,710	77,834	37,934	11,646	12,000	12,000	188,826	187,393	2,297	13,429	10,958	214,076	-25,250	-280,714
2015	32,703	4,441	77,243	39,030	11,646	77,556	12,500	255,119	185,477	2,289	13,243	10,498	211,507	43,612	-237,102
2016	32,703	4,181	76,196	39,207	11,646	77,056	13,000	253,989	186,953	2,284	13,148	10,337	212,721	41,268	-195,834
2017	32,703	3,937	75,761	39,045	11,646	76,556	13,500	253,148	188,429	2,278	13,109	10,312	214,128	39,020	-156,814
2018	32,703	3,709	74,232	38,761	11,646	76,056	14,000	251,107	189,905	2,273	13,101	10,352	215,631	35,476	-121,338
2019	32,703	3,499	73,531	38,551	11,646	0	14,500	174,430	191,380	2,268	13,108	10,416	217,172	-42,742	-164,080
2020	32,703	3,305	71,573	38,807	11,646	0	15,000	173,034	192,856	2,265	13,109	10,407	218,637	-45,603	-209,682
2021	32,703	3,123	71,111	39,222	11,646	0	15,900	173,705	195,925	2,262	13,090	10,346	221,624	-47,919	-257,601
2022	32,703	2,953	70,147	39,853	11,646	0	16,800	174,102	198,994	2,260	13,043	10,200	224,497	-50,395	-307,997
2023	32,703	2,792	68,772	40,458	11,646	72,356	17,700	246,427	202,064	2,257	12,979	10,023	227,323	19,104	-288,893
2024	32,703	2,643	67,887	40,762	11,646	71,456	18,600	245,696	205,133	2,256	12,926	9,903	230,218	15,478	-273,415
2025	32,703	2,501	66,934	41,110	11,646	70,556	19,500	244,949	208,202	2,254	12,880	9,797	233,133	11,816	-261,599
2026	32,703	2,369	66,058	41,464	11,646	69,656	20,400	244,295	210,632	2,247	12,824	9,684	235,387	8,908	-252,690
2027	32,703	2,243	65,444	41,819	11,646	68,756	21,300	243,911	213,062	2,239	12,765	9,558	237,623	6,288	-246,402
2028	32,703	2,122	64,550	42,301	11,646	36,000	22,200	211,521	215,492	2,232	12,715	9,440	239,879	-28,358	-274,760
2029	32,703	2,009	64,037	43,098	11,646	0	23,100	176,594	217,922	2,226	12,654	9,267	242,069	-65,475	-340,236
2030	32,703	1,906	63,215	43,919	11,646	0	24,000	177,388	220,852	2,221	12,581	9,081	244,735	-67,347	-407,583
Total	817,567	97,759	1,851,046	942,320	291,150	732,765	352,320	5,084,927	4,827,967	55,686	333,549	275,308	5,492,510	-407,583	
Average	32,703	3,910	74,042	37,693	11,646	29,311	14,093	203,397	193,119	2,227	13,342	11,012	219,700	-16,303	
Maximum	32,703	6,355	86,301	43,919	11,646	77,556	24,000	255,119	220,852	2,310	14,799	15,663	244,735	43,612	
Minimum	32,703	1,906	63,215	25,502	11,646	0	2,340	163,486	151,206	1,986	12,581	9,081	183,737	-67,347	

Groundwater Level Changes in Water Service Areas

Figures 4.3-57 and 4.3-58 show the estimated groundwater elevation contours for July 2005 for model layers 1 and 2, respectively. These maps show the initial groundwater elevations throughout the basin and illustrate the initial groundwater levels for the planning period. Figures 4.3-66a and 4.3-66b show the projected groundwater elevations in June 2030, the end of the planning period, for model layers 1 and 2, respectively. Figures 4.3-67a and 4.3-67b show the change in groundwater levels across the basin over the planning period for model layers 1 and 2, respectively. And, Figures 4.3-67a and 4.3-67b show the difference in groundwater elevations for 2030 conditions relative to the Baseline Alternative for model layers 1 and 2, respectively. Figures 4.3-66a through 4.3-67b also show the appropriators' water service area boundaries.

The direction of groundwater flow in the Chino Basin in 2005 and 2030 is generally the same with groundwater flowing from the northeast and north to the southwest and south. Figure 4.3-56 shows the locations of appropriator wells that were used in the production and replenishment optimization that was discussed in Section 4.3 (WEI, Technical Appendices) *and for which groundwater level projections were extracted from the Peace II Alternative simulation. Appendix B* (WEI, Technical Appendices) *contains charts that illustrate the projected groundwater elevation time series for these 98 wells. Figures 4.3-63a-j illustrate projected groundwater elevations at some of these appropriator wells. And, Table 4.3-10 characterizes the average, maximum, and minimum changes in groundwater elevations across the water service areas of appropriators that overlie the Chino Basin for the Baseline and Peace II Alternatives from 2005 through 2030.*

The groundwater elevation projections in Appendix B and in 3s 4.3-62a-j show that groundwater production is sustainable for the Baseline and Peace II Alternatives. At some wells, the groundwater elevation falls below constraints prescribed by the appropriators. For these cases, it was assumed that the pumps would be lowered to maintain production. It is also the case that, under 2005 and the years immediately following, the constraint established by the appropriator was violated and yet those wells were in use.

As shown in Table 4.3-10, the average changes in layers 1 and 2 were essentially identical in eastern half of the basin but were significantly different in the western half of the basin. In layer 1, the average change in groundwater elevation ranges from a low of -14 feet for the Pomona service area to -34 feet for the CVWD service area; in layer 2, it ranges from a low of -19 feet for the FWC service area to -52 feet for the MVWD service area. Relative to the Baseline Alternative, in 2030, the average change in groundwater elevation ranges from a low of -8 feet for the JCSD service area to -25 feet for the Pomona service area; in layer 2, it ranges from a low of -10 feet for the JCSD service area to -23 feet for the MVWD, Pomona, and Upland service areas.

In layer 1, the maximum change in groundwater elevation ranges from a low of -41 feet for the FWC service area to -71 feet for the MVWD service area; in layer 2, it ranges from a low of -41 feet for the FWC service area to -80 feet for the Chino service area. In layer 1, the minimum change in groundwater elevation ranges from a low of +1 feet for the JCSD service area to -14 feet for the Upland service area; in layer 2, it ranges from a low of zero feet for the Chino service area to -38 feet for the Pomona and MVWD service areas.

Relative to the Baseline Alternative, in 2030, the maximum change in groundwater elevation ranges from a low of -18 feet for the FWC service area to -28 feet for the Pomona, Upland, and MVWD service areas; in layer 2, it ranges from a low of -18 feet for the FWC service area to -27 feet for the Upland and MVWD service areas. In layer 1, the minimum change in groundwater elevation relative to the Baseline Alternative ranges from a low of zero feet for the Chino and the JCSD service areas to -21 feet for the Pomona service area; in layer 2, it ranges from a low of zero feet for the Chino and JCSD service areas to -20 feet for the Pomona service area.

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?

Implementation of the proposed Peace II desalter expansion project would result in minor changes to absorption rates and the amount of runoff from the project sites associated with minor increases in hardscape because most of the infrastructure will be located in areas that are already developed and hardscaped. In general, most pipelines would be placed within existing roadways and would not alter the area of impermeable surface within such roadways. Also, many potential future facilities would be located within existing compounds that are already hard-sided such that any decrease in absorption rates would be minimal. The only potential future Peace II Program facilities that would be expected to substantially alter existing drainages would be stormwater detention facilities, none of which are specifically proposed at this time.

Because it is not known what future projects may be evaluated as part of the Peace II Program, it is not possible to evaluate all of the potential drainage system impacts associated with the Program at this time. Direct impacts to drainage patterns and site runoff from future specific Peace II facilities/projects will be assessed through site review and evaluation on a project-by-project basis, after project specifics are known. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines. With this in mind, to reduce potential impacts to a less than significant level, mitigation is incorporated to require no net increase in stormwater flows off of project sites greater than one half acre or a drainage study would be prepared and any changes in runoff would identified and mitigation proposed (if surface runoff would be increased substantially) prior to construction activities at all Peace II-related projects that would increase impervious area. Mitigation is also outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent drainage impacts that may occur as a result of future projects associated with the Peace II.

e. 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, such as from areas of material storage, vehicle or equipment maintenance (including washing or detailing), waste handling, hazardous materials handling or storage, delivery areas, loading docks, or other outdoor areas? Also, require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

As stated under item (d) above, to reduce potential impacts to a less than significant level, mitigation is incorporated to require no net increase in stormwater flows off of project sites greater than one half acre or a drainage study prior to construction activities at all Peace II-related projects that would increase impervious area. Mitigation is also outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent drainage impacts that may occur as a result of future projects associated with the Peace II. Please refer to item (d) for a more detailed discussion and to Section 4.3.4 for the mitigation measures.

Potential water quality issues are addressed under item (a). Further analysis of hazardous material management was addressed in Section VII Hazards and Hazardous Materials of the Initial Study. Mitigation measures VII-1 through VII-5 are provided in the Initial Study to prevent hazardous materials from posing a threat. Additionally, item (c) of Section VIII Hydrology and Water Quality in the Initial Study details the Storm Water Pollution Prevention Plan (SWPPP) and Water Quality Management Plan (WQMP) requirements and provides mitigation measures VIII-1 and VIII-2 to reduce the potential adverse impact from polluted runoff to a less than significant level. The topic of mobilizing existing contaminated groundwater plumes within the Basin is addressed in the following section.

f. Otherwise substantially degrade water quality?

One of the issues of concern related to implementation of the Peace II Program is the possibility of mobilizing existing contaminated groundwater plumes located within the Chino Basin. The WEI study examined the potential impacts to each of the plumes and the potential adverse impacts to the contaminated plumes are described in the following text. The estimated 2008 location of contaminated plumes (water quality anomalies) is presented in Figures 4.3-68a and b. Each of the plumes is discussed below and an evaluation of how they may be affected by implementation of the Baseline Alternative is provided. The analysis is directly abstracted from the WEI study and the study text is shown in italics. The only change is for figures and tables which have been renumbered to fit the DSEIR text.

Groundwater Plume Descriptions

Chino Airport. The Chino Airport is located approximately four miles east of Chino and six miles south of Ontario International Airport and occupies about 895 acres. From the early 1940s until 1948, the Airport was owned by the Department of Defense and used for flight training, aircraft storage and maintenance, and aircraft salvage operations. The County of San Bernardino acquired the airport in 1948 and has since operated and/or leased portions of the facility. Past and present businesses and activities at the airport since 1948 have included the modification of military aircraft; crop-dusting; aircraft-engine repair; aircraft painting, stripping, and washing; dispensing of fire-retardant chemicals to fight forest fires; and general aircraft maintenance. The use of organic solvents for various manufacturing and industrial purposes is widespread throughout the airport's history (RWQCB, 1990). From 1986 to 1988, a number of groundwater quality investigations were performed in the vicinity of Chino Airport. Analytical results from groundwater sampling revealed the presence of VOCs above MCLs in six wells down gradient of the Chino Airport. The most common VOC detected above its MCL was TCE with concentrations ranging from 6 to 75 µg/L. The plume is elongate in shape, up to 3,600 feet wide, and extends approximately 14,200 feet from the airport's northern boundary in a south to southwestern direction.

General Electric Flatiron Facility. The General Electric Flatiron Facility (Flatiron Facility) occupied the site at 234 East Main Street, Ontario, California from the early 1900s to 1982. Its operations primarily consisted of manufacturing clothes irons. Currently, the site is occupied by an industrial park. The RWQCB issued an investigative order to General Electric (GE) in 1987 *after an inactive well in Ontario was found to contain TCE and chromium above drinking water standards. Analytical results from groundwater sampling have indicated that VOCs and total dissolved chromium are the major groundwater contaminants in this plume. The most common VOC detected at levels significantly above its MCL is TCE, which reached a measured maximum concentration of 3,700 µg/L. Other VOCs—including PCE, toluene, and total xylenes—are periodically detected but commonly below MCLs (Geomatrix Consultants, 1997). The plume is up to 3,400 feet wide and extends about 9,000 feet south-southwest (hydraulically down gradient) from the southern border of the site. From 2001 to 2006, the maximum TCE concentration in groundwater detected at an individual well within the Flatiron Facility plume was 3,200 µg/L. The plume is currently being remediated by GE and is considered fully contained by a well extraction system.*

General Electric Test Cell Facility. The GE Engine Maintenance Center Test Cell Facility (Test Cell Facility) is located at 1923 East Avon, Ontario, California. Primary operations at the Test Cell Facility included the testing and maintenance of aircraft engines. A soil and groundwater investigation, followed by a subsequent quarterly groundwater monitoring program, began in 1991 (Dames & Moore, 1996). The results of these investigations showed that VOCs exist in the soil and groundwater beneath the Test Cell Facility and that the released VOCs had migrated offsite. Analytical results from subsequent investigations indicated that the most common and abundant VOC detected in groundwater beneath the Test Cell Facility was TCE. The historical maximum TCE concentration measured at an onsite monitoring well (directly beneath the Test Cell Facility) was 1,240 µg/L. The historical maximum TCE concentration measured at an offsite monitoring well (down gradient) was 190 µg/L (BDM International, 1997). Other VOCs that have been detected include PCE, cis-1,2-DCE, 1,2-dicholoropropane, 1,1-DCE, 1,1-DCA, benzene, toluene, xylenes, and others. The plume is elongate in shape, up to 2,400 feet wide, and extends approximately 10,300 feet from the Test Cell Facility in a southwesterly direction. From 2001 to 2006, the maximum TCE and PCE concentrations in groundwater detected at an individual well within the Test Cell Facility plume were 900 µg/L and 17 µg/L, respectively.

Kaiser Steel, Fontana Steel Site. Between 1943 and 1983, the Kaiser Steel Corporation (Kaiser) operated an integrated steel manufacturing facility in Fontana. During the first 30 years of operations (1945-1974), a portion of Kaiser's brine wastewater was discharged to surface impoundments and allowed to percolate into the soil. In the early 1970s, the surface impoundments were lined to eliminate percolation to groundwater (Mark J. Wildermuth, 1991). In July 1983, Kaiser initiated a groundwater investigation that revealed the presence of a plume of degraded groundwater under the facility. In August 1987, the RWQCB issued CAO Number 87-121, which required additional groundwater investigations and remediation activities. The results of these investigations showed that the major constituents of release to groundwater were inorganic dissolved solids and low molecular weight organic compounds. The wells sampled during the groundwater investigations had TDS concentrations ranging from 500 to 1,200 mg/L and TOC concentrations ranging from 1 to 70 mg/L. As of November 1991, the plume had migrated almost entirely off the Kaiser site. Based on a limited number of wells, including City of Ontario Well No. 30, the plume is up to 3,400 feet wide and extends about 17,500 feet from northeast to southwest.

Milliken Landfill. The Milliken Sanitary Landfill (MSL) is a Class III Municipal Solid Waste Management Unit, located near the intersections of Milliken Avenue and Mission Boulevard in Ontario. This facility is owned by the County of San Bernardino and managed by the County's

Waste System Division. The facility was opened in 1958 and continues to accept waste within an approximate 140-acre portion of the 196-acre permitted area (GeoLogic Associates, 1998). Groundwater monitoring at the MSL began in 1987 with five monitoring wells as part of a Solid Waste Assessment Test investigation (IT, 1989). The results of this investigation indicated that the MSL had released organic and inorganic compounds to the underlying groundwater. Due to the presence of such compounds, the MSL conducted an evaluation monitoring program investigation. Following the completion of the evaluation monitoring program, a total of 29 monitoring wells were drilled to evaluate the nature and extent of the groundwater impacts identified in the vicinity of the MSL (GeoLogic Associates, 1998). Analytical results from groundwater sampling have indicated that VOCs are the major constituents of release. The most common VOCs detected are TCE, PCE, and dichlorodifluoromethane. Other VOCs detected above their MCLs include vinyl chloride, benzene, 1,1-dichloroethane, and 1,2-dichloropropane. The historical maximum total VOC concentration detected at an individual monitoring well is 159.6 µg/L (GeoLogic Associates, 1998). The plume is up to 1,800 feet wide and extends about 2,100 feet south of the MSL's southern border. From 2001 to 2006, the maximum TCE and PCE concentrations detected at an individual well within the MSL plume were 96 µg/L and 44 µg/L, respectively.

<u>Ontario International Airport.</u> A VOC plume, primarily containing TCE, exists south of the Ontario Airport. This plume extends approximately from State Route 60 on the north and Haven Avenue on the east to Cloverdale Road on the south and South Grove Avenue on the west. In July 2005, draft CAOs were issued by the RWQCB. These CAOs were presented to the companies that they named in August 2005. From 2001 to 2006, the maximum TCE concentration detected at an individual well within this plume was 38 µg/L. The plume is up to 17,700 feet wide and 20,450 feet long.

<u>Pomona Area Plume.</u> This VOC plume is uncharacterized. It extends approximately from Holt Boulevard on the north and East End Avenue on the east to Philadelphia Street on the south and Towne Avenue on the west. From 2000 to 2008, the maximum TCE concentration within this plume was 46 µg/L. The plume is up to 5,000 feet wide and 7,900 feet long.

<u>Stringfellow NPL Site.</u> The Stringfellow site is on the current NPL of Superfund Sites. This site is located in Pyrite Canyon north of Highway 60 near the community of Glen Avon in Riverside County (see Figure 4.3-68a). From 1956 until 1972, this 17-acre site was operated as a hazardous waste disposal facility. More than 34-million gallons of industrial waste—primarily from metal finishing, electroplating, and pesticide production—were deposited at the site (US EPA, 2001). A groundwater plume of site-related contaminants exists underneath portions of the Glen Avon area. Groundwater at the site contains various VOCs, perchlorate, NDMA, and trace metals, such as cadmium, nickel, chromium, and manganese. In the original disposal area, soil is contaminated with pesticides, polychlorinated biphenyls (PCBs), sulfates, perchlorate, and trace metals. The original disposal area is covered by a clay cap, fenced, and guarded by security services.

Contamination at the Stringfellow site has been addressed by cleanup remedies described in four EPA RODs. Since 1986, cleanup actions have focused on controlling the source of contamination, installing an onsite pretreatment plant, the cleanup of the lower part of Pyrite Canyon, and the cleanup of the community groundwater area below Highway 60. In 1996, the DTSC assumed responsibility for the maintenance of the Stringfellow Superfund Site through a

Cooperative Agreement with the USEPA. In December 2007, the DTSC submitted the Draft Final Supplemental Feasibility Study (SFS), which identified and evaluated the final remedial alternatives for cleanup. The 2007 Draft SFS is a revised version of an earlier 2000 draft; reconsideration was required after perchlorate and other new contaminates were discovered in 2001. Once finalized, the SFS will be used by the US EPA to select a final remedial strategy and prepare a draft ROD. The draft ROD is anticipated in December 2009.

Figure 4.3-68a shows the approximate areal extent of the Stringfellow VOC plume as of 2008. The VOC plume is elongate in shape, up to 1,500 feet wide, and extends approximately 14,500 feet from the original disposal area in a southwesterly direction. The most common VOC detected at levels above the MCL is TCE. There are approximately 70 extraction wells throughout the length of the plume, which have been effective in stopping plume migration and removing TCE contamination. South of Highway 60, there are only a few isolated areas where TCE exceeds 5 µg/L (DTSC, 2008). During the 2003 to 2008 period, the maximum TCE concentration detected in the Stringfellow plume was 170 µg/L.

High levels of perchlorate associated with the Stringfellow site were detected south of Highway 60 in 2001. Residents connected to JCSD water service were provided bottled water, and the DTSC contracted to install water mains and hookups at each residence. Concurrent with the SFS, the DTSC is conducting a Remedial Investigation and Feasibility Study of remedial alternatives for perchlorate in the downgradient community area. As with TCE, the operation of the groundwater treatment system has resulted in a reduction of perchlorate. Since its discovery in 2001, perchlorate concentrations have been reduced by 30% to 50% throughout the monitored area (DTSC, 2008). Figure 4.3-68a shows the approximate areal extent of perchlorate concentrations exceeding the Notification Level (6 µg/L) as of 2008. The perchlorate plume is elongate in shape, up to 2,000 feet wide, and extends approximately 25,000 feet to the southwest from the original disposal area. During the 2003 to 2008 period, the maximum perchlorate concentration detected in the Stringfellow plume was 870 µg/L.

Projected Plume Movement under the Baseline Alternative

Figure 4.3-68a illustrates the locations of these groundwater contaminant plumes, with the exception of the Kaiser Plume, at the beginning of the planning period and their estimated locations at the end of the planning period for the Baseline Alternative. Figure 4.3-68b is a similar map for the Kaiser Plume. The plume locations at the start of the planning period were mapped from recent data (2006). Initial concentrations were prepared as input files for MT3D (Zheng & Wang, 1999). MT3D is a 3-dimensional solute transport model code for the simulation of advection, dispersion, and chemical reactions of dissolved constituents in groundwater systems. This code, in conjunction with the 2007 Watermaster Model, was used to simulate plume movement during the planning period. The simulation results for the Baseline Alternative are discussed below for each contaminant plume:

- *Chino Airport – At the beginning of the planning period, the Chino Airport plume underlies and extends southwest of the Chino Airport. In the Baseline Alternative simulation, the leading edge of the plume travels approximately 1.0 miles in a southeasterly direction. The primary factors that affected plume migration were regional hydraulic gradient and desalter groundwater production. At the end of the planning period, the plume is south and east of Pine and Euclid Avenues, underlying* *the northern reaches of the Prado Flood Control Basin. A significant part of the plume is captured in the CCWF.*

- *General Electric Flatiron Facility – At the beginning of the planning period, the GE Flatiron plume extends south of Mission Boulevard along Euclid Avenue. In the Baseline Alternative simulation, the leading edge of the plume travels approximately 0.5 miles in a southerly direction. The primary factors that affected plume migration in the simulations were regional hydraulic gradient, local groundwater production, and recharge at the Ely Basins. The model-projected extension of the plume will probably not occur as GE's remediation program includes monitoring that would detect movement beyond the current plume location and features a treatment system that could be adjusted to ensure containment.*

- *General Electric Test Cell Facility – At the beginning of the planning period, the GE Test Cell plume is located south of the Ontario Airport, extending southwest of Mission Boulevard to Grove Avenue. In the Baseline Alternative simulation, the leading edge of the plume travels approximately 0.6 miles in a westerly direction north of the Ely Basins and slightly north towards some of City of Ontario's wells. The primary factors that affected plume migration in the simulations were regional hydraulic gradient, local groundwater production, and recharge at the Ely Basins.*

- *Kaiser Steel Fontana Steel Site – The location of the Kaiser plume is shown in Figure 4.3-68b. Its starting location was estimated using past modeling studies (through the mid-1980s) and updated through 2007/08. Kaiser stopped monitoring in the early 1990s. Thus, the projection described herein is more speculative than those of the other plumes. At the beginning of the planning period, the elongated Kaiser plume extends in a southwesterly direction from the former Kaiser Steel site to Mission Boulevard. In the Baseline simulation, the leading edge of the plume travel approximately 4.4 miles in the southwesterly direction to the Desalter II well field. The Kaiser plume is completely intercepted by the Desalter II well field. The primary factors that affected plume migration in the simulations were regional hydraulic gradient and groundwater production at wells owned by Ontario, the JCSD, and the Chino Desalter Authority. At the end of the planning period, the plume is aligned along the west side of Interstate 15 between S. Archibald Avenue and S. Milliken Avenue, north and south of Highway 60.*

- *Milliken Landfill – At the beginning of the planning period, the Milliken Landfill plume extends southwest from the landfill site, just north of Mission Boulevard. In the Baseline Alternative simulation, the leading edge of the plume travels approximately 1.2 miles in the southerly direction. The primary factors that affected plume migration in the simulations were regional hydraulic gradient and local groundwater production. At the end of the planning period, the plume is located just southeast of the intersection of E. Chino Avenue and Haven Avenue.*

- *Ontario International Airport Plume – At the beginning of the planning period, the plume underlies a broad area south of Riverside Drive, north of Kimball Avenue, west of Grove Avenue, and east of Archibald Avenue. In the Baseline Alternative simulation,* *the leading edge of the plume is completely intercepted by the Desalter I well field. The primary factors that affected plume migration in the simulation were regional hydraulic gradient, local groundwater production, and the Desalter I well field.*

- *Stringfellow NPL Site – At the beginning of the planning period, the plume underlies the area south of Highway 60 and about 1,000 feet north of the Santa Ana River. In the Baseline Alternative simulation, the plume is projected to be intercepted by the Santa Ana River Water Company well field and the Desalter II well field. The primary factors that affected plume migration in the simulation were hydraulic gradient, local groundwater production, and the Desalter II well field. At the end of the planning period, the plume is L-shaped and located just north of Bellegrave Avenue.*

- *Pomona Area Plume – At the beginning of the planning period, the plume underlies the area south of Holt Boulevard and north of Philadelphia Street. In the Baseline Alternative simulation, the plume is projected to be intercepted by the Pomona wells. The primary factor that affected plume migration is groundwater production at the Pomona well field.*

The modeling analysis indicates that the contaminated plumes will migrate as a result of natural groundwater flows within the Basin, but that the proposed Peace II Agreement program actions may induce additional directional migration from existing locations to those locations identified in the analysis presented above and shown on Figures 4.3-68a and -68b. The exceptions to this finding are based on facilities, such as the General Electric Flatiron Facility, that already have an active capture and treatment system. Several of the plumes are forecast to intercept the Desalter 1 and 2 well fields where the groundwater extractions will be delivered to treatment facilities that can remove the contaminants.

Figure 4.3-68a illustrates the locations of all the groundwater contaminant plumes, with the exception of the Kaiser Plume, at the beginning of the planning period and their estimated locations at the end of the planning period for the Baseline and Peace II Alternatives. Figure 4.3-68b is a similar map for the Kaiser Plume. The plume locations at the start of the planning period were mapped from recent data (2006). The projected plume paths, timing and geographic extent are essentially identical for the Baseline and Peace II Alternatives. That is, the implementation of the Peace II Alternative has no significant effect on the movement of these contaminant plumes.

Regardless, the proposed project, Peace II, may contribute to continued movement of these plumes and may contaminate a greater volume of groundwater with a variety of contaminants, ranging from heavy metals to volatile organic compounds. Since this contribution is in addition to the flow of groundwater within the Basin (generally north to south) and the Baseline modeled flows, it is considered to be a potential cumulatively considerable adverse impact. To mitigate this impact the Peace II Agreement stakeholders will need to continue its program actions including the following: continue to monitor the plumes and annually verify where concentrations of contaminants exceed Maximum Contaminant Levels (MCLs) or regulatory agency Action Levels, where pertinent; if they spread as forecast, the Chino Basin Watermaster and Chino Desalter Authority (CDA) shall ensure that desalter systems are equipped to treat groundwater extracted above acceptable thresholds and remove contaminants to acceptable regulatory thresholds; and where individual stakeholder wells are adversely impacted by contaminant concentrations above acceptable thresholds, the Watermaster shall assist in reducing such contaminant concentrations to acceptable regulatory thresholds. Certain variations on this approach may include: intentionally installing groundwater wells in the vicinity of contaminant plumes to extract and treat the groundwater to potable drinking standards.

The validity of the above mitigation approach is that the Desalter wells and other wells within the contaminant plumes already extract contaminated groundwater; treat it to acceptable levels; and deliver the potable water to local drinking water purveyors. With implementation of the above described measure, the proposed project's cumulative contribution to potential adverse impact to existing contaminated plumes can be controlled to a less than significant impact level.

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The FEMA FIRM panels for the Chino Basin are provided in the technical appendices in digital format. The index for San Bernardino County is found in file "06071CIND1B.tif" and for Riverside County is found in file "06065CIND1A.tif" on Disc 1 of the FEMA maps (Appendix 4 of Volume 2, Technical Appendices. The index maps provide the panel number for specific areas within each county, which if located within the Chino Basin are provided on the disc listed by panel number.

Future Peace II projects have the potential to place individual infrastructure facilities within 100-year floodplains. Some potential projects, such as pipeline alignments, would be installed below ground, and therefore, once installed would have no potential to impede or redirect flows. However, the construction activities associated with subsurface facilities, such as pipelines, could temporarily impact flows and would require coordination with County Flood Control and other applicable regulatory agencies before implementation if proposed facilities cross or are within jurisdictional waters or adjacent to flood control channels and easements. Other potential facilities would have the potential to impact flows if placed above ground within 100-year flood plains (such as wells). The only potential future Peace II Program facilities that would be expected to substantially impede or redirect flood flows would be stormwater detention facilities, none of which are specifically proposed at this time.

Because it is not known what future projects may be evaluated as part of the Peace II Program, it is not possible to evaluate all of the potential impacts within 100-year flood hazard areas associated with the Program at this time. Direct impacts to flood flows within 100-year flood hazard areas will be assessed through site review and evaluation on a project-by-project basis, after project specifics are known. The FIRM maps provided in the technical appendices will facilitate evaluation of future projects proposed under Peace II as they are considered. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines. With this in mind, to reduce potential impacts to a less than significant level, mitigation is outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent impacts that might impede or redirect flood flows as a result of future projects associated with the Peace II.

i. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impact.

As stated under item (d) above, to reduce potential impacts to a less than significant level, mitigation is incorporated to require no net increase in stormwater flows off of project sites greater than one half acre or a drainage study prior to construction activities at all Peace II-related projects that would increase impervious area. Mitigation is also outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent drainage impacts that may occur as a result of future projects associated with the Peace II. Please refer to item (d) for a more detailed discussion and to Section 4.3.4 for the mitigation measures.

Utilities and Service Systems Outstanding Issues

b. 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?

SARI line treatment capacity is the only outstanding concern with respect to the capacity of water and wastewater treatment facilities.

The proposed Desalter II expansion would require approximately 1.26 MGD of SARI pipeline and treatment capacity. Currently, IEUA has unused capacity of 0.77 MGD for treatment and 2.64 MGD within the pipeline for Desalter II. Thus, the proposed expansion would exceed the IEUA owned treatment capacity currently available for Desalter II by 0.49 MGD.

SARI capacity can be purchased, sold or transferred through Santa Ana Watershed Project Authority (SAWPA) to accommodate the increase in brine discharged to SARI from desalter expansion. As stated above, IEUA has the existing pipeline capacity for the desalter expansion, but is deficient in treatment capacity by 0.49 MGD. SARI pipeline capacity is contracted with SAWPA while treatment capacity is contracted with OCSD. Based on the agreement between IEUA and OCSD, IEUA has the option to purchase more treatment and disposal rights from OCSD in the future.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District (JCSD), the City of Ontario, and/or Western Municipal Water District (WMWD). As of June 30, 2008, WMWD owned 1.148 MGD of unused SARI pipeline capacity and 0.630 MGD of unused treatment capacity (Jack Safely, WMWD, pers. com.) Thus WMWD has sufficient excess treatment capacity that, subject to WMWD Board approval, could be bought, sold or transferred to treat the additional brine produced by the desalter expansion. JCSD also has unused capacity that, subject to JCSD Board approval, could be bought, sold or transferred to treat the additional brine produced by the desalter expansion (Michelle Lauffer, JCSD, pers com.) The CDA stakeholders have discussed concentrating the brine to reduce the hydraulic flow rates as an additional method to provide increased SARI capacity.

Based on the above discussion, sufficient treatment capacity for increased SARI line flows from implementing the Peace II Agreement is available to serve the desalter expansion. However, to ensure that adequate transport and treatment capacity is available in a timely manner, a mitigation measure is provided to address this issue. The measure outlined below requires monitoring of the stakeholders transport and treatment capacity in the SARI line, and, prior to initiating Desalter II treatment activities that will generate the additional brine effluent, the stakeholders shall commit sufficient transport and treatment capacity to support Desalter II operations. Adequate capacity has been identified as part of the analysis above, so the issue is not one of availability, only a commitment by stakeholders benefiting from the expanded Desalter II operation.

b. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Please refer to the cumulative analysis of water resources provided in Section 4.3.5.2.b above which indicates that under the specific assumptions developed to support the Peace II Agreement, adequate groundwater supplies can be produced from the Chino Basin over the 20 year life of the program to serve Chino Basin Stakeholders water requirements. This includes operating the Basin under the Peace II Agreement program and acquiring limited additional water supply from State Water Project and/or Colorado River supply sources above and beyond that which may be delivered by the Metropolitan. Methods and timing for achieving the additional water resource for import into the Chino Basin are described in Section 4.3.5.2.b.

e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Please refer to the discussion under item (b) of the Utilities and Service Systems Outstanding Issues. Adequate capacity to handle the additional brine that will be generated by expanding Desalter II operations exists, but commitments must be made by Chino Basin stakeholders to allocate transport and treatment capacity in the SARI line to serve the expanded Desalter operations. Mitigation is defined to address this issue.

Geology and Soils Outstanding Issues

a-iii Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction?

Liquefaction can occur when loose, unconsolidated and saturated sandy soils are subjected to strong groundshaking during a seismic event that causes the soils to behave as a fluid. Liquefaction is considered most likely to occur when all of the following conditions are met: (a) the groundwater table is within 50 feet of the surface, (b) soils are unconsolidated sandy alluvium, typically Holocene in age, and (c) the location is subjected to Modified Mercalli Intensity Values of VII or greater. Ground failure associated with liquefaction can result in severe damage to structures. Liquefaction induced ground failure historically has been a major cause of earthquake damage in Southern California.

The San Bernardino General Plan Update (2006) includes a Geology (Safety) technical appendix that identifies potential liquefaction zones throughout the County, including the Valley portion of the County. Page 7-43 contains the discussion of liquefaction. The document states: “The impacts of liquefaction to the County pose the greatest consequence in the Valley Region. Portions of the Valley Region are comprised of relatively loose near-surface alluvial sediments that are susceptible to liquefaction. Figure 7-4A shows those liquefaction hazard areas in the Valley, and no such hazards are identified for the West Valley area that overlies the Chino Basin. Although the southern portion of the Basin has a high groundwater table, the sediment in this area does not appear to be coarse enough to contribute to a potential for liquefaction.

Regardless, the evidence developed for both the Baseline Alternative and the Peace II Agreement, indicate a general lowering of the groundwater table throughout most of the Chino Basin, and the lowering of the groundwater table does not contribute to a potential for liquefaction. To the contrary, it reduces the potential for liquefaction. Therefore, the proposed project is not forecast to cause or contribute to significant liquefaction hazards in the alluvial deposits that lie beneath the Chino Basin. No mitigation is required.

c 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?

WEI has been conducting subsidence investigation in MZ-1 for Watermaster since September 2000. As part of this process, WEI has been reviewing recent historical subsidence across the Basin using InSAR, ground level surveys, controlled pumping tests, and a rigorous review of the Basin hydrogeology. WEI included an evaluation of subsidence as part of the modeling effort and the detailed report is provided as an appendix in Volume 2, Technical Appendices to this DSEIR. The following information is abstracted from the WEI report, and where quoted it is shown in italics. Figure and table numbers have been revised in the cited WEI text for proper sequencing in this DSEIR

As noted above, Watermaster has been conducting subsidence investigations in MZ-1 since September 2000. Detailed information on Watermaster subsidence investigations, causes of subsidence, and Watermaster's subsidence management plan can be found in Chino Basin Optimum Basin Management Program, Management Zone 1 Subsidence Management Plan (WEI, 2007), 2008 State of the Basin Report (WEI, 2009), and Chino Basin Optimum Basin Management Program, 2008-09 Annual Report, Management Zone 1 Subsidence Management Plan (WEI, 2009). This work has included the review of recent historical subsidence across the basin using InSAR, ground level surveys, and controlled pumping tests, and a rigorous review of basin hydrogeology. Figure 4.3-69 shows the location of recent subsidence in MZ-1 (2005 to 2008) and defines the boundary of the MZ-1 managed area and other subsidence areas of interest.

PA-7 is the key subsidence indicator well used in Watermaster's MZ-1 Long Term Management Plan. Under this plan, basin management activities must maintain piezometric elevations greater than the guidance level of 400 feet (mean sea level) at PA-7. The guidance level is defined as the threshold water level at the onset of inelastic compaction of the aquifer system as recorded by the extensometer. The guidance level was established by Watermaster and is subject to change based on the periodic review of monitoring data. Figure 4.3-70 shows the guidance level and the projected groundwater elevation time series at the PA-7 piezometer (PA-7) for the Baseline Alternative. The minimum projected groundwater elevation at PA-7 drops from about 480 feet in 2009 to about 470 feet in the out years and is well above the guidance level.

Figure 4.3-70 shows the guidance level (400 feet mean sea level) and the projected groundwater elevation time series at the PA-7 piezometer for the Peace II Alternative. The minimum projected groundwater elevation at PA-7 drops from about 480 feet in 2009 to about 460 feet in the out years and is well above the guidance level. Compared to the Baseline Alternative, the groundwater elevation in the PA-7 piezometer is about 10 feet lower.

In summary, in MZ1, the groundwater levels are projected to change generally downward but within the range of historical values. Subsidence may occur in response to these changes however the increment of subsidence will likely be small relative to historically observed subsidence. Watermaster monitors subsidence and can change the location and magnitude of replenishment if monitoring suggest the occurrence of new inelastic subsidence.

Outside the MZ1, groundwater levels may fall slightly lower than historical values in some areas. The aquifer system outside of MZ1 is texturally generally much coarser and not prone to significant subsidence. Therefore significance subsidence is not expected outside of MZ1.

Thus, based on the established threshold of significance for both the Baseline and Peace II Alternative, no adverse subsidence effects are forecast to occur. No material physical injury related to the subsidence from any of the planning alternatives is projected to occur. No mitigation is required to address potential subsidence issues.

4.3.4 Mitigation Measures

Water Quality

4.3-1 ***Under the direction of the Watermaster, if any well intercepts a contamination plume, the affected well will be connected to a treatment unit to remove the plume pollutants to a level that meets potable/drinking water quality standards. If this cannot be achieved, the well will be removed from production.***

4.3-2 ***Prior to cleaning out, refurbishing or capping a well, samples will be obtained and chemically analyzed to ensure that the discharge does not contain any contaminants exceeding regulatory thresholds. If contaminants are discovered, then they shall be removed or lowered below the regulatory threshold prior to discharge to the environment. Discharge of non-stormwater into storm drains will require a NPDES permit.***

4.3-3 ***When closing abandoned wells in the Chino Basin the entity closing the well shall, where technically feasible, sample and analyze the well water to determine whether the groundwater in the well is contaminated. If contamination is identified, the entity shall report the discovery to the appropriate parties, including the owner (if known) and the regulatory agencies. The Watermaster shall monitor the status of the well until residual contamination is remediated.***

4.3-4 ***Under no circumstance shall discharge of recharge water (e.g., SPW, recycled water, etc) cause or contribute to a cumulative violation of the 2004 Basin Plan maximum benefit objectives or interfere with a designated beneficial use for a water or groundwater body. In addition to monitoring, the Watermaster and stakeholders will use models to forecast future TDS and Nitrate concentrations pursuant to the Basin Plan and recharge permit requirements. Watermaster and the stakeholders will, based on monitoring, begin the planning to develop measures to either protect beneficial uses of groundwater or to treat groundwater to meet beneficial use requirements. This is a requirement of the 2004 Basin Plan. This is a modification of mitigation measures 4.5-12 and 4.5-14 from the OBMP.***

4.3-5 ***Hydrogeologic studies, including modeling, will be completed for each recharge site, including ASR wells, to define the recharge impacts on known groundwater quality anomalies (contaminated groundwater plumes). If modeling demonstrates that the rate of contaminated plume expansion or secondary effects associated with such expansion will adversely impact groundwater or water production capabilities, the recharge facility shall be moved to an alternative location where such impacts will***

not occur or else impacted production facilities will be replaced. The threshold for adverse impacts will be if existing domestic water production wells will be impacted by the plume a minimum of one year earlier than under pre-existing conditions, or if significant quantities of additional groundwater (more than 5,000 acre-feet) will become contaminated within a five year period due to the recharge of water. This is a modification of mitigation measure 4.5-15 from the OBMP.

4.3-6 When recharge of recycled water is proposed for a specific location, the entity proposing such recycling shall determine whether recharge would cause a violation of current DHS requirements at any existing production wells or critical water supply aquifers. If impacts will affect existing wells or critical water supply aquifers, the entity proposing to discharge recycled water shall fund the provision of a comparable quality and quantity of potable water through installing new wells, direct water deliveries (for example from desalters), or comparable measures. This is mitigation measure 4.5-13 from the OBMP.

4.3-7 All water recharge operations shall be monitored, and if impacts that were not forecast to occur demonstrate that the recharge operations are causing a significant adverse impact on the groundwater aquifer, the recharge operations shall be terminated or modified to eliminate the adverse impact.

Groundwater levels

4.3-8 Under the direction of the Watermaster, the stakeholders shall continue to implement adaptive management in conjunction with the Peace II Program. The adaptive management program performance standard is to offset any actual loss of storage beyond the 600,000 AF allowed through the OBMP and Re-operation (measured or modeled by the Watermaster) by reduced takes or increased puts (or an alternative method deemed equivalent by the Watermaster to reduced takes or increased puts) measured over each ten-year period of the Program. To the extent feasible or as determined by the Watermaster in consultation with stakeholders, a lowering of groundwater table in any portion of the Chino Basin attributable to the Peace II Agreement beyond that which, pursuant to the Judgment, is prescribed through Re-operation to achieve hydraulic control shall be offset by a reduction in takes and/or puts or an alternative.

These measures were included as optional measures in the Initial Study. Depending on results of hydrology, may be included as required.

4.3-9 Continue to identify and study subsidence hazards and susceptible areas, and propose mitigation technology that is appropriate to the findings of the monitoring study. The implementation of Peace II facilities shall not in any way contribute to new inelastic subsidence in the MZ1 Managed Area (as shown on Figure 4.3-69). Peace II will not cause or contribute to any new, significant inelastic subsidence impacts greater than a total of six inches in magnitude over the planning period. New inelastic subsidence less than six inches in the Non-MZ1 Managed Area is considered to be less than significant

4.3-10 If modeling conducted for the expanded CDA desalter wellfield demonstrates that such pumping will contribute to inelastic subsidence in the MZ1 Managed Area, then a potentially significant impact can occur, and a subsequent environmental document will be prepared. No OBMP/Peace II activities allowed under this document will be permitted to cause or contribute to inelastic subsidence that causes adverse effects to facilities at the ground surface within the MZ1 Managed Area defined in the OBMP Phase 1 Report and Figure 4.3-69 of this DSEIR.

4.3-11 To ensure that pumping impacts in the vicinity of the desalter well field do not have an adverse impact on water levels and subsidence issues, the following performance standards shall be used to evaluate the desalters:

a. Water level declines in areas surrounding the desalter pumping locations will not be allowed to decline to the extent that pumping capabilities for surrounding wells incur material physical injury. If surrounding wells and producers are impacted by declines in water levels, alternative access to equivalent quantity and quality of water will be provided to affected surrounding parties. This water may be provided through distribution of funding to affected parties for the deepening of existing wells, or may be provided through the delivery (paid for by the implementing agency) of comparable or improved quality and quantity of water from other sources.

b. If desalter well fields are demonstrated to cause new inelastic subsidence impacts within the MZ1 Managed Area by a decline of over six inches in ground level at a 1/4 mile radius, or at the radius of the nearest non-OBMP/Peace II-participating structure, then pumping patterns for the desalters shall be modified to reduce impacts to cause no more than six inches of inelastic subsidence at the smallest of the two radii.

4.3-12 ***Requires site-specific geotechnical investigations of proposed development to include an assessment of potential impacts and mitigation measures related to expansive and reactive soils and liquefaction. Under Peace II, Watermaster will continue to monitor the areas with potential liquefaction hazards and will work with local jurisdictions to ensure that any future structures are constructed with the appropriate foundations to address increased liquefaction potentials apropos to the specific area. This mitigation measure will reduce impacts to a less than significant level.***

Erosion Control

4.3-13 ***To minimize potential ground disturbances associated with installation and maintenance of proposed monitoring equipment on existing wells, the equipment shall be installed within or along existing disturbed easements or right-of-way or otherwise disturbed areas, including access roads and pipeline or existing utility easements, whenever feasible. This is a modification of mitigation measure 4.5-1 from the OBMP.***

4.3-14 ***For long-term mitigation of site disturbances at Peace II facility locations, all areas not covered by structures shall be covered with hardscape (concrete, asphalt, gravel, etc.), native vegetation and/or man-made landscape areas (for example, grass). Revegetated or landscaped areas shall provide sufficient cover to ensure that, after a two year period, erosion will not occur from concentrated flows (rills, gully, etc.) and sediment transport will be minimal as part of sheet flows. These measures and requirements shall be applied to closure of abandoned well site disturbed areas.***

Flood Control

4.3-15 ***The Watermaster or other agencies implementing recharge programs shall confer with the San Bernardino County Department of Transportation and Flood Control or the Riverside County Flood Control and Water Conservation District and for any flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define the amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as volume of water that can be diverted into each basin). This will ensure that recharge activities do not conflict with flood control operations at any flood control basins. Variable pooling and recharge schedules that are coordinated with storm forecasting to halt deliveries during storm events will ensure that flood-related hazards remain less than significant. This is a modification of mitigation measure 4.5-2 from the OBMP.***

4.3-16 ***Within each facility or project associated with the Peace II Program that will impact more than one half acre, surface runoff shall be collected and retained (for use onsite)***

or detained and percolated into the ground on the site such that site development results in no net increase in offsite stormwater flows. Detainment shall be achieved through Low Impact Development techniques whenever possible, and shall include techniques that remove the majority of urban storm runoff pollutants, such as petroleum products and sediment. The purpose of this measure is to remove the onsite contribution to cumulative urban storm runoff and ensure the discharge from the sites is treated to reduce contributions of urban pollutants to downstream flows and to groundwater. The onsite percolation shall be measured whenever possible such that any new yield can be calculated for possible blending credit with recharge of higher TDS water.

If it is not possible to eliminate stormwater flows off of a site, the facility shall not be constructed until a drainage study has been conducted that verifies that there will be no adverse impacts to downstream stormwater management from implementation of the site development.

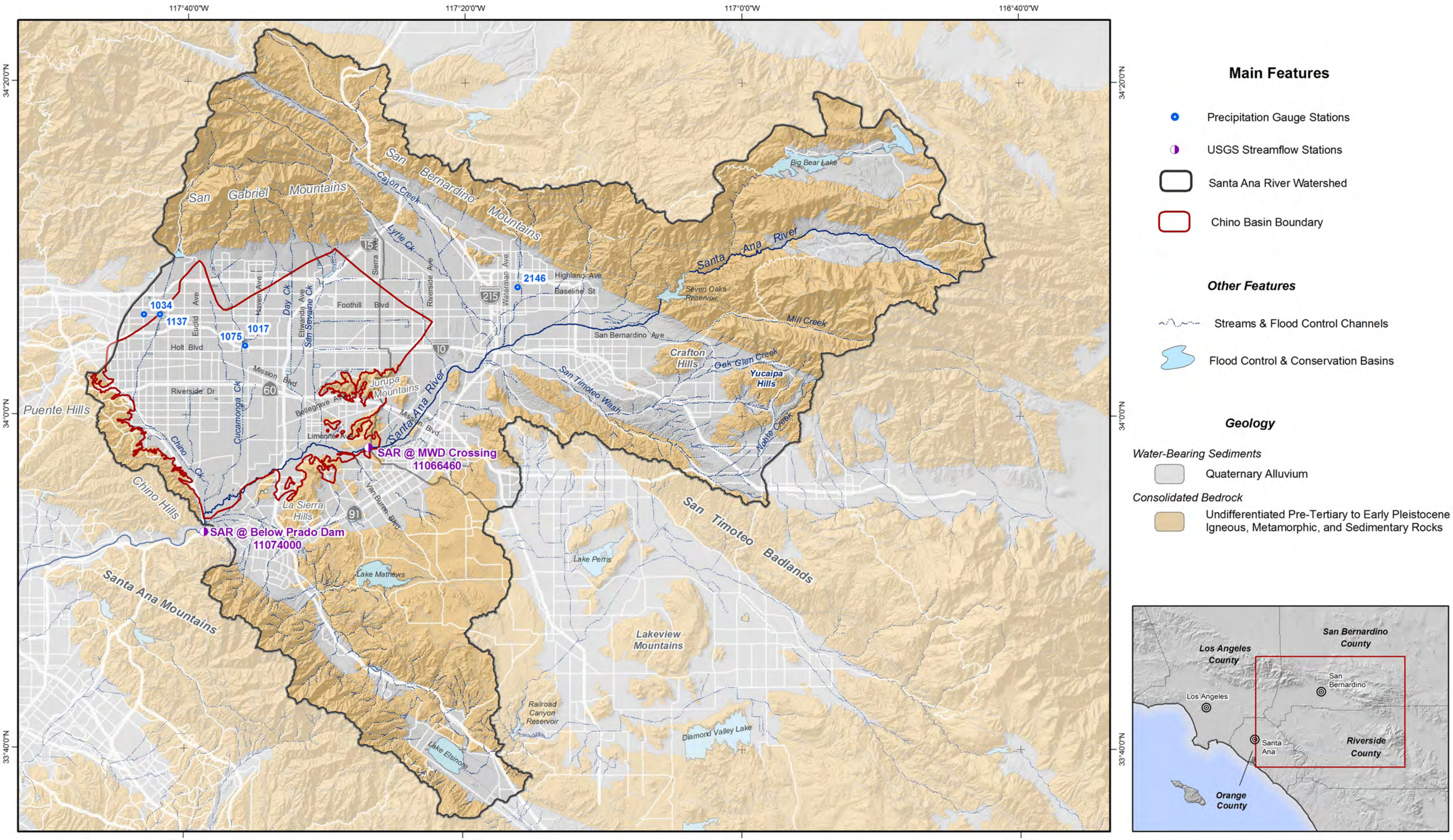
4.3-17 ***Prior to implementation of any recharge projects as either existing or new basins, a management plan will be established to the satisfaction of SBCFCD. This plan shall be created specifically for each individual basin to ensure the safety of surrounding property and people from undue risks associated with water-related hazards (i.e. flooding). The management plan will firmly establish a priority of flood-control functions over and above recharge-related operations. Weather forecasts of upcoming storm events will be carefully monitored and in the event of a significant forecasted storm-event, recharge deliveries the basins will be ceased until further notice is received from SBCFCD that it is safe for deliveries to resume. Additionally, no more than three days' percolative capacity of water will be allowed to sit in a basin at a time if such basin is also used for flood control activities. Additionally, each SBCFCD basin will have a specific management plan developed, so as to coordinate flood control with recharge. This mitigation measure will ensure that people and property are not subject to additional risk associated with water-related hazards in the Basin, and will allow SBCFCD to make full utilization of the ba*****sin's flood control capacity in the event of a storm.**

4.3.5 Cumulative Impact

Based on the evaluation contained in this subchapter, implementation of the proposed program is not forecast to cause any cumulatively considerable adverse environmental impacts on hydrology and water quality resource issues with implementation of the required mitigation measures and the assumed operational characteristics in the Chino Basin over the next 20 years. Because proposed Peace II projects will be required to implement the above measures and comply with low impact development requirements of the Regional Board's MS4 permits, future projects implemented under the Peace II Agreement are not forecast to substantially increase stormwater runoff within the Chino Basin. The Wildermuth evaluations (State of the Basin and Peace II) represent one of the most comprehensive cumulative examinations of future water management activities of a groundwater basin (groundwater pumping and recharge) that has been prepared for a major groundwater basin in California. The findings of this cumulative evaluation indicate that the proposed management activities will not cause a cumulatively considerable, or significant adverse impact to the groundwater resources of the Chino Groundwater Basin, if the Basin is managed in accordance with the assumptions and mitigation measures outlined in this Subchapter of the DSEIR.

4.3.6 Unavoidable Adverse Impacts

Implementing the proposed Peace II Project is not forecast to cause any direct or indirect significant adverse hydrology or water quality impacts with implementation of the required SWPPP and WQMP. The proposed project will result in unavoidable short-term changes in the hydrology and water quality, but identified mitigation measures will reduce these potential to a less than significant level. Long-term (permanent) changes in storm flows will also be controlled to a less than significant level.



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0 2 4 6 8 Miles
0 3 6 9 12 KM

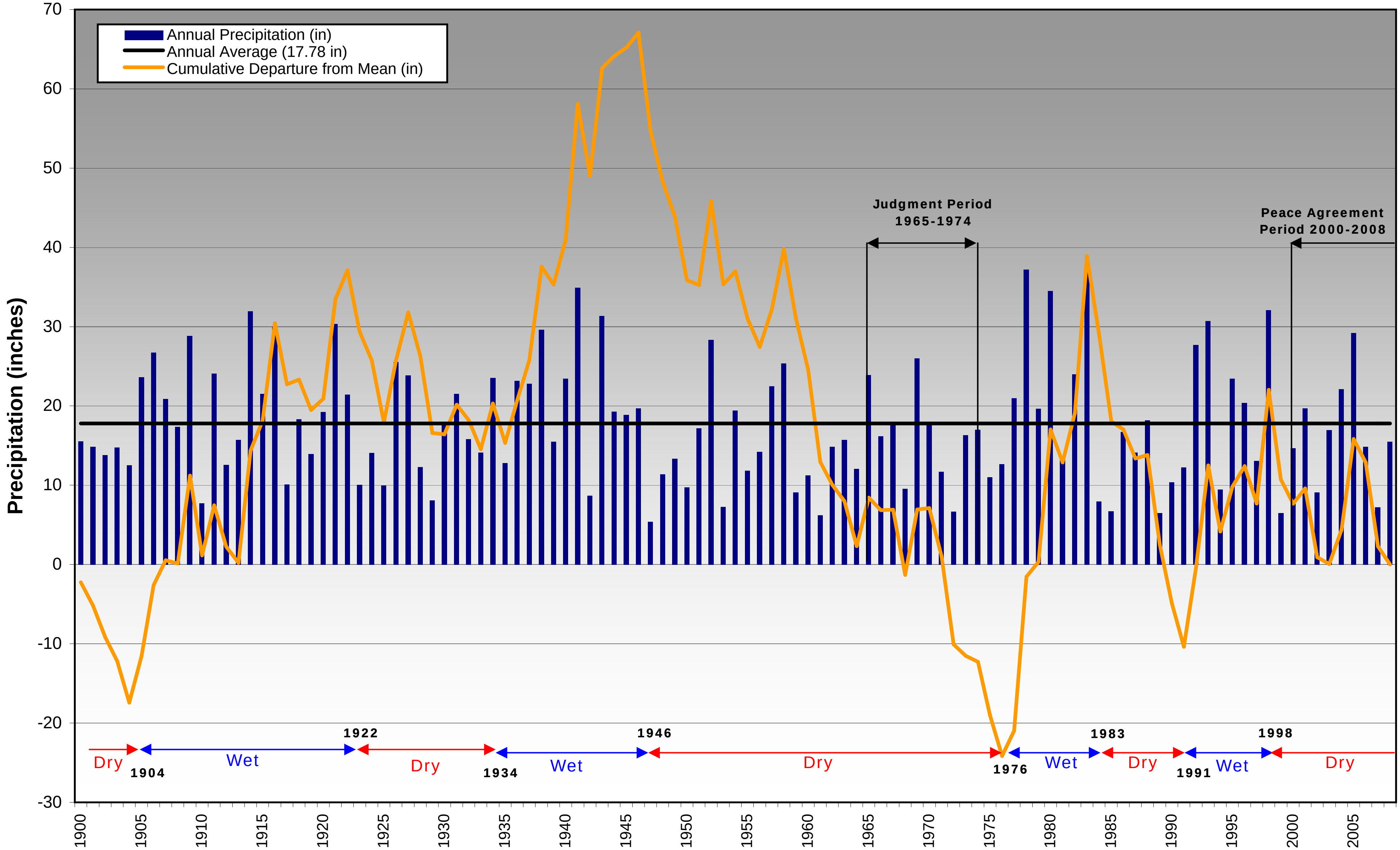
2008 State of the Basin Report
General Hydrologic Condition

Santa Ana River Watershed Tributary to the Chino Basin

FIGURE 4.3-1

FIGURE 4.3-2

Annual Precipitation in the Claremont/Montclair Area



SOB_08hydrology.xls -- Claremont_Chart-fig2-2

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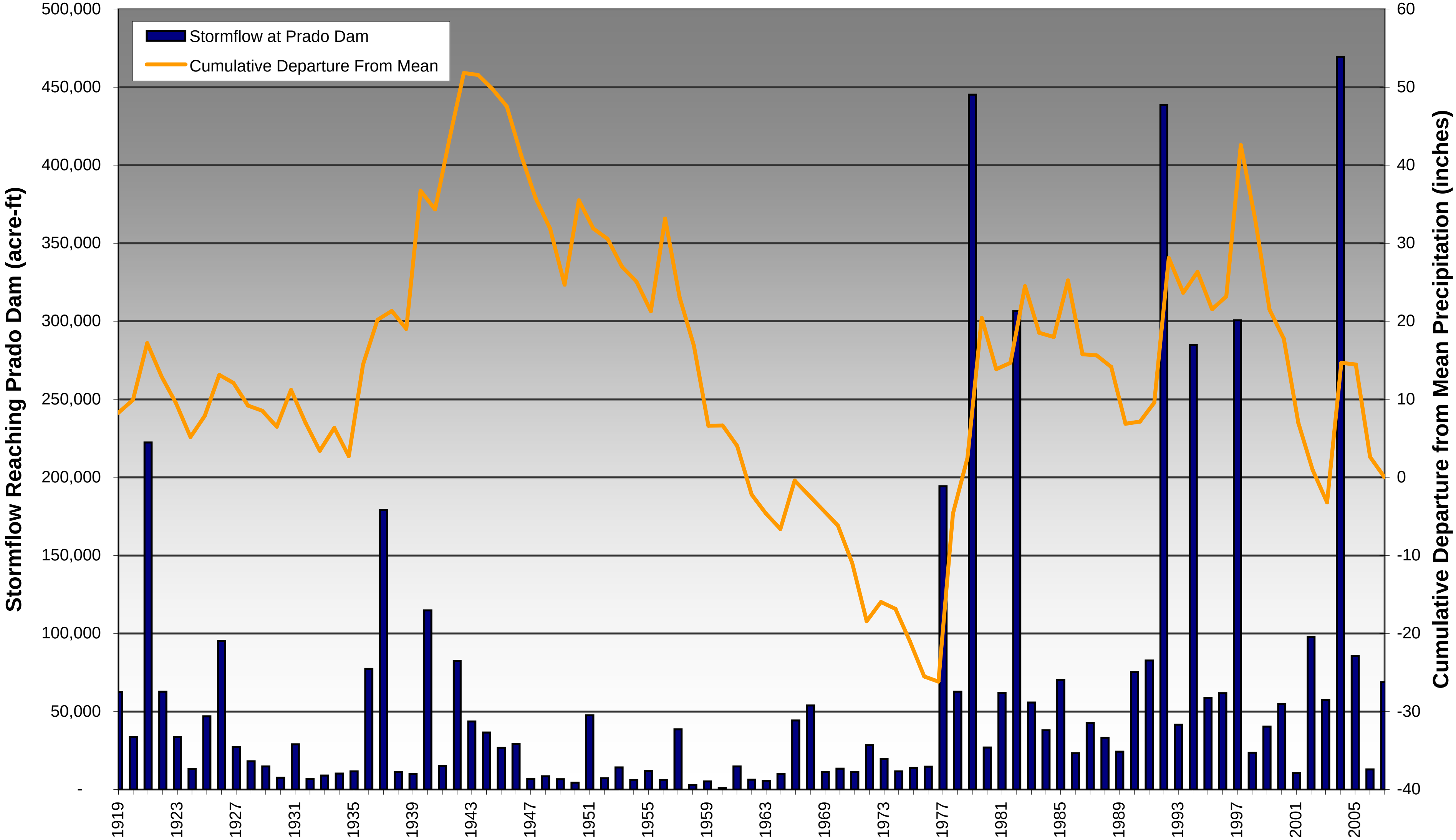
FIGURE 4.3-3

Annual Stormflow Measured at below Prado Dam
Water Year 1919/20 - 2007/08



Figs_2-5_to_2-7.xls -- Fig 2-5 Stormflow and CDFM

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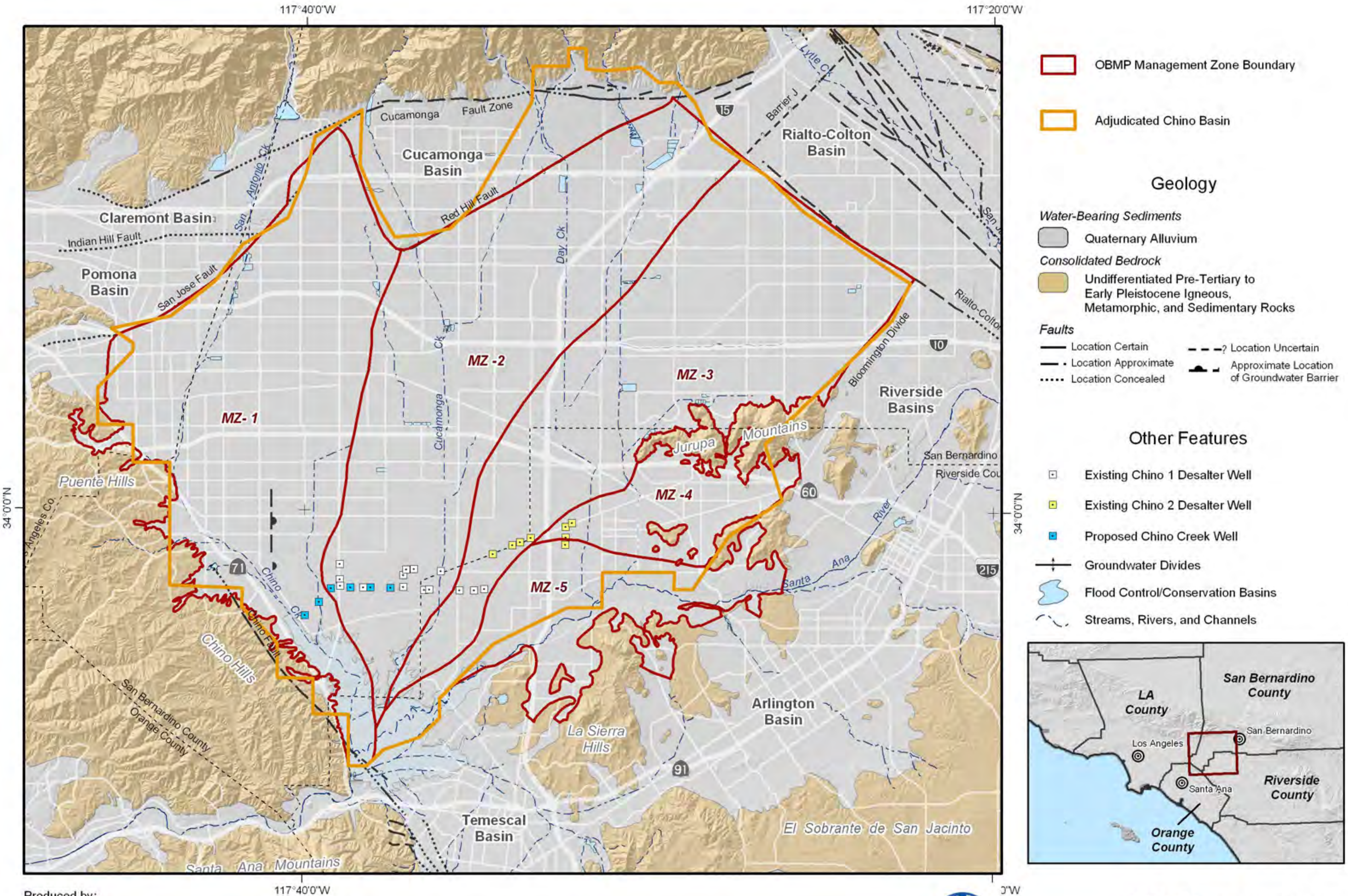

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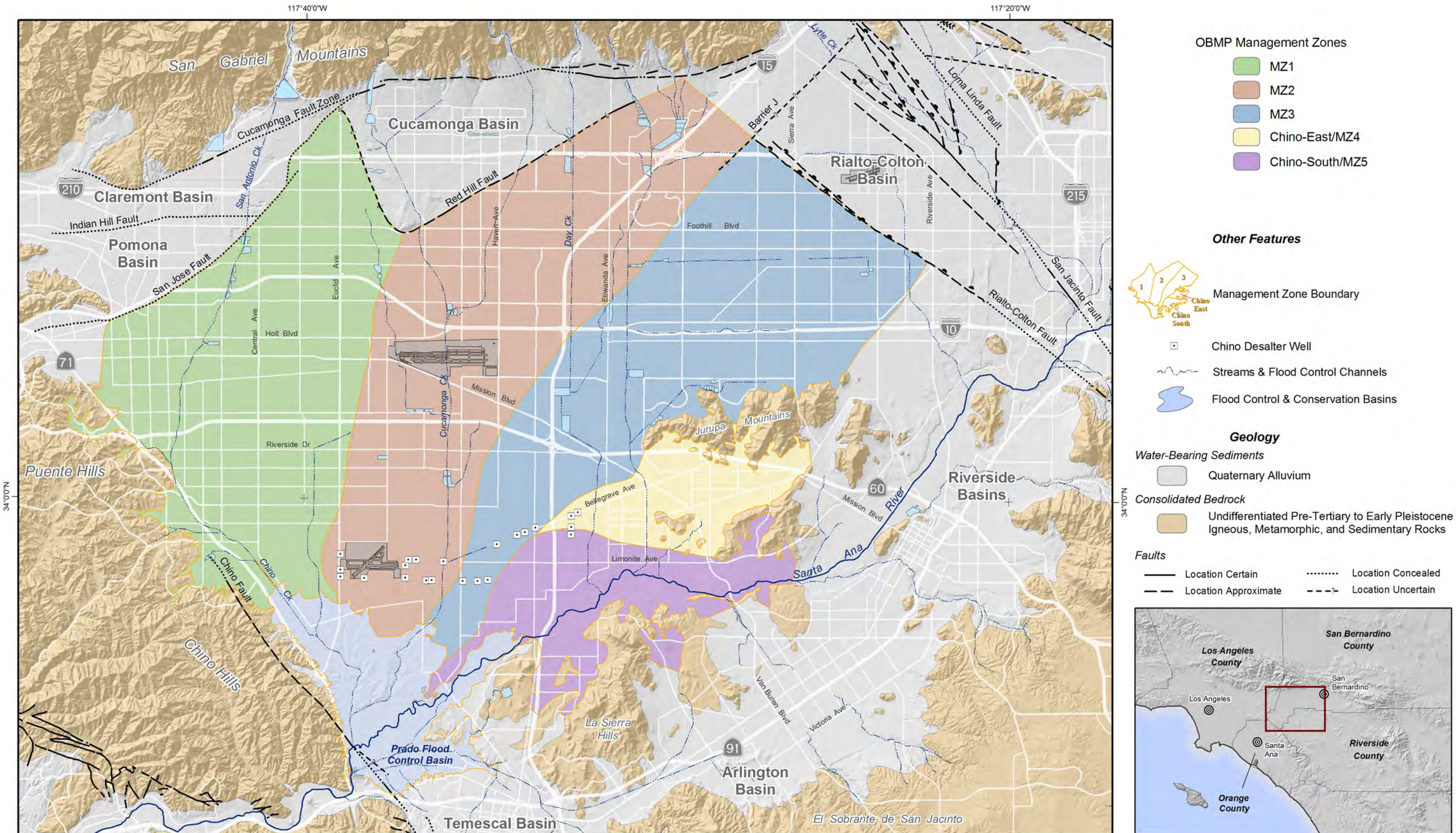
0 1 2 3 4 5 Miles
0 2 4 6 KM

CHINO BASIN WATERMASTER
Partners in Basin Management

2009 Production Optimization and
Evaluation of the Peace II Project Description

OBMP Management Zones

FIGURE 4.3-4



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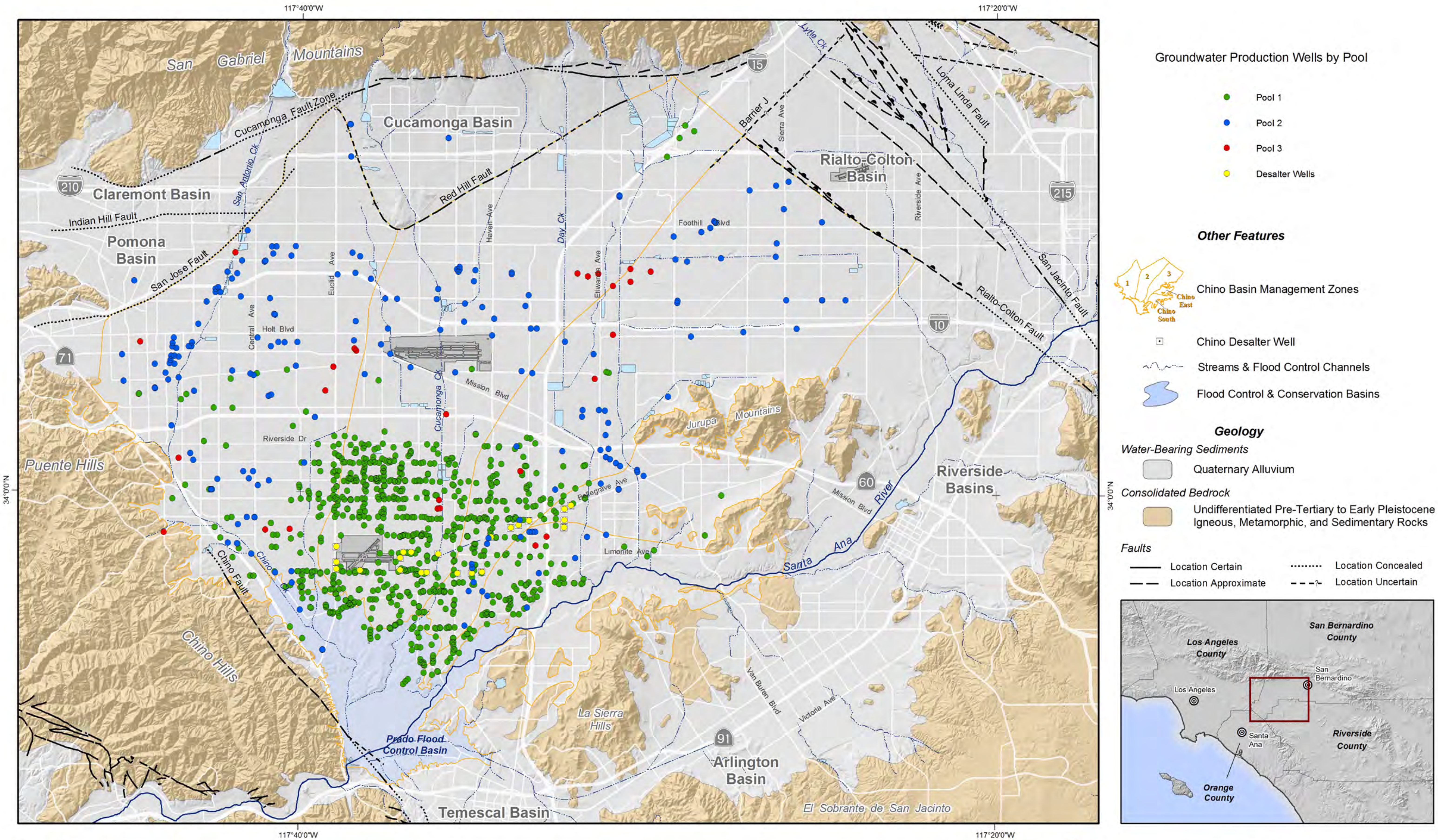
Date: 20090401
File: Figure_1-1.mxd

2008 State of the Basin Report
Introduction

Chino Groundwater Basin
Management Zones

FIGURE 4.3-5



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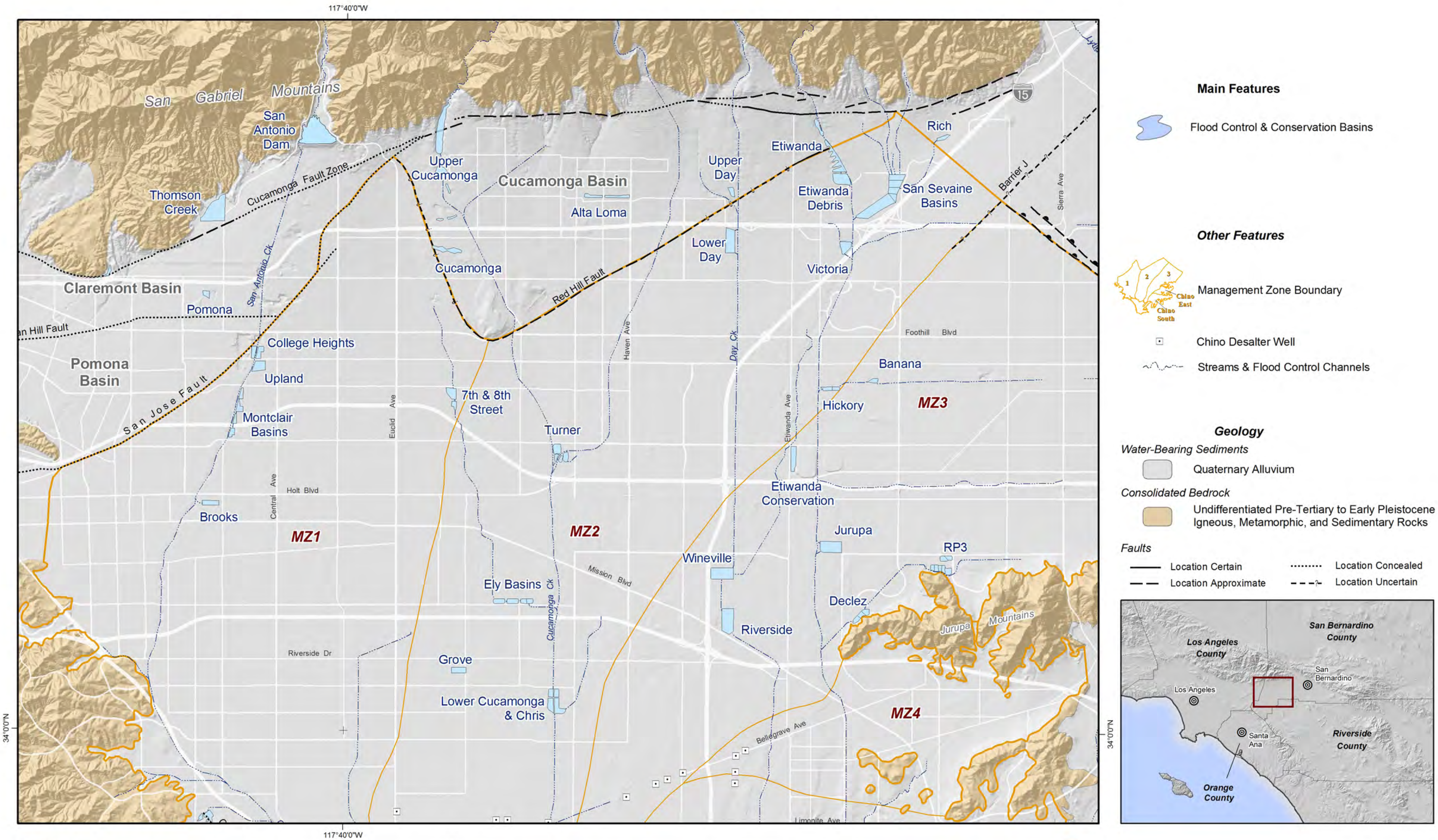
2008 State of the Basin Report
Basin Operations and Groundwater Level Monitoring

Active Production Wells by Pool

Production Wells as of Fiscal Year 2007-08

FIGURE 4.3-6



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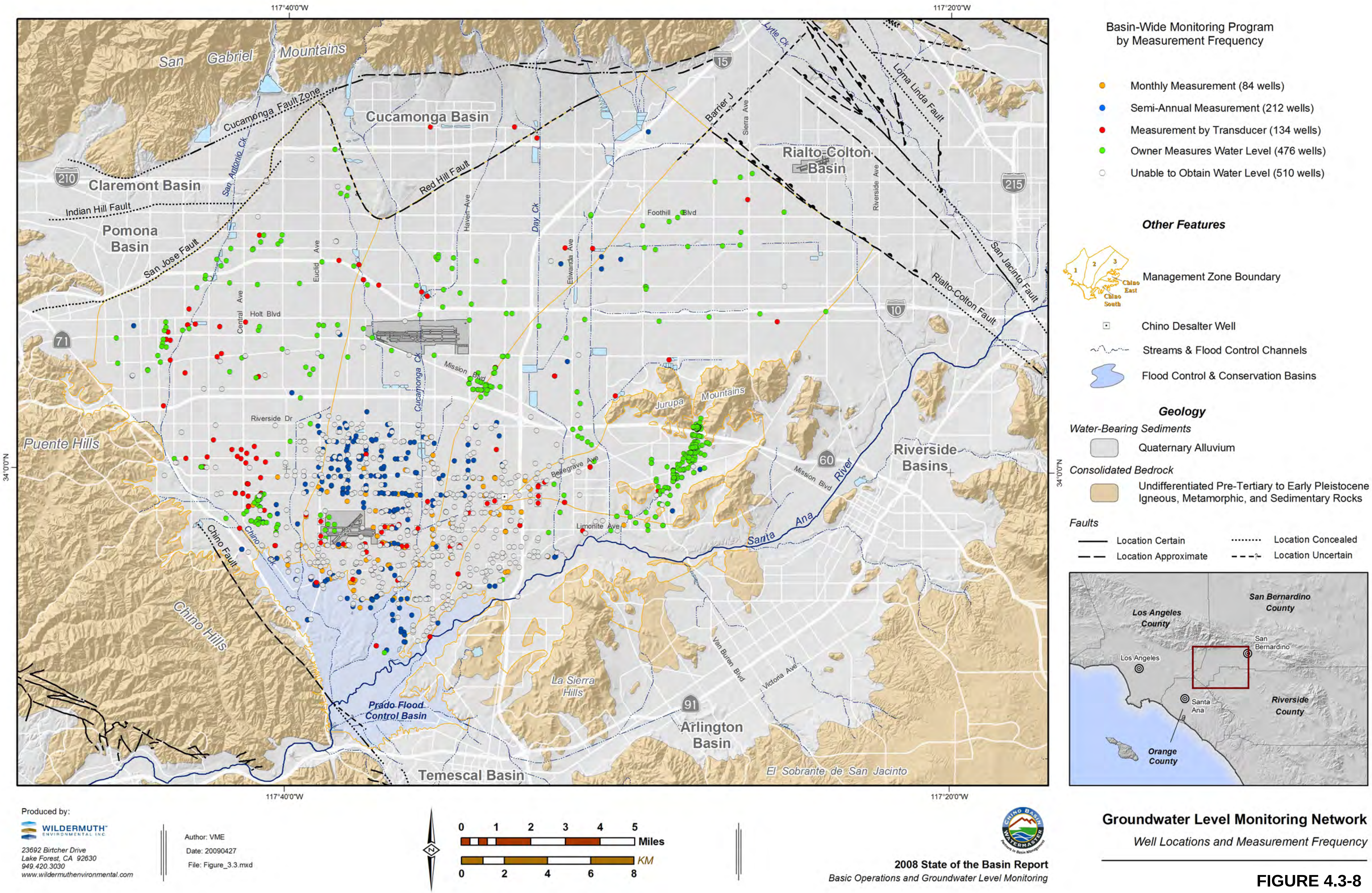
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Basin Operations and Groundwater Level Monitoring

Recharge Basin Locations

FIGURE 4.3-7



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2008 State of the Basin Report
Basic Operations and Groundwater Level Monitoring

Groundwater Level Monitoring Network
Well Locations and Measurement Frequency

FIGURE 4.3-8

FIGURE 4.3-9

Distribution of Groundwater Production by Pool

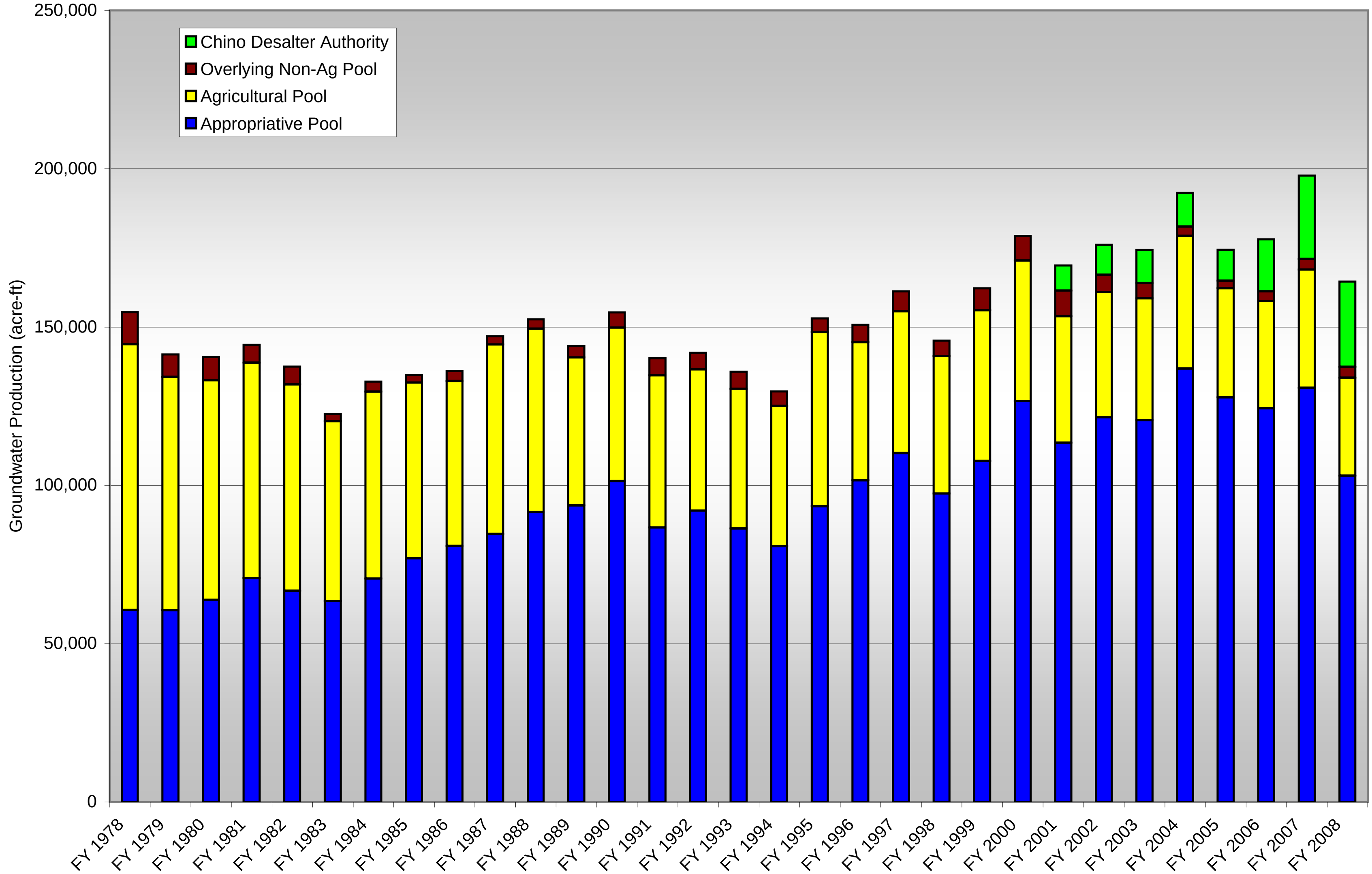

Figure_3-4.xlsFigure 3-4

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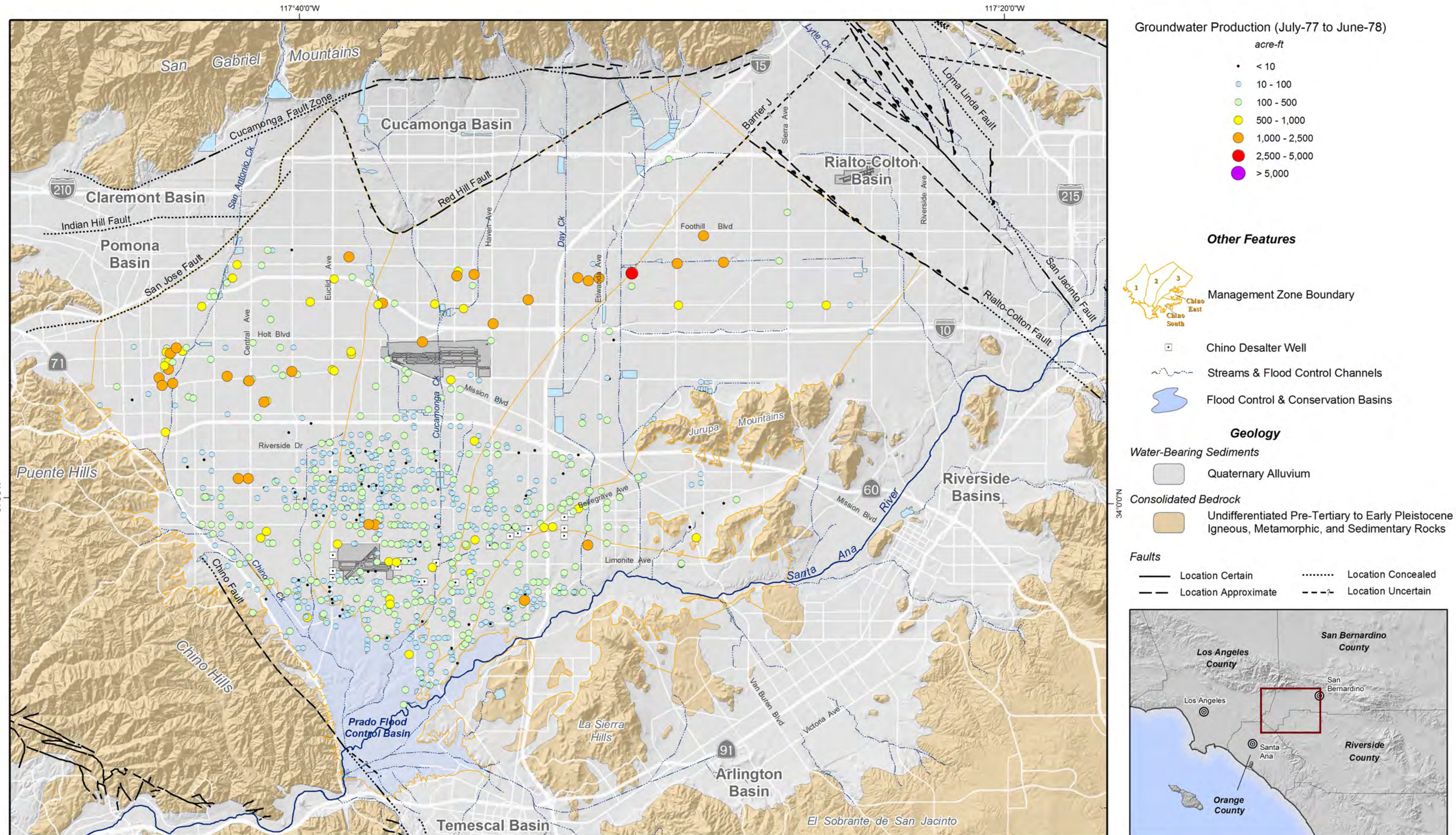

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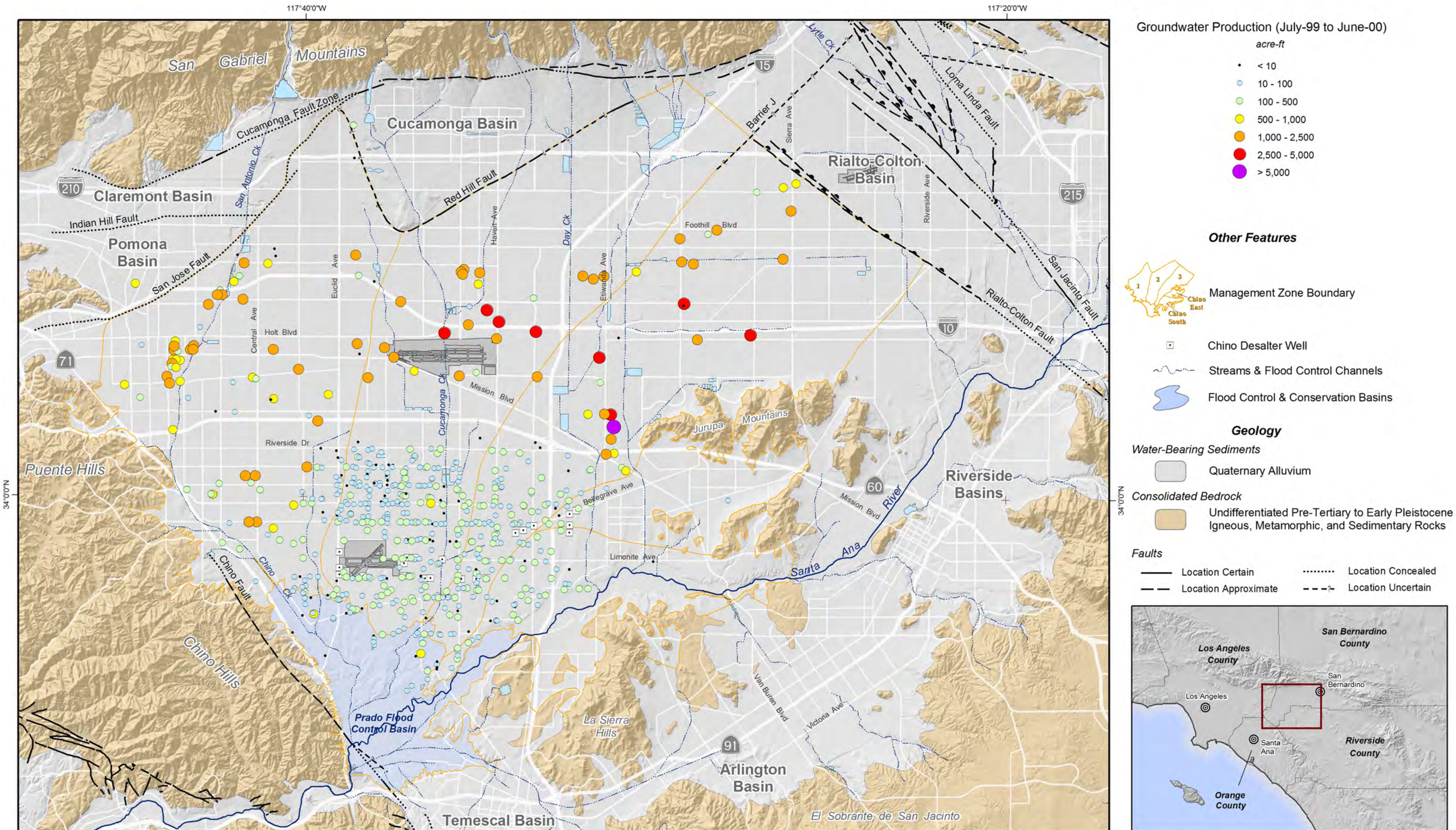
0 1 2 3 4 5 Miles

0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Pumping

Groundwater Production by Well
Fiscal Year 1977-1978

FIGURE 4.3-10



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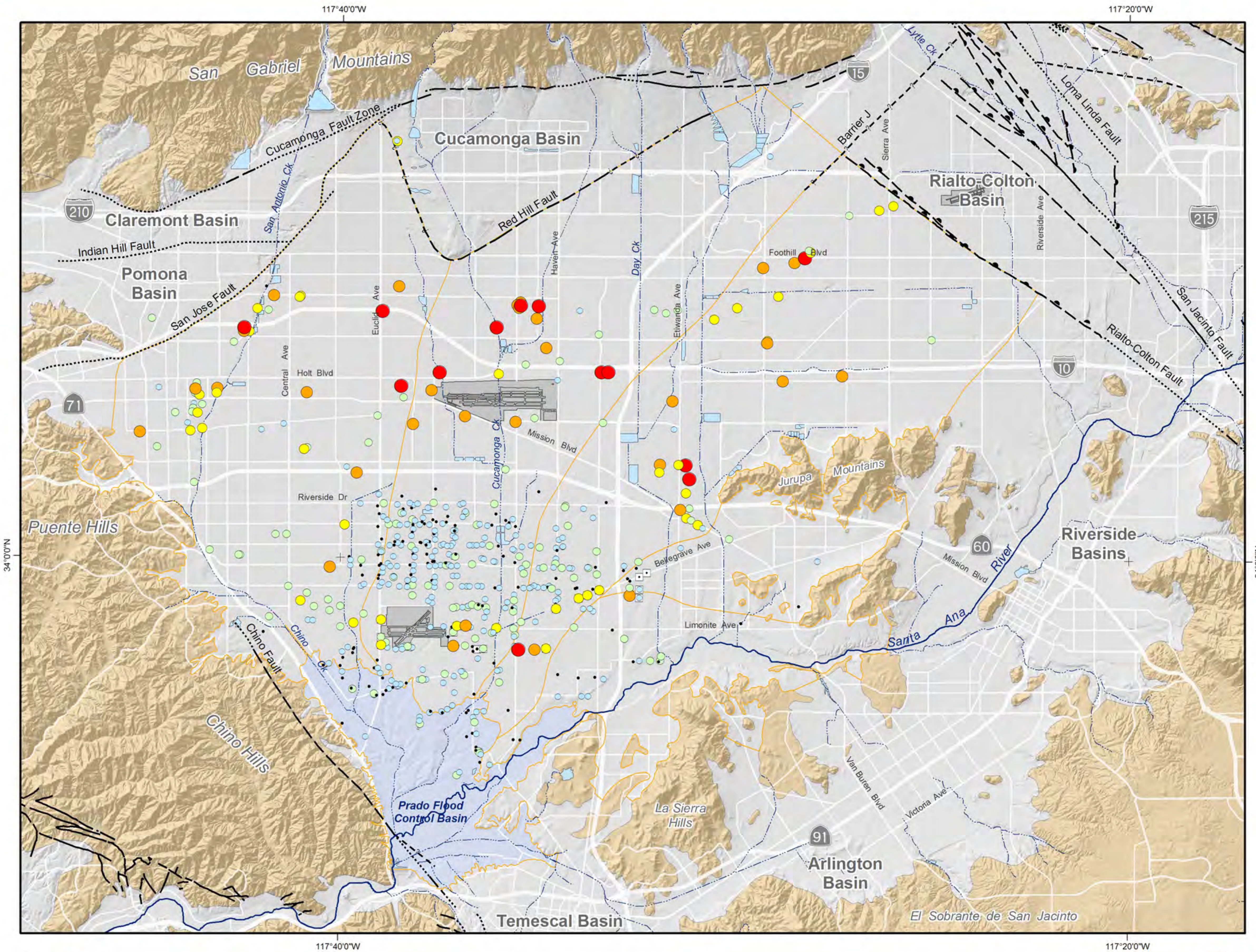
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Pumping

Groundwater Production by Well
Fiscal Year 1999-2000

FIGURE 4.3-11



Groundwater Production (July-05 to June-06)
acre-ft

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

Other Features

- Management Zone Boundary (1, 2, 3, Chino East, Chino South)
- Chino Desalter Well
- Streams & Flood Control Channels
- Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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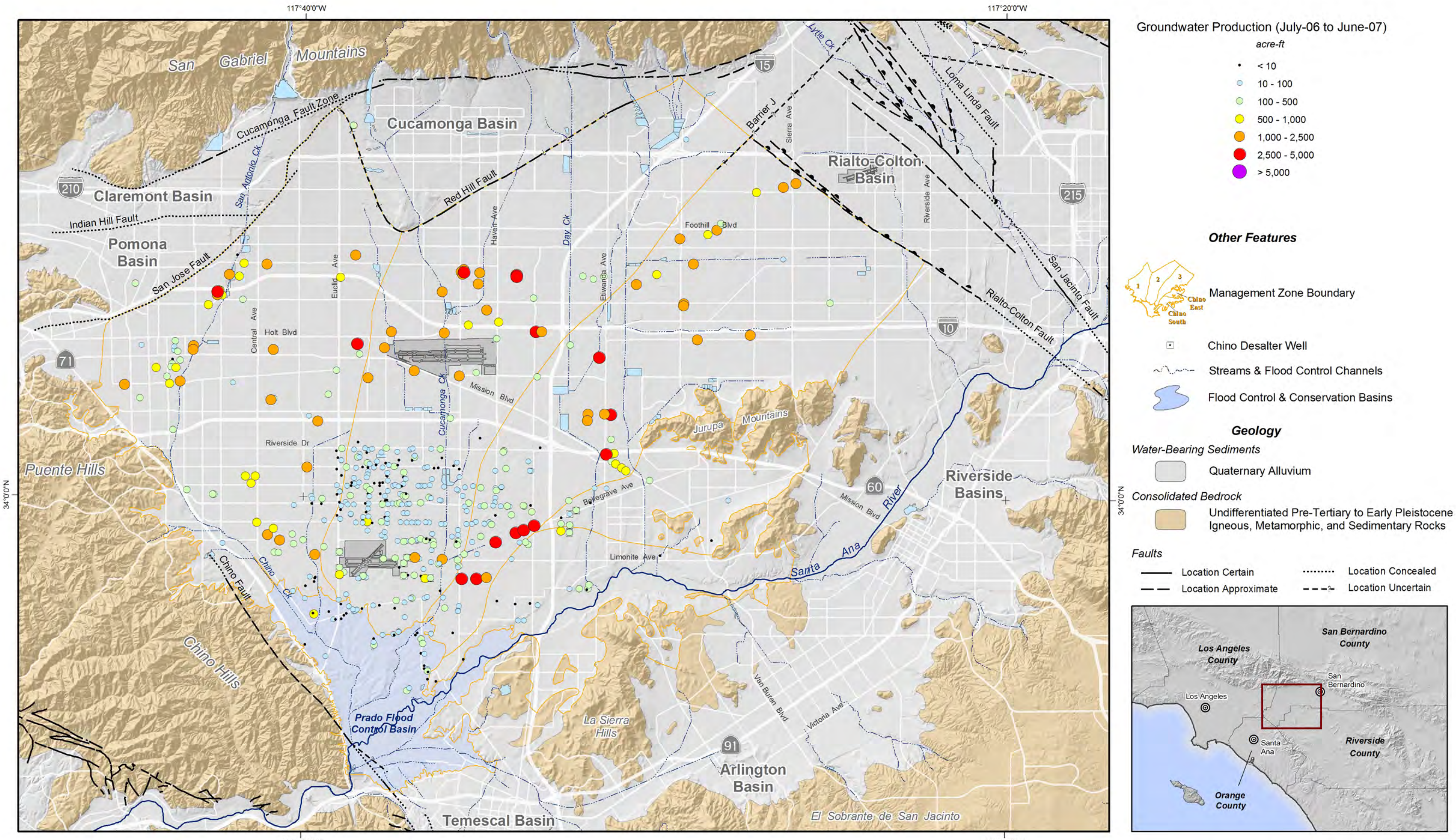
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

CHINO BASIN WATERMASTER

2008 State of the Basin Report
Groundwater Pumping

Groundwater Production by Well
Fiscal Year 2005-2006

FIGURE 4.3-12



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0 1 2 3 4 5 Miles
0 2 4 6 8 KM

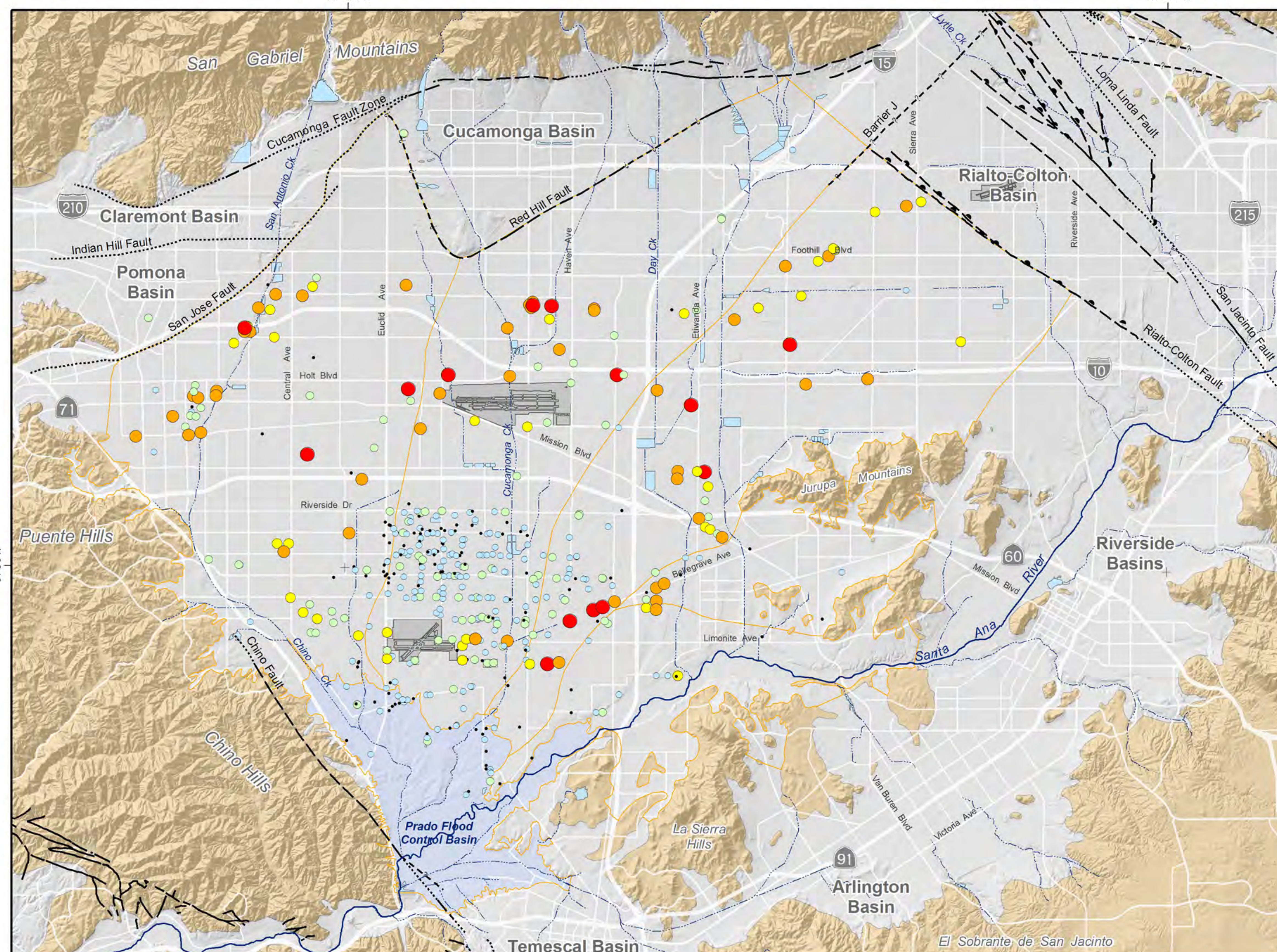
CHINO BASIN WATERMASTER

2008 State of the Basin Report
Groundwater Pumping

Groundwater Production by Well
Fiscal Year 2006-2007

FIGURE 4.3-13

117°40'0"W 117°20'0"W



117°40'0"W 117°20'0"W

Groundwater Production (July-07 to June-08)
acre-ft

- < 10
- 10 - 100
- 100 - 500
- 500 - 1,000
- 1,000 - 2,500
- 2,500 - 5,000
- > 5,000

Other Features

- Management Zone Boundary
- Chino Desalter Well
- Streams & Flood Control Channels
- Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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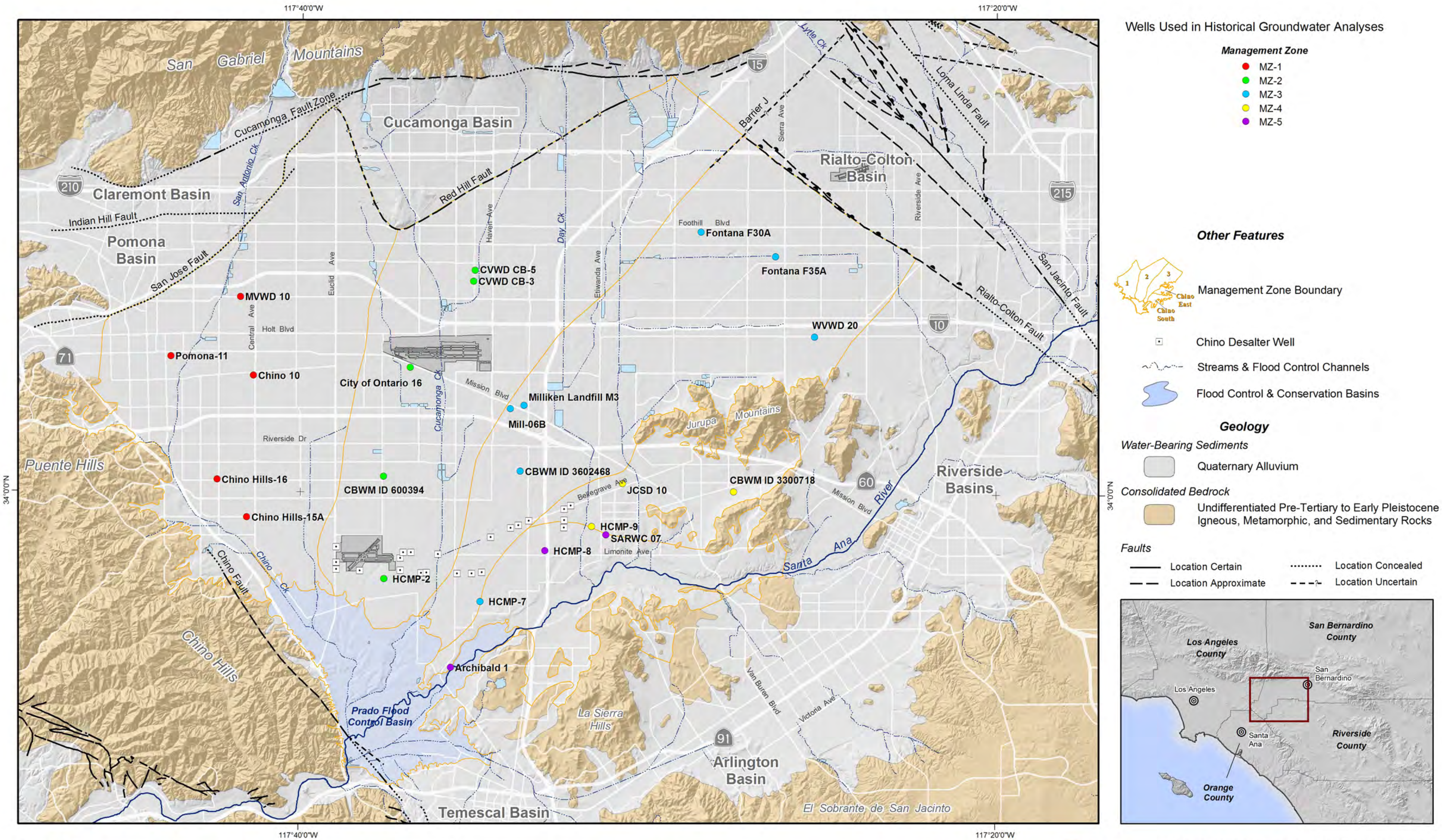
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Pumping

Groundwater Production by Well
Fiscal Year 2007-2008

FIGURE 4.3-14



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2008 State of the Basin Report
Groundwater Levels

Historical Groundwater Level Trends
Well Location Map

Wells Used in Historical Groundwater Level Analyses

FIGURE 4.3-15

FIGURE 4.3-16 - Time History of Production, Recharge, and Groundwater Levels in MZ1

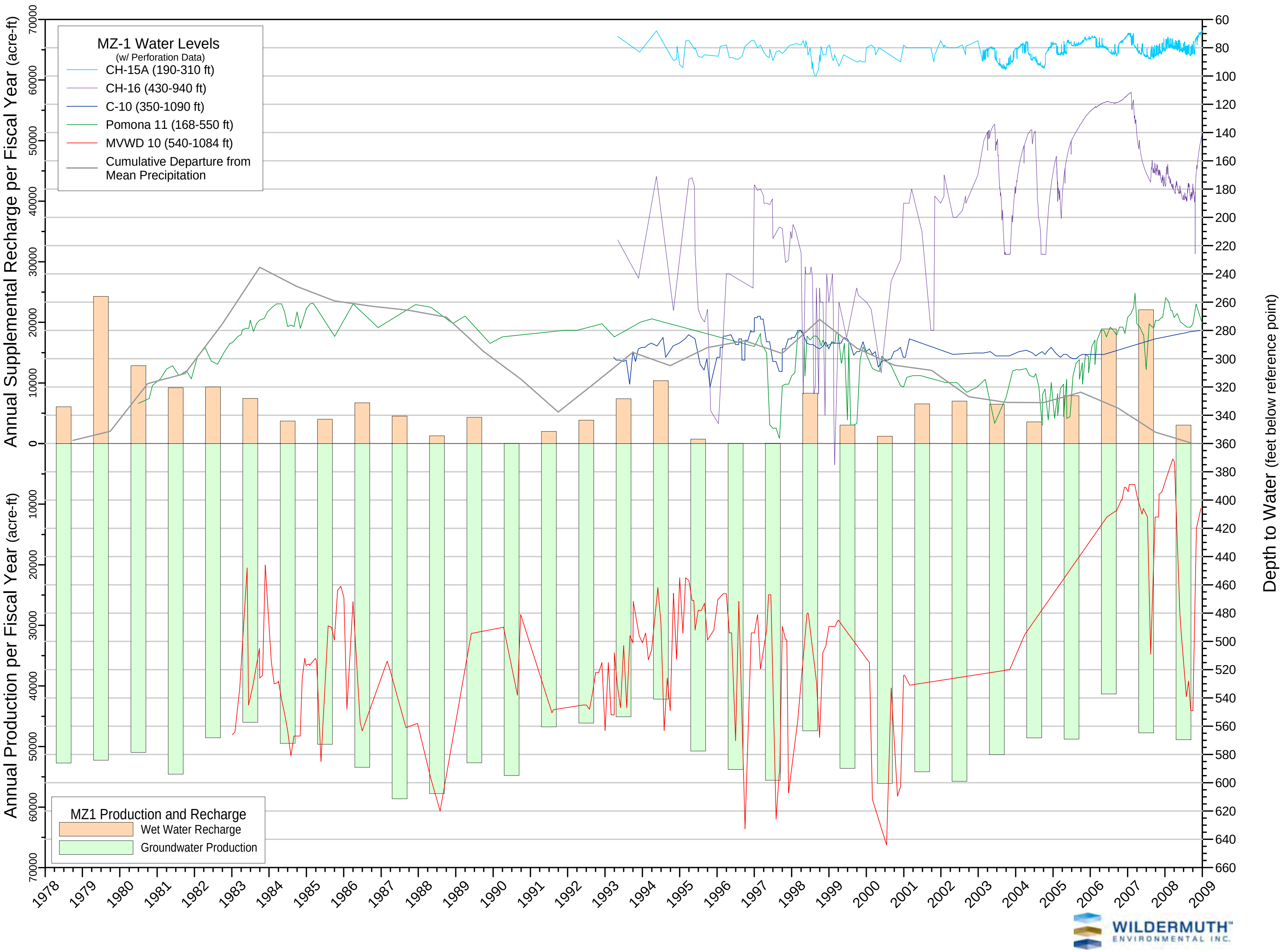

FIGURE 4.3-17 - Time History of Production, Recharge, and Groundwater Levels in MZ2

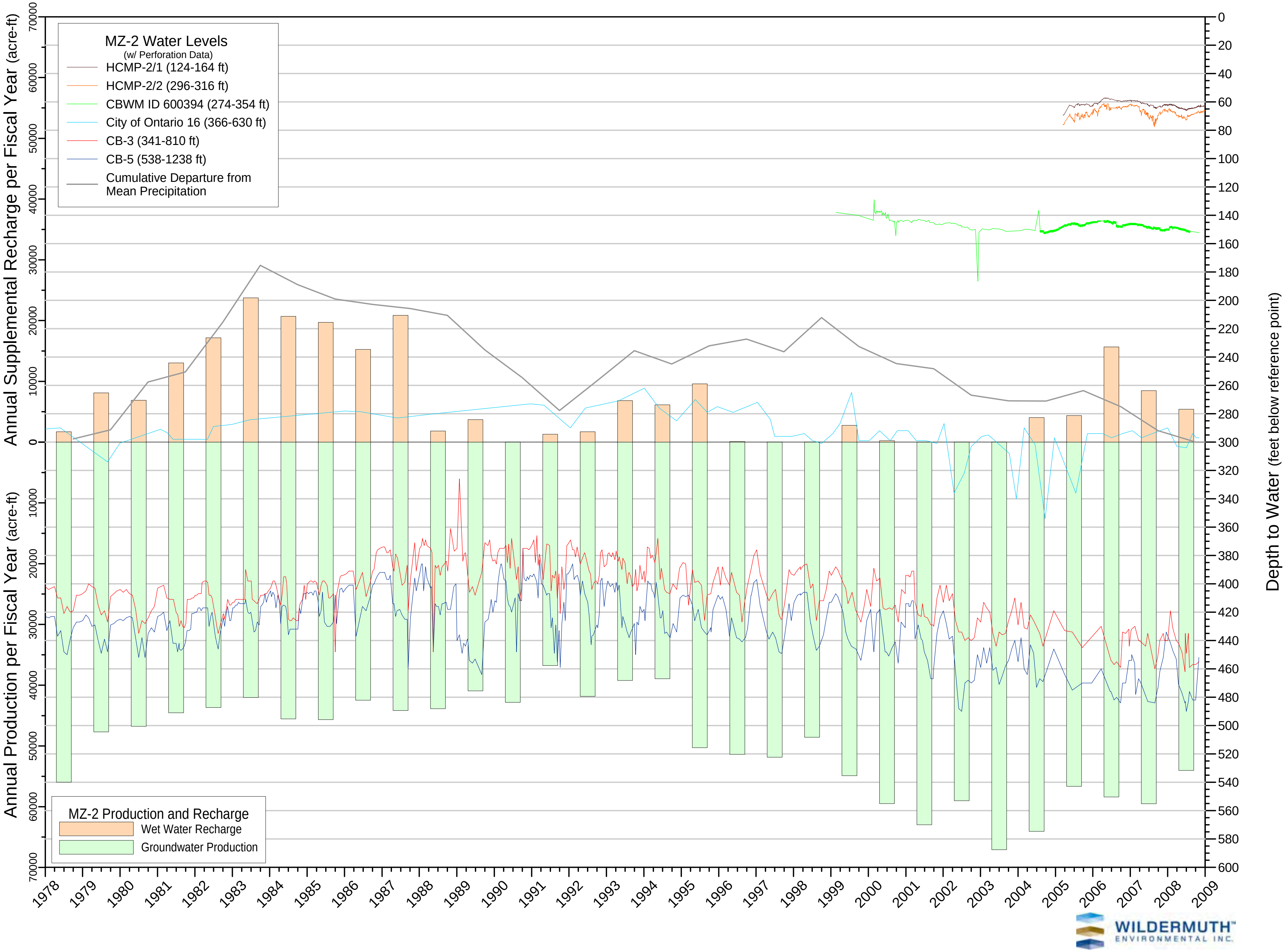

FIGURE 4.3-18 - Time History of Production, Recharge, and Groundwater Levels in MZ3

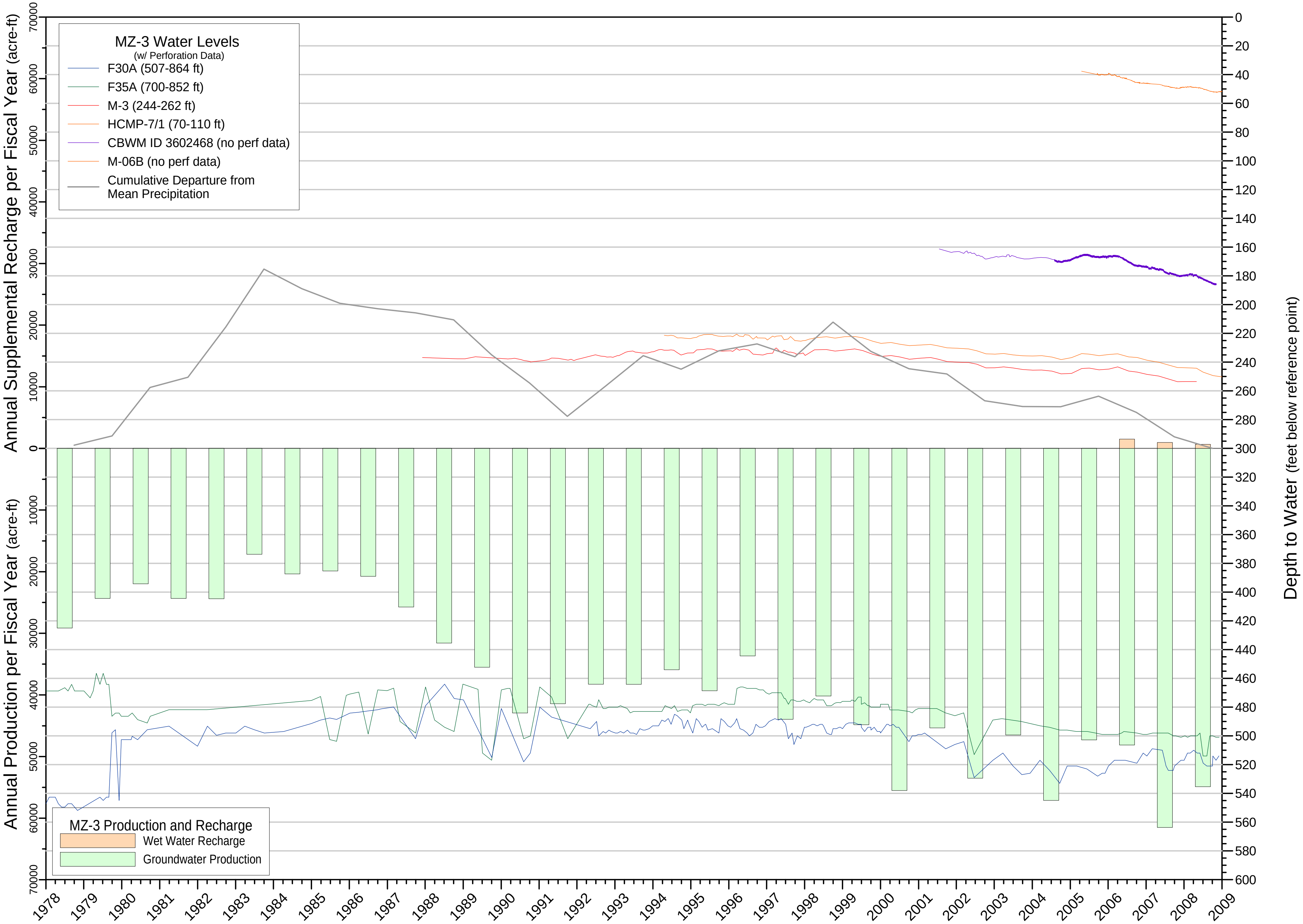

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FIGURE 4.3-19 - Time History of Production, Recharge, and Groundwater Levels in Chino-East MZ

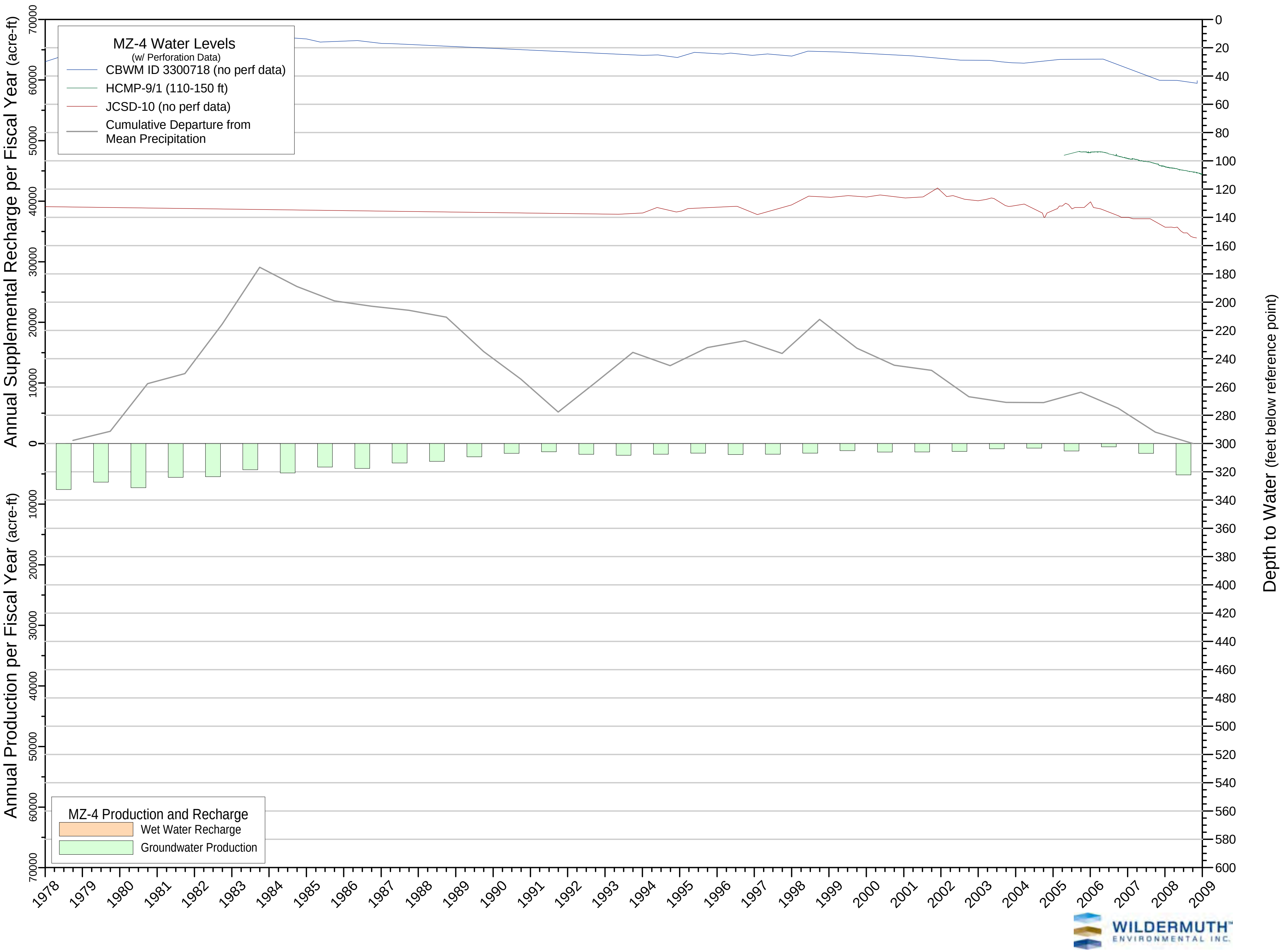
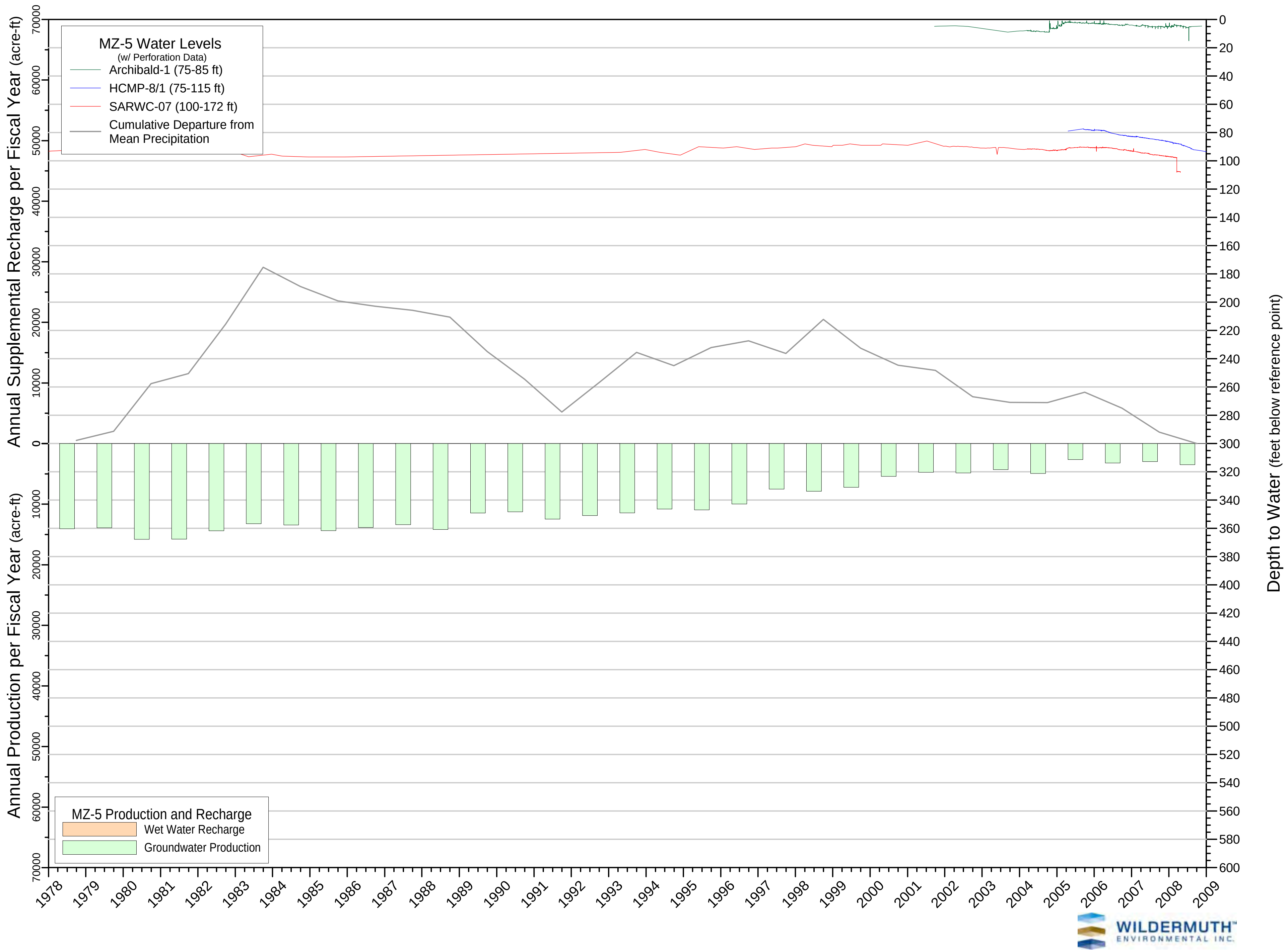
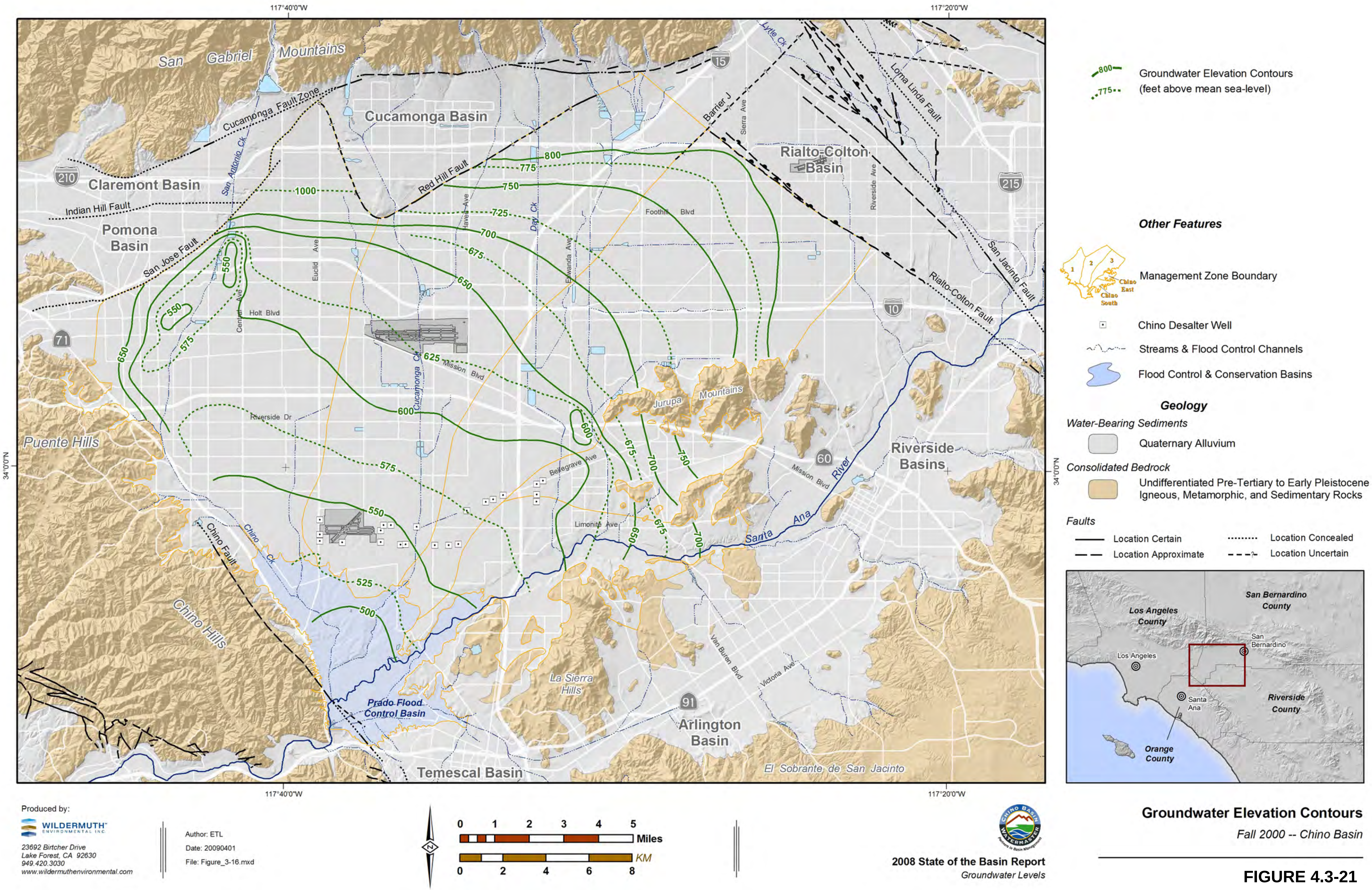


FIGURE 4.3-20 - Time History of Production, Recharge, and Groundwater Levels in Chino-South MZ





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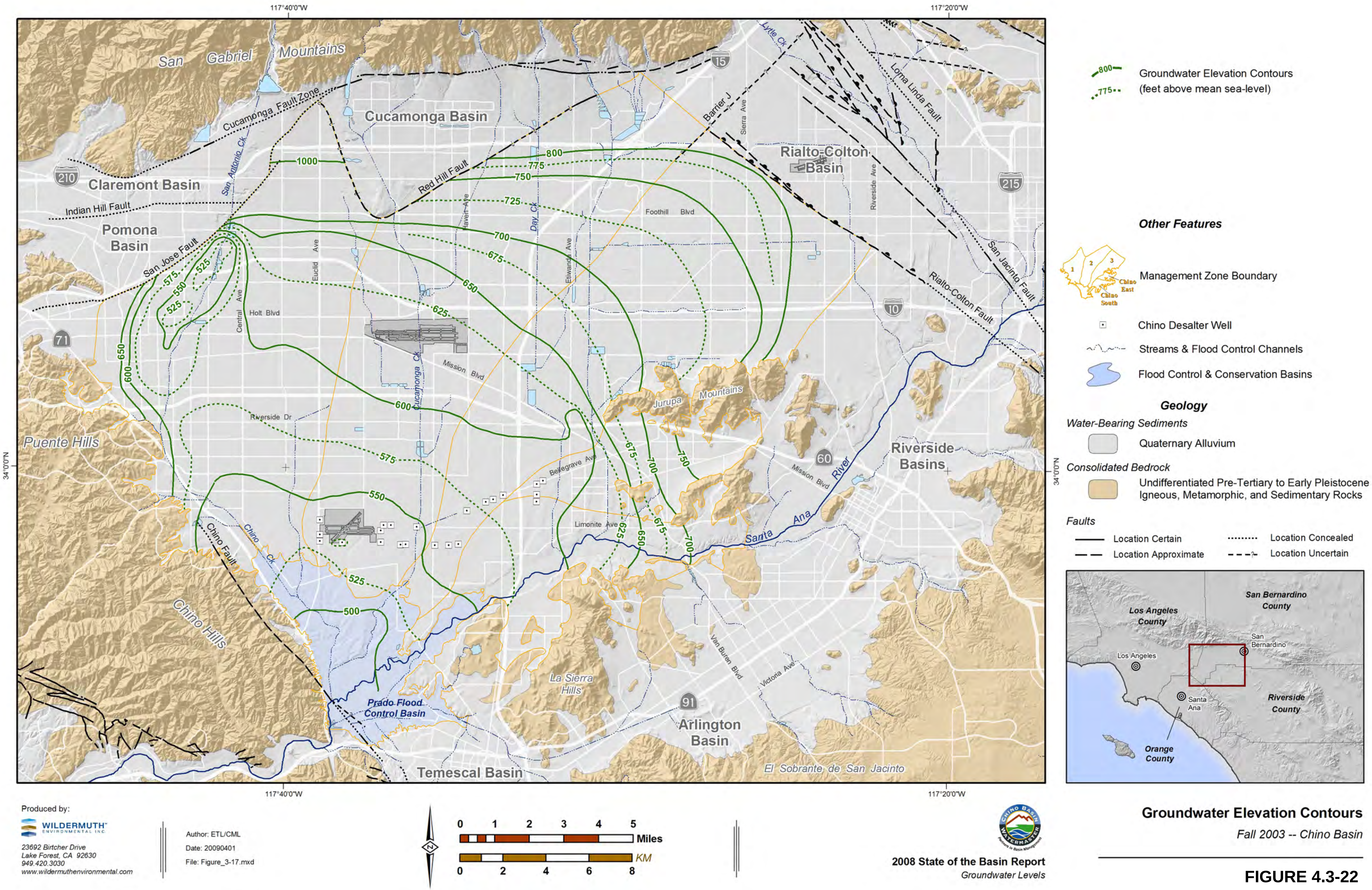
2008 State of the Basin Report
Groundwater Levels

Groundwater Elevation Contours
Fall 2000 -- Chino Basin

FIGURE 4.3-21



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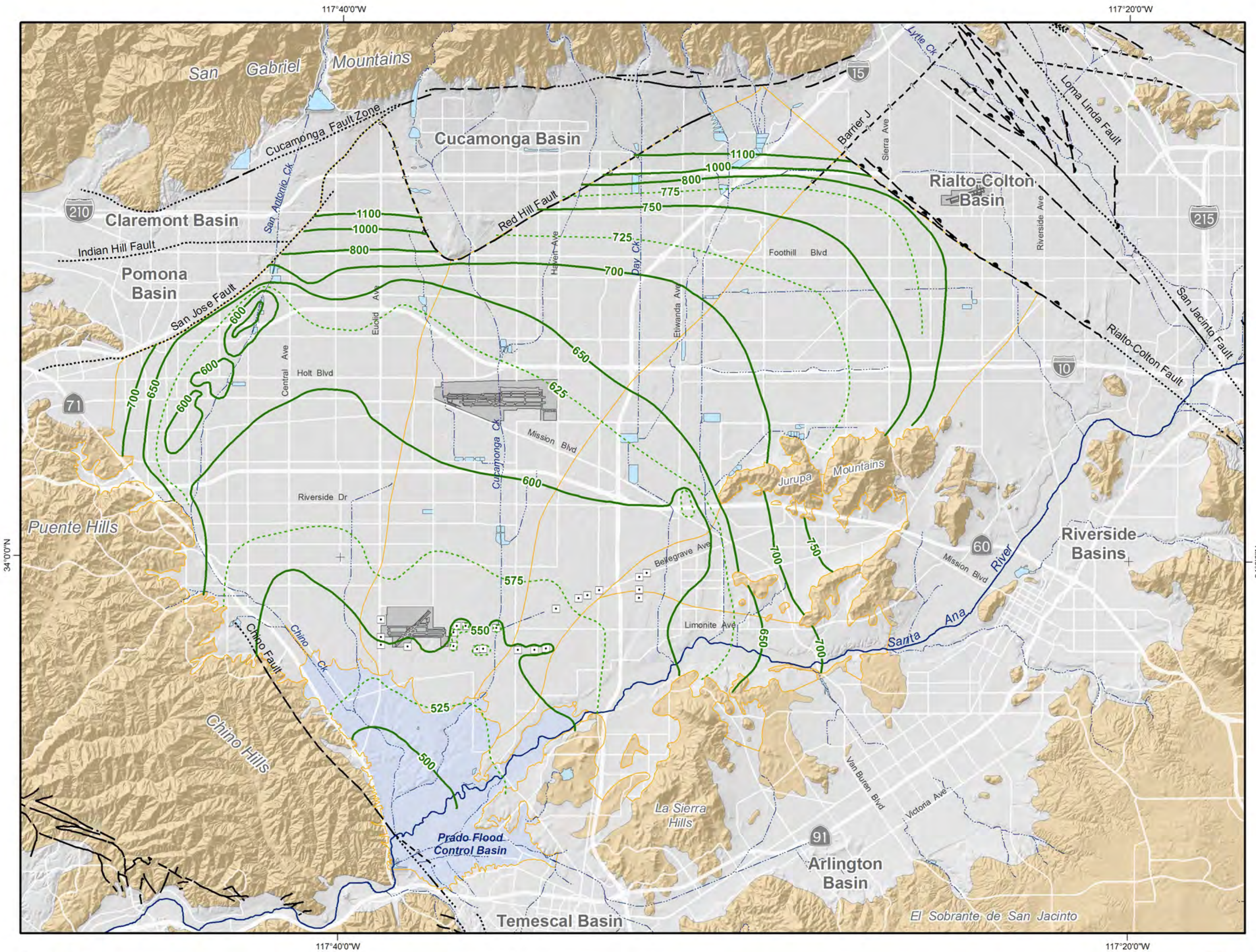
2008 State of the Basin Report
Groundwater Levels

Groundwater Elevation Contours

Fall 2003 -- Chino Basin

FIGURE 4.3-22



Groundwater Elevation Contours (feet above mean sea-level)

Other Features

Management Zone Boundary

Chino Desalter Well

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

Location Certain — Location Concealed

Location Approximate — Location Uncertain

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0 1 2 3 4 5 Miles

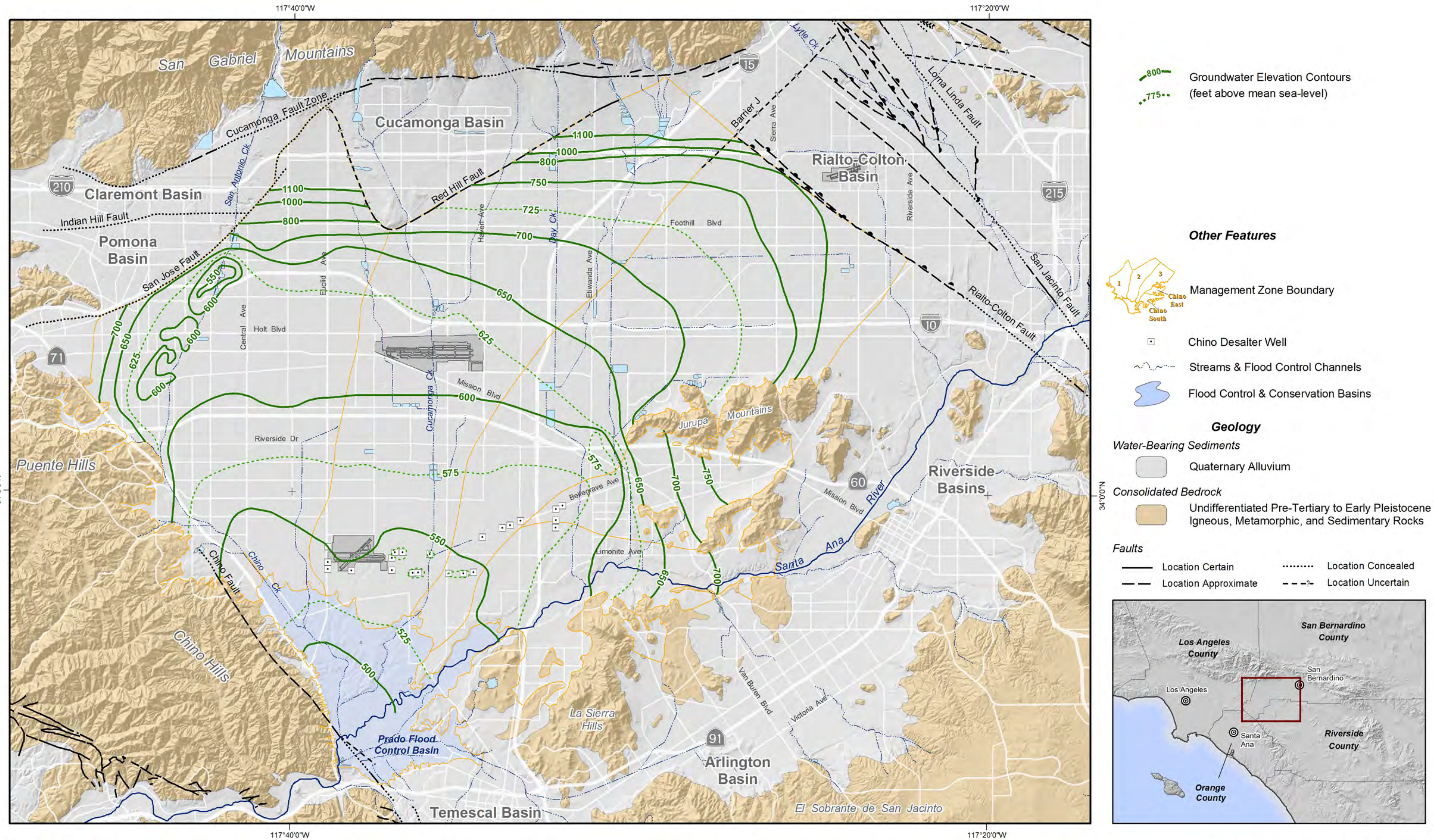
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Levels

Groundwater Elevation Contours

Fall 2006 -- Chino Basin

FIGURE 4.3-23



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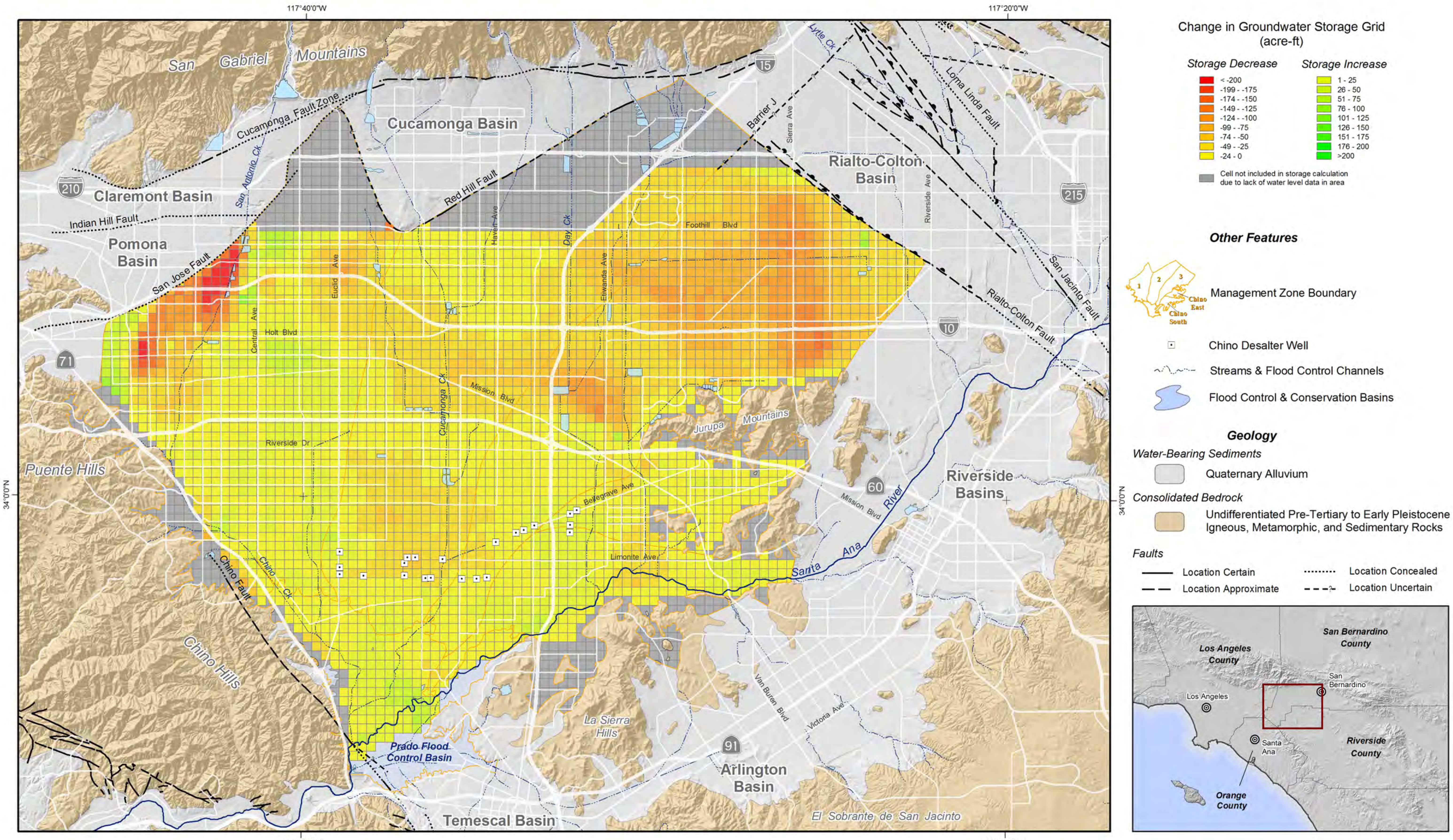
2008 State of the Basin Report
Groundwater Levels

Groundwater Elevation Contours
Fall 2008 -- Chino Basin

FIGURE 4.3-24



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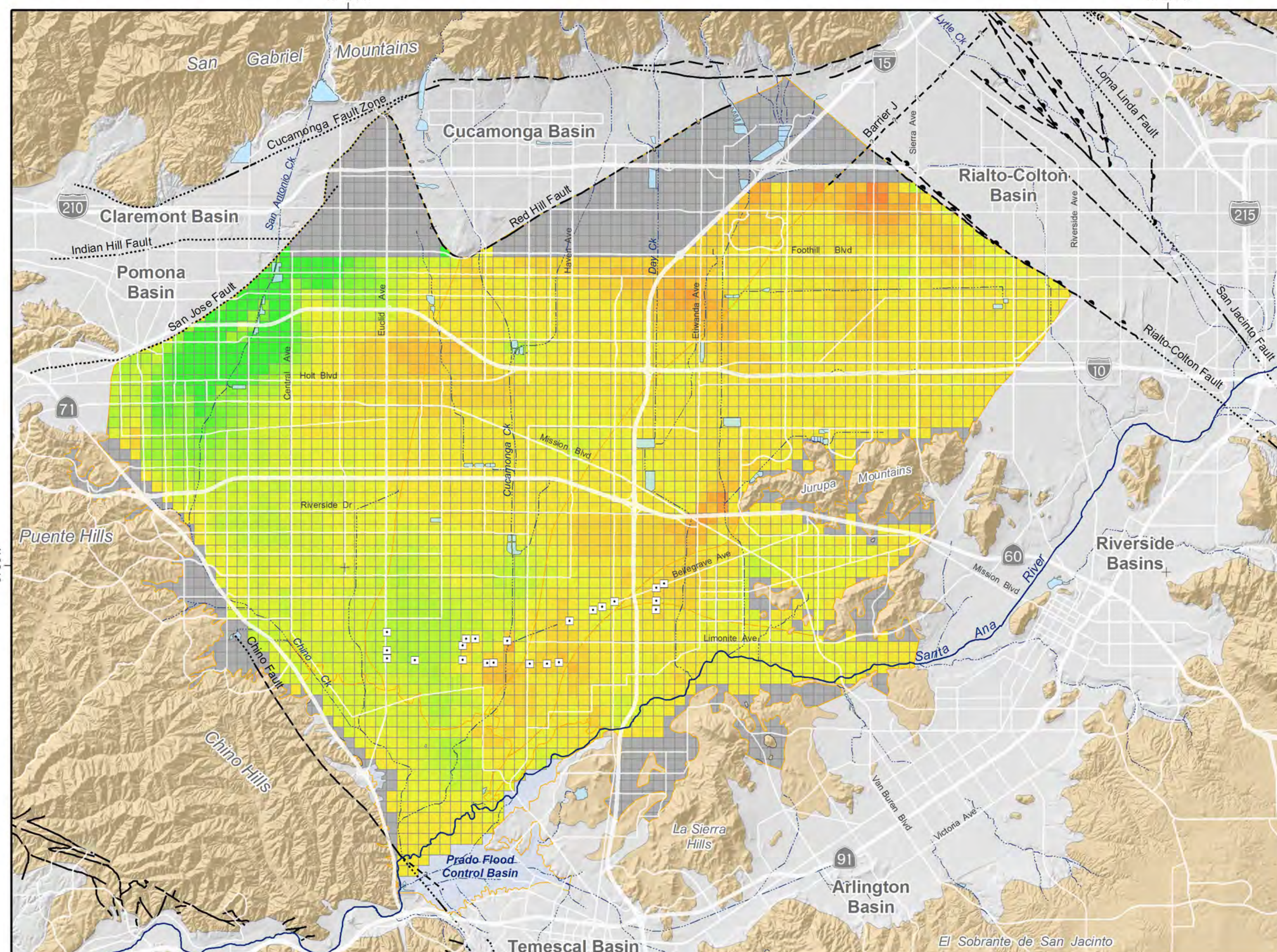
Miles 0 1 2 3 4 5
KM 0 2 4 6 8

2008 State of the Basin Report
Changes in Groundwater Storage

Change in Groundwater Storage
Fall 2000 to Fall 2003

FIGURE 4.3-25



Change in Groundwater Storage Grid (acre-ft)

Storage Decrease	Storage Increase
< -200	1 - 25
-199 - -175	26 - 50
-174 - -150	51 - 75
-149 - -125	76 - 100
-124 - -100	101 - 125
-99 - -75	126 - 150
-74 - -50	151 - 175
-49 - -25	176 - 200
-24 - 0	>200

Cell not included in storage calculation due to lack of water level data in area

Other Features

Management Zone Boundary

Chino Desalter Well

Streams & Flood Control Channels

Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

Location Certain

Location Approximate

Location Concealed

Location Uncertain

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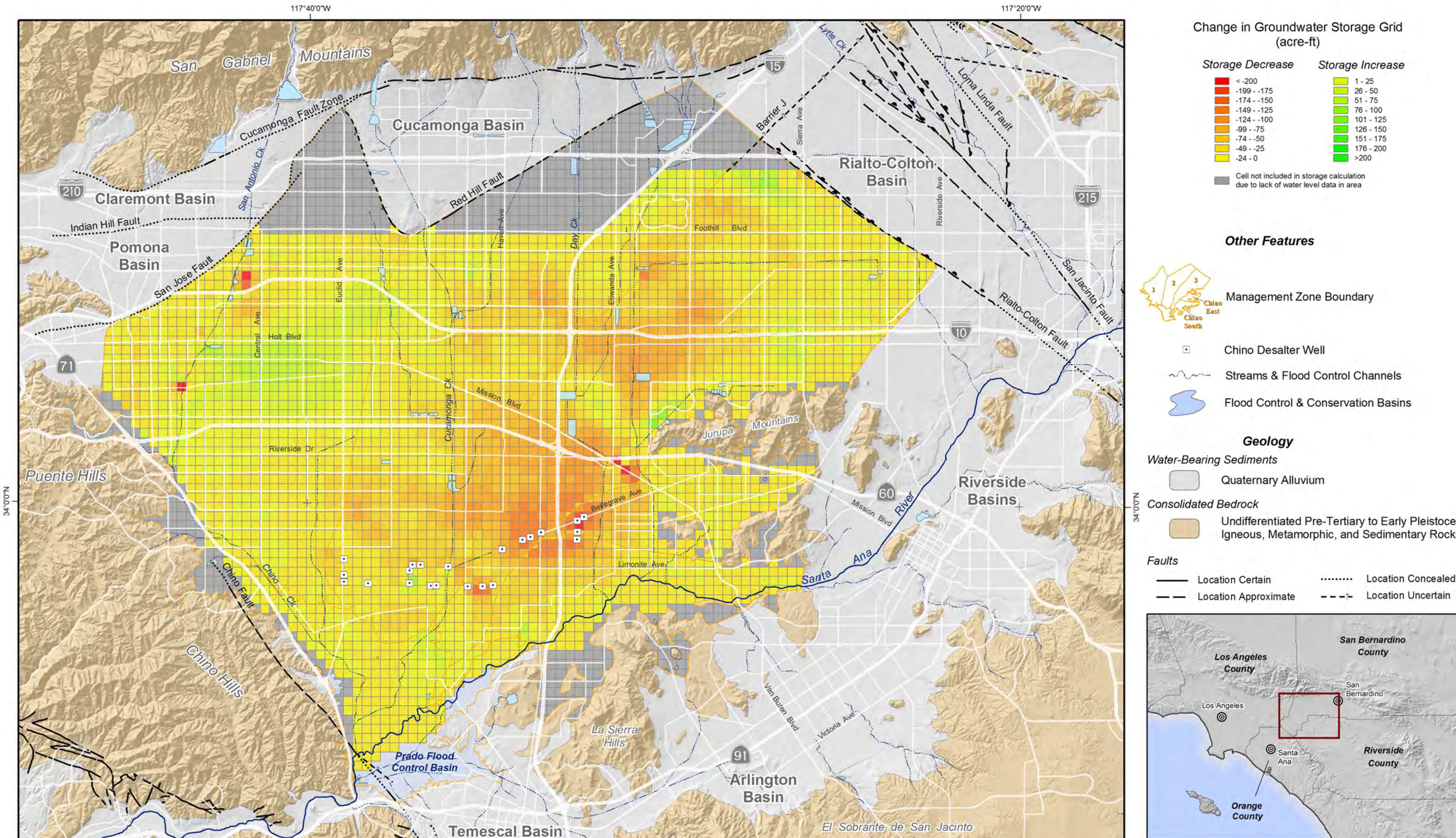
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Changes in Groundwater Storage

Change in Groundwater Storage
Fall 2003 to Fall 2006

FIGURE 4.3-26



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0 1 2 3 4 5 Miles

0 2 4 6 8 KM

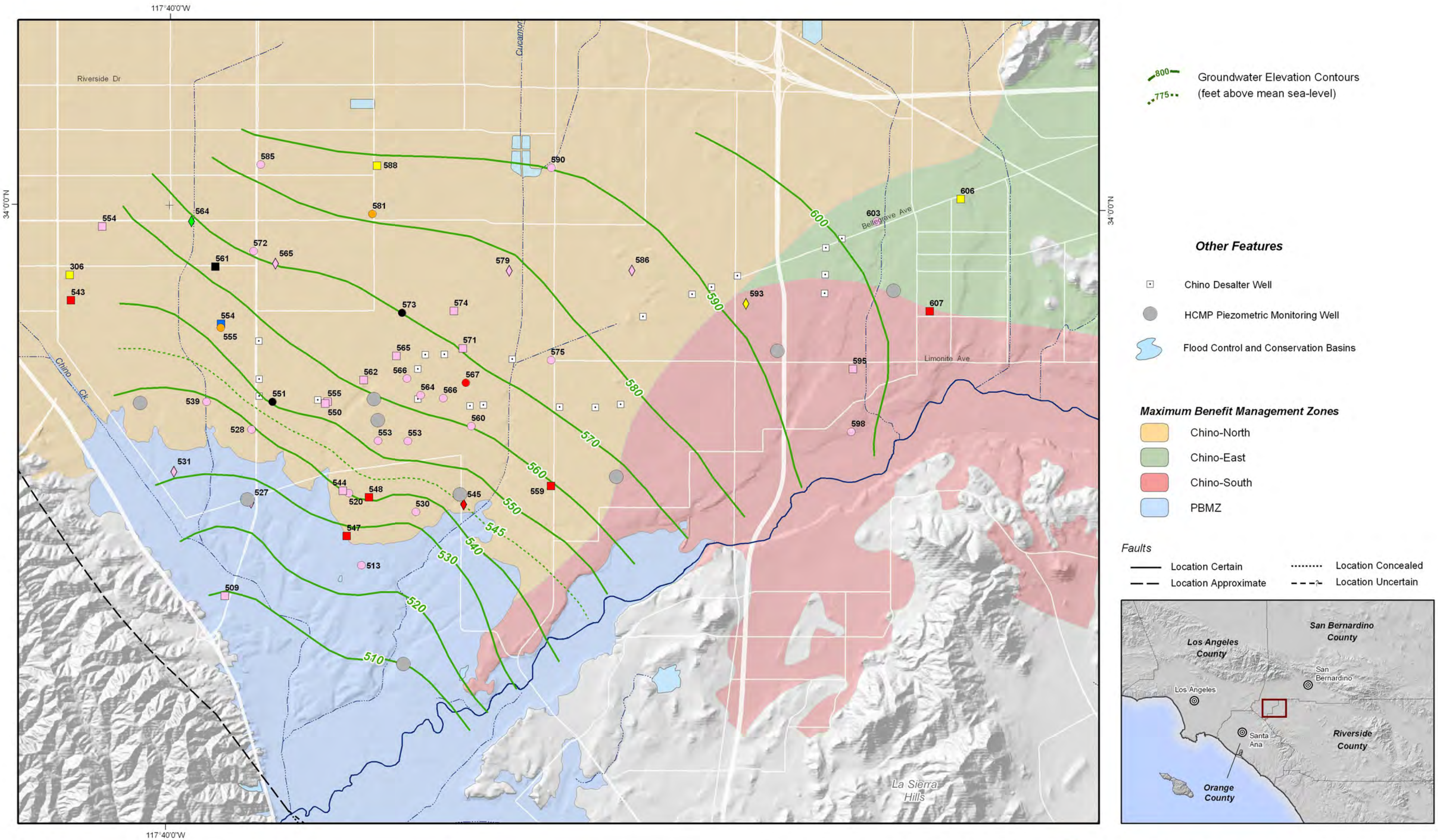
2008 State of the Basin Report

Changes in Groundwater Storage

Change in Groundwater Storage

Fall 2006 to Fall 2008

FIGURE 4.3-27



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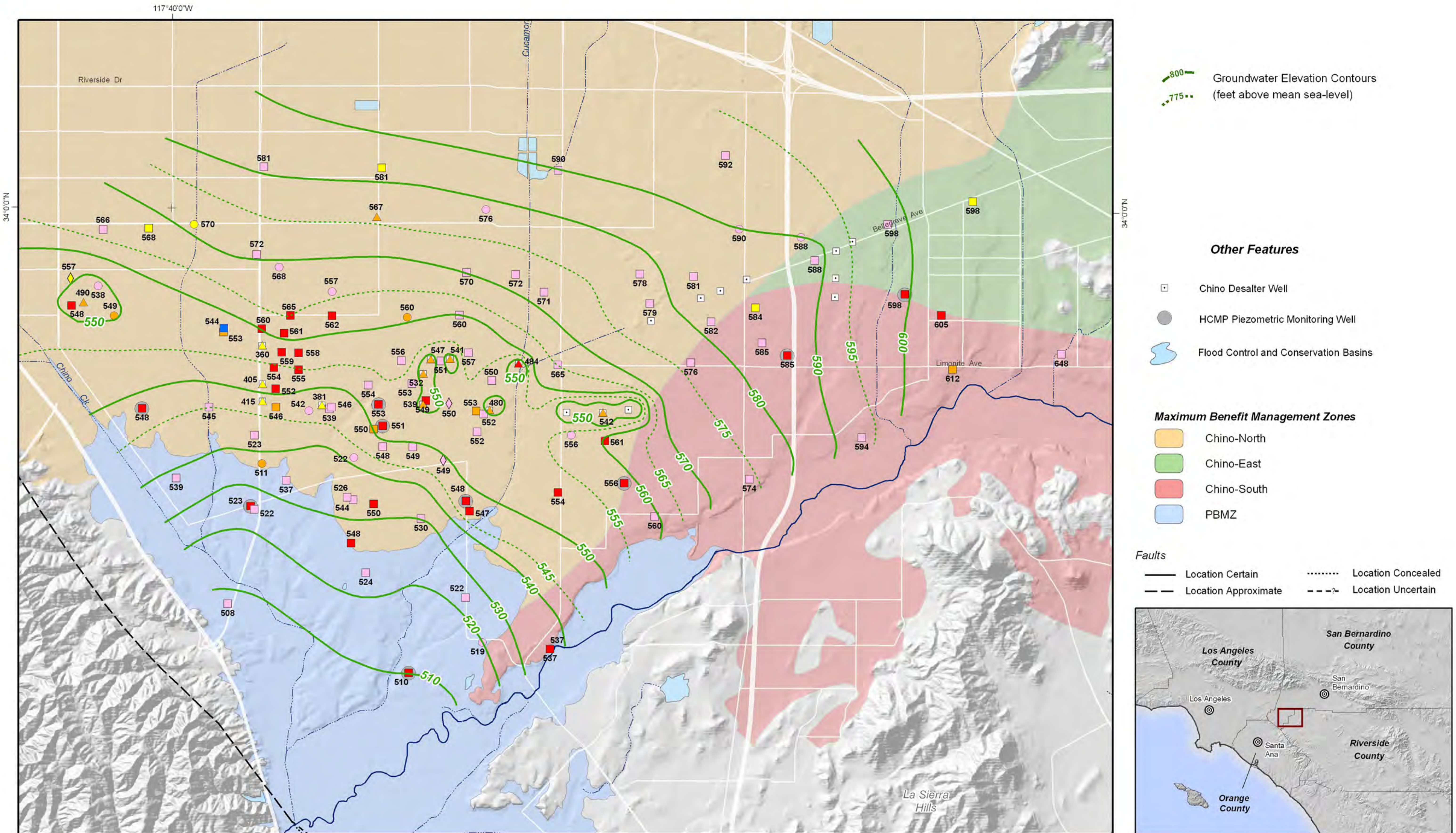
2008 State of the Basin Report
Assessment of Hydraulic Control

State of Hydraulic Control -- Spring 2000

Groundwater Contours -- South Chino Basin Shallow Aquifer System

FIGURE 4.3-28



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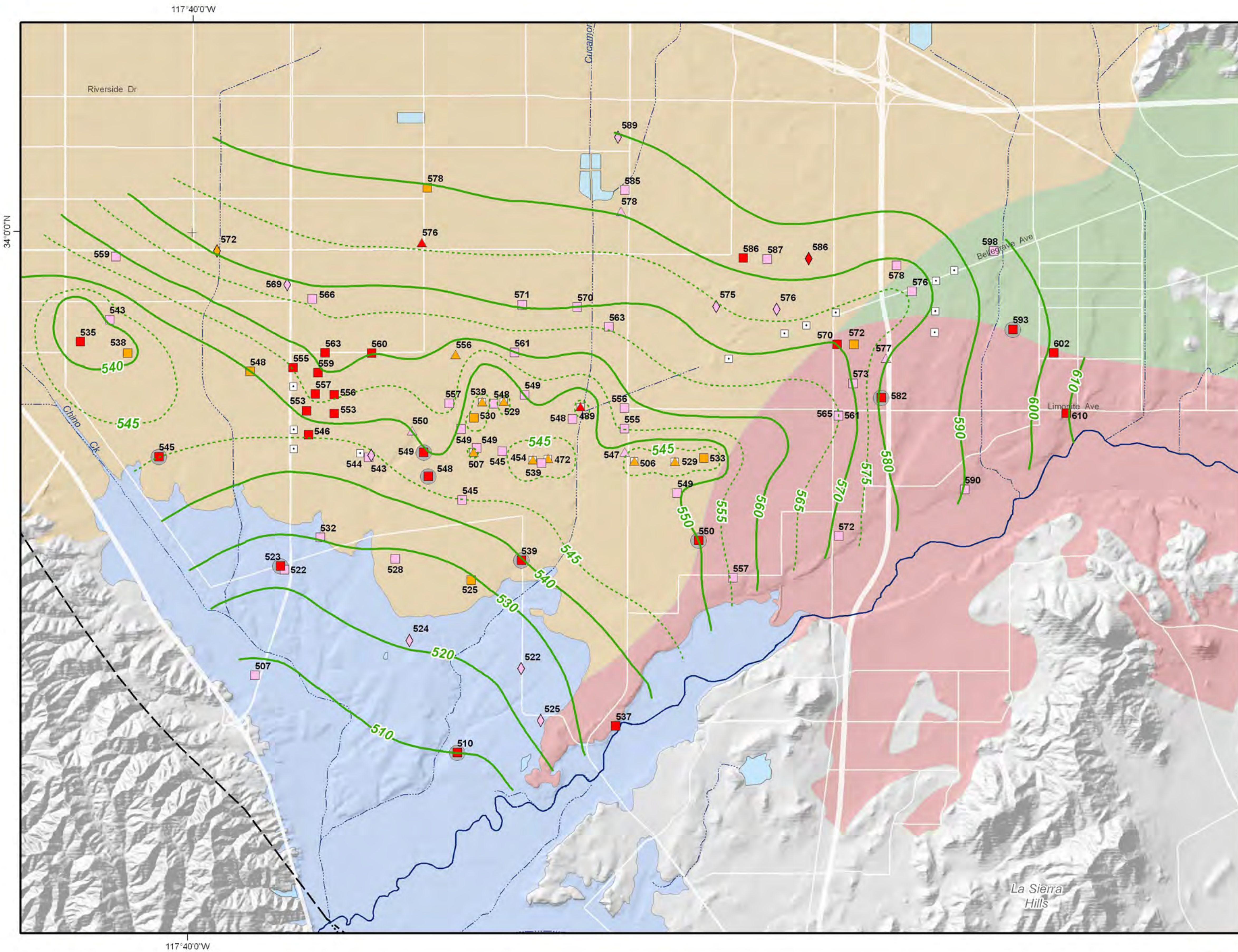
0 1 2 Miles
0 1 2 3 KM

2008 State of the Basin Report
Assessment of Hydraulic Control

State of Hydraulic Control -- Spring 2006
Groundwater Contours -- South Chino Basin Shallow Aquifer System

FIGURE 4.3-29



Groundwater Elevation Contours (feet above mean sea-level)

Other Features

- Chino Desalter Well
- HCMP Piezometric Monitoring Well
- Flood Control and Conservation Basins

Maximum Benefit Management Zones

- Chino-North
- Chino-East
- Chino-South
- PBMZ

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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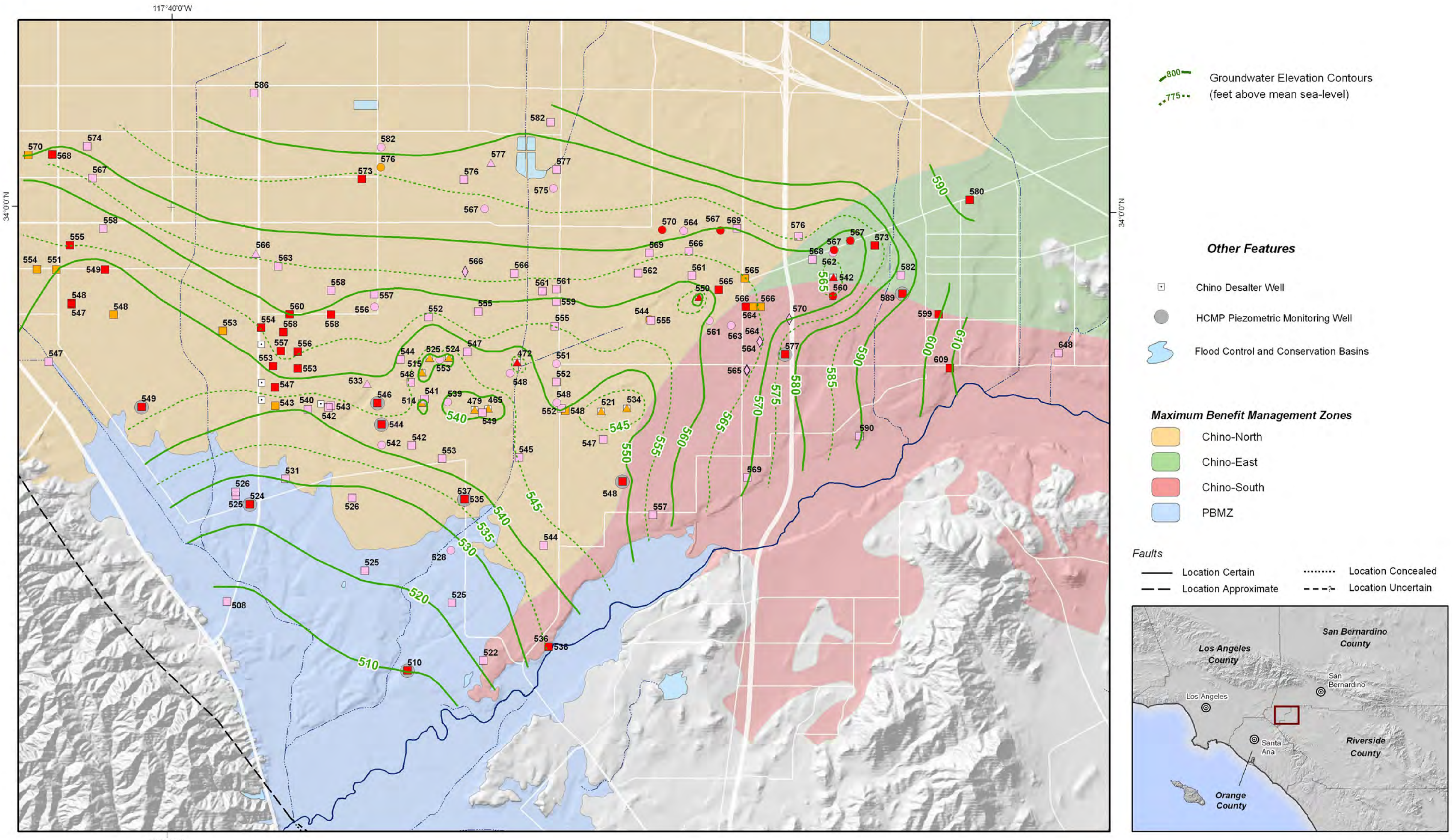
0 1 2 Miles
0 1 2 3 KM

2008 State of the Basin Report
Assessment of Hydraulic Control

State of Hydraulic Control -- Spring 2007
Groundwater Contours -- South Chino Basin Shallow Aquifer System

FIGURE 4.3-30



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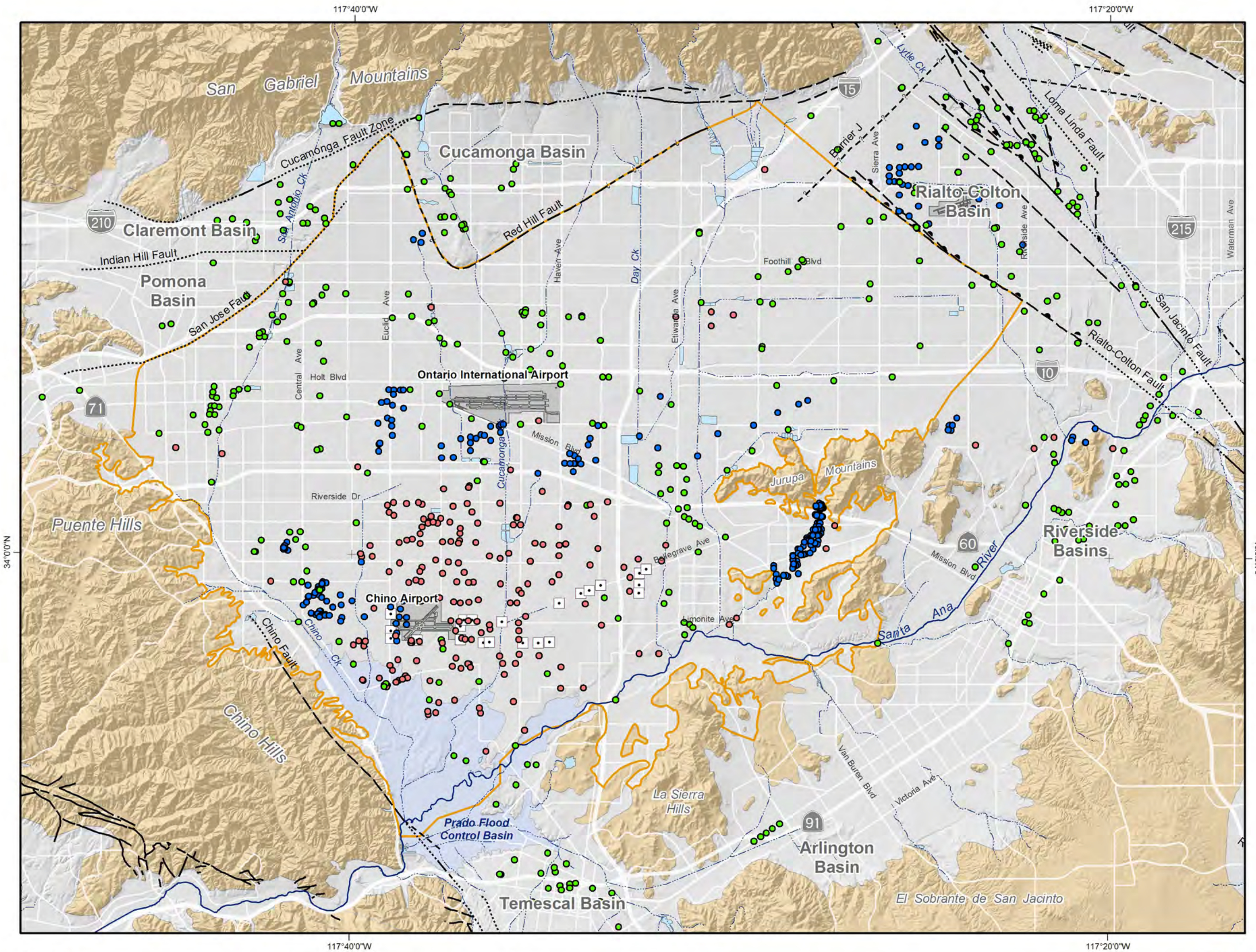
0 1 2 Miles
0 1 2 3 KM

2008 State of the Basin Report
Assessment of Hydraulic Control

State of Hydraulic Control -- Spring 2008

Groundwater Contours -- South Chino Basin Shallow Aquifer System

FIGURE 4.3-31



Main Features

- Monitoring/Extraction Wells
- Municipal Wells
- Private Wells

Other Features

- Chino Basin Hydrologic Boundary
- Chino Desalter Well
- Streams & Flood Control Channels
- Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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0 1 2 3 4 5 Miles
0 2 4 6 8 KM

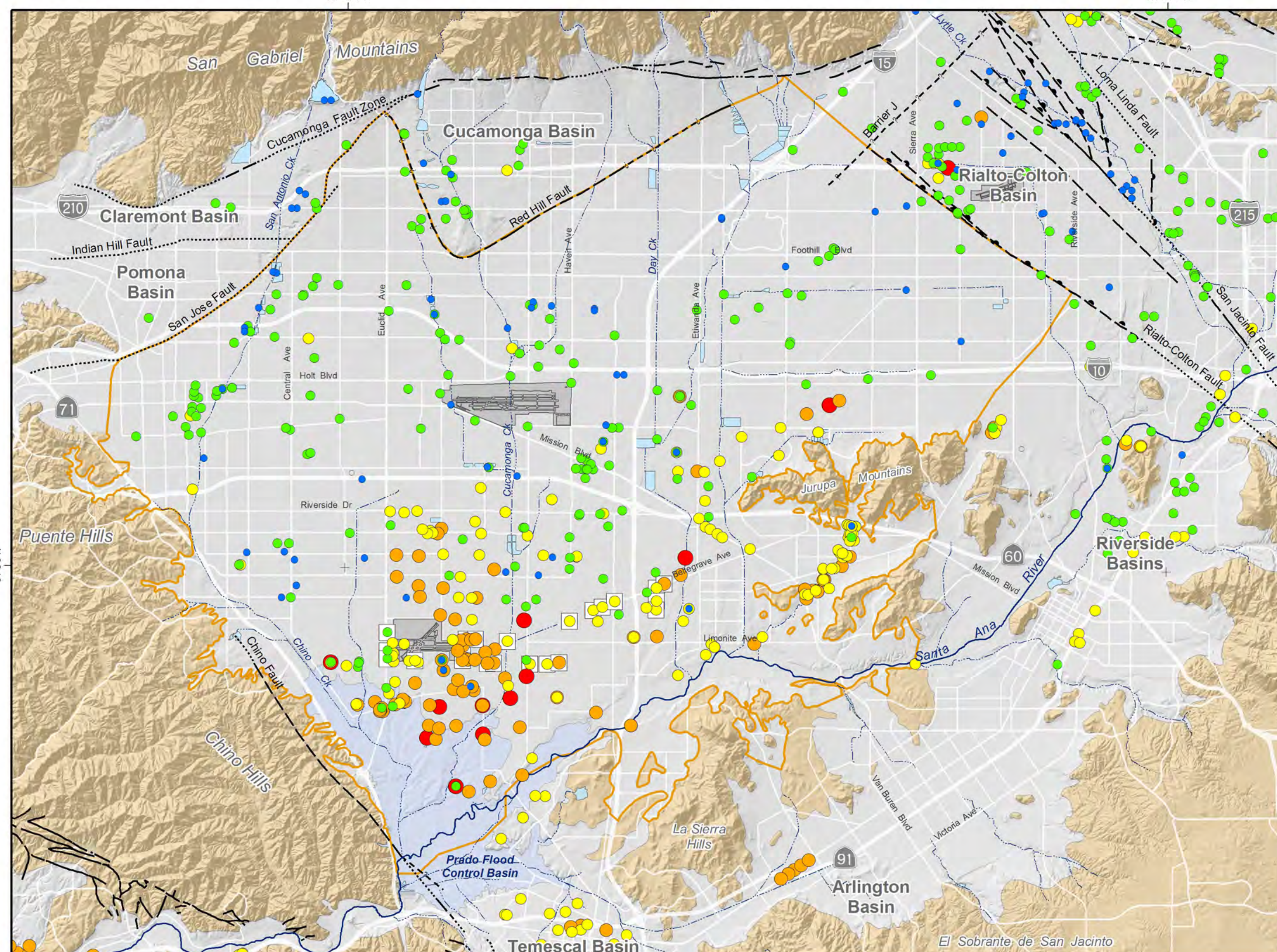
CHINO BASIN WATERMASTER

2008 State of the Basin Report
Groundwater Quality

Groundwater Wells with Water Quality Data

July 2003 - June 2008

FIGURE 4.3-32



Main Features

Total Dissolved Solids Concentration (mg/L)

- < 125
- 125 - 250
- 250 - 500
- 500 - 1,000
- 1,000 - 2,000
- > 2,000

Secondary US EPA MCL = 500 mg/L

Other Features

- Chino Basin Hydrologic Boundary
- Chino Desalter Well
- Streams & Flood Control Channels
- Flood Control & Conservation Basins

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain

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0 1 2 3 4 5 Miles

0 2 4 6 8 KM

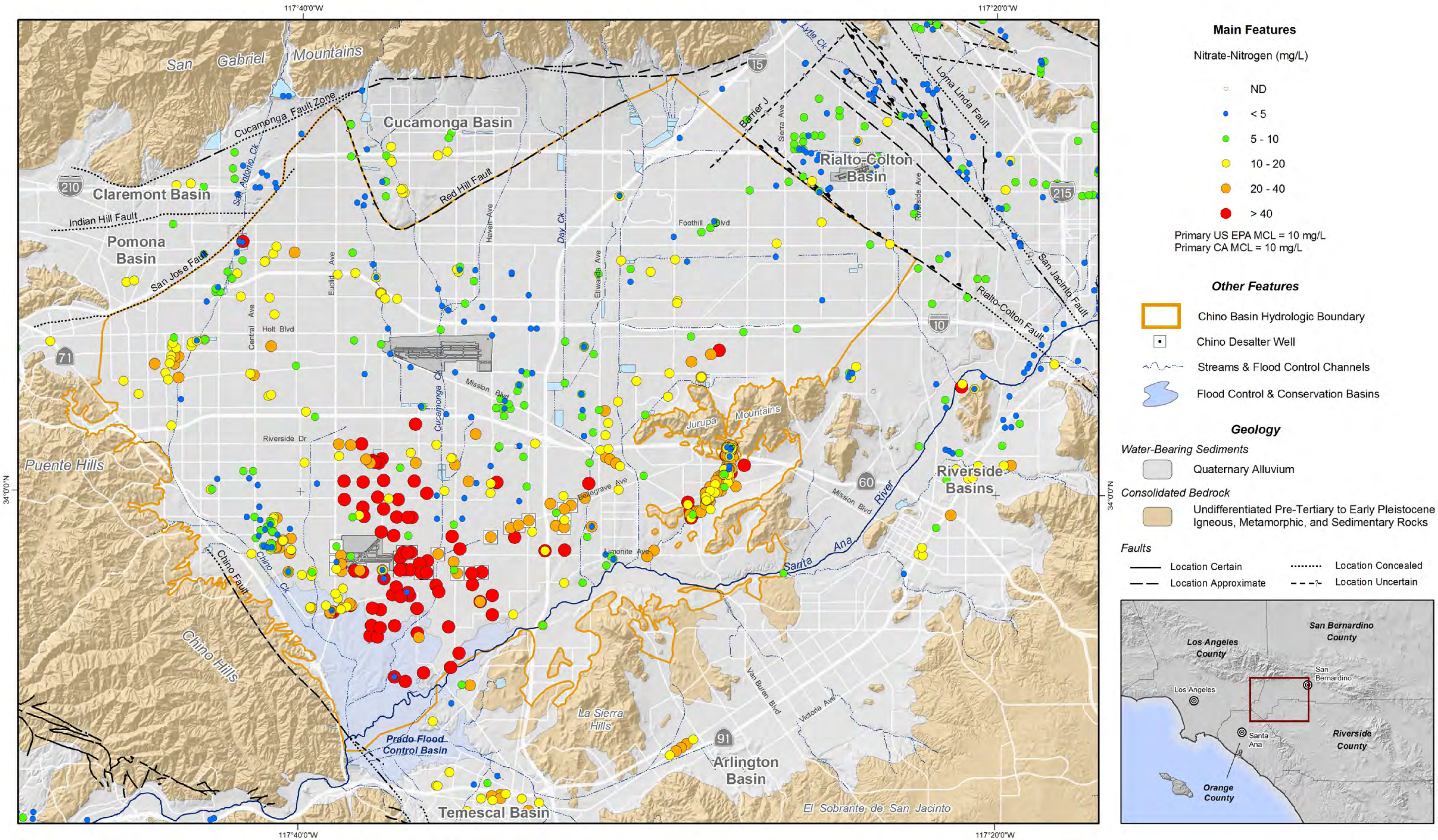
2008 State of the Basin Report

Groundwater Quality

Total Dissolved Solids in Groundwater

Maximum Concentration (July 2003 - June 2008)

FIGURE 4.3-33



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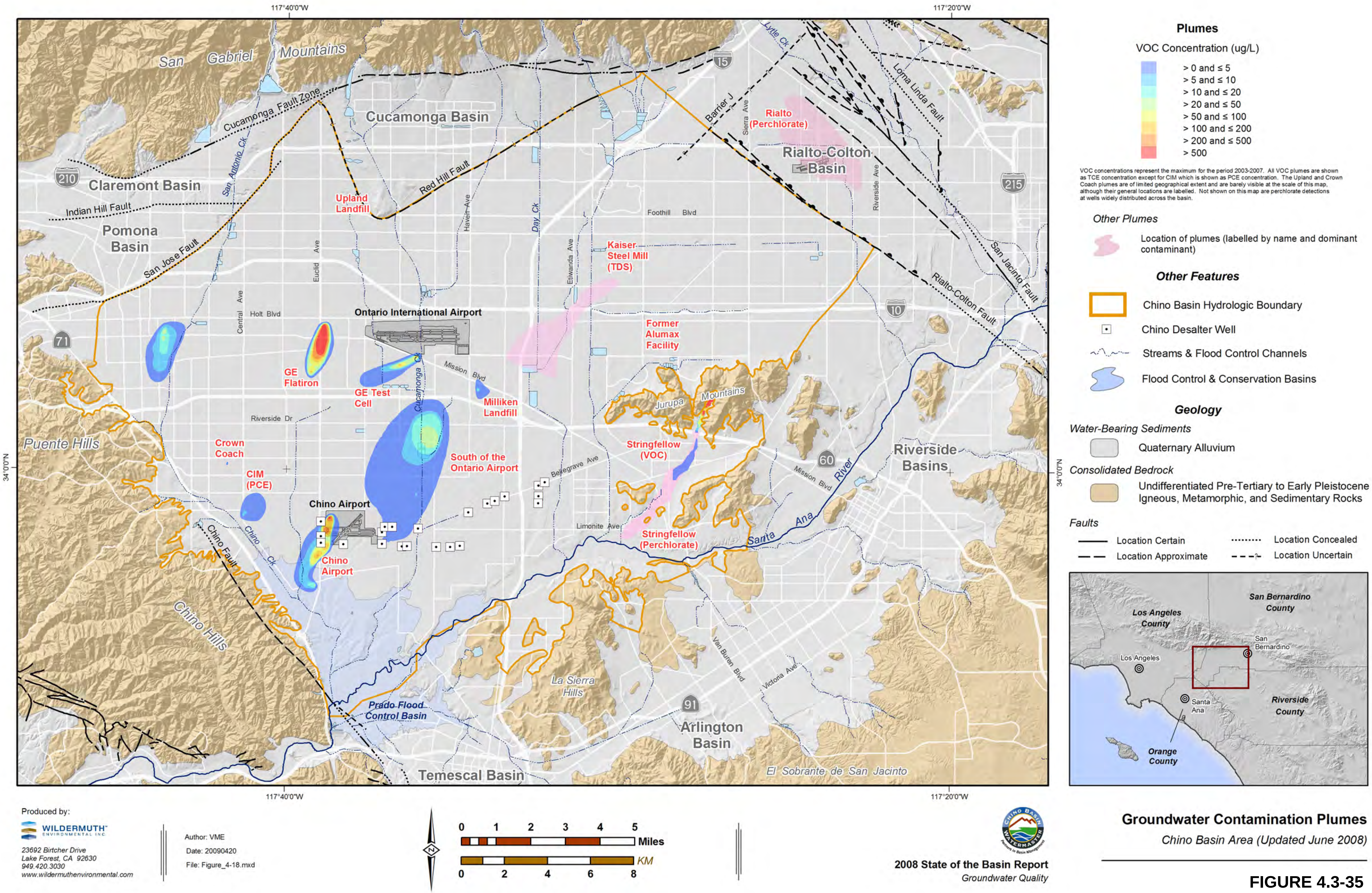
File: Figure_4-3.mxd

2008 State of the Basin Report
Groundwater Quality

Nitrate as Nitrogen in Groundwater
Maximum Concentration (July 2003 - June 2008)

FIGURE 4.3-34



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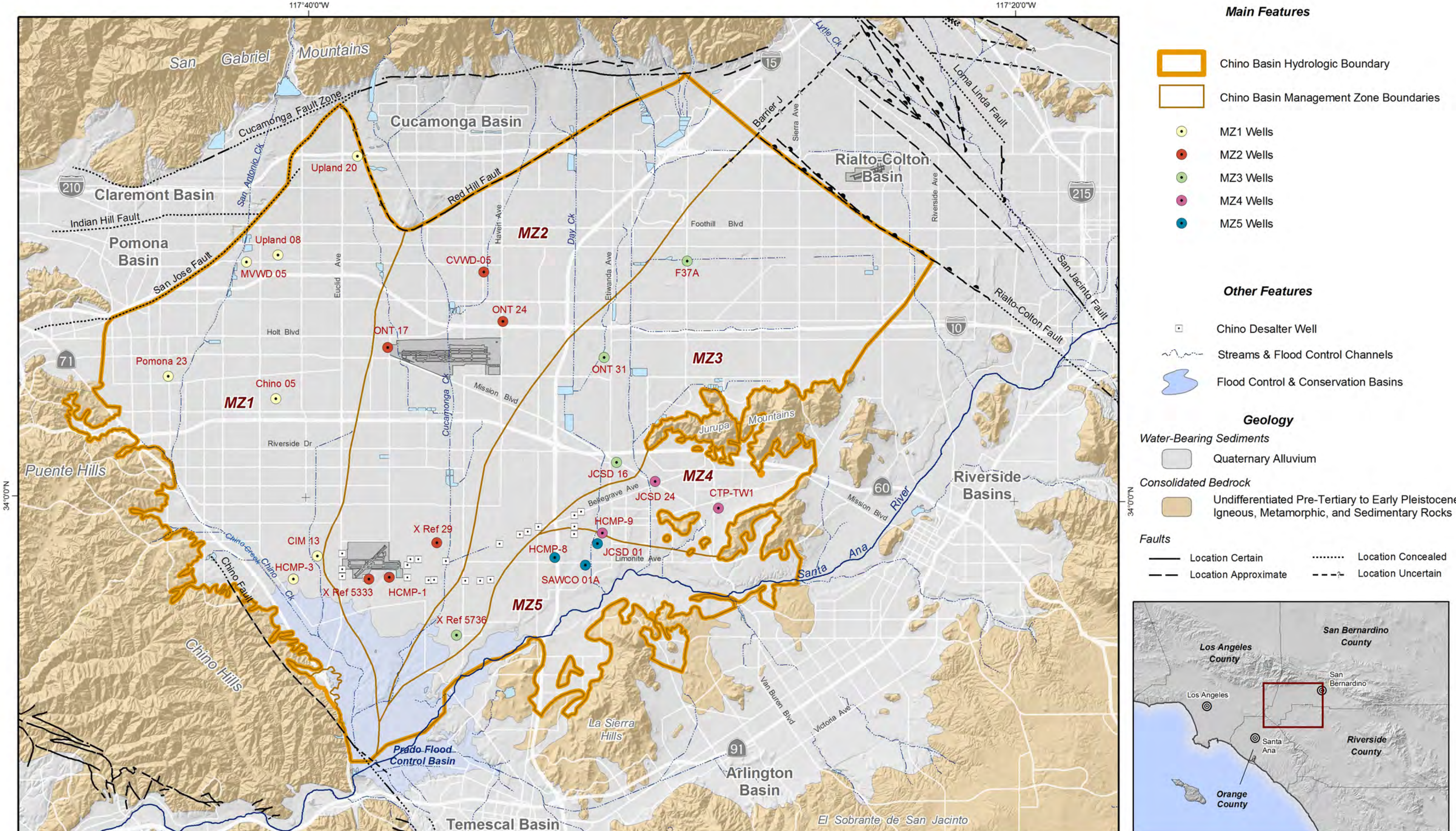
2008 State of the Basin Report
Groundwater Quality

Groundwater Contamination Plumes

Chino Basin Area (Updated June 2008)

FIGURE 4.3-35



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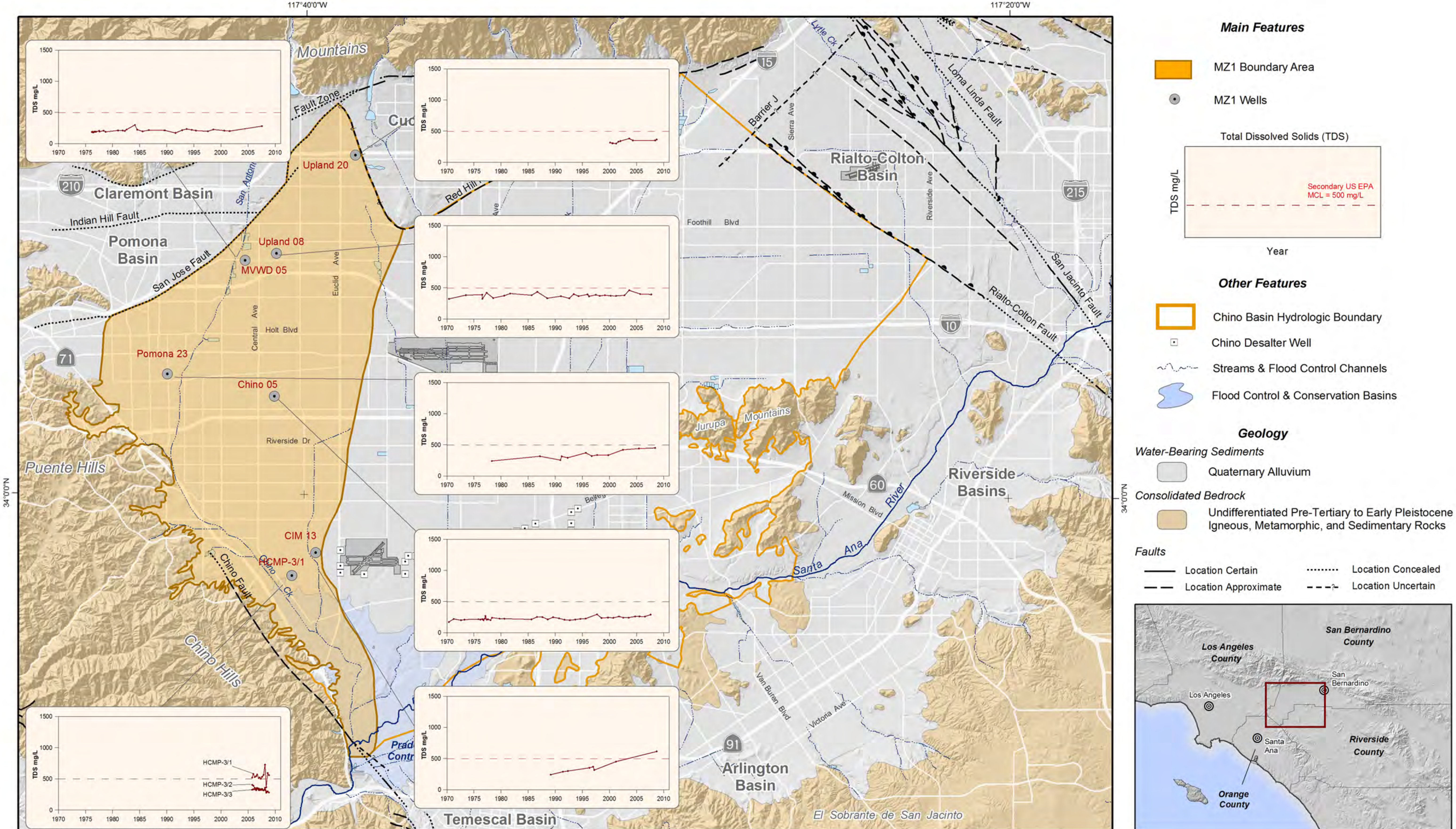
2008 State of the Basin Report
Groundwater Quality

Well Locations

Wells Used in Management Zone Water Quality Analyses

FIGURE 4.3-36



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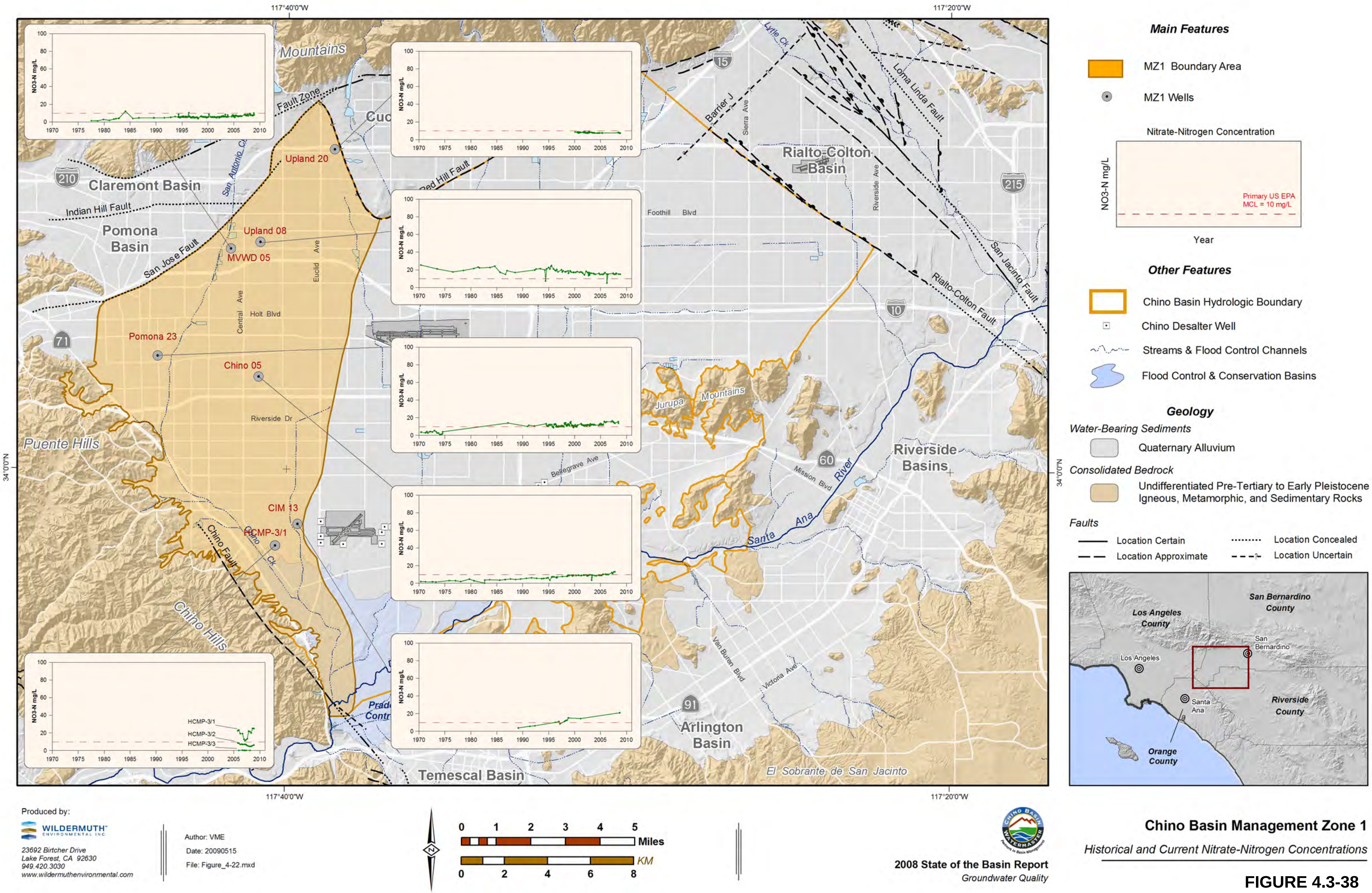
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 1

Historical and Current Total Dissolved Solids Concentration

FIGURE 4.3-37



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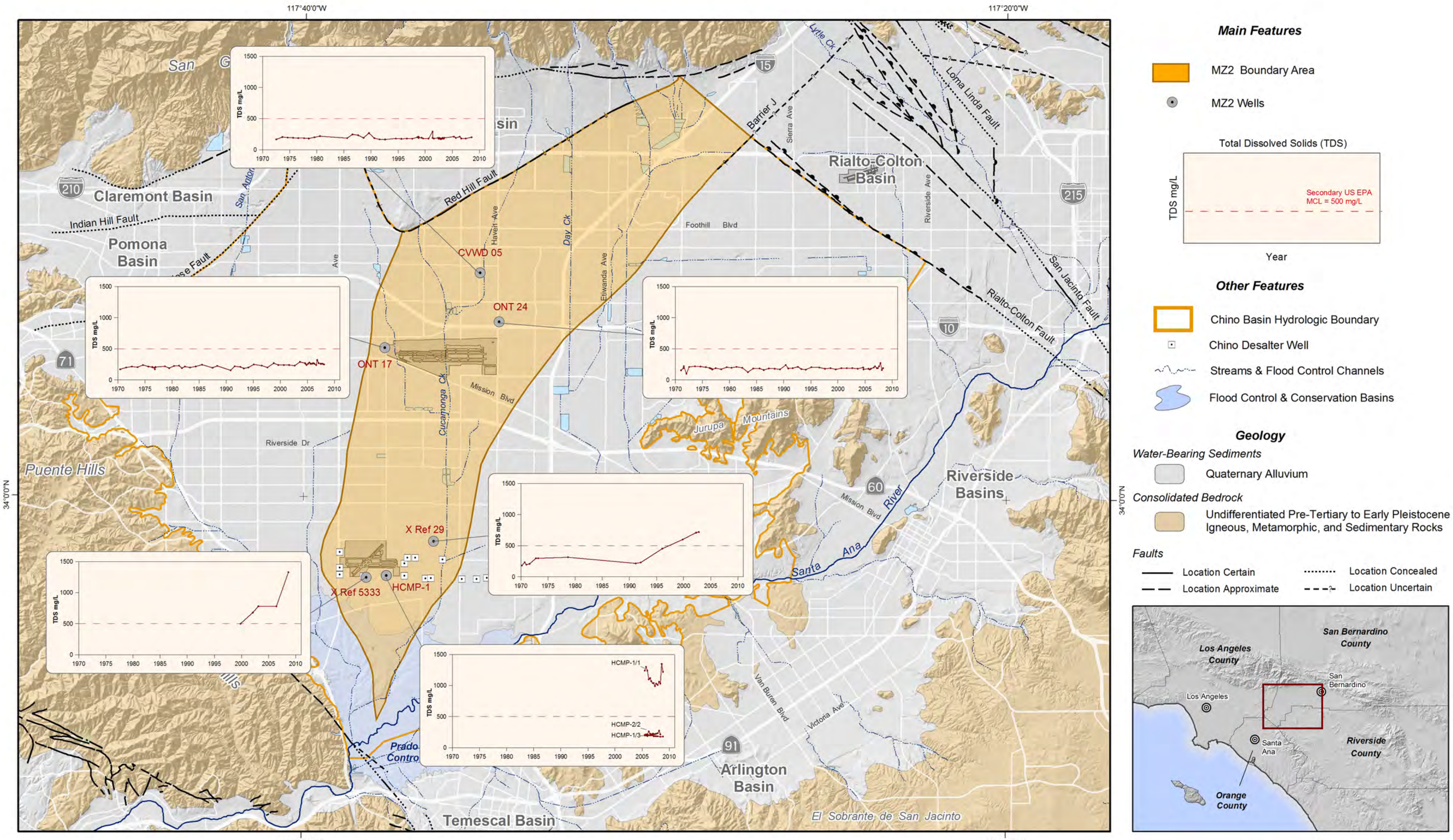
2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 1

Historical and Current Nitrate-Nitrogen Concentrations

FIGURE 4.3-38



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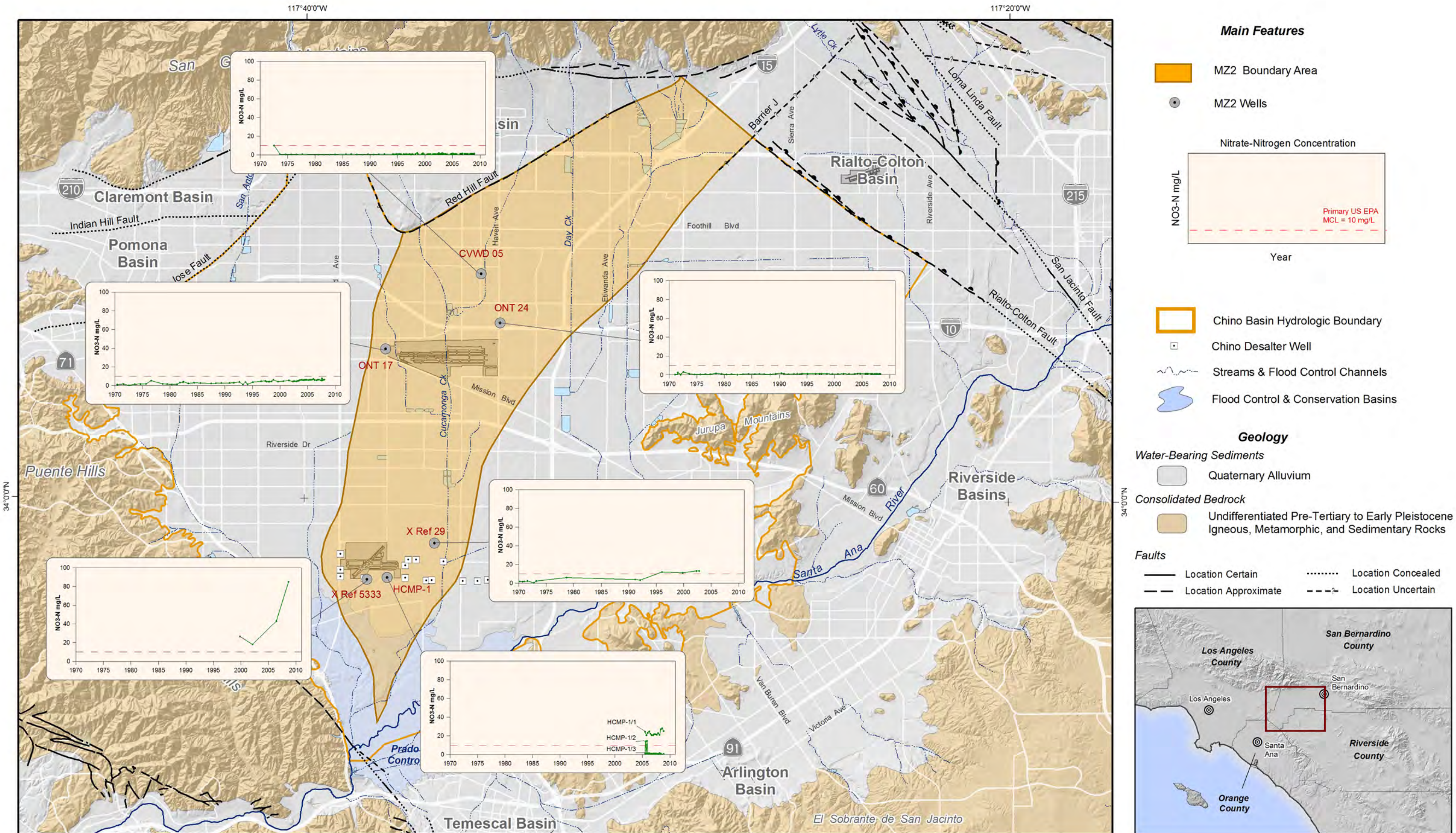
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 2
Historical and Current Total Dissolved Solids Concentration

FIGURE 4.3-39



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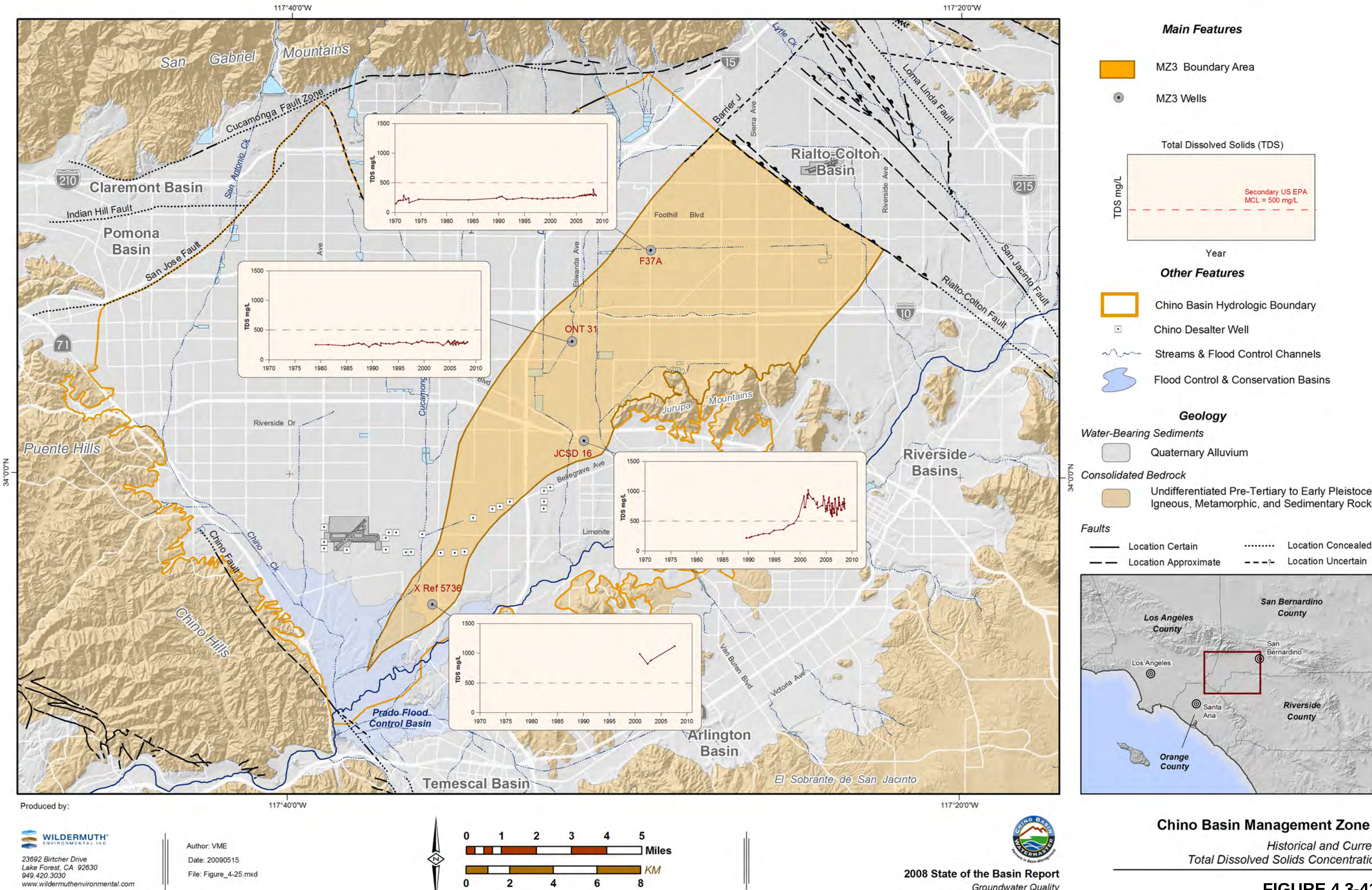
2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 2

Historical and Current Nitrate-Nitrogen Concentration

FIGURE 4.3-40



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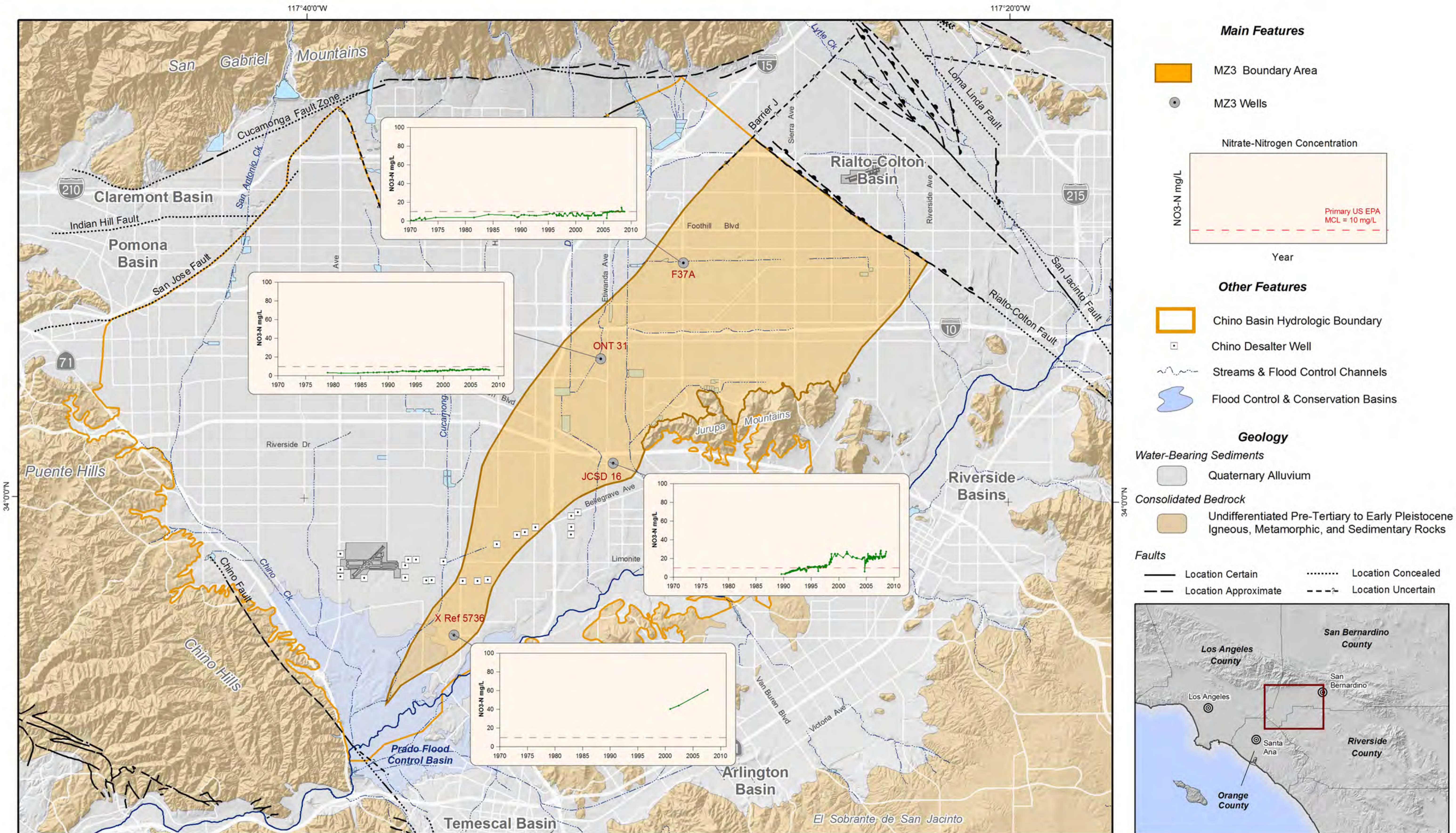
2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 3

Historical and Current
Total Dissolved Solids Concentration

FIGURE 4.3-41



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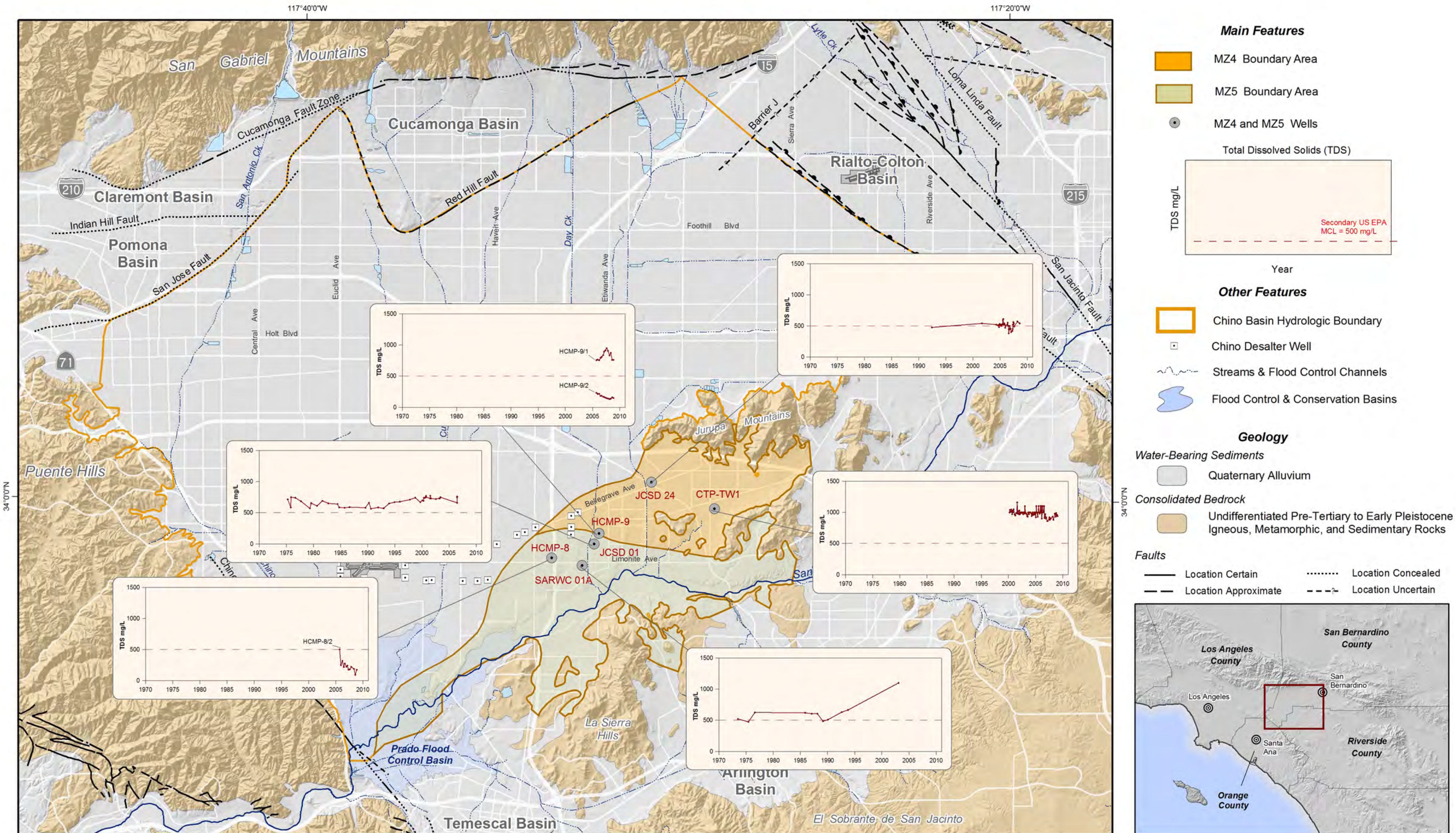
0 1 2 3 4 5 Miles
0 2 4 6 8 KM

2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 3

Historical and Current Nitrate-Nitrogen Concentration

FIGURE 4.3-42



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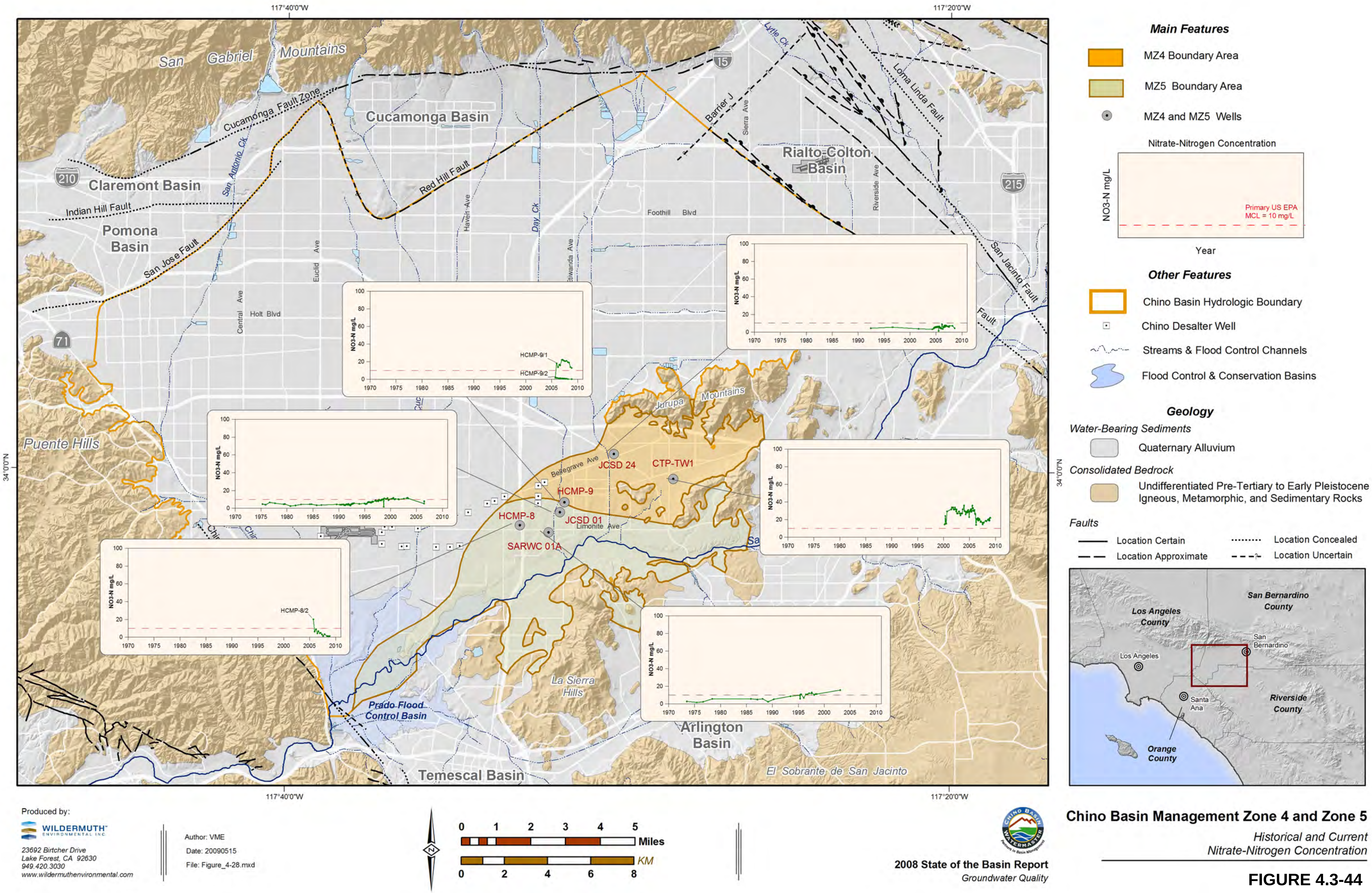
2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 4 and Zone 5

Historical and Current Total Dissolved Solids Concentration

FIGURE 4.3-43



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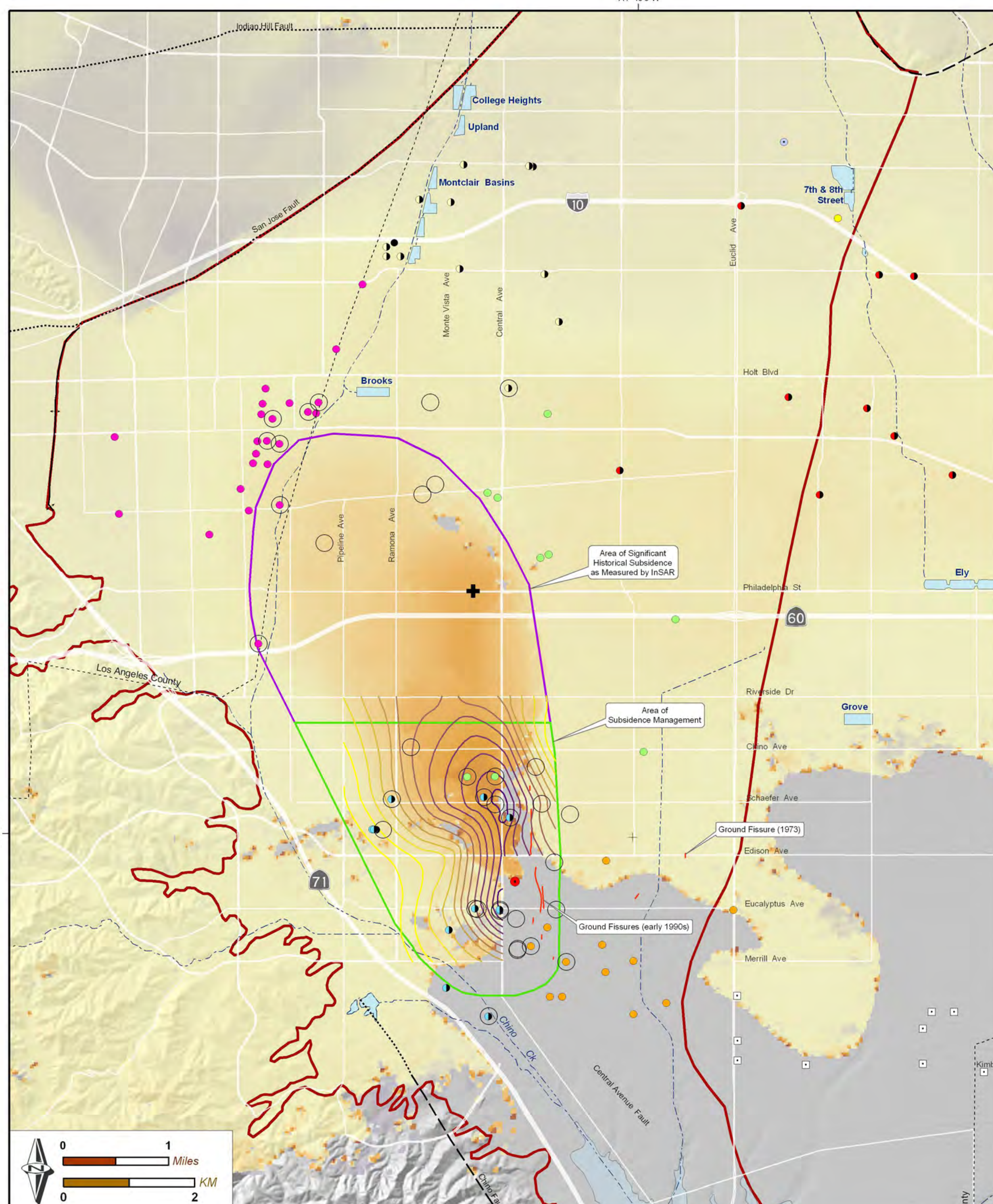
2008 State of the Basin Report
Groundwater Quality

Chino Basin Management Zone 4 and Zone 5

Historical and Current Nitrate-Nitrogen Concentration

FIGURE 4.3-44



Subsidence Features

Contours of Relative Change in Land Surface Altitude as Measured by Leveling Surveys 1987 - 1999 (feet)
0.0
-2.2

Relative Change in Land Surface Altitude as Measured by InSAR Oct 1993 - Dec 1995 (feet)
+ 1.0
0.0
- 1.0

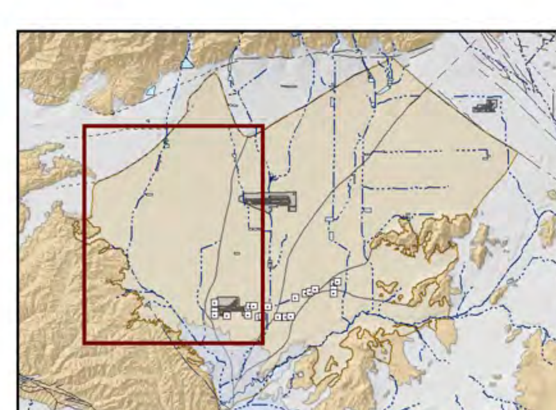
No InSAR Data

Active Production Wells in MZ-1 by Owner

- Ontario
- Pomona
- SAWC
- Upland
- SCWC
- CIM
- Chino Hills
- Chino
- MVWD

Other Features

- Well Used in MZ-1 Monitoring Program
- Ayala Park Extensometer Facility
- Proposed Central MZ-1 Piezometer
- Chino Basin Desalter Well (Existing)
- Management Zone 1 Boundary



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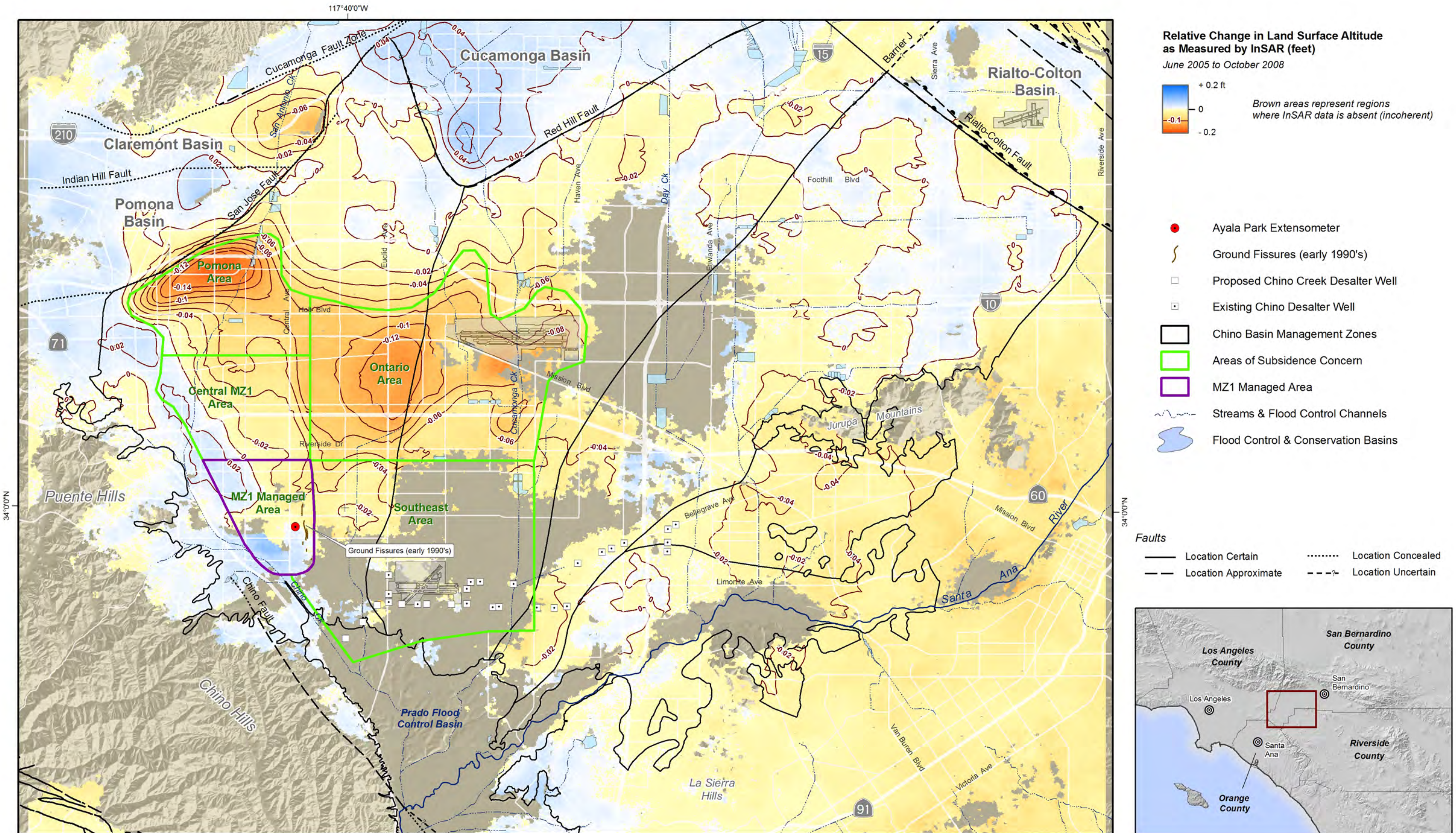
2008 State of the Basin Report
Ground-Level Monitoring

Author: AEM
Date: 20090621
File: Figure_5-1.mxd

Historical Land Surface Deformation in Management Zone 1

Leveling Surveys (1987-99) and InSAR (1993-95)

FIGURE 4.3-45



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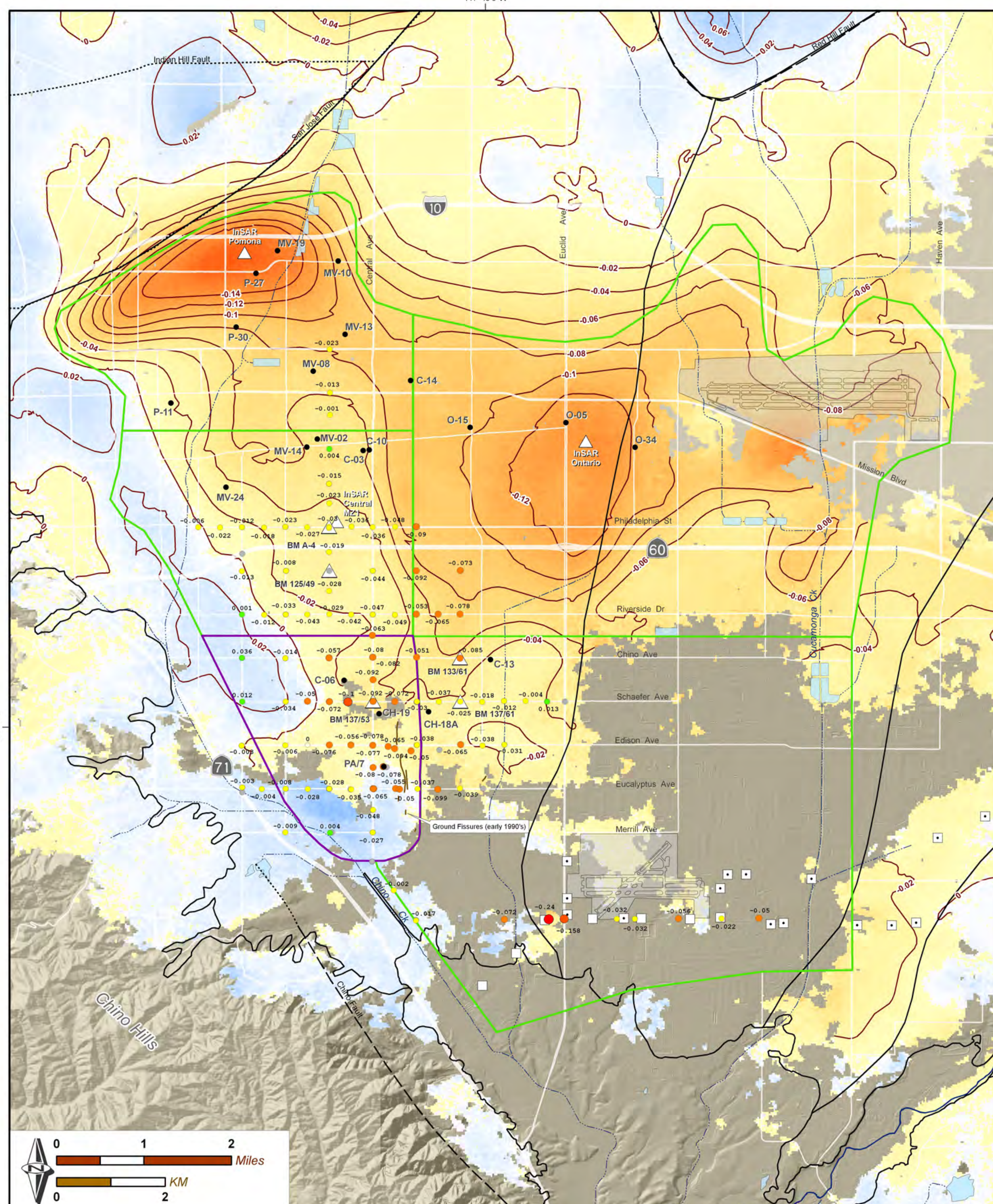
0 1 2 3 4 5 Miles
0 1 2 3 4 5 6 7 KM

2008 State of the Basin Report
Ground-Level Monitoring

Vertical Ground Motion (2005-2008)
as Measured by InSAR in the Chino Basin Area

FIGURE 4.3-46



- Insufficient Data
- > 0.20
- 0.10 - 0.20
- 0.05 - 0.10
- 0.01 - 0.05
- 0.00
- -0.01 - -0.05
- -0.05 - -0.10
- -0.10 - -0.20
- < -0.20

Relative Change in Land Surface Altitude as Measured by Leveling Surveys Oct 2005 - Oct 2008 *(feet)*

Relative Change in Land Surface Altitude as Measured by InSAR June 2005 - Oct 2008 *(feet)*

+ 0.2 ft
0
-0.1
- 0.2

Brown areas represent regions where InSAR data is absent (incoherent)

- Water Level Wells (in Figures 5-4 to 5-13)
- Chino Basin Desalter Well (Existing)
- Proposed Chino Creek Desalter Well
- Survey and InSAR Measurement Points (in Figures 5-4 to 5-13)
- Chino Basin Management Zones
- Subsidence Areas of Interest
- MZ1 Managed Area

Vertical Ground Motion (2005-2008)

Leveling Surveys and InSAR in Western Chino Basin

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2008 State of the Basin Report
Ground-Level Monitoring

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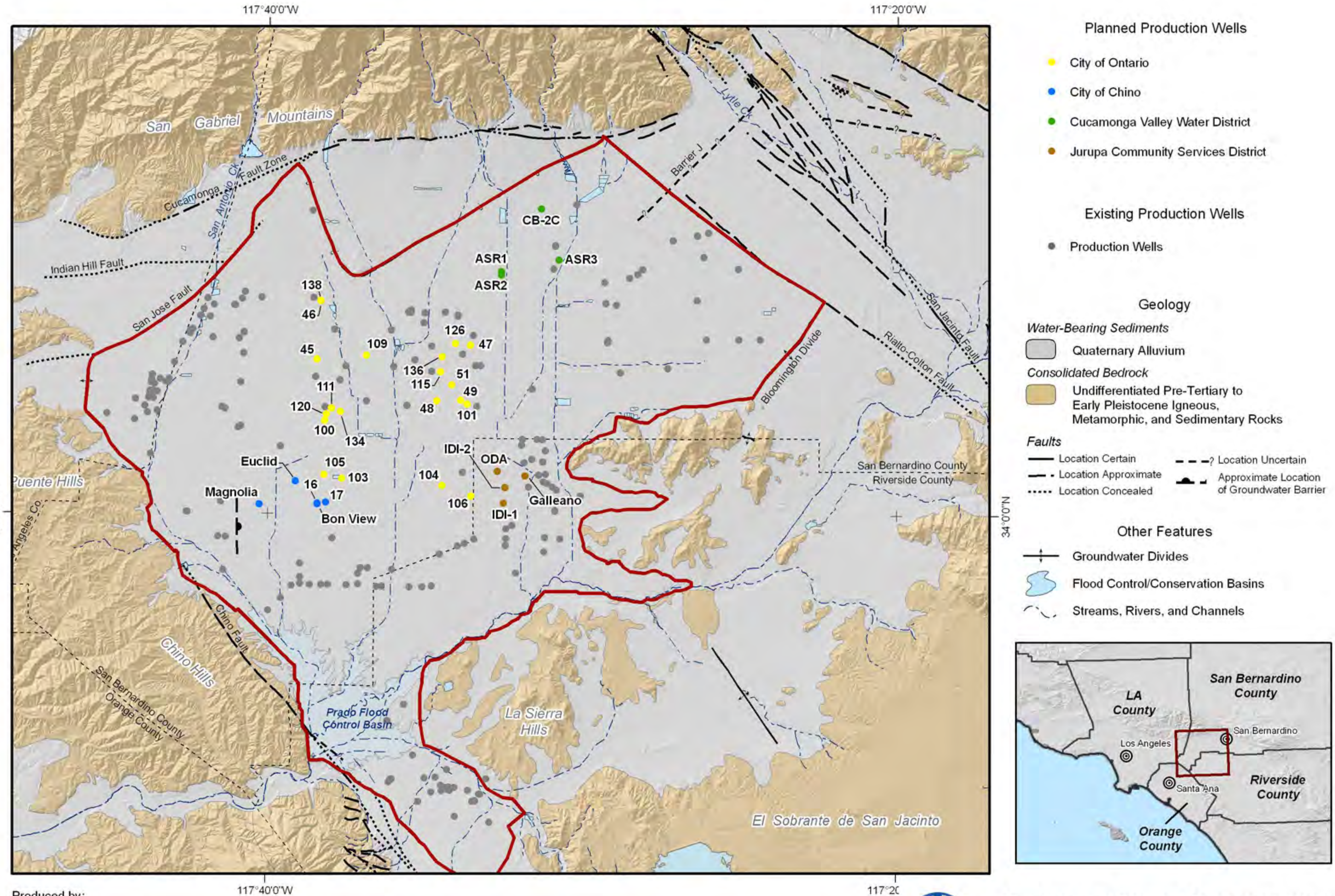
Date: 20090617
File: Figure_5-3.mxd

FIGURE 4.3-47



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CHINO BASIN WATERMASTER
Partners in Basin Management

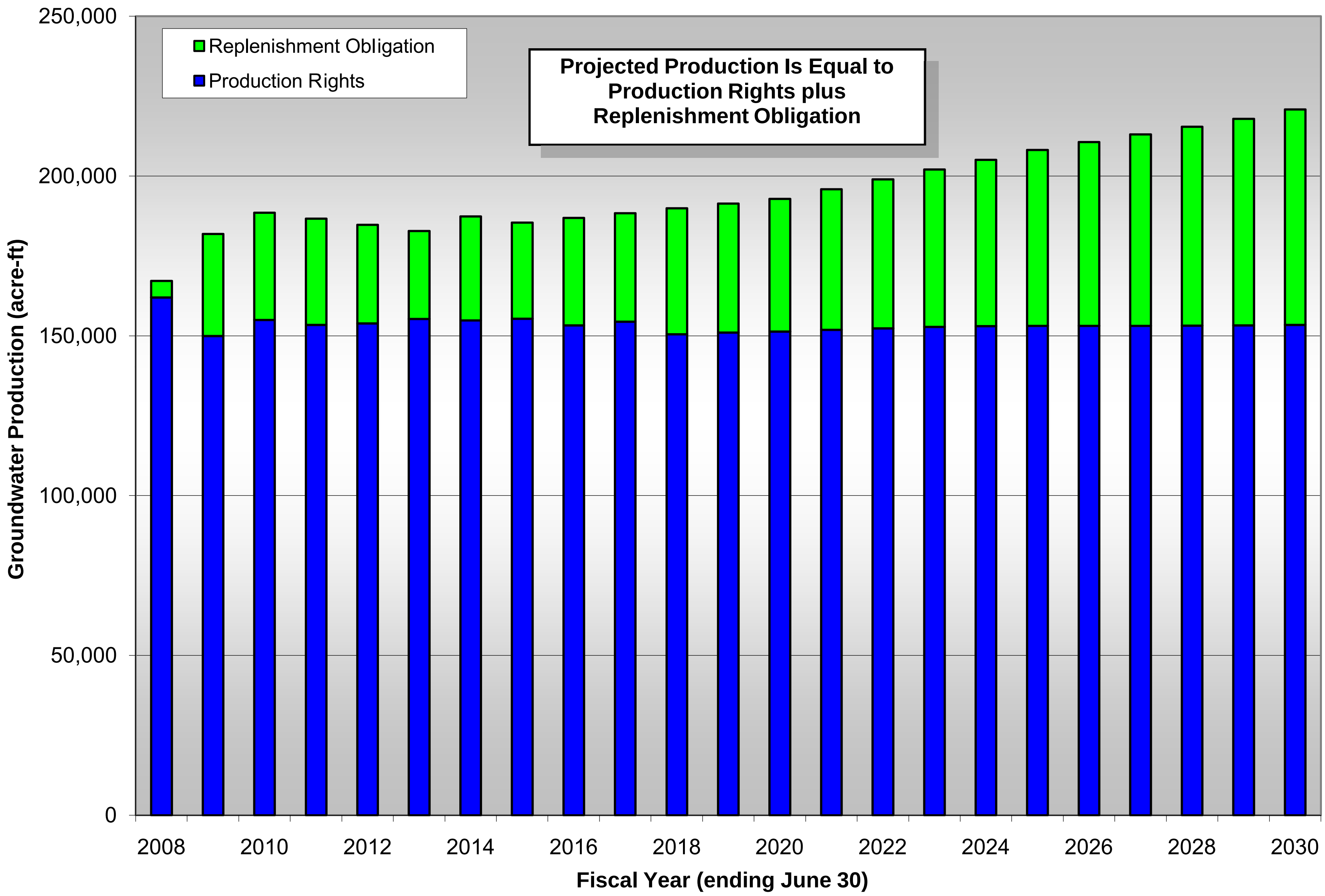
2009 Production Optimization and Evaluation of the Peace II Project Description

Existing and Planned Production Wells

FIGURE 4.3-48

FIGURE 4.3-49

Projected Groundwater Production in the Chino Basin for the Baseline Alternative



20091111_Figures 4-2_4-4_4-5.xls -- Figure 4-2a
11/11/2009 -- 9:11 AM

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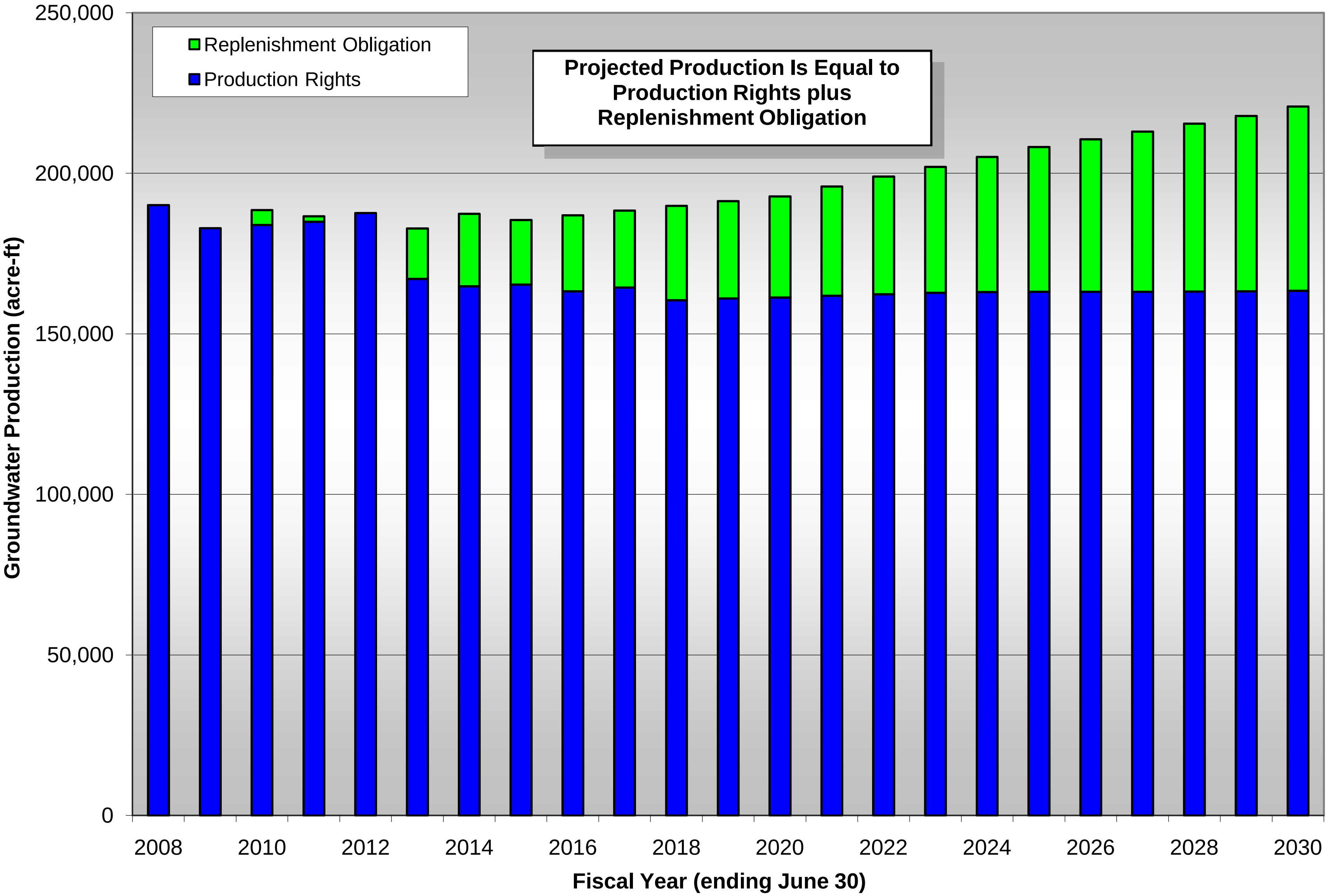
FIGURE 4.3-50

Projected Groundwater Production in the Chino Basin for the Peace II Alternative



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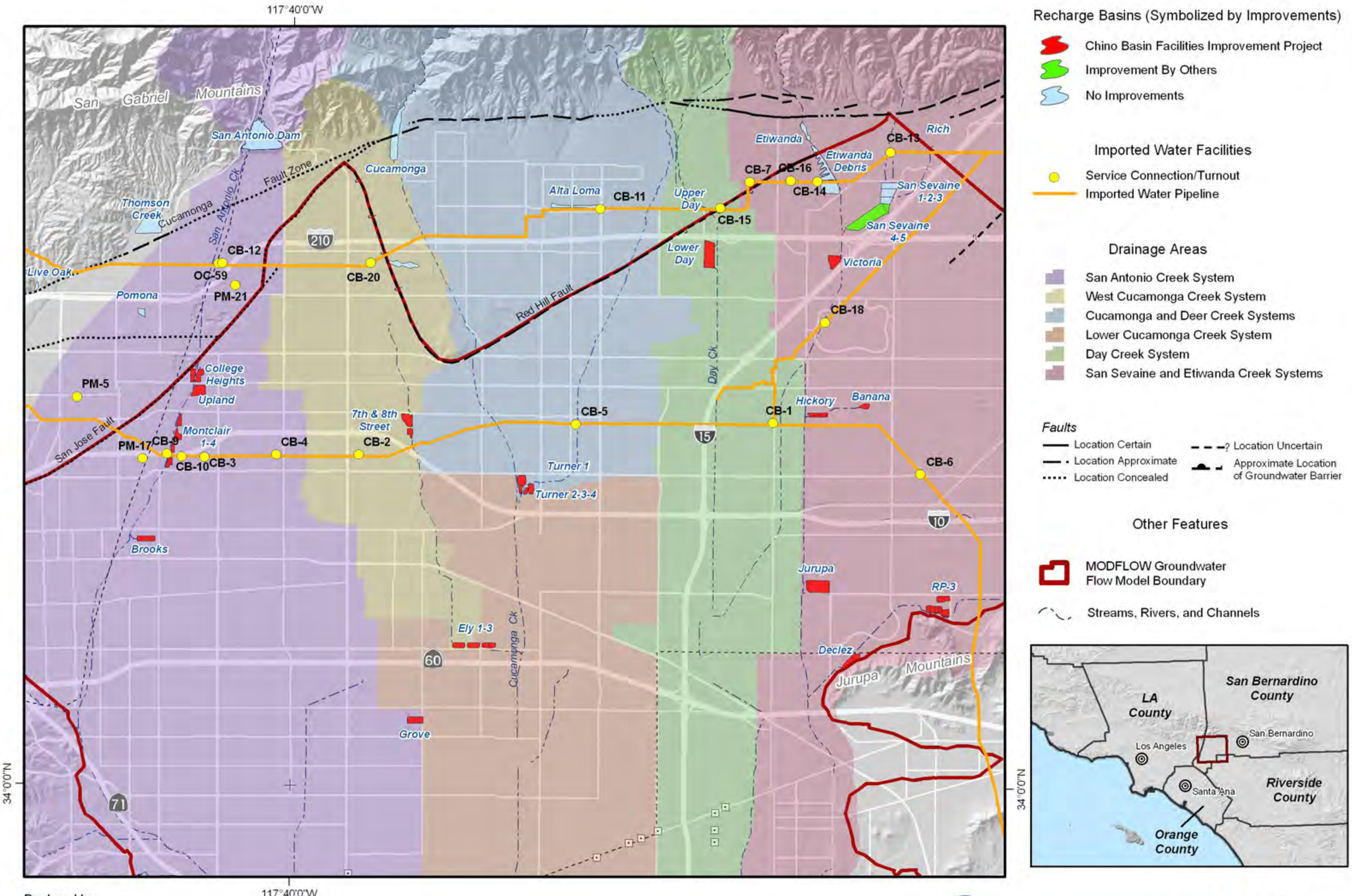

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Date: 20091016
File: Figure_4-4.mxd

2009 Production Optimization and
Evaluation of the Peace II Project Description

Groundwater Recharge and Imported Water Facilities

FIGURE 4.3-51

FIGURE 4.3-52

Assumed Replenishment Water Deliveries for the Chino Basin

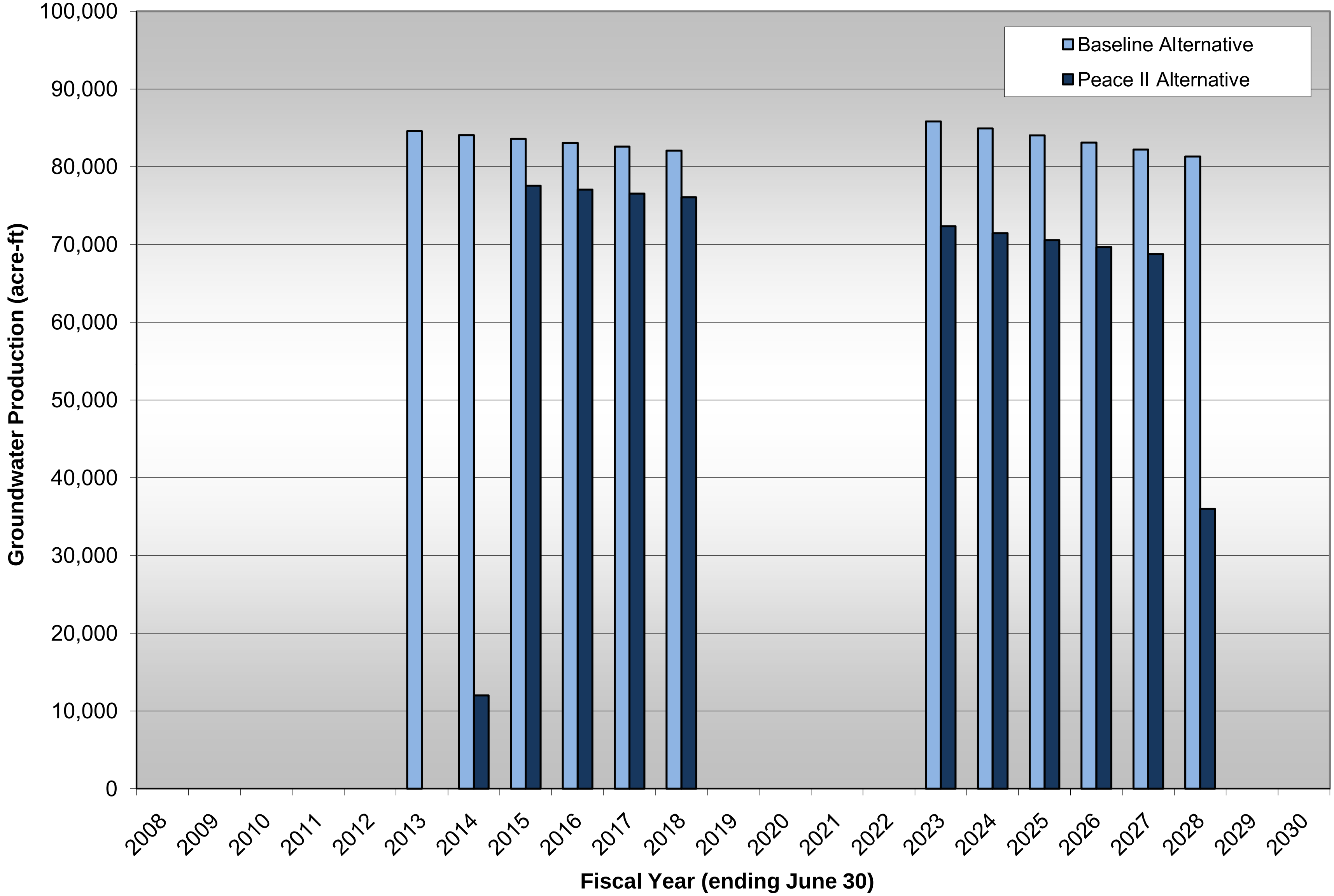

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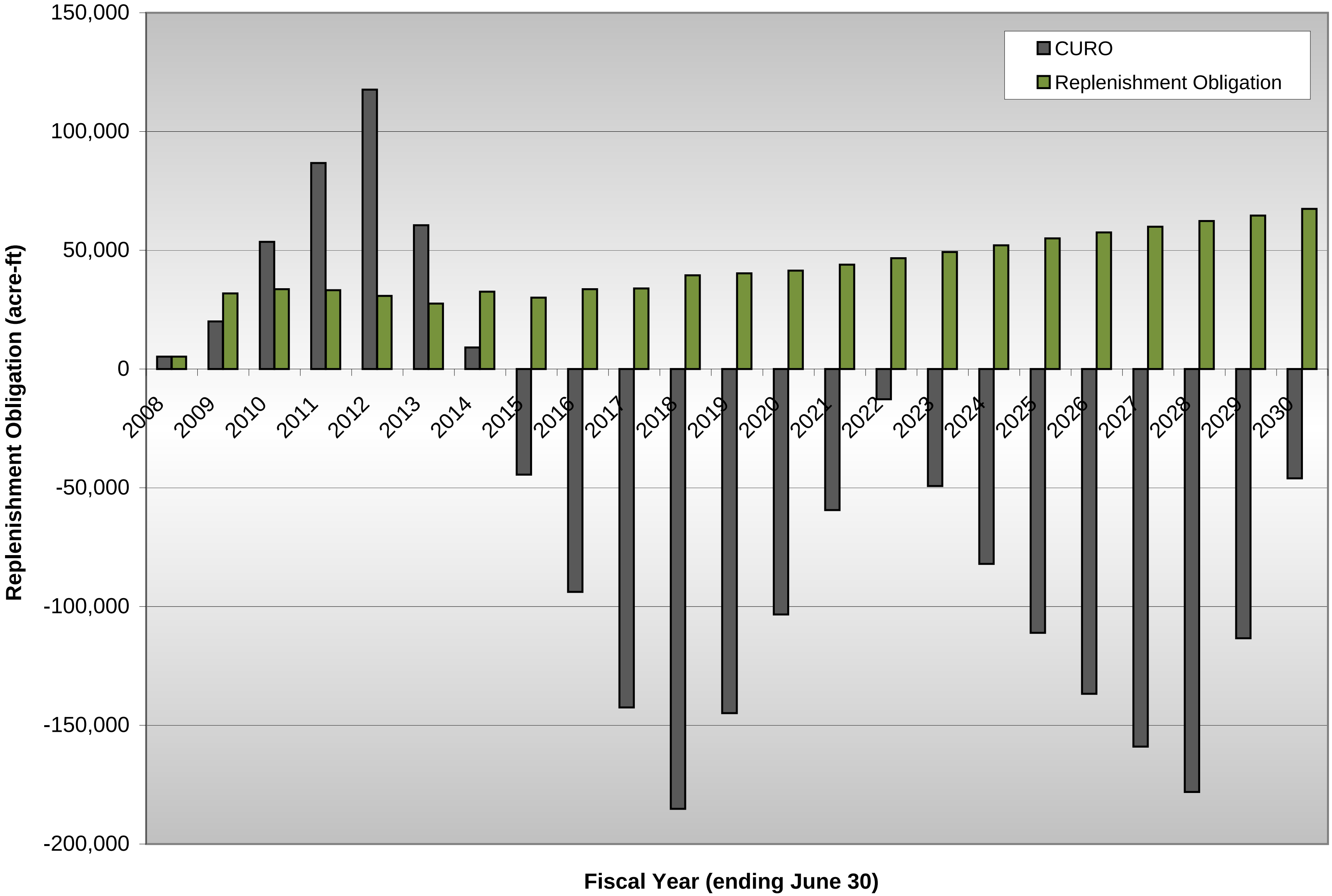
FIGURE 4.3-53

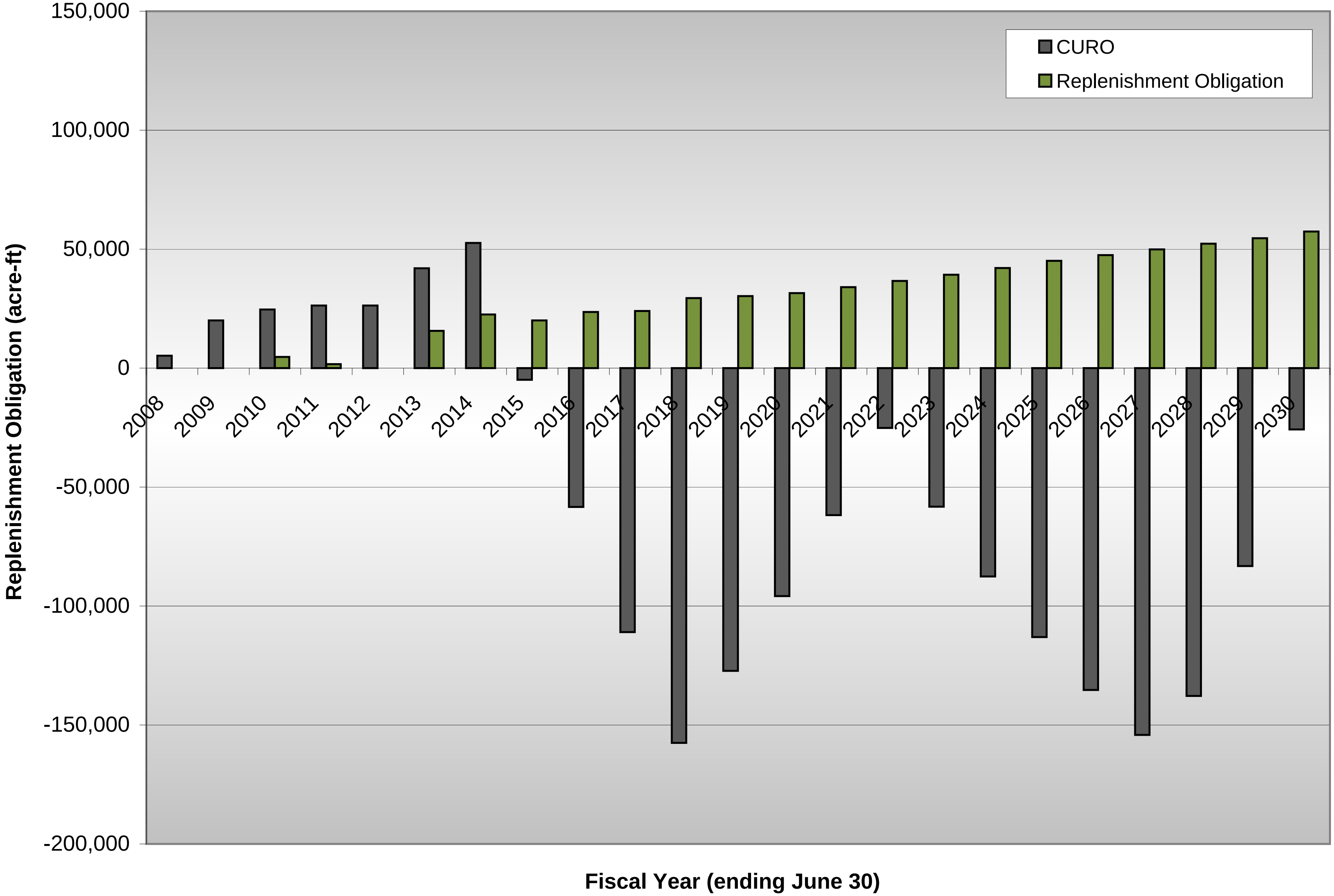
Projected Groundwater Replenishment Obligation and CURO for the Baseline Alternative



20091111_Revised 20100409 Figures 4-2_4-4_4-5 (2) -- Figure 4-6a
4/9/2010 -- 9:58 AM

FIGURE 4.3-54

Projected Groundwater Replenishment Obligation and CURO for the Peace II Alternative



20091111_Revised 20100409 Figures 4-2_4-4_4-5 (2) -- Figure 4-6b
4/9/2010 -- 9:58 AM

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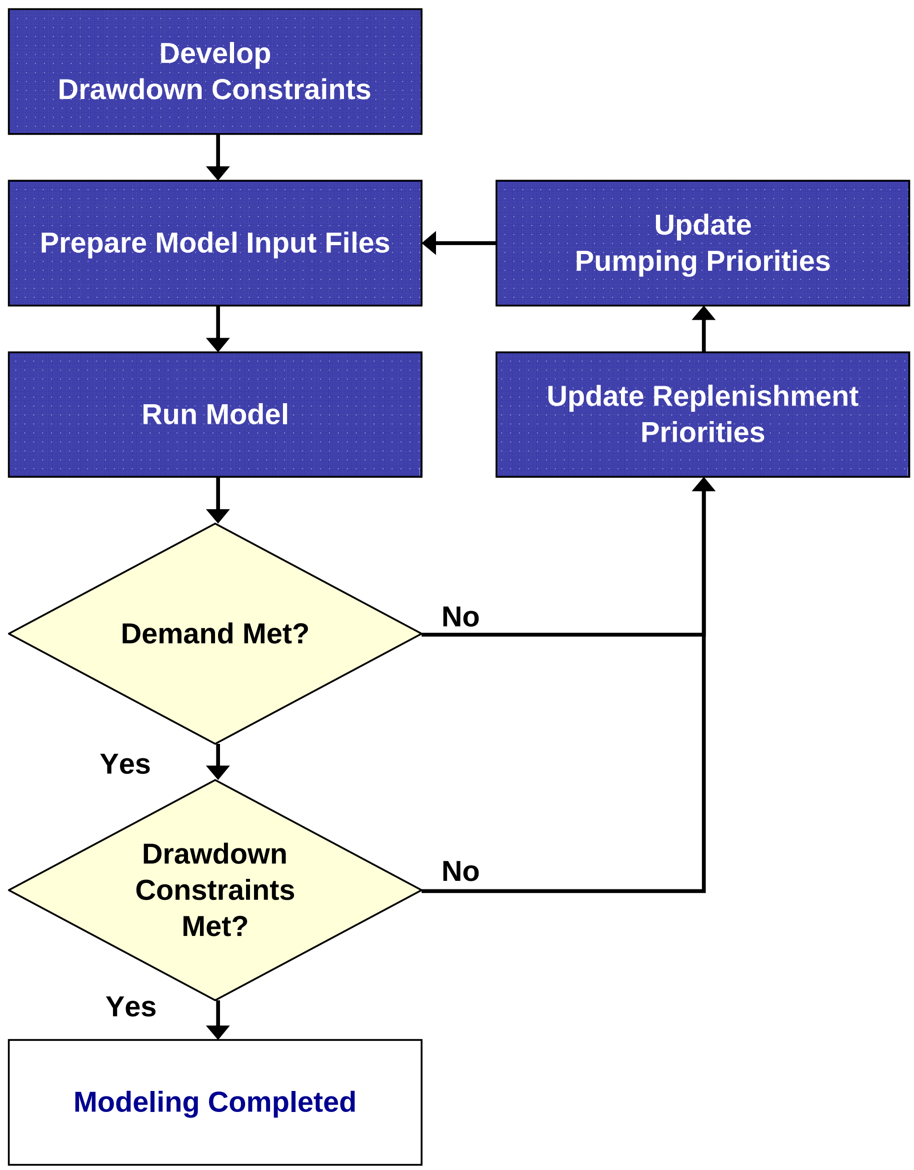
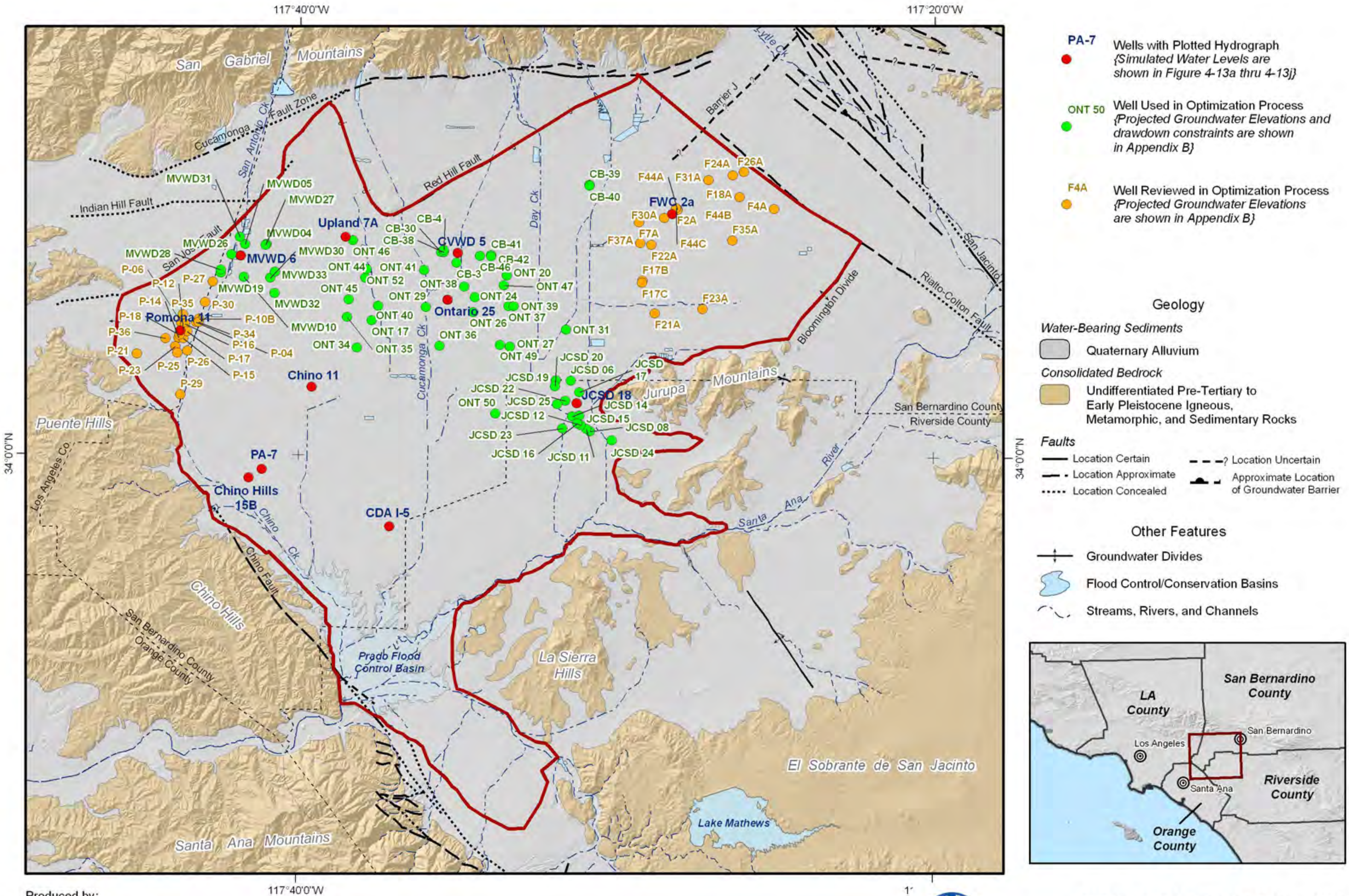
FIGURE 4.3-55

Process Flow Diagram for Production and Replenishment Optimization





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Date: 20091021

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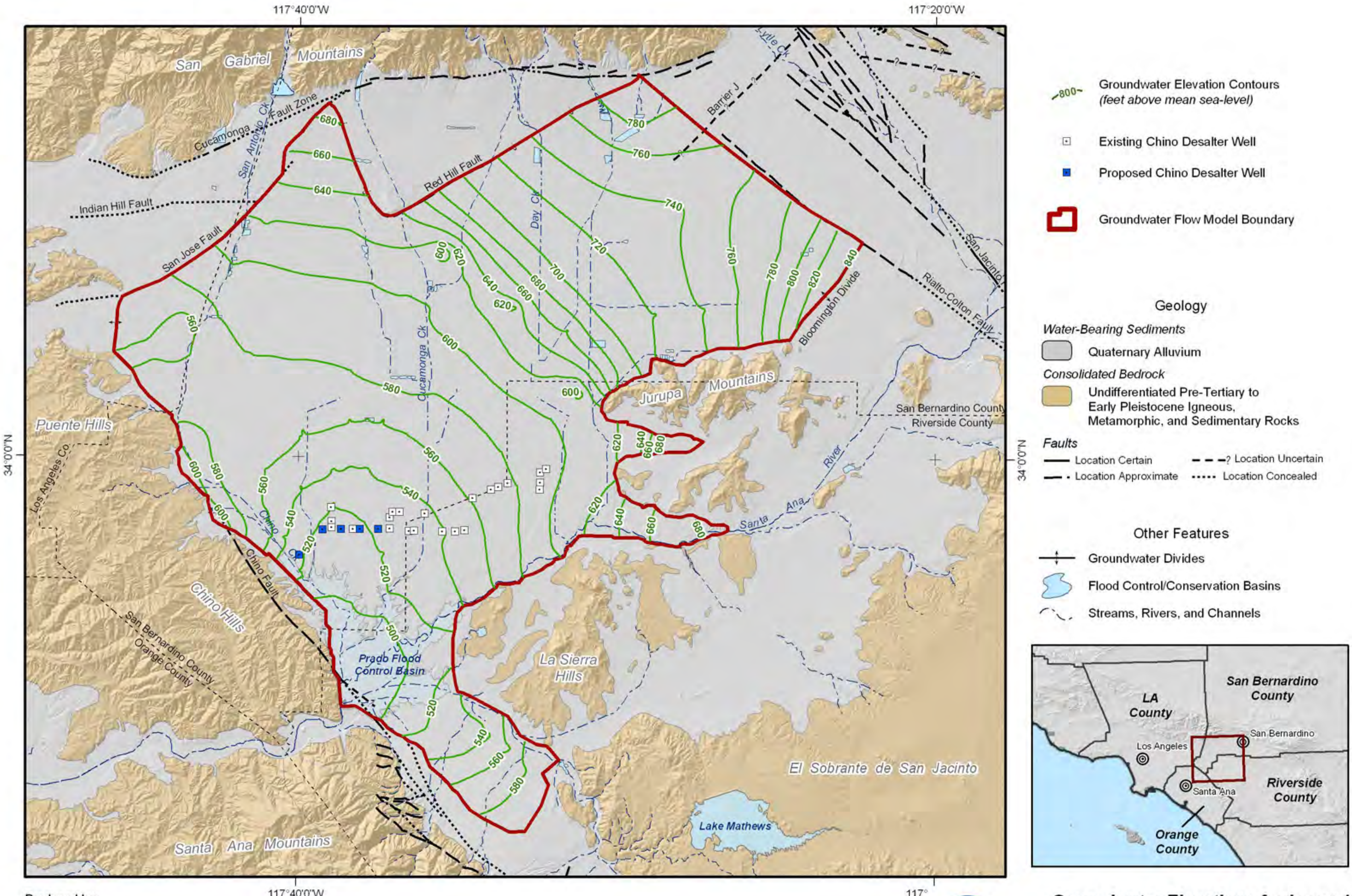
0 1 2 3 4 Miles

0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Wells of Interest for Production and Recharge Optimization

FIGURE 4.3-56



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File: Figure_4-10a.mxd

0 1 2 3 4 Miles
0 2 4 6 KM

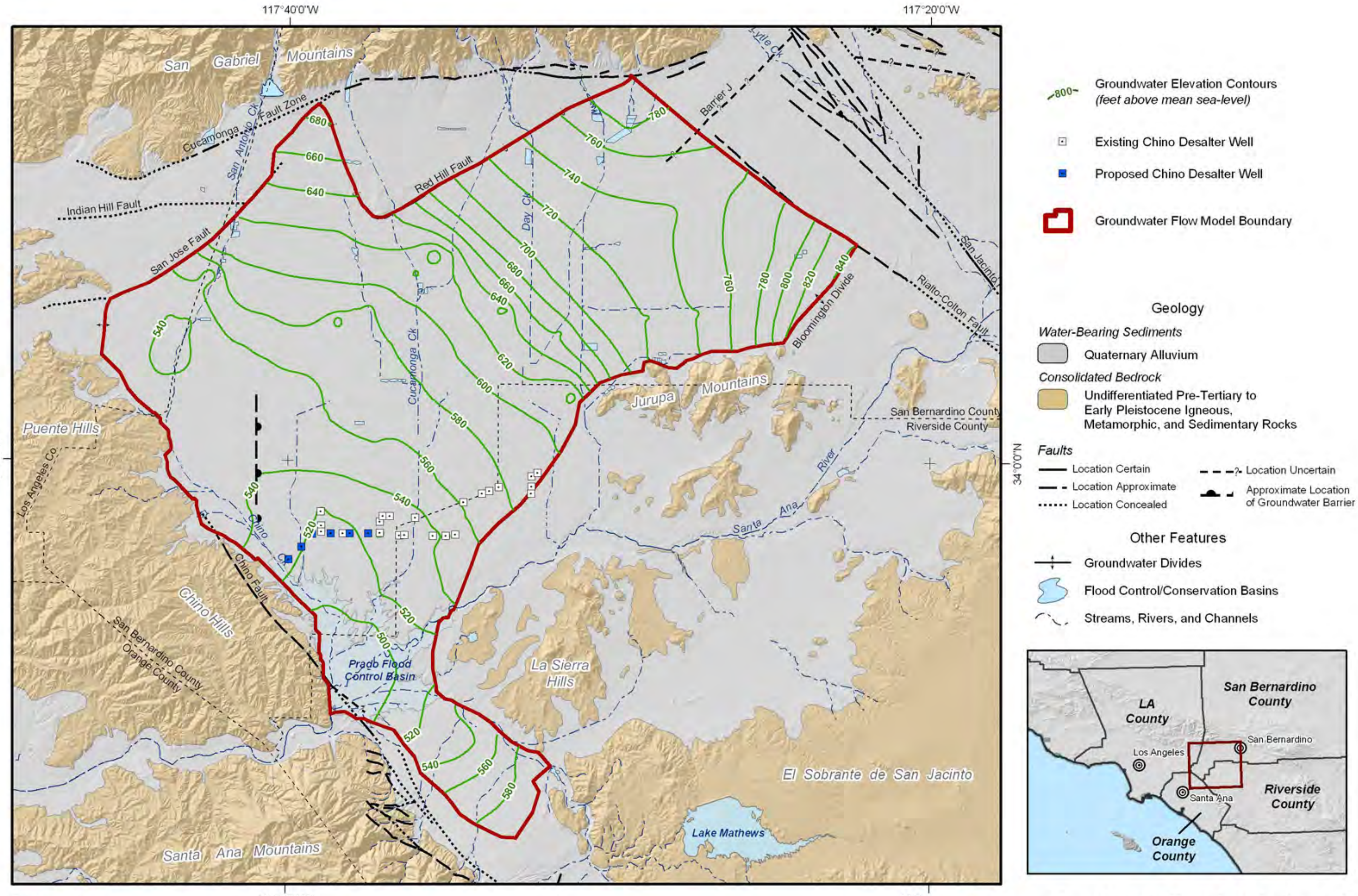
CHINO BASIN WATERMASTER — Partners in Basin Management

2009 Production Optimization and
Evaluation of the Peace II Project Description

Groundwater Elevations for Layer 1

July 2005

FIGURE 4.3-57



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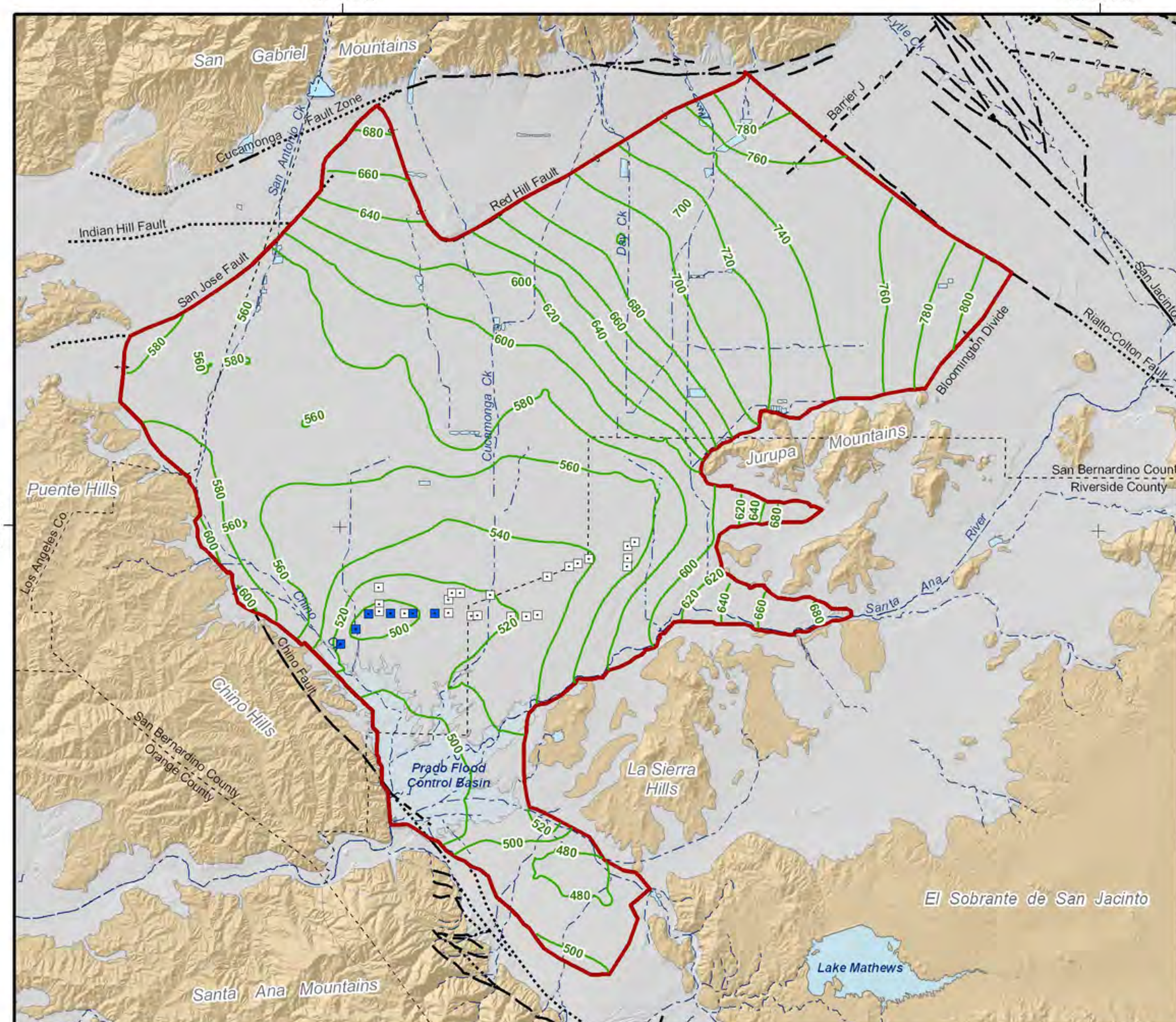
Groundwater Elevations for Layer 2

July 2005

FIGURE 4.3-58

117°40'0"W
117°20'0"W



117°40'0"W
117°

Groundwater Elevation Contours *(feet above mean sea-level)*

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

Location Certain
Location Approximate
Location Uncertain
Location Concealed

Other Features

Groundwater Divides

Flood Control/Conservation Basins

Streams, Rivers, and Channels

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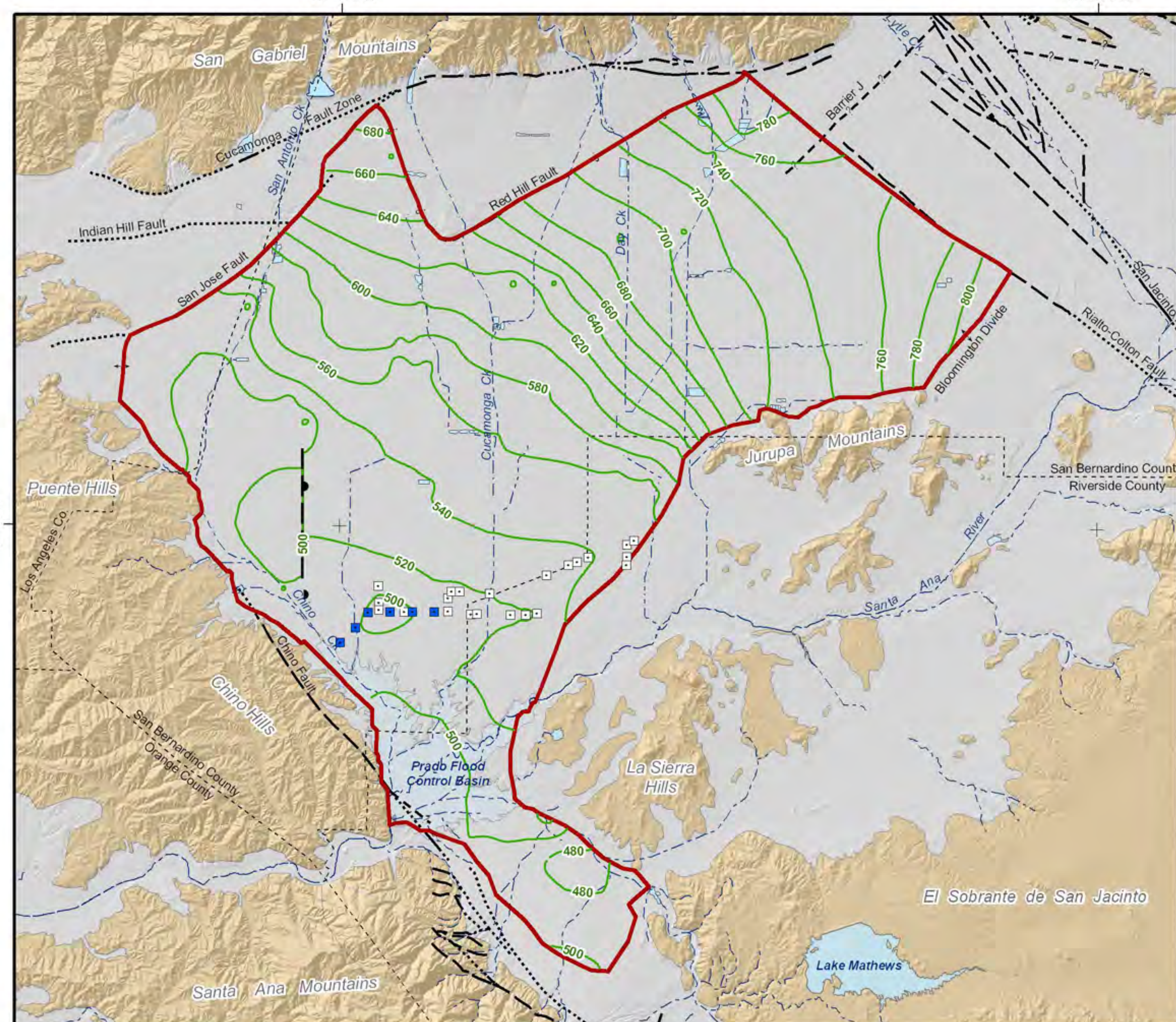
0 1 2 3 4 Miles
0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Projected Baseline Groundwater Elevations for Layer 1

July 2030

FIGURE 4.3-59



Groundwater Elevation Contours *(feet above mean sea-level)*

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

Location Certain

Location Approximate

Location Concealed

Location Uncertain

Approximate Location of Groundwater Barrier

Other Features

Groundwater Divides

Flood Control/Conservation Basins

Streams, Rivers, and Channels

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File: Figure_4-11b.mxd

0 1 2 3 4 Miles

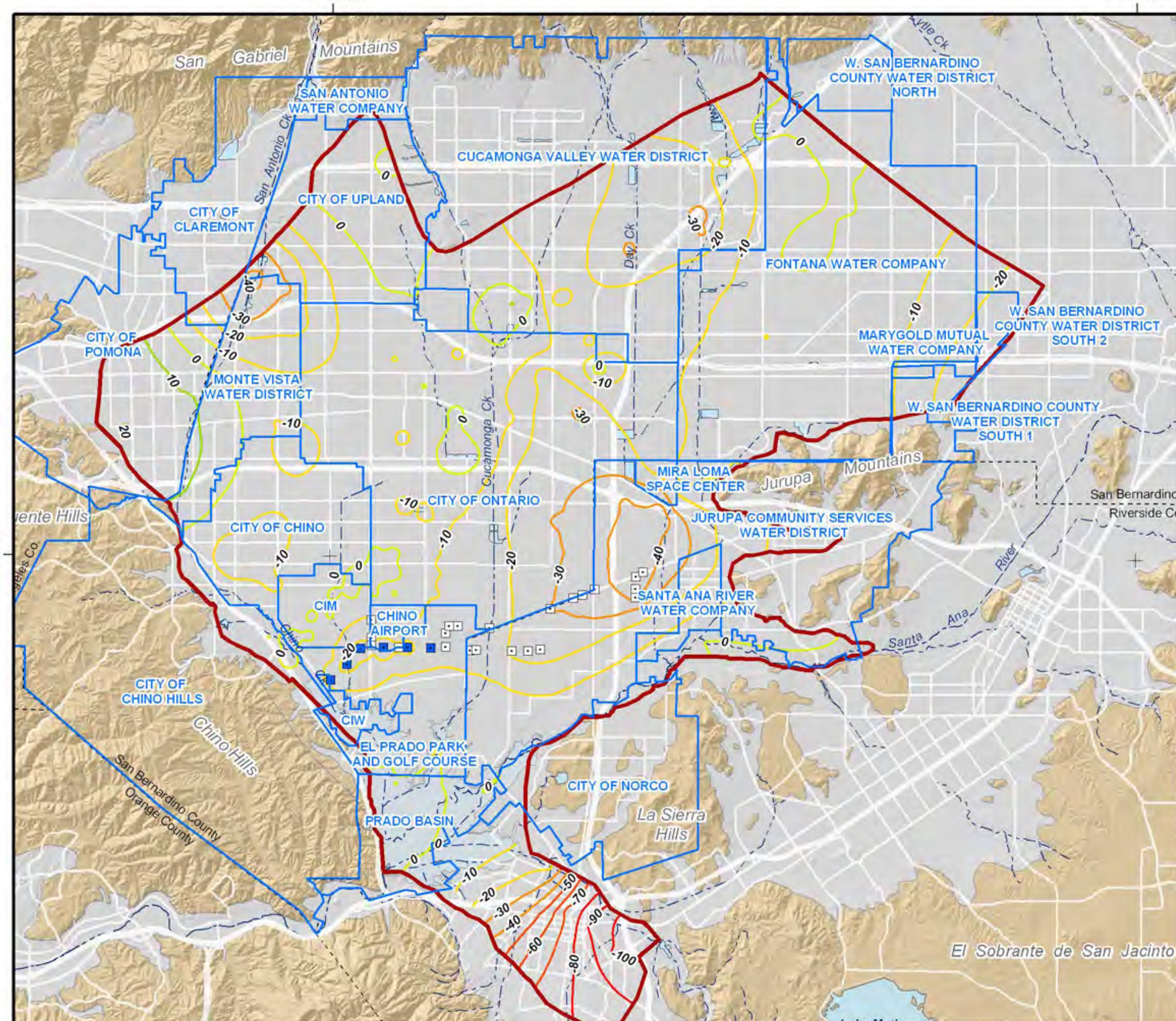
0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Projected Baseline Groundwater Elevations for Layer 2

July 2030

FIGURE 4.3-60



Main Features

50 - 75	
25 - 50	
0 - 25	
0	*Contours of Equal Groundwater Elevation Change from July 2005 to June 2030 (feet)*
0 - -25	
-25- -50	
-50 - -75	
-75 - -100	

Water Service Area Boundaries

Other Features

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Flood Control/Conservation Basins

Streams, Rivers, and Channels

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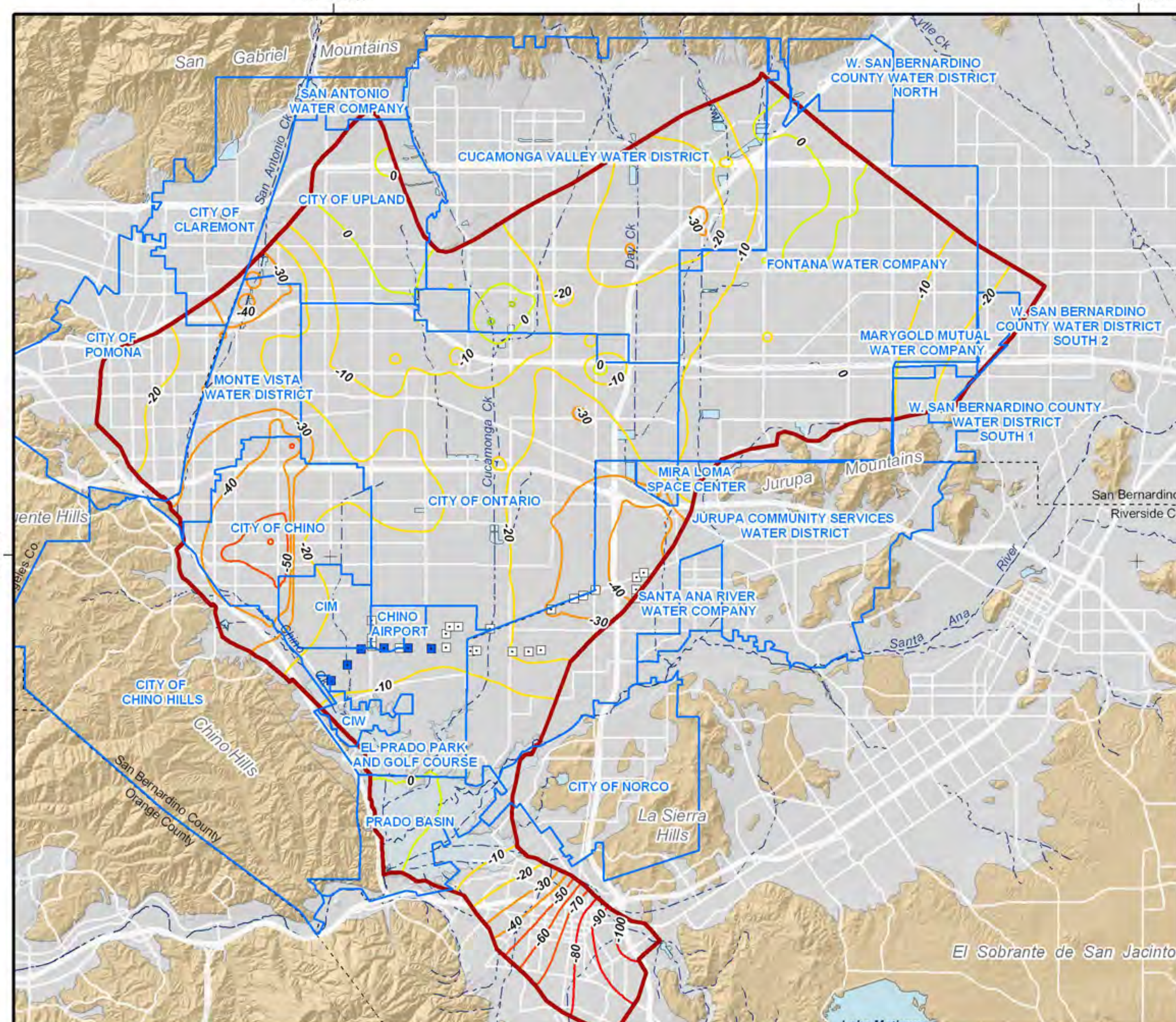
0 1 2 3 4 Miles

0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Projected Baseline Groundwater Elevation Change
for Layer 1 in June 2030

FIGURE 4.3-61



Main Features

50 - 75

25 - 50

0 - 25

0

0 - -25

-25- -50

-50 - -75

-75 - -100

Contours of Equal Groundwater Elevation Change from July 2005 to June 2030 (feet)

Water Service Area Boundaries

Other Features

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Flood Control/Conservation Basins

Streams, Rivers, and Channels

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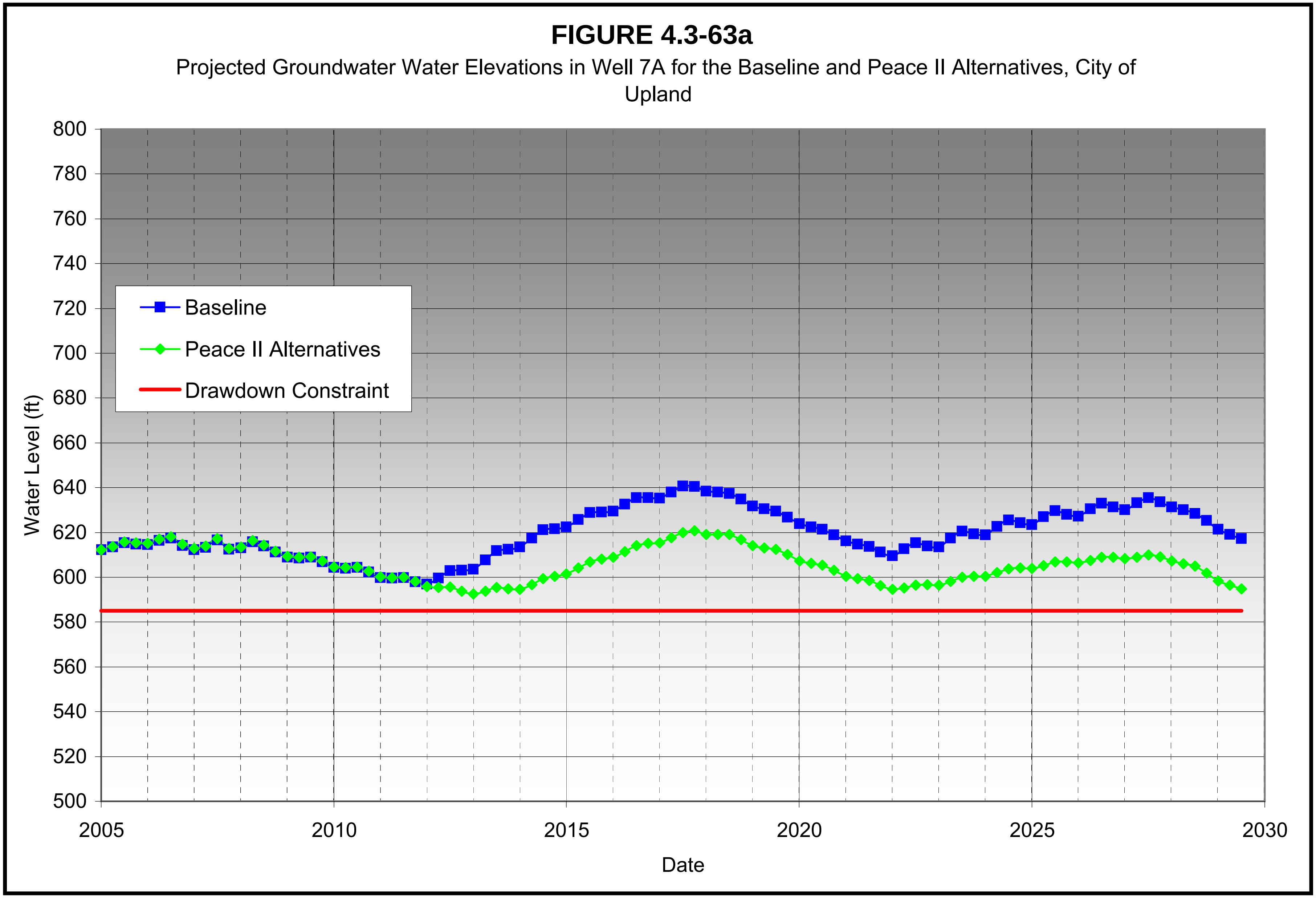
0 1 2 3 4 Miles
0 2 4 6 KM

CHINO BASIN WATERMASTER — Partners in Basin Management

2009 Production Optimization and Evaluation of the Peace II Project Description

Projected Baseline Groundwater Elevation Change
for Layer 2 in June 2030

FIGURE 4.3-62



Well Hydrographs_BSL8vsALT8.xls

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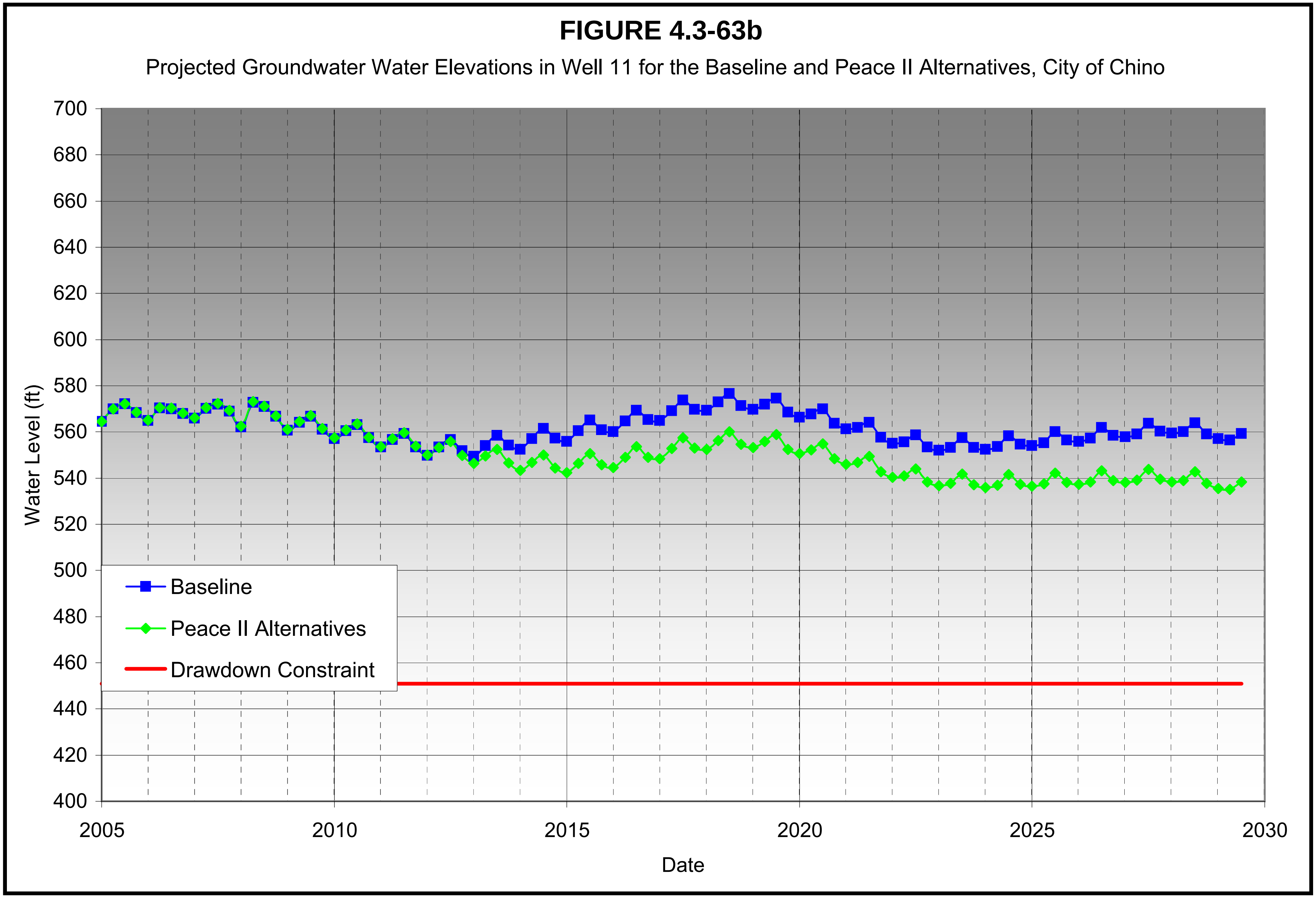

Well Hydrographs_BSL8vsALT8.xls

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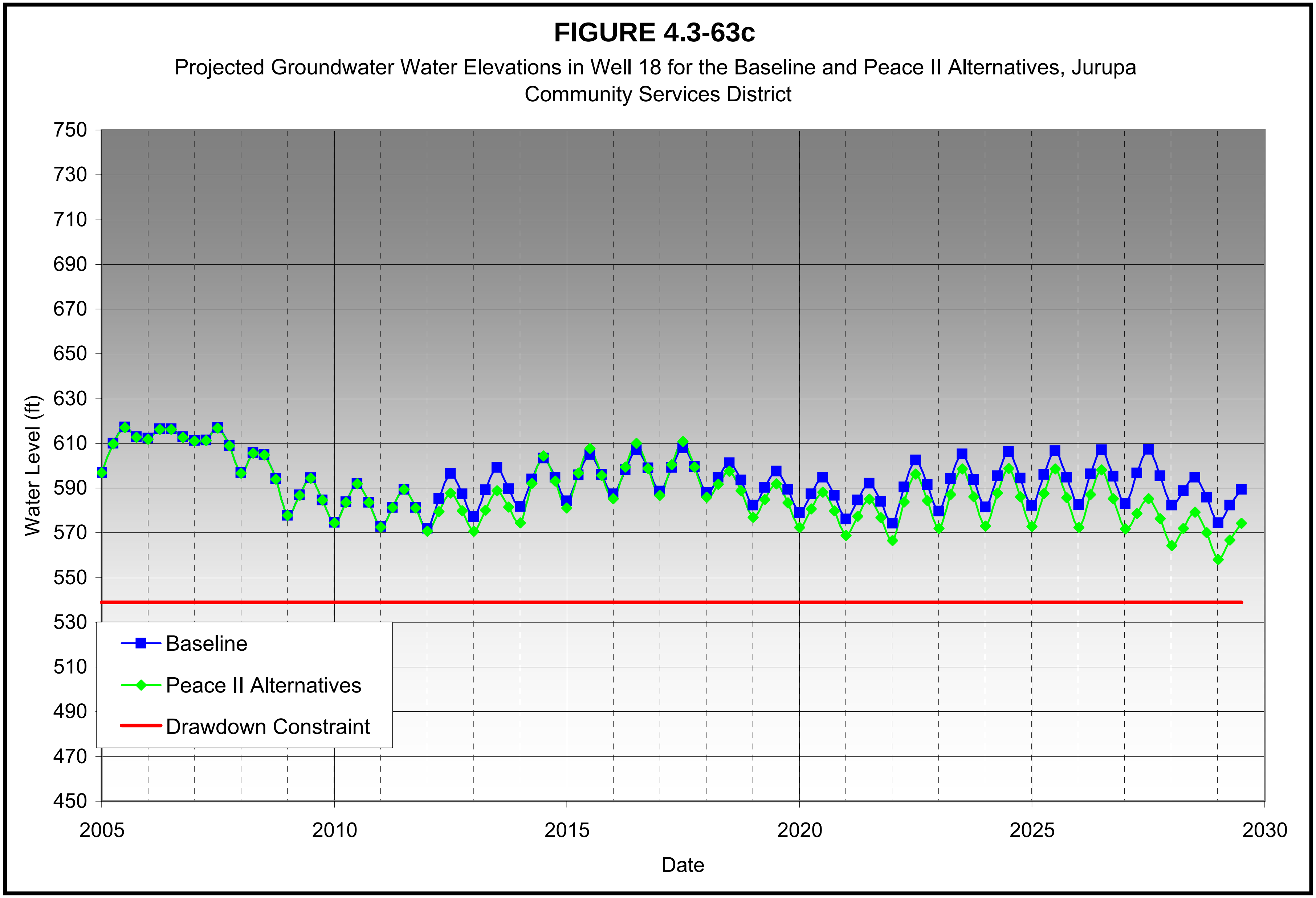
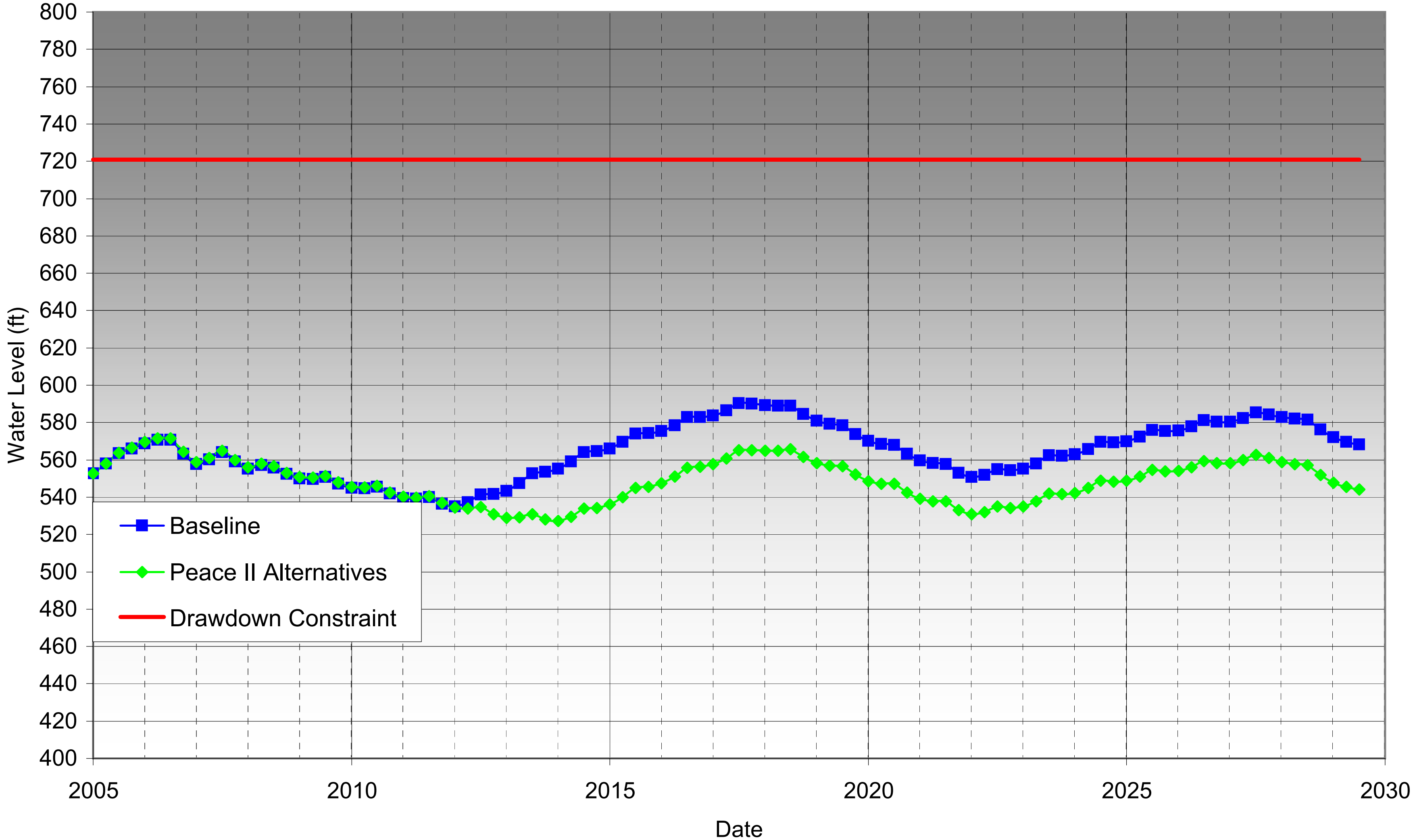


Well Hydrographs_BSL8vsALT8.xls

FIGURE 4.3-63d

Projected Groundwater Water Elevations in Well P-11 for the Baseline and Peace II Alternatives, City of Pomona



Well Hydrographs_BSL8vsALT8.xls

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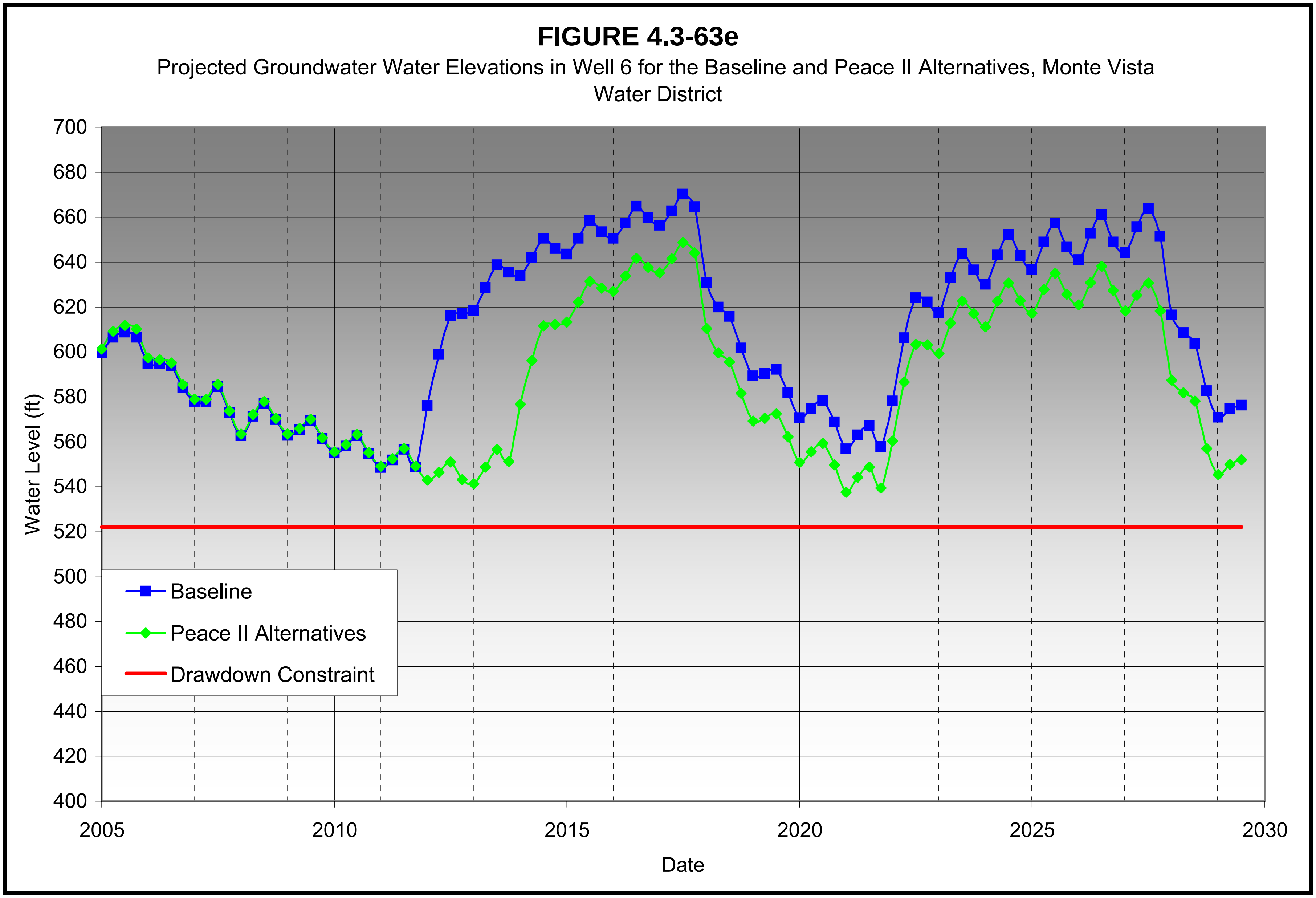

Well Hydrographs_BSL8vsALT8.xls

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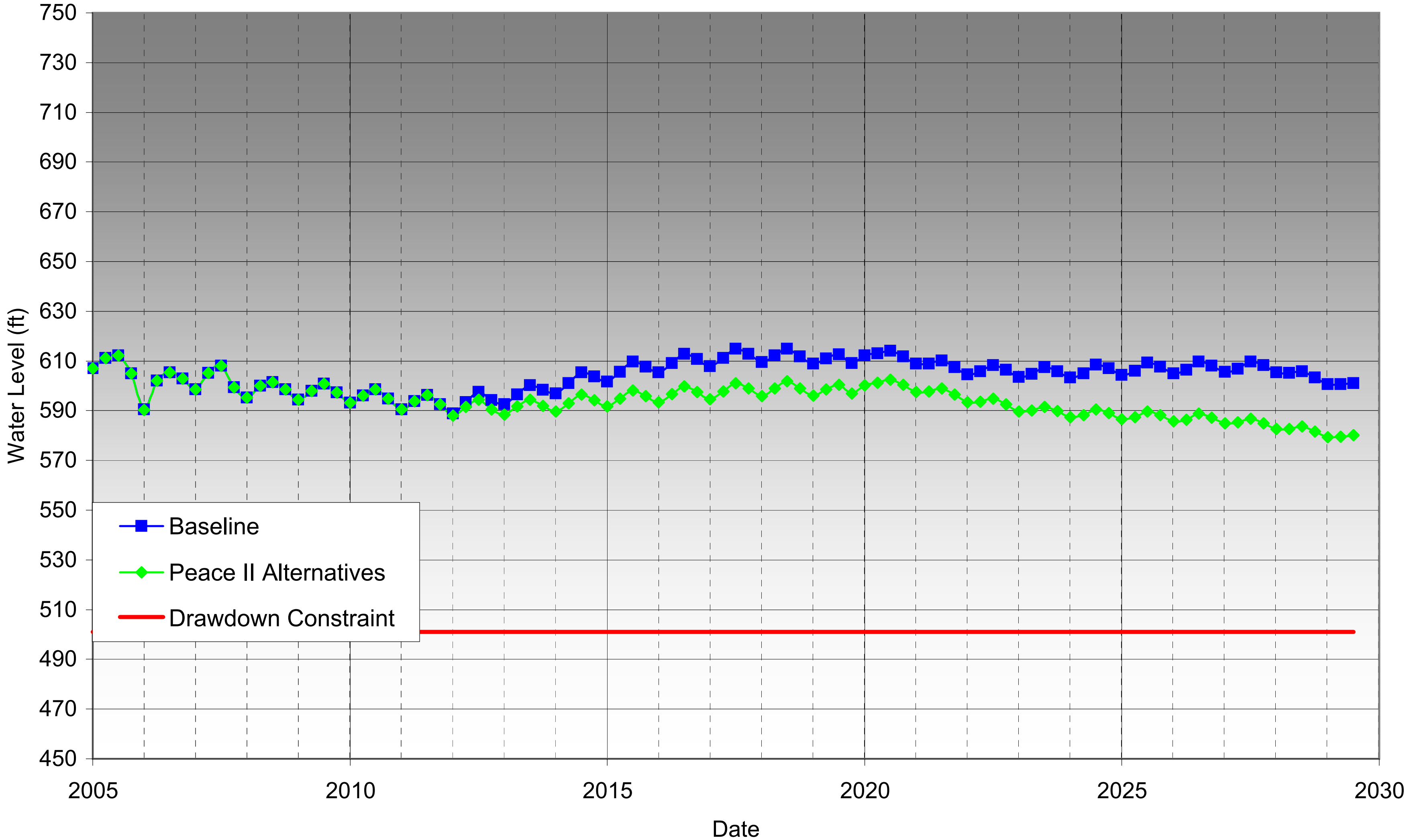
FIGURE 4.3-63f

Projected Groundwater Water Elevations in Well 25 for the Baseline and Peace II Alternatives, City of Ontario



Well Hydrographs_BSL8vsALT8.xls

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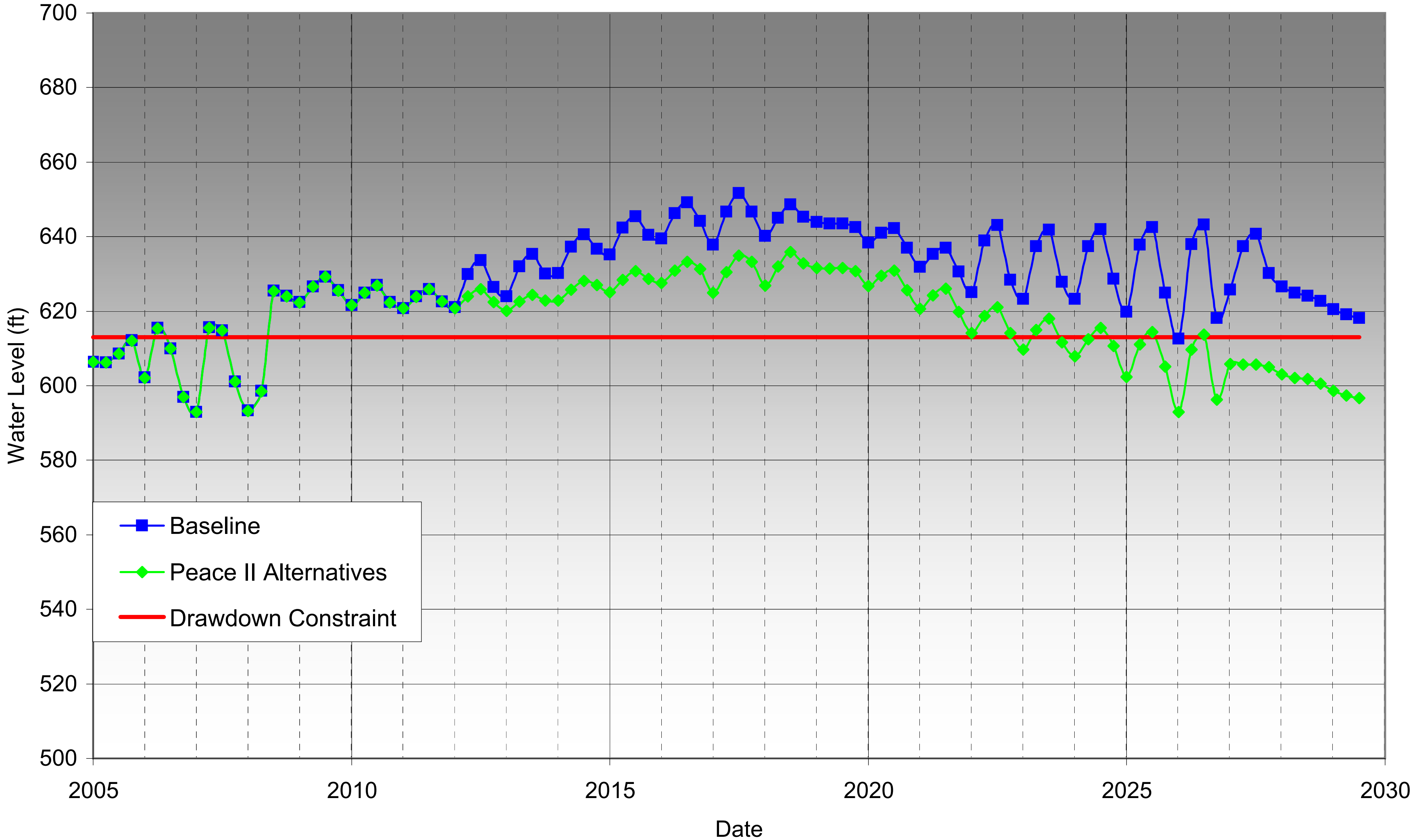
FIGURE 4.3-63g

Projected Groundwater Water Elevations in Well CB-5 for the Baseline and Peace II Alternatives, Chino Basin Watermaster



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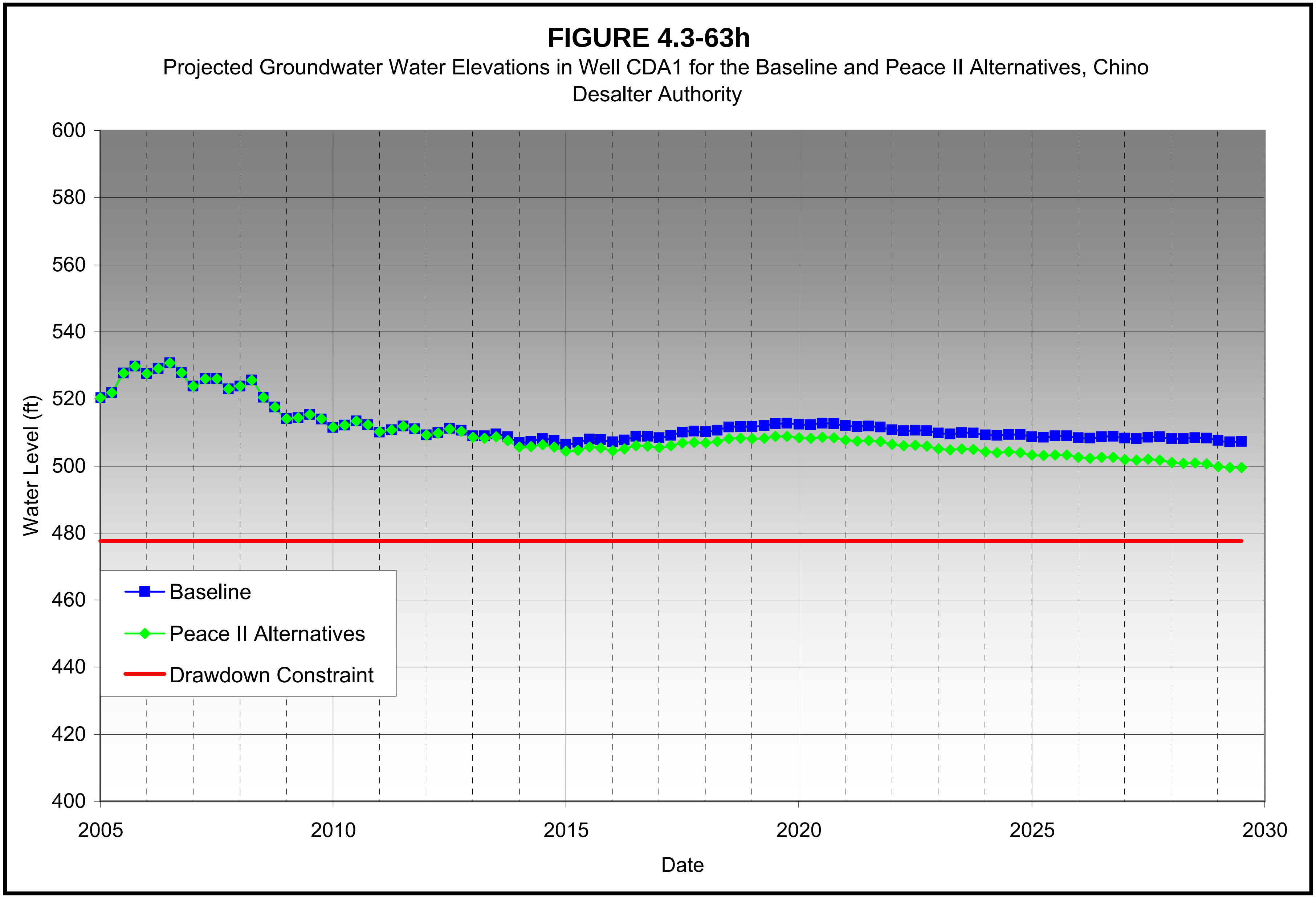

Well Hydrographs_BSL8vsALT8.xls

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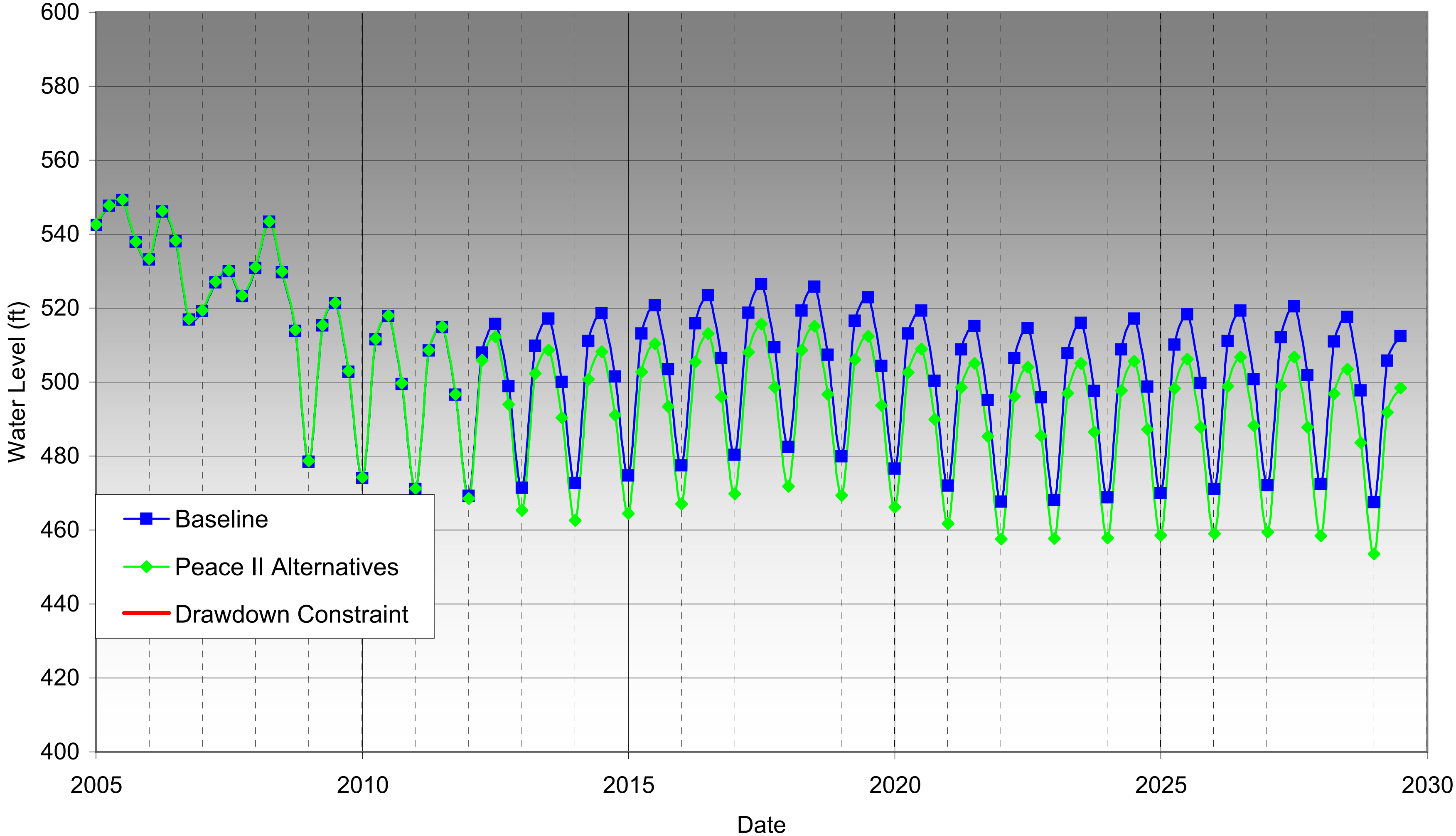
FIGURE 4.3-63i

Projected Groundwater Water Elevations in Well 15B for the Baseline and Peace II Alternatives, City of Chino Hills



Well Hydrographs_BSL8vsALT8.xls

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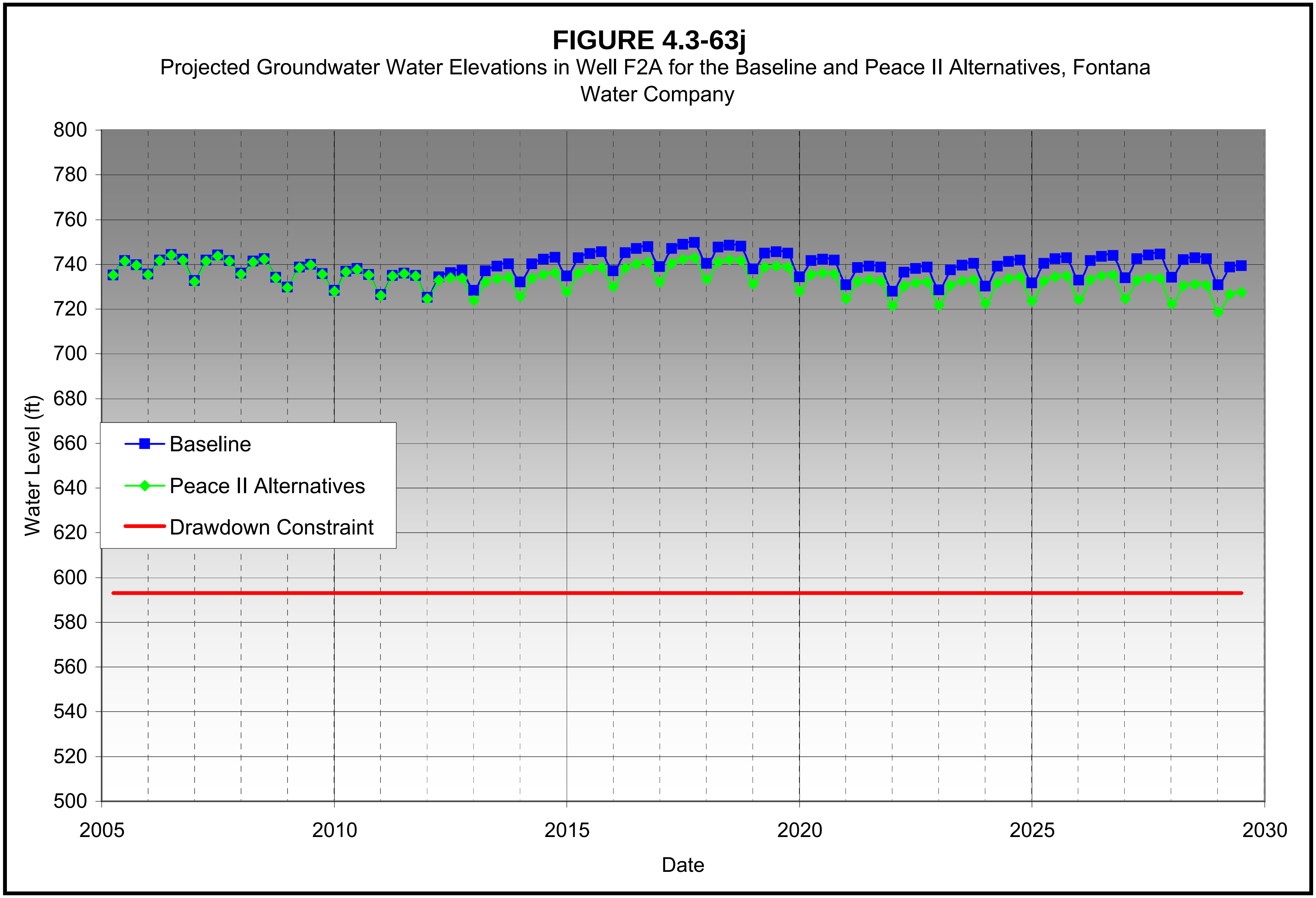

Well Hydrographs_BSL8vsALT8.xls

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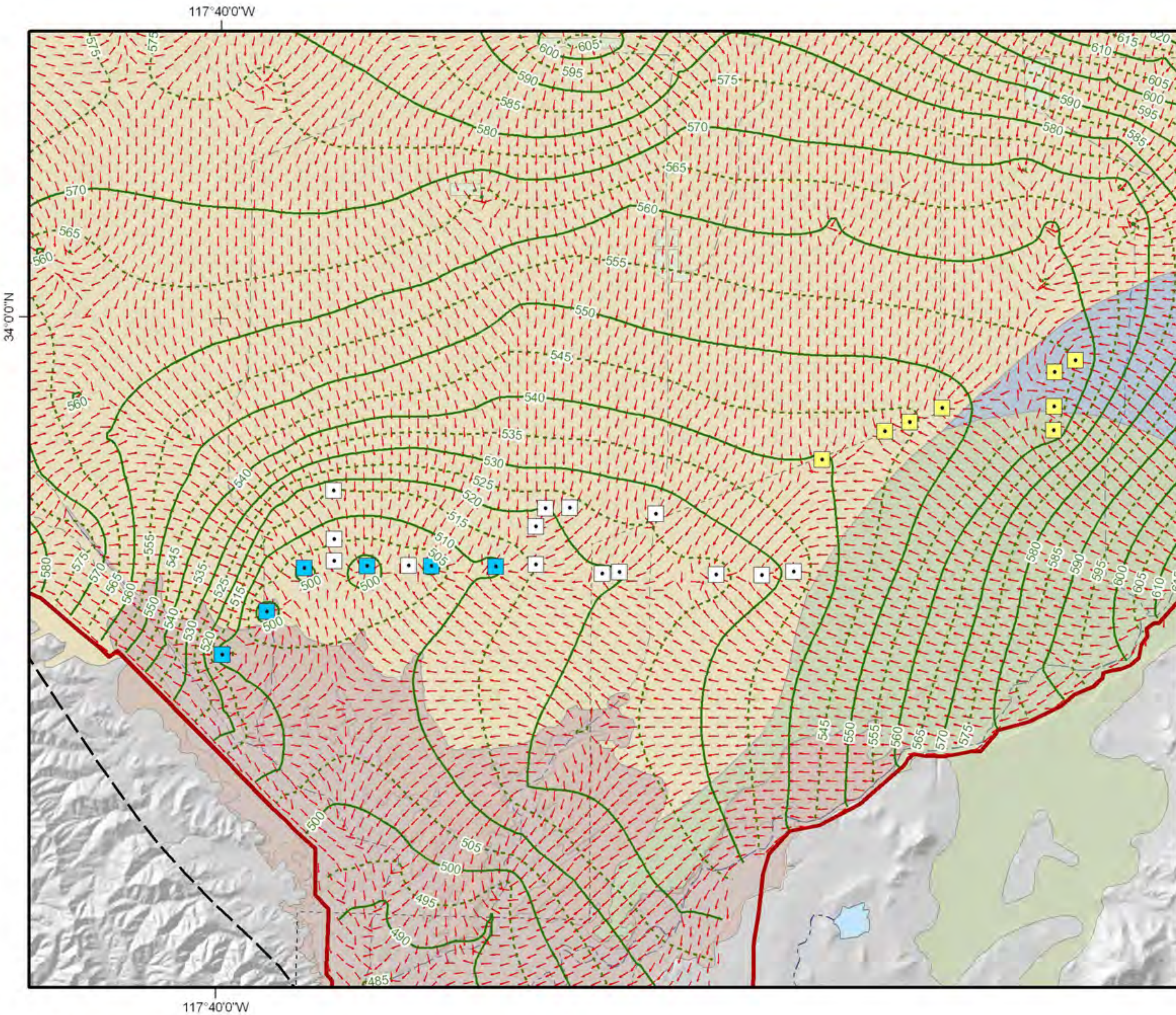


Groundwater Elevation Contours (feet above mean sea-level)

Existing Chino 1 Desalter Well

Existing Chino 2 Desalter Well

Proposed Chino Creek Well

Groundwater Flow Direction

Other Features

Groundwater Management Zone

Chino-East

Chino-South

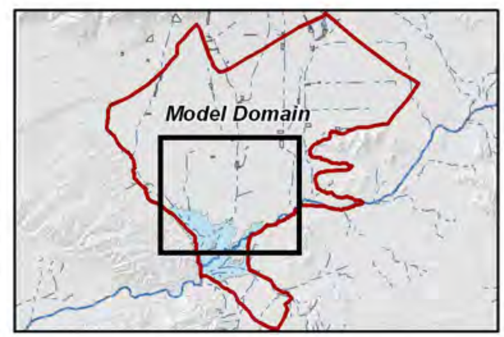
Chino-North

Prado Basin

Groundwater Flow Model Boundary

Flood Control and Conservation Basins

Streams, Rivers, and Flood Control Channels



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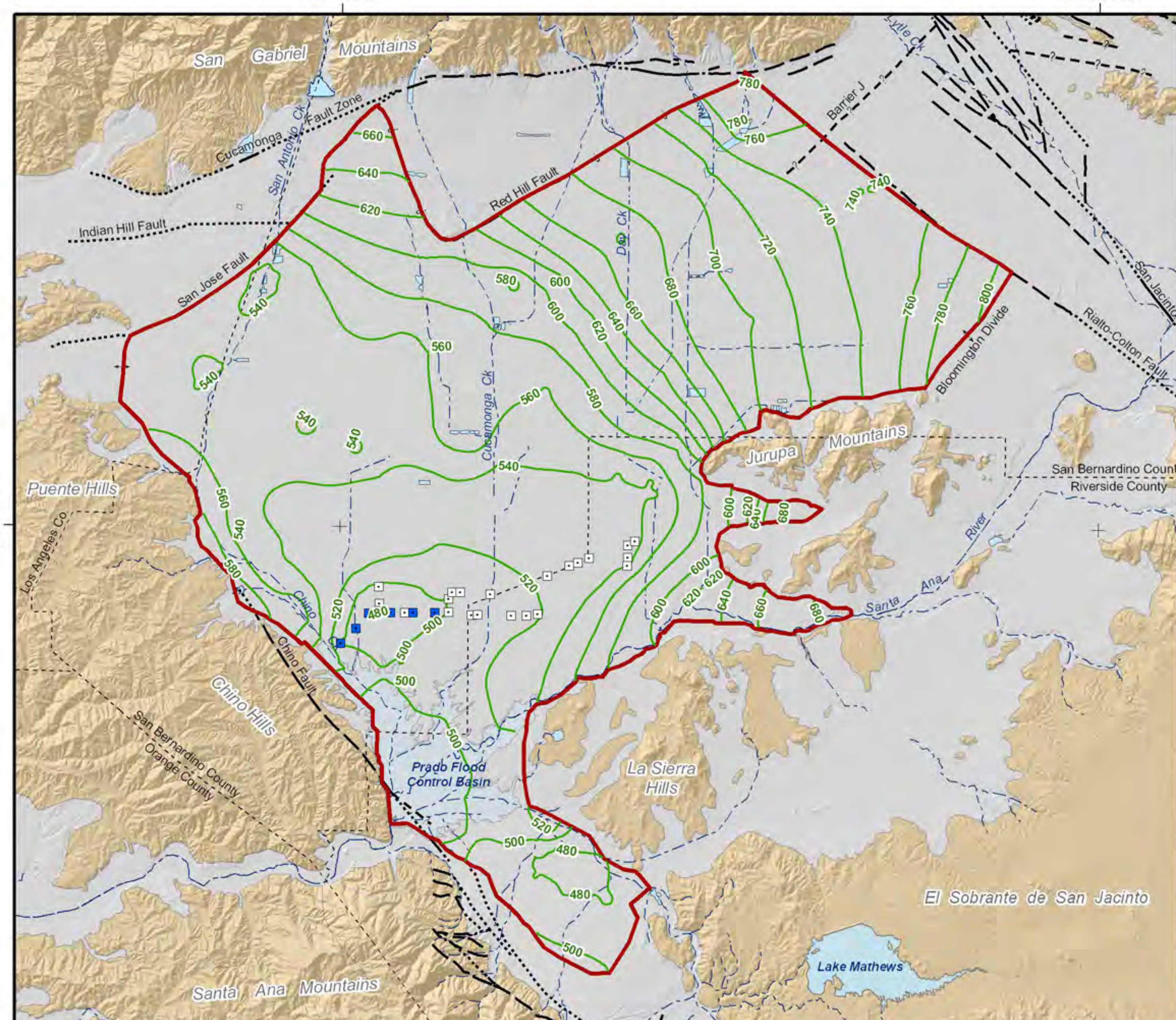
0 1 2 Miles

0 1 2 3 KM

Layer 1 Groundwater Elevation Contours and Flow Directions in the Vicinity of the Desalters

Baseline Alternative -- 2020

FIGURE 4.3-64



- Groundwater Elevation Contours (feet above mean sea-level)
- Existing Chino Desalter Well
- Proposed Chino Desalter Well
- Groundwater Flow Model Boundary

Geology

Water-Bearing Sediments

- Quaternary Alluvium

Consolidated Bedrock

- Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- ? Location Uncertain
- Location Concealed

Other Features

- Groundwater Divides
- Flood Control/Conservation Basins
- Streams, Rivers, and Channels

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0 1 2 3 4 Miles
0 2 4 6 KM

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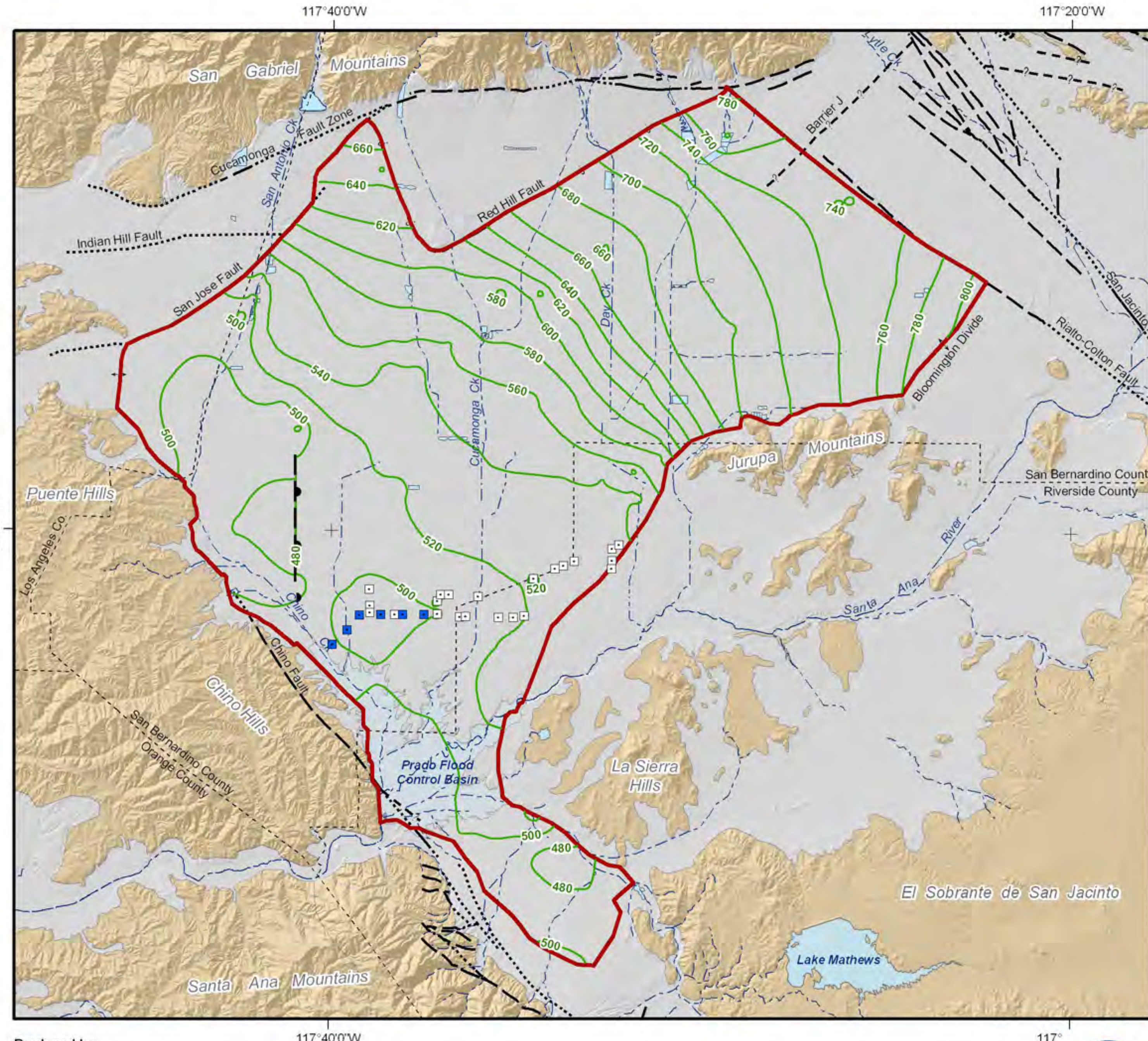
Projected Peace II Groundwater Elevations for Layer 1

July 2030

FIGURE 4.3-65a



Groundwater Elevation Contours *(feet above mean sea-level)*

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Geology

Water-Bearing Sediments

Quaternary Alluvium

Consolidated Bedrock

Undifferentiated Pre-Tertiary to Early Pleistocene Igneous, Metamorphic, and Sedimentary Rocks

Faults

- Location Certain
- Location Approximate
- Location Concealed
- Location Uncertain
- Approximate Location of Groundwater Barrier

Other Features

Groundwater Divides

Flood Control/Conservation Basins

Streams, Rivers, and Channels

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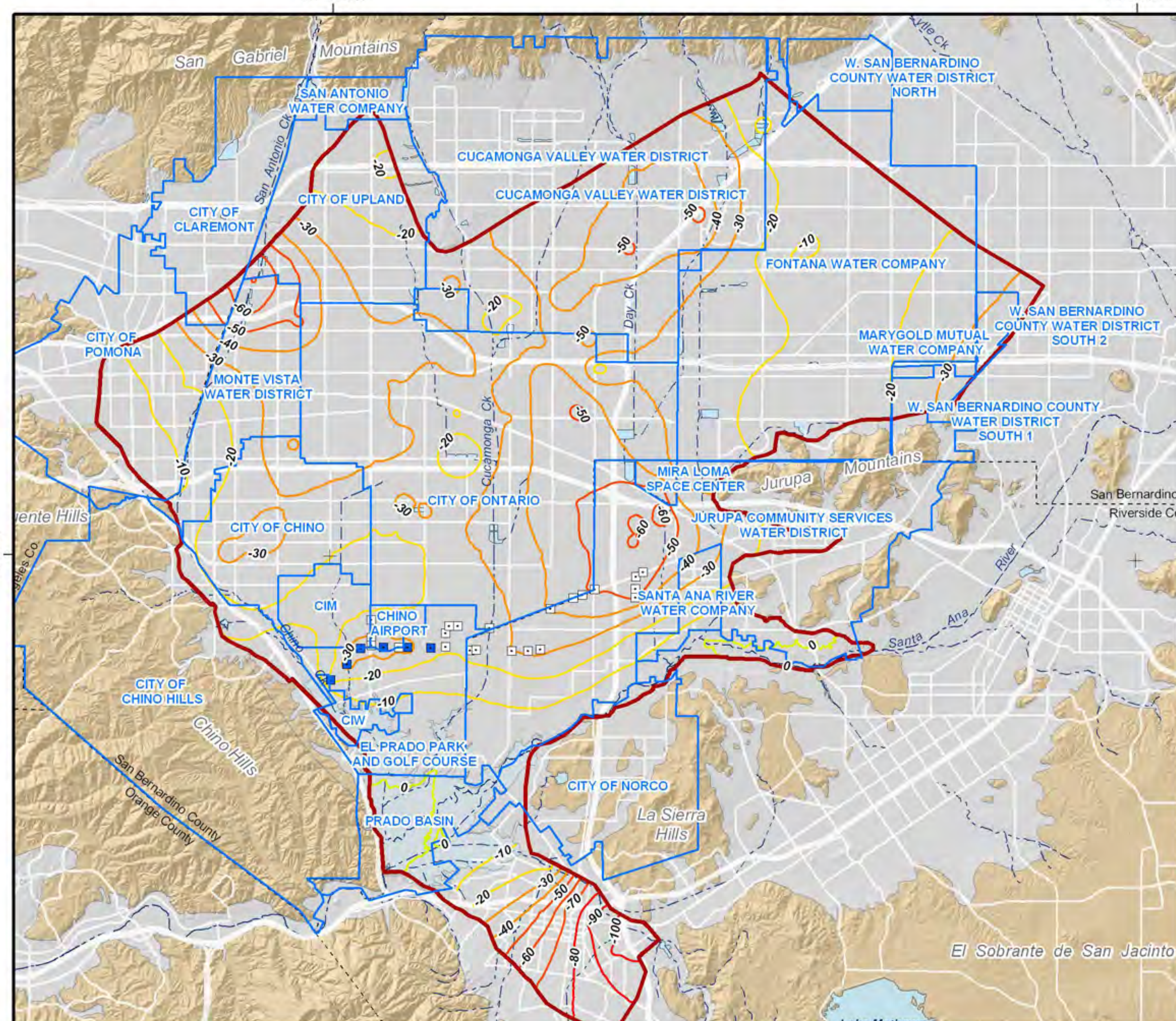
0 1 2 3 4 Miles
0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Projected Baseline Groundwater Elevations for Layer 2

July 2030

FIGURE 4.3-65b



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0 1 2 3 4 Miles
0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description

Main Features

- 50 - 75
- 25 - 50
- 0 - 25
- 0
- 0 - -25
- -25- -50
- -50 - -75
- -75 - -100

Contours of Equal Groundwater Elevation Change from July 2005 to June 2030 (feet)

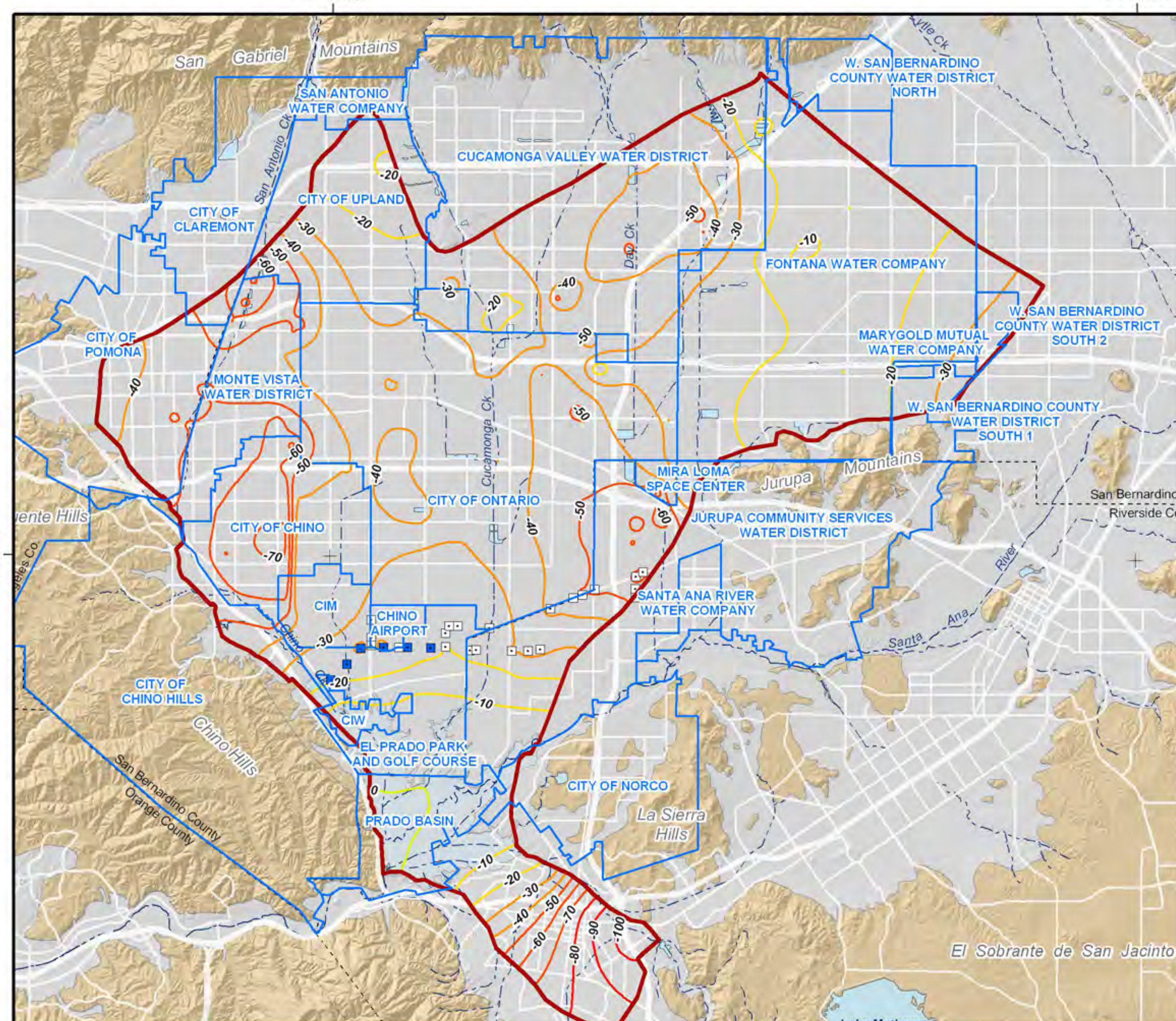
Water Service Area Boundaries

Other Features

- Existing Chino Desalter Well
- Proposed Chino Desalter Well
- Groundwater Flow Model Boundary
- Flood Control/Conservation Basins
- Streams, Rivers, and Channels

Projected Peace II Groundwater Elevation Change
for Layer 1 in June 2030

FIGURE 4.3-66a



Main Features

50 - 75	
25 - 50	
0 - 25	
0	*Contours of Equal Groundwater Elevation Change from July 2005 to June 2030 (feet)*
0 - -25	
-25- -50	
-50 - -75	
-75 - -100	

Water Service Area Boundaries

Other Features

Existing Chino Desalter Well

Proposed Chino Desalter Well

Groundwater Flow Model Boundary

Flood Control/Conservation Basins

Streams, Rivers, and Channels

Projected Peace II Groundwater Elevation Change
for Layer 2 in June 2030

FIGURE 4.3-66b

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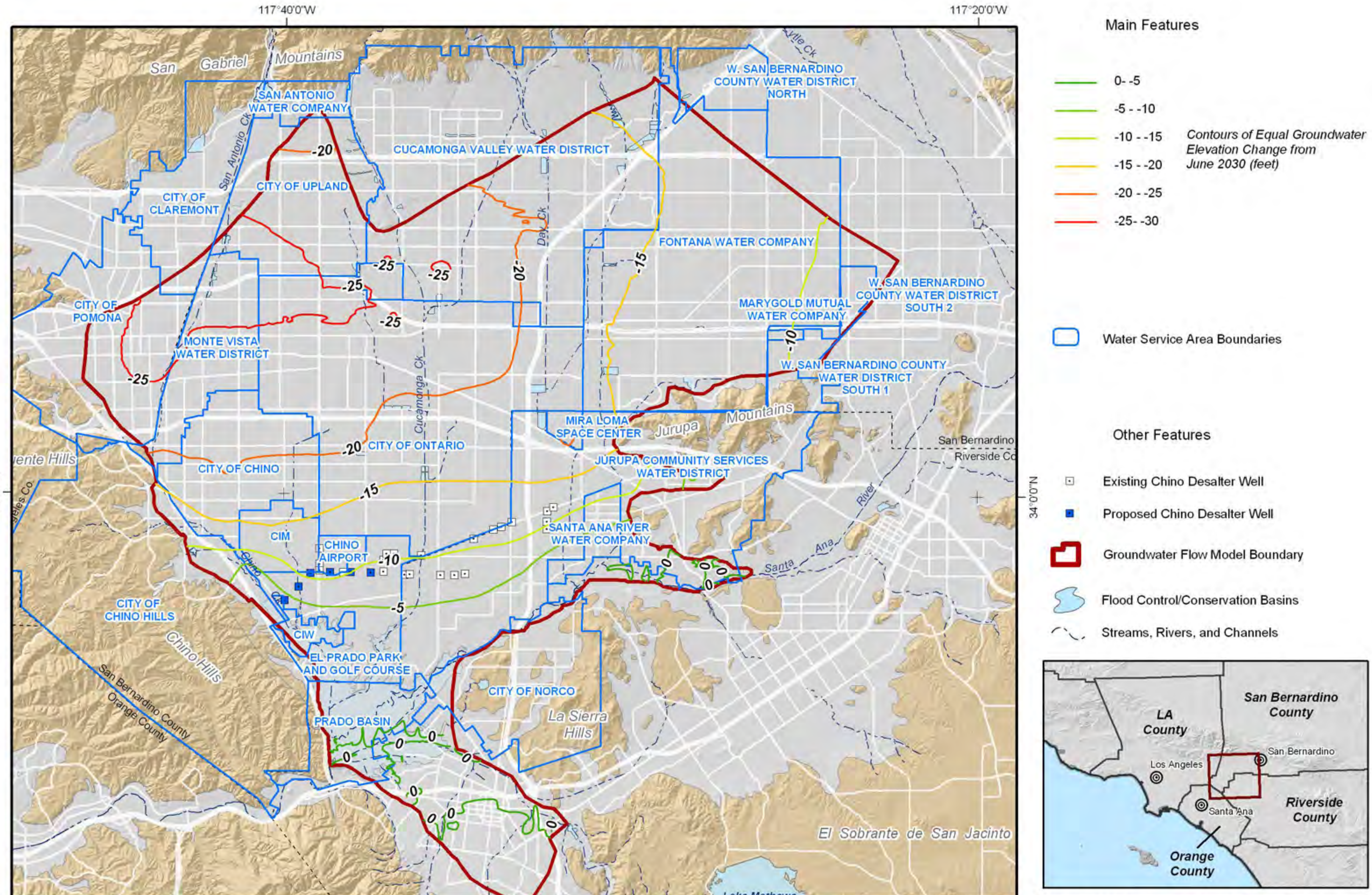
0 1 2 3 4 Miles
0 2 4 6 KM

2009 Production Optimization and Evaluation of the Peace II Project Description



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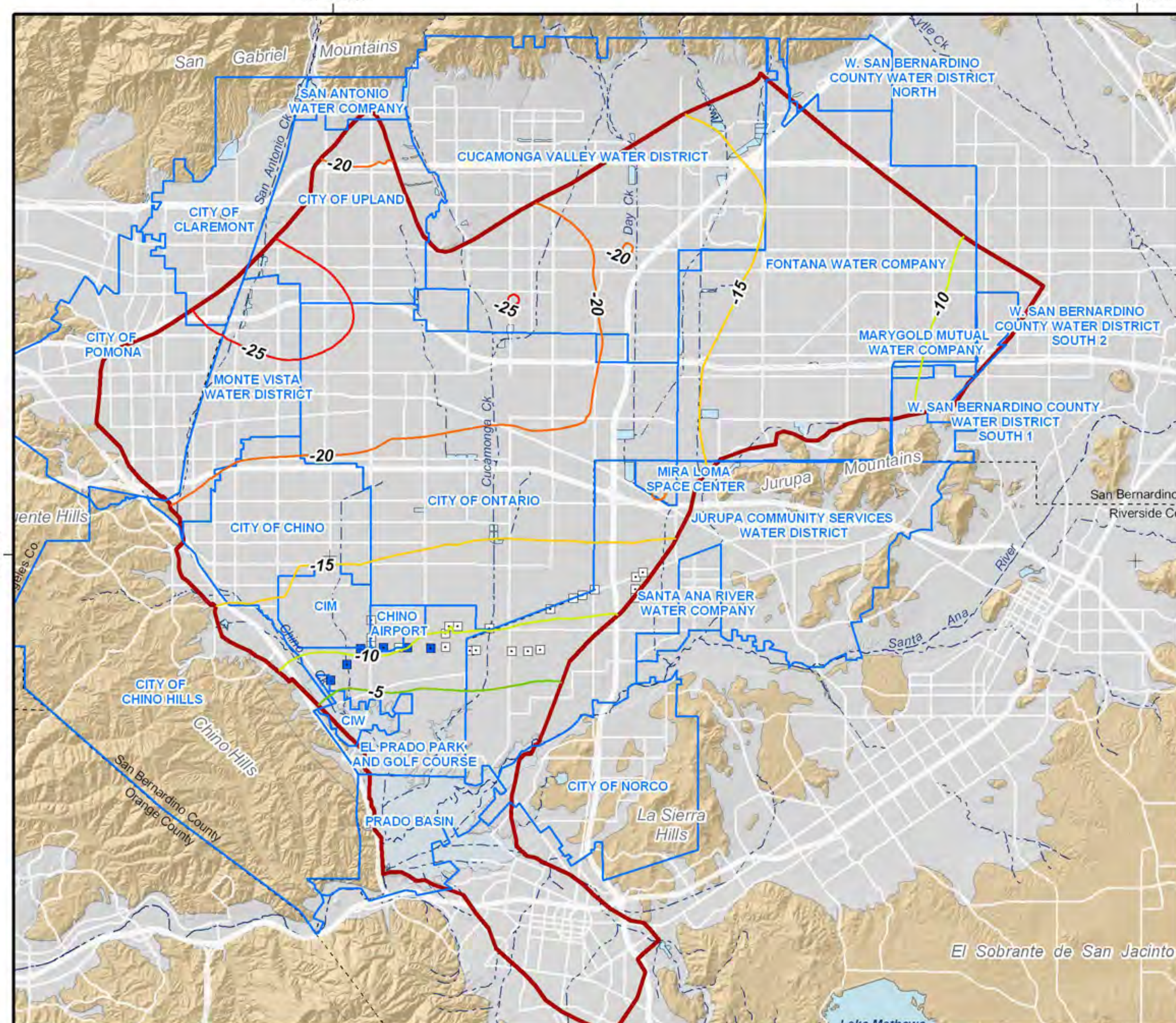
2009 Production Optimization and Evaluation of the Peace II Project Description

Peace II Groundwater Elevation Minus the Baseline Groundwater Elevation
for Layer 1 in June 2030

FIGURE 4.3-67a



Main Features

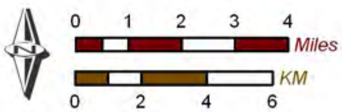
- 0- -5
- -5 - -10
- -10 - -15
- -15 - -20
- -20 - -25
- -25- -30

Contours of Equal Groundwater Elevation Change from June 2030 (feet)

Water Service Area Boundaries

Other Features

- Existing Chino Desalter Well
- Proposed Chino Desalter Well
- Groundwater Flow Model Boundary
- Flood Control/Conservation Basins
- Streams, Rivers, and Channels



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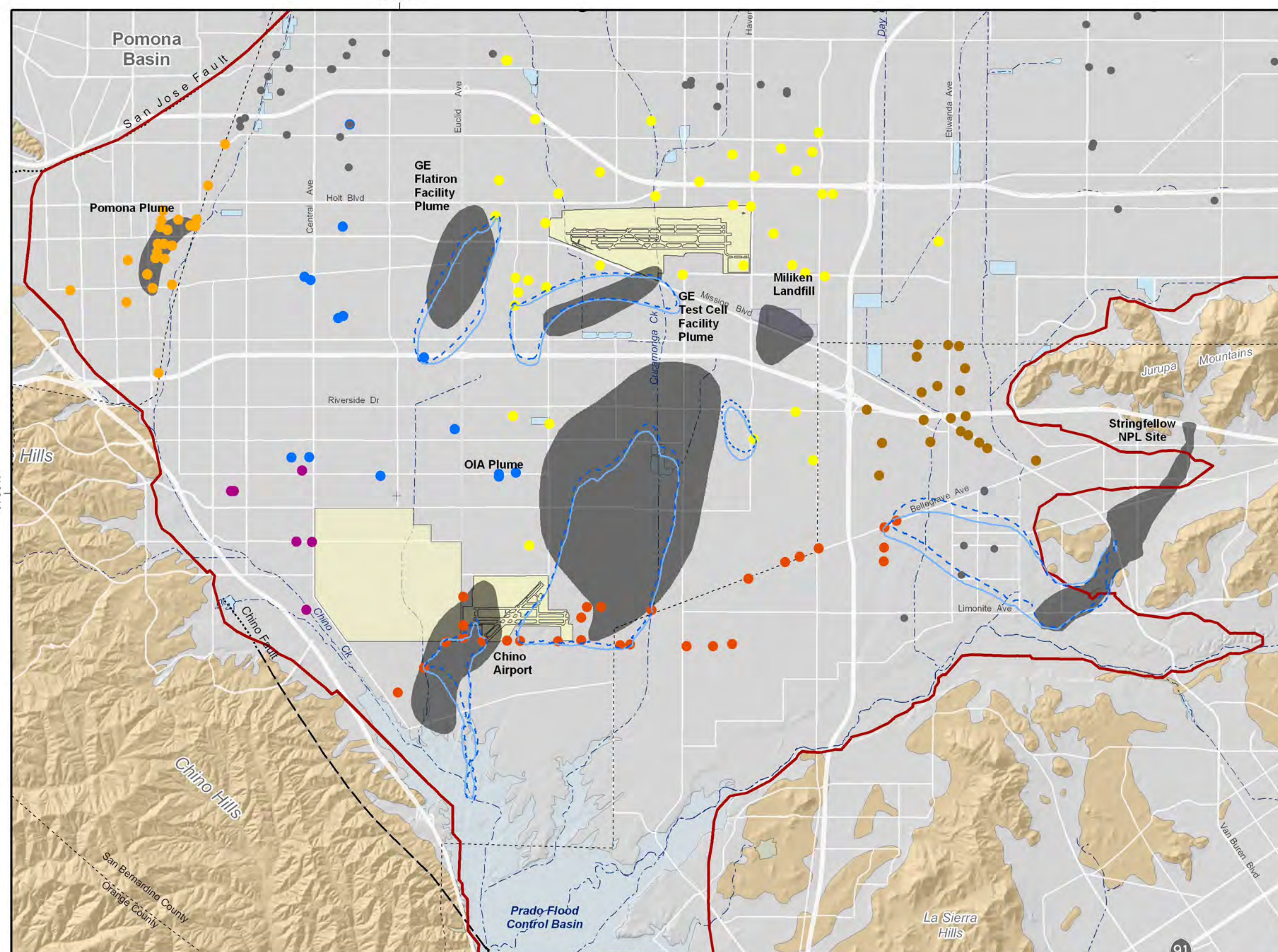
2009 Production Optimization and Evaluation of the Peace II Project Description

Peace II Groundwater Elevation Minus the Baseline Groundwater Elevation

for Layer 2 in June 2030

FIGURE 4.3-67b



Location of Groundwater Contaminant Plumes (2006)

Water Quality Anomaly

Baseline
Location of Groundwater Contaminant Plume (2030)

Water Quality Anomaly

Peace II Alternative
Location of Groundwater Contaminant Plume (2030)

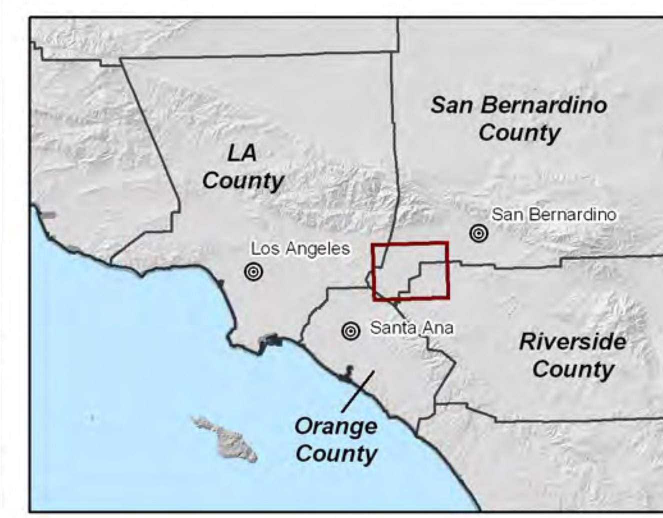
Water Quality Anomaly

Appropriator Wells

Jurupa Community Services District
City of Ontario
City of Chino Hills
City of Chino
City of Pomona
Chino Desalter Authority and CCWF
Other Appropraitors

Other Features

Groundwater Flow Model Boundary
Flood Control and Conservation Basins



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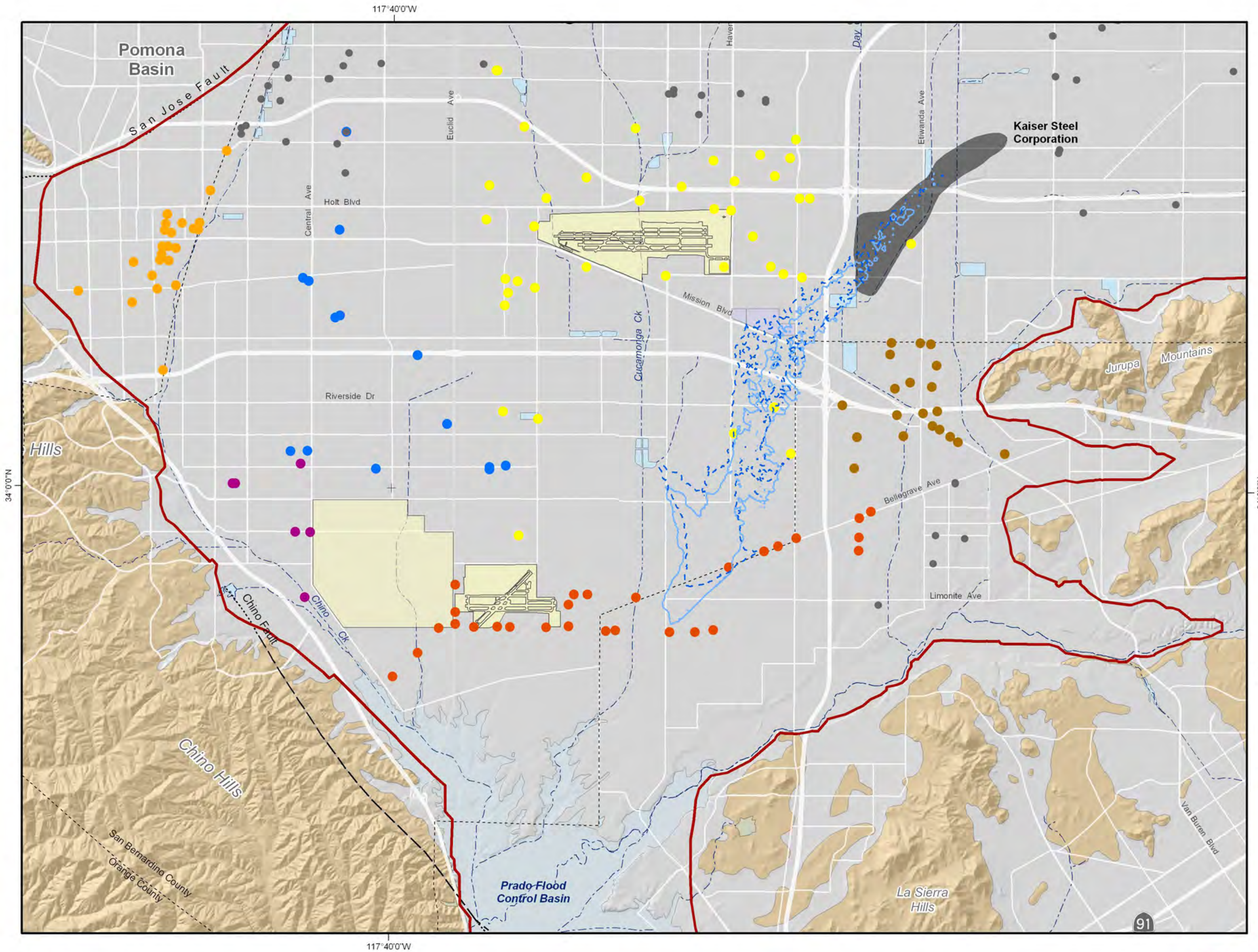
File: Figure_4-17a.mxd

0 1 2 3 Miles
0 2 4 KM

2009 Production Optimization and
Evaluation of the Peace II Project Description

Estimated Location of Water Quality Anomalies in 2008 and Their Projected Location in 2030 for the Baseline and Peace II Alternatives

FIGURE 4.3-68a



Location of Groundwater Contaminant Plumes (2006)

Water Quality Anomaly

Baseline
Location of Groundwater Contaminant Plume (2030)

Water Quality Anomaly

Peace II Alternative
Location of Groundwater Contaminant Plume (2030)

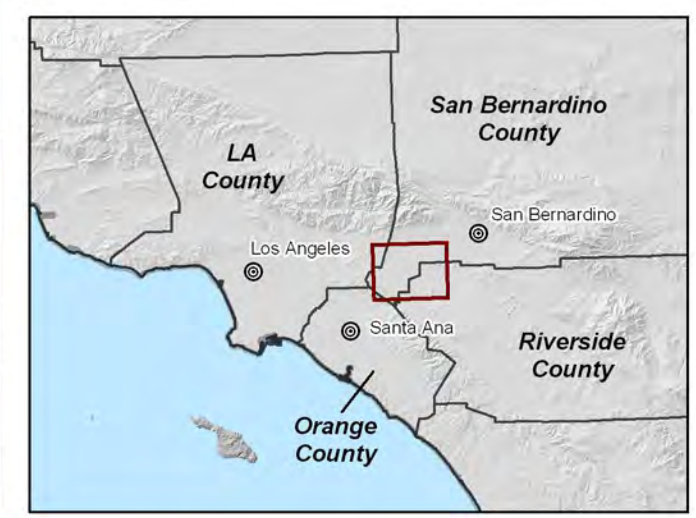
Water Quality Anomaly

Appropriator Wells

- Jurupa Community Services District
- City of Ontario
- City of Chino Hills
- City of Chino
- City of Pomona
- Chino Desalter Authority and CCWF
- Other Appropraitors

Other Features

- Groundwater Flow Model Boundary
- Flood Control and Conservation Basins



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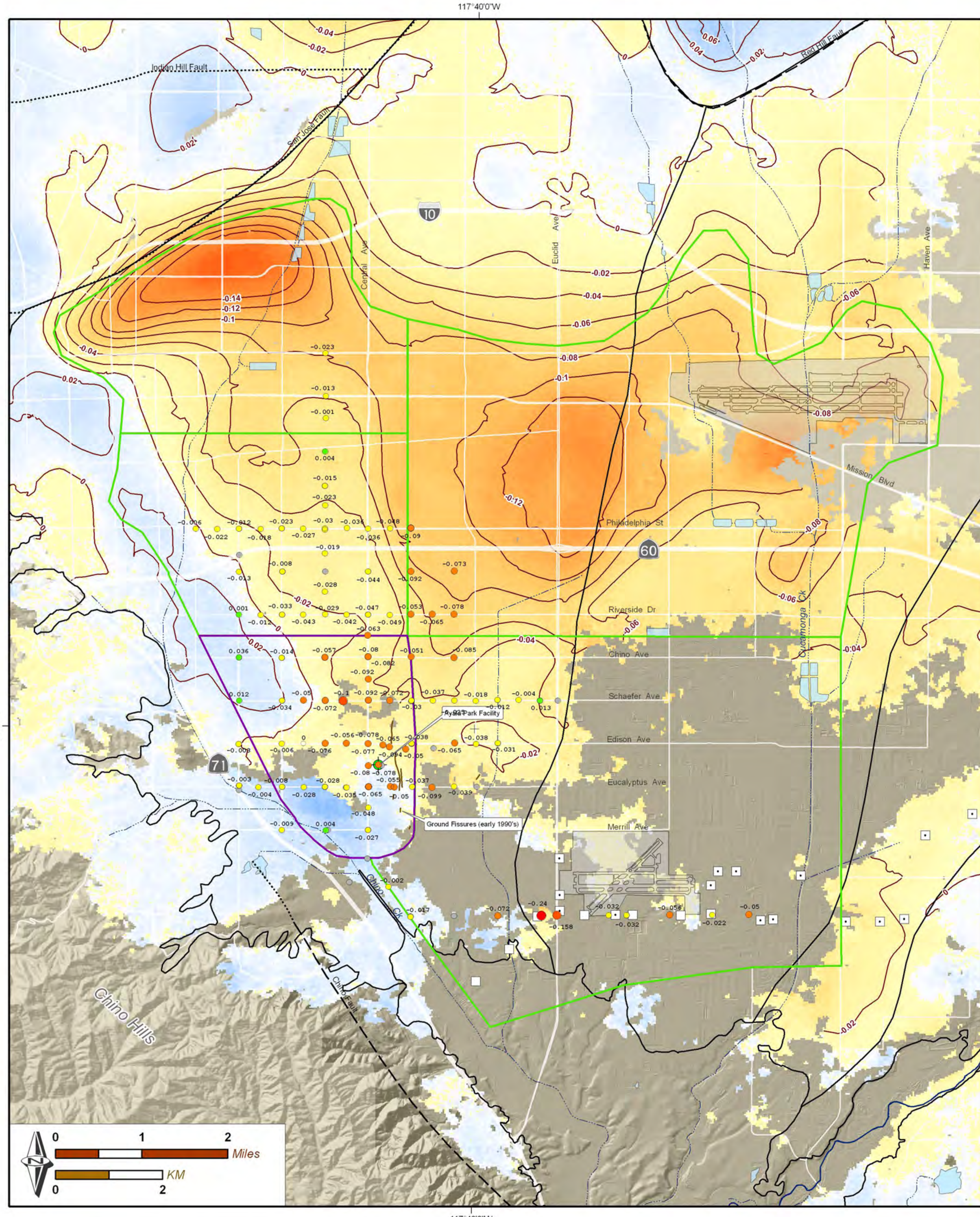
0 1 2 3 Miles
0 2 4 KM

Estimated Location of the Kaiser Plume in 2008 and Its Projected Location in 2030 for the Baseline and Peace II Alternatives

FIGURE 4.3-68b



- Insufficient Data
- > 0.20
- 0.10 - 0.20
- 0.05 - 0.10
- 0.01 - 0.05
- 0.00
- -0.01 - -0.05
- -0.05 - -0.10
- -0.10 - -0.20
- < -0.20

Relative Change in Land Surface Altitude as Measured by Leveling Surveys Oct 2005 - Oct 2008 *(feet)*

Relative Change in Land Surface Altitude as Measured by InSAR June 2005 - Oct 2008 *(feet)*

+ 0.2 ft / 0 / -0.1 / - 0.2

Brown areas represent regions where InSAR data is absent (incoherent)

- Ayala Park Facility (Extensometer and Piezometers)
- Chino Basin Desalter Well (Existing)
- Proposed Chino Creek Desalter Well
- Chino Basin Management Zones
- Subsidence Areas of Interest
- MZ1 Managed Area

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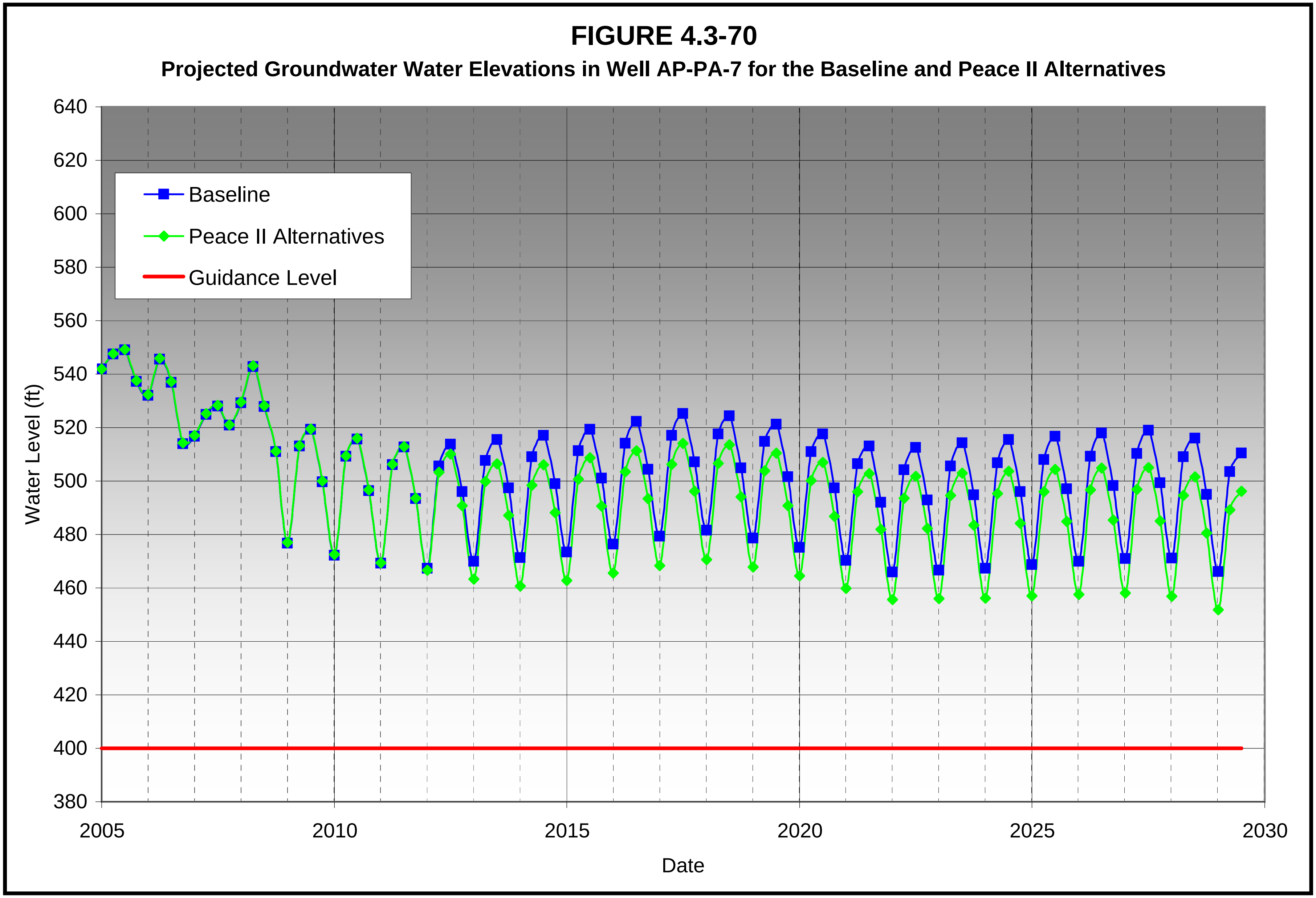
2009 Production Optimization and Evaluation of the Peace II Project Description

Author: MJC
Date: 20091024
File: Figure_4-15.mxd

Subsidence Areas of Concern in MZ 1

FIGURE 4.3-69



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4.4 BIOLOGICAL RESOURCES / LAND USE & PLANNING

4.4.1 Introduction

The proposed project has three main features: (1) the expansion of the desalter program in a manner that will increase groundwater pumping to the desalters from about 27,000 acre-ft/yr to about 40,000 acre-ft/yr and that will occur in amounts and at locations that contribute to the achievement of hydraulic control of the Chino Groundwater Basin; (2) the strategic reduction in groundwater storage (Re-operation) that, along with the expanded desalter program, is designed to achieve hydraulic control for the Chino Groundwater Basin; and (4) the continued installation of infrastructure facilities (pipelines, wells, booster pumps, reservoirs, etc.) at locations throughout the Chino Basin.

Through Re-operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft of groundwater to off-set desalter replenishment through 2030. A new well field, referred to as the Chino Creek Well Field, will be installed and produced to meet the increased production of groundwater required by the desalters. The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 24,900 acre-ft/yr. The new product water produced at Desalter II would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines.

Under the programmatic concept, this document's focus is on the type of facilities and activities that will be implemented under the proposed project rather than the specific locations. Accordingly, an examination of the general impacts that may result from implementing facilities and activities is provided, instead of site specific impacts. However, when sufficient information is available about the background environmental resources and systems for the whole of the program area, as it is for the Chino Basin, it is possible to accurately forecast the type of biology resource impacts that may occur from implementing the Peace II Agreement, and more importantly, to identify those mitigation measures that can help to ensure potential impacts will not reach a level of significant adverse impact.

Implementation of the proposed project can have the following types of effects on the biological resources in the Project Area: (1) direct removal of sensitive habitat or sensitive species through direct loss of individual sensitive species or through habitat destruction or increasing hazards to sensitive species or access to sensitive habitat, or (2) indirectly facilitate development of habitat by providing economic incentives that decrease development costs or remove barriers to development, or (3) indirectly remove sensitive habitat or habitat that sensitive species rely upon by changing hydrologic conditions such that the habitat is adversely impacted.

Information presented in this subchapter is taken from City and County General Plans and supporting documents, the California Natural Diversity Database (CNDDB) for the project area, the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), and species specific documents from state and federal agencies.

Both the California and Federal endangered species acts provide legislation to protect the habitats of listed species as well as the species itself. If a state or federally listed endangered species were determined to be present within the project impact area, the proposed project may be constrained to avoid, minimize or offset (compensate for) effects to the species. Species specific mitigation measures would need to be agreed upon and implemented to the satisfaction of all jurisdictional agencies. These jurisdictional agencies may be some or all of the following: U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), the Regional Water Quality Control Board (RWQCB), and/or U.S. Army Corps of Engineers (ACOE).

The NOP comment letter from CDFG raised concerns regarding this environmental topic. The comments and responses are provided below.

- **Comment Letter #5 from the California Department of Fish and Game, March 24, 2009**

Comment 1: The California Department of Fish and Game (CDFG) summarized the proposed project and stated its position as a Trustee Agency for fish and wildlife resources and as a Responsible Agency regarding discretionary actions.

Response 1: Thank you for the comment. It will be provided to the decision makers.

Comment 2: CDFG indicates that the project has a potential to impact numerous sensitive plant and animal species and that focused surveys for sensitive species, following State and/or Federal protocols when available, should be conducted at the appropriate time of year by a qualified biologist and botanist. CDFG states that the results of the surveys should be included in the DSEIR, and that any impacts should be evaluated and mitigated. CDFG states that impacts to sensitive species is considered a significant impact under CEQA and requires avoidance, minimization and mitigation measures to reduce impacts to a less than significant level.

Response 2: The DSEIR is intended as a broad scope analysis of the potential impacts of the project. The project description does not include specific locations of potential future projects related to Peace II. Any future specific projects would be evaluated in a site specific environmental document when it is considered (a second-tier environmental evaluation under this program DSEIR). Mitigation is incorporated into the DSEIR that outlines specific performance standards for surveys conducted on future Peace II related projects and identifies thresholds for reducing impacts to sensitive species.

Comment 3: CDFG states that because of the potential for this project to have significant environmental impacts on sensitive fauna resources, including State and/or Federally-listed threatened or endangered species, the DSEIR should include an alternative analysis which focuses on environmental resources and measures to avoid, minimize and compensate significant impacts.

Response 3: *Please refer to Chapter 5 for the alternatives analysis.*

Comment 4: CDFG recommends updated biological studies be conducted prior to environmental or discretionary approvals and states the minimum standards for acceptable survey and report preparation, including potential mitigation measures.

Response 4: *Updated biological studies will be conducted prior to environmental or discretionary approvals for site specific projects. The Peace II DSEIR is an analysis of broad scope biological resource impacts from project implementation, but as specific locations for infrastructure have not been selected, site specific biological surveys have not yet been conducted. This DSEIR provides an overview of the potential impacts of the Peace II project and includes mitigation measures that establish IEUA's minimum standards for acceptable biological survey and report preparation and establishes impact thresholds for sensitive species and habitat above which IEUA will require future Peace II project's to implement mitigation measures as well as performance standards for possible future mitigation.*

Comment 5: CDFG recommends that the DSEIR include a thorough discussion of direct, indirect and cumulative impacts of the Peace II project. CDFG requests that Peace II impacts be analyzed relative to off-site habitats, including riparian ecosystems and corridor/movement areas.

Response 5: *Please refer to Chapter 6 for an analysis of the potential cumulative impacts of the project. Potential direct and indirect impacts are also evaluated in the appropriate Sections of Chapter 4.*

Comment 6: CDFG requests alternatives be considered including options that would avoid or minimize impacts to sensitive biological resources. CDFG considers Rare Natural Communities as threatened habitats with regional and local significance that should be avoided or protected from project-related impacts. Where unavoidable impacts to biological resources will occur, off-site compensation through acquisition and protection of high-quality habitat should be addressed. CDFG does not support relocation, salvage and/or transplantation as mitigation as these efforts are largely unsuccessful.

Response 6: *Your comments are noted and will be provided to the decisions makers. Please also refer to the responses for Comments 4 and 4. Section 2 of Chapter 4 discusses any Rare Natural Communities that may be impacted by the project.*

Comment 7: CDFG states that a California Endangered Species Act (CESA) Incidental Take Permit is required if the project has the potential to result in the "take" of a species listed under CESA. The environmental document must provide sufficient information with respect to impacts to listed species and a mitigation monitoring and reporting program in order for CDFG to rely on the document for its CESA permit.

Response 7: *A CESA Take Permit will be procured if any Peace II related project has the potential to result in the "take" of a listed species. Your comments as to the information required from an environmental document for reliance of the CESA permit are noted and will be provided to the decision makers.*

Comment 8: CDFG opposes the elimination watercourses and/or conversion to subsurface drains. All wetland and watercourses should be retained with substantial setbacks to preserve the biological value. Impacts to natural flow or the bed, bank or channel of a stream requires a Lake and Streambed Alteration Agreement. The environmental document must provide sufficient information with respect to impacts to watercourses in order for CDFG to rely on the document for its Streambed Alteration Agreement.

Response 8: *Your comments are noted and will be provided to the decisions makers.*

Comment 9: CDFG requests that the DSEIR analyze the hydrologic impacts of the Peace II project on riparian and riparian transitional habitats and species supported by these habitats. *This comment was received in a separate letter sent by CDFG.*

Response 9: *Please refer to Sections 2 and 4 of Chapter 4 for discussion of the potential hydrological impacts of the project on riparian and riparian transitional habitats and species supported by these habitats. This issue will be dealt with in the discussion of indirect impacts of project implementation and cumulative effects on these resources from the proposed project and other identified projects.*

One of the issues identified in the Land Use/Planning category asks if the project would: "Conflict with any applicable habitat conservation plan or natural community conservation plan?" Because this issue was identified in the Initial Study as having potentially significant impacts, it has been carried forward into this DSEIR for review. Also, because it so closely related to the biology resources evaluation contained in this subchapter, the Land Use & Planning issue quoted above has been integrated into this subchapter, and it will be evaluated in the analysis presented below.

4.4.2 Environmental Setting

This section is intended to serve as a broad overview of biological resources, including a general inventory and description of the plant communities, sensitive habitats, and species of special concern that may occur in the vicinity of or within the Chino Basin.

The Chino Basin includes urban, agricultural, industrial, flood control, habitat conservation and vacant land uses. Historic development activities have removed native habitat from many portions of the project area, but sensitive biological resources remain on limited areas of undeveloped and fallowed lands. In particular, significant biological resources within the project area are associated with the Prado Basin (the largest remaining wetland in southern California), the Santa Ana River floodplain and other drainages, remnant sand dunes, the Jurupa Mountains, remaining undeveloped portions of alluvial fans, and the foothills of the San Gabriel Mountains.

The project area is located on coalescing alluvial fans (termed a bajada) resulting from ancient flood flows from the San Gabriel and San Bernardino Mountains to the north and east. Currently, the dominant habitats within the project area are urban landscaping and nonnative grasslands that typically support common urban faunal species. Historically, the dominant natural habitat that occurred in the area was probably a sage scrub shrub community. However as development in the project area and the surrounding Inland Empire region has eliminated a majority of the sage scrub habitat, species associated with this habitat have become less common and in some cases have become rare and are considered sensitive.

In the dry climate of the project area there are few natural areas with sufficient moisture to support trees and even fewer natural areas with permanent or nearly permanent water, so the major streams and rivers that drain from the mountains support sensitive species that cannot survive in the surrounding drier lands. In other portions of riparian floodplains the scouring action and sediment deposition associated with infrequent flooding creates unique habitat that supports sensitive species. In other locations, the prevailing wind comes from the Pacific Ocean to the west, but the “Santa Ana” winds, strong seasonal winds from the northeast, created sand dunes that support distinctive and sensitive biological resources. Open space resources, including biological resources, could be adversely affected by future development of infrastructure facilities associated with the Peace II Agreement program implementation.

The principal drainage course for the Basin is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Chino Basin at the Riverside Narrows and flows along the southern boundary of the Basin to the Prado Flood Control Reservoir. From Prado Dam the Santa Ana flow is eventually discharged through the outlet at the Dam, from where it flows within the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: Chino Creek, San Antonio Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. These and other potential jurisdictional surface waters, wetlands or riparian zones may be affected within the project area by implementation of the Peace II Agreement program.

4.4.2.1 Regulatory Setting

Special status species are native species that have been afforded special legal or management protection because of concern for their continued existence. There are several categories of protection at both federal and state levels, depending on the magnitude of threat to the continued existence and existing knowledge of population levels.

Federal Endangered Species Act
The U.S. Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (ESA) of 1974. The ESA provides a legal mechanism for listing species as either threatened or endangered, and a process of protection for those species listed. Section 9 of the ESA prohibits "take" of 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. "Take" can include adverse modification of habitats used by a threatened or endangered species during any portion of its life history.

Under the regulations of the ESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act. Take authorization can be obtained under Section 7 or Section 10 of the Act. Additionally, the Act requires Federal agencies to insure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species, or destroy or adversely modify its critical habitat, if any is designated. Finally, activities requiring Federal involvement (such as a Section 404 permit under the Clean Water Act) that may affect an endangered species on federal or private land must be reviewed by the USFWS to determine whether or not the continued existence of the listed species is jeopardized.

Migratory Bird Treaty Act
The Migratory Bird Treaty Act of 1918 fully protects all wild, native migratory birds and their parts (including eggs, nests, and feathers), whether or not they are considered sensitive by resource agencies. The Secretary of Interior has the discretion to authorize regulations that, with the President's signature, allow for "taking" of covered species in accordance with the Act and the various international migratory bird treaties and conventions (with Canada, Japan, Mexico and Soviet Union) that the Act implements. An example of such an authorization is legal hunting of migratory species permitted during specific seasons and in regulated quantity. Under this Act, active bird nests must be avoided during construction activities unless the project proponent has received take authorization from the USFWS.

Army Corps of Engineers
The ACOE regulates discharges of dredged or fill material into waters of the United States. These waters include wetlands and non-wetland bodies of water that meet specific criteria. The ACOE regulatory jurisdiction pursuant to Section 404 of the Federal Clean Water Act (CWA) is founded on a connection, or nexus, between the water body in question and interstate commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or it may be indirect, through a nexus identified in the ACOE regulations.

Regional Water Quality Control Board
The RWQCB's regulatory jurisdiction is pursuant to Section 401 of the Federal CWA. The RWQCB typically regulates discharges of dredged or fill material into waters of the United States on behalf of the federal Environmental Protection Agency; however they also have regulatory authority over waste discharges into Waters of the State, which may be isolated, under the Porter-Cologne Water Quality Control Act issued by the State Water Resources Board. In the absence of a nexus with the ACOE, the Regional Board requires the submittal of a Waste Discharge Report (WDR) application, which must include a copy of the project Stormwater Pollution Prevention Plan (SWPPP) and a copy of the project Water Quality

Management Plan (WQMP), otherwise called a Standard Urban Stormwater Management Plan (SUSMP). The Regional Board's role is to ensure that disturbances in the stream channel do not cause water quality degradation. The Regional Board will not begin processing the 401 Certification or WDR application until after the appropriate CEQA document is certified.

California Department of Fish and Game

Unlike the ACOE, California Department of Fish and Game (CDFG) regulates not only the discharge of dredged or fill material, but all activities that alter streams and lakes and their associated habitat. The CDFG, through provisions of the California Fish and Game Code (Sections 1601-1604), is empowered to issue agreements for any alteration of a river, stream, or lake where fish or wildlife resources may be adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. The CDFG typically extends the limits of their jurisdiction laterally beyond the channel banks for streams that support riparian vegetation. In these situations the outer edge of the riparian vegetation is generally used as the lateral extent of the stream and CDFG jurisdiction. CDFG regulates wetland areas only to the extent that those wetlands are a part of a river, stream, or lake as defined by CDFG. While seasonal ponds are within the CDFG definition of wetlands, they are not part of a river, stream, or lake, and may, or may not, be subject to the jurisdiction of CDFG under Sections 1601-1604 of the Fish and Game Code.

The CDFG administers the state Endangered Species Act. The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management and a rare species is one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species applies to California native plants. Further, all raptors and their nests are protected under '4504.5 of the California Fish and Game Code'. Species that are California fully protected include those protected by special legislation for various reasons, such as the California condor. Species of Special Concern is an informal designation used by CDFG for some declining wildlife species that are not proposed for listing as threatened or endangered, such as the burrowing owl. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFG.

Western Riverside County Multiple Species Habitat Conservation Plan

Riverside County adopted the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) on June 17, 2004. The USFWS 75-year permit was issued in June 2004. The CDFG Natural Community Conservation Program permit was issued on July 22, 2004. The portion of the Chino Basin that is located within Riverside County is located within the MSHCP.

The MSHCP includes a conceptual reserve system within which the Prado Basin and Santa Ana River comprise "existing core A" (p 4.41) which is considered to be already conserved habitat. The other conceptual components of the reserve system that are located within the Chino Basin are designated as "non-contiguous habitat blocks" 1 and 2, which are respectively an area of Delhi Sands and the Jurupa Mountains (refer to Figure 4.4-1). The non-contiguous blocks are not yet conserved habitat that is depicted as one possible outcome of the MSHCP. The following are descriptions of the components of the conceptual reserve system within the Chino Basin.

Existing Core A consists of the Prado Basin and Santa Ana River. The planning species intended to be conserved with this core area are:

> Santa Ana sucker, arroyo chub, western pond turtle, Cooper's hawk, tricolored blackbird, burrowing owl, American bittern, cactus wren, northern harrier, western yellow-billed cuckoo, yellow warbler, white-tailed kite, southwestern willow flycatcher, California horned lark, peregrine falcon, yellow-breasted chat, loggerhead shrike, black-crowned night heron, osprey, double-crested cormorant, downy woodpecker, white-faced ibis, tree swallow, least Bell's vireo, bobcat, mountain lion, and Santa Ana River woollystar.

Policies called out in the description as important for this conservation area include the Urban/Wildlands Interface guidelines and the maintenance of existing floodplain processes and water quality along the Santa Ana River.

Proposed Noncontiguous Habitat Block 1 consists of soils suitable for supporting the Delhi Sands flower-loving fly. The planning species intended to be conserved within this core area are:

> Delhi Sands flower-loving fly and Los Angeles pocket mouse.

Policies called out in the description as important for this conservation area include the Urban/Wildlands Interface guidelines.

Proposed Noncontiguous Habitat Block 2 is comprised of the Jurupa Mountains. The planning species intended to be conserved with this core area are:

> Delhi Sands flower-loving fly, southern California rufous-crowned sparrow, Bell's sage sparrow, loggerhead shrike, coastal California gnatcatcher, San Bernardino kangaroo rat, bobcat, and Los Angeles pocket mouse.

The description calls for the maintenance of large intact interconnected habitat blocks and for implementation of the Urban/Wildlands Interface Guidelines.

The MSHCP is divided up into Area Plans with specific planning objectives, which are further divided into criteria cells which are, in turn, designated for conservation objectives. The Chino Basin includes lands within Temescal Canyon, Jurupa and Eastvale Area Plans of the MSHCP as shown in Figures 4.4-2 through 4.4-4. The criteria cells are intended as the areas within which future habitat conservation will be prioritized, but in most cases only a percentage of the cell is intended to be conserved. The criteria cells are collectively referred to as the Criteria Area. Areas outside of the Criteria Area are required to show consistency with guidelines for Riparian/Riverine Areas and Vernal Pools, Narrow Endemic Plant Species and Urban/Wildlands Interface and Additional Survey Needs and Procedures included in Sections 6.1.2, 6.1.4, 6.1.4 and 6.4.2, respectively, of the MSHCP. Portions of the Chino Basin are located within narrow endemic plant survey areas and burrowing owl survey areas as shown in Figures 4.4-5 and 4.4-6. Additionally, portions of the Chino Basin are within Riparian/Riverine Areas where mapping of riparian areas, among other things, is required. Much of the portion of the Chino Basin located with the MSHCP Plan Area would be within the Urban/Wildlands Interface within which management of edge factors such as lighting, urban runoff, toxics, and domestic predators is required.

Even if the future specific project location impact areas are not designated in the MSHCP as a potential conservation area, a special linkage area, existing open space or a reserve, the MSHCP requires consistency with all plan policies. In addition to a MSHCP Consistency Analysis, a Determination of Biologically Equivalent or Superior Preservation document may be required. The MSHCP provides a mechanism to authorize permittees of the plan lawful take of listed species.

The IEUA, Watermaster and other water agencies identified as stakeholders to the Peace II Program are not permittees under the MSHCP (No water districts are listed as permittees; permittees are either cities, County agencies or State agencies). Consistent with existing law, federal and state agencies will mitigate the impacts of their projects within the MSHCP Plan Area through the purchase and/or protection of habitat within the Criteria Area. Any Peace II related project that occurs within the MSHCP Plan area would need to show consistency with the Plan; however, as the Peace II stakeholder agencies are not listed as permittees in the MSHCP, Peace II projects will likely have to obtain take authorization for listed species and the critical habitat of these species (where required) through individual consultation with the appropriate agencies.

Local Policies

The Riverside County General Plan includes numerous policies aimed at maintaining riparian and wetland habitat along the Santa Ana River and in the Prado Basin, as well as maintaining viable oak woodlands, habitat for special status plants, foraging areas for raptors and movement corridors within and between habitat areas.

The San Bernardino County General Plan Biotic Resources Overlay does not address any species or habitats within the Chino Basin. The biological resource policies in the San Bernardino General Plan are general in nature and call for protection of sensitive species and habitats, coordination with resources agencies and monitoring of mitigation.

4.4.2.2 Sensitive Species and Habitats

All of the 100 of the sensitive species and habitats identified by the CNDDB as occurring within the quadrangles that cover the Chino Basin are described in Table 4.4-1. The CNDDB indicates that all known occurrences of five species have been extirpated from the Chino Basin and another four species occurrences are considered possibly extirpated, although there may be unknown occurrences of these nine species. Occurrences of the remaining 91 species and their habitats are known or presumed to be present in the Chino Basin. For further reference, the Biological Assessment for the Santa Ana River Interceptor (SARI) Pipeline Repair Project located in the Prado Dam area of Riverside and San Bernardino Counties prepared by Tom Dodson & Associates dated December 2008 is provided as Appendix 5 of Volume 2. This document provides detailed information regarding sensitive species and habitats present within the Prado Basin, which contains the largest contiguous area of riparian habitat in southern California and supports a diverse flora and fauna, including many sensitive species. The OBMP PEIR, incorporated herein by reference, also provides detailed descriptions of the habitat communities that occur within the Chino Basin.

CNDDB Occurrence Overlay – A list of sensitive species which occur within the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps per the California Natural Diversity Data Base (CNDDB) and a discussion of their occurrence potential is provided in Table 4.4-1.

Table 4.4-1
SENSITIVE SPECIES AND HABITATS

Scientific and Common Name	Status Federal/ State	Typical Habitat
Abronia Villosa var. *aurita* Chaparral sand-verbena	N / S2.1 / 1B:1	Grows in sandy, bare areas of chaparral and coastal sage scrub.
Actinemys marmorata pallida southwestern pond turtle	N / SC	This species inhabits permanent or nearly permanent bodies of water in many habitat types below 6000 ft elevation. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks and suitable nesting sites.
Agelaius tricolor Tricolored blackbird	SC / SC	Highly colonial species, most numerous in central valley and the vicinity and largely endemic to California. Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony.
Aimophila ruficeps canescens southern California rufous-crowned sparrow	N / S2 S4	Inhabits steep rocky hillsides with grass and forb patches in coastal sage scrub and sparse chaparral.
Ambrosia monogyra singlewhorl burrobush	N / S2.2 / 2.2	Grows in sandy soils in coastal sage scrub, chaparral and Sonoran desert scrub between 10-500m. Collections from the vicinity of Fontana Power Plant in 1947 by Roos and in 1961 by Raven. A 1944 collection by Wheeler from "4 miles north of Rialto near Lytle Creek" is also attributed to this site.
Ambrosia pumila San Diego ambrosia	E / S1.1 / 1B.1	Grows on sandy loam or clay soils, often in valleys in chaparral, coastal scrub, valley and foothill grassland and vernal pools between 20 and 415 meters. This species can persist where disturbance has been superficial. In the United States it is known only from San Diego and Riverside Counties.
Ammodramus savannarum grasshopper sparrow	N / SC	Inhabits dense grasslands of rolling hills, lowland plains, valleys and hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.
Amphispiza belli belli Bell's sage sparrow	N / S2?	Nests on the ground beneath a shrub or in a shrub 6-18 inches above ground in chaparral dominated by fairly dense stands of chamise. It is also found in coastal sage scrub in south of range.
Anniella pulchra pulchra silvery legless lizard	N / SC	Found in sandy or loose loamy soils with a high-moisture content under sparse vegetation.
Antrozous pallidus pallid bat	N / SC	Occurs in deserts, grasslands, shrublands, woodlands and forests but is most common in open, dry habitats. Commonly roost in rock crevices, caves, and mine tunnels but also roost in the attics of houses, under the eaves of barns, in hollow trees. Roosts must protect bats from high temperatures. This species is very sensitive to disturbance of roosting sites.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Aquila chrysaetos golden eagle	N / S4 DFG fully protected species	Nests in cliff-walled canyons or large trees and nests and winters in rolling foothills mountain areas, sage-juniper flats and desert
Arenaria paludicola marsh sandwort	E / E / 1B:1	Grows through dense mats of *Typha*, *Juncus*, *Scirpus*, etc. in freshwater marshes and swamps between 10 and 170 meters. Historically this species occurred in California and Washington, but is now only known to occur on one site in San Luis Obispo in the United States. It also occurs in Mexico.
Asio otus long-eared owl	N / SC	Nests in riparian bottomlands of tall willows and cottonwoods and in belts of live oak paralleling stream courses. Requires adjacent open lands for foraging and the presence of old nests of crows, hawks, or magpies for nests.
Aspidoscelis (Cnemidophorus) hyperythrus orange-throated whiptail	N / SC	Inhabits washes and other sandy areas with patches of brush and rocks with sufficient perennial plants to sustain termite populations in low-elevation coastal scrub, chaparral, and valley-foothill hardwood habitats.
Aspidoscelis tigris stejnegeri coastal western whiptail	N / S2S4	Found in deserts and semiarid areas with sparse vegetation and open areas as well as in woodland and riparian areas. Ground in the habitat may be firm soil, sandy, or rocky.
Athene cunicularia burrowing owl	N / SC	This species is a subterranean nester dependent upon burrowing animals such as ground squirrels and desert tortoise for burrow sites. It typically inhabits open, dry annual or perennial grasslands as well as deserts and scrublands characterized by low-growing vegetation.
Atriplex coulteri Coulter's saltbush	N / S2.2 / 1B:2	Grows on ocean bluffs, dunes and ridgetops, as well as in alkaline low places in coastal scrub, valley and foothill grassland between 10 and 440 meters.
Atriplex serenana var. *davidsonii* Davidson's saltscale	N / S2? / 1B.2	Grows on alkaline soils in coastal bluff scrub and coastal scrub between 4-250m.
Batrachoseps gabrieli San Gabriel slender salamader	N / S2	This species is endemic to the San Gabriel Mountains and is typically found above 1,000 meters. It is most easily detectable in winter and early spring and is generally found under rocks, wood, fern fronds and on soil at the base of talus slopes.
Berberis nevinii Nevin's barberry	E / E / 1B.1	Grows on steep, north facing slopes or in low grade sandy washes in chaparral, cismontane woodland, coastal scrub and riparian scrub between 290-1575m.
Bufo californicus arroyo toad	E / SC	Requires open, shallow breeding pools with minimal current and a sand or pea gravel substrate overlain with sand or flocculent silt (Sweet 1989). Adjacent banks must provide open, sandy or gravely terraces with very little herbaceous cover for adult and juvenile foraging areas, within a moderate riparian canopy of cottonwood, willow, or oak. Heavily shaded pools are unsuitable for larvae and juvenile toads due to lower water and soil temperatures and poor algal mat development (Sweet 1992).

Scientific and Common Name	Status Federal/ State	Typical Habitat
California walnut woodland	N / S2.1	Found primarily in the Chino Hills portion of the Basin.
California macrophylla round-leaved filaree	N / S4.1/ 1B.1	Grows on clay soils of cismontane woodland, valley and foothill grasslands between 15-1200m.
Callophrys mossii hidakupa San Gabriel Mountains elfin butterfly	N / S1S2	Inhabits the San Gabriel and San Bernardino Mountains at elevations of 4,000 to approximately 5,500 ft. Food plant is *Sedum spathulifolium*. Type locality is southern mixed evergreen forest.
Calochortus clavatus var. *gracilis* slender mariposa-lily	N / S1.1?/ 1B.2	Grows on shaded foothill canyons, often on grassy slopes within chaparral and coastal scrub between 420-760m.
Calochortus plummerae Plummer's mariposa lily	N/ S4.2/ 1B.2	Occurs on rocky and sandy sites, usually of granitic or alluvial material in coastal scrub, chaparral, grassland, cismontane woodland and lower montane coniferous forest between 90 and 1610m.
Calochortus weedii var. *intermedius* intermediate mariposa lily	N / S2.2/ 1B:2	Grows on dry, rocky open slopes and rock outcrops between 120-850meters in coastal scrub, chaparral, valley and foothill grassland.
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	N / SC	This species nests and roosts in tall *Opuntia* cactus found in scrub communities.
canyon live oak ravine forest	N / S4.4	Located along ephemeral streams in foothill areas.
Carolella busckana Busck's gallmoth	N / SH	No habitat information was found for this species.
Catostomus santaanae Santa Ana sucker	T / SC	This species is a habitat generalist that prefers sand-rubble-boulder bottoms, cool, clear water, & algae. It is endemic to Los Angeles basin south coastal streams.
Ceratochrysis longimala a cuckoo wasp	N / S1	Collected on *Encelia farinosa* in 1915. No other habitat information provided.
Chaetodipus fallax fallax northwestern San Diego pocket mouse	N / SC	Inhabits sandy, herbaceous areas, usually in association with rocks or coarse gravel in coastal scrub, chaparral, grasslands and sagebrush habitats of western San Diego County.
Chaetodipus fallax pallidus pallid San Diego pocket mouse	N / SC	Occurs in sandy herbaceous areas, usually in association with rocks or coarse gravel in desert border areas in desert wash, desert scrub, desert succulent scrub, pinyon-juniper, etc.
Chorizanthe parryi var. *parryi* Parry's spineflower	N / S2/ 1B.1	Grows on dry, sandy slopes and flats of coastal scrub and chaparral sometimes at interface of 2 vegetation types such as chaparral and oak woodland. Occurs between 40-1705m.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Chorizanthe xanti var *leucotheca* white-bracted spineflower	N / S2.2 / 1B: 2	Grows in Mojavean desert scrub and pinyon-juniper woodland between 400-1200m.
Cicindela tranquebarica viridissima greenest tiger beetle	N / S1	Usually found in open spots between trees in the woodlands adjacent to the Santa Ana River.
Cladium californicum California saw-grass	N / S2.2 / 2.2	Grows in freshwater and alkali marshes and seeps between 60-600m.
Claytonia lanceolata var. *peirsonii* Peirson's spring beauty	N / S1.1 / 1B:1	Grows on north facing granitic scree slopes, often with a sandy or fine soil component and granitic cobbles of upper montane coniferous forest and subalpine coniferous forest between 2460-2485 meters. Endemic to San Bernardino County.
coastal and valley freshwater marsh	N / S2.1	Occurs where perennial water sources occur, primarily Prado Basin area.
Coccyzus americanus occidentalis western yellow-billed cuckoo	C / E	Nests in riparian thickets of willow and cottonwood with blackberry, nettles, or wild grape understory along the broad, lower flood-bottoms of larger river systems.
Coleonyx variegatus abbotti San Diego banded gecko	N / S2S4	Found in granite or rocky outcrops in coastal scrub and chaparral habitats in southern California.
Cordylanthus maritimus ssp. *maritimus* salt marsh bird's beak	E / E / 1B:2	Grows in the higher zones of coastal salt marshes and coastal dunes between 0 and 40 meters.
Crotalus (exsul) ruber ruber northern red-diamond rattlesnake	N / SC	Occurs in rocky areas with dense vegetation and rodent burrows, cracks in rocks or surface cover objects in chaparral, woodland, grassland and desert habitats from coastal San Diego County to the eastern slopes of the mountains.
Cypseloides niger black swift	N / SC	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf. They forage widely. They nest in the coastal belt of Santa Cruz and Monterey Counties, in central and southern Sierra Nevada and in the San Bernardino and San Jacinto Mountains.
Dendroica petechia brewsteri yellow warbler	N / SC	Most often nests in riparian areas with willows, cottonwoods, aspens, sycamores and alders but also in montane shrubbery in open conifer forests.
Diplectrona californica California diplectronan caddisfly	N / S1S2	No information has been published on the larva of this species, but other larvae in the genus live in fast-flowing, cool streams.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Dipodomys merriami parvus San Bernardino kangaroo rat	E / SC	Inhabits early to intermediate seral stages of alluvial scrub habitat. Requires sandy loam substrates characteristic of alluvial fans and flood plains.
Dipodomys stephensi Stephens' kangaroo rat	E / T	Prefers buckwheat, chamise, brome grass and filaree dominated annual and perennial grasslands, but also inhabits coastal scrub and sagebrush with sparse canopy coverage. Capable of burrowing into firm soil.
Dodecahema leptoceras slender-horned spineflower	E / E / 1B:1	Occurs on upper terraces of flood deposited sediment that are scoured infrequently. It is associated with *Encelia*, *Dalea* and *Lepidospartum*, etc. between 200 and 760 meters. Historically known from Los Angeles, Riverside and San Bernardino Counties but has been extirpated from much of its former range.
Dudleya multicaulis many-stemmed dudleya	N / S2.1 / 1B:2	Grows in heavy, often clayey soil in chaparral, coastal scrub, valley and foothill grassland between 0 and 790 meters. Endemic to Southern California.
Empidonax traillii extimus southwestern willow flycatcher	E / E	Inhabits extensive thickets of low, dense willows on edges of wet meadows, ponds, or backwaters.
Eriastrum densifolium ssp. *sanctorum* Santa Ana River woollystar	E / E/ 1B:1	Grows on sandy soils of riparian floodplains and terraced fluvial deposits between 150 and 610 meters. Formerly known from Orange and San Bernardino Counties but has been extirpated over much of its former range.
Eriogonum microthecum var. *johnstonii* Johnston's buckwheat	N / S1.2 / 1B:4	This species grows on granite or limestone slopes and ridges between 2210-2900 meters in subalpine coniferous forest and upper montane coniferous forest in Los Angeles and San Bernardino Counties.
Eumops perotis californicus western mastiff bat	N / SC	Roosts in crevices in cliff faces, high buildings, trees and tunnels in semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands and chaparral. The DFG website describes the typical roosting habitat for this species as rock crevices, but says they may occupy buildings or hollow trees.
Falco columbarius merlin	N / S4	Inhabits seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts as well as farms and ranches. Requires clumps of trees or windbreaks for roosting in open country.
Gila orcutti arroyo chub	N / SC	Inhabits slow moving streams with mud or sand bottoms and emergent vegetation. Feeds on aquatic vegetation and associated invertebrates
Horkelia cuneata ssp. *puberula* mesa horkelia	N / S2.1 / 1B:1	Grows on sandy or gravelly sites in chaparral, cismontane woodland, and coastal scrub between 70 and 810 meters.
Icteria virens Yellow-breasted chat	N / SC	A summer resident that nests in low, dense riparian growth consisting of willow, blackberry and wild grape. It forages and nests within 10 feet of the ground.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Lasiurus cinereus hoary bat	N / S4?	Prefers open habitats or habitat mosaics with access to trees for cover and to open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.
Lasiurus xanthinus western yellow bat	N / S4	Roosts in trees, especially palms and forages over water and among trees in valley foothill riparian, desert riparian, desert wash and palm oasis habitats.
Lasthenia glabrata ssp *coulteri* Coulter's goldfields	N / S2.1 / 1B:1	Grows in alkaline soils of playas, sinks, vernal pools and grasslands between 0 and 1400 meters in elevation.
Lepidium virginicum var. *robinsonii* Robinson's pepper-grass	N / S2.2 / 1B.2	Found on dry soils, in chaparral and coastal scrub between 1-945 meters in elevation.
Lepus californicus bennettii San Diego black-tailed jackrabbit	N / SC	Inhabits intermediate canopy stages of shrub, open shrub and herbaceous and tree edges.
Lilium parryi lemon lily	N /S2.1/ 1B:2	Grows on shady edges of streams, in open boggy meadows and seeps. Generally in forested, mountainous terrain including lower montane coniferous forest, riparian forest and upper montane coniferous forest between 1400 and 2790 meters. Blooms from July - August.
Linanthus concinnus San Gabriel Linanthus	N /S2?/ 1B:2	Grows on dry rocky slopes, often in Jeffrey pine/canyon oak forest between 1575-2545 meters in lower montane coniferous forest and upper montane coniferous forest in Los Angeles and San Bernardino Counties.
Lycium parishii Parish's desert-thorn	N/ S2S4/ 2:4	Occurs in sandy plains and desert washes in coastal scrub and Sonoran desert scrub between 400 to 1000 meters.
Monardella macrantha ssp. *hallii* Hall's monardella	N / S4.4/ 1B: 4	Grows on dry slopes and ridges in openings broad-leafed upland forest, chaparral, lower montane coniferous forest, cismontane woodland, valley and foothill grassland between 695-2195 meters in elevation.
Monardella pringlei Pringle's monardella	GX/ SX/ 1A	Historically known from sandy hills in coastal scrub habitat in Riverside and San Bernardino Counties between 400 and 400 meters.
Muhlenbergia californica California muhly	N / S4.4/ 4.4	Usually grows near streams or seeps in coastal sage, chaparral, lower montane coniferous forest and meadows between 400-2000m.
Navarretia prostrata prostrate navarretia	N / S2.1?/ 1B.1	Grows on alkaline soils in grassland or vernal pools between 15 and 700 meters. This species almost always occurs in wetlands.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Neotoma lepida intermedia San Diego desert woodrat	N / SC	Abundant in rock outcrops and rocky cliffs and slopes with moderate to dense canopies preferred in coastal southern California from San Diego County to San Luis Obispo County
Nolina cismontana chaparral nolina	N / S1.1/ 1B:2	Grows primarily on sandstone and shale and occasionally gabbro substrates in chaparral and coastal scrub habitats between 140 and1275 meters.
Nyctinomops femorosaccus pocketed free-tailed bat	N / SC	This species roosts in high cliffs or rocky outcrops and feeds principally on large moths. It occurs in low-lying arid areas in Southern California.
Nyctinomops macrotis big free-tailed bat	N / SC	This species roosts in high cliffs or rocky outcrops and feeds principally on large moths. It occurs in low-lying arid areas in Southern California.
Oreonana vestita woolly mountain-parsley	N/ S4.4/ 1B.4	Grows on scree, talus, or gravel on high ridges of subalpine coniferous forest and upper montane coniferous forest between 2410-4500m.
Orobanche valida ssp. *valida* Rock Creek broomrape	N/ S1.2/ 1B2	Grows on slopes of loose decomposed granite between 1705-1820m where it is parasitic on various chaparral shrubs.
Ovis canadensis nelsoni Nelson's bighorn sheep	N / S4	This species is widely distributed from the White Mountains in Mono County to the Chocolate Mountains in Imperial County. It occurs in open, rocky, steep areas with available water and herbaceous forage.
Perognathus longimembris brevinasus Los Angeles pocket mouse	N / SC	Inhabits open ground with fine sandy soils in low elevation grasslands and coastal sage communities in the Los Angeles basin. May not dig extensive burrows, hiding under weeds and dead leaves instead.
Phrynosoma coronatum blainvillei San Diego Horned Lizard	N / SC	Inhabits friable, rocky, or shallow sandy soils in coastal sage scrub and chaparral in arid and semi-arid climate conditions. Requires open areas for sunning and is most frequent in sparsely vegetated washes.
Polioptila californica californica coastal California gnatcatcher	T / SC	Inhabits various successional stages of the sage scrub communities characterized by California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), sage species (*Salvia* spp.), and cactus species (*Opuntia* spp.). CAGN will also utilize chaparral, grassland, and riparian plant communities where they occur adjacent to or intermixed with sage scrub.
Pseudognaphalium leucocephalum white rabbit-tobacco	N / S2S4.2/ 2.2	Grows on sandy, gravelly sites in riparian woodland, cismontane woodland, coastal scrub and chaparral between 0-2100m.
Rana muscosa mountain yellow-legged frog	E / SC	Adults are always encountered within a few feet of water. Tadpoles may require up to 2 yrs to complete their aquatic development.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	E / N	This species only occurs in areas of the Delhi Sands formation in southwestern San Bernardino, northwestern Riverside Counties. It is found in sparsely vegetated sandy sites generally associated with California croton (*Croton californicus*), telegraph weed (*Heterotheca grandiflora*), California buckwheat (*Eriogonum fasciculatum*) and deerweed (*Lotus scoparius*).
Rhinichthys osculus ssp. 4 Santa Ana speckled dace	N / SC	Inhabits shallow cobble and gravel ruffle streams with permanent flows and summer temperatures between 17-20 C.
Riversidian alluvial fan sage scrub	N / S1.1	Most commonly found on the upper portions of alluvial fans.
Senecio aphancatis rayless ragwort	N / S1.2 / 2:2	Known from drying alkaline flats in cismontane woodland and coastal scrub between 20-575m. Documented from open or sparse habitat and reported to compete poorly with invasive species. Blooms January through April (Hickman 1994, CNPS 2001).
Sidalcea neomexicana Salt Spring Checkerbloom	N/ S2S4/ 2:2	Grows in alkali springs and marshes in alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest and Mojavean desert scrub between 0-1500 meters in elevation.
southern California arroyo chub/ Santa Ana sucker stream	N / SNR	These native fish species occur within areas that contain perennial water, either flowing or ponded.
southern coast live oak riparian forest	N / S4	Occurs adjacent to ephemeral springs or streams with foothills and on alluvial deposits.
southern cottonwood willow riparian forest	N / S4.2	Occurs adjacent to ephemeral springs or streams with foothills and on alluvial deposits.
southern riparian forest	N / S4	Typically occurs on alluvial valley floors where a high water table occurs or where perennial water flows occur
southern sycamore alder riparian woodland	N / S4	Typically occurs in foothills along channels with perennial flows in active channels.
southern willow scrub	N / S2.1	Typically occurs in foothills along channels with perennial flows in active channels, but can occur along any channel with ephemeral flows and an accessible groundwater.
Streptanthus bernardinus Laguan Mountains jewel-flower	N / S4.4 / 4.4	Grows on clay or decomposed granite soils, sometimes in disturbed areas such as streamsides or roadcuts, in chaparral and lower montane coniferous forest between 1440-2500m.
Symphyotrichum defoliatum San Bernardino aster	N / S4.2 / 1B:2	Grows in vernally mesic grasslands or near ditches, streams and springs and in disturbed areas between 2 and 2040 meters.
Symphyotrichum greatae Greata's aster	N / S2.4 / 1B.4	Grows in mesic canyons of chaparral and cismontane woodland between 800-1500m.

Scientific and Common Name	Status Federal/ State	Typical Habitat
Taricha torosa torosa Coast Range newt	N / SC	Occurs in coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow moving streams.
Taxidea taxus American badger	N /SC	Most abundant in drier open stages of moist shrub, forest and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents and digs burrows.
Vireo bellii pusillus least Bell's vireo	E / E	Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, *Baccharis*, mesquite. In low riparian, in vicinity of water or in dry river bottoms below 2000 ft.
walnut forest	N / S1.1	Found primarily in the Chino Hills portion of the Basin.

Coding and Terms			
E= Endangered	T = Threatened	SC= Species of Concern	N= None
R= Rare	C= Candidate	PE= Proposed Endangered	N / A = Not Applicable

State Species of Special Concern: An administrative designation given to vertebrate species that appear to be vulnerable to extinction because of declining populations, limited acreages, and/or continuing threats. Raptor and owls are protected under section 4502.5 of the California Fish and Game code: "It is unlawful to take, posses or destroy any birds in the orders Falconiformes or Strigiformes or to take, possess or destroy the nest or eggs of any such bird."

State Plant Rankings:
S1 - less than 6 element occurrences, or less than 1,000 individuals, or less than 2,000 acres
S2 - 6 to 20 element occurrences, or between 1,000 and 4,000 individuals, or between 2,000 and 10,000 acres
S4 - 21 to 100 element occurrences, or between 4,000 and 10,000 individuals, or between 10,000 and 50,000 acres
S4 - No Threat Rank
S5 - No Threat Rank
.1 - very threatened SH - all sites in California are historical
.2 - threatened
.4 - no current threats known

CNPS Plant Rankings:
1A- presumed extinct in California
1B - Rare, Threatened or Endangered in California and elsewhere
2 - Rare, Threatened or Endangered in California but more common elsewhere
4 - Plants for which more information is needed
4 - Plants with a limited distribution

Critical Habitat - Critical Habitat is designated by USFWS for some federally listed as threatened and endangered species, and critical habitat status within the Chino Basin is detailed below. Other Federal agencies must consult with the USFWS when the agencies determine that their actions (funding, permitting or undertaking projects) may affect designated critical habitat.

In summary, critical habitat for least Bell's vireo and coastal California gnatcatcher occurs within the Chino Basin. Portions of the Santa Ana River in Riverside County that support suitable habitat were excluded from critical habitat for southwestern willow flycatcher and Santa Ana sucker because it is within the boundaries of the Western Riverside County MSHCP. No other designated critical habitat includes areas within the Chino Basin.

The Chino Basin includes areas designated as critical habitat (59 FR 4845; February 2, 1994) for the state and federally listed as endangered **least Bell's vireo** (*Vireo bellii pusillus*). Critical habitat is located along the Santa Ana River and within the Prado Basin (refer to Figure 4.4-7).

Revised critical habitat for the **coastal California gnatcatcher** (*Polioptila californica californica*), Final Rule was issued on December 18, 2007 (FR Doc. 07–6004.) Portions of the Chino Basin located within designated critical habitat for CAGN are in the Jurupa Mountains (refer to Figure 4.4-8).

Revised critical habitat for the **southwestern willow flycatcher** (*Empidonax traillii extimus*) was issued October 19, 2005 (70 FR 60885 61009.) The Santa Ana Management Unit includes large portions of the Santa Ana River, but no portions of the River located within Riverside County. The portions of the Santa Ana River that are located within the Chino Basin are within Riverside County several miles downstream of the nearest area designated as critical habitat. Portions of the Santa Ana River in Riverside County that support suitable habitat were excluded from critical habitat because it is within the boundaries of the Western Riverside County MSHCP.

Revised critical habitat for the **Santa Ana sucker** issued on January 4, 2005 (*FR 04–28286*) described the Santa Ana River through the project area as "essential habitat excluded from critical habitat" that is not located within designated critical habitat because it is located within the Western Riverside County MSHCP.

Revised critical habitat for the **arroyo toad** issued on April 14, 2005 (70 FR 19562 19644) does not include any areas within the Chino Basin. The closest area designated as critical habitat is in Cajon Creek to the northeast of the Chino Basin. The areas indicated as "essential habitat excluded from critical habitat," that is not located within designated critical habitat because it is located within the Western Riverside County MSHCP, are not in the vicinity of the Chino Basin.

Revised critical habitat for the **San Bernardino kangaroo-rat** issued October 17, 2008 (74 FR 61946 62002) does not include areas within the Chino Basin. The closest areas designated as critical habitat are located within the Lytle Creek floodplain northeast of the basin. Portions of the Basin that support suitable habitat were excluded from critical habitat because it is within the boundaries of the Western Riverside County MSHCP, but these areas are not in the vicinity of the Chino Basin.

Critical Habitat for the **yellow-legged frog** issued on September 14, 2006 (71 FR 54444 54486) does not include any areas within the Chino Basin. The closest area designated as critical habitat is along Day Canyon in the San Gabriel Mountains north of Rancho Cucamonga.

Critical Habitat for **Nevin's barberry** (*Berberis nevinii*) issued February 14, 2008 (74 FR 8412 8440) does not include areas within the Chino Basin.

No critical habitat has been designated for dwarf burr ambrosia (*Ambrosia pumila*), marsh sandwort (*Arenaria paludicola*), salt marsh bird's-beak (*Cordylanthus maritimus ssp. maritimus*), Stephens' kangaroo rat (*Dipodomys stephensi*), slender-horned spineflower (*Dodecahema leptoceras*), Santa Ana River woolly-star (*Eriastrum densifolium* ssp. *sanctorum*) or Delhi Sands flower-loving fly (*Rhaphiomidas terminatus abdominalis.*)

Figure 6-4a: Critical Habitat/Sensitive Species - Valley Region from the Conservation Element Background Report for the San Bernardino County General Plan shows that the historic range for Santa Ana Sucker, CAGN and rubber boa and designated critical habitat for SBKR, LBV and bald eagle. The SBKR critical habitat has been revised since publication of this background report, and the portion of SBKR critical habitat west of Lytle Creek that is within the Chino Basin is no longer designated critical habitat. The map also shows "Wildlife Linkage Corridors" within the Chino Basin along the Santa Ana River and along the base of the San Gabriel Mountains.

4.4.3 Project Impacts

The impact evaluation presented below focuses on the proposed physical changes to the project area and any potential adverse impacts these changes may have on the biological resources. Because of the range of significant biological resources within the project area and because the proposed project envisions physical facilities and water management actions, the implementation of this project was concluded to have the potential to cause significant impact on biological resources within the project area. Specifically, implementing the Peace II program has the potential to directly impact sensitive species and habitat through project installation and to indirectly impact sensitive species and habitat through hydrologic changes caused by Re-operation.

4.4.3.1 Thresholds of Significance

Impacts to biological resources are considered to be significant according to CEQA Guidelines (§15064 and Appendix G) if the direct, indirect or cumulative effects of the proposed project:

a. 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.

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the CDFG or USFWS.

c. 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.

d. 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.

e. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Each of these issues will be evaluated individually in the detailed impact analysis presented below. These thresholds of significance will be utilized in this EIR to evaluate the potential impacts associated with implementation of this project.

The California Native Plant Society (CNPS) publishes and regularly updates the "Inventory or Rare and Endangered Vascular Plants of California." CNPS gathers information from the CNDDB, the CDFG, and amateur and professional botanists throughout the State. Plants listed by CNPS, but not officially listed by the State, nevertheless receive consideration under CEQA: that is, impacts to CNPS listed species may be considered significant.

4.4.2.2 Project Impacts

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

A search of the California Native Diversity Data Base (CNDDB) indicated 100 sensitive species and habitat communities have been historically documented to occur in the USGS – Corona North, Cucamonga Peak, Devore, Fontana, Guasti, Mount Baldy, Ontario, Prado Dam, Riverside West and San Dimas Quadrangles, 7.5 Minute Series topographic maps. Implementing Peace II project has the potential to directly impact sensitive species and habitat through project installation and to indirectly impact sensitive species and habitat through hydrologic changes caused by Re-operation.

No focused surveys were conducted in the project area for the proposed project, because no site specific projects related to the Peace II program have been proposed. As detailed in the Environmental Setting, the project area includes suitable habitat and documented occurrences of many sensitive species, including species listed as threatened or endangered by state and federal regulations. Sensitive species that could be impacted by implementing the Peace II Program in the project area include but are not limited to, Santa Ana sucker, arroyo chub, Delhi Sands flower-loving fly, coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, yellow-billed cuckoo, burrowing owl, San Bernardino kangaroo rat, and Santa Ana Woolly-star. Protected species cannot be subject to take per the requirements of state and federal law, unless authorization is obtained from the USFWS and CDFG for take of a listed species incidental to a lawful activity. There are also a few species for which take authorization is not available, such as burrowing owl which is protected by the Migratory Bird Act.

Based on past experience with the location of OBMP/Peace I infrastructure facility projects, the vast portion of future infrastructure projects will be located within urbanized portions of the Chino Basin where no potential adverse effects on sensitive biological resources can occur. Regardless, potential project construction within or adjacent to isolated locations with high quality habitat could have significant adverse impacts on these and other biological resources. Increased light and noise associated with Peace II-related projects, although typically very limited in scope, could also indirectly impact sensitive biological resources. Design guidelines and revegetation requirements are provided in the mitigation section to minimize impacts to biological resources. In addition, mitigation measures I-1 and I-6 from the Aesthetics section of the Peace II Initial Study require post-construction revegetation of natural areas with oversight from a qualified biologist and minimization of off-site light and glare impacts, respectively.

Sensitive species and habitats occupy a large portion of remaining undeveloped land within the Chino Basin, and thus future Peace II program site specific projects pose a risk of adversely impacting these species and habitats. As noted above, it is anticipated that the majority of

Peace II program impacts will occur within existing disturbed roadways and water district properties (urbanized areas). However, there is a potential for future specific projects to be located outside of developed areas where sensitive species may occur. This potential and the exact degree of direct impact that may result from implementing the proposed project cannot be determined due to the uncertainty of related project locations, planning, design, funding or development schedules. In addition, it is not possible to identify all future proposed site specific projects that may decide to seek participation in the Peace II program. No site specific biological evaluation has been prepared for the Peace II project at this time because the exact locations of future site specific projects have not been selected.

Direct impacts to sensitive species from specific Peace II projects will be assessed through site review and biological evaluation, where appropriate. It is anticipated that assessment of specific impacts upon sensitive species within the proposed project area caused by Peace II-related projects will be evaluated by a qualified biologist and the appropriate regulatory agency at a future time, on a project-by-project basis, after project specifics are known. The type of impacts that can occur from implementing infrastructure facility projects include: direct elimination of sensitive habitat or species by construction activities; and indirect impacts to the same type of resources due to activities at a site, such as light/glare, discharge of stormwater causing downstream runoff damage to habitat, emission of air pollutant generation causing damage to plants or animals, lowering the groundwater table caused by pumping groundwater, and increased trespass access to habitats via infrastructure right-of-ways.

Conducting site-specific reviews for biology, cultural resource and other adverse locational impacts is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines. With this assumption in mind, in order to reduce potential adverse biological resource impacts to a less than significant level, mitigation is incorporated to require a professional biological survey prior to construction activities at all future Peace II-related projects that will be located within or adjacent to land that contains native natural habitat. Mitigation is also outlined, with specific performance standards, which can be implemented to offset or compensate for both the temporal and permanent impacts to sensitive species that may occur as a result of future infrastructure facility projects associated with Peace II.

Based on the past nine years of OBMP implementation experience, IEUA, Watermaster and stakeholders have encountered only one instance where sensitive biological resources could not be avoided when implementing an infrastructure facility. In this instance, it was necessary to implement compensatory mitigation measures comparable to that outlined at the end of this Subchapter. Based on this past experience and ability to provide comprehensive mitigation when justified, it is concluded that the Peace II program, including future infrastructure support facilities, can be implemented without causing significant adverse impact to the wide range of sensitive biological resources located within the Chino Basin. This finding is also based upon the programmatic concept (15162) that, if significant biological resource impacts cannot be mitigated for a future site specific project, then a follow-on EIR would have to be prepared.

No specific stormwater diversion programs are proposed at this time as part of the Peace II Program. However, the following information is instructive with respect to the OBMP implementation to date. Jeffrey Beehler, PhD, Senior Environmental Project Manager at SAWPA, with duties that include overseeing the Santa Ana Sucker Conservation Team on behalf of watershed stakeholders with maintenance and operational responsibilities along the Santa Ana River, provided written testimony on April 12, 2007 regarding the potential impacts of implementation of the OBMP diversion of peak storm flows for recharge into the Chino groundwater basin on Santa Ana sucker. The diversions were identified to occur at concrete-lined locations with little or no shading and without bank structure in the upper reaches of Chino Creek, Cucamonga Creek, Day Creek and San Sevaine Channel. Dr. Beehler stated that suckers are not known to inhabit these locations or this type of habitat, and thus the diversions were not expected to impact sucker directly. Upstream storm water diversion would not adversely impact the Santa Ana sucker because, removal of high flows during storm events would not remove gravel, which is the limiting factor for Santa Ana sucker spawning and feeding, because the area of the diversion is concrete-lined. He also determined that the diversions would not remove the scouring flows that maintain gravel habitat in the Santa Ana River mainstem.

Thus, Dr. Beehler determined that habitat for the sucker would not be adversely impacted by the upstream diversions. Please refer to the technical appendices for a copy of this testimony. This information may or may not be applicable to future stormwater diversion activities that may be proposed as part of Peace II, but it is provided as information which can be referred to and expanded upon when future decisions regarding site specific projects are made.

In addition to the potential for direct impacts to sensitive species and habitats, the Peace II Program has the potential to indirectly and adversely impact riparian habitats in Prado Basin, and the numerous species that depend upon them, through alteration of the hydrology of the Chino Basin. Re-operation would the increase the controlled overdraft, as defined in the Judgment, from a cumulative total of 200,000 acre-ft over the period of 1978 through 2017, to a cumulative total of 600,000 acre-ft through 2040. The 400,000 acre-ft cumulative increase would be allocated specifically to the meet the replenishment obligation of the desalters, which would be the means for extracting the 400,000 acre-ft of overdraft.

The amount of water that enters into the Prado Basin is an issue that must be analyzed in relation to biological resources within this area. The water level within the Prado Basin has a great potential to affect the surrounding riparian resources within this area, thus it must be closely regulated. According to the 1978 Judgment, Orange County Water District (OCWD) has a legal entitlement to 42,000 acre-feet per year (acre-ft/year) of water from the Prado Reservoir, in addition to all stormwater flows that reach the Prado Basin. As a five year moving average, the baseflow at Prado has ranged from approximately 250,000 to 410,000 acre-ft/year since 1992. The past diversion of a portion of wastewater and stormwater flows upstream of Prado Basin, which prevented such flows from discharging into recharge locations within Chino Basin that flow into the Prado Basin, has been determined not to adversely impact the ability to meet any downstream entitlements since the baseflow remained significantly greater than OCWD's entitlement in the OBMP PEIR evaluation. Potential future increased diversions will be measured against the same benchmark.

Several factors in the future will contribute to increases in the baseflow quantity. As the baseflow increases in volume, the diversion of a portion of stormwater or wastewater flows would be even less substantial proportionally, and impacts to the Prado Basin area and to OCWD would be expected to be minimal. The factors that will contribute to future base flow increases are increases in surface runoff due to greater urbanization, and increases in total amounts of wastewater generated within the project area. The impacts of the OBMP to the riparian resources at Prado Dam were considered to be less than significant based upon the expected increase in baseflow. Regulators were more concerned with the possibility that too much water, rather than not enough, was reaching the Prado Basin (PEIR for Proposed Regional Plan Number 5 Project, May 1999) at the time the OBMP was prepared. As the OBMP was expected to cause a small decrease in wastewater flows reaching the Prado area, the net impacts were considered to be beneficial over the life of the program, as opposed to adverse, for biological resources in the Prado Basin area.

Any future shift of stormwater or wastewater from discharge to reuse or recharge will occur gradually over the course of the Peace II implementation time frame. As diversion or reuse is implemented, wastewater and stormwater flows would be expected to increase to the Prado Basin area due to population growth within the Chino Basin. The following analysis provides data for both current and 2020 projected wastewater volumes. The Los Angeles County Sanitation District predicts an increase in wastewater discharge for the cities of Pomona and Upland from 22,000 to 40,000 acre-ft/year. The IEUA service area generation of wastewater flow is forecast to increase from 57,000 acre-ft/year to 112,000 acre-ft/year. Project areas within Riverside County are forecast to increase wastewater generation by 5,000 acre-ft/year, an increase from 10,000 acre-ft/year to 15,000 acre-ft/year.

In total, wastewater discharges will increase, regardless of the proposed OBMP project, by approximately 68,000 acre-ft/year. Consequently, even with the diversion of 40,000 acre-ft/year of wastewater flows, there will still be a net increase in flows to Prado Dam, potentially estimated to be on the order of 28,000 acre-ft/year (the relative amount will ultimately depend on the amount of direct beneficial use by industrial and irrigation users in the future). Regardless, however, the OBMP project has the potential to reduce the 2020 volume of water tributary to Prado Dam by 40,000 acre-ft/year of recycled water, and this action is not forecast to cause any significant environmental impacts.

Biologist Tony Bomkamp provided written testimony on April 12, 2007 to address whether OBMP diversion of a percentage of storm flows would adversely impact the riparian habitat in Prado Basin, including limited portions of Chino Creek and Cucamonga Creek within Prado Basin. Mr. Bomkamp indicated that Chino Creek and Cucamonga Creek are concrete lined upstream of the Prado Basin, San Sevaine is concrete-lined and Day Creek is concrete lined until it flows through a golf course just before entering SAR. Mr. Bomkamp's testimony was specifically focused on riparian habitat which supports LBV and other sensitive bird species; concrete-lined channels offer no habitat value to these species. Mr. Bomkamp's testimony was designed to address whether diversion of a portion of storm flows would dewater LBV habitat and lead to stress and/or death of plant species that constitute suitable LBV habitat. Water quality and sediment transport changes were also considered, but were determined to be inconsequential to LBV habitat.

Based upon empirical data regarding the water consumption of willow habitat, Mr. Bomkamp determined that the 6,121 acres of willow-dominated riparian habitat would require up to 25,257 acre-ft of water per year. He considered this estimate to be conservative as more drought tolerant components of Prado Basin riparian habitat, such as mule fat, are expected to require less water. Based upon hydrological information provided by WEI, Mr. Bomkamp concluded that more than ten times the amount of water necessary to support the willow habitat is discharged below the Prado Dam, indicating that more than sufficient surplus surface flows were available to support the riparian habitat with the diversion of an estimated 17,691 acre-ft of stormwater flows per year.

Mr. Bomkamp's testimony, as provided in the Technical Appendices, is instructive for the analysis of the potential impacts of Re-operation on willow riparian habitat in the Prado Basin. Re-operation is expected to result in induced recharge into the Chino Basin from the Santa Ana River such that surface water flows in the Santa Ana River are expected to decrease by about 7,000 acre-ft/yr by the year 2049/2040. Prior to the diversion of 17,691 acre-ft/yr of storm flows, an average of 426,001 acre-ft/yr flowed into the Prado Basin. A further reduction in flows of about 7,000 acre-ft/year (total of 24,691 acre-ft) would only reduce inflows to the Prado Basin to an average of 401,410 acre-ft/yr. Based on Mr. Bomkamp's analysis, such a reduction in flows would not impact the willow habitat because willow habitat water requirements would only constitute about 8% of the remaining water flowing into the Prado Basin.

Mr. Bomkamp also considered a slightly more conservative estimate based upon outflows from Prado Basin, which averaged 299,972 acre-ft/yr from 1995-1999. This estimate already excludes water consumed by vegetation in Prado Basin. He concluded that reduction in the outflow by both the stormwater diversion and expected induced recharge from the Santa Ana River would leave 275,281 acre-ft/year to flow out of the Prado Basin.

Utilizing the data summarized above results in the following findings: the Prado Basin wetland requires approximately 26,000 acre-feet of water to maintain the current range and extent of habitat; after all other reductions in flows are assessed, an estimated 275,281 acre-feet of surface water flows into Orange County through Prado Dam (a combination of natural flows and discharges from wastewater treatment plants, as rising groundwater will be eliminated as part of the desalter expansion program); it is assumed that the estimated discharge downstream of Prado Dam (275,281 acre-feet) already includes the water consumed by the Prado Basin wetland habitat; and, even if it does not, the estimated utilization of approximately 26,000 acre-feet by Prado Basin habitat would leave a residual discharge downstream of Prado Dam of about 249,000 acre-feet, more than sufficient to meet Orange County's 42,000 acre-feet allocation under the adjudication.

Based on these findings, more than sufficient surface water will be available to support the Prado Basin wetland habitat each year. Thus, on an annual basis, an adequate supply of water is available to support Prado Basin wetland habitat, and the Peace II proposed actions are, therefore, not forecast to cause a significant adverse impact on these critical habitat resources. The only remaining issue is whether an adequate water supply will be available during the summer and during extended dry seasons or droughts.

Because Re-operation would remove groundwater and is designed to minimize the flow of groundwater out of the Basin by lowering the groundwater table, particular attention needs to be paid to the potential reduction in the groundwater level. Many riparian plant species are phreatophytes, meaning their roots tap directly into the groundwater table or the soil just above the saturated layer rather than depending upon rainfall or other sources of water. If Re-operation were to lower the groundwater table in locations that support riparian habitat but are not fed by surface flows, habitat could be adversely impacted. Similarly, if surface flows were reduced such that the water levels along streams were reduced, habitat could be adversely impacted.

Recent research both in the laboratory and in Arizona riparian habitat has focused on the impacts of hydrology changes on riparian plants. Absent available information specific to Prado Basin region, the Arizona research provides information regarding the adaptability of willow (*Salix* spp.*)* and cottonwood (*Populus* spp.) to changes in hydrology. The research into *P. fremontii* (Fremont's cottonwood) and *S. gooddingii* (black willow) responses are particularly useful as these species are common in the Prado Basin. A field study along two Arizona rivers found that increased canopy die back increased with increased depth to groundwater in mature *P. fremontii* and *S. gooddingii*, especially when depth to groundwater exceeded 4 meters, when mortality increased (Horton et al, 2001b.)

Another field study along one of the same rivers found that *P. fremontii* and *S. gooddingii* sapling mortality was higher in locations that showed a greater decline in water table depth than it was in locations with greater absolute depth to ground water (Shafroth et al, 2000.) This study found that where the water table dropped by 1.11 m in a years period, nearly all *P. fremontii* and *S. gooddingii* saplings died, even though the same species were surviving at another location where groundwater was at a greater depth but had experienced less decline. Root excavation conducted as part of this study found root distribution depended upon the water table conditions under which the roots developed. An example of a practical application of this information could be intentional fluctuations in water levels during vegetation restoration establishment in order to mimic fluctuations that plants might encounter during drought conditions, in order to improve survivorship during actual drought conditions.

Laboratory evaluation simulating water table declines at rates of 0, 1, 2 and 4 cm/day found that *S. gooddingii* seedlings had increasing mortality and decreasing growth with increasing rates of water table decline, and survived and grew the most when there was no decline in water table (Horton et al, 2001a). This research speculates that *S. gooddingii* may prioritize lateral root growth in order to survive in habitats with late summer scouring floods. This adaptation is less suited for sapling survival when exposed to changes in the depth to groundwater.

Another laboratory study simulated water table declines of 0 to 12 cm/day and 1 to 8 cm/day in saplings of *S. exigua* and *S. drummondiana, P. angustifolia* and *P. balsamifera* (Amlin et al, 2002.) This study found that gradual declines in the water table between 1 and 2 cm/day promoted root elongation whereas declines greater than 2.5 cm/day increased death and die back in both genera. The comparison of the laboratory research by Horton and Amlin suggests that there is variation within *Salix* species in response to groundwater table decline, with some species potentially more adaptable to gradual declines than others as has been documented in past research (Bryan 1928, Stromberg et al. 1996 as cited in Shafroth et al, 2000.) However, it is also important to consider that both studies found that gradual groundwater drawdown (1 cm/day) is less likely to result in adverse impacts to riparian vegetation than more rapid drawdown (4 cm/day.) Shafroth et al also discuss the implications of different soil textures on tolerance groundwater depth and variation, with courser grained soils associated with less tolerance of depth or variation. They also mention that climate (humidity, temperatures, rainfall, etc) could change the depth at which ground water table alteration would have adverse impacts.

Peace II-related projects would be expected to reduce groundwater levels through Re-operation and would potentially reduce high storm flows if increased stormwater management is implemented, including Low Impact Design methods. The findings by Mr. Bomkamp clearly indicate that sufficient surface flows will continue to enter Prado Basin over the long term under the OBMP and Peace II Agreement operating conditions. Further, since a good portion of this surface flow into Prado consists of treated effluent which is maintained throughout the year, there does not appear to be a potential for significant stress to affect the Prado wetland during the summer months when natural precipitation is limited to non-existent.

The WEI report examines the potential effect of the Peace II Agreement programs, Re-operation and hydraulic control, on groundwater resources within the Prado wetlands/riparian habitat. The following information is abstracted from the WEI report in the Technical Appendices and applies to the Baseline Alternative conditions. Note that the figure and table numbers in these abstracted sections of the WEI report have been changed to reflect table and figure number sequences in this section of the PEIR.

In the southern Chino Basin and the Prado Basin, riparian habitat is supported by the infiltration of surface water and groundwater. In 2006, vegetation maps were digitized from 1974, 1984, and 2006 aerial photographs at a scale of 1:12,000 for the development of the 2007 Watermaster Model. This work was completed by Merkel and Associates and is documented in Appendix C of 2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description (WEI, 2007a). For 2006, digitizing was completed using a color orthorectified aerial photograph with a 1-meter resolution. Ground truthing of the 2006 vegetation map was carried out and included on-site observations of each vegetation type. A total of 13 unique vegetation types were identified within the study area, including:

- *Un-vegetated Sandbar*
- *Disturbed Habitat*
- *Dry Land Agriculture*
- *Irrigated Agriculture*
- *Turf Irrigated*
- *Non-native Grassland*
- *Non-native Trees*
- *Olive Grove*
- *Emergent Wetland*
- *Freshwater Marsh*
- *Recharge Pond/Treatment Wetlands*
- *Southern Cottonwood Willow Riparian Forest (Riparian Forest)*
- *Southern Willow Scrub*

Of these, Emergent Wetland, Freshwater Marsh, Riparian Forest, and Southern Willow Scrub are riparian habitats. The Emergent Wetland vegetation unit is a minor cover class within the Prado Basin and exists as a result of extended periods of inundation and resulting anaerobic conditions. The dominant vegetation of this unit within the Prado Basin includes typical perennial monocots as well as several opportunistic, facultative species, which occur in less saturated areas. The Freshwater Marsh vegetation unit is a minor coverage class within the Prado Basin. Freshwater Marsh is classified as having prolonged periods of inundation, which *permits the accumulation of peaty soils, and is dominated by perennial macrophytes. Areas mapped as Freshwater Marsh occur within the highly managed constructed wetlands. Riparian Forest is the dominant cover class within the Prado Basin. Throughout the basin, Riparian Forest exists predominantly as a mature forest with a solid canopy of mature deciduous trees and a patchy understory comprised of lower stature species, resulting from scouring created by periodic natural and anthropogenic activities, such as river channel maintenance. Southern Willow Scrub is minor cover class within Prado Basin and is often found in very dense thickets adjacent to creeks and ponded areas.*

Figure 4.4-9a shows the Emergent Wetland, Freshwater Marsh, Riparian Forest, and Southern Willow Scrub vegetation units, grouped and mapped as riparian vegetation, and the July 2005 depth to water in the riparian vegetation area. Figure 4.4-9b shows the change in depth to water between 2005 and 2030 for the Baseline Alternative. North of the Santa Ana River, changes in depth to water range from zero feet for most of the riparian vegetation area to less than 3 feet. South and east of the Santa Ana River, depth to water changes are attributable to groundwater production in the Temescal Basin. The consumptive use by riparian vegetation is projected to decline by a total of about 1,900 acre-ft/yr, based on the water budget for the Baseline Alternative (see Table 4.4-2).

The following additional findings from the modeling effort were reached regarding the Peace II Alternative.

Figure 4.4-10 shows the change in depth to water between 2005 and 2030 for the Peace II Alternative. North of the Santa Ana River, changes in depth to water range from zero feet for most of the riparian vegetation area to less than 3 feet. South and east of the Santa Ana River, depth to water changes are attributable to groundwater production in the Temescal Basin. Changes in groundwater elevations relative to the Baseline Alternative range from zero feet near the streams to about 1 foot over the riparian areas away from the streams.

Table 4.4-2

Water Budget for Chino North, Chino East, Chino South, and Prado Basin Management Zones

Peace II Alternative

(acre-ft)

	Inflows				Artificial Recharge				Outflows						
	Boundary Inflow	Temescal to PBMZ	Deep Percolation of Precipitation and Applied Water	Stream Recharge	Storm	Imported Water	Recycled Water	Subtotal Inflows	Production	PBMZ to Temescal	ET	Rising Groundwater	Subtotal Outflow	Change in Storage	Cumulative Change in Storage
2006	32,703	6,294	86,301	25,502	11,646	24,759	2,980	190,185	151,206	2,069	14,799	15,663	183,737	6,448	6,448
2007	32,703	6,355	82,094	28,349	11,646	0	2,340	163,486	174,244	2,058	14,469	14,283	205,053	-41,567	-35,119
2008	32,703	5,925	83,013	30,165	11,646	0	5,000	168,452	167,173	2,013	14,335	13,868	197,389	-28,937	-64,056
2009	32,703	5,418	83,671	31,743	11,646	0	5,000	170,181	181,868	1,986	14,132	13,299	211,285	-41,104	-105,160
2010	32,703	5,566	82,150	33,576	11,646	0	10,000	175,641	188,574	2,235	13,944	12,462	217,216	-41,575	-146,735
2011	32,703	5,509	81,850	34,952	11,646	0	10,500	177,159	186,659	2,305	13,835	12,006	214,806	-37,647	-184,382
2012	32,703	5,263	79,177	35,988	11,646	0	11,000	175,776	184,744	2,310	13,720	11,692	212,465	-36,689	-221,072
2013	32,703	4,987	78,267	36,703	11,646	0	11,500	175,806	182,828	2,304	13,614	11,453	210,198	-34,392	-255,464
2014	32,703	4,710	77,834	37,934	11,646	12,000	12,000	188,826	187,393	2,297	13,429	10,958	214,076	-25,250	-280,714
2015	32,703	4,441	77,243	39,030	11,646	77,556	12,500	255,119	185,477	2,289	13,243	10,498	211,507	43,612	-237,102
2016	32,703	4,181	76,196	39,207	11,646	77,056	13,000	253,989	186,953	2,284	13,148	10,337	212,721	41,268	-195,834
2017	32,703	3,937	75,761	39,045	11,646	76,556	13,500	253,148	188,429	2,278	13,109	10,312	214,128	39,020	-156,814
2018	32,703	3,709	74,232	38,761	11,646	76,056	14,000	251,107	189,905	2,273	13,101	10,352	215,631	35,476	-121,338
2019	32,703	3,499	73,531	38,551	11,646	0	14,500	174,430	191,380	2,268	13,108	10,416	217,172	-42,742	-164,080
2020	32,703	3,305	71,573	38,807	11,646	0	15,000	173,034	192,856	2,265	13,109	10,407	218,637	-45,603	-209,682
2021	32,703	3,123	71,111	39,222	11,646	0	15,900	173,705	195,925	2,262	13,090	10,346	221,624	-47,919	-257,601
2022	32,703	2,953	70,147	39,853	11,646	0	16,800	174,102	198,994	2,260	13,043	10,200	224,497	-50,395	-307,997
2023	32,703	2,792	68,772	40,458	11,646	72,356	17,700	246,427	202,064	2,257	12,979	10,023	227,323	19,104	-288,893
2024	32,703	2,643	67,887	40,762	11,646	71,456	18,600	245,696	205,133	2,256	12,926	9,903	230,218	15,478	-273,415
2025	32,703	2,501	66,934	41,110	11,646	70,556	19,500	244,949	208,202	2,254	12,880	9,797	233,133	11,816	-261,599
2026	32,703	2,369	66,058	41,464	11,646	69,656	20,400	244,295	210,632	2,247	12,824	9,684	235,387	8,908	-252,690
2027	32,703	2,243	65,444	41,819	11,646	68,756	21,300	243,911	213,062	2,239	12,765	9,558	237,623	6,288	-246,402
2028	32,703	2,122	64,550	42,301	11,646	36,000	22,200	211,521	215,492	2,232	12,715	9,440	239,879	-28,358	-274,760
2029	32,703	2,009	64,037	43,098	11,646	0	23,100	176,594	217,922	2,226	12,654	9,267	242,069	-65,475	-340,236
2030	32,703	1,906	63,215	43,919	11,646	0	24,000	177,388	220,852	2,221	12,581	9,081	244,735	-67,347	-407,583
Total	817,567	97,759	1,851,046	942,320	291,150	732,765	352,320	5,084,927	4,827,967	55,686	333,549	275,308	5,492,510	-407,583	
Average	32,703	3,910	74,042	37,693	11,646	29,311	14,093	203,397	193,119	2,227	13,342	11,012	219,700	-16,303	
Maximum	32,703	6,355	86,301	43,919	11,646	77,556	24,000	255,119	220,852	2,310	14,799	15,663	244,735	43,612	
Minimum	32,703	1,906	63,215	25,502	11,646	0	2,340	163,486	151,206	1,986	12,581	9,081	183,737	-67,347	

The consumptive use by the riparian vegetation is projected to decline by a total of about 2,200 acre-ft/yr, based on the water budget for the Peace II Alternative (see Table 4.4-2). Compared to the Baseline Alternative, this is a 300 acre-ft/yr reduction in consumptive use that is projected to occur gradually over the planning period.

The groundwater table in the Prado Basin area is at the ground surface or only a few feet below ground level. The model forecasts a net reduction in the groundwater elevation of three feet (approximately 91 centimeters) at Prado Basin over the next 20 years. This forecast change in groundwater elevation will occur gradually, about 4.6 centimeters per year (or about 1-2 millimeters per day). When considered in the context of the data regarding the adverse impact to riparian plants due to the change in groundwater table presented above, the potential impact is forecast to be a less than significant impact to the Prado Basin wetland/riparian habitat. Also, based on these data, the riparian plants in Prado Basin are capable of extending roots at a rate sufficient to adapt to the overall change in ground over the 20 year period (up to 3 feet). Therefore, implementation of the proposed Peace II Agreement will not cause a cumulatively considerable effect on the Prado Basin riparian habitat over the planning period.

Also note, according to the evaluation of annual surface flows into Prado Basin presented above, a continuous supply of surface water will reach Prado Basin and will continue to percolate through the soil above the groundwater table, ensuring an adequate supply of water to support the Prado Basin wetland/riparian resources. Data available from WEI and provided in Table 4.4-3 shows projected wastewater discharges into the SAR for 2010 and 2020 based upon agency calculations made in 2008 (column 7). Based upon this data, the total projected effluent discharged into the SAR is 188.1 MGD (210,698 AF/yr) in 2010 and 196.4 MGD (219,995 AF/yr) in 2020. Annual discharge projections provide insight into the expected average annual discharges. Because effluent would be discharged regardless of rainfall, unlike storm flows, the current and future surface water discharges provide further perspective on the minimum expected annual flows into the SAR and Prado Basin.

Thus, even in drought conditions when potable water supply is reduced, primary emphasis is on reducing outdoor water use, which generally does not contribute to wastewater flows. However, annual flows do not address the seasonality of surface water flows; therefore the following review of wastewater discharges from IEUA wastewater treatment facilities is included to address the potential for the Peace II related project to exacerbate drought conditions on riparian resources. Figure 4.4-9 depicts 2006 discharges from IEUA treatment facilities through out the year. IEUA currently treats approximately 60 MGD (67,000 AFY) of wastewater, and the IEUA's Recycled Water 4-Year Business Plan states that IEUA will have the capability to reuse 50,000 AFY, leaving 17,000 AFY to be discharged to the SAR. As shown in Figure 4.4-11, discharges exclusively from IEUA did not fall below about 40 MGD in 2006. While the discharged quantities were greater in the winter months than in the summer, discharges between May and October amounted to 7,852.5 mg, or 24,098 AF. While obviously this quantity is expected to decrease as more direct reuse capacity is provided, IEUA accounts for less than 20% of the total effluent discharged into SAR (refer to Table 4.4-3). Given that Mr. Bomkamp calculated the total required water required by the vegetation of Prado Basin to at approximately 26,000 AFY, the quantity discharged from IEUA on its own during the summer months strongly suggests that seasonal water availability to SAR and Prado vegetation from all wastewater treatment facilities would be sufficient to support riparian vegetation.

Table 4.4-3

Wasteload Allocation Model Proposed Model Scenario 2 Conditions

Agency	Year	Design Capacity (MGD)	Permit Discharge (MGD)	Permit TDS (mg/L)	Permit TIN (mg/L)	2008 Projected Plant Discharge (MGD)	2008 Projected Recycling (MGD)	2008 Projected Discharge to SAR (MGD)	2007 Actual Recycled Water (MGD)	2010-A or 1995 BP Recycling (MGD)	2010-B or 2001 BP Recycling (MGD)	Scenario 2 - Max TDS with Diversion: TDS (mg/L)	Scenario 2 - Max TDS with Diversion: TIN (mg/L)	Scenario 2 - Max TDS with Diversion: Projected Recycling (MGD)	Scenario 2 - Max TDS with Diversion: Discharge to Santa Ana River (MGD)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	= (3)	= (4)	= (6) or (8)	(13)
San Timoteo Creek															
City of Beaumont[A]	2010	4.0	4.0	490	6	3.0	0.0	3.0	NA	0.2	1.3	490	6	0.0	3.0
Wastewater Treatment Plant #1	2020	4.0	NA	490	6	6.1	4.3	1.8				490	6	4.3	1.8
Yucaipa Valley Water District[B]	2010	6.7	4.5	540	6	6.6	0.0	6.6	NA	0.0	5.7	540	6	0.0	6.6
H. N. Wochholz WTP	2020	11.0	NA	540	6	8.2	7.3	0.9				540	6	7.3	0.9
Santa Ana River Reach 4															
City of Rialto[C]	2010	11.7	11.7	490	10	9.0	0.4	8.6	NA	0.2	Combined with RIX	490	10	0.4	8.6
Rialto Wastewater Treatment Plant	2020	11.7	NA	490	10	12.0	2.4	9.6				490	10	2.4	9.6
San Bernardino/Colton[D]	2010	40.0	64.0	550	10	30.0	16.0	14.0	NA	0.1	23.5	550	10	16.0	14.0
RIX Facility	2020	40.0	NA	550	10	30.0	16.0	14.0				550	10	16.0	14.0
Santa Ana River Reach 3															
City of Riverside[E]	2010	40.0	40.0	650	13<38 MGD 10>38 MGD	40.0	1.5	38.5	0.2	0.0	0.0	650	12.86	0.2	39.8
Regional Water Quality Control Plant	2020	52.2	NA	650	13<38 MGD 10>38 MGD	50.0	8.9	41.1				650	12.29	0.2	49.8
Chino Creek/Cucamonga Creek/Prado Basin															
Inland Empire Utilities Agency[F]	2010	44.0	44.0	550	8	34.0	13.0	21.0	NA	1.7	42.9	550	8	13.0	21.0
RP1 001 Prado	2020	44.0	NA	550	8	36.0	23.0	13.0				550	8	23.0	13.0
Inland Empire Utilities Agency[F]	2010	11.0	9.7	550	8	10.0	7.0	3.0	NA	NA		550	8	7.0	3.0
Carbon Canyon WRP	2020	12.0	NA	550	8	12.0	9.0	3.0				550	8	9.0	3.0
Inland Empire Utilities Agency[F]	2010	15.0	15.0	550	8	12.0	4.0	8.0	NA	NA		550	8	4.0	8.0
RP-5	2020	24.0	NA	550	8	24.0	10.0	14.0				550	8	10.0	14.0
Inland Empire Utilities Agency[F]	2010	14.0	14.0	550	8	14.0	12.0	2.0	NA	4.5		550	8	12.0	2.0
RP1 002 Cucamonga and RP 4	2020	14.0	NA	550	8	14.0	12.0	2.0				550	8	12.0	2.0
Western Riverside Count[G]	2010	8.0	8.0	625	10	7.2	1.0	6.2	0.0	0.0	0.0	625	10	0.0	8.0
Regional Wastewater Authority WTP	2020	14.0	NA	625	10	11.6	2.0	9.6				625	10	0.0	11.6
Temescal Creek															
City of Corona[H]	2010	11.5	9.0	700	10	9.2	7.7	1.5	0.8	0.9	2.8	700	10	0.8	8.4
Wastewater Treatment Plant #1	2020	14.5	NA	700	10	11.6	10.1	1.5				700	10	0.8	10.8
City of Corona[H]	2010	-	-	-	-	-	-	-	NA			-	-	-	-
Wastewater Treatment Plant #2	2020	-	-	-	-	-	-	-				-	-	-	-
City of Corona[H]	2010	1.0	1.0	700	10	0.5	0.5	0.0	0.3			700	10	0.3	0.7
Wastewater Treatment Plant #3	2020	1.0	NA	700	10	0.8	0.8	0.0				700	10	0.3	0.7
Lee Lake Water District[H]	2010	2.3	1.6	650	13	0.9	0.6	0.2	0.4	0.0	0.0	650	13	0.4	1.2
Wastewater Treatment Plant	2020	2.3	NA	650	13	1.2	0.9	0.4				650	13	0.4	1.2
Elsinore Valley Municipal Water District[I]	2010	8.0	8.0	700	13	7.1	7.1	0.0	1.2	0.0	0.0	700	13	1.2	6.8
Regional WWRP	2020	12.0	NA	700	13	11.1	11.1	0.0				700	13	1.2	9.9
Eastern Municipal Water District[J]	2010	52.1	52.5	650	10	56.2	42.4	62*	29.2	0.0	0.0	650	10	29.2	27.0
(all treatment plants combined)	2020	77.3	NA	650	10	71.2	49.4	72*				650	10	29.2	42.0

References:

A - Joe Reichenberger, Beaumont Cherry Valley Water District
B - Jack Nelson, Yucaipa Valley Water District
C - William Hunt, Consultant to the City of Rialto
D - John Claus, City of San Bernardino
E - Chandra Johannesson, City of Riverside
F - LeAnne Hamilton - Inland Empire Utilities Agency
G - Linda Garcia, Western Municipal Water District
H - SAWPA OWOW Recycled Water Pillar Draft Document
I - Phil Miller - Elsinore Valley Municipal Water District
J - Jayne Joy - Eastern Municipal Water District (rate applied for 6 months (Oct-Mar))

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game of U.S. Fish and Wildlife Service?

Implementing the Peace II Project has the potential to directly impact sensitive riparian habitat through project installation and to indirectly impact sensitive riparian habitat through hydrologic changes caused by Re-operation. The Santa Ana River and its tributaries are considered significant drainage courses that fall under the jurisdiction of the U.S. Army Corps of Engineers (ACOE or Corps), California Department of Fish and Game (CDFG), and Santa Ana Regional Water Quality Control Board (RWQCB).

It is anticipated that the majority of Peace II project impacts will occur within existing disturbed roadways and water district properties. However, there is a potential for future specific projects to be located outside of developed areas where sensitive riparian habitat may occur. Direct impacts to riparian habitat from specific Peace II projects will be assessed through site review and jurisdictional delineation, where appropriate. No jurisdictional delineation has been prepared for the Peace II program at this time because the exact locations of future projects have not been selected. It is anticipated that assessment of specific impacts upon riparian resources within the proposed project area caused by Peace II-related projects will have to be evaluated by the appropriate jurisdictional authority at a future time, on a project-by-project basis, after project specifics are known. Mitigation is outlined which can be implemented to offset or compensate for both the temporal and permanent loss of riparian habitat that may occur as a result of future projects associated with the Peace II. Implementation of specific projects will require a subsequent environmental analysis that will include an evaluation of potential impacts to jurisdictional waterways. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Indirect impacts to riparian habitats could result if Re-operation were to reduce groundwater levels such that vegetation requiring shallow groundwater was adversely impacted. Please refer to the discussion under item (a) of this Section for more detailed analysis of this issue. Based on the findings and conclusions in Section a. above, no significant indirect effect on riparian habitat in the Prado Basin is forecast to occur from implementation of the Peace II Agreement program. On an individual stream basis, in the northern portion of the Chino Basin flows are not diverted or captured until they enter recharge basins or concrete-lined channels. Thus, no potential for direct significant impact to riparian resources is forecast to occur in these areas.

c. Would the project 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?

As discussed above, the proposed project has the potential to impact the Prado Basin, the Santa Ana River and tributaries. Impacts to drainages are regulated by the California Department of Fish and Game Section 1600, and Sections 401 and 404 of the Clean Water Act by COE and RWQCB (note that for isolated waters not subject to Section 404, the RWQCB can assume jurisdiction under the Porter-Cologne Act to protect water quality related to discharges in waters of the State). Mitigation is outlined which can be implemented to offset or compensate for both the temporal and permanent loss of riparian habitat that will occur as a result of the proposed project. Please refer to the discussion under issue a. above which discusses temporary and permanent as well as direct and indirect impacts to waters of the United States, State of California, and riparian habitat.

There are no designated wild or scenic rivers under the National Wild and Scenic Rivers Act located in the Santa Ana River Basin.

d. Would the project 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?

As detailed in the Environmental Setting, the project area includes a wildlife corridor along the Santa Ana River as indicated by both the San Bernardino and Riverside County General Plan documents. Future Peace II-related activities that impact channels or adjacent lands have the potential to reduce the suitability of these corridors. Thus, there is a potential for implementation of the project to adversely impact wildlife corridors. However, the exact degree of that impact cannot be determined due to the uncertainty of related project locations, planning, design, funding, or development schedule. Based on the evaluation of indirect effects under Section "a" above, the potential to interfere with wildlife movement or native wildlife nursery sites (which do exist in Prado), the potential to adversely impact such wildlife resource values is considered to be low, or less than significant, but mitigation is provided to address the remote possibility of direct or indirect effects on such wildlife movement/nursery sites.

It is anticipated that future assessment of site specific impacts upon the stream channels or adjacent lands that contribute to the viability of wildlife corridors caused by Peace II-related projects will have to be evaluated by the appropriate jurisdictional authority at a future time, on a project-by-project basis, after project specifics are known. Implementation of specific projects will require a subsequent environmental analysis that will include an evaluation of potential impacts to jurisdictional waterways. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Regardless, the type of facilities proposed by Peace II is rarely required to occupy a specific site, i.e., there is generally substantial latitude in selecting a location for a facility. Therefore, mitigation is provided below to control potential effects on any areas that would support wildlife movement to a less than significant impact level. Mitigation can primarily be accomplished by avoidance through selection of alternative locations, it but can also include restoration of movement corridor resources to pre-disturbance quality.

e. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan? and from the Land Use/Planning Section "Conflict with any applicable habitat conservation plan or natural community conservation plan?"

As discussed in the Environmental Setting, all of the Chino Basin within Riverside County is located within the Western Riverside County MSHCP planning area. As such, if Peace II-related projects were to be constructed within Riverside County and processed through the MSHCP, they would be required to comply with the terms and conditions of the MSHCP. Projects would be required to show consistency with the MSHCP, including Riverine/Riparian/

Vernal Pool Analysis, Narrow Endemic Plant Species Survey Requirements, Urban/Wildlands Interface Guidelines Analysis and Additional Survey Requirements. If a portion or all of the property where a Peace II-related project would be constructed is located within a MSHCP Criteria Cell, it would be subject to the Habitat Evaluation and Acquisition and Negotiation Strategy (HANS) process and Joint Project Review (JPR), which provides for review by the Riverside County Regional Conservation Authority with input from the wildlife agencies. After completion of required surveys and identification of impacts, then a Consistency Finding or a Determination of Biologically Equivalent or Superior Preservation document would be required.

Because none of the water districts, utility agencies or the Watermaster are parties to the MSHCP, any Peace II-related project located within Riverside County may be processed outside of the MSHCP directly with the regulatory agencies, as would routinely be done in areas outside of the MSHCP area. In the final analysis of future Peace II project activities, the participating agencies can develop such facilities in a manner consistent with the MSHCP goals and objectives. Thus, no adverse conflicts with the MSHCP are forecast to occur from implementing site-specific Peace II projects in the future.

No other HCP or NCCP is known to be approved within the project area.

4.4.4 Mitigation Measures

The following mitigation measures are required to reduce impacts associated with future Peace II program site-specific projects to a less than significant level. Each stakeholder implementing specific Peace II-related specific capital improvement projects shall implement the measures outlined below, when the impact being mitigated will be caused by such project.

To reduce or prevent activities that may adversely affect sensitive species, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

4.4-1 ***Where future project-related impacts will impact undeveloped land, site surveys shall be conducted by a qualified biologist/ecologist. If sensitive species are identified as a result of the survey for which mitigation/compensation must be provided in accordance with regulatory requirements, the following subsequent mitigation actions will be taken:***

a. ***The project proponent shall provide compensation for sensitive habitat acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of not less than 1:1 for habitat lost. The property acquisition shall include the presence of at least one animal or plant per animal or plant lost at the development site to compensate for the loss of individual sensitive species.***

b. ***An endowment, to be determined at the time the impact is proposed, shall be provided by the project proponent and this endowment shall be adequate to fund ongoing management requirements for the property purchased.***

c. ***The final mitigation may differ from the above values based on negotiations between the project proponent and USFWS and CDFG for any incidental take permits for listed species. The project proponent shall retain a copy of the incidental take permit as verification that the mitigation of significant biological***

resource impacts at a project site with sensitive biological resources has been accomplished.

To reduce or prevent activities that may adversely affect rivers, streambeds or wetlands, the following mitigation measures will be incorporated into any specific projects and/or contractor specifications for future project-related impacts to protect sensitive resources and habitat.

4.4-2 Prior to discharge of fill or streambed alteration of jurisdictional areas, the project proponent shall obtain regulatory permits from the U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and the California Department of Fish and Game. Any future project that must discharge fill into a channel or otherwise alter a streambed shall be mitigated. Mitigation can be provided by purchasing into any authorized mitigation bank; by selecting a site of comparable acreage near the site and enhancing it with a native riparian habitat or invasive species removal in accordance with a habitat mitigation plan approved by regulatory agencies; or be acquiring sufficient compensating habitat to meet regulatory agency requirements. Typically, regulatory agencies require mitigation for jurisdictional waters without any riparian or wetland habitat to be mitigated at a 1:1 ratio. For loss of any riparian or other wetland areas, the mitigation ratio will begin at 2:1 and the ratio will rise based on the type of habitat, habitat quality, and presence of sensitive or listed plants or animals in the affected area. A revegetation plan using native riparian vegetation common to the project area shall be prepared and reviewed and approved by the appropriate regulatory agencies. The project proponent will also obtain permits from the regulatory agencies (U.S. Army Corps of Engineers, Santa Ana Regional Water Quality Control Board and CDFG) if any impacts to jurisdictional areas will occur. These agencies can impose greater mitigation requirements in their permits, but the IEUA will utilize the ratios outlined above as the minimum required to offset or compensate for impacts to jurisdictional waters, riparian areas or other wetlands.

4.4-3 IEUA shall coordinate with all stakeholders to ensure that discharges from its wastewater treatment plants exceed 20,000 acre-feet during the period May 1 through October 1 of each calendar year. This will ensure adequate surface flows into Prado Basin during summer periods and during droughts.

Regarding active bird nests, the following mitigation measure will be applied to this program.

4.4-4 To avoid an illegal take of active bird nests, any grubbing, brushing or tree removal will be conducted outside of the State identified nesting season (nesting season is approximately from March 1 through September 1 of a given calendar year). In any case, it is illegal to take active bird nests of native birds and when present at a project site, no take is allowed. Alternatively, project impact areas will be evaluated by a qualified biologist prior to initiation of ground disturbance to demonstrate that no bird nests will be disturbed by project construction activities.

The following mitigation can reduce the impact to Burrowing Owl to a less than significant level.

4.4-5 Prior to commencement of construction activity in locations that are not fully developed, a clearance survey will be conducted by a qualified biologist to determine if any burrowing owl burrows are located within the potential area of impact. If occupied burrows may be impacted, an impact minimization plan shall be developed by the biologist that will protect the burrow in place or provide for relocation to an alternate burrow within the vicinity but outside of the project footprint in accordance with current CDFG guidelines. Active nests must be avoided until all nestlings have fledged.

The following mitigation can control potential Peace II project impacts to wildlife movement corridors to a less than significant level.

4.4-6 ***Future Peace II facilities that are proposed to be located within wildlife movement corridors within Chino Basin shall be sited at locations that avoid significant adverse impacts to such corridors, or shall be mitigated by restoring the corridor values to approximately original condition after a Peace II facility is installed.***

The following mitigation can ensure consistency with the MSHCP.

4.4-7 ***Prior to commencement of construction activity on Peace II project within MSHCP areas in Riverside County, a consistency analysis shall be prepared and reviewed with Riverside County Regional Conservation Authority (RCA). Through avoidance, compensation or a comparable mitigation alternative, each project shall be shown to be consistent with the MSHCP.***

Implementation of the above measures is protective of the environment. Should the regulatory agencies determine an alternative, equivalent mitigation program during acquisition of regulatory permits, such measure shall be deemed equivalent to the above measures and no additional environmental documentation shall be required to implement a measure different than outlined above. Note that if impacts cannot be mitigated or avoided in the manner outlined in the measures above, then subsequent environmental documentation would have to be prepared in accordance with procedures outlined in Section 15162 of the State CEQA Guidelines.

Implementing the following mitigation measure that requires revegetation of disturbed construction areas with plant species native to the project area, the potential effects on invasive species concerns are forecast to be less than significant.

4.4-8 ***Following construction activities within or adjacent to any natural area, the disturbed areas shall be revegetated using a plant mix of native plant species that are suitable for long term vegetation management., which shall be implemented in cooperation with regulatory agencies and with oversight from a qualified biologist. The seeds mix shall be verified to contain the minimum amount of invasive plant species seeds reasonably available for the project area.***

Implementation of this mitigation measure is considered adequate to minimize future invasive species occupancy caused by project-related disturbance of natural areas.

Implementation of the following mitigation measures will ensure that project design and site selection reduce impacts to sensitive biological resources to the extent feasible.

4.4-9 ***Place primary emphasis on the preservation of large, unbroken blocks of natural open space and wildlife habitat area, and protect the integrity of habitat linkages. As part of this emphasis, incorporate programs for purchase of lands, clustering of development to increase the amount of preserved open space, and assurances that the construction of pipelines and other facilities or infrastructure improvements meet standards identical to the environmental protection policies applicable to the specific project.*** *This measure is 4.8-1 from the OBMP PEIR.*

4.4-10 ***When determining which portion of a facility site should be retained in open space, give emphasis to the preservation of habitat areas and linkages, avoiding destruction of viable, sensitive habitat areas and linkages as a trade-off for preserving open space for purely aesthetic purposes. Further, whenever feasible, avoid impacts and***

disturbances to individuals and species considered sensitive by jurisdictional agencies. *This measure is 4.8-2 from the OBMP PEIR.*

4.4-11 ***Require facility designs to be planned to protect habitat values and to preserve significant, viable habitat areas and habitat connection in their natural conditions.***

a. ***Within designated habitat areas of rare, threatened or endangered species, prohibit disturbance of protected biotic resources.***

b. ***Within riparian areas and wetlands subject to state or federal regulations, riparian woodlands, oak and walnut woodland, and habitat linkages, require that the vegetative resources which contribute to habitat carrying capacity (vegetative diversity, faunal resting sites, foraging areas, and food sources) are preserved in place or replaced so as not to result in an measurable reduction in the reproductive capacity of sensitive biotic resources.***

c. ***Within habitats of plants listed by the CNDDB or CNPS as "special" or "of concern," require that new facilities not result in a reduction in the number of these plants, if they are present.*** *This measure is 4.8-4 from the OBMP PEIR.*

4.4-12 ***Maximize the preservation of individual oak, sycamore and walnut trees within proposed development sites.*** *This measure is 4.8-4 from the OBMP PEIR.*

4.4-13 ***Prohibit the use of motorized vehicles within sensitive habitat areas and linkages except for crucial maintenance and/or construction activities.*** *This measure is 4.8-5 from the OBMP PEIR.*

4.4-14 ***Require the establishment of buffer zones adjacent to areas of preserved biological resources. Such buffer zones shall be of adequate width to protect biological resources from grading and construction activities, as well as from the long-term use of adjacent lands. Permitted land modification activities with preservation and buffer areas are to be limited to those that are consistent with the maintenance of the reproductive capacity of the identified resources. The land uses and design of project facilities adjacent to a vegetative preservation area, as well as activities within the designated buffer area are not to be permitted to disturb natural drainage patterns to the point that vegetative resources receive too much or too little water to permit their ongoing health. In addition, landscape adjacent to areas of preserved biological resources shall be designed so as to avoid invasive species which could negatively impact the value of the preserved resource.*** *This measure is 4.8-6 from the OBMP PEIR.*

Relative to future lowering of the groundwater table beneath Prado Basin, no mitigation is required. Ongoing monitoring will verify whether the model predictions are accurate over the 20-life of the program. Should the groundwater aquifer beneath Prado Basin respond differently than forecasted, this information would require adjustments by the Watermaster to ensure that hydraulic control is maintained and that significant effects to the riparian resources do not occur.

4.4.5 Cumulative Impacts

Cumulative biological resource impacts can only occur when such resources are not avoided, protected or mitigated as outlined above. Based on the mitigation requirements outlined to ensure that biological resources are avoided or otherwise protected or mitigated, no cumulatively considerable contribution to significant adverse biological resource impacts are forecast to occur if the Peace II Program is implemented as analyzed in this section.

4.4.6 Unavoidable and Adverse Impacts

The biological resource evaluation presented above indicates that, with implementation of appropriate mitigation measures, the Peace II Program will not cause any significant unavoidable adverse biological resource or land use/planning conflict impacts. Therefore, no significant adverse biological resource impacts are forecast to occur if the proposed program is implemented as proposed, including the above mitigation measures.

FIGURE 4.4-1
MSHCP Cores and Linkages

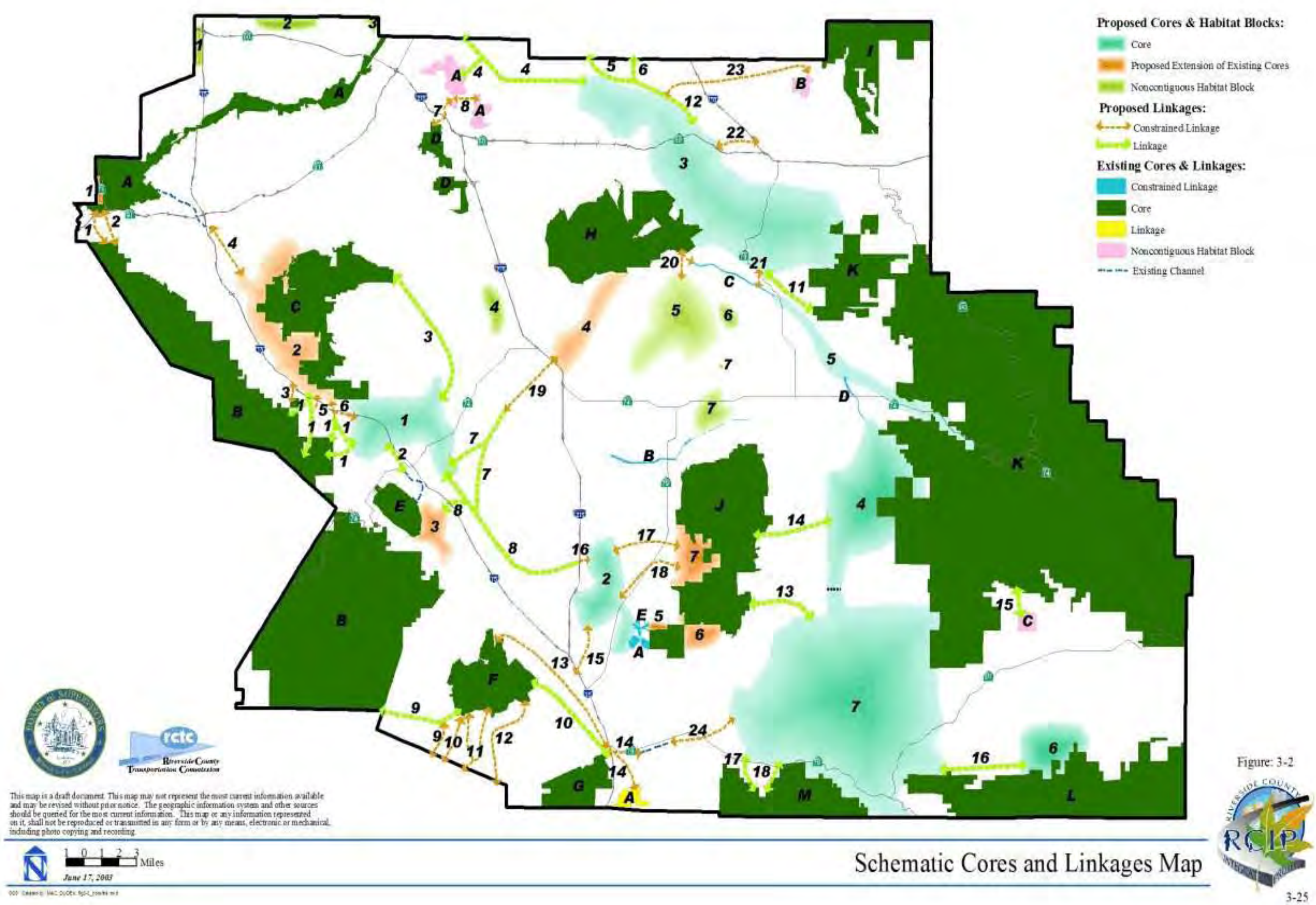

FIGURE 4.4-2a
Temescal Canyon Area Plan Map

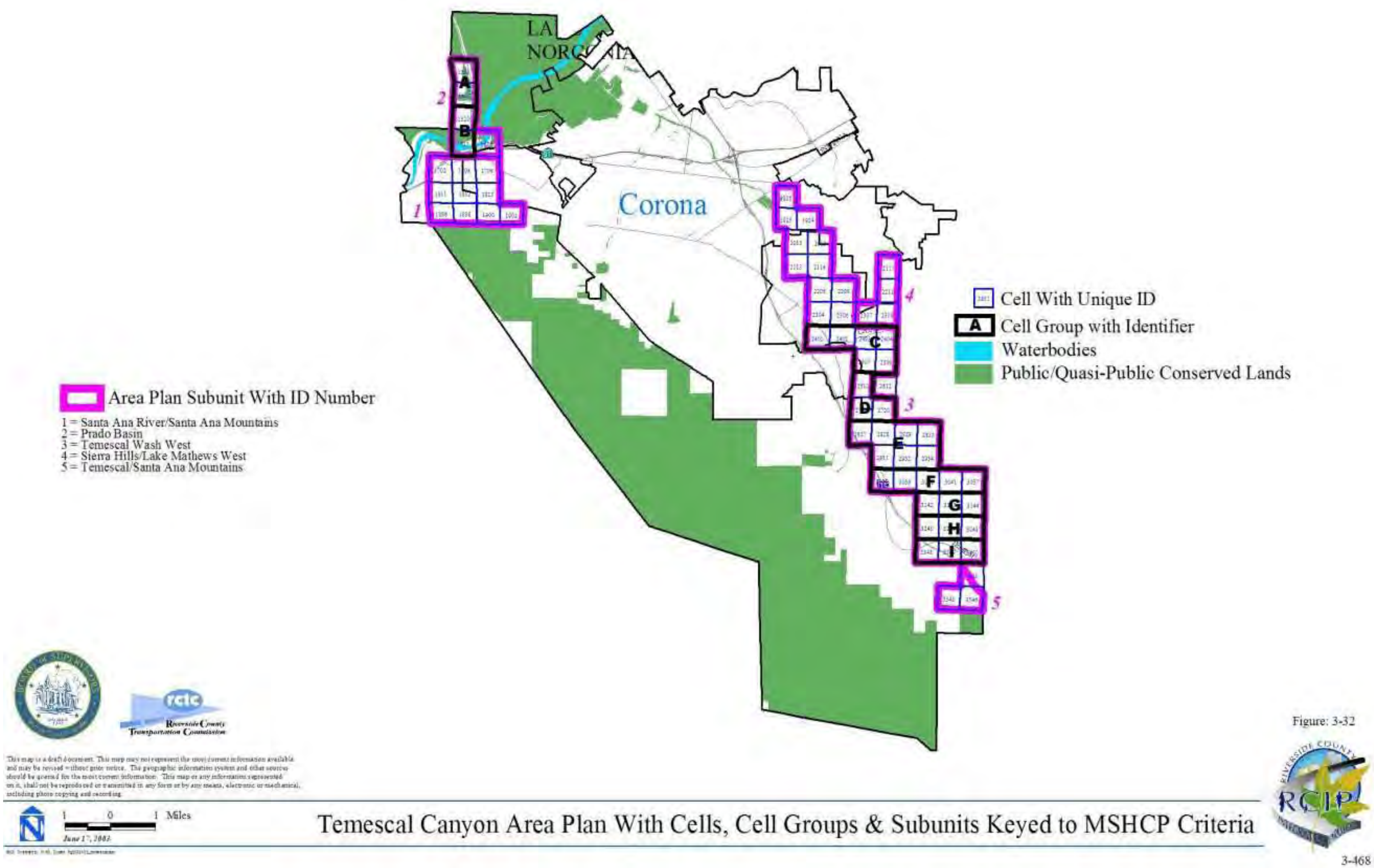

FIGURE 4.4-2b
Temescal Canyon Area Plan Map

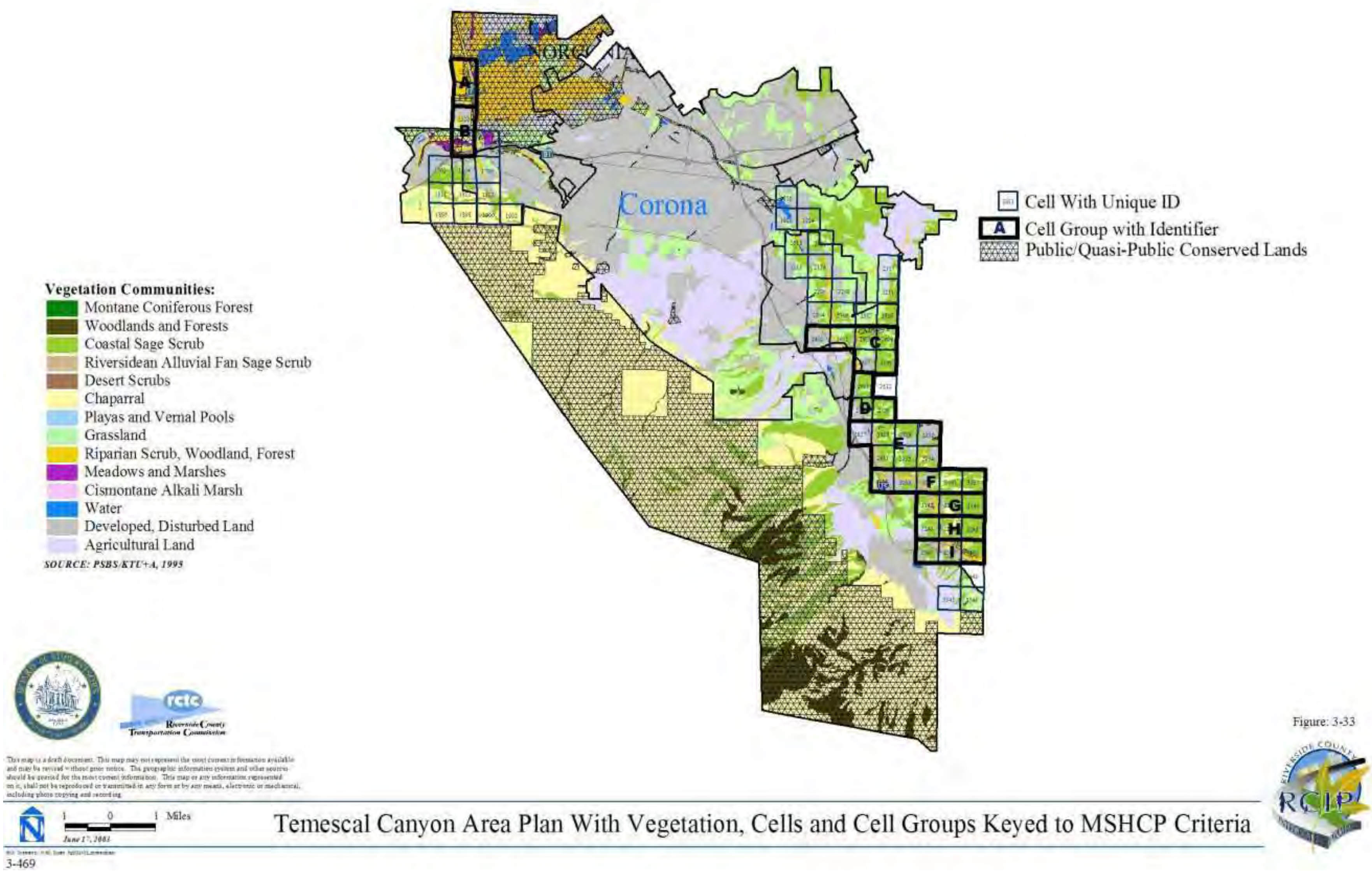

FIGURE 4.4-3a
Jurupa Area Plan Map

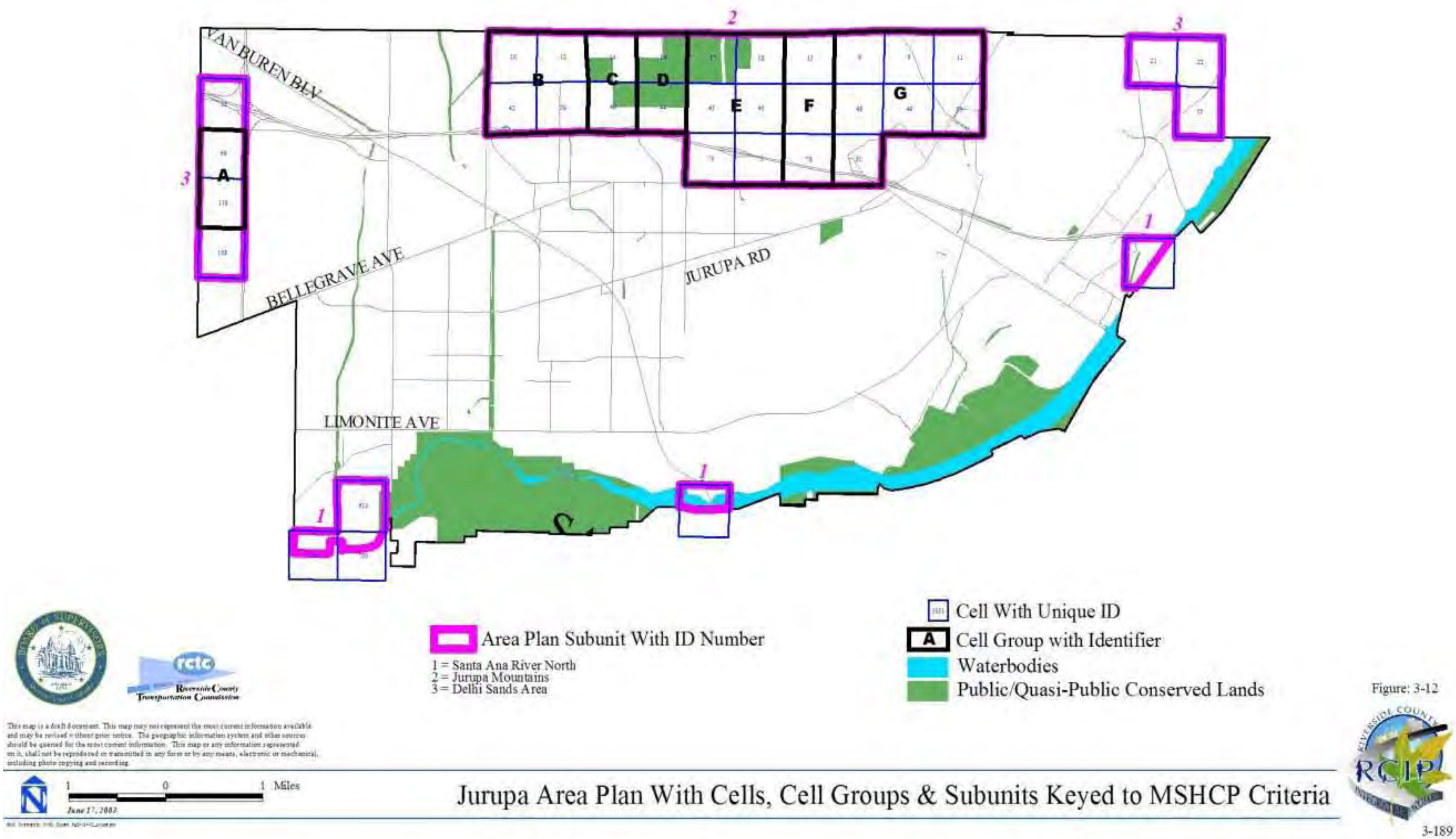

FIGURE 4.4-3b
Jurupa Area Plan Map

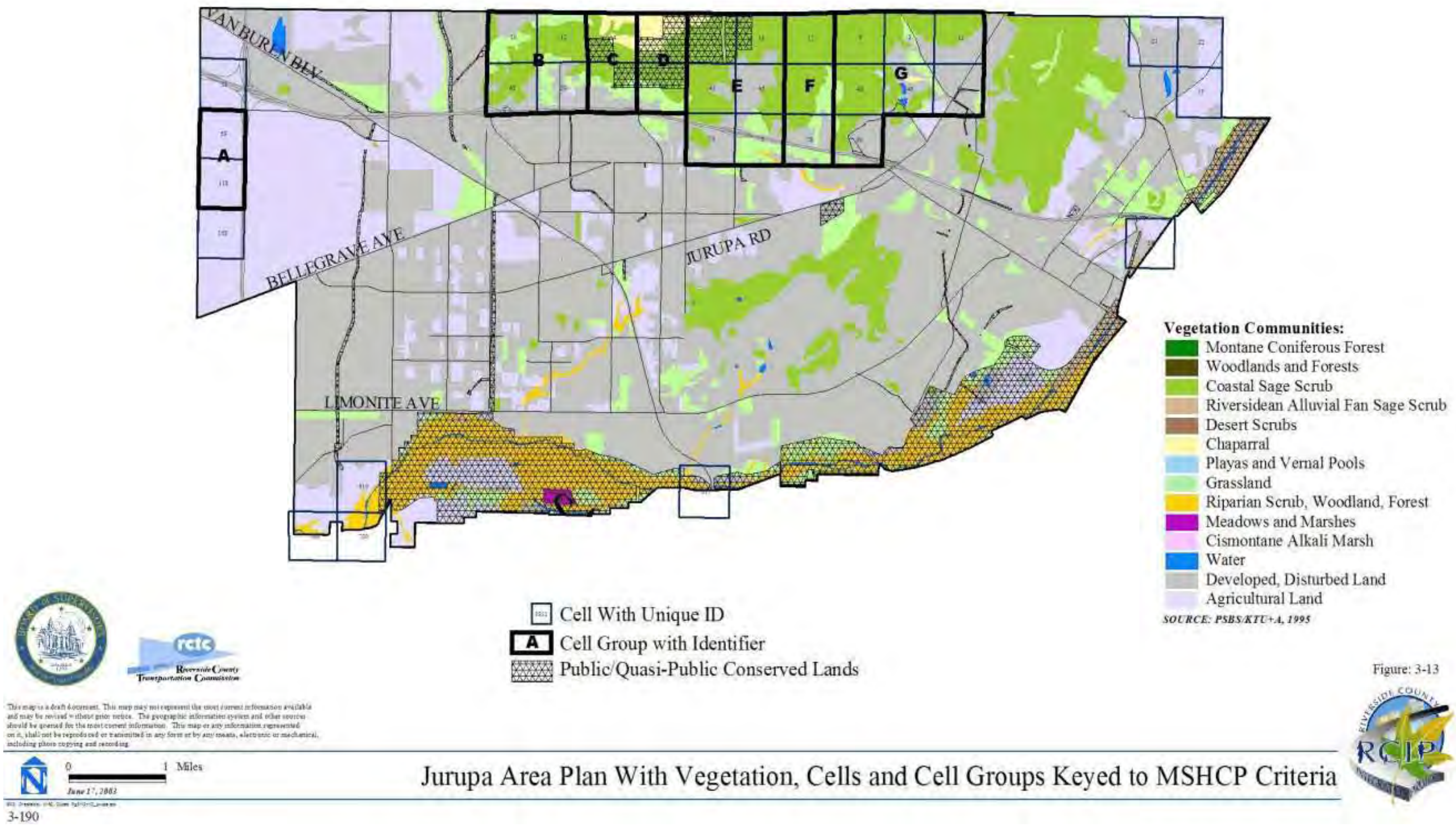

FIGURE 4.4-4a
Eastvale Area Plan Map

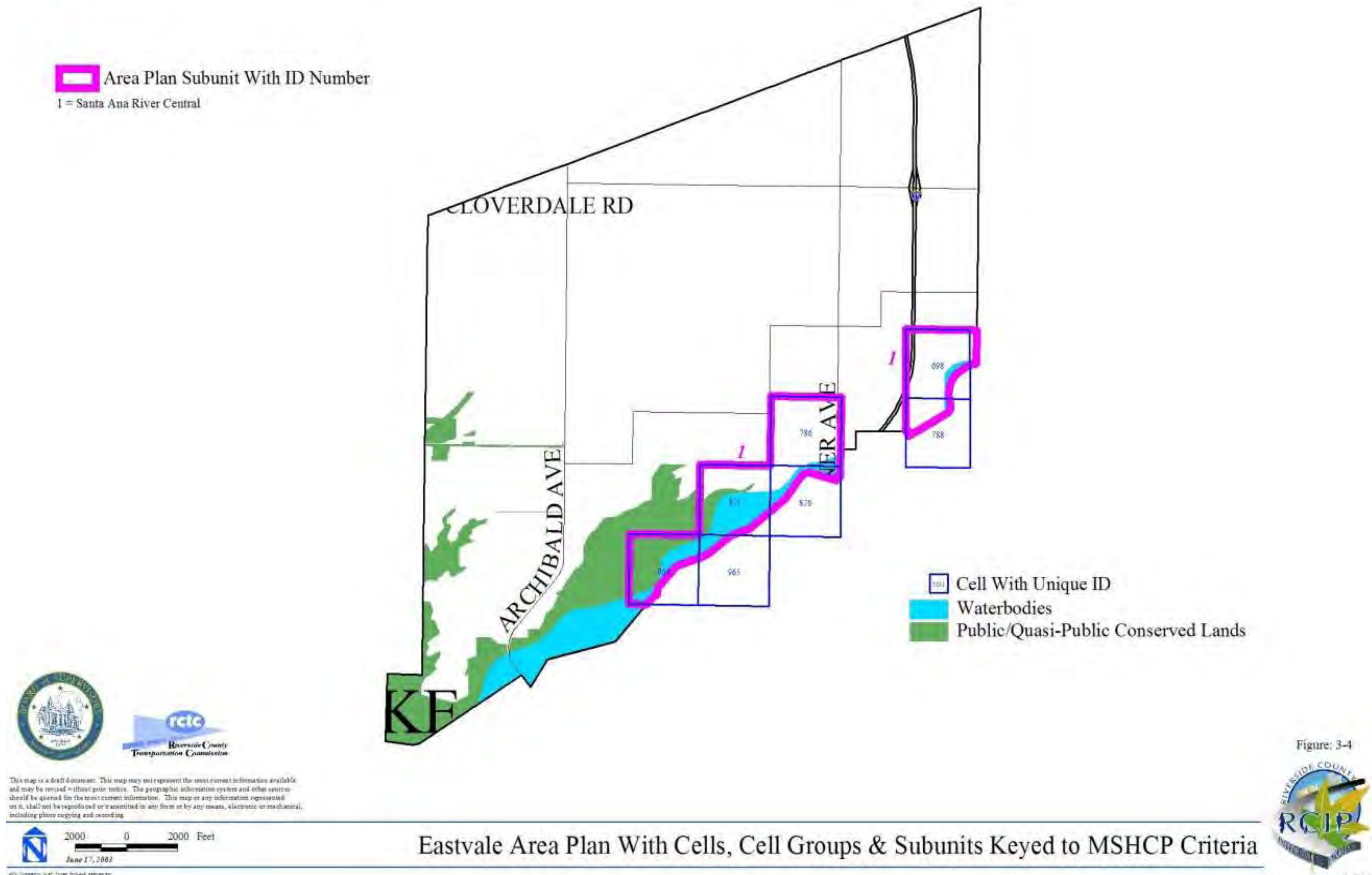

FIGURE 4.4-4b
Eastvale Area Plan Map

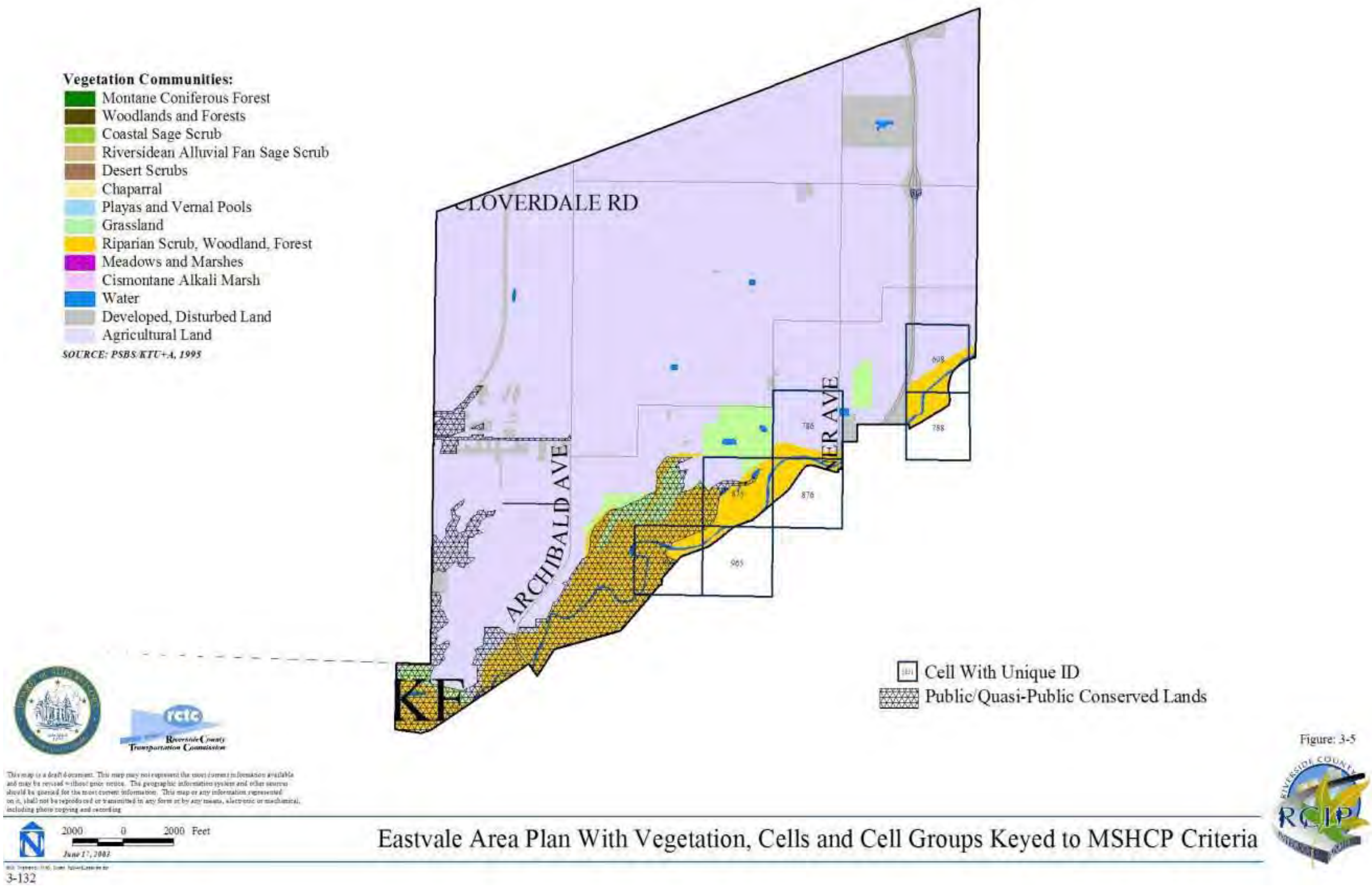

FIGURE 4.4-5
MSHCP Narrow Endemics Survey Area

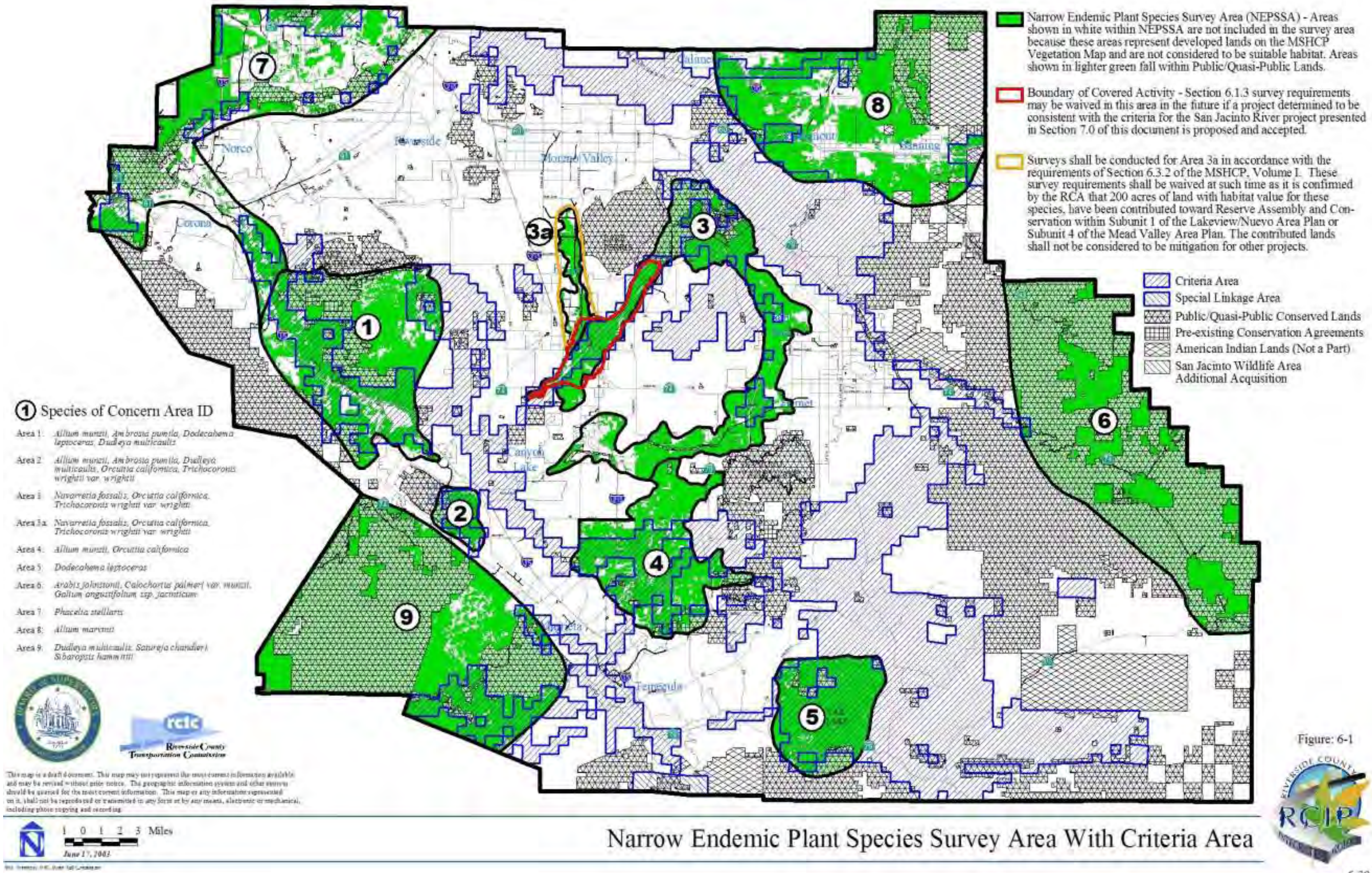

FIGURE 4.4-6
MSHCP Burrowing Owl Survey Area

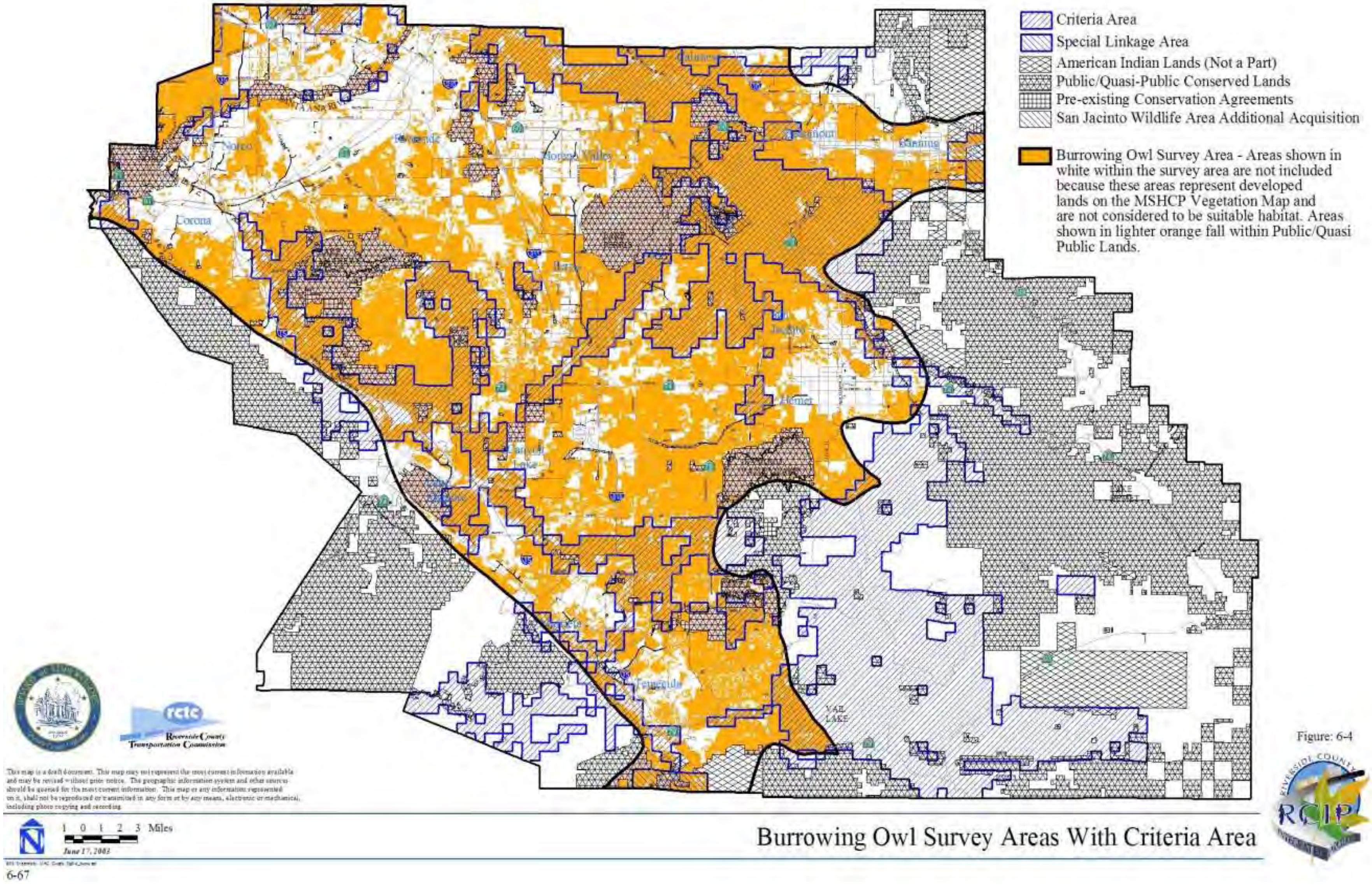

FIGURE 4.4-7
Least Bell's Vireo Critical Habitat in the Chino Basin

BILLING CODE 4310-65-C

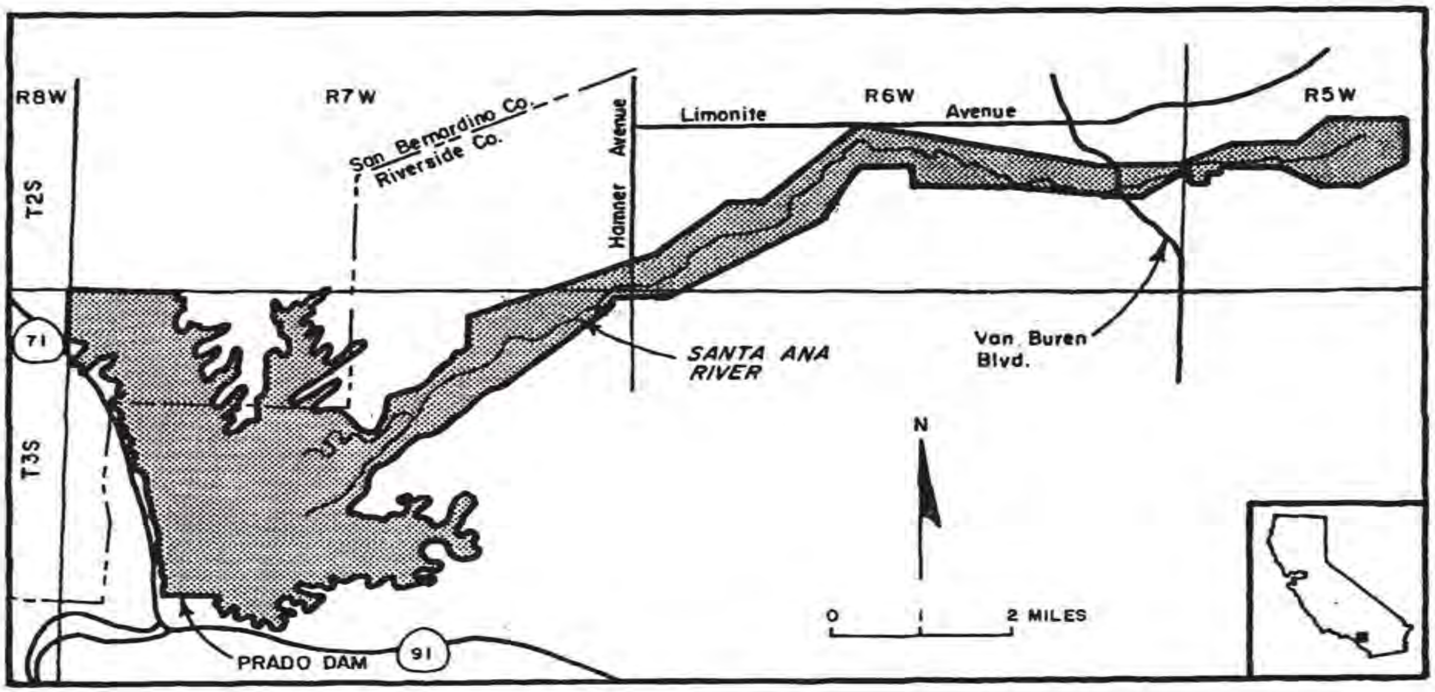

FIGURE 4.4-8
Coastal California Gnatcatcher Critical Habitat

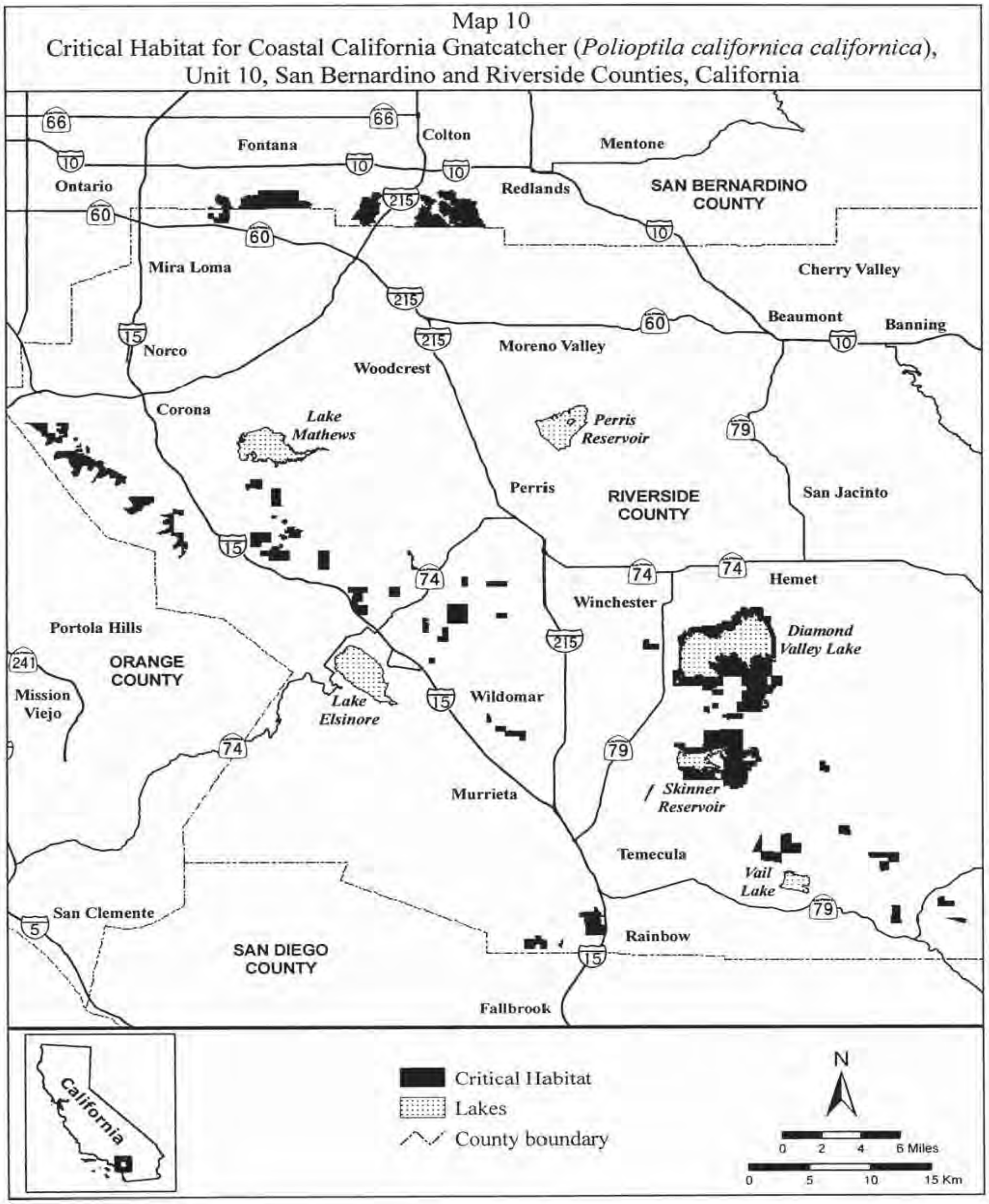

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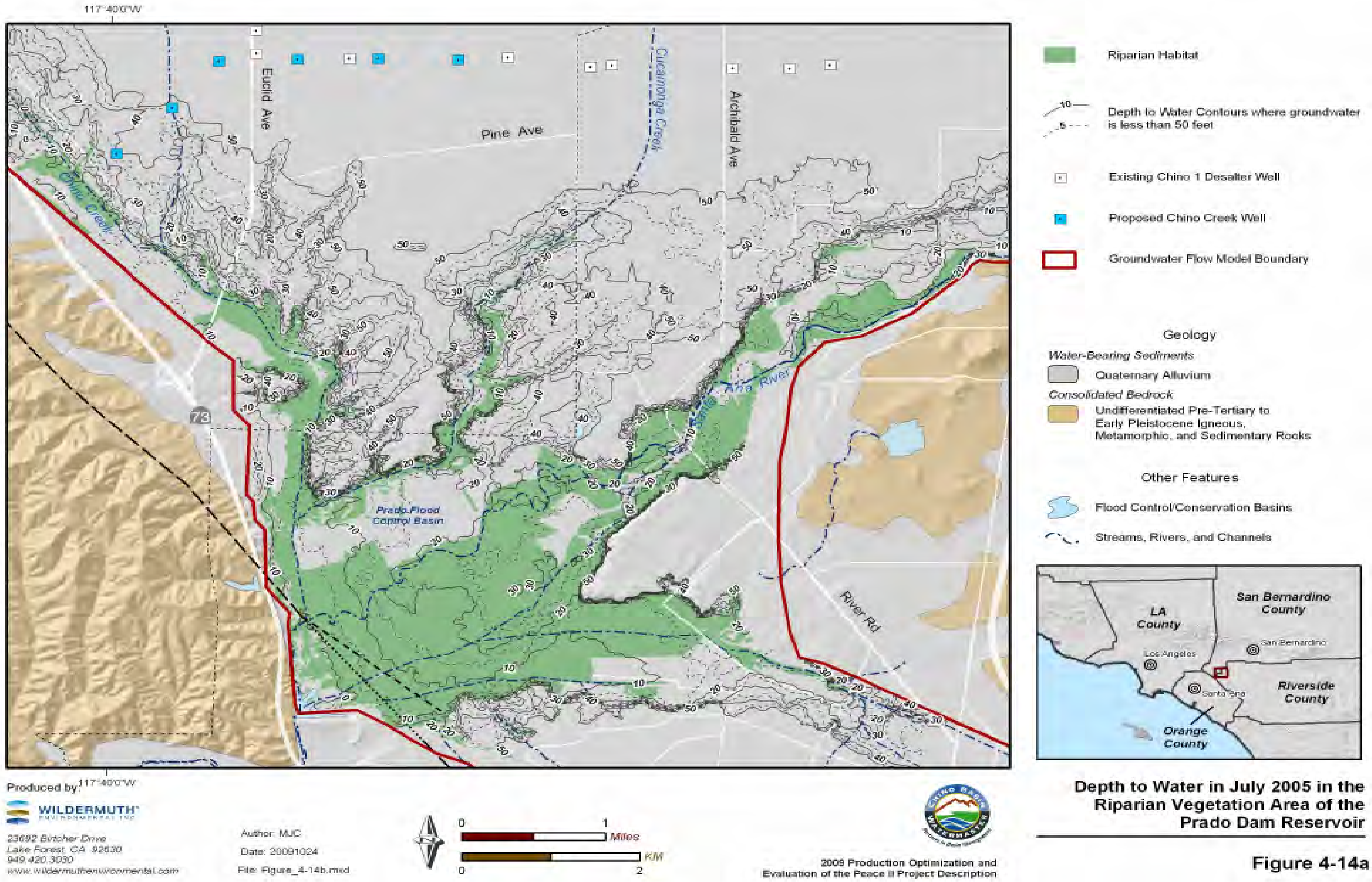
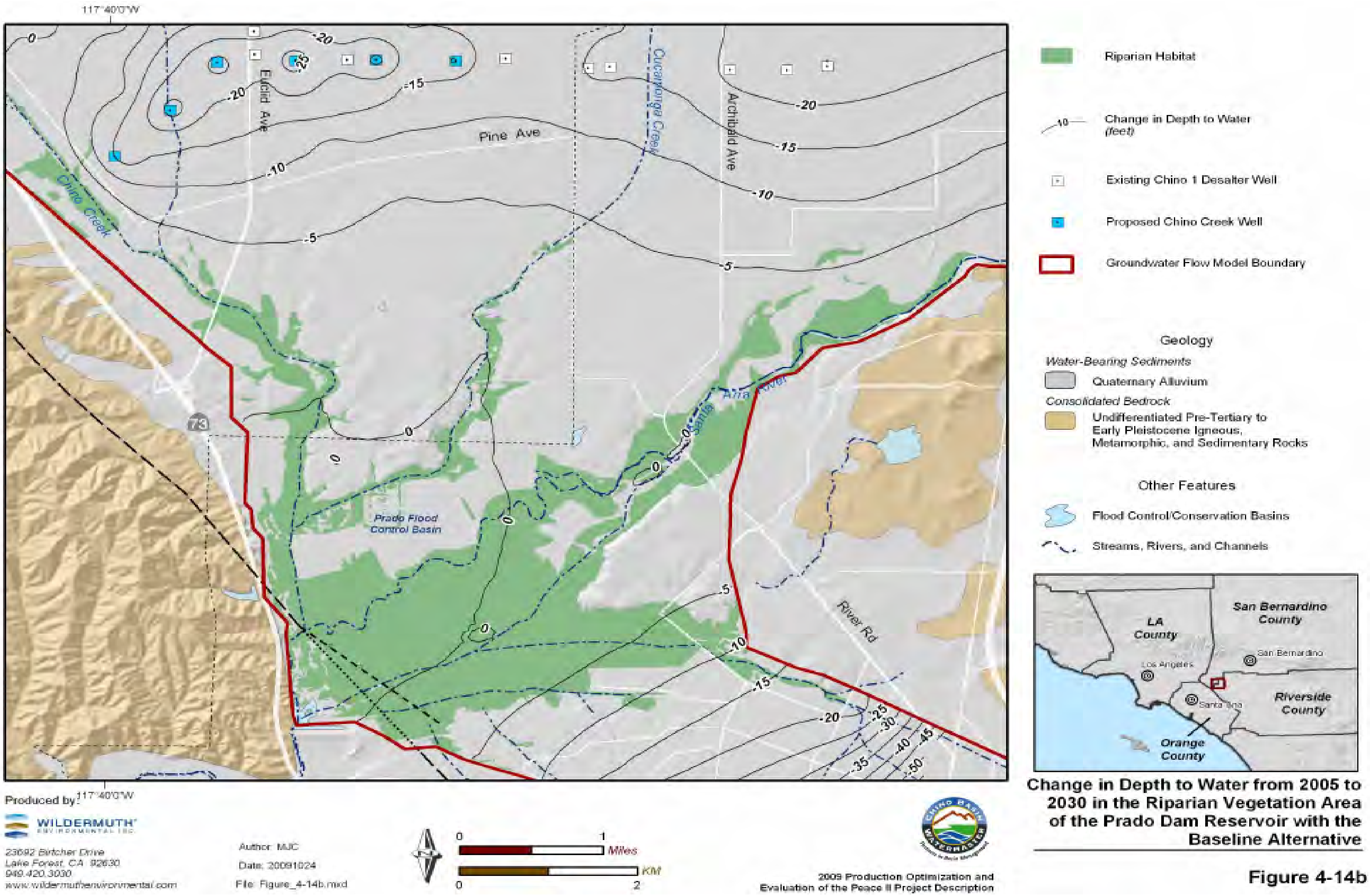
FIGURE 4.4-9a
Depth to Water in July 2005 in the Riparian Vegetation Area of the Prado Dam Reservoir



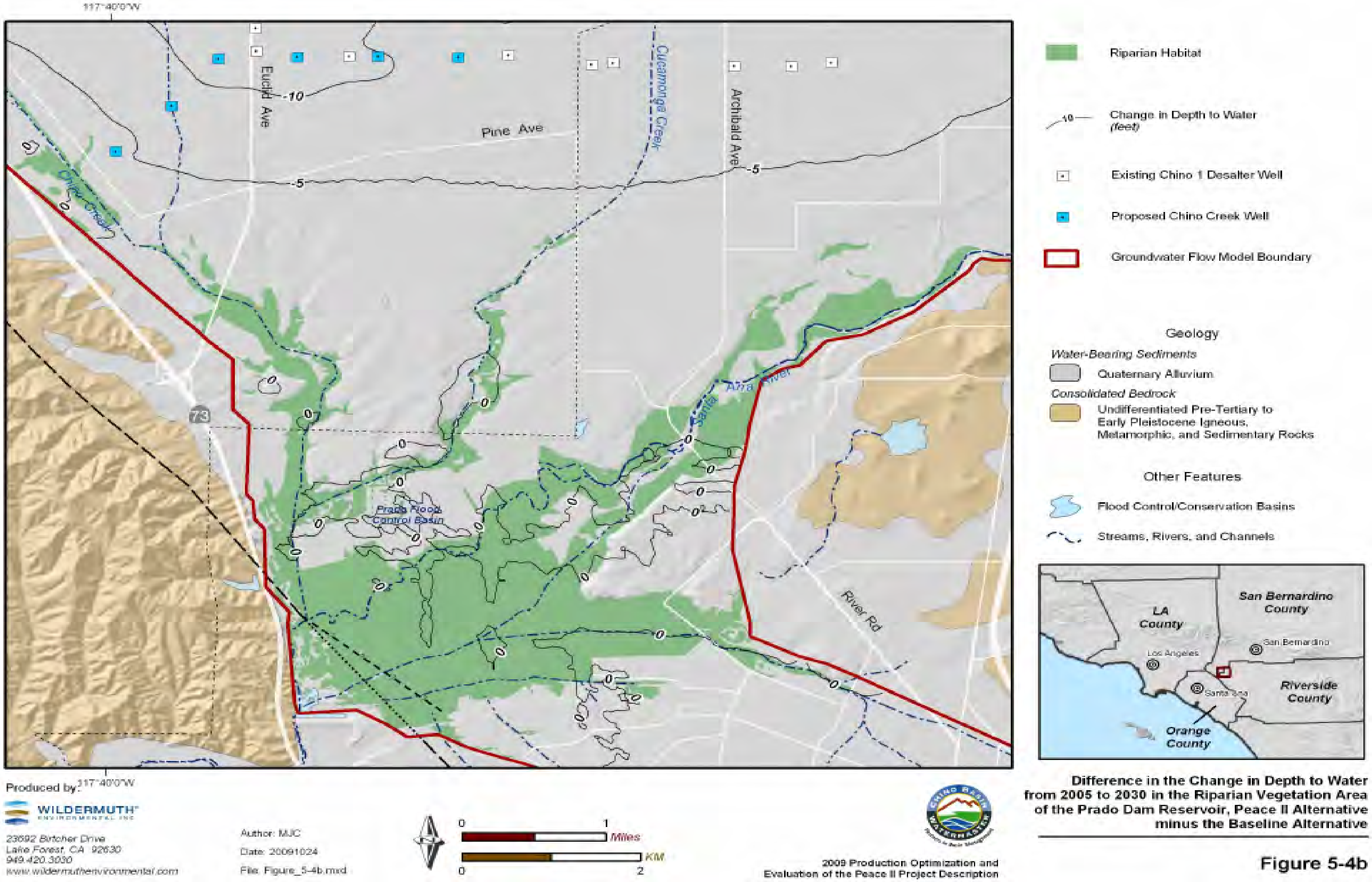
Source: Wildermuth Environmental, Inc., “2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report), November 2009

FIGURE 4.4-9b
Change in Depth to Water from 2005 to 2030 in the Riparian Vegetation Area of the Prado Dam Reservoir With the Baseline Alternative



Source: Wildermuth Environmental, Inc., "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report), November 2009

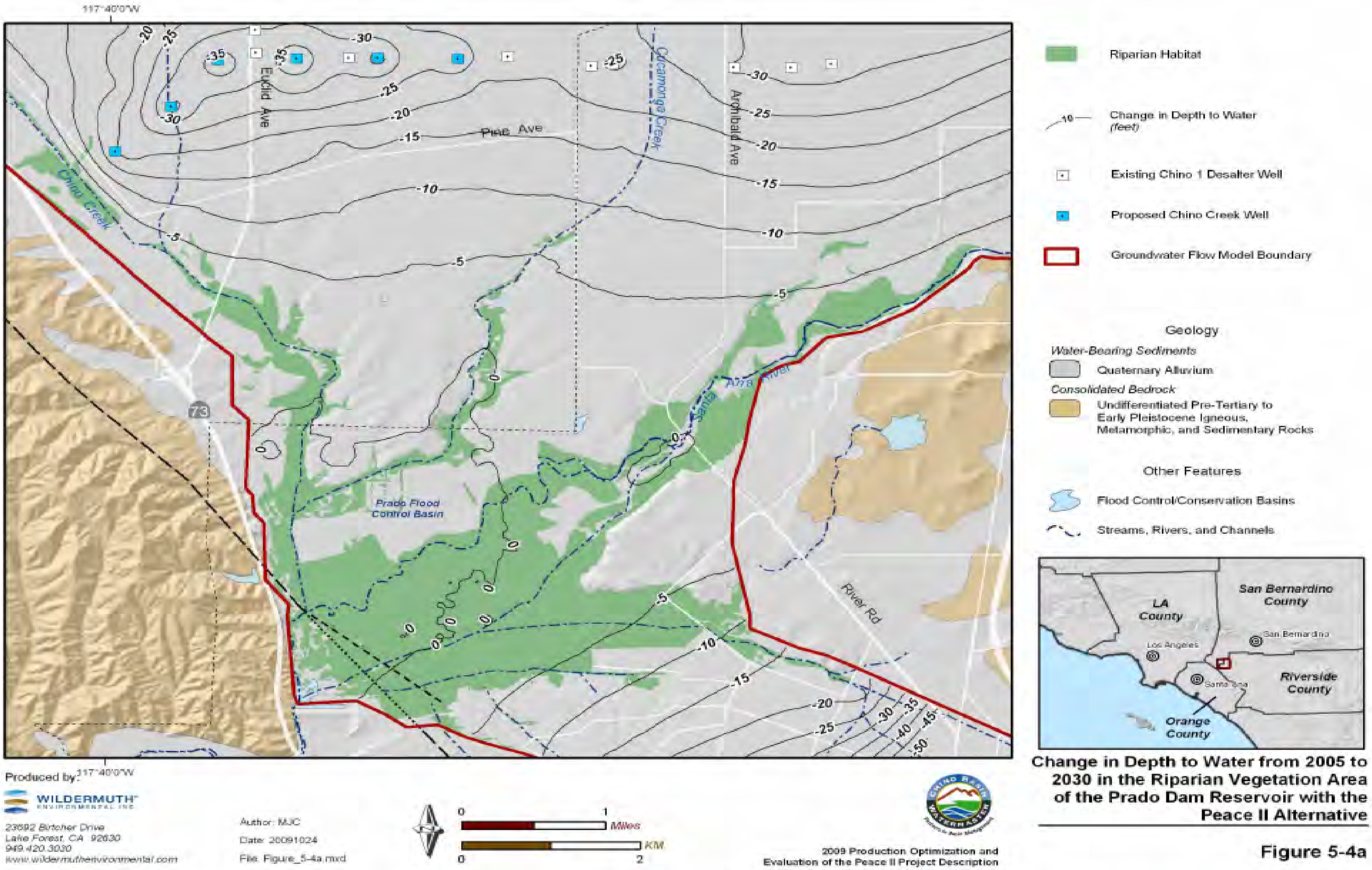
FIGURE 4.4-9c
Difference in the Change in Depth to Water from 2005 to 2030 in the Riparian Vegetation Area of the Prado Dam Reservoir, Peace II Alternative Minus the Baseline Alternatives



Source: Wildermuth Environmental, Inc., "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report), November 2009

FIGURE 4.4-10

Change in Depth to Water from 2005 to 2030 in the Riparian Vegetation Area of the Prado Dam Reservoir With the Peace Ii Alternative



Source: Wildermuth Environmental, Inc., "2009 Production Optimization and Evaluation of the Peace II Project Description (Final Report), November 2009

CHAPTER 5 – ALTERNATIVES

5.1 INTRODUCTION

The California Environmental Quality Act (CEQA) and the State CEQA Guidelines require an evaluation of alternatives to the proposed action when a project may cause a significant adverse impact on the environment. The programs that would be implemented under the Peace II Agreement have been evaluated for potential significant adverse impacts in Chapter 4 of this document and the Initial Study in Appendix 8.1. Based on the analysis in these sections of the DSEIR, implementation of the Peace II Agreement programs is forecast to contribute to cumulatively considerable or unavoidable significant air quality impacts in the South Coast Air Basin during both construction and operation, even after implementation of identified mitigation measures. No other potential significant adverse environmental impacts are forecast to result from the program's implementation after implementation of the recommended mitigation measures. The purpose of the alternatives evaluation under CEQA is to determine whether one or more feasible alternatives are capable of reducing these potentially significant impacts of a preferred project to a less than significant level. The applicable text in the State CEQA Guidelines occurs in Section 15126 as follows:

Section 15126.6(a): *Alternatives to the Proposed Project. 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, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation.*

Section 15126.6(b) *Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly.*

The range of feasible alternatives to the Peace II Agreement is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives are environmental impacts, site suitability, economic viability, availability of infrastructure, regulatory limitations, jurisdictional boundaries and whether the applicant could reasonably acquire, control, or otherwise have access to the alternative option. (CEQA Guidelines § 15126.6(f) (1))

Since management of water resources in the Chino Basin is an activity that cannot be conducted at another location, this evaluation will not give further consideration to an alternative location for the project. Thus, an alternative location evaluation in this DSEIR is rejected as infeasible and unable to meet basic project objectives, i.e., the objective of managing the Chino Basin groundwater resources in a manner to meet future water supply and water quality demands/requirements within the Basin. A project outside of the Chino Basin can not achieve this fundamental objective.

One of the alternatives that must be evaluated in an EIR is the “no project alternative,” regardless of whether it is a feasible alternative to the Project, i.e. would meet the project objectives or requirements. Under this alternative, the environmental impacts that would occur if the Peace II Agreement programs are not implemented are evaluated. However, under a no project alternative, water management activities in the Chino Basin do not go away. By default, the Chino Basin stakeholders would continue to implement the “Baseline Alternative” as defined in the Project Description and in the subchapter on Hydrology and Water Quality (Subchapter 4.3). The “Baseline Alternative” represents the “business as usual” approach to water resources management in the Basin. This alternative represents the continuation of OBMP programs under the approved Peace I Agreement (Optimum Basin Management Program, OBMP), which includes the installation of water infrastructure on an as-needed basis to meet the Peace 1 Agreement programs outlined in the OBMP, without installing those facilities required to achieve Peace II re-operation programs.

Therefore, the only alternative considered in this chapter is the “No Project-Baseline Alternative”. The following evaluation will also include identification of an environmentally superior alternative as required by the State CEQA Guidelines.

5.2 NO PROJECT / BASELINE ALTERNATIVE

A summary comparative discussion of the no project alternative in terms of the specific issues evaluated in this DSEIR (air quality, biological resources, geology (subsidence liquefaction), hydrology and water quality, land use (habitat conservation plans), and utilities/service systems (adequacy of water supply) follows.

Air Quality: The only unavoidable significant adverse impacts identified in the DSEIR from implementing the Peace II Agreement are related to construction, operational and cumulative air emissions. Potential significant construction emissions can only occur if several water infrastructure facilities are under construction at the same time. Obviously, by implementing only a single project at one time, significant construction emissions can be avoided. However, funding typically does not become available in a nice sequence. Instead, it arrives from a variety of sources, federal, state and local, and much of the funding must be used within a specified time frame. Based on this circumstance, an alternative that would limit the construction of new facilities would not meet project objectives and is rejected on that basis.

The same level of potential construction air quality impact is forecast for the No Project/Baseline Alternative because it must implement most of the same water infrastructure facilities to meet this alternative’s water resource management objectives. Similarly, the OBMP PEIR forecast this alternative’s operations would require a comparable amount of electricity that would cause substantial air emissions. IEUA and other Peace II Agreement stakeholders in the Chino Basin are installing alternative (non-fossil fuel energy generation systems) power generating systems (primarily solar photovoltaic systems), but the potential to fully offset electricity generation emissions can only be accomplished at a very large scale. Thus, this DSEIR concluded that proposed program energy consumption activities cannot be fully offset under either the Peace II or No Project/Baseline alternatives and the appropriate conclusion for the time being is that energy consumption-related air emissions during operations are considered to be a potentially significant unavoidable adverse impact. Based on this evaluation, the No Project/Baseline Alternative does not result in a substantial reduction in air pollutant emissions, and can not reduce air emissions to a less than significant adverse impact level.

Biological Resources: The No Project/Baseline Alternative will have the same general biological resource impacts. However, because this alternative will not achieve hydraulic control, the water table impacts in Prado Basin will be less than forecast for the Peace II Alternative. However, since the change in depth to the water table is less than significant under the Peace II Alternative, the benefit to biological resources is not substantial. Other impacts related to future water management infrastructure development is approximately the same under both alternatives, and when mitigation is implemented, primarily avoidance of biologically sensitive areas or compensation for impact to sensitive biological resources, the two alternatives are equivalent. Regarding consistency with the Western Riverside County MSHCP (land use/conformity with habitat conservation plans), the Chino Basin stakeholders have committed to achieving conformity with MSHCP policies for future Peace II Agreement projects , and there is no difference in effect on this habitat conservation plan.

A potential indirect biological resource effect of the No Project/Baseline Alternative is associated with the possible elimination of use of recycled water within the Chino Basin (see Hydrology and Water Quality discussion below). Without hydraulic control, which can not be achieved under this alternative, more treated effluent may have to be discharged to the Prado Basin. With greater volumes of effluent flow into the Prado Basin, habitat type conversion could occur where riparian vegetation in certain areas would die due to inundation and be replaced by aquatic habitat. This potential adverse impact was intended to be offset by reuse of recycled water. Without such use, this potential indirect biological resource impact could be considered to be a significant adverse effect on its own. Under this evaluation and set of assumptions the No Project/Baseline Alternative could have greater impacts on biological resources than the proposed project, the Peace II Agreement Alternative.

Geology: The hydrology modeling demonstrates that neither the proposed project alternative nor the No Project/Baseline Alternative will contribute to areawide liquefaction or cause substantial subsidence. Both alternatives would have comparable less than significant impact on geology constraints within the Chino Basin.

Hydrology and Water Quality: It is under this environmental issue where the two project alternatives, Peace II Agreement Alternative and No Project/Baseline Alternative, diverge in their potential environmental impacts. Specifically, hydraulic control of the Chino Basin (control of rising groundwater contributing high TDS water to the Santa Ana River flowing into Orange County) can be achieved with the Peace II alternative, but can not be achieved under the No Project/Baseline alternative. Since the completion of the desalters is envisioned under both alternatives, the net difference between the two alternatives is the implementation of the Re-operation program under Peace II.

As described in the project description and in Section 4.3 (Hydrology and Water Quality), hydraulic control is critical for two reasons. First, it supports the current Regional Board Basin Plan water quality objective of “maximum benefit.” Without hydraulic control the “maximum benefit” objective could be eliminated which could have dramatic effects on water management, potentially instituting severe restrictions on use of imported water (under specific circumstances) and possibly eliminating the use of recycled water within the Basin. This could severely constrain future water supplies for the Basin and could continue adverse water quality impacts downstream from Prado Dam. As a consequence of these circumstances, the No Project/Baseline Alternative has the potential to cause a significant adverse hydrology and water quality and utility water supply impact on the Chino Basin. The only identified potential mitigation available to offset this adverse impact would be to implement the Peace II Agreement and related re-operation programs.

Regarding flood hazards and contribution thereof, both projects have essentially the same level of impact and mitigation is required to control such impacts from these two alternatives to a less than significant adverse impact.

Finally, under the No Project/Baseline scenario, the ability to attain the goals and objectives as described under Chapter 3, Project Description, in this PEIR would be virtually eliminated. The stakeholders in the Basin would be disabled in their attempt to collectively correct and mitigate conditions of water quality impairment and reduced water supplies (safe yield, and possibly recharge of recycled water in the upper portion of the Chino Basin) to meet their build out development needs.

In the final analysis, the no project alternative clearly cannot be considered the environmentally superior alternative to the proposed project from a total environmental standpoint, because the environmental damage from implementing this alternative is forecast to cause substantially more significant adverse impacts than implementing Peace II Agreement.

5.3 CONCLUSION

The only alternative to the proposed project would be feasible but, as discussed above, it would not meet the fundamental goal outlined in the Peace II Agreement, hydraulic control. The No Project/Baseline Alternative has comparable environmental impacts for all of the resource issues, except for those related to hydrology/water quality and indirect biological resources impacts. For the latter two issues, the No Project/Baseline Alternative is forecast to have significant unavoidable adverse impacts. Further, this alternative will not eliminate the single significant impact identified in this DSEIR, air quality (construction, operations, and cumulative). Based on the findings in this alternative evaluation, the Peace II Agreement Alternative is the environmentally superior alternative.

CHAPTER 6 – TOPICAL ISSUES

6.1 GROWTH INDUCEMENT

CEQA requires a discussion of the ways in which a project could be growth-inducing. (Pub. Resources Code, § 21100, subd. (b)(5); CEQA Guidelines, §§ 15126, subd. (d), 15126.2, subd. (d)). The CEQA Guidelines identify a project as growth-inducing if it would foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. New employees from commercial or industrial development and new population from residential development represent direct forms of growth. These direct forms of growth have a secondary effect of expanding the size of local markets and inducing additional economic activity in an area. Under CEQA, growth inducement is not considered necessarily detrimental, beneficial, or of little significance to the environment. (CEQA Guidelines § 15126.2, subd. (d)).

A project could indirectly induce growth by reducing or removing barriers to growth, or by creating a condition that attracts additional population or new economic activity. However, a project's potential to induce growth does not automatically result in growth. Growth can only happen through capital investment in new economic opportunities by the private or public sectors. Development pressures are a result of economic investment in a particular locality. The current recession in southern California is a good example of how indirect growth inducement occurs. Without the increase in demand for services and utilities growth demand stops and these service and utility infrastructure systems do not have to grow to meet new demand. In fact, as a result of the current recession, many services and utilities have experienced a reduction in demand for water resources. These pressures help to structure the local politics of growth and the local jurisdiction's posture on growth management and land use policy. The land use policies of local municipalities and counties regulate growth at the local level, not the actions and policies of utility agencies, such as the water providers in the Chino Basin.

Growth inducement may also occur if a project provides infrastructure or service capacity that accommodates growth beyond the levels currently permitted by local or regional land use plans in policies. This type of induced growth leads to conversion of adjacent acreage to higher intensity uses, either unexpectedly or through accelerated development. This conversion occurs because the adjacent land becomes more suitable for development and, hence, more valuable because of the availability of the new infrastructure.

6.1.1 Direct Growth-Inducing Effects

The Peace II Agreement programs propose broad management actions to implement a coherent program for meeting water supply requirements, ultimately for the maximum population that will inhabit the cities and communities in the Chino Basin. These programs do not propose creation of housing, industrial facilities or commercial facilities that could directly induce growth in the region. Also, the Peace II Agreement program or future projects do not include the creation of a substantial number of new jobs.

The Project would result in the installation of a variety of new facilities and a modification to overall operation of the Chino Basin water community to achieve specific management goals. It is anticipated that short-term construction activities would be met from existing construction companies in the community, which have downsized as a result of the recession. Based on the rate of future Peace II program implementation and the availability of construction companies and workers, no new growth is forecast to be induced. The continued and expanded operations and efforts envisioned by the Peace II program will not generate a substantial increase in employment or induce substantial growth. Based on the foregoing analysis and findings, the future Peace II Agreement projects will not directly result in any significant population growth, and would not result in population growth for the Chino Basin cities and communities beyond that reflected in adopted SCAG and General Plan growth projections.

6.1.2 Indirect Growth-Inducing Effects

The Peace II Agreement will not cause or contribute to non-project-related "leap frog" or "premature" development because the purpose of the program is to provide an overall management strategy, tied to specific facilities and management actions, that will provide the Chino Basin with "*a groundwater management program that enhances the safe yield and the water quality of the Basin, enabling all groundwater users to produce water from the Basin in a cost-effective manner."* (Page 3-1, OBMP). As noted above, it does not generate a large number of new jobs. It will result in more infrastructure construction within the Chino Basin, but due to the current recession and attendant high unemployment rate, no significant influx of new construction workers is forecast to occur in the project area. The indirect effect of implementing the Peace II programs and future site specific project is not forecast to cause substantial indirect growth inducing effects.

The position taken in this document is that the utility planning process is more appropriately playing a passive (accommodating) role, not an active (inducing) role, in future growth that is dictated by local land use plans and the continuing growth of population throughout southern California. If communities within the project area chose to restrict growth and maintain a certain vision of the future as a static or slowly growing entity, the land use planning agencies (cities and counties) had the opportunity during the general planning process to establish such plans. Under such circumstances, the water utilities would have designed their future service plans to accommodate a level of future growth consistent with available resources.

In reality, however, the water supply agencies, acting as responsible water planning agencies, must plan for a level of future growth that appears to match available water resources with forecast growth through the 2030 planning horizon. At present the domestic water agency water supply plans rely to a large extent on water importation. Initially the OBMP, and now the Peace II Agreement, provides an alternative water management program for the Chino Basin that has and will continue to reduce reliance on imported water (recycled water, desalter programs, groundwater recharge programs, etc.). Implementation of the Peace II programs still allow the water supply agencies to accommodate growth as envisioned in the applicable area general plans. Based on this analysis, implementation of the Peace II Agreement program is not considered to be a significant growth inducing action.

6.2 CUMULATIVE IMPACTS

The following text summarizes the cumulative impact analysis provided in Chapter 4. The intent of a cumulative impact evaluation is to provide the public and decision-makers with an understanding of a given project's contributions to area-wide or community environmental impacts when added to other or all development proposed in an area. The state CEQA Guidelines provide two alternative methods for making cumulative impact forecasts: (1) a list of past, present and reasonably anticipated projects in the project area, or (2) the broad growth impact forecast contained in general or regional plans. Because of the planning character of this project, it will be evaluated in the context of adopted General Plans. From water planning perspective, the original OBMP (Peace I Agreement) and the Peace II Agreement represent a cumulative, or carrying capacity, evaluation of water resources in the Chino Basin. Thus, the analysis of Chino Basin water resources contained in this document represents a cumulative analysis of this resource. No other projects were identified within the project area or vicinity that would contribute to cumulative impacts or cumulative demand for local water infrastructure.

The cumulative impacts of implementing the proposed project are outlined in Chapter 4 for each environmental issue. The DSEIR concluded that no significant adverse impact, including cumulative effects, would result from implementing the Peace II Agreement for a number of issues. These include: aesthetics, agriculture, cultural resources, geology and soils (excluding subsidence and liquefaction), hazards, land use, mineral resources, noise, population/housing, public services, recreation, transportation/traffic, and most utilities. As noted, these issues were found to have a less than significant impact and are addressed in Appendix 1 to this document.

For the remaining issues, air quality, biology, geology/soils (liquefaction and subsidence), hydrology/water quality, and utility service systems (water supply), the following summary of cumulative effects is provided. The reader should also refer to the text for each issue in Chapter 4 for more information.

6.2.1 Air Quality

Implementation of the Peace II Agreement will contribute pollutants to the SoCAB from construction and operation of the proposed facilities. The facilities are designed to implement the elements of the program required to achieve hydraulic control and re-operation of the Chino Basin, as well as continue implementation of the overall OBMP programs. An updated analysis to cumulative air emissions from implementing the proposed project was compiled as part of performing a federal conformity analysis for the projects. Based on the implementation assumptions, site specific emissions for individual projects, such as wells, pipelines, reservoirs, etc., were found to generate less than significant air pollutant emissions. Similarly, the operational emissions for future facilities in support of the Peace II Agreement facilities were found to be less than significant. However, if several projects are under construction concurrently, the air pollution modeling analysis indicates that cumulative emissions may exceed the SCAQMD CEQA thresholds of significance. The same conclusion was reached for future Peace II-related operating air emissions, i.e., a potential exists for cumulatively considerable air emissions. Regardless of the potential for daily significant thresholds to be cumulatively significant, the overall project was found to be consistent with the federal conformity requirements. Overall, a finding of cumulative significant impact has been made for the air quality issue.

6.2.2 Hydrology & Water Quality

The proposed project consists of the Peace II Agreement program to implement hydraulic control and re-operation of the Chino Basin as defined in Chapter 2. The SEIR also represents an update of all the programs being implemented under the OBMP since 2000. One specific objective of Peace II programs is to meet the current “maximum benefit” water quality objective for the Chino Basin established by the Santa Ana Regional Water Quality Control Board (Region #8). The model analysis for cumulative water production over the 20-year planning period, based on the assumptions incorporated into the model, indicates the following: no cumulatively considerable adverse impacts will affect the following hydrology and water quality issues: water supply, water quality, and flood hazards (both exposure to and creation of). With respect to evaluation of two geotechnical issues related to groundwater levels, the modeling demonstrated that no cumulatively significant increase in subsidence in the Chino Basin will result from implementing the Basin-wide Peace II program. Also, the model data indicate that no substantial rise in the groundwater table will occur within the Basin, so no increase in exposure to potential cumulatively considerable liquefaction hazards will result from implementing Peace II programs. Thus, based on the analysis in this SEIR, no cumulatively significant/considerable adverse hydrology or water quality impacts are forecast due to the proposed project.

6.2.3 Biology Resources

There are substantial biological resource values within the planning area. However, the investigations determined that most new facilities (tier 2, site specific projects) required to implement the Peace II Agreement program will be located within existing developed settings where no potential for impact to biological resources can occur. For those future facility locations with native biological resources (such as stream channel crossings by future pipelines), mitigation was identified to reduce or compensate for potential biological resource effects. No cumulatively considerable effects due to loss of habitat or impact to sensitive species is forecast to occur based on the ability to avoid, reduce or compensate for future projects proposed for sensitive biological resource locations. Finally, a cumulative model analysis of future groundwater production within the Chino Basin indicates that future changes in groundwater levels are not forecast to cause a cumulative adverse impact to the riparian-wetland resources of Prado Basin. Thus, in total the Peace II Agreement program is not predicted to cause any cumulatively considerable biology resource impacts.

6.3 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

The CEQA Guidelines §§ 15126, subd.(c), 15126.2 subd.(c), 15127, require that for certain types or categories of project, an EIR must address significant irreversible environmental changes that would occur should the Project be implemented. As presented at Guidelines § 15127, the topic of Significant Irreversible Environmental Changes need be addressed in EIRs prepared in connection with any of the following activities:

(a) The adoption, amendment, or enactment of a plan, policy, or ordinance or a public agency;

(b) The adoption by a local agency formation commission of a resolution making determinations; or

(c) A project which will be subject to the requirements for preparing of an environmental impact statement pursuant to the requirements of the National Environmental Policy Act of 1969, 42 U.S.C. 4321-4347.

The project marginally qualifies under Guidelines § 15127(a) in that the proposed action consists of a modification to the OBMP/Peace I Agreement for the Chino Basin. As such, it was concluded that this DSEIR analysis must address any significant irreversible environmental changes that would be involved in the proposed project should it be implemented (CEQA Guidelines, Sections 15126(e) and 15127). An impact would fall into this category if:

- The project would involve a large commitment of nonrenewable resources;
- The primary and secondary impacts of the project would generally commit future generations to similar uses;
- A project involves uses in which irreversible damage could result from any potential environmental incidents associated with the project; or
- The proposed consumption of resources is not justified (e.g., the project results in wasteful use of energy).

Determining whether implementation of the proposed Peace II Agreement may result in significant irreversible effects requires a determination of whether key resources would be degraded or destroyed in such a way that there would be little possibility of recovering or restoring them for continued use. No such degradation or destruction of resources is anticipated as a result of the proposed project. While the Peace II project will consume resources (energy, steel, concrete, etc) none of the activities are forecast to cause a significant, permanent commitment of resources from project implementation. As noted, various natural resources, in the form of construction materials and energy resources will be utilized in the construction of the program facilities, and energy resources, in the form of electricity and gas, will be used during the long-term operations of the proposed project; however, their use is not expected to create a permanent and negative impact to the long-term availability of these resources. Since air quality is the only project-related significant impact and air quality is renewable in the short-term, this issue is not considered to be a significant irreversible environmental change.

If the Peace II Agreement programs are effectively implemented, the following irreversible and/or environmental changes would be involved:

a. The construction, installation and maintenance of pipelines, new wells, pump stations, desalter units, storage facilities and water treatment facilities and other public facilities, as proposed in the Peace II program, will involve the irreversible consumption of natural resources in the form of construction materials, water, and energy sources. Money and manpower will be expended to develop and maintain the facilities.

b. The development of individual properties in accordance with land uses designated in the Peace II program will, for all intents and purposes, eliminate the possibility of development of the land for other uses.

c. A commitment of economic and manpower resources will be required for the long-term implementation of the program.

d. Building materials, including forest and mineral products, will be permanently committed in construction projects related to the long-term implementation of the proposed program.

e. Expenditures of money, manpower, and materials will be made to maintain adequate levels of public service to the greater community while those services are undergoing disruption and modification within the proposed project area.

All other potential adverse impacts from implementing the proposed project are reversible. Air emissions and water resources and water quality can be changed by both humans and nature over time by cleaning air and water and by reducing or providing alternative sources of water. In fact, the proposed project includes a key element designed to clean groundwater contamination in the Chino Basin. Soils and geologic resources will be modified but can be modified in the future to suit different purposes. As long as the proposed project does not contribute to the loss of any endangered plant or animal species, biological resources can be maintained or enhanced with sufficient resources.

Land uses and population growth can be considered irreversible on the short term, but the growth forecast for these two issues is not considered to be attributable to the proposed project. Thus, through the incorporation of recommended mitigation measures together with the implementation of the Peace II Agreement, no significant irreversible environmental changes will be caused within the project area that can be attributable to the proposed project, and implementation of the extensive suite of mitigation measures in this document will insure that all irreversible environmental impacts, as identified above and described within Chapter 4 of this PEIR, will not rise to a level of significance or can be adequately mitigated to a level of insignificance.

6.4 SIGNIFICANT UNAVOIDABLE ENVIRONMENTAL IMPACTS

The CEQA Guidelines §§ 15126.2, subd. (b) require that an EIR describe significant impacts where the impacts cannot be alleviated without making it infeasible to achieve project objectives. This SEIR has identified only two potential unavoidable significant adverse impacts from implementing the Peace II Agreement: construction air quality and operational air quality.

6.4.1 <u>Air Quality</u>

6.4.1.1 Construction

On a project by project basis, the emissions during construction will not rise to a level of significance based on any of the SCAQMD criteria, federal conformity, or other thresholds of significance. However, if it is assumed that stakeholders in the Chino Basin were to receive a large amount of funding to build Peace II facilities all at once, significant cumulative air pollution emissions could be generated. Therefore, for construction (short-term) air quality activities a finding of a potential unavoidable significant adverse impact was reached in this DSEIR.

6.4.1.2 Operations

Operational emissions (primarily the large number of electricity consuming pieces of equipment, such as wells and pump stations) are forecast to exceed the SCAQMD thresholds of significance, even after all available mitigation has been applied. Long-term operational emissions of NOx cannot be reduced to a less than significant impact level and will exceed the regional thresholds of significance. Accordingly, this impact is also concluded to be significant and unavoidable. However, as alternative energy generation sources in the future supplant fossil-fuel electricity generation plants, including some local electricity sources that may be implemented by local water agencies, it may be possible to revisit this impact finding.

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CHAPTER 7 – PREPARATION RESOURCES

7.1 REPORT PREPARATION

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CHAPTER 8 – APPENDICES

8.1 NOTICE OF PREPARATION / INITIAL STUDY

8.2 NOP MAILING LIST / NOP COMMENT LETTERS

SECTION 8.1

NOTICE OF PREPARATION / INITIAL STUDY

Inland Empire Utilities Agency
A MUNICIPAL WATER DISTRICT

6075 Kimball Ave, • Chino, CA 91708
P.O. Box 9020 • Chino, Hills, CA 91709
TEL (909) 993-1600 • FAX (909) 597-8875
www.ieua.org

MEMORANDUM

February 23, 2009

FROM: Inland Empire Utilities Agency

TO: Responsible and Trustee Agencies/Interested Organizations and Individuals

RE: **Notice of Preparation of A Subsequent Environmental Impact Report to Address Implementation of Inland Empire Utilities Agency Wastewater, Peace II Project**

The Inland Empire Utilities Agency (IEUA) will serve as the Lead Agency under the California Environmental Quality Act (CEQA) and will coordinate the preparation of a focused Subsequent Environmental Impact Report (SEIR) that will evaluate the potential significant environmental impacts that may result from implementing the Peace II Agreement, including Re-Operation and hydraulic control, within its service area. The SEIR would also serve to update the Optimum Basin Management Program Program Environmental Impact Report (OBMP PEIR) that was certified by IEUA in 2000. An Initial Study has been prepared for the proposed project which identifies the potentially significant environmental impacts of the project. Those issues identified with a potential to cause or experience significant impact are as follows: air quality, biological resources, geology and soils, hydrology and water quality, land use and planning and utilities and service systems.

The IEUA will serve as the Lead Agency for this document, based on agreement among the Peace II stakeholders. This transmittal constitutes a Notice of Preparation (NOP) for the proposed SEIR and serves as a request for environmental information that you or your organization believe should be addressed in the proposed environmental document. A detailed Initial Study with substantiation is attached for review to assist you in providing comments on the scope of the SEIR. In addition to any general comments, please be sure to address the scope and content of environmental information or issues that relate to your agency's statutory responsibilities in connection with the proposed project. A scoping meeting will be conducted for this project on March 11, 2009. This meeting will be held in the IEUA Board Room from 6:00 p.m. to 7:30 p.m.

Comment Period: Based on the time limits defined by CEQA, your response should be sent at the earliest possible date, but no later than 30 days from receipt of this notice. All comments and any questions should be directed to:

Inland Empire Utilities Agency
Mr. Richard Atwater, General Manager
6075 Kimball Avenue
Chino, California 91708

Fifty-Five Years of Excellence in Water Resources & Quality Management

Project Location: The Peace II Agreement incorporates activities outlined in the Optimum Basin Management Program (OBMP) designed to insure continued adequacy of water quality and water supply within the Chino Basin, encompassing wastewater, recycled water and organic material management facilities, structures, wells, pipelines, recharge basins and pumps throughout the Chino Basin. The Chino Basin is a major subbasin in the upper Santa Ana River watershed located primarily within western San Bernardino County with smaller portions within western Riverside and Los Angeles counties. The Basin extends from the base of the San Gabriel Mountains on the north to the Prado Basin on the south and the City Chino Hills on the west and Fontana on the east. No specific new individual facilities have been identified at this time. (Please refer to the maps in the attached Initial Study Project Description.)

The purpose of this Notice of Preparation, project description and the Initial Study, which contains a discussion of potential environmental effects, is summarized below for use in focusing you or your agencies comments for consideration in the SEIR.

Purpose of the Notice of Preparation: The purpose of this NOP is to fulfill legal notification requirements, and inform the public and CEQA Responsible and Trustee Agencies that an EIR will be prepared, in this case a Subsequent EIR. This NOP solicits agency and interested party concerns regarding the potential environmental effects of implementing the proposed commercial project at the project location. CEQA encourages early consultation with private persons and organizations that may have information or may be concerned with any potential adverse environmental effects related to physical changes in the environment that may be caused by implementing the project. Responses to the NOP that specifically focus on potentially significant environmental issues are of particular interest to the IEUA.

All written responses to this NOP will be included in the appendices to the SEIR. The content of the responses will help guide the focus the scope of the SEIR in accordance with State CEQA Guidelines.

Please refer to the detailed project description attached as part of the Initial Study for this proposed project. Each element of this project is outlined in detail and graphics are attached to the Initial Study to assist the reviewer in understanding the potential impacts addressed in the Environmental Checklist Form.

I. NOP PROJECT DESCRIPTION

The IEUA supplies imported water, provides industrial/municipal wastewater collection and treatment and other related utility services for the western portion of the Santa Ana River watershed in southwestern-most portion of San Bernardino County Current services provided by IEUA also include: production of recycled water; sewage collection and treatment; distribution of imported and recycled water supplies; co-composting of manure and municipal biosolids; desalinization of groundwater supplies; and disposal of non-reclaimable industrial wastewater and brine.

The OBMP was approved by the IEUA, Chino Basin Watermaster and various other stake-holders in July 2000. The OBMP addressed long-term water quality and water supply issues in the Chino Groundwater Basin and provided a framework for developing a cooperative ground-water management program among agencies, which use, manage or regulate water resources in the Basin. The OBMP consisted of recommended studies, programs and facilities to further the objective of developing cost-effective, reliable, potable water supplies for the long-term while enhancing and protecting the yield and quality of the Basin groundwater aquifers and downstream uses.

While the OBMP is currently being implemented, the OBMP PEIR is now nine years old and determining consistency of specific projects with the PEIR in accordance with Section 15162 and 15163 of the State CEQA Guidelines has become more difficult to achieve. Thus, IEUA, the Chino Basin Watermaster and stakeholders have made a decision to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original Peace Agreement, which enabled the implementation of the OBMP, termed the "Peace II Agreement." The Peace II Agreement was approved by the Court on December 21, 2007 and it redefines the future programs and actions required to implement the OBMP, based on the past nine years of experience and accomplishments in implementing the OBMP.

The following is a brief description of the activities proposed by the Peace II Agreement being evaluated in the SEIR.

Watermaster and the parties to the Judgment have been working to develop changes to the original Peace Agreement that, among other things, provide for Re-Operation and the attainment of hydraulic control. "Hydraulic control" is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. "Re-Operation" means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030. Both of these objectives would be achieved through expansion of the desalter program.

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin.

Expansion of the desalter program would be accomplished with the installation and operation of a new well field, referred to as the Chino Creek Well Field (CCWF). The actual capacity of the CCWF will be determined during the design of the well field, but the available groundwater data estimates the capacity of this well field could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. Groundwater produced at the CCWF will be conveyed to Desalter I. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The volume of groundwater pumped at existing Desalter I wells 13, 14, and 15 and conveyed to Desalter I will be reduced to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting to Desalter I wells 13, 14, and 15.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District ("JCSD"), the City of Ontario, and/or Western Municipal Water District ("WMWD") through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are unknown at this time.

The operation and possible expansion of storage and recovery programs (Dry Year Yield Programs), if not sensitive to the needs of hydraulic control, could cause groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The proposed project will be analyzed with various levels of storage programs up to 150,000 acre-ft, utilizing various storage and recovery strategies. Storage program operating strategies will be developed to assure hydraulic control.

In addition to those issues discussed above, a number of circumstances in the Basin have changed since the original OBMP evaluation that contributed to the determination to evaluate some of the affects on the environment of the proposed project in an SEIR. These circumstances include changes in the regulatory framework or regulatory requirements (water quality, air quality, and biological resources), changes in the required and available recharge capacity (hydrology) and changes in the reliability of State Project water (hydrology). The potential for the Peace II Agreement to adversely impact the environment in light of these changed circumstances will be analyzed herein.

Thank you in advance for any comments you may submit in response to this NOP. For agencies, please include the name of a contact person in your agency if you submit comments. If you have any questions, please contact Mr. Ryan Shaw at (909) 993-1600.

Richard W. Atwater/MD

Mr. Richard Atwater
Chief Executive Officer
General Manager

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 — 916/445-0613

SCH #

Project Title: Peace II Project, Chino Groundwater Basin
Lead Agency: Inland Empire Utilities Agency
Contact Person: Ryan Shaw
Mailing Address: P.O. Box 9020
Phone: 909-993-1600
City: Chino Hills Zip: 91709
County: San Bernardino

Project Location: County: San Bernardino
City/Nearest Community: several
Cross Streets: N/A
Zip Code: N/A
Lat. / Long.: 34° 04' 03" / 117° 32' 41"
Total Acres: N/A
Assessor's Parcel No: N/A
Sections: N/A Twp: N/A Range: N/A Base: SBM
Within 2 miles: State Hwy #: 60, I-15, I-10
Waterways: several: Chino, Cucamonga, San Sevaine
Airports: Ontario / Chino
Railways: UP and BNSF
Schools: several

Document Type:

CEQA:
- ■ NOP
- □ Early Cons
- □ Neg Dec
- □ Mit Neg Dec
- □ Draft EIR
- ■ Supplement/Subsequent EIR
- (Prior SCH No.) #2000041047
- Other

NEPA:
- □ NOI
- □ EA
- □ Draft EIS
- □ FONSI

Other:
- □ Joint Document
- □ Final Document
- □ Other

Local Action Type:
- □ General Plan Update
- □ General Plan Amendment
- □ General Plan Element
- □ Community Plan
- □ Specific Plan
- □ Master Plan
- □ Planned Unit Development
- □ Site Plan
- □ Rezone
- □ Prezone
- □ Use Permit
- □ Land Division (Subdivision, etc.)
- □ Annexation
- □ Redevelopment
- □ Coastal Permit
- ■ Other: Water Mgmt. Plan

Development Type:
- □ Residential: Units ___ Acres ___
- □ Office: *Sq.ft.* ___ *Acres* ___ *Employees* ___
- □ Commercial: *Sq.ft.* ___ *Acres* ___ *Employees* ___
- □ Industrial: *Sq.ft.* ___ *Acres* ___ *Employees* ___
- □ Education ___
- □ Recreational ___
- ■ Water Facilities: *Type* ___ *MGD* ___
- □ Transportation: *Type* ___
- □ Mining: *Mineral* ___
- □ Power: *Type* ___ *Watts* ___
- □ Waste Treatment: *Type* ___ *MGD* ___
- □ Hazardous Waste: *Type* ___
- ■ Other: Water Management Plan

Project Issues Discussed in Document:
- ■ Aesthetics / Visual
- ■ Agricultural Land
- ■ Air Quality
- ■ Archaeological / Historical
- ■ Biological Resources
- □ Coastal Zone
- ■ Drainage / Absorption
- □ Economic / Jobs
- □ Other ___
- □ Fiscal
- ■ Floodplain / Flooding
- ■ Forest Land / Fire Hazard
- ■ Geologic / Seismic
- ■ Minerals
- ■ Noise
- ■ Population / Housing Balance
- ■ Public Services / Facilities
- ■ Recreation / Parks
- □ Schools / Universities
- □ Septic Systems
- □ Sewer Capacity
- ■ Soil Erosion / Compaction / Grading
- ■ Solid Waste
- ■ Toxic / Hazards
- ■ Traffic / Circulation
- ■ Vegetation
- ■ Water Quality
- ■ Water Supply / Groundwater
- ■ Wetland/Riparian
- ■ Wildlife
- ■ Growth Inducing
- ■ Land Use
- □ Cumulative Effects

Present Land Use / Zoning
General Plan Designation: Various

Project Description: The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin. Through Re-Operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft of groundwater to off-set desalter replenishment through 2030. A new well field, referred to as the Chino Creek Well Field, will be installed and operated. The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines.

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".

X	Air Resources Board	X	Office of Historic Preservation
	Boating / Waterways, Department of		Office of Public School Construction
	California Highway Patrol		Parks & Recreation
X	Caltrans District # 8		Pesticide Regulation, Department of
	Caltrans Division of Aeronautics		Public Utilities Commission
	Caltrans Planning (Headquarters)		Reclamation Board
	Coachella Valley Mountain Conservancy	X	Regional WQCB, # 8
	Coastal Commission		Resources Agency
	Colorado River Board		S.F. Bay Conservation & Development Commission
	Conservation, Department of		San Gabriel & Lower L.A. Rivers & Mtns Conservancy
	Corrections, Department of		San Joaquin River Conservancy
	Delta Protection Commission		Santa Monica Mountains Conservancy
	Education, Department of		State Lands Commission
	Energy Commission		SWRCB: Clean Water Grants
X	Fish & Game, Region # 6	X	SWRCB: Water Quality
	Food & Agriculture, Department of		SWRCB: Water Rights
	Forestry & Fire Protection		Tahoe Regional Planning Agency
	General Services, Department of	X	Toxic Substances Control, Department of
X	Health Services, Department of		Water Resources, Department of
	Housing & Community Development		Other
	Integrated Waste Management Board		Other
X	Native American Heritage Commission		
	Office of Emergency Services		

Local Public Review Period (to be filled in by lead agency)

Starting Date February 24, 2009 Ending Date March 25, 2009

Lead Agency (complete if applicable)

Consulting Firm: Tom Dodson &Associates
Address: 2150 N. Arrowhead Avenue
City/State/Zip: San Bernardino, CA 92405
Contact: Tom Dodson
Phone: (909) 882-3612

Applicant: Inland Empire Utilities Agency
Address: 6075 Kimball Avenue
City/State/Zip: Chino, CA 91708
Contact: Ryan Shaw
Phone: (909) 993-1600

Signature of Lead Agency Representative: Richard W. Atwater /MD

Date: February 20, 2009

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

INITIAL STUDY

FOR

INLAND EMPIRE UTILITIES AGENCY'S PEACE II PROJECT

Prepared for:

Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, California 91710

Prepared by:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, California 92405

February 2009

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DRAFT PROJECT DESCRIPTION PEACE II AGREEMENT AND OBMP UPDATE

A. INTRODUCTION

In July 2000, the Inland Empire Utilities Agency (IEUA or Agency) certified a Program Environmental Impact Report (PEIR) for the Optimum Basin Management Program (OBMP). The OBMP addresses water quality and water supply issues in the Chino Groundwater Basin (Basin) and provides a framework for developing a cooperative groundwater management program among agencies which use, manage or regulate water resources in the Basin. The OBMP consists of recommended studies, programs and facilities to further the objective of developing cost-effective, local, reliable potable water supplies while enhancing and protecting the yield and quality of the Basin groundwater aquifers and downstream uses. A detailed discussion of OBMP program goals and accomplishments over the past eight years of implementation is provided in this project description beginning on page 10.

The PEIR provided a baseline and cumulative environmental evaluation and determination for the activities permitted under the OBMP. It is important to note that the OBMP is an integrated program which collectively relies upon implementation of all of the programs to achieve the Program's objectives. For example, proposed groundwater extraction and treatment activities in the southern portion of the Basin must be balanced by recharge activities in the upper portions of the Basin. This balance is required to ensure that the recharge of imported water and recycled water in the Basin will be offset over time through gradual removal of salts; that safe yield can be maintained; and that water supply demand can be met for all water consumers within the Basin.

Section 15162 of the State CEQA Guidelines states: *(a) When an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless that lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:*

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or Negative Declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the Negative Declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or Negative Declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternatives; or

(D) Mitigation measures or alternatives previously which are considerably different from hose analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Section 15163 requires a supplement to an EIR in the following circumstances:

(a) The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if;

(1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and

(2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

The OBMP PEIR is now nine years old and determining consistency of specific projects with the PEIR in accordance with Section 15162 and 15163 of the State CEQA Guidelines is now more difficult to achieve. Thus, IEUA, the Chino Basin Watermaster and stakeholders have made a decision to update the OBMP PEIR data base by preparing a new environmental document to address an update of the original Peace Agreement, which enabled the implementation of the OBMP, termed the "Peace II Agreement." The Peace II Agreement (Agreement) was approved by the Court on December 21, 2007 and it redefines the future programs and actions required to implement the OBMP, based on the past nine years of experience and accomplishments in implementing the OBMP. The purpose of this environmental review is to determine the appropriate environmental document to comply with CEQA for the Peace II Agreement. A copy of the Agreement is provided as Appendix 1 to this document.

In order to conduct a review of the Peace II Agreement for consistency with the certified OBMP PEIR, a decision must be made on the appropriate environmental document to prepare and adopt for compliance with CEQA. This can be accomplished by carrying out the following tests. The first test entails an evaluation of the proposed Peace II Agreement activities and facilities with all of the environmental issues addressed in the PEIR. An analysis of each of the environmental issues is presented in this Initial Study which compares the proposed effects from implementing Peace II Agreement programs and activities with the facts and findings of the PEIR.

To facilitate this process, the IEUA hereby incorporates the certified PEIR for the Optimum Basin Management Program (SCH #2000041047, July 12, 2000) as part of this Initial Study. As is permitted by Section 15150 of the State CEQA Guidelines, the PEIR is incorporated by reference into this Initial Study. The required summaries of the pertinent data for all issues are provided in the Initial Study evaluation which follows. Copies of the PEIR are available at the Inland Empire Utilities Agency office at 6075 Kimball Avenue in Chino, California for review upon request.

The second test that may be used to determine whether a revised project, such as the Peace II Agreement, falls within the scope of a certified EIR is to determine whether new circumstances or reassessment of previously identified impacts may result in new significant impacts. As the text in Section 15162(a) indicates, "no subsequent EIR shall be prepared for that project unless that lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:" (Paraphrases of the State CEQA Guidelines follow)

1. Substantial changes in the project that may cause new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

2. Substantial changes occur with respect to the circumstances under which the project is undertaken and which may result in new significant environmental effects or substantial increase in the severity of previously identified significant effects; or

3. New information of substantial importance shows the project will have one or more significant effects not previously discussed. (See specific project description)

These tests will be applied to the Peace II Agreement and a determination made regarding the appropriate CEQA procedure to implement for the proposed project. To comply with CEQA and the CEQA Guidelines, this Initial Study is being prepared to determine if environmental impacts of the Peace II Agreement revisions to the OBMP were encompassed by the impact analyses contained in the PEIR. Based on the evaluation provided in this Initial Study, the CEQA Lead Agency for the Agreement, IEUA, will make one of the following determinations:

- The proposed project's environmental effects were encompassed by the environmental evaluation in the PEIR. No new significant impacts or a substantial increase in the severity of previously identified significant effects beyond those evaluated and mitigated in the PEIR will result from implementing this project. No further environmental review or determination is required.

- The proposed project and associated impacts fall within the scope of impacts identified for the OBMP. However, due to more detailed, project-specific information not available at the time the PEIR was prepared, impacts and mitigation not addressed in that document are identified in the Initial Study. Adequate measures, however, are provided in the Initial Study to mitigate potential impacts to a level of less than significant and a Negative Declaration is the appropriate CEQA determination.

- The project requires some changes and/or additions to clarify impacts under current conditions but none of the current conditions described in Section 15162 calling for the preparation of a subsequent EIR have occurred. Under this circumstance, an Addendum to a previously certified EIR can be prepared and adopted.

- The Initial Study identifies potential impacts that fall outside the impact forecast in the PEIR and since such impact(s) cannot be mitigated below a less than significant level, a subsequent EIR must be prepared.

B. BACKGROUND

The Optimum Basin Management Program (OBMP) focuses on the Chino Groundwater Basin (Chino Basin or the Basin) as shown on the inset in Figure 1. Figure 1 illustrates the boundary of the Chino Groundwater Basin as it is legally defined in the stipulated Judgment in the case of Chino Basin Municipal Water District *vs.* the City of Chino *et al.* Figure 1 also shows the Regional Water Quality Control Board, Santa Ana Region (Regional Board) management zones as established in the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan.) The Chino Basin consists of an alluvial valley that is relatively flat from east to west, sloping from north to south at a one to two percent grade. Basin elevation ranges from about 2,000 feet adjacent to the foothills to about 500 feet near Prado Dam.

1. Location

The Chino Basin is bounded:

- on the north by the San Gabriel mountains and the Cucamonga Basin;
- on the east by the Rialto-Colton Basin, Jurupa Hills and the Pedley Hills;
- on the south by the La Sierra area, the Santa Ana River and the Temescal Basin; and
- on the west by the Chino Hills, Puente Hills, and the Pomona and Claremont Basins.

The principal drainage course for the Basin is the Santa Ana River. It flows 69 miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean. The Santa Ana River enters the Basin at the Riverside Narrows and flows along the southern boundary to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam, from where it flows the remainder of its course to the Pacific Ocean. The Basin is traversed by a series of ephemeral and perennial streams that include: Chino Creek, San Antonio Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Refer to Figure 2. These creeks flow primarily north to south and carry significant natural flows only during, and for a short time after, intermittent storms that typically occur from October through April. IEUA discharges year-round flows of approximately 10 million gallons per day (MGD) to Chino Creek (from Carbon Canyon RWRP) and of approximately 30 MGD to Cucamonga Channel (from RP-1 and RP-4). Year-round flow occurs along the entire reach of the Santa Ana River due to year round surface inflows at Riverside Narrows, discharges from municipal water reclamation facilities that intercept the SAR between the Narrows and Prado Dam, and rising groundwater. Rising groundwater occurs in Chino Creek, in the Santa Ana River at Prado Dam, and potentially at other location on the Santa Ana River, depending on climate and season.

While still considered to be a single Basin, the Chino Groundwater Basin has been divided into five management zones in the OBMP (Management Zones 1 through 5) based upon Basin hydrologic characteristics, and into four Management Zones (Chino North, Chino East, Chino South and the Prado Basin Management Zones) for water quality management purposes in the Basin Plan. Please refer to Figure 1.

The five management zones described in the OBMP are based on the observation of five distinct groundwater flow systems that are characterized by similar hydrologic characteristics, which allow the potential for each region to be individually managed (OBMP Phase I Report, Section 2-3). The water resource management activities that occur in each flow system have little to no impact on the other systems. These management zones are used to characterize the groundwater level, storage, production, and water quality conditions within the Chino Basin. These management zones, in addition to the hydrologic boundary of the Basin itself, are not intended to represent absolute barriers or isolation mechanisms, rather these divisions have been made based on observed flow characteristics and general patterns that can be elucidated from existing groundwater data. The groundwater flow, shown in Figure 3 is the basis from which observations were made to establish the management zone boundaries.

Water in Management Zone 1 flows generally to the south, with some localized flows to the west in response to groundwater production. Sources of water to Management Zone 1 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in spreading basins, and subsurface inflow from the Pomona, Claremont Heights and Cucamonga Basins. Discharge is through groundwater production, and as rising groundwater in Chino Creek and the Santa Ana River.

Water in Management Zone 2 flows generally in a southwesterly direction in the northern half of the zone, and then it flows due south in the southern half of the zone. Sources of water to Management Zone 2 include direct percolation of precipitation, returns from irrigation, recharge of storm flows and imported water in the spreading basins, and subsurface inflow from the part of the Rialto Basin northwest of Barrier J and the Cucamonga Basin. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater in the Prado Reservoir area.

Water in Management Zone 3 flows primarily in a southwesterly direction. Sources of water include direct percolation of precipitation, returns from irrigation, and subsurface inflow from the part of the Rialto Basin southeast of Barrier J. Discharge is mainly through groundwater production and potentially small amounts of rising groundwater in the Prado reservoir area.

Water in Management Zone 4 flows in a westerly direction. Sources of water to Management Zone 4 include direct percolation of precipitation, and returns from irrigation. Discharge is through groundwater production.

Water in Management Zone 5 has sources of water including streambed percolation of the Santa Ana River, direct percolation of precipitation, returns from irrigation and subsurface inflow from the Temescal Basin. Discharge is through groundwater production, consumptive use by phreatophytes and rising groundwater in the Prado Reservoir area, and potentially in other locations along the Santa Ana River, depending on climate and season.

The Chino Groundwater Basin is one of the largest groundwater basins in southern California, containing a capacity of about 5,000,000 acre-feet (acre-ft) for water storage, with an additional, unused storage capacity of about 1,000,000 acre-ft (Department of Water Resources Bulletin 118, “California Groundwater Basins”). More recent data published by Wildermuth Environmental, Inc. (WEI) indicates that storage capacity of the Basin may by 6,000,000 acre-ft, based on the Basin being deeper in the west that previously believed. Cities and other water supply entities produce groundwater for all or part of their municipal and industrial supplies from the Chino Basin. Agricultural users also produce groundwater from the Basin, but irrigated agriculture has declined substantially in recent years and is projected to be only 5,000 to 10,000 acre-ft per year by 2020.

2. Background Project Characteristics

In order to ensure a continuing water supply for the long-term beneficial use of all Watermaster stakeholders, an OBMP consisting of two phases was developed for implementation. Phase I of the OBMP consisted of defining the state of the Chino Groundwater Basin, establishing goals concerning major issues identified by stakeholders, and affirming a management plan for the achievement of said goals. Phase I also provided a process that facilitated periodic reviews, public comments, and necessary updates.

Section 2 of the OBMP Phase I Report included the identification of the physical state of the Chino Groundwater Basin, the predicted future water demands, and the determination of problematic issues associated with the management of the Chino Groundwater Basin.

Section 3 of the OBMP Phase I Report established the goals of the OBMP. A mission statement combined with a listing of values, issues, needs and interests deemed important by parties was also contained within this section of the OBMP. The mission statement for the OBMP is as follows:

> *The purpose of the Optimum Basin Management Program is to develop a groundwater management program that enhances the safe yield and the water quality of the basin, enabling all groundwater users to produce water from the Basin in a cost-effective manner.*

Section 4 of the OBMP Phase I Report described the Management Program and Program Elements for implementation under the OBMP.

Phase II of the OBMP was defined in the OBMP PEIR as the development of the specific implementation plans that allow for the physical construction, operation, management and monitoring of OBMP facilities. This Phase consisted of a series of Memoranda of Agreements, Technical Memoranda, Facility Reports, Policy Documents, and development of Water Supply Plans, Recharge Master Plans, Joint Powers Authority Agreements, Safe Yield and other related documents that will be completed during implementation of the OBMP over the 20-year planning period as defined in the PEIR. When complete, these documents either do or will provide detailed plans for the implementation of Program Elements and the achievement of OBMP Goals listed below. Collectively these documents are designed to facilitate successful implementation of Phase II of the OBMP. It is intended that the OBMP be flexible enough that changes in future demands, and situations, can be dealt with accordingly.

The OBMP is being implemented pursuant to the Judgment and a 1998 ruling of the court in its exercise of continuing jurisdiction. The original Peace Agreement, which enabled the implementation of the OBMP, was completed and approved by the Court in 2000. Watermaster and the parties to the Judgment have been working to develop changes to the Peace Agreement that, among other things, provide for the expansion of the desalter program to about 40,000 acre-ft/yr of desalter groundwater pumping, attainment of hydraulic control, and Re-Operation (defined below). The Peace II Agreement was approved by the Court on December 21, 2007 (Court Order). The original OBMP environmental review assumed the desalter program would be expanded to 40,000 acre-ft/yr; however, it did not define all of the additional facilities and Basin management modifications that would be required to achieve the Peace II Agreement objectives.

3. Definition of Terms

To understand the Peace II Agreement the following terms need to be defined.

Replenishment: Replenishment Water is defined by the Judgment, as "Supplemental water used to recharge the Basin pursuant to the Physical Solution, either directly by percolating the water into the Basin or indirectly by delivering the water for use in lieu of production and use of safe yield or Operating Safe Yield." Thus, replenishment is defined by the Watermaster, and in this document, as water that is put into the ground specifically to mitigate overproduction pursuant to the Chino Basin Judgment. Note that the term “recharge” is a broader term that encompasses the total capacity to percolate stormwater, imported water and recycled water back into the Basin groundwater aquifer.

Hydraulic Control: “Hydraulic control” is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to *de minimis* quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. Achieving hydraulic control also maximizes the safe yield of the Chino Basin. Two reports by WEI, prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b). Without hydraulic control, the IEUA and Watermaster will have to cease the use of recycled water in the Chino Basin (due to constraints imposed by the Regional Board through the 2004 Basin Plan Amendment) and will have to mitigate the effects of using recycled water back to the adoption of the Basin Plan Amendment, which is December 2004. Please refer to Program Element 7 of this document for a more detailed discussion of the 2004 Basin Plan Amendment.

Re-Operation: “Re-Operation” means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030 with the 400,000 acre-ft increase allocated specifically to the meet the replenishment obligation of the desalters. According to the Watermaster, desalters in the Chino Basin are without a permanent water right. Therefore, any water pumped by the desalters is subject to a replenishment obligation. So far the stakeholders have come up with water that has been committed to meeting this obligation. At the point when all allocated waters are gone, the Chino Desalter Authority (CDA) will be obligated to pay for all production through a replenishment assessment from Watermaster. Previous investigations (WEI 2006, 2006A and November 2007) have shown that Re-Operation is also required to achieve hydraulic control.

Maximum Benefit Objectives: “Maximum benefit” water quality objectives, which allow the lowering of water quality, were established for the Chino Basin in the 2004 Basin Plan Amendment based on demonstrations by the agencies recommending them that anti-degradation requirements would be satisfied. The agencies had to demonstrate that beneficial uses would continue to be protected and that water quality consistent with maximum benefit to the people of the state would be maintained. In the Basin Plan, the Regional Board outlines specific objectives that must be met by the agencies in order for the maximum benefit water quality objectives to apply. If these objectives are not met, the Regional Board can require that the agencies revert to complying with the stricter antidegredation water quality objectives.

Please refer to Program Element 7 of this document for a more detailed discussion of the maximum benefit requirement in the 2004 Basin Plan Amendment.

Assimilative Capacity: Assimilative Capacity is the capacity of a natural body of water (lake, river, sea, etc.) to receive wastewaters or toxic materials without deleterious effects and without damage to aquatic life or humans who consume the water.

Safe Yield: As with the first Peace Agreement, implementation of Peace II is intrinsically tied to understanding and maintaining the safe yield of the Basin. Simply stated, as defined by Todd, "safe yield" of a groundwater basin is defined as "the amount of water which can be withdrawn from it annually without producing an undesired result." (Todd 1967) The safe yield of the Chino Basin was established in the 1978 Judgment to be 140,000 acre-ft/year. The basis for this estimate is described by William J. Carroll in his testimony on December 19 and 20, 1977, during the adjudication process. The calculation considers the total amount of recharge: boundary inflows, recharge from streams or creeks, supplemental recharge (imported or recycled water), stormwater recharge and areal recharge (deep percolation of precipitation and applied water), as well as the total amount of discharge: evapotranspiration, discharge to streams and creeks and groundwater pumping.

Watermaster, pursuant to the Peace Agreement, will estimate the safe yield in 2011 (for 2010) and every ten years thereafter (Peace Agreement, Exhibit B, page 45). The year 2010/11 was selected in the Peace Agreement as it is the first year that Watermaster believes it will have at least ten years of good concurrent estimates of groundwater pumping and groundwater levels from which it can estimate safe yield. However, at the request of Watermaster, WEI prepared the *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description* to evaluate the potential impacts to the groundwater system from implementing the Peace II Agreement. Watermaster's replenishment requirements pursuant to the Judgment required a modification of Carroll's original formula from:

safe yield = average extraction + average change in storage

to

safe yield = (total extraction – total replenishment + change in storage) / Δt

4. Peace II Agreement Alternatives

Two alternatives were investigated in the final analysis of the Peace II process. These alternatives were developed from the Peace II Project Description as of October 17, 2007 and include the following:

Baseline Alternative – Expansion of Desalter Capacity and the 100,000 acre-ft Dry Year Yield (DYY) Program. Desalter groundwater production would increase from the current level of about 28,000 acre-ft/year (2006/07) to the full capacity of the existing desalters at about 40,000 acre-ft/yr. This corresponds to an expansion of the "product water" capacity of about 24.2 MGD to about 33.2 MGD. Product water is the term used to refer to the processed water ready to be delivered to its intended users after desalting or other treatment. This alternative includes the existing 100,000 acre-ft DYY Program. This alternative will serve as the baseline as it is currently authorized and would occur without the adoption of the Peace II programs. This alternative is representative of what would occur without Peace II.

Alternative 1 – Expansion of the Desalters, Re-Operation, and the 100,000 acre-ft DYY Program. Desalter groundwater production would increase from the current level of about 28,000 acre-ft/yr (2006/07) to the full capacity of the existing desalters at about 40,000 acre-ft/yr. This corresponds to an expansion of the product water capacity of about 24.2 MGD to about 33.2 MGD. Up to 400,000 acre-ft of the desalter replenishment obligation would be met by reductions in groundwater storage (Re-Operation). This alternative includes the existing 100,000 acre-ft DYYP.

There are three variants of Alternative 1. Alternatives 1A and 1B were developed based on an assumed increase in yield from the Santa Ana River, which is attributable to the desalters and Re-Operation.

Alternative 1A assumes the most rapid depletion of the water that is made available through Re-Operation This assumption defers desalter replenishment into the future. This alternative also assumes that new yield corresponds to an assumed increase in yield from the Santa Ana River, which is attributable to the desalters and Re-Operation. This assumed new yield is approximately 30 percent of the desalter well production. This preliminary new yield estimate (that is, 30 percent of desalter well production) is based on the results of the 2003 Watermaster Model and was included in the 2005/06 Watermaster assessments.

Alternative 1B is the same as Alternative 1A, except it utilizes a slightly different Re-Operation strategy. This alternative assumes that Re-Operation is distributed in a way that is approximately proportional to desalter production through 2030. This assumption results in desalter replenishment each year through 2030.

Alternative 1C was developed after Alternatives 1A and 1B were simulated with the 2007 Watermaster Model. Alternative 1C became necessary when it became clear that the implementation of Alternatives 1A and 1B would result in a decline in storage in excess of the 400,000 acre-ft provided for in the Peace II Agreement. Alternative 1C, like Alternative 1A, assumes the most rapid depletion of the water that is made available through Re-Operation However, this alternative assumes that new yield corresponds to the calculated new yield from the Santa Ana River that was derived during the modeling process. This required iterating several times with the model until the assumed new yield from the Santa Ana River closely approximated the model calculated yield. Peace II would implement Alternative 1C.

These alternatives were evaluated with the updated 2007 Watermaster Model. They have been implemented in the model through groundwater production and replenishment projections. The planning data for the Baseline Alternative was input to the groundwater model and simulated from 2005/06 through 2059/60. Interpretation of the model results suggests that the safe yield of the Basin could decline in the future from the currently used value of 140,000 acre-ft/yr to about 120,000 acre-ft/yr at the end of the planning period (2059-60). This model allows for a project of safe yield and replenishment obligation as they change over time.

The projected safe yield declines are due to reductions in the deep percolation of applied water and precipitation and a reduction in stormwater recharge. The reduction in recharge is caused by historical and projected changes in land use and associated water use patterns from the conversion of agricultural and vacant land uses to urban uses through 2025. Groundwater recharge may occur through a number of methods including improvements to recharge basins, use of aquifer storage and recovery (ASR) wells and Low Impact Development methods that could be used to increase percolation in developed environments.

5. OBMP Implementation to Date

The OBMP is implemented through nine Program Elements that are described in the OBMP Report (WEI, 1999) and that are contained in the implementation plan of the Peace Agreement. These nine Program Elements were evaluated for potential environmental impacts in the OBMP PEIR adopted in 2000. Over the past nine years (2000 through 2008) the Watermaster and stakeholders have aggressively implemented individual projects under the Program Elements. In order to understand what progress has been made to date and to identify the additional level of effort required to implement the program elements, the following provides a summary of OBMP accomplishments through 2008.

Program Element 1: Develop and Implement a Comprehensive Monitoring Program

The comprehensive monitoring program consists of monitoring activities that provide information required for the successful implementation of the other OBMP program elements. The comprehensive monitoring program includes groundwater–level monitoring; groundwater-quality monitoring; groundwater-production monitoring; surface water discharge and quality monitoring; land surface monitoring; and well construction, abandonment, and destruction monitoring.

Groundwater-Production Monitoring Nearly all active wells in the Agricultural Pool (except for minimum user wells, which are defined as those extracting less than 10 acre-ft/year) are metered. Watermaster reads the production data from these meters on a quarterly basis. Watermaster also requests and collects production data from the Appropriative Pool (municipal) and Overlying Non-Agricultural Pool (industrial) users. Watermaster staff enters these data into Watermaster's relational production database.

Groundwater Monitoring

Groundwater-Quality Monitoring. Watermaster obtains groundwater quality samples and data that are required for the triennial ambient water quality update mandated by the Basin Plan and for the Hydraulic Control Monitoring Program (HCMP), a maximum benefit requirement in the Basin Plan. These data are also used for the Biannual State of the Basin report and for the Chino Basin Groundwater Model. Groundwater quality data are also used to monitor non-point source groundwater contamination, plumes associated with point source discharges, and to assess the overall health of the groundwater basin.

Watermaster obtains the requisite data through several groundwater quality monitoring programs:

- **Key Well Monitoring Program**. Watermaster collects groundwater quality samples from a network of about 120 private wells in the southern portion of Chino Basin. About half of these wells are sampled in a given year; the remainder are sampled the following year, such that all wells in the Key Well Program are sampled every two years. Watermaster is constantly analyzing and revising the Key Well Program as private wells are abandoned to development.

- **Chino Basin Data Collection (CBDC)**. Watermaster's program routinely and proactively collects groundwater quality data from municipal producers and other government agencies. Water quality data are also obtained from special studies and monitoring that takes place under the orders of the Regional Board (landfills, groundwater quality investigations), the California Department of Toxic Substances Control (Stringfellow NPL site), the US Geological Survey, and others.

- **HCMP**. In January 2004, the Regional Board amended the 1995 Basin Plan for the Santa Ana River Basin to incorporate an updated total dissolved solids (TDS) and nitrogen (N) management plan. The Basin Plan Amendment includes both "anti-degradation" and "maximum benefit" objectives for TDS and nitrate-nitrogen for the Chino and Cucamonga groundwater management zones. Please refer to Program Element 7 of this document for a more detailed discussion of the 2004 Basin Plan Amendment. The application of the "maximum benefit" objectives relies on Watermaster and IEUA's implementation of a specific program of projects and requirements, which are an integral part of the OBMP. On April 15, 2005, the Regional Board adopted resolution R8-2005-0064; thus approving the Surface Water Monitoring Program and Groundwater Monitoring Program in support of maximum benefit commitments in the Chino and Cucamonga Basins. Watermaster collects groundwater quality samples from the nine nests of monitoring wells that are currently part of the HCMP. Watermaster is evaluating whether additional monitoring wells will be required to continue to determine if hydraulic control has been achieved.

- **Non-Annual Monitoring Programs**. Watermaster develops and executes other groundwater quality monitoring programs on an as-needed basis in order to assess and understand the health of the groundwater basin and to provide the necessary information to actively manage the basin to optimize supply and water quality. As an example, Watermaster has conducted a perchlorate isotope study to determine whether the source of widespread, generally low-concentration perchlorate is of synthetic or Chilean fertilizer in origin. Watermaster has also recently completed a groundwater quality study of MZ-3.

Watermaster conducts a quality assurance/quality control (QA/QC) program prior to uploading data into Watermaster's relational database management system (RDBMS). Watermaster has worked closely with the Appropriative Pool members and their state-certified laboratories in order to obtain water quality data as an electronic data deliverable, which are then entered directly into Watermaster's database.

Groundwater Level Monitoring. Watermaster has three active groundwater level monitoring programs operating in the Chino Basin: (1) A semiannual basin-wide well monitoring program; (2) a key well monitoring program associated with the Chino I/II Desalter well fields and the HCMP; and (3) a piezometric monitoring program associated with land subsidence and ground fissuring in Management Zone 1 (MZ-1). The data collected from the first two programs are required for the triennial ambient water quality update mandated by the Basin Plan and for the HCMP. The data are also used for the Biannual State of the Basin report and for the Chino Basin Groundwater Model. The frequency of groundwater level monitoring varies with each program, depending on the intended use of the data. Increasingly, Watermaster is installing pressure transducers/data loggers at key wells to collect groundwater-level data once every 15 minutes, which provides higher-quality and higher-resolution data and increases the usefulness of the data sets. The groundwater level monitoring programs also rely on municipal producers, other government agencies, and private entities to supply their groundwater level measurements on a cooperative basis. Watermaster digitizes all these measurements and combines them into a relational database.

Surface Water Discharge and Quality Monitoring

Water Quality and Quantity in Recharge Basins. Watermaster measures the quantity and quality of storm and supplemental water entering the recharge basins. Pressure transducers or staff gauges are used to measure water levels during recharge operations. In addition to these quantity measurements, imported water quality values for State Water Project water are obtained from Metropolitan and recycled water quality values for the RP1 and RP4 treatment plant effluents are obtained from IEUA. Watermaster monitors the stormwater quality in the eight major channels (San Antonio, West Cucamonga, Cucamonga, Deer Creek, Day Creek, San Sevaine, West Fontana, and DeClez) usually after each major storm event. Combining the measured flow data with the respective water qualities enables the calculation of the blended water quality in each recharge basin, the “new yield” to the Chino Basin, and the adequate dilution of recycled water.

Surface Water Monitoring in Santa Ana River (SAR) Component of the HCMP. As mandated in the Basin Plan, Watermaster measures the discharge and collects grab samples for water quality analyses at selected surface water stations on the SAR, Temescal Creek, Cucamonga Creek, Hole Lake, and certain Publically Owned Treatment Works. These data are used to determine those reaches of the SAR that are gaining or losing reaches in an attempt to assess the extent of hydraulic control. WEI has conducted an extensive scientific review of four years of data generated by the surface water component of the HCMP. It is the scientific and engineering opinion of WEI that these data do not meaningfully add to the remaining body of data generated by the HCMP in supporting the objective of the program. Furthermore, Watermaster intends to expand the scope of the groundwater monitoring component of the HCMP. WEI’s analysis concludes that the groundwater data (water quality and elevation), together with the Watermaster Groundwater Model are necessary and sufficient to demonstrate whether hydraulic control is attained or not.

Watermaster is, therefore, petitioning the Regional Board to include recommended revisions to the HCMP as part of the 2009 Triennial Review of the Santa Ana Water Quality Control Plan [per CWC §13240]. These revisions will be a reduction in the scope of the surface water monitoring component of the HCMP.

HCMP Annual Report. In partial fulfillment of maximum benefit commitments, Watermaster submits quarterly data reports to the Regional Board and completes the HCMP Annual Report and submits it to the Regional Board on April 15th each year. Key provisions of the Peace II agreement discussed in Program Elements 3, 5, 6 and 7 and evaluated in this document provide further information with respect to compliance with maximum benefit commitments.

Chino Basin Groundwater Recharge Program. The IEUA, Watermaster, Chino Basin Water Conservation District, and the San Bernardino County Flood Control District jointly sponsor the Chino Basin Groundwater Recharge Program. This is a comprehensive water supply program to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino Groundwater Basin by increasing the recharge of stormwater, imported water, and recycled water. The recharge program is regulated under Regional Board Order No. R8-2005-0033 and Monitoring and Reporting Program No. R8-2005-0033.

Watermaster and the IEUA collect weekly and bi-weekly water quality samples from basins that are actively recharging recycled water from lysimeters installed within those basins. Monitoring wells located down gradient of the recharge basins are sampled every two weeks during the reporting period for a total of about 100 samples. Please refer to Program Element 2 for more details on the Recharge Program.

Land Surface Monitoring

Because of the historical occurrence of pumping-induced land subsidence and ground fissuring, Watermaster developed a multifaceted land surface monitoring program to develop data for a long-term management plan for land subsidence in Management Zone 1 (MZ-1). Please refer to Figure 4.

From 2001-2005, Watermaster developed, coordinated, and conducted an Interim Monitoring Program (IMP) under the guidance of the MZ-1 Technical Committee composed of representatives from all major MZ-1 producers and their technical consultants. The IMP was an aquifer-system and land subsidence investigation focused in the southwestern region of MZ-1 that would support the development of a long-term management plan to minimize and abate subsidence and fissuring. The IMP involved the construction of highly-sophisticated monitoring facilities, such as deep borehole extensometers and piezometers, the monitoring of land surface displacements through traditional ground-level surveys and remote-sensing techniques, the detailed monitoring of the aquifer system with water-level-recording transducers installed at an array of production and monitoring wells, and the purposeful stressing of the aquifer system through multiple controlled pumping tests. The IMP provided the information to develop a management program for the MZ-1 area, as is discussed in more detail under Program Element 4.

The MZ-1 monitoring program continues with the scope and frequency of monitoring that was implemented during the IMP within the Managed Area, as identified in Figure 4. The monitoring program has been expanded to monitor the aquifer system and land subsidence in other areas of MZ-1 and Chino Basin where the IMP indicated concern for future subsidence and ground fissuring. Watermaster and the MZ-1 Technical Committee will further evaluate the contribution of pumping in the central and northern portions of MZ-1 on groundwater conditions, continue testing and monitoring to refine the Guidance Criteria, and monitor in detail horizontal strain across the historical fissure zone. Further discussion of the MZ-1 Management Program is provided in Program Element 4.

Summary

While the initial monitoring programs have been established, ongoing monitoring is required to achieve the goals of the OBMP. Ongoing monitoring includes monitoring general groundwater levels, inputs into the Basin, extractions from the Basin, and recycled water quality. Recycled water quality must meet standards established by the Department of Public Health and the Regional Board. Each recharge site that will receive recycled water will have lysimeters and a few monitoring wells near the recharge basin. Most of this monitoring equipment has already been installed, but IEUA will install additional monitoring infrastructure in the future as part of Peace II. *This program element has been and continues to be implemented in a manner consistent with the original OBMP evaluation and is subject to compliance with the Regional Board and Department of Public Health permit conditions.*

Program Element 2: Develop and Implement a Comprehensive Recharge Program

As noted under Program Element 1, the Chino Basin Groundwater Recharge Program is a jointly sponsored comprehensive water supply program designed to enhance water supply reliability and improve the groundwater quality in local drinking water wells throughout the Chino Groundwater Basin by increasing the recharge of stormwater, imported water, and recycled water. This element involves the planning, design, construction, and operation of groundwater recharge facilities, such as pipeline and channel turnouts, recharge basins, and System Control and Data Acquisition (SCADA) monitoring systems. The original OBMP evaluation of recharge capacity was based upon the understanding at the time that the required capacity was forecast to range from about 63,000 to 88,000 acre-ft/yr.

The required recharge capacity is calculated based upon calculating recharge and discharge to maintain safe yield. The *2007 CBWM Groundwater Model Documentation and Evaluation of the Peace II Project Description* prepared by WEI found that the safe yield could decline from the 140,000 acre-ft/yr determined in the Judgment to slightly less than 120,000 acre-ft/yr by 2059/60. This required an adjustment in the replenishment plan for the Baseline Alternative (described above). WEI estimated that the total required recharge capacity could be as much as be 104,000 acre-ft/yr by 2019/20. This could be accomplished with the recharge facilities that were currently available or will be available pursuant to the Chino Basin Facilities Improvement project.

Construction on the Chino Basin Facilities Improvement Project (CBFIP) Phase I was completed on December 31, 2005. A CBFIP Phase II list of projects was developed by Watermaster and the IEUA, including monitoring wells, lysimeters, recycled water connections, SCADA system expansions, three Metropolitan turnouts, and berm heightening and hardening. With the completion of the Phase II facilities in winter of 2008, the total recharge capacity is about 110,000 acre-ft assuming that the basins would be offline one month during every summer for maintenance. By the start of FY 2009/10, most of the spreading basins will be able to recharge combinations of storm, imported, and recycled water year round (rather than 9 months/yr) with occasional downtime for silt and organic growth removal. The total recharge capacity of the basins increases from 91,000 acre-ft/yr to about 110,000 acre-ft/yr by reducing the maintenance period from three months to one.

As part of the CBFIP improvements, 18 basin systems were converted to receive recycled water for recharge and two basin systems were constructed to receive recycled water for a total of 20 basins systems with 47 individual subbasins. A total of 16,150 lineal feet of new lateral pipeline was projected in the OBMP to be installed to support the recharge of recycled water at the 20 basins. Pipeline infrastructure is permitted but not yet installed at the following basins: Victoria, San Sevaine 5, Lower Day, Declez and Etiwanda Debris Basins. The OBMP evaluated the potential impacts from implementing improvements and/or modifications to these basins and the recharge of up to 145,800 acre-ft /yr of stormwater and State Water Project ("SWP"). The SEIR will provide a quantitative summary of actual recharge since implementation of CBFIP improvements as well as a long-term forecast for recharge within the Chino Basin.

All of the major stormwater channels developed in the Chino Basin have been converted to concrete-lined channels. This channel lining effort occurred from the late 1950s and continued through the 1990s. Stormwater recharge declined during the channel lining period and was reduced to negligible quantities by about 2000 (WEI, 2007). The CBFIP basin system improvements have allowed for capture of more stormwater recharge than would have occurred otherwise. In general, low storm flows are captured within the basins, but the infrequent high volume storm events which provide much of the precipitation in the region are less well utilized. Further enhancements to recharge capacity could result from modifications that provide greater capture of stormwater flows.

All the parties to Peace II understand that additional recharge facilities may be required in the future, but the types and locations of additional recharge facilities have not been identified at this time. Any additional recharge facilities will be analyzed in a future, a second-tier, project-specific evaluation under CEQA. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Because of the drought, Sacramento delta water quality, and endangered species issues, Metropolitan has been unable to provide State Project water (SWP) to southern California since May 1, 2007. This restricts IEUA's ability to recharge recycled water, since the California Department of Public Health requires about two parts of diluent water (imported or stormwater) to be blended with each part of recycled water. Metropolitan previously projected that it would be able to provide the requested SWP water 70-80% of the time; however, Metropolitan recently reduced its projected ability to meet demand to 30% of the time. An evaluation of the recharge capacity and of water supplies in the context of the replenishment obligation that will result from implementation of the Peace II Agreement will be evaluated in the SEIR.

A more recent emphasis in stormwater recharge efforts has been increasing groundwater recharge through Low Impact Development (LID) methods. LID techniques capture storm flows on residential and commercial developments by directing stormwater to locations within the property for percolation. This can be accomplished through the use of grass swales or other recessed landscaping and through the use of permeable pavements or gravels. LID measures can be up to 100% effective at eliminating storm flows off of a site and have been found to be less expensive than and aesthetically superior to traditional stormwater conveyance structures. Traditional stormwater management has been shown to reduce groundwater recharge by about 50% (Horner, 2008). LID enabled groundwater recharge is recognized as one of the least energy intensive methods for supplementing water supplies, which has positive ramifications for both energy consumption and green house gas emissions. Water quality permits from regulatory agencies are beginning to require implementation of LID measures, which could increase groundwater recharge in developed environments such as the Chino Basin without requiring further changes to existing recharge basins.

IEUA is developing a "Pilot Incentive Rebate Program" to encourage the use of pervious concrete in the Chino Basin. The incentive would offset about 50% of the additional cost of installing pervious concrete versus traditional concrete. The pilot program would be marketed towards cities and community groups for commercial, industrial, residential or civic property with the expectation of selecting several sites to serve as demonstration areas. The outcome and information gathered from the pilot project would be used to develop a model pervious paving program to be made available for use by interested agencies. The additional stormwater runoff percolated as a result of this program may be used as blending water to be credited as offset for recycled water. This issue will be examined in the SEIR.

Finally, achieving hydraulic control of the Basin, as required by the Judgment, may result in additional induced recharge from the Santa Ana River. Achieving hydraulic control requires that the groundwater level in the southern portion of the Basin be lowered sufficiently and pumped strategically to allow groundwater flow to reverse towards the new wells and thereby prevent outflow from the Basin. One of the consequences of reducing groundwater levels in the Chino Basin is that rather than groundwater flowing from the Chino Basin into the Santa Ana River, as is explicitly prohibited by the 2004 Basin Plan Amendment, water from the Santa Ana River will be the induced to flow into the newly lowered Chino Basin. This induced recharge is projected to reach approximately 7,000 acre-ft/yr by 2039/2040 and will occur as a result of achieving hydraulic control of the Chino Groundwater Basin. Re-Operation is the controlled reduction of storage in the northern two-thirds of the Basin that is required to assure that hydraulic control will be robust.

Summary

All the parties to the Peace II Agreement understand that additional recharge facilities may be required in the future, but the type and location of facilities has not been identified at this time. Any additional recharge facilities will be analyzed in a subsequent CEQA evaluation. *The change in the months of operation of recharge basins, the reliability of SWP and associated required OBMP recharge capacity, emphasis on LID methods and induced recharge from the Santa Ana River are changes from the original OBMP evaluation. Peace II will be evaluated in the context of these changes to determine the potential for Peace II projects to result in adverse physical impacts to the environment. Estimates of additional storage, pump stations, pipeline, and other facilities needed to accomplish increased recharge will be discussed in the SEIR.*

Program Element 3: Develop and Implement Water Supply Plan for the Impaired Areas of the Basin; and
Program Element 5: Develop and Implement Regional Supplemental Water Program

These elements have been combined since the plan is to expand the capacities of the Chino I and Chino II Desalters and their associated well fields so as to increase potable water supplies, maintain groundwater production in an area of rapid urbanization, and remediate legacy contaminant plumes. The desalter plant expansions will continue to discharge brine through the Santa Ana Regional Interceptor (SARI) and the Chino Basin Non-Reclaimable Line (NRL), thereby removing salt from the Basin and enabling the recharge basins to accept recycled water.

The SARI and NRL transport brine wastes out of the basin for treatment and disposal to the ocean. They are a significant part of industrial waste management and essential for operation of desalters in the upper watersheds. The SARI, owned by SAWPA, extends from the San Bernardino Area southwesterly to the Orange County Line near Prado Dam where it connects to the Orange County Sanitation District treatment facilities (OCSD). The NRL, owned by IEUA, extends from the City of Fontana westerly to the Los Angeles County Sanitation District sewer system in the Pomona area.

The sources of supplemental water available to Watermaster are SWP water, purchased from Metropolitan, and recycled water, purchased from the IEUA. Recycled water comes from municipal wastewater treated at the existing treatments plants and does not require desalting as it meets Title 22 requirements and the Regional Board’s discharge requirements. Water conserved through measures that increase efficiency and decrease waste also provide a source of supplemental water, as does treatment/desalinization of poor quality groundwater (desalting). The desalters recover and treat impaired groundwater. Desalter water is not included in the recycled water estimates.

As discussed previously, Metropolitan has not always been able to deliver enough SWP to meet demand in the past and will likely have shortages of SWP water in the future. These shortages occur, in part, due to capacity limitations in the Rialto Reach of Metropolitan's Foothill feeder and from shortages on the SWP system itself. As noted above, previous studies found that SWP water would be available to provide the requested water 70-80% of the time. However, the drought, Sacramento delta water quality and endangered species issues, have resulted in Metropolitan reducing its projected ability to meet demand to 30% of the time.

Recycled Water

As of December 2008, the wastewater treatment plants in the IEUA service area were producing about 60 million gallons per day (67,760 acre-ft/yr) of recycled water. The 1969 Court Judgment requires IEUA to discharge 16,875 acre-ft/yr of recycled water into the Santa Ana River. Currently, IEUA discharges more recycled water into the Santa Ana River than is required by the Judgment, and under the Judgment, Western and IEUA have accumulated credit for discharging over 2.9 million acre-ft into the Santa Ana River. Thus, the obligation to deliver minimal flows has already been met for approximately the next 172 years. As IEUA expands recycled water infrastructure improvements that allow for increased consumption of recycled water for direct-use customers and for groundwater recharge, discharge into the Santa Ana River is expected to decrease while still complying with the Judgment.

IEUA's Recycled Water System Feasibility Study identifies five phases for implementing the system: Phase I, 2001-2003; Phase II, 2003 and 2004; Phase III, 2004-2006; Phase IV, 2006-2010; and Phase V, 2010. Phases I through IV are complete and have resulted in the installation of pump stations with the capacity to deliver 73,100 acre-ft/yr of recycled water and new storage reservoirs with a capacity of 10 MG of storage. In 2007 IEUA adopted a Recycled Water Three Year Business Plan with an accelerated implementation plan with additional pipelines, pump stations and reservoirs in the North Etiwanda area, the area between the Cities of Rancho Cucamonga and Upland in the City of Chino Hills and in Southwest Fontana. The business plan calls for two additional pump stations and four new storage reservoirs with a storage capacity of 20 million gallons.

Up to 400,000 LF of pipelines were identified for installation in support of the Recycled Water Management Plan through 2011. Currently, 165,000 LF of pipeline have been installed and up to 235,000 LF may be installed through 2020.

As of September 2008, the actual recycled water connected capacity within the Basin, including both direct users and groundwater recharge, was 20,400 acre-ft/yr with an additional 6,675 acre-ft/yr of capacity expected to be on-line by March of 2009. The IEUA is on track to meet its goal to establish 31,000 acre-ft/yr of connected capacity by June of 2009 and maintains a goal of establishing 50,000 acre-ft/yr of connections by June of 2012, of which approximately 15,000 acre-ft/yr is expected to be groundwater recharge and 35,000 acre-ft/yr direct user connections. Please refer to Figure 5 for a status map of the IEUA recycled water program. The balance between available recycled water and demand will be discussed in the SEIR. Table 1 provides a very general estimate of recycled water program projections.

Table 1
REGIONAL RECYCLED WATER PROGRAM THROUGH 2020*

Category	Users as of December 31, 2000 (#)	Use as of December 31, 2000 (AFY)	2020 Projected Number of Users	2020 Projected Total Use (AFY)
Landscape	37	4,940	1,700	29,400
Industrial	1	10	27	12,500
Agricultural	3	1,350	1	1,200
Groundwater Recharge Basins	1	500	20	28,000
TOTAL	42	5,600	1,768	71,100

* These numbers have been reviewed by IEUA. They represent the only very general estimate available at this time.

Water Conservation

Since 2002, water conservation efforts within the Chino Basin have resulted in the installation of over 159,686 water saving devices through rebate and distribution programs. The devices are estimated to save over 2,800 acre-ft/yr and will result in saving approximately 40,745 acre-ft over the life of the devices. Rebate and distribution programs have targeted residential, commercial, institutional, industrial, and public sector water users by providing incentives for the installation of high efficiency toilets, and washing machines, waterless urinals, weather based irrigation controllers, centralized computer irrigation controllers, water brooms, synthetic turf, turf removal, x-ray film processors, and conductivity controllers. Table 2 provides an annual breakdown of device installation and water savings. Water conservation programs have been advertised through utility bill inserts, multi-lingual newspapers, trade magazines, special events, direct mailings, banners, point of sale displays, radio and television public service announcements, school educational outreach programs and adult educational and training workshops. IEUA outreach programs in area schools have reached 110,544 students and 4,319 teachers between FY 2002/03 and 2007/08.

Table 2
ANNUAL BREAKDOWN OF WATER CONSERVATION DEVICE INSTALLATION AND WATER SAVINGS

	District Devices/ Rebates	Gallons Saved (year)	acre-ft Saved (year)	acre-ft Saved Over Lifetime of Device
FY 2007-2008	112,276	155,104,066	476	6,546.72
FY 2006-2007	13,010	251267681	771.11	10,266.14
FY 2005-2006	10,777	148023184	454.2	7,761.46
FY 2004-2005	8,354	119,478,426	366.34	5,741.54
FY 2003-2004	8968	134350797	412.25	6,090.14
FY 2002-2003	6,301	130,762,191	393.41	4,319.00
Total	159,686	938,986,345	2873.31	40,745.52

It is estimated that more than 60% of potable water consumption in the Chino Basin is for the benefit of irrigating landscaping, and to provide a model ordinance in compliance with AB 1881 (Laird, 2006). AB 1881 requires city and county governments to establish a model landscape ordinance that meets or exceeds that requirements defined by the California Department of Water Resources (DWR). DWR also released a revised draft model ordinance in late 2008, in response to concerns about interpreting and administering the DWR model ordinance released in early 2008. A Final Regional Model Ordinance was endorsed by the Landscape Alliance Board in February 2009. The Landscape Model Ordinance is intended to reduce portable water consumption for landscape irrigation by some unquantifiable amount.

Desalters

Construction on the Chino I Desalter Expansion and the Chino II Desalter facilities was completed in February 2006 and an application has been made for $1.6 M in Proposition 50 funds to add 8 MGD of ion exchange capacity to the Chino II Desalter, as is proposed in the project description herein. As currently configured, the Chino I Desalter provides 2.6 MGD of treated (air stripping for VOC removal) water from Wells Nos. 1-4, 4.9 MGD of treated (ion exchange for nitrate removal) water from Wells Nos. 5-15, and 6.7 MGD of treated (reverse osmosis for nitrate and TDS removal) water from Wells Nos. 5-15 for a total of 14.2 MGD (16,000 acre-ft/yr). The Chino II Desalter provides 4.0 MGD of ion exchange treated water and 6.0 MGD of reverse osmosis treated water from 8 additional wells for a total of 10.0 MGD (11,000 acre-ft/yr). Negotiations are currently underway between the CDA and Western Municipal Water District to allow WMWD to join the CDA and to expand the Chino II Desalter by 10.5 MGD (10,600 acre-ft/yr). Raw water will be drawn from existing CDA II wells and, if needed, from new wells. In addition, a new Chino Creek Well Field, required to achieve hydraulic control, will provide additional raw water to the Chino I Desalter, enabling existing Well Nos. 13, 14, and 15 to shift production to the expanded Chino II Desalter facility if necessary.

Summary

The original OBMP environmental review assumed the desalter program would be expanded to 40,000 acre-ft/yr. *As noted above, the volume of potable water presently being produced by Chino Desalters I and II is approximately 27,000 acre-ft/yr, and the remaining 13,000 acre-ft/yr of potable water generation will be evaluated in this document.* ***The proposed facilities required to meet the increase in desalter production will be evaluated in this environmental document at a general, not site specific level.*** The balance between available recycled water and demand will be discussed in the SEIR. Conservation devices installed as of 2008 have resulted in approximately 40,745 acre-ft of potable water saved over lifetime of devices. *The details of additional infrastructure required to support the above programs will be defined to the extent feasible in the SEIR and potential impacts from installation and operation of these facilities will be evaluated in the SEIR. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.*

Program Element 4: Develop and Implement a Comprehensive Groundwater Management Plan for Management Zone 1

Because of the historical occurrence of pumping-induced land subsidence and ground fissuring in southwestern Chino Basin (southern Management Zone 1, or MZ-1), the OBMP called for the development and implementation of an interim management plan for MZ-1 that would:

- Minimize subsidence and fissuring in the short-term.
- Collect information necessary to understand the extent, rate, and mechanisms of subsidence and fissuring.
- Formulate a management plan to reduce to tolerable levels or abate future subsidence and fissuring.

As discussed under Program Element 1, Watermaster developed, coordinated, and conducted an Interim Monitoring Program of the aquifer-system and a land subsidence investigation was focused in the southwestern region of MZ-1 that would support the development of a long-term management plan to minimize and abate subsidence and fissuring. The investigation methods, results, and conclusions are described in detail in the MZ-1 Summary Report (February 2006). The investigation provided enough information for Watermaster to develop guidance criteria for the MZ-1 producers in the investigation area that, if followed, would minimize the potential for land subsidence and fissuring during the completion of the MZ-1 Long-term Management Plan (MZ-1 Plan). The MZ-1 Summary Report and the guidance criteria were adopted by the Watermaster Board in May 2006. The guidance criteria formed the basis for the MZ-1 Long-term Management Plan, which was approved by Watermaster in October 2007. The Court approved the MZ-1 Plan in November 2007 and ordered its implementation.

A comprehensive data collection program is ongoing that collects both groundwater-level data (cause) and land-subsidence data (effect) in MZ-1, where Watermaster is most concerned about land subsidence and ground fissuring (refer to Figure 4.) The land-subsidence monitoring data suggests that current rates of permanent land subsidence are very low within MZ-1 and across the entire Chino Basin. All the data collected and analyzed during the IMP indicate that since the early 1990s very little permanent subsidence in the Southeast Area (east of Ayala Park) and minor but persistent permanent subsidence in the Northeast Area. In MZ-1, the decline in the rate of permanent subsidence is attributed to decreased pumping and increased recharge. Recharge includes both wet water, referring to water that is literally recharged in the area, and in-lieu water, referring to water that is not pumped from the ground because surface water or other transfers are consumed in-lieu of the groundwater. The implementation of the MZ-1 Plan also has provided the MZ-1 pumpers with criteria to manage their groundwater levels without causing additional permanent land subsidence. Ongoing program management includes development of alternative pumping plans for the MZ-1 producers impacted by the MZ-1 Plan.

Summary

This program element has been and continues to be implemented in a manner consistent with the original OBMP evaluation. No additional specific facilities have been identified that require evaluation in this SEIR.

Program Element 6: Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management; and
Program Element 7: Develop and Implement a Salt Management Program

Program Element 6 has evolved into a cooperative effort with the Regional Board, Santa Ana Region, to investigate and/or remediate the legacy plumes found in the Chino Basin. There are a number of known water quality plumes within the Chino Basin. The major plumes currently being investigated are the VOC plume south of Ontario International Airport, the Kaiser Plume, the Stringfellow perchlorate plume, and the Chino Airport VOC plume. Remedial efforts are currently underway at the GE Flat Iron plume, the GE Test Cell plume, and the Stringfellow Site itself. A request for No Further Action (NFA) is pending for the PCE Plume at the California Institute for Men. Further detail on the status of the plumes is provided below. Summaries for several of these plumes are summarized below. Others, such as Crown Coach, Pomona, and area landfill plumes, also contribute to Basin contamination and the effects of implementing the Peace II programs on these plumes will be evaluated in the SEIR. Please refer to Figure 6 for a map of plume locations and contaminant updated in June of 2008.

Chino Airport Plume The consulting engineer for the San Bernardino County Department of Airports (SBCDA) has successfully characterized the horizontal extent of TCE contamination, and submitted a work plan on December 10, 2007 to determine the vertical extent of contamination. Their work plan calls for installing 3 wells up to 300' in depth along the plume axis; to be followed by two wells ranging in depth from 100'-200' in order to sample the highest TCE concentrations. The SBCDA proposed to construct the wells in April 2008. Watermaster met with RWQCB and SBCDA to discuss joint remediation of the VOC plume from the airport. Watermaster agreed to provide a database containing well construction information, water quality, water levels and production for wells located southwest of the Chino airport. In addition, Watermaster provided results from sampling all the wells at this location to provide up-to-date analytical data on all the possible contaminants in these wells. Analysis and remediation design are on-going.

The general location of the Chino Creek Well Field proposed as part of Peace II has been selected in order to achieve hydraulic control. The expected location of the wells would intercept the Chino Airport VOC plume. The presence of the plume would unfortunately cause additional costs relative to operation of the well field without the presence of the plume. Recovery of the contaminated water would allow for treatment of the water and proper disposal of the contaminants, but it has yet to be determined who will be responsible for the increased costs caused by the plume.

Ontario International Airport (OIA) Plume The Potentially Responsible Parties (PRPs) have been working with Watermaster to quantify the depth and extent of the TCE plume. Watermaster provided water quality, water level and well construction data from more than 400 private wells and 200 public wells to the Regional Board, and thereby the PRPs. The PRPs submitted a Work Plan in May 2007 for installing and sampling four groundwater monitoring wells, with two wells down gradient of the OIA and two wells down gradient of the Milliken Landfill. Watermaster and the Regional Board approved the Work Plan; and the PRPs began drilling their monitoring wells in March 2008.

Stringfellow Plume The consultants to the Department of Toxic Substances Control have been investigating whether the perchlorate plume from the site adds to the existing perchlorate levels in the Santa Ana River, or whether the perchlorate plume is diverted towards the Chino II Desalter well field.

Kaiser Plume The former Kaiser plume has been incorporated into an overall monitoring program for the MZ-3 area. The MZ-3 monitoring program is also assessing the groundwater quality impairment from TDS, nitrate, and perchlorate. The perchlorate may have originated from the Mid-Valley Landfill (in Rialto Basin, across the Rialto-Colton fault) or it may be a non-point source that resulted from the historical application of Chilean fertilizer. Four rounds of quarterly samples have been collected from 22 wells, including former Kaiser wells that Watermaster previously renovated: MP2 and KOFS. The MP2 cluster of wells (four depths) was in the heart of the Kaiser plume when the well was constructed; while KOFS was just beyond the leading edge of the plume. MP2 continues to show an impact from the Kaiser plume and the KOFS well is now impacted. Based on the analytical results, two new monitoring wells were constructed and two quarterly samples taken. Results from the entire monitoring program for MZ-3 will be presented in the final report, to be completed in FY 2007/08.

General Electric's Flat Iron Facility Watermaster continues to monitor the activities of General Electric's (GE) remediation at the Flat Iron facility and their efforts to develop a new location for recharge of their treated effluent. Currently, GE discharges their effluent into the Ely Basins, where it percolates back into the groundwater aquifer. However, this operation limits Watermaster's ability to recharge recycled water into the Ely Basins and Watermaster has asked that GE develop alternative disposal means. GE conducted a screening of options and is pursuing construction of groundwater injection wells that would be operated in conjunction with their own recharge basin.

2004 Basin Plan Amendment

Program Element 7 consists of the Watermaster's TDS and nitrogen management efforts pursuant to the Peace Agreement implementation plan. These efforts included the development of TDS and nitrogen management goals, accounting of the TDS and nitrogen loading to the Basin, development of TDS and nitrogen management plans, and the monitoring of TDS and nitrogen in the Basin to determine progress in attaining TDS and nitrogen management goals. In the 2002 through 2003 the Watermaster and the IEUA, working with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and other Watershed stakeholders, developed a detailed TDS and nitrogen management plan for the Basin that has been demonstrated to provide the maximum benefit to the Chino Basin stakeholders and to the people of California.

Water quality objectives are established by the Regional Board to preserve the beneficial uses of the Chino Basin and the Orange County Basin, located downstream of the Chino Basin. Prior to the 2004 Amendment, the 1995 Basin Plan contained restrictions on the use of recycled water for irrigation and groundwater recharge within the Chino Basin. The 1995 Basin Plan contained TDS "anti-degradation" objectives that ranged from 220 to 330 mg/L over most of the Chino Basin. Ambient TDS concentrations slightly exceeded these objectives. There was no assimilative capacity for TDS; thus, the use of the IEUA's recycled water for irrigation and groundwater recharge would have required mitigation even though the impact of this reuse would not have materially impacted future TDS concentrations or impaired the beneficial uses of Chino Basin groundwater. The recharge of SWP water would also be restricted with the anti-degradation objectives making it difficult for Watermaster to implement the physical solution with the Judgment.

In 1995, the Regional Board initiated a collaborative study with 22 water supply and wastewater agencies, including the Watermaster and the IEUA, to devise a new TDS and nitrogen (total inorganic nitrogen or TIN) control strategy for the Santa Ana Watershed. This study culminated in the Regional Board's adoption of the Basin Plan Amendment in January 2004 (Santa Ana Regional Water Quality Control Board, 2004). The 2004 Basin Plan Amendment included two sets of TDS objectives: anti-degradation objectives that ranged between 280, 250 and 260 mg/L for CBWM's Management Zones 1, 2, and 3, respectively; and a maximum benefit based TDS objective of 420 mg/L for the Regional Board's Chino North Management Zone, which consists of almost all of CBWM's Management Zones 1, 2, and 3.

The relationship of the Management Zones that was developed for the OBMP and the maximum benefit based management zones is shown in Figure 1. Under the maximum benefit based objective, the new TDS concentration limit for recycled water that is to be used for recharge and other direct uses is 550 mg/L as a 12-month average. This discharge requirement has been incorporated into the IEUA's National Pollutant Discharge Elimination System (NPDES) permits for its wastewater treatment facilities.

In order for the IEUA and Watermaster to gain access to the assimilative capacity afforded by the maximum benefit based objectives, they have to demonstrate that the maximum beneficial use of the waters of the State is being achieved. The 2004 Basin Plan Amendment contains a series of commitments that must be met in order to demonstrate that the maximum benefit is being achieved. These commitments include:

1. The implementation of a surface water monitoring program
2. The implementation of groundwater monitoring programs
3. The expansion of Desalter I to 10 MGD and the construction of a 10 MGD Desalter II
4. The commitment to future desalters pursuant to the OBMP and the Peace Agreement
5. The completion of the recharge facilities included in the Chino Basin Facilities Improvement Program (CBFIP)
6. The management of recycled water quality
7. The management of the volume-weighted TDS and nitrogen in artificial recharge to less than or equal to the maximum benefit objectives
8. The achievement and maintenance of hydraulic control of the subsurface outflows from the Chino Basin to protect Santa Ana River water quality
9. The determination of ambient TDS and nitrogen concentrations in the Chino Basin every three years

The IEUA and Watermaster have previously demonstrated compliance with all of these requirements with the sole exception of hydraulic control. Hydraulic control is defined as the reduction of groundwater discharge from the Regional Board's Chino North Management Zone to the Santa Ana River to de minimis quantities. Hydraulic control ensures that the water management activities in the Regional Board's Chino North Management Zone will not impair the beneficial uses of the Santa Ana River downstream of Prado Dam. Achieving hydraulic control also maximizes the safe yield of the Chino Basin as required by Paragraphs 30 and 41 of the Judgment. Two reports by WEI, prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b).

Without hydraulic control, the IEUA and Watermaster will have to cease the use of recycled water in the Chino Basin and will have to mitigate the effects of using recycled water back to the adoption of the 2004 Basin Plan Amendment, which occurred in December 2004. The demand for recycled water in the Chino Basin is projected to increase as detailed under Program Elements 3 and 5. Recycled water reduces the demand of State Water Project (SWP) water by an equal amount, thereby reducing the demand on the Sacramento Delta and reducing energy consumption. Recycled water is a critical element of the OBMP and water supply reliability in the Chino Basin area.

Failure to achieve hydraulic control will lead to restrictions from the Regional Board on the use of imported SWP water for recharge when the TDS concentration in SWP water exceeds the antidegradation objectives. There would be no assimilative capacity if the Chino Basin antidegradation objectives were in force. Restrictions on the recharge of SWP water would occur about 35, 52, and 50 percent of the time for CBWM's Management Zones 1, 2, and 3, respectively. With the maximum benefit based TDS objective in the Chino Basin, there is assimilative capacity, and there would be no such restriction on the recharge of imported water.

The Regional Board is using its discretion in granting maximum benefit based objectives even though hydraulic control has not been demonstrated. The Regional Board will continue to use maximum benefit based objectives in the Chino Basin as long as the IEUA and Watermaster continue to develop and implement, in a timely manner, the OBMP desalter program as described in the project description below.

The IEUA and Chino Basin Watermaster maximum benefit proposal commits to the initiation of construction of another Chino Basin desalter when the TDS in IEUA's effluent reaches 545 mg/L for three consecutive months. While this threshold has not been reached, the Peace II project proposed in this document includes the expansion of the existing desalter facilities in compliance with this commitment. IEUA's commitment to reduce the salts entering IEUA's wastewater treatment plants includes the following management program as provided in the 2004 Basin Plan Amendment.

"1. connection of new industries that have wastewater discharges with TDS greater than 550 mg/L to the brine line;
2. regulation of the use of new and existing water softeners to the extent allowed by law, with incentives provided for the removal of on-site regenerative water softeners and the use of exchange canisters or other off-site regenerative systems;
3. connection of existing domestic system industries with high TDS waste discharges to the brine lines;
4. percolation of State Water Project water into the Chino Basin when that water is low in TDS; and
5. development of a plan for sewering areas presently served by septic tanks to reduce the nitrogen loading into the Chino and Cucamonga Management Zones.

These limits implement the wasteload allocations for IEUA surface water discharges and are not contingent on the "maximum benefit" objectives or demonstration. Surface water discharges by IEUA do not affect the groundwater management zones for which "maximum benefit" objectives are specified. Thus, the wasteload allocations do not vary depending on whether or not the "maximum benefit" objectives apply."

Water Softeners

In accordance with the maximum benefit commitments, IEUA launched a pilot water softener rebate program in September 2008 to provide incentives for the voluntary removal of residential water softeners from the IEUA service area. Water softeners replace calcium and magnesium with sodium, thereby increasing the salt load of wastewater and, after reclamation, recycled water. It has been estimated that removing all self-regenerating water softeners would reduce the TDS content of recycled water in the Chino Basin by about 15-25 mg/L.

Assembly Bill 2270, introduced by Assemblymen John Laird and Mike Feuer in 2008, would have allowed entities that oversee wastewater to ban water softeners. Current law allows local agencies to prevent the installation of softeners but not to order mandatory removal of existing devices. AB 2270 passed both the California Senate and Assembly, but was vetoed by the Governor.

Organics

Regional Board Order No. R8-2007-0001 General Waste Discharge Requirements for Concentrated Animal Feeding Operations (NPDES No. CAG018001) explicitly requires animal feeding operations to demonstrate that discharges are addressed by the OBMP or show how discharges that are not addressed by the OBMP will be offset.

Organic wastes (organics) that are handled and processed within the IEUA service area include biosolids, dairy manure, green materials from yards and food wastes. Organics are handled, processed and either reused or disposed of through a variety of methods and by a number of agencies. The IEUA plays a significant role in the existing system of organics management and has developed an Organics Management Plan (OMP) to define its future role in managing organic wastes within its service area. IEUA management of organics serves the dual purpose of lowering the TDS and nitrates that would otherwise be released into the basin and reducing air quality emissions both of dust and odors biosolids and of energy emissions associated with processing organics, as is discussed below.

Biosolids is the term applied to the solid portion of the waste that remains after wastewater has been treated, variously termed sewage sludge or solids in the past. Biosolids were produced in the IEUA service area at a rate of over 64,000 tons per year (TPY) in 2002 and are forecast to increase to over 74,000 TPY by the year 2015. In 2002 there were over 300,000 milking cows and other livestock located in the Chino Basin that produced more than 1 million tons of manure per year. As a result of urbanization, the rate of manure generation is anticipated to be reduced to 547,000 TPY by the year 2015. Other organic material in the Chino Basin includes green material from yards and food wastes. These wastes are regulated under State Law AB 939 that mandates the reduction of materials entering the waste steam and being disposed of in landfills. The law requires a 50 percent reduction in landfilled material by 2000, as compared with the base year inventory in 1990. In 2002, approximately 43,000 TPY of food waste was produced with the expectation of producing 50,000 TPY by 2015.

The key elements of the OMP are: (a) biosolids processing and energy production; (b) co-composting; and (c) manure processing. In co-generation, engines or turbines are run on biogas to produce energy. The waste heat is reused in the anaerobic digesters to heat the biosolids. The waste solids from this process are then available as input to the composting process, at 50 percent of their original mass. Biosolids management facilities have been installed at RP-5 for anaerobic digestion and subsequent co-generation.

Methane gas is a natural by-product of anaerobic digestion, which is captured and then run through generators. At IEUA, about 60 percent of its wastewater treatment operations at two plants (RP-1 and RP-2) are currently powered by this independent energy source. One goal of the OMP is to combine and convert all of the Chino Basin waste streams through anaerobic digestion into power. There is a potential for generating up to 50 megawatts of electrical energy through this method. IEUA's goal is to develop alternative energy which can be utilized to run as many of the facilities as practical and to assist the Agency to become energy independent over the next five to ten years.

An estimated 323,000 TPY of corral dried manure is forecast to be available in 2015 for biogas conversion. This amount would yield an estimated 25 megawatts of energy, or about one-half of the target amount identified in the OMP. After processing, the resultant solids would be reduced to about one-half of the volume, or 161,500 TPY.

Several alternative biosolids treatment processes are in the process of being tested with pilot projects, including the following: (a) heat drying and pelletizing of biosolids and manure to evaluate product quality and market potential, (b) aerated static pile composting at the existing co-composting facility to establish type and amount of bulking material, porosity and resulting improvement in compost quality, (c) anaerobic digestion of manure at RP-1 to establish process parameters, and (d) elutriation (salt extraction) of manure to reduce salt content.

Summary

The 2004 Basin Plan Amendment and the General Waste Discharge Requirements for Concentrated Animal Feeding Operations constitute changes from the baseline condition that was evaluated in the original OBMP EIR. Thus, the potential for Peace II projects to adversely impact the environment in the context of these changed circumstances will be analyzed herein. As part of the SEIR an estimate of pollutants removed from the Basin by desalters to date will be provided. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.

Program Element 8: Develop and Implement a Groundwater Storage Management Program; and
Program Element 9: Develop and Implement a Storage and Recovery Program

The 100,000 acre-ft DYY Program with Metropolitan is the only groundwater storage and recovery program currently operating in the Chino Basin. The IEUA recently approved the expansion of this program to include an additional 50,000 acre-ft. This proposal is termed the DYY Expansion Program and is expected to be considered for approval by Metropolitan, the Watermaster and participating entities in September 2009. Watermaster is also considering an additional 150,000 acre-ft in programs with non-party water agencies. The total volume of groundwater storage allocated to storage programs that could overlay the Basin is about 300,000 acre-ft.

There have been no planning investigations that articulate the expansion from the 150,000 acre-ft program to 300,000 acre-ft, and an evaluation of this issue at this time would be speculative. Section 15145 of the State CEQA Guidelines states that, “If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact.” As such, the potential expansion of storage and recovery programs from 150,000 acre-ft program to 300,000 acre-ft is not evaluated in this document.

The storage and recovery programs, if not sensitive to the needs of hydraulic control, could contribute to groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The storage and recovery program operating strategies, including optimization of pumping, will be evaluated to determine the affect on hydraulic control in the SEIR.

The DYY Expansion Program is a proposed conjunctive use program between the Metropolitan, IEUA, WMWD, The Three Valleys Municipal Water District, Chino Basin Watermaster and the Chino Basin appropriators. The participants would increase or decrease imported water purchases from Metropolitan, dependent upon normal, wet or dry year conditions. The Program includes facilities that would allow Metropolitan to store, or "put", water into the Basin by groundwater recharge through surface spreading, in-lieu deliveries, or injection wells in cooperation with the local entities. A combination of new wells, wellhead treatment facilities, conveyance facilities, and inter-agency transfers would be developed to allow the Chino Basin appropriators to increase imported deliveries during wet years and increase groundwater production during dry years.

The existing Metropolitan DYY Program has a maximum storage capacity of 100,000 acre-feet. Water can be "put" into and "taken" out of the Basin (stored and recovered) at a maximum rate of 25,000 acre-feet per year and 33,000 acre-feet per year, respectively. The DYY Expansion Program Mitigated Negative Declaration was approved in December 2008 by IEUA and the Agency expressed support for the Program. The DYY Expansion Program allows an additional maximum recovery, or "take", of up to 25,000 acre-feet in a single dry-year, which when combined with the existing DYY Program's contracted "take" of 33,000 acre-feet per year, yields a total potential maximum "take" of 58,000 acre-feet per year. If this maximum potential "put" were initiated each year over the same three-year dry period, up to 174,000 acre-feet could be stored in Metropolitan's account. Please refer to Table 3 for a summary of the initial and proposed expanded DYY Program. The maximum storage volume allowed and maximum annual "put" and "take" values are constrained by the following Basin management strategies:

- Maintain hydraulic control of the Basin
- Minimize/control movement or migration of contaminant plumes
- Minimize impact of water levels at key appropriator production wells
- Minimize subsidence

As of December 31, 2007, about 88,434 acre-ft had been stored in the Basin in Metropolitan's existing DYY Program account.

Table 3
SUMMARY OF INITIAL AND EXPANDED DYY PROGRAM PARTICIPANTS AND PROPOSED PUT/TAKE CAPACITIES

Agency	**Initial DYY Program** (1)		**DYY Program Expansion** (2)	
	Put Capacity (afy)	**Take Capacity (afy)**	**Put Capacity (afy)** (4)	**Take Capacity (afy)**
City of Chino	(3)	1,159	500-1,000	2,000
City of Chino Hills		1,448	--	1,000
Cucamonga Valley Water District		11,353	4,000-5,000	None
Fontana Water Company		0	--	2,000
Jurupa Community Services District		2,000	--	2,000
Monte Vista Water District		3,963	3,000-4,000	3,000-5,000
City of Ontario		8,076	2,000-3,000	None
City of Pomona		2,000	--	2,000
City of Upland		3,001	--	1,000
Three Valleys Municipal Water District		0	1,000-2,000	None
Western Municipal Water District		0	--	8,000-10,000
Total	25,000	33,000	10,500–15,000	21,000-25,000

Notes: (1) Initial 100,000 AF DYY Program includes maximum 25,000 afy “put” over a four-year period of surplus and a maximum 33,000 afy “take” over a three-year dry period.
(2) DYY Program Expansion includes increases in total storage, “put” capacity, and “take” capacity.
(3) “Puts” for the initial DYY Program are accomplished by a combination of direct recharge and in-lieu deliveries.
(4) Does not include basin-wide in-lieu deliveries and direct recharge.
(5) MVWD assumed Chino Hills’ shift obligation of 1,448 afy per an amendment to the agreement between the agencies dated March 5, 2007.

Summary

The specific characteristics of the DYY programs, the Re-Operation/hydraulic control and the proposed expansion of the desalters constitute changes from the baseline that was evaluated in the original OBMP EIR. Thus the potential for Peace II to adversely impact the environment based upon these changed circumstances will be analyzed herein. As previously noted, hydraulic control was discussed in the original OBMP EIR, but it has yet to be achieved and it will also be analyzed herein with updated information.

C. PROJECT DESCRIPTION FOR THE CHINO BASIN OPTIMUM BASIN MANAGEMENT PROGRAM PEACE II DESALTER AND RE-OPERATION PROGRAM

1. Introduction

This section contains the project descriptions for the Chino Basin desalter expansion and Re-Operation programs, which have been synthesized from the Peace II Agreement and various planning investigations as of February 2008. The key features of the Peace II Agreement as they pertain to desalter expansion and Re-Operation are discussed. These features implement some of the requirements of the 2004 Basin Plan Amendment, described in detail under Program Element 7, which are fundamental to water supply reliability for producers that rely on the Chino Basin. Finally, the project is described.

2. Peace II Implementing Measures

Under Watermaster oversight, the Chino Basin OBMP stakeholders have been engaged in complying with the Peace Agreement provision regarding the planning and financing of the expansion of the OBMP desalting program to its full planned capacity generally referred to as “Future Desalters” (See Peace Agreement Article VII.). As part of the original OBMP, the stakeholders evaluated various alternatives and produced the Stakeholders' Non-Binding Term Sheet that was transmitted to the Court along with a request by Watermaster for further technical review by the Assistant to the Special Referee in May of 2006. The Assistant's review was completed in March of 2007.

The Non-Binding Term Sheet includes several items that are carried forward under Peace II. The two items of interest to this project description are: the expansion of the desalting program and "Basin Re-Operation," which are both physically described in Section II, Refined Basin Management Strategy, subsections A and B; and Section IV, Future Desalters.

The construction of a new desalter well field will be sized and located to achieve hydraulic control as substantiated by piezometric data. The expanded desalter program will produce at least 9 MGD of product water. New groundwater production for the expanded desalter program will occur in the southern end of the Basin. Some of this new desalter supply will come from the new well field, the Chino Creek Well Field, that will be constructed in a location among and west of Desalter I wells 1 through 4. Refer to Figure 7 for a generalized location of the Chino Well Field. These wells will be constructed to pump groundwater from the shallow part of the aquifer system, which is defined herein to be the saturated zone that occurs within about 300 feet of the ground surface. The total groundwater pumping for all of the desalters authorized in the term sheet will be about 40,000 acre-ft/yr.

Re-Operation means the increase in controlled overdraft, as defined in the Judgment, from a cumulative total of 200,000 acre-ft over the period of 1978 through 2017, to a cumulative total of 600,000 acre-ft through 2030. The 400,000 acre-ft cumulative increase would be allocated specifically to the meet the replenishment obligation of the desalters. The expanded desalter facilities would be the means for extracting the 400,000 acre-ft of overdraft. Re-Operation is required to achieve hydraulic control.

Re-Operation and Watermaster's apportionment of controlled overdraft will not be suspended in the event Hydraulic Control is secured in any year before the full 400,000 acre-feet has been produced so long as: (i) Watermaster has prepared, adopted and the Court has approved a contingency plan that establishes conditions and protective measures to avoid Material Physical Injury and that equitably addresses this contingency, and (ii) Watermaster continues to demonstrate credible material progress toward obtaining sufficient capacity to recharge sufficient quantities of water to cause the Basin to return to a new equilibrium at the conclusion of the Re-Operation period. In addition to contributing to the achievement of hydraulic control, Re-Operation will contribute to the creation of new yield. Watermaster has the discretion to apportion the 400,000 acre-feet increase in controlled overdraft under a schedule for Re-Operation that best meets the needs of the Parties and the conditions of the Basin over the Initial Term of the Peace Agreement (before June 30, 2030).

At the conclusion of Re-Operation, the Basin will be operated at a new equilibrium in accordance with the Peace II Agreement. New equilibrium, as stated in the Judgment Amendment to Exhibit I, means managing the Basin in a state of balanced recharge and discharge identical to the intent of the original Judgment. With the exception of the 200,000 acre-ft controlled overdraft provision, the 1978 Judgment requires the Basin to be operated such that total Basin discharge (groundwater production and other outflows) is equal to recharge (natural and artificial). The Judgment provided for changes in production rights in response to changes in the safe yield with the changes in safe yield being either credited or debited to the appropriator parties.

This balanced recharge and discharge management plan will continue during the Re-Operation period with the exceptions of the original 200,000 acre-ft of controlled overdraft provided in the Judgment and the additional 400,000 acre-ft of new controlled overdraft provided for in Peace II. At the conclusion of the period of Re-Operation, the controlled overdraft will be complete and the Watermaster will operate the Basin to balance recharge and discharge in the Basin. In other words, Watermaster will measure groundwater production annually and estimate groundwater production in excess of the safe yield (overproduction). Watermaster will acquire supplemental water equal to the overproduction and recharge this water into the Basin (replenishment) in the subsequent year or years.

3. Project Characteristics

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin.

The Expanded Desalting Program. A new well field, referred to as the Chino Creek Well Field (CCWF), will be installed and operated. The capacity of this well field could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. The actual capacity of the CCWF will be determined during the design of the well field, but the available groundwater data indicate the 5,000-7,700 acre-ft/yr estimate is considered reasonable. Groundwater produced at the CCWF will be conveyed to Desalter I. The approximate location of the CCWF is shown in Figure 7. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The product water capacity of Desalter I is about 14,200 acre-ft/yr which corresponds to a raw water pumping requirement of about 16,100 acre-ft/yr. The volume of groundwater pumped at existing Desalter I wells 13, 14, and 15 and conveyed to Desalter I will be reduced to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting Desalter I wells 13, 14, and 15.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District (JCSD), the City of Ontario, and/or Western Municipal Water District (WMWD) through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are unknown at this time.

The most current working description of these facilities is contained a report that was prepared for the City of Ontario and WMWD, entitled Chino Desalter Phase 3 Alternatives Evaluation (Carollo, 2007). The City of Ontario and the WMWD are working with the JCSD and others to refine the alternatives in the Carollo report. The assumed startup for the expanded desalters is January 2013.

In summary, desalter groundwater well production would increase from the existing 27,900 acre-ft/yr to ~40,000 acre-ft/yr and desalter product water deliveries would increase from the current 24,600 acre-ft/yr to ~34,800 acre-ft/yr. The 40,000 acre-ft/yr value was determined from the prior desalter modeling investigations of WEI (WEI, 2006a and c).

Re-Operation. Through Re-Operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft of groundwater to off-set desalter replenishment through 2030. After the 400,000 acre-ft is exhausted and the period of Re-Operation is complete, Watermaster will recalculate the safe yield of the Basin. The Re-Operation will have no impact on Operating Safe Yield or on the parties' respective rights thereto because a comparable amount of water will be returned to the Basin by the end of the Re-Operation program in 2030. For project evaluation purposes, the Re-Operation and controlled overdraft of 400,000 will be examined under two different extraction schedules that bracket the range in expected schedules. The first schedule will be based on allocating the 400,000 acre-ft at a constant percentage of desalter pumping such that the 400,000 acre-ft is used up in a constant proportion of the desalter pumping through 2030. The second schedule will use the controlled overdraft to off-set desalter pumping and the applicable replenishment obligation completely each year until the 400,000 acre-ft is completely exhausted.

The New Yield as defined by the Peace II Agreement, attributable to the authorized desalters and the reduction in storage from Re-Operation, will be assigned to the authorized desalters. The resulting replenishment obligation assigned to the authorized desalters will then be handled as any other replenishment obligation pursuant to the Judgment. The New Yield is expected to come from a reduction in groundwater discharge from the Chino Basin to the Santa Ana River within the reservoir created by Prado Dam and from new induced recharge of the Santa Ana River upstream of Prado Dam. There is no direct way to measure the increase in new yield created by Re-Operation. New yield created by Re-Operation can only be assessed through the use of groundwater flow models.

Other important facility and operational plans that will occur concurrently with the proposed project:

Expansion of Artificial Recharge Capacity. Watermaster and the IEUA may need to expand artificial recharge capacity in the Chino Basin to meet future replenishment obligations. Combined with the physical recharge spreading capacity of 110,000 acre-ft, the total potential recharge capacity available with ASR wells and in-lieu deliveries is about 140,000 acre-ft annually. As noted previously in Program Element 2, the required recharge capacity could be as much as 104,000 acre-ft/yr by 2020. All the parties to Peace II understand that additional recharge facilities may be required in the future, but the types and locations of additional recharge facilities have not been identified at this time. Future expansion will occur through the construction of new spreading basins, improvements to existing spreading basins and stormwater retention facilities, and ASR wells. The proposed project will be analyzed without identifying specific recharge expansion projects. Increased recharge capacity will be fully evaluated in the update of the Recharge Master Plan (to be completed in 2010). Any additional recharge facilities will be analyzed in a future, a second-tier, project-specific evaluation under CEQA. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

Expansion of Storage and Recovery Programs. As discussed previously, there are currently two groundwater storage programs (conjunctive use) approved by IEUA in the Chino Basin: the 100,000 acre-ft DYY Program with Metropolitan and the Expanded DYY Program that would allow an additional 50,000 acre-ft of storage for a total of 150,000 acre-ft. The 100,000 acre-ft DYY Program is also approved by Watermaster, Metropolitan and the participating entities. The 50,000 acre-ft program was approved by IEUA in December 2008 and is expected to be reviewed by Watermaster, Metropolitan and the participating entities in September 2009. Watermaster is also considering an additional 150,000 acre-ft in storage and recovery programs with non-party water agencies. The total volume of groundwater storage allocated to storage programs that could overlay the proposed project is about 300,000 acre-ft.

There have been no planning investigations that articulate the expansion from the 150,000 acre-ft program to 300,000 acre-ft, and an evaluation of this issue at this time would be speculative. Section 15145 of the State CEQA Guidelines states that, "If, after thorough investigation, a Lead Agency finds that a particular impact is too speculative for evaluation, the agency should note its conclusion and terminate discussion of the impact." As such, the potential expansion of storage and recovery programs from 150,000 acre-ft program to 300,000 acre-ft is not a part of this project description.

The storage and recovery programs, if not sensitive to the needs of hydraulic control, could contribute to groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The storage and recovery program operating strategies, including optimization of pumping, will be evaluated to determine the affect on hydraulic control in the SEIR.

4. Changed Circumstances

The change in the months of operation of recharge basins, induced recharge from the Santa Ana River, required OBMP recharge capacity and the reliability of SWP are changes from the original OBMP evaluation. The 2004 Basin Plan Amendment and the General Waste Discharge Requirements for Concentrated Animal Feeding Operations constitute changes in the project from the baseline that was evaluated in the original OBMP EIR. The DYY Expansion Program, storage and recovery program and Re-Operation constitute changes from the baseline that was evaluated in the original OBMP EIR. Hydraulic control was discussed in the original OBMP EIR, but as it has yet to be achieved, it will also be analyzed herein with updated information. The potential for Peace II to adversely impact the environment in light of these changed circumstances will be analyzed herein.

5. Future Capital Improvements/Approvals

The IEUA Board will serve as the Lead Agency for compliance with the California Environmental Quality Act on behalf of the Peace II Agreement and OBMP subsequent environmental document. After the environmental document is approved, the IEUA and program stakeholders can implement capital improvement projects that will implement the overall hydraulic control, Re-Operation and other Peace II Agreement programs. As individual projects are funded by IEUA or program stakeholders, each specific capital improvement project will require a second-tier evaluation to verify that the potential environmental effects of such projects fall within the scope of the approved Peace II Agreement programs. As each second-tier project is approved by program stakeholders, a new Notice of Determination must be filed before such project(s) can be funded and implemented.

6. Other Agency Approvals

Implementation of future individual project(s) to support the Peace II Agreement programs may require a variety of approvals from other agencies. The following summarizes those agency approvals that have been identified to date. This list may be expanded as the environmental review proceeds, but it should not be considered exhaustive.

- Notice of Intent (NOI) to the State Water Resources Control Board (SWRCB) for a NPDES general construction stormwater discharge permit. This permit is granted by submittal of an NOI to the SWRCB, but is enforced through a Storm Water Pollution

Prevention Plan (SWPPP) that identifies construction best management practices (BMPs) for the site. In the project area, the Santa Ana Regional Board enforces the BMP requirements described in the NPDES permit by ensuring construction activities adequately implement a SWPPP. Implementation of the SWPPP is carried out by the construction contractor, with the Regional Board providing enforcement oversight.

- The project includes the potential discharge of fill into or alterations of “waters of the United States” and stream beds of the State of California Regulatory permits to allow these fill and/or alteration activities will be required from the Army Corps of Engineers (ACOE), the Regional Board, and California Department of Fish and Game (CDFG). A Section 404 permit for the discharge of fill material into “waters of the United States” will be required from the ACOE; a Section 401 Water Quality Certification will be required from the Regional Board; and a 1600 Streambed Alteration Agreement will be required from the CDFG.
- The U.S. Fish and Wildlife Service (USFWS) and CDFG will be consulted regarding threatened and endangered species documented to occur within the area of potential effect for future individual projects.

- Encroachment permits may be required from local jurisdictions, such as individual cities, California Department of Transportation (Caltrans), the two counties (Riverside and San Bernardino), Flood Control agencies, and private parties such as Southern California Edison, The Gas Company, or others such as BNSF Railway Company.

- Watermaster has a separate approval process for determining material physical injury to the stakeholders within the Chino Basin.

This is considered to be a partial list of other permitting agencies for future Peace II Agreement future individual projects.

7. Cumulative Projects

The only other public project with focus on the Chino Groundwater Basin is the Dry Year Yield Expansion Project which recently completed compliance with the California Environmental Quality Act. This program, as well as other OBMP program-related projects, may be implemented concurrently with the proposed Peace II Agreement future individual projects. These projects will be further defined as part of this evaluation on a case-by-case project and locational basis.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		**Agriculture Resources**	X	**Air Quality**
X	**Biological Resources**		**Cultural Resources**		**Geology / Soils**
	Hazards & Hazardous Materials	X	**Hydrology / Water Quality**		**Land Use / Planning**
	Mineral Resources		**Noise**		**Population / Housing**
	Public Services		**Recreation**		**Transportation/Traffic**
X	**Utilities / Service Systems**	X	**Mandatory Findings of Significance**		

DETERMINATION (To be completed by the Lead Agency)

On the basis of this initial evaluation:

	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
X	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Richard W. Atwater/MO Signature	2/20/09 Date
Tom Dodson Signature	2/20/09 Date

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS – Would the project:				
a) Have a substantial adverse effect on a designated scenic vista or designated scenic highway?		■		
b) Substantially damage publicly visible scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings?		■		
c) Substantially degrade the existing visual character or quality of the site and its surroundings?		■		
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?		■		

Substantiation:

The implementation of Peace II would include continuing to install new infrastructure systems within existing communities and continuing to provide water in a more efficient and effective manner to support development of existing land uses consistent with the existing general plan and zone designations. The aesthetic and visual resource issues of focus in this evaluation are related to the alterations in the existing visual character of the visual setting that exists within the Project Area or views to external areas that may be impacted from implementing Peace II. The potential aesthetic impacts associated with Peace II are essentially unchanged from those that were associated with the original OBMP. The primary differences occur either based on alteration to the underlying scenic qualities of an area, through development that has occurred in the intervening years, or based upon revisions to documents that guide land use decisions or establish development standards that impact aesthetics.

The general impacts of the overall Chino Basin groundwater management program, to aesthetic and visual resources are forecast in Section 4.15 on pages 4-437 to 4-444 of the OBMP PEIR. The PEIR determined that implementation of the OBMP could cause adverse impacts on scenic vistas, on scenic resources, on visual quality of project areas and on night conditions due to creating night light and glare. Depending upon the type and location of facilities being implemented, mitigation was identified to reduce aesthetic impacts from OBMP implementation to a level of nonsignificance. The PEIR concluded that aesthetic impacts from OBMP implementation would not be significant and adverse, and for some projects mitigation would have to be implemented to achieve this level of impact.

The preservation and enhancement of the positive visual aspects, as well as establishing standards that ensure that new development will conform to aesthetic requirements, are key features of the general plans within the project area. Only the counties of Riverside and San Bernardino and the cities of Rancho Cucamonga and Fontana have adopted new General Plans since the preparation of the OBMP PEIR. New construction has the potential to conflict with the scenic views from existing neighborhoods and structures. Determination of the visual impact of new development associated with Peace II projects will ultimately have to be made at the specific project level, but guidelines are discussed and established below to ensure that future Peace II facilities and activities do not cause significant adverse aesthetic impacts.

a. *Less Than Significant With Mitigation Incorporation* – Future Peace II facilities will be underground (pipes), at ground level (recharge basins or turnouts) and above ground in the form of typical structures that will be used to house wells, support desalter operations or as storage reservoirs. The proposed project facilities and activities are not forecast to cause any significant adverse impacts to a scenic vista because these facilities will not be located in areas or be of a size to adversely impact such vistas.

   The most significant visual resources in the project area are the hills and mountains surrounding the Chino Basin, pastoral landscapes in and within view of the project area and the Prado Basin wetlands that occur in the southern portion of the Chino Basin. The predominant scenic vistas in the program area, as identified in local General Plans (Cities of Upland, Montclair, Chino Hills, Chino, Ontario, Rancho Cucamonga, Fontana, Claremont, Pomona and Counties of San Bernardino and Riverside), are: the views of the San Gabriel, San Bernardino and Santa Ana Mountains, Chino Hills, Jurupa Hills, Puente Hills and San Jose Hills, Tonner Canyon, Prado Basin, the Chino farmlands, and certain road corridors.

   The activity with the highest potential to conflict with local agency design guidelines is construction disturbance of the landscape. Such disturbance can be reduced to an acceptable level by landscaping or revegetating disturbed areas [pipelines, well pads, recharge basins, and structural developments (desalters)] or returning hardscapes (paved roadways, parking areas, etc.) to their prior condition after disturbance. Restoration of Peace II Program disturbed areas requires vegetating either with landscaping that is consistent with local design guidelines or with native vegetation that is consistent with that which occurs naturally in the area.

   The scenic views from and toward the foothill and mountain areas should be protected against development impacts. This can be accomplished by carefully planning the location and extent of development, by clustering development to maximize open space where appropriate and by encouraging the underground placement of utilities, where practicable.

   With implementation of mitigation outlined below, development under Peace II will be consistent with current general plan requirements for protecting scenic vistas.

   I-1 ***All surface areas disturbed by Peace II construction activities, except those areas occupied by structures or hardscapes, shall be revegetated, either with native vegetation in natural landscapes or in accordance with a landscape plan in man-made landscape areas. In non-native landscape areas, landscaping shall prioritize the use of native species or drought tolerant non-invasive species. Once construction is completed revegetation shall begin immediately. Where a formal landscape plan is to be implemented, it shall be coordinated with the local agency and the local design guidelines for consistency. Where a native land-scape is to be restored, it shall be implemented in cooperation with regulatory agencies with oversight from a qualified biologist.*** *This measure is a modification of 4.15-1 from the OBMP PEIR.*

I-2 ***Where facilities will disrupt views from occupied areas with significant scenic vistas, a visual simulation analysis shall be performed of the facility's impact on the important view. If the analysis identifies a significant impact on a scenic vista, the facility shall be relocated, redesigned to reduce the impact to a non-significant level, or a subsequent environmental evaluation shall be prepared.*** *This measure is the same as 4.15-3 from the OBMP PEIR.*

I-3 ***All utility connections for Peace II facilities shall be placed underground unless technically infeasible.*** *This measure is a modification to 4.15-5 from the OBMP PEIR.*

Given the type of facilities proposed by the Peace II Program and in conjunction with implementation of the above mitigation, scenic vistas can be protected and are not forecast to be substantially degraded by any of the proposed facilities.

b. *Less Than Significant With Mitigation Incorporation* – The proposed project facilities and activities are not forecast to cause any significant adverse impacts to scenic resources, including scenic highways, because these facilities will not be located in areas or be of a size to adversely impact such resources. There are no designated wild and scenic rivers located in the project vicinity.

Within the Peace II project area there are roadways classified as eligible for state scenic highway status, but there are no officially designated scenic highways. Located in the southwestern portion of the Chino Basin, State Route (SR) 142 south of SR 71 and SR 71 south of SR 83 are eligible to be state scenic highways, but are not officially designated. Several additional roadways, SR 57 south of SR 60 and SR 91 south of SR 71, located in the near southwest of the Chino Basin are also eligible to be state scenic highways, but are not officially designated.

The County of San Bernardino has designated scenic corridors within the project area and established planning standards that should be employed with development. OS 5.3 of County General Plan designates all of SR 71 within unincorporated County area, located in the southern portion of the Chino Basin, as a scenic route. The Circulation and Infrastructure Background Report for the County of San Bernardino General Plan dated February 21, 2006 states that the following roads in the vicinity of potential Peace II projects have also been designated scenic routes.

<u>West Valley Planning Area</u>
State Route 83 - All unincorporated frontage south of Riverside Drive
Mt. Baldy Road from Los Angeles County line northeast to Mt. Baldy
<u>Upland Planning Area</u>
State Route 83 (Euclid Ave/Mountain Ave) from 24th Street northwest to San Antonio Dam
<u>Rancho Cucamonga Planning Area</u>
Wilson Avenue (proposed)
Day Creek Boulevard (proposed)

The San Bernardino County General Plan states that land adjacent to and visible from the corridor, based on a motorist's line of sight, should generally be considered the boundaries of a scenic corridor. Where the line of sight extends a considerable distance or to the horizon, the General Plan indicates that "a reasonable boundary" should be selected.

Riverside County has designated State Route 71 as an eligible scenic route, as shown on Figure C-9 of the Riverside County General Plan.

In general, many of the groundwater treatment plants, wells, reservoirs, and conveyance facilities that are likely to be proposed under the Peace II program would be installed within existing, developed water facility sites, many of which are in commercialized or industrial areas. The existing facilities are surrounded by block walls and/or chain link fences and, in some cases, vegetative visual buffers. Additionally, some of these facilities are landscaped. As such, on-site operations, including the proposed Peace II facilities that would be installed within developed sites, would generally not be visible from off-site, and the visual character of these sites would not change. As specific facilities are proposed in the future, the associated environmental impacts will be evaluated in a subsequent project-specific CEQA evaluation to allow a final determination on future project's specific impacts. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

With implementation of mitigation outlined below, development under Peace II will be consistent with current general plan requirements for protecting scenic resources and scenic highway visual values.

I-4 ***Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, Peace II facility implementation will conform with design requirements established in these planning documents.*** *This measure is a modification to 4.15-2 from the OBMP PEIR.*

c. *Less Than Significant With Mitigation Incorporation* – The proposed Peace II facilities will utilize a combination of existing facilities, underground systems and new facility (desalter and recharge basin) construction to meet its objectives. Installation of surface facilities has a potential to modify the existing view or visual setting at future specific project sites which could cause a substantial negative visual impact. Mitigation measures outlined above can ensure that construction disturbance is mitigated by replacing vegetation and controlling potential negative aesthetic effects due to landscape scarring. Mitigation measure I-3 requiring that utilities be placed below ground when feasible reduces the potential negative aesthetic impact of above ground utility infrastructure that must be extended to these locations. Fencing or block wall will be installed around new well sites, treatment facilities, and above water conveyance facilities and structures for both security and to serve as a visual buffer. For structures, such as desalters and well housings, compliance with local agency design guidelines will ensure that new facilities do not cause significant negative aesthetic effects.

I-5 ***Fencing, landscaping and/or architectural design will be incorporated in project design to reduce the visual impact of facilities in a manner consistent with the surrounding development and with the local agency design guidelines to the extent that such measures do not conflict with the engineering and budget constraints established for the facility.*** *This measure is a modification to 4.15-4 from the OBMP PEIR.*

d. *Less Than Significant With Mitigation Incorporation* – Some of the proposed Peace II facilities will require the installation of night lighting, possibly including areas where little or no night lighting currently exists. The development of most of the proposed facilities are to be within existing facility sites, which already have some lighting features. Glare from new light fixtures that may be installed as part of proposed improvements has a potential to cause a significant negative impact upon adjacent uses, including sensitive receptors such as residential, rural or wildlife habitat portions of the Project Area. Such impacts can be fully mitigated by implementing measures for street lighting and down shielded commercial lighting which are generally an accepted element of urbanization.

Future specific projects will include isolated well sites and other facilities that may require the installation of infrastructure improvements and roadway improvements. Night lighting installed in support of future Peace II development projects will be mitigated to a non-significant level consistent with existing regulations controlling lighting requirements in each jurisdiction by controlling the amount of night light (lumens), by positioning of lights, by selecting the appropriate type of lighting for the specific site and location, and by directing the light glow/glare through use of hoods and other directional controls.

The last potentially significant adverse light-and-glare impact relates to headlights from project-related vehicle trips on project area roadways. The majority of increased vehicle trips will be attributable to daytime construction and maintenance related trips to Peace II facilities. The number of nighttime trips (unquantifiable at this stage of review) is estimated to be so small relative to existing trips on roadway that no significant cumulative contribution to headlight glare is anticipated to affect light sensitive receptor areas. No unusual or unique sources of light and glare are anticipated to be required in support of Peace II facilities. Many of the jurisdictions within which the project will occur have passed ordinances or adopted development codes designed to minimize the impact of light and glare on sensitive uses. The Peace II facilities will conform with the guidelines of each jurisdiction wherever feasible, but at a minimum Peace II projects will comply with the following mitigation measure.

I-6 Future project review and implementation shall implement the following:

- ***Use of low pressure sodium lights where security needs require such lighting to minimize impacts of glare.***
- ***Height of lighting fixtures shall be lowered to the lowest level consistent with the purpose of the lighting to reduce unwanted illumination.***
- ***Directing light and shielding shall be used to minimize off-site illumination.***
- ***No light shall be allowed to intrude into sensitive light receptor areas off of a specific project site.*** *This measure is a modification to 4.15-6 from the OBMP PEIR.*

Conclusion

The following issues **will not** require any further analysis in the SEIR:

- Affect a scenic highway
- Create light or glare
- Affect a scenic vista
- Have a demonstrable negative aesthetic effect.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
II. AGRICULTURE RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert viable farmland (Prime Farmland, Unique 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?		■		
b) Conflict with existing zoning for agri-cultural use, or a Williamson Act contract?		■		
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use?		■		

Substantiation:

The general impacts to agricultural resources of the overall Chino Basin groundwater management program were forecast in Section 4.2 pages 4-3 to 4-26 of the OBMP PEIR, which addresses land uses.

The Chino Basin historically contained significant agricultural resources, primarily dairy ranches located in the southern portion of the Basin and citrus groves and grape vineyards located in the northern portion of the Basin. In recent years, urbanization has converted a great percentage of the agricultural land in the Chino Basin to other uses. In 1994, the San Bernardino County Local Agency Formation Commission allocated an area of agricultural preserve (about 15,400 acres) to the cities of Chino and Ontario, which have subsequently annexed the land and assigned non-agricultural land use designations to the vast majority of it. In many cases, the former dairy lands have already been converted to urban uses during the housing construction boom in the early part of this decade. Agricultural uses are expected to continue shifting to urban uses within the Study area in accordance with the General Plan vision of the jurisdictions responsible for establishing land use designations, but there is no specific schedule for this transition to urban uses. The time period required for transition will depend upon future demand for urban development in the area, and the overall costs of operating, maintaining and closing the dairy ranches.

The State of California Department of Conservation Division of Land Resource Protection's San Bernardino Williamson Act Lands 2004 depicting land enrolled in Williamson Act and Farmland

Security Zone contracts as of January 1, 2004 shows no active or non-renewals contract lands in the project vicinity. This map only shows the eastern most portion of the Peace II project area within San Bernardino County. The San Bernardino County General Plan Land Use Background Report dated October 31, 2005 Figure 1-4 of Agricultural Preserves shows Williamson Act lands within the entire County, and shows that the only Williamson Act lands within the San Bernardino County portion of the project area are located in the southern portion of the project area in the vicinity of the Prado Basin. Figure 1-5A of the same document shows that the Williamson Act lands are in areas under the jurisdiction of the City of Chino and the State of California. The Land Use Background Report summarizes the decline in acreage enrolled in Williamson Act contracts within the County as 67.5% from 1991 through 2001. Further declines in Williamson Act land have occurred since January 1, 2001, when there were 7,103 acres under Williamson Act contracts, while on January 1, 2004 acreage under contract had dropped to 4,533 acres.

The State of California Department of Conservation Division of Land Resource Protection's San Bernardino County Important Farmland 2006 map shows the entire project area within the County. Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) is depicted on scattered, typically small, parcels in the northern portion of the project area with a fairly large area of Unique Farmland is designated immediately east of the Interstate-215 and Highway 210 interchange. In the southern portion of the project area, considerable acreage is depicted as Farmland in the vicinity of the Prado Basin.

The State of California Department of Conservation Division of Land Resource Protection's Riverside County Williamson Act Lands 2006 map depicting land enrolled in Williamson Act and Farmland Security Zone contracts as of January 1, 2006 shows active Williamson Act contracts on prime agricultural land as well as non-renewals contracts on both on prime and non-prime agricultural lands within the Chino Basin in the vicinity of Prado Basin. Roughly half of the acreage under Williamson Act contract was mapped as non-renewal. This map depicts all of Riverside County within the project boundaries.

Determination of the impact of new development associated with Peace II projects on agricultural land will ultimately have to be made at the specific project level, but guidelines are discussed and established below to ensure that future Peace II facilities and activities do not cause significant adverse agricultural impacts.

a-c. *Less Than Significant With Mitigation Incorporation* – In January 2004, the Regional Board amended the Basin Plan to incorporate an updated total dissolved solids (TDS) and nitrogen (N) management plan. The Basin Plan Amendment includes both "anti-degradation" and "maximum benefit" objectives for TDS and nitrate-nitrogen for the Chino and Cucamonga groundwater management zones. The application of the "maximum benefit" objectives relies on Watermaster and the IEUA's implementation of a specific program of projects and requirements, which are an integral part of the OBMP. The maximum benefit objectives for TDS and N have provided assimilative capacity within the Basin that supports continued agricultural activities. Prior to the 2004 Amendment, the Basin Plan contained restrictions on the use of recycled water within the Chino Basin for irrigation. As discussed under Program Element 7, access to the assimilative capacity afforded by the "maximum benefit" based objectives requires the IEUA and Watermaster to demonstrate that the maximum beneficial use of the waters of the State is being achieved.

Further, Regional Board Order No. R8-2007-0001 General Waste Discharge Requirements for Concentrated Animal Feeding Operations (NPDES No. CAG018001) explicitly requires animal feeding operations to demonstrate that discharges are addressed by the OBMP or to show how discharges that are not addressed by the OBMP will be offset.

At the general plan level, Peace II will not cause or contribute to the transition of agricultural land to urban uses. Increasing the safe yield of the Chino Basin, enhancing water quality through treatment and dilution and the provision of adequate waste treatment and reuse have no identifiable potential to cause or contribute to this transition in uses. In fact, as discussed above, the 2004 Basin Plan Amendment and the OBMP provide a context through which agricultural discharges can be addressed. Thus, at the Study area planning level, Peace II implementation is not forecast to have any adverse effect on the agricultural to urban land use transition.

At the project specific level, Peace II may have a very small impact on agricultural operations. Most of the new treatment facilities, wells, and conveyance facilities will be installed within the footprints of existing water utilities sites. The majority of new treatment facilities, wells, and conveyance structures and facilities that will not be located on sites already developed with existing water facilities are expected to be located within areas already developed with residential, commercial, industrial or open space uses. Further, any future recharge basins are expected to be located in the upper to middle portion of the Chino Basin, where there are no Williamson Act lands and only limited areas with important agricultural lands, in order to make the percolated water available for utilization within the Basin. It is unlikely that recharge would be located in the lower portion of the Basin because it would be difficult to recapture and would require treatment (desalting) due to poor water quality. Therefore, the installation and operation of such facilities has little potential to have a direct adverse impact on agricultural operations, unless the parcel(s) selected for such facilities are of the relatively few still in agriculture in the upper and middle part of the basin.

Most pipelines will be placed within existing rights-of-way, which are alignments that are generally already disturbed. Any pipelines placed under agricultural land would allow most agricultural operations to continue. Thus, the installation and operation of pipelines is not forecast to cause any measurable loss of agricultural land.

Production wells, monitoring wells and desalter expansions have a reasonable possibility of removing some agricultural land from operation. The total acreage of land expected to be impacted for desalter and wells footprints is forecast to be less than 100 acres. Given the rate of conversion of agricultural land to other uses in recent years, the potential conversion of less than 100 acres in support of Peace II projects, representing the equivalent of less than 4% of land removed from Williamson Act lands in San Bernardino County between January 1, 2001 and January 1, 2004, is not forecast to be a significant impact to agricultural lands or operations. The project’s contribution to cumulative removal of agricultural operations could be considered significant as discussed in more detail below, but mitigation is provided that will allow Peace II implementation to avoid contributing to a cumulative significant loss of land currently dedicated to agricultural operations and to cumulative conversion of important farmlands and prime agricultural soils located in the southern portion of the Basin.

The 1994 allocation of agricultural areas to the Cities of Ontario and Chino and subsequent annexations and land use designation changes have already converted much of the former agricultural preserve acreage in the southern portion of the Chino Basin to urban uses. Conversion of agriculture has not been driven directly by water related issues, but the cost to continue dairy operations in the Chino Basin and the value of the land for non-agricultural uses contribute to agriculture activities shifting to alternative locations. Remaining agricultural lands may continue to be converted to other uses, although the City of Chino General Plan Map designates some land for agricultural uses, particularly in the vicinity of Prado Basin. As stated above, Peace II could make a small contribution to the shift of agriculture to urban uses in the Basin, but implementation of the following mitigation measure can reduce this cumulative contribution to a non-significant level.

II-1 ***Where future Peace II facilities are proposed on locations that support agricultural operations on important farmlands, alternative sites shall be selected that do not occupy such acreage (unless agricultural operations have already been terminated).*** *This measure is a modification to 4.2-2 from the OBMP PEIR.*

Conclusion

The following issues **will not** require any further analysis in the SEIR.

- Conflicts with agricultural resources or operations.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	■			
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	■			
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	■			
d) Expose sensitive receptors to substantial pollutant concentrations?	■			
e) Create objectionable odors affecting a substantial number of people?	■			
f) Result in greenhouse gas emissions that would hinder or delay the State's ability to meet the reduction targets contained in AB 32?	■			

<u>Substantiation</u>:

The general impacts to air quality resources of the overall Chino Basin groundwater management program were forecast in Subchapter 4.6 on pages 4-270 to 4-295 of the original OBMP PEIR. The PEIR determined that implementation of the OBMP could cause adverse impacts on air quality, primarily from nitrogen oxides (NOx) due to electricity consumption for pumps and other facilities that consume electricity. Depending upon the type and location of facilities being implemented, mitigation was identified to reduce construction-related air emission impacts from OBMP implementation to a level of nonsignificance. The PEIR concluded that air quality impacts from OBMP implementation could be reduced to a less than significant impact level for construction activities (through a combination of emission controls and scheduling), but the long-term impact of air emissions would be unavoidably significant and adverse.

Air Quality circumstances have changed substantially since the 2000 OBMP PEIR was prepared. Specifically, background air quality has changed over the past eight years; the state and federal ambient air quality standards for particulate matter (PM10 and PM2.5) and ozone have been revised; greenhouse gas emissions [carbon dioxide (CO_2) and methane (CH_4)] have been identified as emissions of concern; and the emission forecast model used by the South Coast Air Quality Management District (SCAQMD), URBEMIS, has been updated and local significance thresholds have been established by SCAQMD to further refine the potential air quality impacts of projects within the South Coast Air Basin (SoCAB). Based on these changes, IEUA proposes to conduct a comprehensive subsequent analysis of air quality issues in an SEIR.

a-f. *Potentially Significant Impact* – The project is located entirely within the SoCAB which is under the jurisdiction of the SCAQMD. The air quality regulatory jurisdictions within the project area include the U.S. Environmental Protection Agency (EPA), the California EPA, and the SCAQMD. The SCAQMD has jurisdiction over the air basin in which the proposed project is located and is responsible for regulating stationary source emissions. The District has also been given the authority to regulate mobile emissions as an indirect source.

The SoCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the semi-permanent high pressure over the Pacific Ocean. This inversion limits the vertical dispersion of air contaminants produced in the air basin, trapping them relatively near the ground. Pollutants generated in the coastal portions of the basin undergo photochemical reactions converting them to smog, which is then transported inland by the prevailing daytime onshore winds. The project area typically has poor air quality in the summer and good air quality in the winter due to the combination of onshore and offshore winds, summer inversions and high levels of emissions generated within the air basin.

Circumstances have changed within the SoCAB since 2000, including changes in the regulatory setting as well as pollutant levels, requiring an Air Quality Impact Analysis for the project based upon the current circumstances. Some changes in the background pollutant levels in the SoCAB and changes in the Air Quality Management Plan (2007) may require more detailed construction mitigation measures. New regulations have also been developed, for example of Greenhouse Gases, since the OBMP PEIR was prepared. Also, the most current version of the URBEMIS model is required to be used to make emission forecasts. Note that the OBMP PEIR forecast a potentially significant cumulative air quality impact from operations. However, the impacts from implementing Peace II projects must be analyzed to determine if they remain within the scope of analysis and findings contained in the OBMP PEIR.

<u>Conclusion</u>

The following issues **<u>will</u>** require further analysis in a SEIR.

- Conflict with the Air Quality Plan
- Violate air quality standards
- Increase of criteria pollutants
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) 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 or policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	■			
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the State of California Department of Fish and Game or U.S. Fish and Wildlife Service?	■			
c) 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?	■			
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites?	■			
e) Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy or ordinance?	■			
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	■			

<u>Substantiation</u>:

The general impacts to biological resources of the overall Chino Basin groundwater management program were forecast in Section 4.8 of the OBMP PEIR, pages 4-308 to 4-343. Based on the analysis of biological resources in the OBMP PEIR, the potential biological impacts from implementing the OBMP programs were found to be potentially significant adverse impacts, but after application of eleven mitigation measures, the PEIR concluded that these potential significant impacts could be reduced or controlled to a less than significant level.

Peace II programs will be implemented in a modified environment regarding Chino Basin biological resources. Although no new species have been listed as endangered or threatened within the Chino Basin since the OBMP PEIR was approved, changes in the amount of and location of critical habitat have occurred for several species in the Basin, including the San Bernardino kangaroo rat and the coastal California gnatcatcher. In addition, biological resources located within the Riverside County portion of the Chino Basin are now managed under the Western Riverside County Multiple Species Habitat Management Plan (MSHCP). Further, habitat for a number of sensitive species in the Chino Basin has been reduced since 2000 as a result of conversion to other uses, primarily urban/suburban uses.

An additional Chino Basin-wide survey of biological resources (Subchapter 4.8) was provided in the Facility Master Plans Program Environmental Impact Report (2003) (FMP PEIR). The basic data, analysis and findings in this document also found that biological resource impacts from implementing the three Master Plans (Organics Management, Wastewater and Recycled Water) within the Chino Basin could be reduced to a less than significant impact level. The data, analysis and findings of both of these documents regarding biological resources are incorporated by reference (per Section 15150 of the State CEQA Guidelines) as part of this document.

Because biological resources circumstances have changed and the Peace II programs envision additional lowering of the water table within the Basin, biology issues will be evaluated in a SEIR.

a-f. *Potentially Significant Impact* – The following information is abstracted from the OBMP PEIR and it summarizes the basic biological resource issues within the Chino Basin. The project area is a primarily urban setting. The vast majority of the approximately 225,000 acres that comprises the Chino Basin has been previously developed or disturbed by human activity. Relatively speaking, very few pristine areas of undisturbed natural habitat remain. The following is a discussion of areas with in the Chino Basin that have the largest areas of extant natural habitat communities or have the most significant biological resources.

The Prado Reservoir area comprises 9,741 acres northwest of Corona and south of Chino. Approximately 4,000 acres of this area can be classified as riparian woodland vegetation, of which 2,000 to 2,500 acres is dense riparian habitat dominated by large stands of willow woodland. This is one of the largest remaining riparian woodlands in southern California. This area supports a wide array of sensitive species, both floral and faunal. According to the Biological Resources section for the Chino Basin Groundwater storage Program Draft Environmental Impact Report for Metropolitan Water District of Southern California, a total of 311 species of vascular plants, belonging to 65 families, were identified in the Basin area. That document identified three major vegetational communities within the Basin: riparian, coastal sage scrub and aquatic.

Riparian habitat occurs in low lying sections of the Basin including along the Santa Ana River and streams that flow into the Basin. The riparian habitat is dominated by extensive stands of black willow and smaller stands of arroyo willow and to a lesser extent by cottonwoods and sycamores. Coastal sage scrub habitat, which can include grasses and exotic weeds, is typical of upland areas within the Basin. Much of the uplands in the Basin have been heavily impacted by agriculture and grazing activities. Aquatic and semi-aquatic communities occur in permanent streams, artificial ponds and intermittently filled reservoirs and streams within the Basin.

The Santa Ana River and its tributaries within the Chino Basin are also significant areas for biological resources as they provide refugia and breeding grounds for both resident and migrant species as well as habitat linkages and movement corridors connecting various large blocks of relatively undisturbed habitat areas.

Another significant area for biological resources that lies adjacent to the Chino Basin is Chino Hills State Park has approximately 14,000 acres of wild land situated in the hills north of the Santa Ana River Canyon. Although Chino Hill State Park contains large blocks of non-native grasslands, it also contains riparian habitat comprised of coast live oak and sycamore woodlands. Additionally, this park contains one of the largest remaining stands of Southern California black walnut. This park functions as an important area for connectivity with the Prado Basin.

The following plant community types occur within or immediately adjacent to the Chino Basin.

- Chaparral
- Riversidean sage scrub
- Deciduous woodlands
- Riparian/Wetland areas
- Delhi sands
- Grasslands
- Non-Native Grassland

These plant communities and habitats will be evaluated for their continued existence within the Chino Basin and additional information regarding the region's biological resources will be summarized and assessed as part of a SEIR evaluation of biological resource impacts that may be caused by implementing Peace II programs.

<u>Conclusion</u>

The following issues **<u>will</u>** require further analysis in a SEIR.

- Adverse impacts on listed or sensitive plant and animal species in the Chino Basin
- Substantial adverse effect on riparian habitat or other sensitive natural communities in the Chino Basin
- Substantial adverse effect on federally protected wetlands in the Chino Basin
- Interfere with any wildlife movement or migration corridors or impede use of a native wildlife nursery site
- Conflict with local policies protecting biological resources
- Conflict with provisions of adopted Habitat Conservation Plan, Natural Community Conservation Plan or other habitat conservation plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?		■		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?		■		
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?		■		
d) Disturb any human remains, including those interred outside of formal cemeteries?			■	

Substantiation:

The general impacts to cultural resources of the overall Chino Basin groundwater management programs were forecast in Section 4.14 pages 4-425 to 4-435 of the OBMP PEIR. Sensitive areas for cultural resources were shown in Figure 4.14-1. The PEIR determined that implementation of the OBMP could cause adverse impacts on cultural resources and mitigation was identified to reduce impacts to historic resources, pre-historic (archaeological) and paleontological resources. After implementing these mitigation measures, it was determined that the cultural resources impacts from OBMP implementation could be reduced to a less than significant level. An additional Chino Basin-wide survey of cultural resources (Subchapter 4.12) was provided in the Facility Master Plans Program Environmental Impact Report (2003) (FMP PEIR). The basic data, analysis and findings in this document also found that cultural resource impacts from implementing the three Master Plans (Organics Management, Wastewater and Recycled Water) could be reduced to a less than significant impact level. The data, analysis and findings of both of these documents regarding cultural resources are incorporated by reference (per Section 15150 of the State CEQA Guidelines) as part of this document.

The existing circumstances have not changed substantially since the preparation of the OBMP; however, more cultural resource surveys have been conducted for various projects, both related and unrelated to the OBMP, that will have resulted in some new records of culturally sensitive resources within the Chino Basin. Additionally, because historical resources become worthy of consideration when they are 50 years old, some resources within the Chino Basin that were ~42 years old may require further consideration upon subsequent analysis.

a&b. *Less Than Significant With Mitigation Incorporation* – In general, most of the groundwater treatment plants, wells, reservoirs, and conveyance facilities that are likely to be proposed under the Peace II program would be located within developed areas where there would be minimal risk of disturbing cultural resources. Surface cultural resources in developed areas have generally been recorded or destroyed by previous activities. In most cases, pipelines will be installed along existing roadways and easements where development has already occurred, thus the chances of uncovering previously unidentified cultural resources are diminished. Installation of infrastructure would often require the excavation or movement of soil material, which could have the potential to adversely affect cultural resources. The actual potential of discovering resources at each location is substantially different in nature, and is highly site/project specific.

The OBMP PEIR found that there is a significant potential for encountering cultural resources at any location within the Chino Basin, even in pre-existing roadways where pipelines might be installed. It also found that areas that have not been surveyed, but where pre-historic sites can be reasonably expected to be encountered are any creek, river, waterway, spring, foothill area, or flat area on the hills and mountains. Historic sites can be found anywhere there is flat, arable land, old streets, old railroads, old roads, or close proximity to water or mountain areas (which were historically used for resorts, summer cattle ranching and mining areas).

Mitigation measures 4.14-1 through 4.14-6, on pp. 4-431 through 4-434 in the OBMP PEIR will be applied to future Peace II projects. These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

Archaeology

V-1 Inventory: A required basic archaeological inventory should encompass the following guidelines:

a. Literature and Records Search - Existing maps, site reports, site records, and previous EIRs in the region of the subject area should be researched to identify known archaeological sites and works completed in the region. All maps, EIRs, historical maps and documents, and site records should be cited in text and references. Local historical societies should also be contacted and referenced. State Information Centers will provide the bulk of this information. The San Bernardino County Archeological Information Center (AIC) or the Eastern Information Center (EIC) at UC Riverside should be contacted.

b. Field Reconnaissance - Conduct a surface survey to obtain comprehensive examination of current status of the area and gather general understanding of the kinds of cultural and related phenomena present. At a minimum, all ground surfaces chosen for survey should be walked over in such a way that every foot of ground can be visually scanned. All previously recorded cultural resources should be revisited to determine their current status, and all newly discovered sites should be recorded on either State Form 422 or 523 and supplements, as appropriate. Trinomial designations will be obtained from the Information Center. For the inventory process, a compilation of all historical resources, including archaeological and historic resources older than 50 years, using appropriate State record forms, following guidelines in the California Office of Historic Preservation's handbook should be completed for all new discoveries. Two copies should be submitted to the San Bernardino County Archeological Information Center for the assignment of trinomials if discovered within San Bernardino County. Otherwise, the appropriate comparable agency in Riverside County shall be the recipient of these reports.

c. ***Report - A technical report should be prepared which fully describes both the methods and results of all efforts. Research sources should be listed, and the information summarized. The field work should be presented in detail, with all appropriate maps and graphics. Any areas not inspected with full intensity should be specified, preferably using clear, easily understood maps, and the reasons for the deficiency presented. Site records should be prepared for all new discoveries, and amendments prepared to update old records where necessary; since locational data are shielded from public access, the actual forms should be provided in the separable appendix, but the sites should be described in the main text. Each resource description should include a professional opinion of significance, with reference to the qualities or research potential which make it worthy of further consideration. Archaeological sites which need test excavation to confirm significance, integrity, and boundaries should be identified, and a sampling program recommended.***

For each potentially significant cultural resource, possible impacts should be listed and mitigating measures developed. All standards for compliance with the CEQA requirements and those of the lead agencies should be addressed. *This measure is 4.14-1 from the OBMP PEIR.*

V-2 Assessment

Properties shall be evaluated using a well-understood cultural context that describes the cultural development of an area and identifies the significant patterns that properties represent. This same historic context is used to organize all identification, registration, and preservation decisions within the planning framework. To be useful in subsequent stages of the planning process, evaluation decisions must make clear the significance of the property with the historic context. Potential preservation treatments should not influence the evaluation of significance (National Park Service n.d.:35).

The nature and type of assessment will depend on the particular resource(s) and level of information for a particular region. Consequently, it is not possible to prescribe specific methods to be utilized. However, there are certain basic elements that should be included and are as follows:

a. ***Preparation of a Research Design - Archaeological documentation can be carried out only after defining explicit goals and a methodology for reaching them. The goals of the documentation effort directly reflect the goals of the preservation plan and the specific needs identified for the relevant historic contexts.***

b. ***Field Studies - The implementation of the research design in the field must be flexible enough to accommodate the discovery of new or unexpected data classes or properties, or changing field conditions. An important consideration in choosing methods to be used in the field studies should be assuring full, clear, and accurate description of all field operations and observations, including excavation and recording techniques and stratigraphic or inter-site relationships.***

c. ***Report - The assessment report should evaluate the significance and integrity of all historical resources within the project area, using criteria established in Appendix K of the CEQA Guidelines for important archaeological resources and/or CFR 60.4 for eligibility for listing on the***

National Register of Historic Places. The report should contain the following information and should be submitted to the San Bernardino county Archaeological Information Center or to the Eastern Information Center at UC Riverside for permanent archiving:

(1) Description of the study area;
(2) Relevant historical documentation/background research;
(3) The research design;
(4) The field studies as actually implemented, including any deviation from the research design and the reason for the changes;
(5) All field observations;
(6) Analysis and results, illustrated as appropriate with tables, maps, and graphs;
(7) Evaluation of the study in terms of the goals and objectives of the investigation, including discussion of how well the needs dictated by the planning process were served;
(8) Information on where recovered materials are curated and the satisfactory condition of those facilities to protect and to preserve the artifacts and supporting data. The County of San Bernardino requests that historical resource data and artifacts collected within this project area be permanently curated at a repository within the County.

d. In the event that a prehistoric or historic artifact over 50 years in age is encountered within the project area, especially during construction activities, all land modification activities in the immediate area of the finds should be halted and an onsite inspection should be performed immediately by a qualified archaeologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures. Further, if human remains of any kind are encountered on the property, the San Bernardino or Riverside County Coroner's Office must be contacted within 24 hours of the find, and all work should be halted until a clearance is given by that office and any other involved agencies. *This measure is 4.14-2 from the OBMP PEIR.*

V-3 Monitoring

In situations where resources are potentially subject to direct or indirect impact and testing or data recovery is not proposed, an archaeological monitor and Native American observer/consultant should be present during subsurface work. One circumstance under which this might occur would be if a known resource were close to an area of impact and the site boundaries were ambiguous. Monitors help insure that exposed data or materials are collected and that if potentially significant cultural materials or features are encountered, they will be preserved either by realignment of the proposed facilities or by prompt evaluation and recommendations for any necessary mitigative measures. *This measure is 4.14-3 from the OBMP PEIR.*

V-4 Data Recovery

If an archaeological resource is found to be significant and no other preservation option is possible, mitigation of adverse effects by scientific data recovery, including analysis and reporting is the method of last resort. Such a mitigation program is usually only developed after an assessment test has been completed to identify physical parameters and cultural complexity, and formulate a research design. Each specific program would have to be

developed in response to the site and potential impact, with the concurrence of the appropriate agencies and in consultation with Native American representatives. *This measure is 4.14-4 from the OBMP PEIR.*

V-5 Future Project Siting

Future project shall be located, whenever possible or feasible, outside of the highly sensitive cultural resource areas depicted in Figures 4.14-1. Before any projects are located, and before any construction activities begin, any proposed project that will result in ground disturbance to any area that does not have a complete cultural resource survey on record with either the AIC or the EIC offices will conduct a site specific cultural resource evaluation and report prior to any ground breaking activity. Further, if cultural resources have been identified on the site, a qualified archeologist or paleontologist will be retained to devise an excavation and/or curation plan for the resources, and a qualified cultural resource monitor will be present onsite during all construction-related activities that could potentially uncover previously undiscovered resources. This monitor will examine excavated soils and have the authority to cease construction activities if resources are un-earthed. *This measure is 4.14-5 from the OBMP PEIR.*

Architectural Resources

V-6 Based solely upon this level of investigation and at this stage of project planning, it would be premature to propose specific mitigation measures. However, certain options can be presented presupposing a general level of knowledge regarding impacts. These options can be utilized to avoid impacts upon the cultural resources - the preferred result - or to lessen adverse effects. It should be emphasized that these options are not the only ones that may be applied. As such, these measures are not recommended as conditions of Project approval but are included for the Authority's consideration and implementation as appropriate.

- ***a. Conduct a comprehensive historic building survey which is integrated with economic development programs;***
- ***b. Adopt a preservation ordinance and create a preservation board;***
- ***c. Ensure other planning programs, plans, and ordinances are compatible to the historic preservation goals and policies;***
- ***d. Direct existing funding sources and loan programs to historic neighborhoods in need of revitalization;***
- ***e. Provide incentives and direction encouraging preservation and revitalization; and***
- ***f. Develop ongoing programs for enhancing public appreciation of historic resources.***
- ***g. Project Redesign - A proposed project may be redesigned in either of two ways:***
  - ***(1) Outside of site boundaries, thus avoiding impact to the site; or***

(2) Restricting impacts to those areas of a site where previous impacts have already destroyed the integrity and research potential.

Other options may also apply and may include capping of the site, relocation of structures, and integration of extant buildings into project design. *This measure is 4.14-6 from the OBMP PEIR.*

These measures ensure that Peace II related projects will not cause significant impact to cultural resources. Mitigation will be accomplished through avoidance or recovery of all pertinent data from identified cultural resources sites within the Project Area.

As specific facilities are proposed in the future, the associated environmental impacts will be evaluated in a subsequent project-specific CEQA evaluation to allow a final determination on future project's specific impacts. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines. Similarly, where cultural resources evaluations are conducted for projects receiving federal funding or where State Revolving Fund loans may be obtained, the evaluations of site specific projects shall be consistent with National Environmental Policy Act (NEPA) requirements and shall be coordinated with the federal agency or State Water Resources Control Board, as appropriate. Based on the requirement to ensure that such resources are avoided or otherwise protected and evaluated, no significant cultural resource impacts are forecast to occur if the proposed project is implemented. The prior mitigation measures will apply to the new proposed project. No additional impacts are anticipated by the proposed project; therefore, no new mitigation measures are required. This issue area will not be analyzed further in the SEIR.

c. *Less Than Significant With Mitigation Incorporation* – Previous investigations in the region have identified the presence of significant paleontological resources where construction activities extend into or below the older alluvial sediment boundary. Please refer to the detailed discussion of paleontological resources in the Facilities Master Plans (FMP) Program Environmental Impact Report (PEIR, 2003). The depth to this layer varies throughout the Chino Basin, but a depth of ten feet is used in this document to identify a threshold beyond which paleontological resource monitoring should occur during construction. Exceptions would occur when previous construction disturbance has extended below the depth of the proposed project construction activities. The following mitigation measures will be implemented to control potential paleontological resource impacts to a less than significant level.

V-7 At all locations where project impacts will extend to depths below 10 feet, spot monitoring shall be carried out to determine if high sensitivity deposits are being excavated. If high sensitivity deposits are being disturbed, then continuous paleontological monitoring will be required for all ground disturbing activities within these deposits. If paleontological resources are located during construction within sensitive deposits, construction in that area must stop, the resources must be protected, and treatment by a qualified paleontologist must occur following professional procedures.

Incorporating the above mitigation measure will reduce potential impacts below a level of significance. Based on the requirement to ensure that such resources are avoided or otherwise protected and evaluated, no significant impacts to paleontological resources are forecast to occur if the proposed project is implemented. No additional impacts beyond what was anticipated in the OBMP PEIR are expected of the proposed project. This issue area will not be analyzed further in the SEIR.

d. *Less Than Significant Impact* – Within the Chino Basin there are formal cemeteries (both historic and prehistoric) as well as old family and/or ethnic burial plots that do not appear on any current maps. As the majority of future project sites would be located on previously disturbed sites, it is considered a very low probability that human remains will be discovered during construction or operation. However, in the event human remains are found at project sites, State Health and Safety Code 7050.5 requires that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. If the coroner determines that the burial is prehistoric, the Native American Heritage Commission must be contacted and appropriate disposition of the burial determined. As this is State law, no further mitigation is required for this issue. No additional impacts beyond what was anticipated in the OBMP PEIR are expected of the proposed project; therefore, no new mitigation measures are required. This issue area will not be analyzed further in the SEIR.

<u>Conclusion</u>

Based on the analysis presented above, cultural resources will not experience significant adverse impacts from project implementation greater than those forecast in the OBMP PEIR. The proposed cultural resources impacts remain consistent with the findings of the OBMP PEIR, i.e., that there are considerable historic and prehistoric resources in some areas of the Chino Basin. Implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding cultural resources impacts. Thus, this project's impacts remain within the scope of analysis and findings contained in the OBMP PEIR. As specific facilities are proposed in the future, the associated environmental impacts will be evaluated in a subsequent project-specific CEQA evaluation to allow a final determination on future project's specific impacts. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

The following issues **<u>will not</u>** require any further analysis in the SEIR:

- historical resources
- archaeological resources
- paleontolgical resources
- human remains.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) 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? Refer to Division of Mines and Geology Special Publication 42.			■	
ii) Strong seismic groundshaking?			■	
iii) Seismic-related ground failure, including liquefaction?	■			
iv) Landslides?			■	
b) Result in substantial soil erosion or the loss of topsoil?			■	
c) 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse?	■			
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risk to life or property?			■	
e) 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?			■	

Substantiation:

The general impacts to geology and soils of the overall Chino Basin groundwater management programs were forecast in Section 4.4 on pages 4-42 to 4-70 of the OBMP PEIR. Section 4.4 also discussed the existing conditions, including soil types, erosion, landslides, groundwater, seismic, seismic induced flooding and seiches, subsidence, liquefaction and ground rupture. The OBMP PEIR concluded that geology and soil impacts would be controlled to a less than significant impact level with implementation of recommended mitigation measures. For the majority of the topics in this section, there has been no substantial change in circumstances that would require subsequent analysis. However for identified issues where impacts are associated with groundwater levels, such as liquefaction and subsidence, additional analysis is required in the SEIR.

a. *Potentially Significant Impact* – The Peace II project is located within a seismically active area, as is most of southern California. While there may have been minor advances in the understanding of seismic risks within the project area since preparation of the 2000 OBMP PEIR, the mitigation measures incorporated therein, and provided below with minor modifications, are sufficient to reduce adverse impacts to below a level of significance for most issues. The types of facilities expected to be constructed as part of the Peace II project are consistent with those that were forecast in the OBMP PEIR. Implementation of the project should not expose people or structures to potential substantial adverse geologic constraints/effects beyond that which was forecast in the OBMP PEIR, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground shaking or landslides. As specific facilities are proposed in the future, the associated environmental impacts will be evaluated in a subsequent project-specific CEQA evaluation to allow a final determination on each future project's specific impacts. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

   Because the Peace II project would include Re-Operation of the Chino Basin, which would result in removing ~400,000 acre-ft of groundwater and thereby lowering groundwater levels in portions of the Basin, further evaluation of seismic-related ground failure, including liquefaction, will be included in the SEIR.

   Mitigation measures dealing with seismic and geologic hazards as addressed in the General Plans/EIRs of the Participating Jurisdictions shall be implemented. Examples of measures which are designed to minimize the potential for damage, injury and loss of life resulting from geologic hazards include the following (From Section 4.4.4.2 - Geology of the OBMP PEIR):

   4.4-7 ***Mitigate the risks from geological hazards through a combination of engineering construction, land use and development standards.***

   4.4-8 ***Require each site within identified Liquefaction Hazard Zones to be evaluated by a licensed engineer prior to design or land disturbance/construction.***

   4.4-9 ***Apply appropriate design and construction criteria to all structures subject to significant seismic shaking.***

   4.4-10 ***Prohibit critical, essential, and high risk land uses near earthquake special studies areas shown on the Hazard Overlay Maps developed by the County of San Bernardino and Riverside.***

   4.4-11 ***Requires stability analysis for Landslide Hazard areas designated "Generally Susceptible" and "Mostly Susceptible" on the Hazards Overlay Maps.***

   4.4-12 ***Institute restrictions on construction in high landslide potential and steep-slope areas to ensure safe development.***

   4.4-13 ***Continue to identify and study subsidence hazards and susceptible areas, and propose mitigation technology that is appropriate to the findings of the***

monitoring study. The implementation of Peace II facilities shall not in any way contribute to subsidence conditions in pre-existing subsidence zones (as shown in Figure 4.4-16). Peace II will not cause or contribute to any new, significant subsidence impacts greater than a total of six inches in magnitude over the planning period. Impacts less than 6 inches in new areas are considered to be less than significant.

4.4-14 If modeling conducted for the expanded OBMP SAWPA desalter wellfield demonstrates that such pumping will contribute to subsidence in the existing subsidence area, then a potentially significant impact can occur, and a subsequent environmental document will be prepared. No OBMP/Peace II activities allowed under this document will be permitted to cause or contribute to the subsidence within the pre-existing subsidence area defined in the OBMP Phase I Report and Figure 4.4-16.

4.4-15 To ensure that pumping impacts in the vicinity of the desalter well field do not have an adverse impact on water levels and subsidence issues, the follow performance standards shall be used to evaluate the desalters:

a. Water level declines in areas surrounding the desalter pumping locations will not be allowed to decline to the extent that pumping capabilities for surrounding wells are impacted. If surrounding wells and producers are impacted by declines in water levels, alternative access to equivalent quantity and quality of water will be provided to affected surrounding parties. This water may be provided through distribution of funding to affected parties for the deepening of existing wells, or may be provided through the delivery (paid for by the implementing agency) of comparable or improved quality and quantity of water from other sources.

b. If desalter well fields are demonstrated to cause or exacerbate impacts to subsidence areas measurable by a decline of over six inches in ground level at a 1/4 mile radius, or at the radius of the nearest non-OBMP/Peace II-participating structure, then pumping patterns for the desalters shall be modified to reduce impacts to cause no more than six inches of decline in ground level at the smallest of the two radii.

4.4-16 Requires site-specific geotechnical investigations of proposed development to include an assessment of potential impacts and mitigation measures related to expansive and reactive soils and liquefaction. Under Peace II, Watermaster will continue to monitor the areas with potential liquefaction hazards and will work with local jurisdictions to ensure that any future structures are constructed with the appropriate foundations to address increased liquefaction potentials apropos to the specific area. This mitigation measure will reduce impacts to a less than significant level.

4.4-17 Apply provisions of hillside erosion and sediment control that reduce volume and velocity of flows and content of sediment to levels that do not cause significant rill or gully erosion in susceptible areas. In addition, provide for restoration of areas that do become eroded.

4.4-18 Prevent unnatural erosion in erosion-susceptible areas by tailoring grading and land clearance activities, and by prohibiting grazing and use of off-road vehicles.

The foregoing are general examples of appropriate mitigation measures. As development is proposed during Peace II implementation, more detailed project-specific measures may be employed.

The following mitigation measures will be implemented for individual projects implemented under Peace II. Implementation of these measures can reduce all potential impacts to a level that is considered to be less than significant with respect to the proposed thresholds. (From Section 4.4.4.3 - Seismicity of the OBMP PEIR) Mitigation measures 4.4-19 through 4.4-24, on pp. 4-68 through 4-69 in the OBMP PEIR will be applied to future Peace II projects. These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

VI-1 ***When determined necessary by the affected jurisdictions, geotechnical and soils engineering reports shall be prepared in conjunction with the preparation of preliminary design layouts and grading plans for all new development projects implemented within the proposed Project Area. These studies will verify the presence or absence of hazardous soil conditions. If necessary, these reports will provide specific mitigation measures for the treatment of potential geologic and soils hazards.*** *This measure is 4.4-19 from the OBMP PEIR.*

VI-2 ***Comprehensive geotechnical investigation shall be required prior to engineering and design development or structural and/or substantial rehabilitation of structures identified under Risk Class I & II, e.g., public facilities, as identified below:***

Risk Class I & II, Structures Critically Needed after Disaster: Structures which are critically needed after a disaster include important utility centers, fire stations, police stations, emergency communication facilities, hospitals, and critical transportation elements such as bridges and overpasses and smaller dams.

Acceptable Damage: Minor non-structural; facility should remain operational and safe, or be suitable for quick restoration of service.

Risk Class III: High occupancy structures; uses are required after disasters, i.e., places of assembly such as schools and churches.

<u>Acceptable Damage</u>: Some impairment of function acceptable; structure needs to remain operational.

Risk Class IV, Ordinary Risk Tolerance: The vast majority of structures in urban areas; most commercial and industrial buildings, small hotels and apartment buildings, and single family residences.

<u>Acceptable Damage</u>: An "ordinary" degree of risk should be acceptable. The criteria envisioned by the Structural Engineers Association of California provide the best definition of the "ordinary" level of acceptable risk. These criteria require that buildings be able to:

a. Resist minor earthquakes without damage;

b. Resist moderate earthquakes without structural damage, but with some non-structural damage; or

c. ***Resist major earthquakes, of the intensity or severity of the strongest experienced in California, without collapse, but with some structural, as well as non-structural damage.***

Risk Class V, Moderate to High Risk Tolerance: Open space uses, such as farms, ranches and parks without high occupancy structures; warehouses with low intensity employment; and the storing of non-hazardous materials.

<u>Acceptable Damage</u>: Not applicable.

This measure is 4.4-20 from the OBMP PEIR.

VI-3 ***All structures previously identified in categories III through V shall be designed in accordance with the applicable multiplier factor seismic design provisions of the Seismic Safety Report to promote safety in the event of an earthquake.*** *This measure is 4.4-21 from the OBMP PEIR.*

VI-4 ***The direct impacts of faults upon proposed projects shall be considered during preliminary planning processes, and the engineering design phases.*** *This measure is 4.4-22 from the OBMP PEIR.*

VI-5 ***All rehabilitation and new development projects implemented as a result of the proposed Project shall be built in accordance with current and applicable Uniform Building Code (UBC) standards and all other applicable City, County, State and Federal laws, regulations and guidelines, which may limit construction and site preparation activities such as grading, and shall make provisions for appropriate land use restrictions, as deemed necessary, to protect residents and others from potential environmental safety hazards, either seismically induced or those resulting from other conditions such as inadequate soil conditions, which may exist in the proposed Project Area.*** *This measure is 4.4-23 from the OBMP PEIR.*

VI-6 ***Local grading and building codes should reflect measures to minimize possible seismic damage.*** *This measure is 4.4-24 from the OBMP PEIR.*

Implementation of the above mitigation measures will lower the Project's impact to seismic safety to below a significant level. Impacts, however, must be considered significant and not mitigated until such time these measures are implemented through a final Mitigation Monitoring and Reporting Program.

The following measures are <u>*not*</u> recommended as conditions of project approval, but are provided for the consideration of decision-making bodies as a means to further reduce safety risks by fortifying existing seismic safety policies.

There are three related initial actions which the Participating Jurisdictions should follow to ensure mitigation of seismic-related hazards (from the OBMP PEIR):

4.4-25 ***Utilize geologic and seismic data in land planning so that identified risk areas, if any, are avoided, or structures and landforms treated and designed to reflect local site conditions.***

4.4-26 ***Inspect older facilities and improve earthquake design features when possible.***

4.4-27 ***Maintain a disaster preparedness plan.***

b. *Less Than Significant With Mitigation Incorporation* – In the short term, construction activities associated with Peace II improvements have some potential to increase soil erosion from specific project sites. Implementation of the following mitigation measures as found in Section 4.4.4.1 - Soils of the OBMP PEIR as well as mitigation measure VIII-1 (Hydrology and Water Quality) is considered sufficient to reduce potential impacts a less than significant level. Please refer to Section VIII, Hydrology for a full discussion of the hydrology and water quality issue. By meeting these requirements, potential erosion impacts related to installing the facilities will not cause any significant adverse erosion or sedimentation impacts.

Mitigation measures are available to minimize erosion problems associated with wind and water, especially during the construction phase when trenches and cut slopes are exposed. During construction, the length of time vegetation and other cover is absent should be minimized. When cut slopes are exposed, any of the following measures may be useful in limiting erosion. Mitigation measures 4.4-1 through 4.4-4, on p. 4-66 in the OBMP PEIR will be applied to future Peace II projects. These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

*V**I-7*** ***Add protective covering of mulch, straw or synthetic material (erosion control blankets, tacking will be required).*** *This measure is 4.4-1 from the OBMP PEIR.*

VI-8 ***Limit the amount of area disturbed and the length of time slopes and barren ground are left exposed. After pipeline installation, soil shall be compacted to a level similar to pre-construction conditions.*** *This measure is 4.4-2 from the OBMP PEIR.*

VI-9 ***Construct diversion dikes and interceptor ditches to divert water away from construction areas.*** *This measure is 4.4-3 from the OBMP PEIR.*

VI-10 ***Install slope drains (conduits) and/or water-velocity-control devices to reduce concentrated high-velocity streams from developing.*** *This measure is 4.4-4 from the OBMP PEIR.*

After the construction phase, long-term erosion control can be accomplished by keeping soils under vegetative cover, hardscape (pavement, gravel, or other hard cover) and planting wind breaks. The type of vegetation used as wind breaks must comply with SCAQMD's standards. After construction, soils underlying facilities and pavements will not be subject to erosion.

Mitigation measures identified above shall be employed within the proposed project area.

c. *Potentially Significant Impact* – As identified in the OBMP PEIR, a portion of the Chino Basin has experienced land subsidence related to aquifer extractions. The proposed project includes changes in the quantity of water stored underground, and has the potential to raise groundwater levels that could potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction or collapse. Watermaster has conducted intensive monitoring, mitigation and management of the area of subsidence since implementation of the OBMP. As new, more thorough, information is now available to assess this issue, and as Re-Operation has the potential to adversely impact subsidence if not properly managed, this issued will be evaluated in the SEIR. Mitigation measures 4.4-5 and 4.4-6 on p. 4-66 from Section 4.4.4.1 - Soils of the OBMP PEIR will be applied to future Peace II projects.

These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

VI-11 ***Construction of facilities and structures in locations with high liquefaction potential shall be limited without further geologic and hazard-related studies conducted by a qualified geologist or geotechnical firm. Such studies will provide guidelines to minimize the risks to humans and to capital-intensive facilities.*** *This measure is 4.4-5 from the OBMP PEIR.*

VI-12 ***If a conjunctive use program might be implemented that would bring water levels up to a level that significantly increases the risk of liquefaction, a more detailed monitoring and geologic study focused on this issue will be conducted to determine whether or not liquefaction poses a hazard to surface structures and to human safety. If such a study finds the impacts to be significant, the volume of water permitted to be stored in the Basin will be decreased sufficiently until a water level is achieved that does not pose any significant hazard to surface structures or people.*** *This measure is 4.4-6 from the OBMP PEIR.*

d. *Less Than Significant Impact* – The entire Chino Basin generally has soils with low to moderate shrink-swell potential. Therefore, the proposed project sites are unlikely to be located on expansive soils, as defined in Table 18 1-B of the Uniform Building Code (1994). Implementation of the mitigation measures identified in the OBMP PEIR and brought forward under previous items of this Section of the Initial Study can reduce the potential for Peace II projects to create substantial risks to life or property to a less than significant level. No additional impacts beyond what was anticipated in the OBMP PEIR are expected of the proposed project; therefore, no new mitigation measures are required. This issue area will not be analyzed further in the SEIR.

e. *No Impact* – The proposed project being evaluated does not propose the use of septic tanks or other onsite subsurface disposal systems not associated with municipal sewer collection and disposal systems. Therefore, the issue of soil not capable of adequately supporting septic or other alternative wastewater disposal systems will not be a topic evaluated in the SEIR.

Conclusion

Based on the analysis presented above, the majority of geology and soil issues will not experience significant adverse impacts from project implementation greater than those forecast in the OBMP PEIR. The proposed geology and soils impacts for those issues remain consistent with the findings of the OBMP PEIR, and implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding geology and soils impacts. For the issues of liquefaction and subsidence, further analysis is warranted by the change in circumstances associated with implementation of Peace II.

The following issues **will not** require any further analysis in the SEIR:

- seismically-induced landslides, earthquake faults and strong seismic ground shaking
- substantial soil erosion or loss of topsoil
- expansive soils

- septic tanks or other onsite subsurface disposal systems not associated with municipal sewer collection and disposal systems.

The following issues **will** require any further analysis in the SEIR:

- liquefaction
- subsidence.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		■		
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		■		
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?		■		
d) Be located on a site which is included on a list of hazardous material sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		■		
e) 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, would the project result in a safety hazard for people residing or working in the project area?		■		
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?				■
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?		■		
h) 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?		■		

<u>Substantiation</u>:

The general impacts to hazards and hazardous materials of the overall Chino Basin groundwater management programs were forecast in Section 4.10 on pages 4-347 to 4-377of the OBMP PEIR. The analysis in the OBMP concluded that hazards, risk of upset and hazardous material impacts would be controlled to a less than significant impact level with implementation of recommended mitigation measures. For all the issues under this topic there has been very little change over the eight years since the OBMP PEIR was adopted that would require subsequent analysis. The basis for this finding is presented in the following analyses.

a. *Less Than Significant Impact With Mitigation Incorporation* Peace II projects include wells, pipelines, treatment facilities and support facilities. In most instances these facilities do not involve the routine transport, use, or disposal of hazardous materials. However in certain instances, hazardous materials are used routinely in support of treatment operations, and thus, some activities in support of Peace II may generate hazardous wastes. Although IEUA and other stakeholders are required to manage both use of and disposal of hazardous or toxic materials in accordance with existing laws and regulations, the OBMP PEIR included five mitigation measures and the implementation of these measures can ensure that the use and generation of hazardous substances does not pose a significant hazard to workers or adjacent land uses. Mitigation measures 4.10-1 through and 4.10-5 on p. 4-364 of the OBMP PEIR will be applied to future Peace II projects. These measures have been re-numbered to be consistent with the topical numbering contained in this Initial Study.

VII-1 ***For OBMP facilities that handle hazardous materials or generate hazardous waste the Business Plan prepared and submitted to the county or local city shall incorporate best management practices designed to minimize the potential for accidental release of such chemicals. The facility managers shall implement these measures to reduce the potential for accidental releases of hazardous materials or wastes.*** *This measure is 4.10-1 from the OBMP PEIR.*

VII-2 ***The business plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material. Adequate funding shall be provided to acquire the necessary equipment, train personnel in responses and to obtain sufficient resources to control and prevent the spread of any accidentally released hazardous or toxic materials.*** *This measure is 4.10-2 from the OBMP PEIR.*

VII-3 ***For the storage of any acutely hazardous material at an OBMP facility, such as chlorine gas, modeling of pathways of release and potential exposure of the public to any released material shall be completed and specific measures, such as secondary containment, shall be implemented to ensure that sensitive receptors will not be exposed to significant health threats based on the toxic substance involved.*** *This measure is 4.10-3 from the OBMP PEIR.*

VII-4 ***All contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment.*** *This measure is 4.10-4 from the OBMP PEIR.*

VII-5 ***Before determining that an area contaminated as a result of an accidental release is fully remediated, specific thresholds of acceptable clean-up shall be***

established and sufficient samples shall be taken within the contaminated area to verify that these clean-up thresholds have been met. *This measure is 4.10-2 from the OBMP PEIR.*

b. *Less Than Significant Impact With Mitigation Incorporation* – Both during construction and at specific facilities, such as water treatment facilities, a potential exists for accidental release of hazardous materials. Accidental releases of hazardous materials during construction or operations are readily controlled to a less than significant level of hazard through control or remediation of the material accidentally released. Implementation of mitigation measures VII-1 through VII-5 can prevent any significant exposures to hazardous or toxic materials by the public or employees at the location of an accidental spill. These measures are sufficient to control or limit the adverse impact of accidental releases to a less than significant impact level.

c. *Less Than Significant Impact With Mitigation Incorporation* – None of the potential Peace II facilities are located near existing schools. However, it is possible that facilities that use and/or store chlorine, sodium or calcium hypochlorite or other hazardous substances, may be proposed within a quarter-mile of a school in the future by IEUA or one of the stakeholders. Measures VII-1 through VII-3 contain specific programs that can be used to control hazardous emissions or accidental releases of hazardous substances from operations at a facility located within one-quarter mile of a school. These measures would be considered sufficient to prevent exposure of students and teachers at such a school to significant concentrations of hazardous substances. However, in addition to these measures identified in the OBMP PEIR, the following measures shall also be implemented to ensure potential impacts are reduced to a less than significant impact level.

VII-6 Prior to selecting a Peace II facility location that will use hazardous substances within 1/4 mile of a school, a study of alternative sites shall be completed and either identified a suitable alternative site, or verify that no other alternative site can perform the required activities. If feasible, an alternative site at a distance greater than 1/4 mile shall be implemented.

VII-7 Engineering controls over any hazardous emissions or accidental releases of hazardous substances shall be comprehensive, redundant and state of the art to minimize emissions from the facility or to minimize the potential for an accidental release. A report verifying the adequacy of such controls shall be provided to decision-makers before authorization to install a Peace II facility.

VII-8 Where the location of a Peace II facility must be located within 1/4 mile of a school, the facility proponent shall confer with the local school district. The notice to the school district shall define the type of controls over hazardous substances that will be implemented and request the district to provide review and input on the design controls for such substances.

With the incorporation of these mitigation measures, project impacts can be reduced to a less than significant level of hazard.

d. *Less Than Significant Impact With Mitigation Incorporation* – A potential does exist for future Peace II facility sites to be proposed for a site that has been contaminated by hazardous materials. To minimize the potential for creating a significant hazard to the public or the environment from selecting or developing a site with historic or existing contamination, the following measures will be implemented.

VII-9 ***Before acquiring a Peace II facility site, the project proponent shall have a Phase 1 property evaluation completed. If a potential for contamination exists, a Phase 2 property evaluation shall be completed. If contamination of the site is identified, the Peace II project proponent shall avoid the site, or shall prepare a work plan for developing the site and have this work plan reviewed and approved by the local CUPA or DTSC. The approved work plan for the site shall be implemented in a manner that does not cause a significant health risk for the public or employees.***

VII-10 ***Where contamination of a site is accidentally discovered after development is initiated, the Peace II project proponent shall retain a qualified industrial hygienist to characterize the type and extent of the contamination, contain the contamination and oversee the proper removal and disposal of contamination in accordance with an approved work plan, and all applicable laws, regulations and standards.***

One of the measures identified in the OBMP will further reduce potential hazard health risks, at schools and in general.

VII-11 ***Where alternative treatment systems are available to reduce potential health risks at OBMP facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities.*** *This measure is 4.10-8 from the OBMP PEIR.*

Implementation of these measures can ensure that any future Peace II projects will not be developed in a manner that could cause significant hazards to the public or environment from historic or existing contamination.

e. *Less Than Significant Impact With Mitigation Incorporation* – There are several public airports within the Chino Basin: Ontario International Airport, Chino Airport and Cable Airport. Should future Peace II facilities include above ground structures that are located within two miles of these public airports or that may otherwise conflict with airport operations and Federal Aviation Administration (FAA) requirements, the following mitigation measure will be implemented to prevent any hazards and conflicts between aircraft operations and the proposed project:

VII-12 ***Prior to installing any above ground structures or facilities within FAA Restricted Use, Development and Height Area or within two miles of a public airport, a final determination will be made on the acceptability of such facilities within this zone or area. If it is not permitted, such structures or facilities will be relocated out of the zone on adjacent parcels of land. Final locations for such facilities within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B") will be reviewed with the Airport Manager, and any exceptions will be obtained in accordance with FAA regulations.***

Implementation of this measure will be sufficient to prevent any significant conflicts or hazards with public airport operations.

f. *No Impact* – There are no known private airstrips within the Chino Basin; therefore they will not result in a safety hazards for people residing or working in the project area. No mitigation measures are required.

g. *Less Than Significant Impact With Mitigation Incorporation* – Major evacuation routes are located within the Chino Basin along major interstates, freeways and major north-south and east-west roads. The proposed project activities and facilities have no potential to permanently impact emergency evacuation plans or emergency response plans over the long-term. In the short-term, construction activities related to pipeline and other infra-structure system improvements located within existing road rights-of-way have a potential to interfere with such plans. Mitigation is identified below to ensure that roads under construction remain passable or that alternative routes are available both during daily construction and at the end of the day after construction is completed. These OBMP PEIR measures ensure that the proposed project will not significantly interfere with the existing emergency response plans or the emergency evacuation plans maintained by the local jurisdictions.

VII-13 ***During construction activities within existing road rights-of-way or other easements where continuous access is required, a road operation management plan shall be prepared and implemented. At a minimum this plan shall define how to minimize the amount of time spent on construction activities; how to minimize disruption of vehicle and alternative modes of traffic at all times, but particularly during periods of high traffic volumes; adequate signage and other controls, including flagpersons, to ensure that traffic can flow adequately during construction; the identification of alternative routes that can meet the traffic flow requirements of a specific area, including communication (signs, webpages, etc.) with drivers and neighborhoods where construction activities will occur; and at the end of each construction day roadways shall be prepared for continued utilization without any significant roadway hazards remaining.*** *This measure is 4.10-6 from the OBMP PEIR.*

VII-14 ***To the extent feasible, installation of pipelines or other construction activities in support of the OBMP shall not be located on major evacuation or emergency response routes within any communities in the Chino Basin. Where constru-ction on such routes is necessary, local emergency response providers shall be contacted and emergency access and evacuation requirements shall be maintained at a level sufficient to meet their needs.*** *This measure is 4.10-7 from the OBMP PEIR.*

h. *Less Than Significant Impact With Mitigation Incorporation* – The project area contains areas of potential wildland fire hazards. Specifically, areas near the base of the San Gabriel Mountains and within the Chino Hills contain areas with known high wildfire hazard. To ensure that future Peace II projects will not expose people or structures to a significant risk of loss, injury or death involving wildland fires, the following mitigation measure will be implemented.

VII-15 ***To the extent feasible, future Peace II facilities shall avoid areas of high wildfire hazard. Where Peace II facilities must be located within such areas, the facility design shall include sufficient buffer area to be protective of the facility, or to prevent the facility from contributing to a higher wildfire hazard that exists in pre-development conditions.***

Conclusion

Based on the analysis presented above, the hazard and hazardous material issues will not experience significant adverse impacts from project implementation greater than those forecast in the OBMP PEIR. The proposed hazard and hazardous material impact for those issues remain consistent with the findings of the OBMP PEIR. Additional mitigation measures have been identified for implementation to control potential hazard and hazardous material impacts in this Initial Study. Thus, implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding hazards and hazardous material.

The following issues **will not** require any further analysis in the SEIR:

- potential for significant hazards due to routine transport and use of hazardous materials
- potential for significant hazards through foreseeable upset or accident conditions involving hazardous substances
- emit hazardous emissions or handle hazardous substances within one-quarter mile of an existing or proposed school
- create a significant hazard for the public or environment from development of a site contaminated by hazardous substances
- create a safety hazard for people residing or working in a project area within an airport land use plan area or within two miles of a public airport
- create a safety hazard for people residing or working in a project area within the vicinity of a private airstrip
- impair implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan
- expose people or structures to significant risk of loss or injury from a wildland fire.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	■			
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	■			
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or offsite?		■		
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	■			
e) 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?	■			
f) Otherwise substantially degrade water quality?	■			
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				■
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	■			
i) 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?	■			

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
j) Inundation by seiche, tsunami, or mudflow?		■		

Substantiation:

The general impacts to hydrology and water quality of the overall Chino Basin groundwater management programs were forecast in Section 4.5 on pages 4-87 to 4-166 of the OBMP PEIR. The PEIR contains a detailed evaluation of water resource issues that include assumptions about the integrated implementation of the OBMP. Thus, the impact evaluation relies upon the comprehensive implementation of the OBMP to partially mitigate potential adverse environmental effects of certain actions. For example, to reduce use of groundwater, increased direct use and recharge of recycled water is proposed. The PEIR evaluated water resource and water quality impacts of implementing the integrated program outlined in the OBMP and concluded that, with implementation of extensive mitigation and ongoing monitoring, the OBMP could be implemented without causing residual significant adverse impacts to these issues. Of critical importance to this issue is that the OBMP is being implemented by all of the stakeholders in accordance with or even faster than the schedule envisioned in the adopted OBMP.

New information with respect to certain Hydrology and Water Quality issues is available since the preparation of the OBMP PEIR, and some of the hydrologic or water quality circumstances have changed, for example the 2004 Basin Plan Amendment. In addition, the project components required to implement Peace II (Re-Operation, etc.) would constitute a substantial change in circumstances that would require subsequent analysis in the SEIR.

a,b
&f. *Potentially Significant Impact* – Peace II would continue and expand the comprehensive implementation of the OBMP. New information derived from the experience, monitoring, mitigation, management and modeling of the past eight years represents a change in the baseline understanding of the hydrology and water quality issues of the Chino Basin. A brief summary of some of the new information or changed circumstances follows.

- As described in the Project Description under *Program Element 2: Develop and Implement a Comprehensive Recharge Program*, the change in the months of operation of recharge basins, the reliability of SWP and associated required OBMP recharge capacity, and induced recharge from the Santa Ana River all constitute changed circumstances from those evaluated in the OBMP PEIR.

- As described in the Project Description under *Program Element 6: Develop and Implement Cooperative Programs with the Regional Water Quality Control Board, Santa Ana Region (Regional Board) and Other Agencies to Improve Basin Management; and Program Element 7: Develop and Implement a Salt Management Program*, the 2004 Basin Plan Amendment and the General Waste Discharge Requirements for Concentrated Animal Feeding Operations constitute changes from the baseline condition that was evaluated in the OBMP PEIR.

- As described in the Project Description under *Program Element 8: Develop and Implement a Groundwater Storage Management Program; and Program Element 9: Develop and Implement a Storage and Recovery Program*, the specific characteristics of the DYY programs, the Re-Operation/hydraulic control and the proposed expansion of the desalters constitute changes from the baseline that was evaluated in the OBMP PEIR.

- Hydraulic control was discussed in the OBMP PEIR, but as it has yet to be achieved it will also be analyzed herein with updated information. The potential for Peace II to adversely impact the environment in light of these changed circumstances will be analyzed in the SEIR.

c. *Less Than Significant Impact With Mitigation Incorporation* – The process of installing the all of the Peace II projects (water treatment facilities, new wells and associated pipelines) would result in construction activities that could result in erosion and sedimentation. The SWRCB adopted the General Construction Activity Storm Water NPDES (General Permit) in 1992 thereby regulating construction activity that would result in the disturbance of 5 acres or more. Water Quality Order 99-08-DWQ lowered threshold of regulated activity to one acre in 2002. The proposed Peace II projects will impact more than one acre of land and therefore, must file a NOI with the SWRCB prior to initiation of construction activity. The General Permit requires that the project developer submit a NOI with the SWRCB and authorizes discharge of stormwater associated with construction given implementation of a Storm Water Pollution Prevention Plan (SWPPP) that eliminates or reduces non-stormwater discharges to storm sewer systems and other "Waters" as defined by the Clean Water Act. The General Permit prohibits the discharge of material other than stormwater and all discharges that contain hazardous substances in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or CFR 302.4, unless a separate NPDES permit has been issued to regulate those discharges. Regardless of the need for a construction NPDES permit, the project must implement BMPs as part of the SWPPP to reduce the potential for soil erosion or pollutants leaving a construction site and adversely affecting surface water.

The San Bernardino County Flood Control District, the County of San Bernardino, and the Incorporated Cities of San Bernardino County are co-permittees within the Santa Ana Region Area-wide Urban Storm Water Runoff NPDES Permit (NPDES No. CAS618036, Order No. R8-2002-0012.) The Riverside County Flood Control and Water Conservation District, the County of Riverside and the incorporated Cities of Riverside County are co-permittees within the Santa Ana Region Areawide Urban Storm Water Runoff NPDES Permit (NPDES No. CAS618033, Order No. R8-2002-0011.) The Stormwater NPDES Permits require implementation of a Standard Urban Storm Water Mitigation Plan (SUSMP)/Water Quality Management Plan (WQMP) with numerical design standards for BMPs, adopted in 2002. The BMPs to infiltrate and/or treat stormwater pollution are required to be incorporated into the design phase of new development and redevelopment in order to minimize the discharge of pollutants of concern. Numerical design standards ensure that stormwater runoff is managed for water quality and quantity concerns.

The following measure shall be implemented to reduce the effects of potential impacts from stormwater pollution to a less than significant level.

VIII-1 The construction contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices that will be implemented to prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving offsite. The SWPPP shall be developed with the goal of achieving a reduction in pollutants both during and following construction to control urban runoff to the maximum extent practicable based on available, feasible best management practices. The SWPPP and the monitoring program for the construction projects shall be consistent with the requirements of the latest version of the State's General Construction Activity Storm Water Permit and NPDES Permit No. CAS618036, Order No. R8-2002-0012 for projects within San Bernardino County or NPDES No. CAS618033, Order No. R8-2002-0011 for projects within Riverside County.

The following items should be included in the SWPPP:

- ***The length of trenches which can be left open at any given time should be limited to that needed to reasonably perform construction activities. This will serve to reduce the amount of backfill stored onsite at any given time.***
- ***Backfill material should not be stored in areas which are subject to the erosive flows of water.***
- ***Measures such as the use of straw bales, sandbags, silt fencing or detention basins shall be used to capture and hold eroded material for future cleanup.***
- ***Rainfall will be prevented from entering material and waste storage areas and pollution-laden surfaces.***
- ***Construction-related contaminants will be prevented from leaving the site and polluting waterways.***
- ***Replanting and hydroseeding of native vegetation will be implemented to reduce slope erosion and filter runoff.***
- ***A spill prevention control and remediation plan to control release of hazardous substances.***

VIII-2 The site design for Peace II facilities shall prepare and implement a Water Quality Management Plan (WQMP) which specifies Best Management Practices that will be implemented to prevent long-term surface runoff from discharge of pollutants from sites on which construction has been completed. The WQMP shall be developed with the goal of achieving a reduction in pollutants following construction to control urban runoff pollution to the maximum extent practicable based on available, feasible best management practices.

With implementation of Mitigation Measures VIII-1 and VIII-2 and the applicable jurisdictions' adopted BMPs designed to control discharges of pollution that could cause a significant adverse impact to surface water quality, potential impacts are reduced to a less than significant level. Due to the proposed landscaped or hard-surfaced nature of the majority of the areas of impact after construction, the potential for substantial long-term soil erosion to occur is considered less than significant with implementation of Mitigation Measures VIII-1 and VIII-2.

d,e,
h&i. *Potentially Significant Impact* – Future Peace II projects will incorporate impermeable surfaces that can generate additional runoff. Also, additional data has become available from the Federal Emergency Management Agency (FEMA) regarding flood hazard areas within the Chino Basin. Since many water facilities are inherently related to stream channels and related flows, including flooding, the potential for projects to contribute to or to be exposed to flood hazards within the Basin will be reevaluated.

g. *No Impact* – The Peace II program does not directly or indirectly involve housing or housing resources. Therefore, it has no potential to expose housing to 100-flood hazards.

j. *Less Than Significant With Mitigation Incorporation* – There are no water bodies within the Chino Basin, or upstream, that can cause a seiche or tsunami. There are areas at the mouth of streams exiting the San Gabriel Mountains where future facilities could be exposed to mudflows. To prevent significant loss of facilities due to inundation by mudflows, the following mitigation measure will be implemented.

VIII-3 Any future Peace II facilities that will be inhabited shall avoid locations that may be impacted by mudflows. Peace II facilities that are not inhabited may be installed at a location where flood hazards may occur, but must either be hardened to withstand a mudflow or be installed with the acknowledgment that the facility or structure proponent is temporary or that the permanent loss does not constitute a significant effect on the Peace II program.

With implementation of this measure, the potential for significant damage from inundation by a mudflow can be reduced to a less than significant impact level.

Conclusion

The following issues **will not** require any further analysis in the SEIR:

- Stormwater runoff erosion/sedimentation or other pollution
- Placement of housing within 100-year flood hazard areas
- Inundation by seiche, tsunami, or mudflow.

The following issues **will** require further analysis in the SEIR:

- Water Quality
- Groundwater Supply
- Drainage Patterns
- Flood Hazards.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?		■		
b) 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?		■		
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	■			

<u>Substantiation</u>:

The general impacts to land use and planning of the overall Chino Basin groundwater management programs were forecast in Section 4.2 on pages 4-3 to 4-26 of the OBMP PEIR. Based on this analysis, implementation of the OBMP was not forecast to cause significant land use impacts with implementation of the recommended mitigation measures. A number of updated planning documents have been adopted since the preparation of the OBMP PEIR and new communities have been established in many areas. In most instances these changes do not constitute a substantial change in circumstances that would require subsequent analysis in the SEIR.

a. *Less Than Significant With Mitigation Incorporation* – At the general plan level, Peace II would not affect any existing land use designations and, therefore, its implementation has no potential to contribute to area divisions of the physical arrangements of existing communities in the project area.

   At the project specific level, most of the Peace II related improvements would be located at existing water utilities sites of various water agencies and cities. As such, they have dedicated uses and the installation of the new Peace II improvements at these sites has no potential to physically divide an established human community. Other new facilities, such as the proposed treatment facilities, wells, conveyance structures, and related water facilities, take up a small amount of space or can be placed below ground level.

   The only proposed Peace II facilities large enough to create any physical divisions in the physical arrangement of communities would be pipelines and recharge facilities. Pipelines will be placed underground and therefore have no potential to cause any long-term physical divisions in communities. While it is acknowledged that additional recharge basins may be necessary in the future, none are proposed at this time. Recharge basins must be located within areas of high percolation, usually adjacent to existing stream channels or in areas where aggregate mining of coarse alluvium has occurred and/or is underway. The limited acreage of possible future recharge basins within or adjacent to stream channels or mining areas is not forecast to increase the physical division of communities beyond that which currently exists where such features are located. However, to ensure that no future recharge basins disrupt or divide the physical arrangements of established communities, project specific mitigation is identified below for implementation during the siting of such basins. Implementation of the recommended measure will ensure that established communities are not disrupted or divided by Peace II implementation.

IX-1 Following selection of alternative sites for construction of future Peace II projects, each site shall be evaluated for potential incompatibility with adjacent existing or proposed land uses. Where future Peace II projects can create significant incompatibilities (lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses or will physically divide an established community, an alternative site shall be selected, or a technical report shall be prepared that identify the specific measures that will be utilized to reduce potential incompatible activities or effects to below thresholds established in the general plan for the jurisdiction where the facility will be located. *This measure is a modification to 4.2-1 from the OBMP PEIR.*

No further mitigation is required to reduce the potential to physically divide an established community below a level of nonsignificance.

b. *Less Than Significant Impact* – The proposed Peace II projects would be required to abide with the applicable environmental plans and policies of other agencies with regulatory authority over environmental resources. These agencies include the Air Quality Management District, Army Corps of Engineers, Regional Water Quality Control Board, U.S. Fish and Wildlife Service, California Department of Fish and Game, and the State Water Resources Control Board. The project must also prepare and submit a Notice of Intent to the State Water Resources Control Board and prepare a Storm Water Pollution Prevention Plan.

The implementation of Peace II would not cause any changes in existing land uses or existing land use designations as defined in the general plans of the local jurisdictions in the Study area. Fundamentally, each general plan assigns each parcel of land a specific land use and, in those limited instances where potentially incompatible land uses are located adjacent to one another, the general plans define those measures that must be implemented to ensure compatibility between such uses. Thus, where commercial uses and residential uses abut one another, specific lighting and noise incompatibilities posed by such juxtaposition are controlled by implementing controls on the intensity and direction of lighting and by implementing noise buffers that attenuate noise from commercial activities. Since Peace II will not alter any existing general plans or land use designations, its implementation has no potential to cause any incompatibilities at the general plan level.

Regarding the environmental plans and policies contained in general plans of local land use agencies within the Study area, implementation of Peace II has a potential for significant conflicts with certain policies or general plan elements. However, each of these environmental plan/policy issues was discussed separately in the OBMP PEIR and/or within this Initial Study, or has been selected for further analysis in the SEIR.

At the project specific level, future projects have a potential to cause significant incompatibilities. However, specific incompatibilities cannot be defined until specific project locations are identified for individual projects implemented under Peace II. As was outlined in the OBMP PEIR on pages 4-16 through 4-19 in the discussion of potential conflicts with environmental plans and policies, mitigation measures were identified for specific land use conflicts that may potentially cause incompatibilities. These measures were discussed at a general level for the type of projects and activities that would be implemented under the OBMP and/or Peace II.

Thus, where a Peace II project will be located adjacent to a potentially conflicting use (such as a production well adjacent to residential uses), the location of the facility may be moved, thus totally avoiding the incompatibility, or specific measures may be implemented to attenuate an impact. For the example given, the well pump could cause an incompatibility between a production well and residential uses due to noise impacts. Instead of relocating the well, the pump motor could be placed in a structure that would provide sufficient noise attenuation to ensure that the pump noise would not conflict with the adjacent residential use. As discussed in the previous section of this subchapter, for each of the major environmental issues specific measures have been identified that can reduce the impacts from implementing future OBMP projects to a non-significant level of impact, using the thresholds of significance identified for that issue (i.e,. noise attenuation for residential uses to below 50 decibel (dB) Community Noise Equivalent Level (CNEL) during evening hours).

Potential production well incompatibilities have already been discussed for residential uses. But the same incompatibility may occur if a production well must be placed near a biologically sensitive site. Where significant biological resources occur, avoidance of siting a facility may be the best way to avoid creating an incompatibility between land uses, but again, mitigation by attenuating sound levels to at or near background conditions may be a viable alternative for a particularly important production well site. Regardless, mitigation is available to ensure that the potential incompatibilities are avoided, prevented or controlled to less than significant levels of impact.

The construction of Peace facilities will generate noise and fugitive dust during construction. Specific measures to control fugitive dust and noise were identified in these respective issue subchapters of the OBMP PEIR so that a nuisance (incompatibility) will not be caused while construction is in progress. During operation, the activity of delivering and recharging water does not pose any known direct conflicts, even when recharge facilities are located adjacent to sensitive land uses. However, recharge basins do pose an inherent safety hazard for trespass once in operation, so access controls (fences, etc.) may be installed to ensure that trespass is controlled, particularly by children, to the maximum extent feasible, unless a recharge basin takes the form of a small lake, pond or golf course landscape water formation.

Pipelines are generally placed underground and do not pose any potential incompatibility with surface uses overlying their location or with adjacent uses. Installing pipelines can create the same potential incompatibilities with adjacent uses as identified above for reconstructing existing recharge basins or constructing new recharge basins. An additional incompatibility from constructing pipelines, which are commonly placed in road or other utility rights-of-way, is the short-term disruption of traffic flow and creation of traffic hazards. Again, mitigation measures are identified to ensure that pipeline construction activities do not create significant adverse impacts related to these conflicts in activities.

The desalters proposed for expansion are in essence, water treatment facilities that generate a modest amount of noise; that use hazardous materials; that serve to increase local traffic due to employment; and that are constructed in a manner to resemble a light industrial facility. Although desalter facilities and operations do not encompass activities typical of those associated with heavy industry or large commercial operations, the activities associated with a desalter would be considered incompatible where adjacent uses include residential uses or sensitive biological resource habitat. When desalters are considered for expansion in the future, part of the siting criteria will include avoidance of sensitive land uses that would result in placing incompatible land uses adjacent to one another, or to identify the specific mitigation measures outlined in this document, the SEIR, or a document included by reference, that will be implemented to reduce potential incompatibility to a non-significant level.

As stated in the OBMP PEIR, the facilities that would be installed as part of the proposed project are designed to enhance the safe yield of the Basin and improve water quality, which is consistent with the statement in California Government Code Section 53091 that such facilities are not subject to zoning ordinances. Each of these facilities would be consistent with the general goals, objectives and policies of general plans within the Study area that an “adequate supply of safe water” be provided for residents and that consumption of water be properly managed. With the possible exception of direct conflicts with adjacent land uses, discussed below, implementation of Peace II is not forecast to cause any significant conflicts with general plans or zoning designations for those jurisdictions within the Study area. This conclusion is based on the findings outlined above and the recognition in the general plans for communities in the Study area that adequate water system infrastructure is an essential component of future growth, just as are adequate roads, utilities, wastewater and other infrastructure systems.

No significant conflict with a land use plan, policy or regulation is forecast to occur from project implementation with incorporation of mitigation measure IX-1.

c. *Potentially Significant Impact* – The Western Riverside County Multiple Species Habitat Conservation Plan (WRC MSHCP), which applies to portions of the Study Area within Riverside County, was adopted after the 2000 OBMP PEIR. Other adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan may apply to specific project locations that are as of yet unidentified for individual projects implemented under Peace II. Potential incompatibilities with such plans would either be addressed by mitigation measure IX-1 or in future project-specific CEQA evaluation to allow a final determination on future project’s specific impacts as specific facilities are proposed in the future. Such review is appropriate and consistent with utilization of a program environmental document in accordance with Sections 15162 and 15168 of the State CEQA Guidelines.

The WRC MSHCP constitutes a change in circumstances since the adoption of the OBMP PEIR and will therefore be analyzed in greater detail in the SEIR.

Conclusion

Based on the analysis presented above, land use and planning resources will not experience significant adverse impacts from project implementation. The proposed land use and planning impacts remain consistent with the findings of the OBMP PEIR. Implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding land use and planning impacts.

The following issues **<u>will not</u>** require any further analysis in the SEIR:

- Potential to physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency.

The following issues **<u>will</u>** require any further analysis in the SEIR:

- Peace II projects in the context of the Western Riverside County Multiple Species Habitat Conservation Plan.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
X. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of any known mineral resource that would be of value to the region and the residents of the state?			■	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			■	

<u>Substantiation</u>:

The general impacts to mineral resources of the overall Chino Basin groundwater management programs, were forecast in the geologic resources section (4.4.2.2) on pages 4-49 to 4-51 of the OBMP PEIR. No significant conflict was identified between OBMP implementation and mineral resource policies in Study Area general plans. The OBMP PEIR required no mitigation for impacts to mineral resources.

A number of updated planning documents have been adopted since the preparation of the OBMP PEIR that provides additional information with respect to mineral resources or mineral resource policies. These changes do not constitute a substantial change in circumstances that would require subsequent analysis in the SEIR.

Determination of the impact to mineral resources of new development associated with Peace II projects will ultimately have to be made at the specific project level, but guidelines are discussed and established below to ensure that future Peace II facilities and activities do not cause significant adverse mineral impacts.

a&b. *Less Than Significant Impact* – The State of California has established mineral resource categories that are applied to areas studied within the state. These are:

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-2a – Areas where adequate information indicates that significant mineral deposits are present.

MRZ-2b – Areas where information indicates that significant mineral deposits are likely.

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

MRZ-4 – Areas where geologic information does not rule out the presence or absence of mineral deposits.

The following are examples of updated documents available regarding mineral resources in the Study Area. Figure 6-11A Mines - Valley Region of the San Bernardino County Conservation Element Background Report shows the location of active mines in the Study Area. Figure 4.12.1 of the Riverside County General Plan EIR identifies the areas within Riverside County having potential mineral resource deposits, according to the State of California MRZ classifications. It shows the Riverside County portion of the Study Area as located within the MRZ-2 and MRZ-3 zones. The Rancho Cucamonga General Plan shows the location of aggregate resources in Exhibit IV-1.

According to the Open Space and Conservation Element of the City of Fontana General Plan adopted October 21, 2003, there are no active sand and gravel mining operations in the City limits. One active operation is located in the City's Sphere of Influence, south of the Fontana Speedway in an industrial area. The City decided not to designate mineral resource lands for conservation because there were no active or pending surface mining operations within the planning area (aside from the aforementioned site in the sphere of influence) and because the City determined that any proposals for new mining operations would conflict with existing land use plans and established land use patterns.

The OBMP PEIR identifies locations of mineral resources in and around the Chino Basin in Figures 4.4-8 through 4.4-11. Figure 4.4-9 is from a 1981 USGS map that provides the most comprehensive and detailed mineral resource map of the entire project area. This document used a slightly different set of categories from the more recent documents that uses a "P" rather than an "M" to indicate preliminary data. It classifies the Chino Basin primarily classified as PRZ-3, with localized areas designated PRZ-2, MRZ-1, and MRZ-3. PRZ-3 areas contain construction aggregate deposits, the significance of which cannot be evaluated from preliminary data. PRZ-2 areas are those where preliminary data indicates that significant construction aggregate resources could be present. These PRZ-2 areas are located in the City of Fontana North of the Interstate 10 Freeway, and in areas surrounding the San Antonio Creek as it flows through the Chino Basin. The MRZ-3 area located within the Chino Basin is in the City of Chino west of Highway 71. A small portion of an area designated MRZ-1 is also located within the eastern extremes of the City of Chino.

Figure 4.4-10 depicts Mineral Resource Areas from the previous Fontana General Plan, but given the information provided in the new Fontana General Plan, this Figure is no longer accurate or relevant.

A graphical representation of the mineral resources described for San Bernardino and surrounding counties is included in the OBMP PEIR as Figure 4.4-7. This map shows the distribution of non-metallic mineral resource locations within southern California. The only significant mineral resources that occur within or near the project area are limestone, sand and gravel, crushed rock and rip rap. The location of these resources is primarily in the Jurupa and Pedley Hills, and also near the Santa Ana River. A more thorough discussion of mineral resources is provided in the OBMP PEIR.

At the general plan level, Peace II will not cause or contribute to the transition of land with mineral resources to urban uses. Increasing the safe yield of the Chino Basin, enhancing water quality through treatment and dilution and the provision of adequate waste treatment and reuse have no identifiable potential to cause or contribute to this transition in uses.

At the project specific level, Peace II may have a very small impact on mineral resources. Most of the new treatment facilities, wells, and conveyance facilities will be installed within the footprints of existing water utilities sites. The majority of new treatment facilities, wells, and conveyance structures and facilities, that will not be located on sites already developed with existing water facilities, are expected to be located within areas either already developed with residential, commercial, industrial or open space uses. Projects in these types of locations would have no potential to adversely impact mineral resources because the resources would already be covered with facilities that would make recovery unlikely, and because mineral resource recovery is generally not a compatible land use adjacent to residential, commercial.

Therefore, the installation and operation of Peace II facilities has little potential to have a direct adverse impact on mineral resources, unless the parcel(s) selected for such facilities are within an active mining area or are designated for recovery of mineral resources. Implementation of mitigation measure IX-1 is sufficient to reduce the potential for impacts to mineral resources to a less than significant level.

Conclusion

Based on the analysis presented above, mineral resources will not experience significant adverse impacts from project implementation.

The following issues **will not** require any further analysis in the SEIR:

- Mineral Resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. NOISE – Would the project result in:				
a) 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?		■		
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?		■		
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		■		
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?		■		
e) 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, would the project expose people residing or working in the project area to excessive noise levels?			■	
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?				■

Substantiation:

The general impacts to the noise setting of the overall Chino Basin groundwater management programs were forecast in Section 4.11 on pages 4-378 to 4-405 of the OBMP PEIR. The analysis in the OBMP concluded that noise impacts would be controlled to a less than significant impact level with implementation of recommended mitigation measures. Background noise levels may have slightly increased due to the increase in population for the Basin and more activity on the regional roadways, the primary source of noise in Basin communities. In addition, over the past eight years many OBMP projects have been implemented and the sources of noise include construction activities and occasional above ground pumps, related to well operations or pump stations. None of the facilities proposed for Peace II implementation will be different than those identified in the OBMP PEIR. Thus, for all the issues under this topic there has been very little change over the eight years since the OBMP PEIR was adopted that would require subsequent analysis. The basis for this finding is presented in the following analyses.

Within the communities affected by the proposed projects the following noise environment was characterized in the local general plan noise elements.

City of Chino: The City of Chino has adopted a land use matrix and interior and exterior noise standards that reflect the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR (p.4-393.) The noise environment in Chino is dominated by motor vehicle transportation noise sources, including Interstate 10 and Highway 60 and major east-west and north-south arterials. According to its General Plan, the City of Chino is impacted by the east-west railroad tracks (Union Pacific), which traverse the City and create noise impacts that exceed 70 dBA CNEL adjacent to the track. The City is also impacted by aircraft operations at Chino Airport.

City of Chino Hills: The City of Chino Hills has adopted a land use matrix that reflects the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR. According to its General Plan, the noise environment in Chino Hills is also dominated by motor vehicle transportation noise sources, including the Chino Valley Freeway and major east-west and north-south arterials. Chino Hills does not have an airport, and none of the east-west railroad tracks traverses the City to create noise impacts.

City of Fontana: The City of Fontana has adopted a land use matrix and interior and exterior noise standards that reflect the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR. The noise environment in Fontana is dominated by motor vehicle transportation noise sources, including Interstates 10 and 15 and major east-west and north-south arterials. Fontana does not have an airport, but the east-west railroad tracks of both major railways traverse the City and create noise impacts that exceed 70 dBA CNEL adjacent to the track, according to its General Plan.

City of Montclair: The City of Montclair's General Plan has not been updated since the OBMP was prepared and there are no quantitative noise guidelines contained in its General Plan. The noise environment in Montclair is also dominated by motor vehicle transportation noise sources, including the Interstate 10 and major east-west and north-south arterials. Ontario Airport operation also impacts the eastern portion of the City. Both major railways have tracks through the community that also create noise impacts adjacent to the tracks.

City of Ontario: The City of Ontario has adopted a land use matrix and interior and exterior noise standards that reflect the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR. The noise environment in Ontario is dominated by motor vehicle transportation noise sources, including Interstate 10 and Highway 60 and major east-west and north-south arterials. According to its General Plan, the City of Ontario is impacted by the east-west railroad tracks (Union Pacific) which traverse the City and create noise impacts that exceed 70 dBA CNEL adjacent to the track. The City is also impacted by Ontario Airport (Figure 4.9-8 of the OBMP PEIR) and, following annexation of the 8,200 acres of the Chino Agricultural Preserve, the City is impacted by aircraft operations at Chino Airport.

City of Rancho Cucamonga: The City of Rancho Cucamonga has adopted a land use matrix that reflects the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR. The noise environment in Rancho Cucamonga is also dominated by motor vehicle transportation noise sources, including Interstate 15 and major east-west and north-south arterials. Rancho Cucamonga does not have an airport, but one of the east-west railroad tracks traverses the City and creates noise impacts that exceed 70 dBA CNEL adjacent to the track.

City of Upland: The City of Upland has adopted a land use matrix that reflects the noise guidelines established by the State. The noise environment in Upland is dominated by motor vehicle transportation noise sources, including Interstate 10 and major east-west and north-south arterials. The City of Upland is impacted by the east-west railroad tracks (Burlington Northern Santa Fe lines that include both Metrolink and freight traffic) which traverse the City and create noise impacts that exceed 70 dBA CNEL adjacent to the track. The City is also impacted by aircraft operations at Cable Airport.

San Bernardino County: The Noise Background Report (November 1, 2005) prepared for the County of San Bernardino General Plan included noise measurement data that identified the predominant noise sources within the Valley region of the County as traffic, air and rail. Some areas were impacted by industrial noise while all areas sampled experienced noise levels due to typical residential sources (e.g., children playing, dogs barking, birds, wind chimes, school public announcement systems and ice cream trucks.) The Background Report includes noise modeling that predicts the 65 dBA Ldn contour line for rail roads is 500 feet from the railroad center line with 8 trains per hour traveling at 45 mph. The noise model predicts that the 65 dBA Ldn contour line for rail roads is 350 feet from the railroad center line with 4 trains per hour traveling at 45 mph.

The roadway traffic noise model provided by the Noise Background Report model predicts that the 65 dBA Ldn contour line for freeways is 360 feet from the roadway center line with 28,000 ADT and 1,770 feet for 225,000 ADT. The noise model predicts that the 65 dBA Ldn contour line for arterial roadways is 30 feet from the roadway center line with 5,000 ADT and average speed of 35 mph and 250 feet for 55,000 ADT and average speed of 45 mph.

The County of San Bernardino has adopted a land use matrix that reflects the noise guidelines contained in Figure 4.11-1 of the OBMP PEIR, found in Table IV-K-1 of the General Plan EIR.

Riverside County and Norco: The Riverside County (including Norco and surrounding area) General Plan was updated in 2003 and there is no current noise data for these areas. Quantitative noise compatibility guidelines are contained on Tables N-1 and N-2 of the County General Plan. The noise environment in this area is also dominated by motor vehicle transportation noise sources, including the Intestate 15, Highway 60 and major east-west and north-south arterials. Noise from three airports, Corona, Ontario and Chino impact this portion of the project area. Major railways have tracks traverse these areas which also create noise impacts adjacent to tracks.

a. *Less Than Significant With Mitigation Incorporation*

Construction (Short-Term) Noise
Implementation of Peace II facilities would require construction of facilities necessary to interconnect and deliver both recycled water and potable water generated by desalters to their respective distribution systems. These facilities include pipelines, inlet structures, pump stations, wells, reservoirs, desalter modifications and support facilities. Major construction activities are anticipated to include grading, excavation, and installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation. Construction activities within or adjacent to areas where sensitive receptors are located could increase the noise exposure at sensitive receptor locations and have an intermittent short-term impact on ambient noise levels. Using a standard mix of equipment and construction activities, as outlined above, construction noise levels at distances of 50,

200, and 400 feet from anticipated construction activities would be approximately 86, 74, and 68 dBA, respectively.

During the period of construction, noise levels would be increased over that of the ambient noise levels intermittently when the equipment is operating. However, this increase in noise levels would only be temporary. The temporary increase in noise exposure would cease immediately at the completion of construction.

Since construction noise is of a temporary nature, most jurisdictions do not require such noise to be mitigated to the specific threshold levels outlined above. However, they do require operational considerations (i.e., limitation of construction hours, the muffling of construction equipment, noise complaint response programs, etc.) to minimize noise impacts during the construction process. Construction noise levels affecting sensitive receptors may exceed the significance thresholds during the day, but eliminating this source of noise at night can reduce these short-term impacts to a non-significant level. Also, the short-term effects of well drilling must be addressed because once well drilling starts it proceeds until the well is completed.

Mitigation measures were identified in the OBMP and are restated below with some minor modifications which ensure that construction activities do not intrude on sensitive receptors in the evening or expose such receptors to damaging levels of noise at any time. The most effective method of controlling construction noise is generally by local limitation of construction hours to normal weekday working hours, typically from daylight to dusk. With implementation of these measures, short-term construction activities are not forecast to cause significant adverse noise impact.

XI-1 ***Construction shall be limited to the hours of 7 a.m. to 7 p.m. on Monday through Friday, and between 9 a.m. to 6 p.m. on Saturday, and shall be prohibited on Sundays and federal holidays. Exceptions are for well drilling or declared emergency circumstances.*** *This measure is a modification to 4.11-1 from the OBMP PEIR.*

XI-2 ***All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers.*** *This is measure 4.11-2 from the OBMP PEIR.*

XI-3 ***All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period shall be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities.*** *This is measure 4.11-3 from the OBMP PEIR.*

XI-4 ***If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation shall be taken into account), portable noise barriers shall be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds.*** *This is measure 4.11-4 from the OBMP PEIR.*

XI-5 ***All production wells or booster pumps shall have their noise levels attenuated to 50 dBA CNEL at the adjacent property boundary, when noise sensitive uses occur on such property.*** *This measure is a modification to 4.11-5 from the OBMP PEIR.*

XI-6 Project design will include measures which assure adequate interior noise levels as required by Title 25 (California Noise Insulation Standards). *This is measure 4.11-6 from the OBMP PEIR.*

Additional construction noise mitigation measures:

XI-7 Utilize construction methods or equipment that will provide the lowest level of noise impact, i.e., use newer equipment that will generate lower noise levels.

XI-8 Schedule the construction such that the minimum number of pieces of equipment will be operating at the same time.

XI-9 Maintain good relations with the local community where construction is scheduled, such as keeping people informed of the schedule, duration, and progress of the construction, to minimize the public objections of unavoidable noise. Communities should be notified in advance of the construction and the expected temporary and intermittent noise increases during the construction period.

<u>Operational (Long-Term or Permanent) Noise</u>
Under normal operating conditions the noise levels generated by the facilities required to support the Peace II programs are not expected to increase the ambient noise levels to a level of significance that would impact sensitive receptors. However, a more detailed analysis should be conducted once design drawings become available and specific locations are selected. Mitigation is provided below to address this measure.

The installation and operation of monitoring wells is also a fairly passive source of noise generation. Once installed such wells either have automatic monitoring equipment or are visited periodically to obtain the desired data. Such activities are not forecast to exceed the sound levels of surrounding activities, such as traffic or urban activities (typically about 55 dB) from children playing, music playing, or gardening activities.

The operation of both production wells and booster pumps can generate noise levels greater than the 60-65 dBA CNEL values that are considered acceptable for noise sensitive uses. Sound attenuation structures are available to reduce sounds from production wells and booster pumps to levels well within the significant noise impact thresholds, including those noise levels protective of sleep during nighttime hours. Mitigation is provided below to ensure that future production well and booster pump noise is reduced below a significance threshold in each of the affected communities.

Finally, modifications to desalter facilities can increase local noise levels from operation of pumps and other equipment. The two existing desalters are located within industrial areas where no sensitive noise receptors exist, however future desalter facilities may be located adjacent to such uses and mitigation is identified to address potential permanent noise impacts from operation of such facilities.

The following OBMP PEIR mitigation measures are brought forward for implementation under Peace II programs.

XI-10 Require that all parking for desalter uses adjacent to residential areas be enclosed within a structure or separated by a solid wall with quality landscaping as a visual buffer. *This is measure 4.11-7 from the OBMP PEIR.*

XI-11 Desalters shall be constructed and operated so that noise levels from operations do not exceed 50 dB during night hours and 65 dB averaged over the 12 hours of day time when located adjacent to existing or future sensitive land uses. This can be achieved by siting desalters a sufficient distance from sensitive noise receptors; by incorporating attenuation features in the facility or designing attenuation features at the boundary of the property. *This is measure 4.11-8 from the OBMP PEIR.*

The following additional measures shall be implemented.

XI-12 Where equipment or facilities will be installed adjacent to sensitive noise receptors in support of Peace II programs, a site specific noise/vibration study will be conducted to ensure that local jurisdictional noise standards will be met. Where noise attenuation is required, the facility design shall incorporate the noise attenuation measures.

XI-13 All above ground well pumps or booster pump stations shall have their noise levels attenuated to 50 dBA CNEL at the property boundary when adjacent to a noise sensitive land use.

Implementation of the above measures is considered sufficient to control noise from Peace II programs to a less than significant impact level.

b. *Less Than Significant With Mitigation Incorporation* – Please refer to the discussion under XI.a above. Mitigation is provided to control potential noise and vibration from Peace II activities to a less than significant impact level.

c. *Less Than Significant With Mitigation Incorporation* – Please refer to the discussion under XI.a above. Mitigation is provided to control potential permanent noise generated by Peace II activities to a less than significant impact level.

d. *Less Than Significant With Mitigation Incorporation* – Please refer to the discussion under XI.a above. Mitigation is provided to control potential temporary noise generated by Peace II activities to a less than significant impact level.

e. *Less Than Significant With Mitigation Incorporation* – Several public airports occur within the Chino Basin. Although the potential is remote, it is possible that construction in support of Peace II programs could expose construction personnel to excessive noise. Mitigation measure XI-3 is sufficient to protect such construction personnel from exposure to excessive noise adjacent to such airports. Since the Peace II programs do not include exposing any residents or residences to public airport noise, no potential exists to create exposures to this noise hazard.

f. *No Impact* – Since no known private airports are located within the Chino Basin, no potential exists to expose people to this noise hazard.

<u>Conclusion</u>

Based on the analysis presented above, the noise issues will not experience significant adverse impacts from project implementation greater than those forecast in the OBMP PEIR. The proposed noise impacts remain consistent with the findings of the OBMP PEIR. Additional mitigation measures have been identified for implementation to control potential noise impacts in this Initial Study. Thus, implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding noise issues.

The following issues **will not** require any further analysis in the SEIR:

- exposure of persons to or generation of noise levels in excess of local standards
- exposure of persons to or generation of excessive groundborne vibration or groundborne noise
- a substantial permanent increase in ambient noise levels
- a substantial temporary increase in ambient noise levels
- near public airports would the program expose people to excessive noise levels
- near private airports would the program expose people to excessive noise levels.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			■	
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?		■		
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?		■		

Substantiation:

The general impacts to the population and housing resources of the overall Chino Basin groundwater management programs were forecast in Section 4.3 on pages 4-33 to 4-41 of the OBMP PEIR. The analysis in the OBMP PEIR concluded that population and housing impacts would be controlled to a less than significant impact level with implementation of a single recommended mitigation measure. Background population and housing numbers have increased due to the increase in housing and population within the Basin over the past eight years. The analysis in this section of the Initial Study compares the current population to the population forecasted for the Chino Basin and assesses the potential for the OBMP to effect or change this future population forecast. In addition to analyzing impacts to population, impacts to growth from implementing the OBMP will be summarized from an inducement to growth and from a restriction to growth standpoint. Potential effects on housing resources will be addressed and the potential to displace housing, especially potential displacement of affordable housing within the Chino Basin.

The Chino Basin consists of approximately 235 square miles of the upper Santa Ana watershed encompassing portions of Los Angeles, Riverside and San Bernardino Counties. There are ten cities and unincorporated areas of both Riverside and San Bernardino Counties either wholly or partially lying within the adjudicated boundary of the Chino Basin according to the OBMP PEIR. Jurisdictions with partial coverage within the Chino Basin boundaries, such as the City of Rialto, for analysis purposes, have been treated as if their entire corporate limits were contained within the Basin. Therefore, the existing population, forecasts and build out projects are based on the entire corporate boundaries rather than an extraction of the data based on a smaller subset. The analysis below indicates that, even with the growth in population over the past eight years, the Peace II programs' potential to impact population and housing is forecast to be less than significant, with implementation of the single mitigation measure (XII-1) provided below.

a. *Less Than Significant Impact* – The following analysis was presented in the OBMP PEIR beginning on page 4-23 and is presented in whole because it establishes the position of the Peace II stakeholders that implementation of the Peace II programs will not contribute to significant growth, specifically growth beyond that permitted by the general plans of land use jurisdictions within the Chino Basin or beyond that allocated in regional planning documents. "To understand the potential effect of the OBMP on future growth and growth inducement within the Study area, it is necessary to understand the role that the OBMP will play if it is implemented. The purpose of the OBMP is to provide an overall management strategy, tied to specific facilities and management actions, that will provide the Chino Basin with "*a groundwater management program that enhances the safe yield and the water quality of the Basin, enabling all groundwater users to produce water from the Basin in a cost-effective manner."* (Page 3-1, OBMP Phase I Report)." As Peace II is a follow on to the OBMP, this same objective applies to the Peace II programs.

"The OBMP is not intended to be directly involved in supplying municipal water supplies to customers. Thus, the Program and its implementation are one step removed from actual development and provisions of adequate water supplies in support of building-out each jurisdictions' general plan. Perhaps most the Basin's WSA have already planned to serve the build-out populations within their service areas. As a program, the OBMP may reduce costs and achieve a more reasonable mix of water supplies for these WSA's, but the program does not supplant the already existing requirement and planning efforts of the WSA's to provide the water supplies for the Study areas ultimate build-out population." Note the acronym in the above quoted text refers to "water serving agencies" and the acronyms below refer to Metropolitan Water District of Southern California (MWDSC) and Regional Comprehensive Plan and Guide (RCPG), respectively.

"In this analysis of future growth and potential growth inducement, it is this document's contention that growth decisions have already been made by local agencies governing land use decisions, and further, that the OBMP does not remove any existing constraint on future development because existing WSA's have alternative means (perhaps not as cost or environmentally effective as the OBMP) to meet future water demands. This concept is embodied in policy principles adopted by the MWDSC's Board of Directors and restated as part of the RCPG's Water Resources evaluation for southern California. These policy principles state:

1. *Water supply is not a reason in and of itself to limit or control growth in California. There are sufficient water resources to accommodate continued population and economic growth through better management, including conservation, voluntary transfers and additional storage and conveyance facilities. Water supply for urban, agricultural and environmental uses will be adequate and reliable.*

2. *Growth management and the allocation and direction of development should be the responsibility of general purpose government. Utilities, including water purveyors, should provide adequate facilities to serve the project growth at the state, regional and local levels.*

3. *For planning and infrastructure purposes, water supply should be treated as a utility not required to be a general purpose government plan element. However, water purveyors at the state, regional and local levels should be members of any proposed infrastructure planning structure to ensure optimum coordination and infrastructure resources investment......*

“The net effect of these principles is to define water infrastructure as following, not leading or causing development. The question still remains as to whether the implementation of the OBMP causes or accommodates growth and the related environmental impacts caused by the increased population that can occupy the Study area in the future. The answer to this question can be found in the land use planning process which now determines the future vision of the region at build-out as defined by general plans for the Study area and the regional planning documentation which already indicates that adequate water supplies are available to meet this future demand. As noted above, the OBMP does not provide an overall increase in availability of water, it provides a management plan that will more efficiently utilize the existing water resources found within the Chino Basin.

“The ultimate vision of future growth and development within the project area was established in the governing Study area general plans, and it is assumed in these general plans that the WSA’s have identified the infrastructure required to support the population which will be in place as growth occurs in the future. The net effect of these general plans is to create a set of expectations regarding future land use and growth that may or may not occur depending upon the actual carrying capacity of the various utility and service resources required to meet future growth. It also seems clear that the established planning process and the overall growth pressures in southern California are the primary causes of future growth, i.e. they induce the actual growth that occurs, and the various utilities, such as the WSA’s, are effectively forced to create urban water management plans that can accommodate such growth, at least within the limits of current or future resources that may be available. As the RCPG analysis of water resources indicates, there are sufficient water resources to meet future demand for the foreseeable future.

“As noted above, the position taken in this document is that the utility planning process is more appropriately playing a passive (accommodating) role, not an active (inducing) role, in future growth that is dictated by local land use plans and the continuing growth of population throughout southern California. If communities within the project area chose to restrict growth and maintain a certain vision of the future as a static or slowly growing entity, the land use planning agencies (cities and counties) had the opportunity during the general planning process to establish such plans. Under such circumstances, the utility providers, including the WSA’s would have designed their future service plans to accommodate a level of future growth consistent with available resources

“In reality, however, the WSA’s, acting as responsible water planning agencies, must plan for a level of future growth that appears to match available water resources with forecast growth through the 2010 planning horizon. At present the WSA water supply plans rely to a large extent on water importation. The OBMP provides an alternative management program for the Chino Basin that will reduce reliance on imported water and still allow the WSA to accommodate growth as envisioned in the Study area general plans. Based on this analysis, implementation of the OBMP is not considered to be a significant growth inducing action.” (From pp 4-23 through 4-25 of the OBMP PEIR.)

Based on the objective of continuing implementation of the OBMP through the Peace II programs, this conclusion is considered to remain valid through the next planning horizon.

b. *Less Than Significant With Mitigation Implementation* – The Southern California Association of Governments (SCAG) has estimated the population of the Chino Basin service area and forecast future growth. These estimates are enumerated in Table 4 for the affected cities and portions of the Counties of Riverside and San Bernardino beginning with the base year 2003 and forecasting 2005 and future years at 5-year intervals through year 2035. California Department of Finance (DOF) also estimates population, and Table 4 includes the DOF estimate of City population for 2008. Both the SCAG and DOF city estimates are based upon the same base method of analysis (housing units), but are adjusted with different methods resulting in slightly different projections. DOF city estimates for the year 2000 varied from the 2000 census counts by an average of 5.6 percent. SCAG data accuracy was not provided. DOF estimates are generally slightly larger than SCAG estimates.

Table 4
CITY AND COUNTY POPULATION ESTIMATES

City	Buildout Per General Plans – OBMP PEIR	DOF 2008	2003	2005	2010	2015	2020	2025	2030	2035
Chino	70,551	82,670	71,480	77,146	81,998	87,313	93,823	100,142	106,220	112,038
Chino Hills	72,400 - 79,800	78,957	74,884	77,989	79,298	80,382	81,039	81,678	82,292	82,880
Fontana	193,018	188,498	150,649	162,935	174,719	185,805	195,866	205,630	215,018	224,011
Montclair	41,500	37,017	34,585	35,633	39,271	42,704	45,949	48,901	51,833	54,643
Norco	N/A	27,255	25,455	27,265	29,058	30,693	32,052	33,437	34,531	35,085
Ontario	134,038	173,690	167,219	170,951	187,060	213,839	246,304	277,799	308,088	337,095
Pomona	140,000	163,405	157,339	160,852	170,229	179,799	189,552	198,998	208,144	216,899
Rancho Cucamonga	158,071	174,308	151,087	166,348	171,980	172,405	172,409	172,414	172,417	172,420
Rialto city	87,748 - 98,557	99,767	97,587	99,334	107,849	115,846	123,080	130,100	136,845	143,308
Upland city	74,000	75,137	72,445	73,989	75,951	77,666	78,927	80,146	81,322	82,444
Unincorporated Riverside County – Chino Basin area only	N/A	N/A	39,291	47,538	62,706	72,706	79,181	84,916	89,891	95,451
Unincorporated San Bernardino - Chino Basin area only	N/A	N/A	47,627[a]	53,206[b]	58,785	63,568	68,200	71,984	76,034	81,193[c]
Total Population	N/A	N/A	1,089,648	1,153,186	1,238,904	1,322,725	1,406,282	1,486,145	1,562,635	1,637,467

Data Source: SCAG 2007 RTP Growth Forecast by City adopted 2008, except for Unincorporated San Bernardino County (from 2004 RTP SANBAG Local Input and manually selected TAZ that are mostly within county jurisdiction within Chino Basin Area) and Unincorporated Riverside County (from RTP07 Tract). DOF 2008 estimates per E-4 Population Estimates for Cities, Counties and the State, 2001-2008, with 2000 Benchmark.

Notes: [a] Data provided population estimate for Year 2000.

[b] Interpolated based upon 2000 and 2010 data.

[c] 2035 projection not provided; based estimate on unincorporated Riverside County percent increase.

According to the January 2009 Inland Empire Quarterly Economic Report the whole of the Inland Empire added 888,562 people from 2000-2008, for a 2.8% compound growth rate within this region. The anticipated rate of growth varies considerably among different cities and the unincorporated areas. When compared with the city population projections for build-out based upon City General Plans that was included in the OBMP PEIR, all of the cities have exceeded their build-out estimates with the exception of Fontana and Montclair based upon DOF 2008 estimates. DOF population estimates from 1998 that were included in the OBMP PEIR showed that the population of Pomona had already exceeded their build-out projections at that time, but the other cities have exceeded those projections in the ten years since that estimate. In many if not all cities within the Basin new areas have been annexed into the cities, partially accounting for the rapid population growth. In some cases new General Plans have been published, or at a minimum new Housing Elements, that reflect the revised circumstances.

Over the past eight years, little or no reduction in housing has been caused by implementing the OBMP. It is clear from the population growth that residential growth has been substantial within the Chino Basin communities. However, as the Peace II programs are implemented, the same mitigation measure recommended in the OBMP will be carried forward with implementation of Peace II programs. This measures states:

XII-1 ***If future facilities must be located on parcels occupied by existing housing, the proponent of the facility will ensure that short- and long-term housing of comparable quality and value are made available to the home owner(s) prior to initiating construction of the facility.*** *This is measure 4.3-1 from the OBMP PEIR.*

With implementation of this measure, no significant housing resource impacts are forecast to result from implementing Peace II programs.

c. *Less Than Significant With Mitigation Incorporation* – As discussed under issue XII.c, the population of all cities and unincorporated areas within the County have grown substantially over the past eight years. No instances of substantial displacement of population due to OBMP implementation over this period has occurred and with implementation of mitigation measure XII-1, no substantial displacement of population is forecast to occur from implementing the Peace II programs.

<u>Conclusion</u>

Based on the analysis presented above, the population and housing issues will not experience significant adverse impacts from project implementation greater than those forecast in the OBMP PEIR. The proposed population and housing impacts remain consistent with the findings of the OBMP PEIR. No new mitigation measures have been identified for implementation to control potential population and housing impacts in this Initial Study. Thus, implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding population and housing issues.

The following issues **<u>will not</u>** require any further analysis in the SEIR:

- induced growth within the project area, directly or indirectly
- displacement of substantial numbers of existing housing
- displacement of substantial numbers of people.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIII. PUBLIC SERVICES – Would the project 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:				
a) Fire protection?			■	
b) Police protection?		■		
c) Schools?			■	
d) Recreation/Parks?			■	
e) Other public facilities?			■	

Substantiation:

The general impacts to public services of the overall Chino Basin groundwater management programs, of which the proposed project is a part, are forecast in Section 4.12 on pages 4-406 to 4-409 and in Section 4.2 on page 4-18 of the OBMP PEIR. No significant public service impacts were forecast from implementing the OBMP with incorporation of mitigation to reduce the potential for trespass onto OBMP project sites.

The implementation of Peace II will result in direct physical change to existing land uses within the Study Area by providing a more efficient and effective water supply to meet long-term, ultimate growth and development projections within the Study Area. The public service issues of focus in this evaluation are those changes in the environment due to the project that may increase demand for public services beyond the capacity of the existing service system. A number of updated planning documents indicating changes in the level of need for public services have been adopted since the preparation of the OBMP PEIR; however, these changes are not a result of the OBMP but rather reflect planned-for growth. These changes do not constitute a substantial change in circumstances that would require subsequent analysis in the SEIR.

a-e. *Less Than Significant With Mitigation Incorporation* – The proposed project includes the development of public facilities. Implementation of Peace II will result in direct physical changes to existing land uses within the Study Area that will facilitate indirect changes in land use by contributing to an adequate water supply to meet long-term growth and development projections within the Study Area. Implementation of Peace II is not forecast to change land uses, increase the number of residential units, cause an increase in population or otherwise create activities that would increase demand for public services beyond that anticipated in the jurisdiction's General Plans. (Please refer to Section XII Population and Housing for a full discussion of this issue.)

The Study Area is currently served by public services and agencies (police and fire departments, school districts, libraries) under authority of the various jurisdictions that comprise the Study Area. Overall levels of public services will be increased based upon the future population based demands of the local agencies. Therefore, this project has no potential to impact the need or demand for schools, parks, and other public facilities such as libraries. Some small facilities (e.g., wells, pump stations) may be located at schools, parks or other public facilities; however any such installation would not affect more than ~0.5 acre, and would therefore be considered a less than significant impact.

Any Peace II project-related structure will be required to meet or exceed the minimum standards for the applicable building codes by state law. All local fire ordinances will be followed in design, construction and operation of the proposed project facilities, which have a very low fire hazard associated with their construction and operation. No potential for any significant demand for fire protection services is identified. Aside from a threat of trespass, the type of facilities being proposed by Peace II do not have a potential to create new demand for police services. Although probably not significant, illegal trespass can be minimized by controlling access to Peace II construction areas and operating facilities, such as recharge basins, desalters and well sites. No potential for any significant demand for police protection services is identified. The following mitigation measure will be implemented to reduce the proposed project's impact on police protection services to a less than significant level.

XIII-1 ***Peace II facilities shall be fenced or otherwise have access controlled to prevent illegal trespass to attractive nuisances, such as construction sites or recharge sites.*** *This measure is a modification to 4.12-1 from the OBMP PEIR.*

This measure addresses security fencing for construction areas and built facility sites. Construction activities associated with the implementation of Peace II projects have some potential to adversely impact public services, primarily through construction-related road impacts. Please refer to analysis and mitigation measures provided in the appropriate sections (Section VII, Hazards; Section XI, Noise; Section IX, Traffic, etc.).

Conclusion

Based on the analysis presented above, public services will not experience significant adverse impacts from project implementation.

The following issues **will not** require any further analysis in the SEIR:

- Police Protection
- Fire Protection
- Schools
- Libraries
- Parks
- Other Public Services.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. RECREATION –				
a) Would the project 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?			■	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			■	

Substantiation:

The general impacts to recreation of the overall Chino Basin groundwater management programs are forecast in the land use section (4.2) on page 4-18 of the OBMP PEIR. No significant impacts to recreational facilities or demand for recreation were forecast in the OBMP PEIR.

a. *No Impact* – The proposed project does not include housing, an increase in population, or a new place of employment that would create a substantial number of new employees after construction that would have a potential to increase the use of existing neighborhood parks or other recreation facilities. Implementation of mitigation measures IX-1 will insure that no significant impact to park facilities occurs as a result of land use incompatibilities. No further mitigation is required.

b. *Less than Significant Impact* – The project does not propose recreational facilities or require the construction or expansion of recreational facilities. As mentioned in Section XIII Public Services, some small facilities (e.g., wells, pump stations) may be located at schools, parks or other public facilities. Any such installation would not affect more than ~0.5 acre at any site, and would therefore be considered a less than significant impact.

Conclusion

Based on the analysis presented above, recreation will not experience significant adverse impacts from project implementation.

The following issues **will not** require any further analysis in the SEIR:

- Parks and Recreation.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. TRANSPORTATION / TRAFFIC – Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?		■		
b) Exceed, either individually or cumulatively, level of service standards established by local or regional agencies for designated roads or highways?		■		
c) 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?				■
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?		■		
e) Result in inadequate emergency access?		■		
f) Result in inadequate parking capacity?			■	
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?			■	

Substantiation:

Potential impacts to the transportation and circulation system based on the ultimate (buildout) development conditions anticipated by affected jurisdictions within the OBMP's project area were forecast in Section 4.7 on pages 4-296 to 4-307 of the OBMP PEIR. Potentially significant short-term traffic or circulation system impacts were identified in association with implementation or construction of proposed projects. Mitigation was identified capable of reducing potential circulation system impacts to a nonsignificant level.

a,b
&d. *Less Than Significant With Mitigation Incorporation* – Implementation of Peace II is not anticipated to substantially increase the traffic load or alter the carrying capacity of street systems within the Chino Basin area. Peace II is a water management program specifically designed to provide a more efficient and effective water supply program through implementation of recycled water use, implementation of storage strategies and conjunctive use of the local groundwater supply in the Chino Basin. The Peace II project

area is extensively developed with residential, commercial, and industrial uses that already utilize an established circulation pattern. The four main types of facilities that would be implemented in support of the Peace II include recharge basins, desalting facilities, monitoring/pumping wells and pipelines. There are no specific Peace II project proposals that would substantially alter existing or future traffic generation and destination activities. None of the physical changes in the environment are forecast to directly or indirectly cause any permanent changes in any transportation or circulation systems.

The General Plans identify a circulation system designed to meet the buildout traffic generation of their respective jurisdictions. As a result of the growth identified in Section XII of this Initial Study, traffic volumes on the area's local and regional circulation system has substantially increased over that identified in Table 4.7-1 of the OBMP. However, fundamentally, the ultimate road sections throughout the circulation system are designed to provide adequate capacity for the projected trip generation within the Chino Basin project area. The General Plan EIRs have concluded that their local circulation systems, with planned improvements, will be adequate to meet the forecast traffic volumes at build-out without any significant adverse circulations system impacts. Road improvements are constantly being implemented by the cities and the counties under their capital improvement programs, and when an individual Peace II construction project occurs in the future, any existing deficiencies may have been corrected and a project may not be required to provide any mitigation. Future Initial Studies prepared in accordance with the PEIR requirements contained in Section 15168 of the State CEQA Guidelines can document these improvements, which may eliminate the need for mitigation or define the need for additional mitigation along specific sections of roadway. With implementation of project specific road improvements in accordance with local agency general plan requirements, no significant circulation system impacts are forecast to occur in the future.

Of the four main types of facilities that would be implemented in support of Peace II, the installation and construction of pipelines and the expansion of the desalters will generate the greatest potential for short-term, construction impacts to the existing circulation system. Peace II project construction activities would create traffic hazards, particularly where pipeline routes traverse major trafficked highways and cross intersections. Pipelines will be placed underground (except possibly within Peace II facilities) and there will be short-term disruptions of traffic flows and the potential creation of traffic hazards as a result of the construction within road rights-of-way. Mitigation measures are identified to ensure that pipeline construction activities do not create significant adverse impacts related to these conflicts in activities. Further, individual projects in the future will undergo review for approval by the IEUA and/or responsible entity and these reviews will control potential for safety hazards from short-term construction activities. The following mitigation measures will be required to minimize project-related construction impacts on traffic and circulation.

XV-1 ***The construction contractor will provide adequate traffic management resources, as determined by the applicable jurisdiction, to ensure adequate access to all occupied properties on a daily basis, including emergency access. The applicable jurisdiction shall require a construction traffic management plan for work in public roads that complies with the Work Area Traffic Control Handbook, or other applicable standard, to provide adequate traffic control and safety during construction activities. The traffic management plan shall be prepared and approved by the applicable jurisdiction prior to initiation of construction within a traveled roadway***

alignment. The plan can include the following components: protective devices, flag persons or police assistance for traffic control sufficient to maintain safe traffic flow on local streets affected by construction at all times. *This measure is a modification to 4.7-2 from the OBMP PEIR.*

XV-2 The applicable jurisdiction shall require that all disturbances to public roadways be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable jurisdiction standards. *This measure is a modification to 4.7-5 from the OBMP PEIR.*

XV-3 The construction contractor will time the construction activities to minimize obstruction of through traffic lanes adjacent to project sites and/or along project alignments during peak hours.

During short-term construction projects to install pipelines and construct facilities, the project has a potential to create traffic hazards for pedestrians or bicyclists. Mitigation is required that can reduce potential project-related hazards to a non-significant level of impact.

XV-4 During construction the applicable jurisdiction shall require that traffic hazards for vehicles, bicycles, and pedestrians be adequately identified and controlled to minimize hazards. *This measure is a modification to 4.7-3 from the OBMP PEIR.*

XV-5 The applicable jurisdiction shall require the contractor to ensure that no open trenches or traffic safety hazards are left in roadways during periods of time when construction personnel are not present (nighttime, weekends, etc.) *This measure is a modification to 4.7-4 from the OBMP PEIR.*

Facilities within one-quarter of a mile of schools will be required to comply with the following mitigation measure:

XV-6 Peace II related projects located within one-quarter mile of a school will be required to prepare a traffic management plan for review and approval by the appropriate school district. The minimum performance standard for the traffic plan will be to provide sufficient traffic management resources to protect pedestrian and vehicle safety in the vicinity of school sites.

Aside from the short-term construction related trips, the proposed project is not forecast to cause any adverse impacts on the project area circulation system as a result of implementing the Program Elements to enhance the safe yield of the Basin and improve the water quality. Implementation of Peace II could modestly increase local traffic due to employment. An estimated 100 new employees may be required to operate all of the proposed facilities and implement the Peace II Program Elements. Assuming 10 trips per day per employee family per day in the context of millions of trip ends within the Chino Basin, the proposed project has no potential to cause or contribute to any project specific or cumulative significant traffic impacts.

After construction, periodic deliveries of salt (sodium chloride) to regenerable IX facilities and other treatment units at the desalters are required to maintain continuous operation. The solution would be delivered in bulk by chemical trucks. It is conservatively estimated that a maximum of one truck trip per day per facility would be required. The frequency of resin change-out at the non-regenerable facilities could vary between 6 and 12 months, depending on contaminant concentration and throughput of raw water of the facility. In addition a limited number of trips per day are required to provide maintenance and operation support for the OBMP and Peace II systems. The proposed project is not forecast to create significant new traffic generation; however, the following mitigation measures will be required to minimize project-related traffic generation impacts on traffic and circulation.

XV-7 ***IEUA and/or the responsible entity shall emphasize transportation demand management or non-motorized transportation alternatives for Peace II project related employees, where feasible, to reduce demand for roadway capacity.*** *This measure is a modification to 4.7-6 from the OBMP PEIR.*

XV-8 ***For each Peace II-related project that will substantially increase traffic generation (1,000 or more trips per day) relative to current traffic generation, the IEUA or responsible entity shall prepare a traffic study that identifies the net number of trips and the effect on levels of service (LOS) to maintain a LOS "E" or better.*** *This measure is a modification to 4.7-1 from the OBMP PEIR.*

For long-term operational facilities, a potential exists for a facility to create localized traffic hazards, such as ingress and egress from a facility onto a highway with high speed traffic. Mitigation can be implemented, such as acceleration and turn lanes, to ensure that future specific projects can be implemented without causing any significant traffic hazards. A mitigation measures is included below to ensure that no significant local traffic hazards are caused by implementing Peace II.

XV-9 ***Future facility ingress/egress shall be reviewed with the agency having jurisdiction over the roadway providing access, and roadway improvements shall be required to eliminate any traffic hazards associated with access to a facility in accordance with standard agency requirements or prudent circulation system planning requirements.*** *This measure is a modification to 4.7-7 from the OBMP PEIR.*

These measures ensure that implementation of Peace II will not cause significant impacts to the circulation system or to street users by creating uncontrolled safety hazards. Based on the proposed project's anticipated activities, the potential circulation system impacts associated with Peace II facilities can be reduced to a non-significant level by implementing the above recommended mitigation measures.

c. *No impact* – The proposed Peace II projects have no potential to result in a change of air traffic patterns either in location or in traffic levels. Because no impact can be identified, no mitigation is required.

e. *Less Than Significant With Mitigation Incorporation* – The proposed Peace II traffic over the long-term will not substantially increase at those sites where there are existing facilities. These sites are secured and fenced and gated, and are subject to emergency access through existing agency operations plans. Where there are new facility sites, emergency access must be provided in a manner that does not conflict with traffic flow on adjacent or proximate roadways. In addition to the mitigation measures previously required in this section, the following mitigation is required to ensure that adequate emergency access is maintained at all times.

XV-10 ***During construction activities within existing road rights-of-way or other easements where continuous access is required, a road operation management plan shall be prepared and implemented. At a minimum this plan shall define how to minimize the amount of time spent on construction activities; how to minimize disruption of vehicle and alternative modes of traffic at all times, but particularly during periods of high traffic volumes; adequate signage and other controls, including flagpersons, to ensure that traffic can flow adequately during construction; the identification of alternative routes that can meet the traffic flow requirements of a specific area, including communication (signs, webpages, etc.) with drivers and neighborhoods where construction activities will occur; and at the end of each construction day roadways shall be prepared for continued utilization without any significant roadway hazards remaining.*** *This measure is a modification to 4.10-6 from the OBMP PEIR.*

The proposed project may create short-term detours related to construction activities of Peace II facilities and pipelines. To limit reductions in emergency access, all affected public safety providers shall be notified prior to the construction of Peace II facilities or the closure of a public street in accordance with the following mitigation measure.

XV-11 ***To the extent feasible, installation of pipelines or other construction activities in support of Peace II shall not be located on major evacuation or emergency response routes within any communities in the Chino Basin. Where construction on such routes is necessary, local emergency response providers shall be contacted and emergency access and evacuation requirements shall be maintained at a level sufficient to meet their needs.*** *This measure is a modification to 4.10-7 from the OBMP PEIR.*

With implementation of the above mitigation measures, no significant impact is expected.

f. *Less Than Significant Impact* – The proposed Peace II projects will result in a demand for parking for construction and maintenance employee and delivery vehicles, as well as for construction staging areas. Adequate parking is available at existing facility sites. For pipeline construction, specifics are not yet developed, as design and contract specifications are not available. The responsible jurisdiction will require construction contractors to identify staging areas with adequate parking as part of the traffic management plans prior to initiating construction activities within affected roadways.

Project specific future demand for parking capacity will be identified on a case-by-case basis. Each jurisdiction has established parking capacity requirements that will be implemented as individual projects are reviewed and approved. Peace II facilities will be constructed in compliance with the municipal codes where the projects will be constructed. No mitigation is necessary because provision of adequate parking in accordance with municipal codes onsite will meet the needs of the facilities.

g. *Less than Significant Impact* – Implementation of the OBMP is not envisioned to create conflicts with adopted policies supporting alternative transportation. An estimated 100 employees may be required to operate all of the proposed facilities and implement the Peace II Program Elements throughout the Basin, with no one location serving as the work location for these employees. These employees will be encouraged to utilize alternative transportation modes as are deemed appropriate for their work conditions, as outlined in mitigation measure XV-7. No further mitigation is required.

<u>Conclusion</u>

Based on the analysis presented above, transportation and traffic will not experience significant adverse impacts from project implementation. The proposed transportation and traffic impacts remain consistent with the findings of the OBMP PEIR. Implementation of the proposed project does not pose a substantial change in the conclusions presented in the OBMP PEIR regarding transportation and traffic impacts.

The following issues **<u>will not</u>** require any further analysis in the SEIR:

- Traffic and Circulation
- Emergency Access
- Roadway Safety
- Parking
- Alternative Transportation
- Impacts to Air Traffic.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?			■	
b) 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?	■			
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		■		
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	■			
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	■			
f) Be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?			■	
g) Comply with federal, state, and local statutes and regulations related to solid waste?			■	

Substantiation:

The general impacts to utilities and service systems of the overall Chino Basin groundwater management programs, of which the proposed project is a part, are forecast in Section 4.5 pages 4-87 to 4-166 and Section 4.13 pages 4-410 to 4-424 of the OBMP PEIR. No significant utility system impacts were identified in the PEIR after implementation of mitigation measures.

a&b. *Potentially Significant Impact* – The proposed project includes the construction of new water treatment, pumping and conveyance facilities. The water system improvements have been sized based upon existing, planned for or approved development and are not being constructed to support a new or unplanned-for population or water user. Construction of the new facilities could result in significant adverse impacts, but these impacts are addressed in the appropriate sections of this document (e.g., Sections III Air Quality, IV Biological Resources, VI Geology and Soils, and VIII Hydrology and Water Quality.)

The proposed water facilities have the potential to generate wastewater both directly and indirectly. Proposed wells may require treatment to remove excess salts (contaminants) prior to consumption. The contaminants would be tested and would either be disposed of at an appropriate waste treatment facility, or more likely would be transferred to an existing brine wastewater system. The two systems that would handle brine wastes for the project are the NRL and the SARI, as discussed under Program Elements 3 and 5. Capacity is sold based on the peak discharge of its users/capacity purchases. IEUA's entitlement to both systems is approximately 16.66 MGD of capacity. IEUA has capacity available in both the NRL and SARI, but its remaining capacity in the SARI is currently small. SARI pipeline capacity is contracted with SAWPA while treatment capacity is contracted with OCSD. Based on the agreement between IEUA and OCSD, IEUA has the option to purchase more treatment and disposal rights from OCSD in the future. The proposed Desalter II expansion would require approximately 1.26 MGD of SARI pipeline and treatment capacity for brine discharge. Currently, IEUA has unused capacity of 0.77 MGD for treatment and 2.65 MGD within the pipeline for Desalter II. Thus, the proposed expansion would exceed the treatment capacity currently available for Desalter II. As such, the capacity for brine treatment of the proposed expanded Desalter II will be evaluated in the SEIR.

The project could conceivably indirectly contribute to domestic wastewater generation if it increased the quantity of available potable water beyond that which is currently available. Re-Operation would involve removing an additional 400,000 acre-ft from groundwater storage in order to achieve hydraulic control. Access to an increased quantity of local groundwater supplies would offset the need to import water. Water has historically been imported to the Chino Basin from the SWP. However, because of drought, Sacramento delta water quality, and endangered species issues, Metropolitan has been unable to provide recharge water (SWP) to southern California since May 1, 2007. While SWP was previously projected to be available to provide the requested water 70-80% of the time, Metropolitan recently reduced its projected ability to meet demand to 30% of the time. The increase in withdrawal associated with Re-Operation could serve to replace a portion of the water that was previously supplied by SWP. Also, the Governor has called for a 20 percent reduction in per capita water use by 2020, and therefore, overall water use in the Chino Basin is not expected to increase significantly from current annual water demands. Thus, the increase in groundwater extraction in accordance with Peace II is not expected to create new water demand, but rather to supply replacement water to meet existing and projected water demands.

With the exception of the treatment capacity for the brine that would be created by the proposed Desalter II expansion, no water/wastewater systems are expected to be significantly and adversely affected. The proposed Peace II project would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board. In fact, by achieving hydraulic control for the Chino Basin, it will facilitate meeting the new Basin standards established in 2004. No mitigation is required.

c. *Less Than Significant Impact with Mitigation Incorporated* – The proposed project has the potential to temporarily adversely impact stormwater facilities during construction.

Implementation of mitigation measure VIII-1 in Section VIII Hydrology and Water Quality of this Initial Study, which addresses construction stormwater management, will ensure that potential impacts to stormwater drainage facilities during construction are less than significant. Increased impervious area associated with the installation of the proposed above ground facilities has a potential to impact stormwater facilities after construction. Many related facilities would be very small (well sites) or located within areas that are already entirely impervious (pipelines within roads) such that the adverse impact associated with implementing the proposed project would be less than significant. Because future project-specific activities associated with Peace II could impact larger areas, the mitigation measures listed under the Hydrology and Water Quality section of this Initial Study, VIII-1 and VIII-2) must be implemented to reduce impacts to a less than significant level.

d. *Potentially Significant Impact* – The proposed project is designed to optimize the quantity and quality of available water supplies. Implementation of the proposed Peace II project would be conducted as mandated under the Judgment and Peace II Agreement overseen by the Chino Basin Water Master. Any approved, planned for or proposed development that would be served water by the proposed project facilities must demonstrate that sufficient water supplies are available to serve the project as required by SB 610 and SB 221 in the appropriate environmental evaluation for said project.

As described in the Project Description, the specific characteristics of the DYY programs, Re-Operation/hydraulic control and the proposed expansion of the desalters constitute changes from the baseline that was evaluated in the OBMP PEIR. The analysis of available water supplies with respect to sufficiency of existing entitlements and resources will be evaluated in the SEIR under Section VIII Hydrology and Water Quality.

e. *Potentially Significant Impact* – The only wastewater treatment provide of concern is the OCSD capacity to treat the brine that would be created by the proposed Desalter II expansion. Please refer to item (b) of this Section for a full discussion of this topic.

f&g. *Less Than Significant Impact* – The proposed project would generate minor amounts of construction wastes and minor operational solid waste typically consistent with commercial use. Some of the proposed facilities would generate treatment wastes as discussed in greater detail in Section VII, Hazards and Hazardous Materials.

The California Integrated Waste Management Act of 1989 mandates a 50 percent diversion goal. The Board announced compliance with the goal in 2006 based on averaging statewide diversion rates. While the majority of the proposed project impacts would occur within San Bernardino County, components of the Peace II project occur within Riverside and Los Angeles Counties. San Bernardino County has identified sufficient disposal capacity to meet the short- and long-term needs of County per Table 2-56 of the County General Plan Circulation and Infrastructure Background Report. The Riverside Countywide Integrated Waste Management Plan Siting Element outlines strategies for meeting the disposal needs of all Riverside County residents and enabling the County to provide a minimum of 15 years of disposal capacity, based on projected growth in disposal with a 50 percent diversion rate. The 2006 Annual Report for the Los Angeles County Integrated Waste Management Plan describes the County's current strategy for maintaining adequate disposal capacity through 2021.

Based on the availability of adequate disposal and recycling capacity, disposal of solid waste generated in association with implementing the proposed project is not forecast to result in significant impacts to the environment. Since AB939 mandates 50% diversion of waste stream, no mitigation is required to transport waste to recycling facilities where feasible or to comply with solid waste regulations.

Conclusion

Based on the analysis presented above, utilities and service system resources will not experience significant adverse impacts from project implementation for most of the identified issues.

The following issues **will not** require any further analysis in the SEIR:

- solid waste
- wastewater
- stormwater.

The following issues **will** require any further analysis in the SEIR:

- Sufficiency of water supplies under Peace II will be evaluated in the Hydrology and Water Quality Section of the SEIR.
- Sufficiency of OCSD treatment capacity for the proposed Desalter II expansion.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact or Does Not Apply
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE –				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	■			
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	■			
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	■			

Substantiation:

The Peace II programs have been designed to provide a mid-stream correction to implementation of the OBMP. After eight years of implementation, major accomplishments have been achieved for the OBMP but the original OBMP PEIR was becoming stale and the programs require some adjustment based on the accumulated monitoring data for the Chino Groundwater Basin. After completing a current review of the environmental data and environmental impacts associated with the past eight years, most of the environmental issues remain consistent with and within the scope of the OBMP PEIR impact forecasts. However, several environmental issues have experienced changes in the environmental baseline, analysis methodology, or the overall circumstances. As a result, IEUA will prepare an updated “subsequent” EIR to address these changes.

a. *Potentially Significant Impact* – This project will result in the new facilities that may adversely impact biological and cultural resources at site specific locations in the future. Based on the analysis of condition, adequate mitigation is available to address the changes in cultural resources circumstances and reduce potential cultural resources impacts to a less than significant impact level. However, circumstances regarding management of biological resources have changed sufficiently to warrant an update of the biological resources baseline and evaluation of potential impacts under the Western Riverside

County Multiple Species Habitat Conservation Plan (MSHCP). Therefore, potential impacts to cultural resources do not need to be carried over into the subsequent EIR (SEIR) that will be prepared for the Peace II programs. Biological resources will be evaluated in the SEIR and the MSHCP analysis will also be prepared to address potential conflicts with this plan.

b. *Potentially Significant Impact* – The project will construct a variety of facilities and some facilities will generate impacts during operations. Based on the analysis in this Initial Study, the installation of and operation of these new facilities have the potential to cause impacts that are individually limited but are cumulatively considerable. Due to the potential for the proposed Peace II programs and facilities to contribute to cumulatively considerable impacts the following issues will be evaluated in the SEIR: air quality, biology, hydrology and water quality (water quality, groundwater supply, drainage patterns and flood hazards), and utilities and services (adequacy of groundwater supply, which will be addressed as part of the cumulative impacts to the Basin's groundwater hydrology, and sufficiency of OCSD treatment capacity for the proposed Desalter II expansion.)

c. *Potentially Significant Impact* – The provision of an adequate water supply through effective management of the Chino Groundwater Basin is considered a benefit to public health and safety and has no potential to cause substantial adverse effects on human beings. However, potential impacts to certain environmental issues in the process of accomplishing this beneficial outcome can cause adverse effects on humans both directly or indirectly. As a result, the following environmental issues will be evaluated in the SEIR: air quality, geology (liquefaction and subsidence), and hydrology and water quality (water quality, drainage and flood hazards).

Conclusion

This document evaluated all CEQA issues contained in the latest Initial Study Checklist form. The evaluation determined that either no impact or less than significant impacts would be associated with the issues of: aesthetic issues, agricultural resources; cultural resources, most geology and soil issues, hazards and hazardous materials, land use and planning (except MSHCP issues), mineral resources, noise, population and housing, public services, recreation, transportation, and utilities and service systems (except adequate water supply and brine treatment capacity). Extensive mitigation has been brought forward into this Initial Study from the OBMP PEIR and some new measure were proposed to reduce impacts for most of these issue to a less than significant impact level.

The issues of: air quality; biological resources; hydrology and water quality; land use planning (MSHCP); and utilities and services (adequacy of water supplies and brine treatment capacity) were determined to be potentially significant and unavoidable. These environmental issues will be addressed in the SEIR.

SUMMARY OF MITIGATION MEASURES

Aesthetics

I-1 All surface areas disturbed by Peace II construction activities, except those areas occupied by structures or hardscapes, shall be revegetated, either with native vegetation in natural landscapes or in accordance with a landscape plan in man-made landscape areas. In non-native landscape areas, landscaping shall prioritize the use of native species or drought tolerant non-invasive species. Once construction is completed revegetation shall begin immediately. Where a formal landscape plan is to be implemented, it shall be coordinated with the local agency and the local design guidelines for consistency. Where a native landscape is to be restored, it shall be implemented in cooperation with regulatory agencies with oversight from a qualified biologist. This measure is a modification of 4.15-1 from the OBMP PEIR.

I-2 Where facilities will disrupt views from occupied areas with significant scenic vistas, a visual simulation analysis shall be performed of the facility's impact on the important view. If the analysis identifies a significant impact on a scenic vista, the facility shall be relocated, redesigned to reduce the impact to a non-significant level, or a subsequent environmental evaluation shall be prepared. This measure is the same as 4.15-3 from the OBMP PEIR.

I-3 All utility connections for Peace II facilities shall be placed underground unless technically infeasible. This measure is a modification to 4.15-5 from the OBMP PEIR.

I-4 Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, Peace II facility implementation will conform with design requirements established in these planning documents. This measure is a modification to 4.15-2 from the OBMP PEIR.

I-5 Fencing, landscaping and/or architectural design will be incorporated in project design to reduce the visual impact of facilities in a manner consistent with the surrounding development and with the local agency design guidelines to the extent that such measures do not conflict with the engineering and budget constraints established for the facility. This measure is a modification to 4.15-4 from the OBMP PEIR.

I-6 Future project review and implementation shall implement the following:

- Use of low pressure sodium lights where security needs require such lighting to minimize impacts of glare.
- Height of lighting fixtures shall be lowered to the lowest level consistent with the purpose of the lighting to reduce unwanted illumination.
- Directing light and shielding shall be used to minimize off-site illumination.
- No light shall be allowed to intrude into sensitive light receptor areas off of a specific project site. This measure is a modification to 4.15-6 from the OBMP PEIR.

Agricultural Resources

II-1 Where future Peace II facilities are proposed on locations that support agricultural operations on important farmlands, alternative sites shall be selected that do not occupy such acreage (unless agricultural operations have already been terminated). This measure is a modification to 4.2-2 from the OBMP PEIR.

Cultural Resources

Archaeology

V-1 Inventory: A required basic archaeological inventory should encompass the following guidelines:

a. Literature and Records Search - Existing maps, site reports, site records, and previous EIRs in the region of the subject area should be researched to identify known archaeological sites and works completed in the region. All maps, EIRs, historical maps and documents, and site records should be cited in text and references. Local historical societies should also be contacted and referenced. State Information Centers will provide the bulk of this information. The San Bernardino County Archeological Information Center (AIC) or the Eastern Information Center (EIC) at UC Riverside should be contacted.

b. Field Reconnaissance - Conduct a surface survey to obtain comprehensive examination of current status of the area and gather general understanding of the kinds of cultural and related phenomena present. At a minimum, all ground surfaces chosen for survey should be walked over in such a way that every foot of ground can be visually scanned. All previously recorded cultural resources should be revisited to determine their current status, and all newly discovered sites should be recorded on either State Form 422 or 523 and supplements, as appropriate. Trinomial designations will be obtained from the Information Center. For the inventory process, a compilation of all historical resources, including archaeological and historic resources older than 50 years, using appropriate State record forms, following guidelines in the California Office of Historic Preservation's handbook should be completed for all new discoveries. Two copies should be submitted to the San Bernardino County Archeological Information Center for the assignment of trinomials if discovered within San Bernardino County. Otherwise, the appropriate comparable agency in Riverside County shall be the recipient of these reports.

c. Report - A technical report should be prepared which fully describes both the methods and results of all efforts. Research sources should be listed, and the information summarized. The field work should be presented in detail, with all appropriate maps and graphics. Any areas not inspected with full intensity should be specified, preferably using clear, easily understood maps, and the reasons for the deficiency presented. Site records should be prepared for all new discoveries, and amendments prepared to update old records where necessary; since locational data are shielded from public access, the actual forms should be provided in the separable appendix, but the sites should be described in the main text. Each resource description should include a professional opinion of significance, with reference to the qualities or research potential which make it worthy of further consideration. Archaeological sites which need test excavation to confirm significance, integrity, and boundaries should be identified, and a sampling program recommended.

For each potentially significant cultural resource, possible impacts should be listed and mitigating measures developed. All standards for compliance with the CEQA requirements and those of the lead agencies should be addressed. This measure is 4.14-1 from the OBMP PEIR.

V-2 Assessment

Properties shall be evaluated using a well-understood cultural context that describes the cultural development of an area and identifies the significant patterns that properties represent. This same historic context is used to organize all identification, registration, and preservation decisions within the planning framework. To be useful in subsequent stages of the planning process, evaluation decisions must make clear the significance of the property with the historic context.

Potential preservation treatments should not influence the evaluation of significance (National Park Service n.d.:35).

The nature and type of assessment will depend on the particular resource(s) and level of information for a particular region. Consequently, it is not possible to prescribe specific methods to be utilized. However, there are certain basic elements that should be included and are as follows:

a. Preparation of a Research Design - Archaeological documentation can be carried out only after defining explicit goals and a methodology for reaching them. The goals of the documentation effort directly reflect the goals of the preservation plan and the specific needs identified for the relevant historic contexts.

b. Field Studies - The implementation of the research design in the field must be flexible enough to accommodate the discovery of new or unexpected data classes or properties, or changing field conditions. An important consideration in choosing methods to be used in the field studies should be assuring full, clear, and accurate description of all field operations and observations, including excavation and recording techniques and strati-graphic or inter-site relationships.

c. Report - The assessment report should evaluate the significance and integrity of all historical resources within the project area, using criteria established in Appendix K of the CEQA Guidelines for important archaeological resources and/or CFR 60.4 for eligibility for listing on the National Register of Historic Places. The report should contain the following information and should be submitted to the San Bernardino county Archaeological Information Center or to the Eastern Information Center at UC Riverside for permanent archiving:

    (1) Description of the study area;
    (2) Relevant historical documentation/background research;
    (3) The research design;
    (4) The field studies as actually implemented, including any deviation from the research design and the reason for the changes;
    (5) All field observations;
    (6) Analysis and results, illustrated as appropriate with tables, maps, and graphs;
    (7) Evaluation of the study in terms of the goals and objectives of the investigation, including discussion of how well the needs dictated by the planning process were served;
    (8) Information on where recovered materials are curated and the satisfactory condition of those facilities to protect and to preserve the artifacts and supporting data. The County of San Bernardino requests that historical resource data and artifacts collected within this project area be permanently curated at a repository within the County.

d. In the event that a prehistoric or historic artifact over 50 years in age is encountered within the project area, especially during construction activities, all land modification activities in the immediate area of the finds should be halted and an onsite inspection should be performed immediately by a qualified archaeologist. This professional will be able to assess the find, determine its significance, and make recommendations for appropriate mitigation measures. Further, if human remains of any kind are encountered on the property, the San Bernardino or Riverside County Coroner's Office must be contacted within 24 hours of the find, and all work should be halted until a clearance is given by that office and any other involved agencies. This measure is 4.14-2 from the OBMP PEIR.

V-3 Monitoring

In situations where resources are potentially subject to direct or indirect impact and testing or data recovery is not proposed, an archaeological monitor and Native American observer/consultant should be present during subsurface work. One circumstance under which this might occur would be if a known resource were close to an area of impact and the site boundaries were ambiguous. Monitors help insure that exposed data or materials are collected and that if potentially significant cultural materials or features are encountered, they will be preserved either by realignment of the proposed facilities or by prompt evaluation and recommendations for any necessary mitigative measures. This measure is 4.14-3 from the OBMP PEIR.

V-4 Data Recovery

If an archaeological resource is found to be significant and no other preservation option is possible, mitigation of adverse effects by scientific data recovery, including analysis and reporting is the method of last resort. Such a mitigation program is usually only developed after an assessment test has been completed to identify physical parameters and cultural complexity, and formulate a research design. Each specific program would have to be developed in response to the site and potential impact, with the concurrence of the appropriate agencies and in consultation with Native American representatives. This measure is 4.14-4 from the OBMP PEIR.

V-5 Future Project Siting

Future project shall be located, whenever possible or feasible, outside of the highly sensitive cultural resource areas depicted in Figures 4.14-1. Before any projects are located, and before any construction activities begin, any proposed project that will result in ground disturbance to any area that does not have a complete cultural resource survey on record with either the AIC or the EIC offices will conduct a site specific cultural resource evaluation and report prior to any ground breaking activity. Further, if cultural resources have been identified on the site, a qualified archeologist or paleontologist will be retained to devise an excavation and/or curation plan for the resources, and a qualified cultural resource monitor will be present onsite during all construction-related activities that could potentially uncover previously undiscovered resources. This monitor will examine excavated soils and have the authority to cease construction activities if resources are un-earthed. This measure is 4.14-5 from the OBMP PEIR.

Architectural Resources

V-6 Based solely upon this level of investigation and at this stage of project planning, it would be premature to propose specific mitigation measures. However, certain options can be presented presupposing a general level of knowledge regarding impacts. These options can be utilized to avoid impacts upon the cultural resources - the preferred result - or to lessen adverse effects. It should be emphasized that these options are not the only ones that may be applied. As such, these measures are not recommended as conditions of Project approval but are included for the Authority's consideration and implementation as appropriate.

a. Conduct a comprehensive historic building survey which is integrated with economic development programs;

b. Adopt a preservation ordinance and create a preservation board;

c. Ensure other planning programs, plans, and ordinances are compatible to the historic preservation goals and policies;

d. Direct existing funding sources and loan programs to historic neighborhoods in need of revitalization;

e. Provide incentives and direction encouraging preservation and revitalization; and

f. Develop ongoing programs for enhancing public appreciation of historic resources.

g. Project Redesign - A proposed project may be redesigned in either of two ways:

(1) Outside of site boundaries, thus avoiding impact to the site; or
(2) Restricting impacts to those areas of a site where previous impacts have already destroyed the integrity and research potential.

Other options may also apply and may include capping of the site, relocation of structures, and integration of extant buildings into project design. This measure is 4.14-6 from the OBMP PEIR.

V-7 At all locations where project impacts will extend to depths below 10 feet, spot monitoring shall be carried out to determine if high sensitivity deposits are being excavated. If high sensitivity deposits are being disturbed, then continuous paleontological monitoring will be required for all ground disturbing activities within these deposits. If paleontological resources are located during construction within sensitive deposits, construction in that area must stop, the resources must be protected, and treatment by a qualified paleontologist must occur following professional procedures.

Geology and Soils

(From Section 4.4.4.2 - Geology of the OBMP PEIR)

4.4-7 Mitigate the risks from geological hazards through a combination of engineering construction, land use and development standards.

4.4-8 Require each site within identified Liquefaction Hazard Zones to be evaluated by a licensed engineer prior to design or land disturbance/construction.

4.4-9 Apply appropriate design and construction criteria to all structures subject to significant seismic shaking.

4.4-10 Prohibit critical, essential, and high risk land uses near earthquake special studies areas shown on the Hazard Overlay Maps developed by the County of San Bernardino and Riverside.

4.4-11 Requires stability analysis for Landslide Hazard areas designated "Generally Susceptible" and "Mostly Susceptible" on the Hazards Overlay Maps.

4.4-12 Institute restrictions on construction in high landslide potential and steep-slope areas to ensure safe development.

4.4-13 Continue to identify and study subsidence hazards and susceptible areas, and propose mitigation technology that is appropriate to the findings of the monitoring study. The implementation of Peace II facilities shall not in any way contribute to subsidence conditions in pre-existing subsidence zones (as shown in Figure 4.4-16). Peace II will not cause or contribute to any new, significant subsidence impacts greater than a total of six inches in magnitude over the planning period. Impacts less than 6 inches in new areas are considered to be less than significant.

4.4-14 If modeling conducted for the expanded OBMP SAWPA desalter wellfield demonstrates that such pumping will contribute to subsidence in the existing subsidence area, then a potentially significant impact can occur, and a subsequent environmental document will be prepared. No OBMP/Peace II activities allowed under this document will be permitted to cause or contribute to the subsidence within the pre-existing subsidence area defined in the OBMP Phase I Report and Figure 4.4-16.

4.4-15 To ensure that pumping impacts in the vicinity of the desalter well field do not have an adverse impact on water levels and subsidence issues, the follow performance standards shall be used to evaluate the desalters:

a. Water level declines in areas surrounding the desalter pumping locations will not be allowed to decline to the extent that pumping capabilities for surrounding wells are impacted. If surrounding wells and producers are impacted by declines in water levels, alternative access to equivalent quantity and quality of water will be provided to affected surrounding parties. This water may be provided through distribution of funding to affected parties for the deepening of existing wells, or may be provided through the delivery (paid for by the implementing agency) of comparable or improved quality and quantity of water from other sources.

b. If desalter well fields are demonstrated to cause or exacerbate impacts to subsidence areas measurable by a decline of over six inches in ground level at a 1/4 mile radius, or at the radius of the nearest non-OBMP/Peace II-participating structure, then pumping patterns for the desalters shall be modified to reduce impacts to cause no more than six inches of decline in ground level at the smallest of the two radii.

4.4-16 Requires site-specific geotechnical investigations of proposed development to include an assessment of potential impacts and mitigation measures related to expansive and reactive soils and liquefaction. Under Peace II, Watermaster will continue to monitor the areas with potential liquefaction hazards and will work with local jurisdictions to ensure that any future structures are constructed with the appropriate foundations to address increased liquefaction potentials apropos to the specific area. This mitigation measure will reduce impacts to a less than significant level.

4.4-17 Apply provisions of hillside erosion and sediment control that reduce volume and velocity of flows and content of sediment to levels that do not cause significant rill or gully erosion in susceptible areas. In addition, provide for restoration of areas that do become eroded.

4.4-18 Prevent unnatural erosion in erosion-susceptible areas by tailoring grading and land clearance activities, and by prohibiting grazing and use of off-road vehicles.

VI-1 When determined necessary by the affected jurisdictions, geotechnical and soils engineering reports shall be prepared in conjunction with the preparation of preliminary design layouts and grading plans for all new development projects implemented within the proposed Project Area. These studies will verify the presence or absence of hazardous soil conditions. If necessary, these reports will provide specific mitigation measures for the treatment of potential geologic and soils hazards. This measure is 4.4-19 from the OBMP PEIR.

VI-2 Comprehensive geotechnical investigation shall be required prior to engineering and design development or structural and/or substantial rehabilitation of structures identified under Risk Class I & II, e.g., public facilities, as identified below:

Risk Class I & II, Structures Critically Needed after Disaster: Structures which are critically needed after a disaster include important utility centers, fire stations, police stations, emergency communication facilities, hospitals, and critical transportation elements such as bridges and overpasses and smaller dams.

Acceptable Damage: Minor non-structural; facility should remain operational and safe, or be suitable for quick restoration of service.

Risk Class III: High occupancy structures; uses are required after disasters, i.e., places of assembly such as schools and churches.

Acceptable Damage: Some impairment of function acceptable; structure needs to remain operational.

Risk Class IV, Ordinary Risk Tolerance: The vast majority of structures in urban areas; most commercial and industrial buildings, small hotels and apartment buildings, and single family residences.

Acceptable Damage: An "ordinary" degree of risk should be acceptable. The criteria envisioned by the Structural Engineers Association of California provide the best definition of the "ordinary" level of acceptable risk. These criteria require that buildings be able to:

a. Resist minor earthquakes without damage;

b. Resist moderate earthquakes without structural damage, but with some non-structural damage; or

c. Resist major earthquakes, of the intensity or severity of the strongest experienced in California, without collapse, but with some structural, as well as non-structural damage.

Risk Class V, Moderate to High Risk Tolerance: Open space uses, such as farms, ranches and parks without high occupancy structures; warehouses with low intensity employment; and the storing of non-hazardous materials.

Acceptable Damage: Not applicable.

This measure is 4.4-20 from the OBMP PEIR.

VI-3 All structures previously identified in categories III through V shall be designed in accordance with the applicable multiplier factor seismic design provisions of the Seismic Safety Report to promote safety in the event of an earthquake. This measure is 4.4-21 from the OBMP PEIR.

VI-4 The direct impacts of faults upon proposed projects shall be considered during preliminary planning processes, and the engineering design phases. This measure is 4.4-22 from the OBMP PEIR.

VI-5 All rehabilitation and new development projects implemented as a result of the proposed Project shall be built in accordance with current and applicable Uniform Building Code (UBC) standards and all other applicable City, County, State and Federal laws, regulations and guidelines, which may limit construction and site preparation activities such as grading, and shall make provisions for appropriate land use restrictions, as deemed necessary, to protect residents and others from potential environmental safety hazards, either seismically induced or those resulting from other conditions such as inadequate soil conditions, which may exist in the proposed Project Area. This measure is 4.4-23 from the OBMP PEIR.

VI-6 Local grading and building codes should reflect measures to minimize possible seismic damage. This measure is 4.4-24 from the OBMP PEIR.

(From Geology section of the OBMP PEIR)

4.4-25 Utilize geologic and seismic data in land planning so that identified risk areas, if any, are avoided, or structures and landforms treated and designed to reflect local site conditions.

4.4-26 Inspect older facilities and improve earthquake design features when possible.

4.4-27 Maintain a disaster preparedness plan.

VI-7 Add protective covering of mulch, straw or synthetic material (erosion control blankets, tacking will be required). This measure is 4.4-1 from the OBMP PEIR.

VI-8 Limit the amount of area disturbed and the length of time slopes and barren ground are left exposed. After pipeline installation, soil shall be compacted to a level similar to pre-construction conditions. This measure is 4.4-2 from the OBMP PEIR.

VI-9 Construct diversion dikes and interceptor ditches to divert water away from construction areas. This measure is 4.4-3 from the OBMP PEIR.

VI-10 Install slope drains (conduits) and/or water-velocity-control devices to reduce concentrated high-velocity streams from developing. This measure is 4.4-4 from the OBMP PEIR.

VI-11 Construction of facilities and structures in locations with high liquefaction potential shall be limited without further geologic and hazard-related studies conducted by a qualified geologist or geotechnical firm. Such studies will provide guidelines to minimize the risks to humans and to capital-intensive facilities. This measure is 4.4-5 from the OBMP PEIR.

VI-12 If a conjunctive use program might be implemented that would bring water levels up to a level that significantly increases the risk of liquefaction, a more detailed monitoring and geologic study focused on this issue will be conducted to determine whether or not liquefaction poses a hazard to surface structures and to human safety. If such a study finds the impacts to be significant, the volume of water permitted to be stored in the Basin will be decreased sufficiently until a water level is achieved that does not pose any significant hazard to surface structures or people. This measure is 4.4-6 from the OBMP PEIR.

Hazards and Hazardous Materials

VII-1 For OBMP facilities that handle hazardous materials or generate hazardous waste the Business Plan prepared and submitted to the county or local city shall incorporate best management practices designed to minimize the potential for accidental release of such chemicals. The facility managers shall implement these measures to reduce the potential for accidental releases of hazardous materials or wastes. This measure is 4.10-1 from the OBMP PEIR.

VII-2 The business plan shall assess the potential accidental release scenarios and identify the equipment and response capabilities required to provide immediate containment, control and collection of any released material. Adequate funding shall be provided to acquire the necessary equipment, train personnel in responses and to obtain sufficient resources to control and prevent the spread of any accidentally released hazardous or toxic materials. This measure is 4.10-2 from the OBMP PEIR.

VII-3 For the storage of any acutely hazardous material at an OBMP facility, such as chlorine gas, modeling of pathways of release and potential exposure of the public to any released material shall be completed and specific measures, such as secondary containment, shall be implemented to ensure that sensitive receptors will not be exposed to significant health threats based on the toxic substance involved. This measure is 4.10-3 from the OBMP PEIR.

VII-4 All contaminated material shall be delivered to a licensed treatment, disposal or recycling facility that has the appropriate systems to manage the contaminated material without significant impact on the environment. This measure is 4.10-4 from the OBMP PEIR.

VII-5 Before determining that an area contaminated as a result of an accidental release is fully remediated, specific thresholds of acceptable clean-up shall be established and sufficient samples shall be taken within the contaminated area to verify that these clean-up thresholds have been met. This measure is 4.10-2 from the OBMP PEIR.

VII-6 Prior to selecting a Peace II facility location that will use hazardous substances within 1/4 mile of a school, a study of alternative sites shall be completed and either identified a suitable alternative site, or verify that no other alternative site can perform the required activities. If feasible, an alternative site at a distance greater than 1/4 mile shall be implemented.

VII-7 Engineering controls over any hazardous emissions or accidental releases of hazardous substances shall be comprehensive, redundant and state of the art to minimize emissions from the facility or to minimize the potential for an accidental release. A report verifying the adequacy of such controls shall be provided to decision-makers before authorization to install a Peace II facility.

VII-8 Where the location of a Peace II facility must be located within 1/4 mile of a school, the facility proponent shall confer with the local school district. The notice to the school district shall define the type of controls over hazardous substances that will be implemented and request the district to provide review and input on the design controls for such substances.

VII-9 Before acquiring a Peace II facility site, the project proponent shall have a Phase 1 property evaluation completed. If a potential for contamination exists, a Phase 2 property evaluation shall be completed. If contamination of the site is identified, the Peace II project proponent shall avoid the site, or shall prepare a work plan for developing the site and have this work plan reviewed and approved by the local CUPA or DTSC. The approved work plan for the site shall be implemented in a manner that does not cause a significant health risk for the public or employees.

VII-10 Where contamination of a site is accidentally discovered after development is initiated, the Peace II project proponent shall retain a qualified industrial hygienist to characterize the type and extent of the contamination, contain the contamination and oversee the proper removal and disposal of contamination in accordance with an approved work plan, and all applicable laws, regulations and standards.

VII-11 Where alternative treatment systems are available to reduce potential health risks at OBMP facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities. This measure is 4.10-8 from the OBMP PEIR.

VII-12 Prior to installing any above ground structures or facilities within FAA Restricted Use, Development and Height Area or within two miles of a public airport, a final determination will be made on the acceptability of such facilities within this zone or area. If it is not permitted, such structures or facilities will be relocated out of the zone on adjacent parcels of land. Final locations for such facilities within FAA Restricted Use, Development and Height Area (ACLUP Referral Area “B”) will be reviewed with the Airport Manager, and any exceptions will be obtained in accordance with FAA regulations.

VII-13 During construction activities within existing road rights-of-way or other easements where continuous access is required, a road operation management plan shall be prepared and implemented. At a minimum this plan shall define how to minimize the amount of time spent on construction activities; how to minimize disruption of vehicle and alternative modes of traffic at all times, but particularly during periods of high traffic volumes; adequate signage and other controls, including flagpersons, to ensure that traffic can flow adequately during construction; the identification of alternative routes that can meet the traffic flow requirements of a specific area, including communication (signs, webpages, etc.) with drivers and neighborhoods where construction activities will occur; and at the end of each construction day roadways shall be prepared for continued utilization without any significant roadway hazards remaining. This measure is 4.10-6 from the OBMP PEIR.

VII-14 To the extent feasible, installation of pipelines or other construction activities in support of the OBMP shall not be located on major evacuation or emergency response routes within any communities in the Chino Basin. Where construction on such routes is necessary, local emergency response providers shall be contacted and emergency access and evacuation requirements shall be maintained at a level sufficient to meet their needs. This measure is 4.10-7 from the OBMP PEIR.

VII-15 To the extent feasible, future Peace II facilities shall avoid areas of high wildfire hazard. Where Peace II facilities must be located within such areas, the facility design shall include sufficient buffer area to be protective of the facility, or to prevent the facility from contributing to a higher wildfire hazard that exists in pre-development conditions.

Hydrology and Water Quality

VIII-1 The construction contractor shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) which specifies Best Management Practices that will be implemented to prevent construction pollutants from contacting stormwater with the intent of keeping all products of erosion from moving offsite. The SWPPP shall be developed with the goal of achieving a reduction in pollutants both during and following construction to control urban runoff to the maximum extent practicable based on available, feasible best management practices. The SWPPP and the monitoring program for the construction projects shall be consistent with the requirements of the latest version of the State's General Construction Activity Storm Water Permit and NPDES Permit No. CAS618036, Order No. R8-2002-0012 for projects within San Bernardino County or NPDES No. CAS618033, Order No. R8-2002-0011 for projects within Riverside County.

The following items should be included in the SWPPP:

- The length of trenches which can be left open at any given time should be limited to that needed to reasonably perform construction activities. This will serve to reduce the amount of backfill stored onsite at any given time.
- Backfill material should not be stored in areas which are subject to the erosive flows of water.
- Measures such as the use of straw bales, sandbags, silt fencing or detention basins shall be used to capture and hold eroded material for future cleanup.
- Rainfall will be prevented from entering material and waste storage areas and pollution-laden surfaces.
- Construction-related contaminants will be prevented from leaving the site and polluting waterways.
- Replanting and hydroseeding of native vegetation will be implemented to reduce slope erosion and filter runoff.
- A spill prevention control and remediation plan to control release of hazardous substances.

VIII-2 The site design for Peace II facilities shall prepare and implement a Water Quality Management Plan (WQMP) which specifies Best Management Practices that will be implemented to prevent long-term surface runoff from discharge of pollutants from sites on which construction has been completed. The WQMP shall be developed with the goal of achieving a reduction in pollutants following construction to control urban runoff pollution to the maximum extent practicable based on available, feasible best management practices.

VIII-3 Any future Peace II facilities that will be inhabited shall avoid locations that may be impacted by mudflows. Peace II facilities that are not inhabited may be installed at a location where flood hazards may occur, but must either be hardened to withstand a mudflow or be installed with the acknowledgment that the facility or structure proponent is temporary or that the permanent loss does not constitute a significant effect on the Peace II program.

Land Use and Planning

IX-1 Following selection of alternative sites for construction of future Peace II projects, each site shall be evaluated for potential incompatibility with adjacent existing or proposed land uses. Where future Peace II projects can create significant incompatibilities (lighting, noise, use of hazardous materials, traffic, etc.) with adjacent uses or will physically divide an established community, an alternative site shall be selected, or a technical report shall be prepared that identify the specific measures that will be utilized to reduce potential incompatible activities or effects to below thresholds established in the general plan for the jurisdiction where the facility will be located. This measure is a modification to 4.2-1 from the OBMP PEIR.

Noise

XI-1 Construction shall be limited to the hours of 7 a.m. to 7 p.m. on Monday through Friday, and between 9 a.m. to 6 p.m. on Saturday, and shall be prohibited on Sundays and federal holidays. Exceptions are for well drilling or declared emergency circumstances. This measure is a modification to 4.11-1 from the OBMP PEIR.

XI-2 All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers. This is measure 4.11-2 from the OBMP PEIR.

XI-3 All employees that will be exposed to noise levels greater than 75 dB over an 8-hour period shall be provided with adequate hearing protection devices to ensure no hearing damage will result from construction activities. This is measure 4.11-3 from the OBMP PEIR.

XI-4 If equipment is being used that can cause hearing damage at adjacent noise receptor locations (distance attenuation shall be taken into account), portable noise barriers shall be installed that are demonstrated to be adequate to reduce noise levels at receptor locations below hearing damage thresholds. This is measure 4.11-4 from the OBMP PEIR.

XI-5 All production wells or booster pumps shall have their noise levels attenuated to 50 dBA CNEL at the adjacent property boundary, when noise sensitive uses occur on such property. This measure is a modification to 4.11-5 from the OBMP PEIR.

XI-6 Project design will include measures which assure adequate interior noise levels as required by Title 25 (California Noise Insulation Standards). This is measure 4.11-6 from the OBMP PEIR.

XI-7 Utilize construction methods or equipment that will provide the lowest level of noise impact, i.e., use newer equipment that will generate lower noise levels.

XI-8 Schedule the construction such that the minimum number of pieces of equipment will be operating at the same time.

XI-9 Maintain good relations with the local community where construction is scheduled, such as keeping people informed of the schedule, duration, and progress of the construction, to minimize the public objections of unavoidable noise. Communities should be notified in advance of the construction and the expected temporary and intermittent noise increases during the construction period.

XI-10 Require that all parking for desalter uses adjacent to residential areas be enclosed within a structure or separated by a solid wall with quality landscaping as a visual buffer. This is measure 4.11-7 from the OBMP PEIR.

XI-11 Desalters shall be constructed and operated so that noise levels from operations do not exceed 50 dB during night hours and 65 dB averaged over the 12 hours of day time when located adjacent to existing or future sensitive land uses. This can be achieved by siting desalters a sufficient distance from sensitive noise receptors; by incorporating attenuation features in the facility or designing attenuation features at the boundary of the property. This is measure 4.11-8 from the OBMP PEIR.

XI-12 Where equipment or facilities will be installed adjacent to sensitive noise receptors in support of Peace II programs, a site specific noise/vibration study will be conducted to ensure that local jurisdictional noise standards will be met. Where noise attenuation is required, the facility design shall incorporate the noise attenuation measures.

XI-13 All above ground well pumps or booster pump stations shall have their noise levels attenuated to 50 dBA CNEL at the property boundary when adjacent to a noise sensitive land use.

Population and Housing

XII-1 If future facilities must be located on parcels occupied by existing housing, the proponent of the facility will ensure that short- and long-term housing of comparable quality and value are made available to the home owner(s) prior to initiating construction of the facility. This is measure 4.3-1 from the OBMP PEIR.

Public Services

XIII-1 Peace II facilities shall be fenced or otherwise have access controlled to prevent illegal trespass to attractive nuisances, such as construction sites or recharge sites. This measure is a modification to 4.12-1 from the OBMP PEIR.

Transportation / Traffic

XV-1 The construction contractor will provide adequate traffic management resources, as determined by the applicable jurisdiction, to ensure adequate access to all occupied properties on a daily basis, including emergency access. The applicable jurisdiction shall require a construction traffic management plan for work in public roads that complies with the Work Area Traffic Control Handbook, or other applicable standard, to provide adequate traffic control and safety during construction activities. The traffic management plan shall be prepared and approved by the applicable jurisdiction prior to initiation of construction within a traveled roadway alignment. The plan can include the following components: protective devices, flag persons or police assistance for traffic control sufficient to maintain safe traffic flow on local streets affected by construction at all times. This measure is a modification to 4.7-2 from the OBMP PEIR.

XV-2 The applicable jurisdiction shall require that all disturbances to public roadways be repaired in a manner that complies with the Standard Specifications for Public Works Construction (green book) or other applicable jurisdiction standards. This measure is a modification to 4.7-5 from the OBMP PEIR.

XV-3 The construction contractor will time the construction activities to minimize obstruction of through traffic lanes adjacent to project sites and/or along project alignments during peak hours.

XV-4 During construction the applicable jurisdiction shall require that traffic hazards for vehicles, bicycles, and pedestrians be adequately identified and controlled to minimize hazards. This measure is a modification to 4.7-3 from the OBMP PEIR.

XV-5 The applicable jurisdiction shall require the contractor to ensure that no open trenches or traffic safety hazards are left in roadways during periods of time when construction personnel are not present (nighttime, weekends, etc.) This measure is a modification to 4.7-4 from the OBMP PEIR.

XV-6 Peace II related projects located within one-quarter mile of a school will be required to prepare a traffic management plan for review and approval by the appropriate school district. The minimum performance standard for the traffic plan will be to provide sufficient traffic management resources to protect pedestrian and vehicle safety in the vicinity of school sites.

XV-7 IEUA and/or the responsible entity shall emphasize transportation demand management or non-motorized transportation alternatives for Peace II project related employees, where feasible, to reduce demand for roadway capacity. This measure is a modification to 4.7-6 from the OBMP PEIR.

XV-8 For each Peace II-related project that will substantially increase traffic generation (1,000 or more trips per day) relative to current traffic generation, the IEUA or responsible entity shall prepare a traffic study that identifies the net number of trips and the effect on levels of service (LOS) to maintain a LOS “E” or better. This measure is a modification to 4.7-1 from the OBMP PEIR.

XV-9 Future facility ingress/egress shall be reviewed with the agency having jurisdiction over the roadway providing access, and roadway improvements shall be required to eliminate any traffic hazards associated with access to a facility in accordance with standard agency requirements or prudent circulation system planning requirements. This measure is a modification to 4.7-7 from the OBMP PEIR.

XV-10 During construction activities within existing road rights-of-way or other easements where continuous access is required, a road operation management plan shall be prepared and implemented. At a minimum this plan shall define how to minimize the amount of time spent on construction activities; how to minimize disruption of vehicle and alternative modes of traffic at all times, but particularly during periods of high traffic volumes; adequate signage and other controls, including flagpersons, to ensure that traffic can flow adequately during construction; the identification of alternative routes that can meet the traffic flow requirements of a specific area, including communication (signs, webpages, etc.) with drivers and neighborhoods where construction activities will occur; and at the end of each construction day roadways shall be prepared for continued utilization without any significant roadway hazards remaining. This measure is a modification to 4.10-6 from the OBMP PEIR.

XV-11 To the extent feasible, installation of pipelines or other construction activities in support of Peace II shall not be located on major evacuation or emergency response routes within any communities in the Chino Basin. Where construction on such routes is necessary, local emergency response providers shall be contacted and emergency access and evacuation requirements shall be maintained at a level sufficient to meet their needs. This measure is a modification to 4.10-7 from the OBMP PEIR.

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FIGURES

FIGURE 1
Comparison of OBMP Management Zones & RWQCB Basin Plan Management Zones

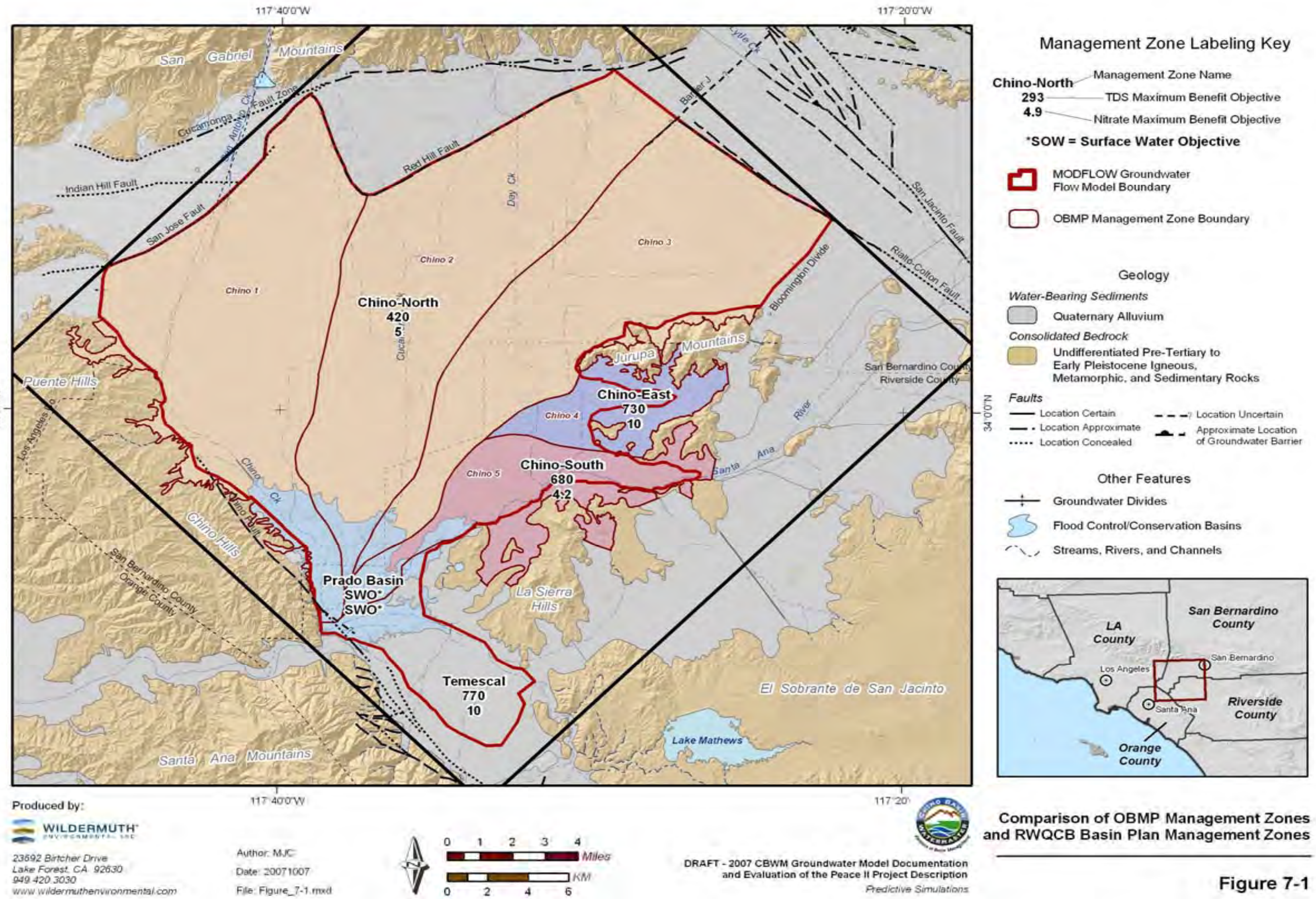


FIGURE 2
Recycled Water Project Status Map

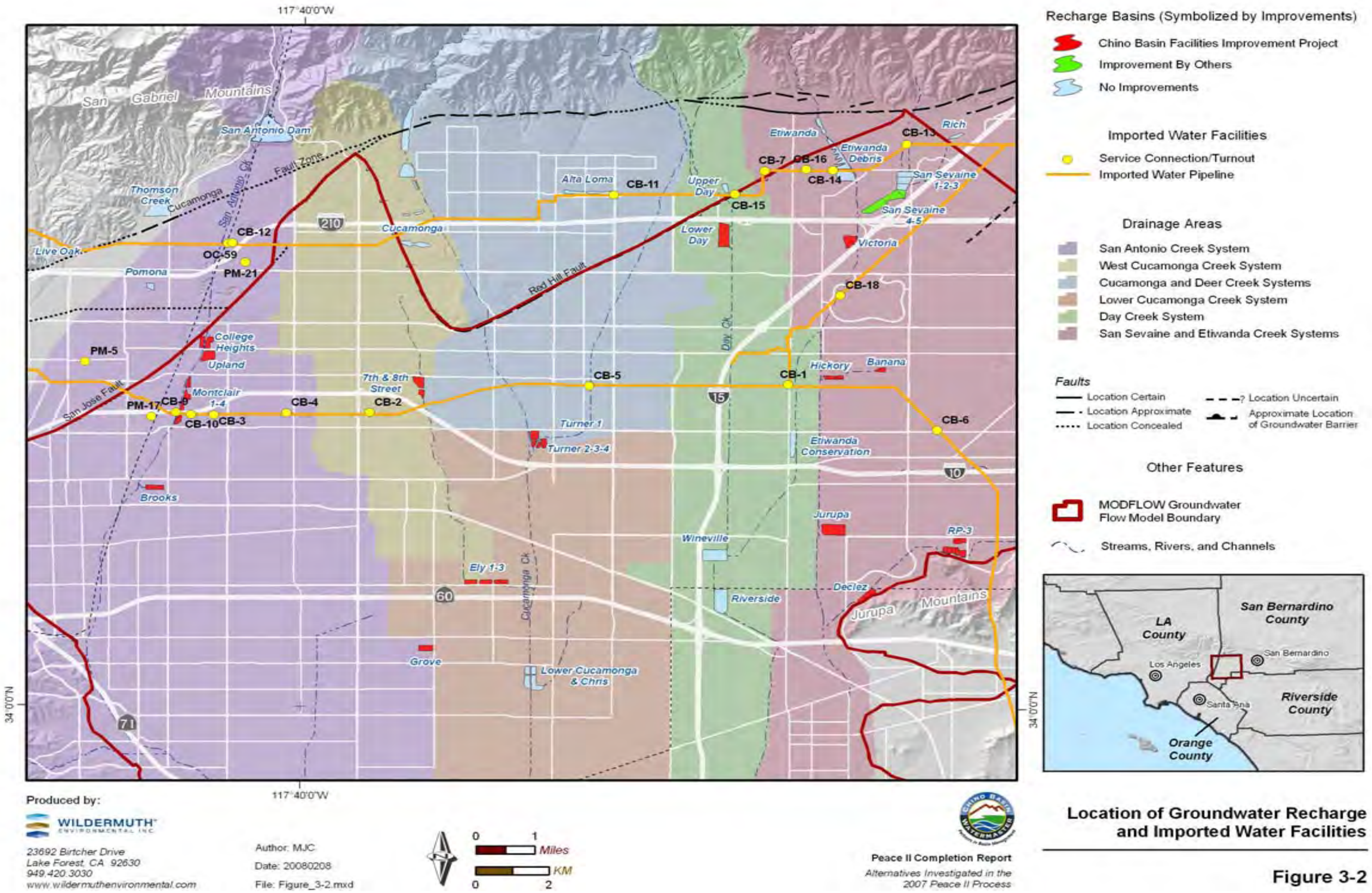


FIGURE 3
Groundwater Elevation Contours

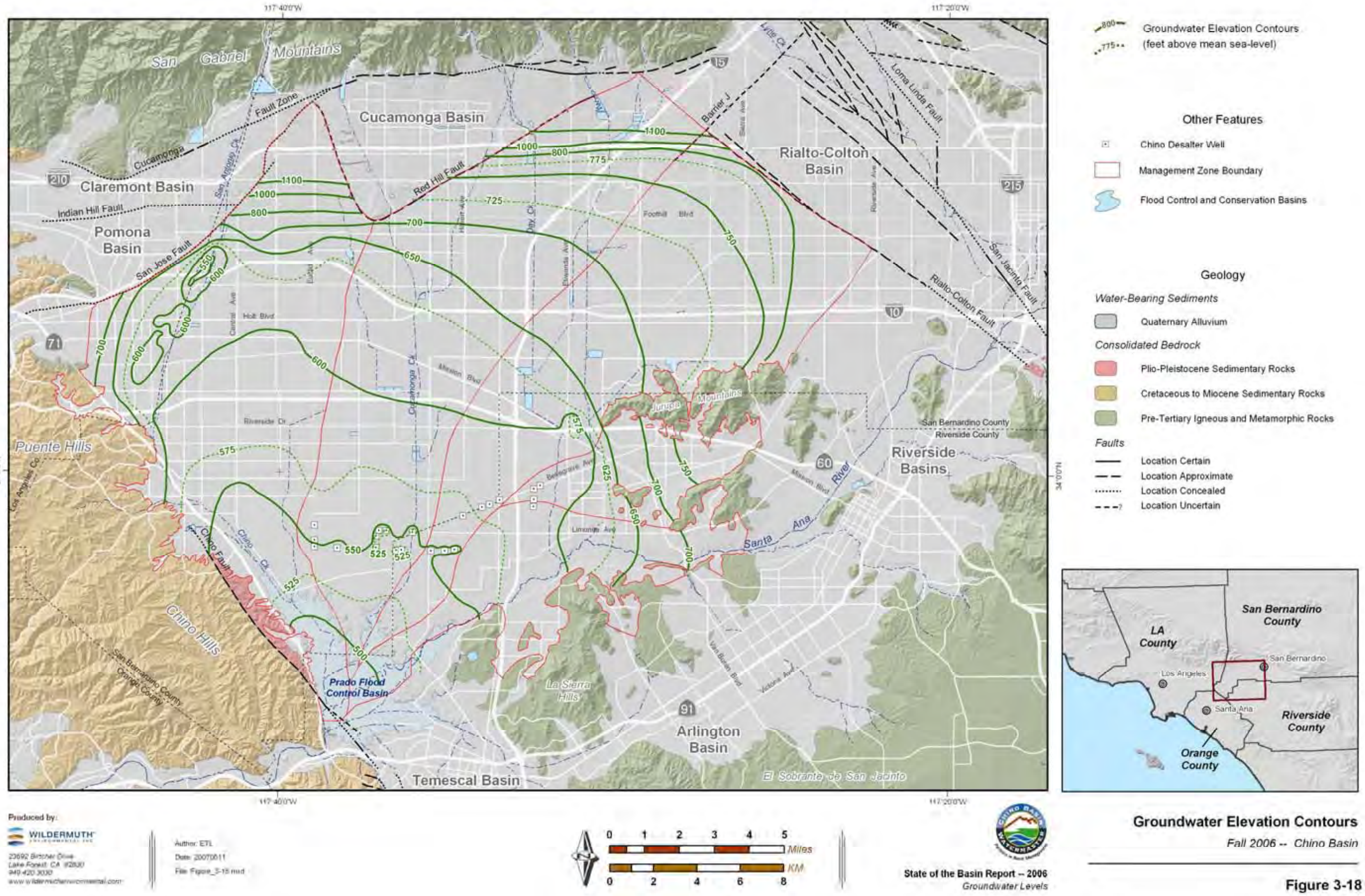


FIGURE 4
Subsidence Management Areas

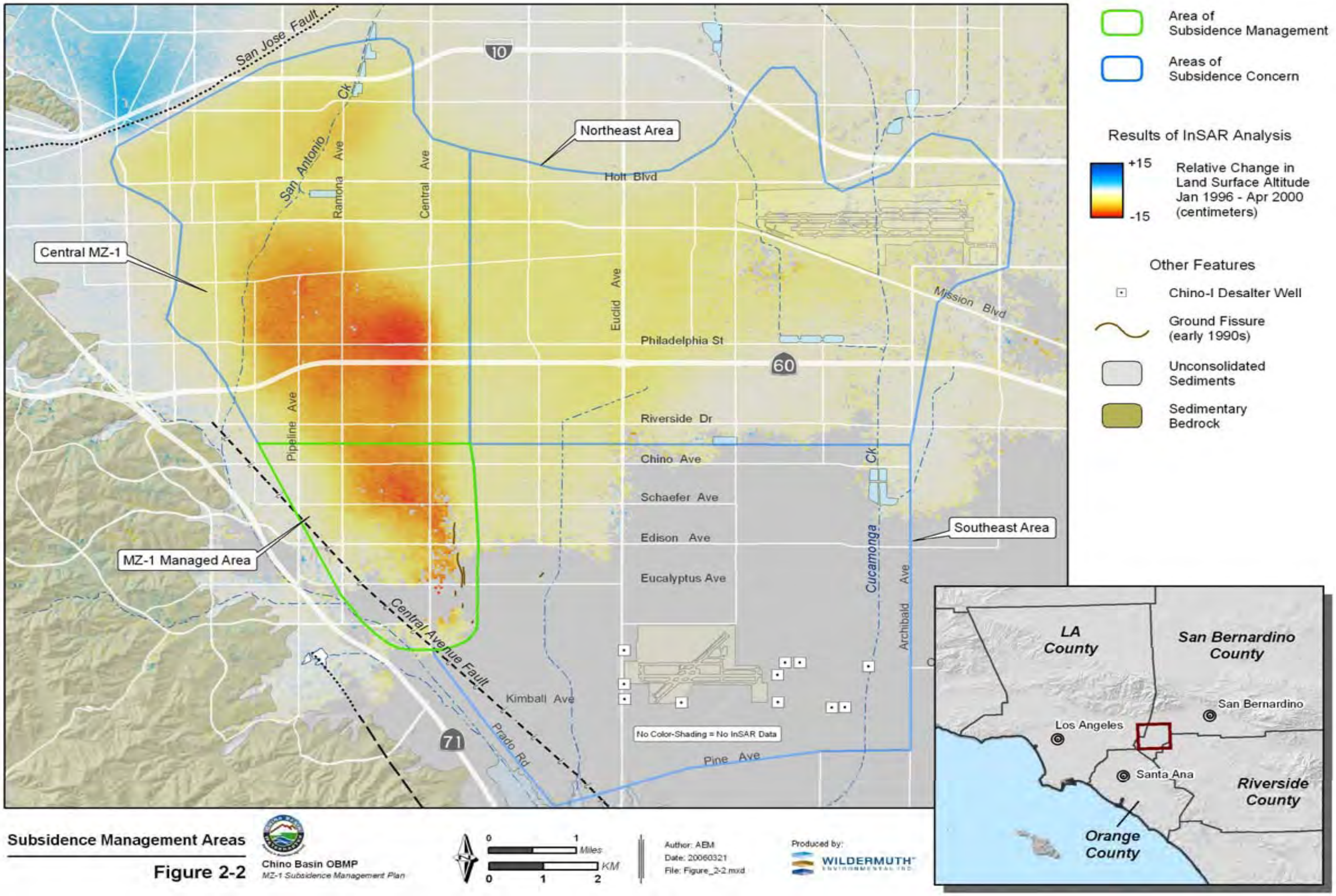


FIGURE 5
Recycled Water Project Status Map

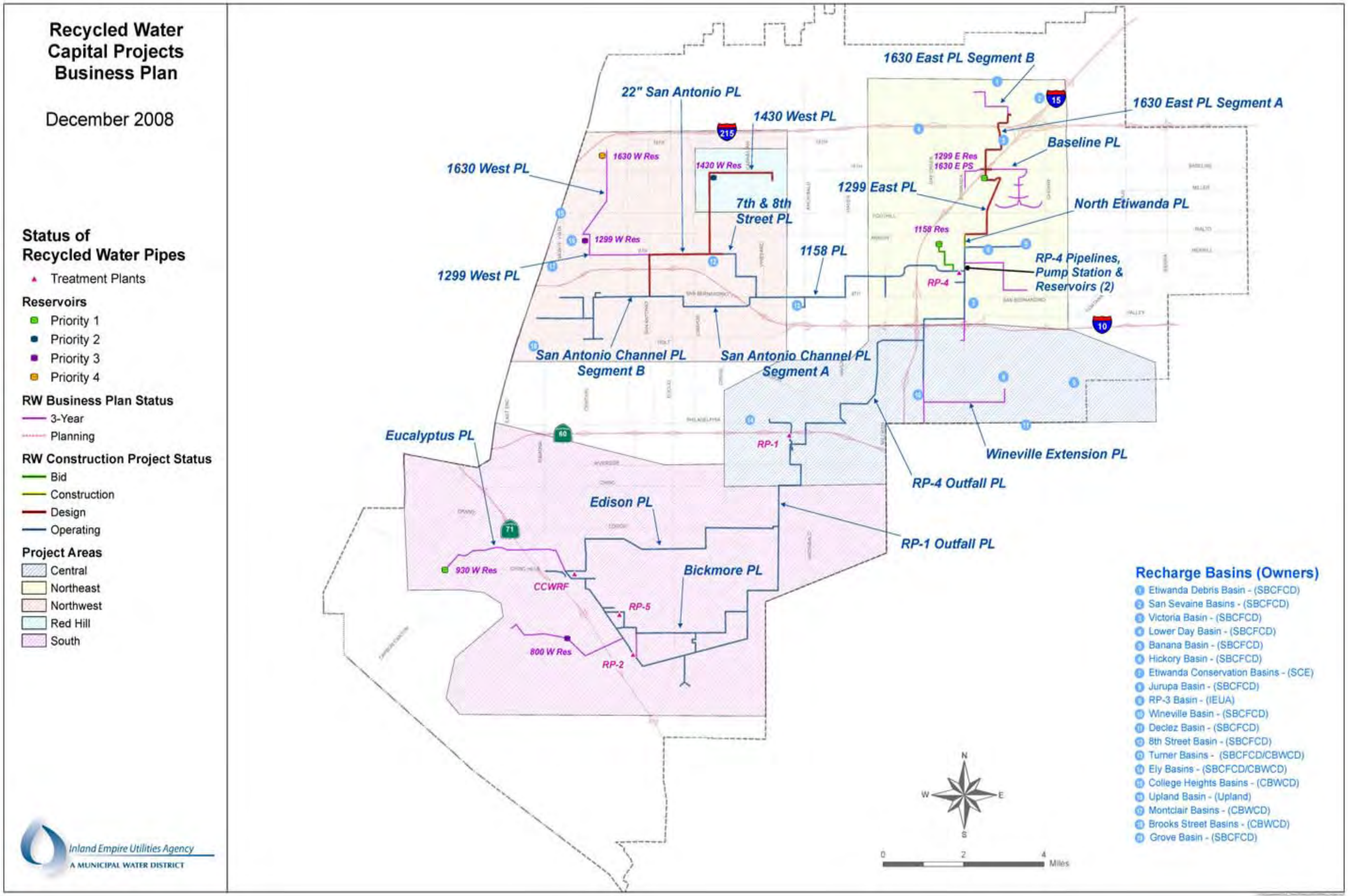
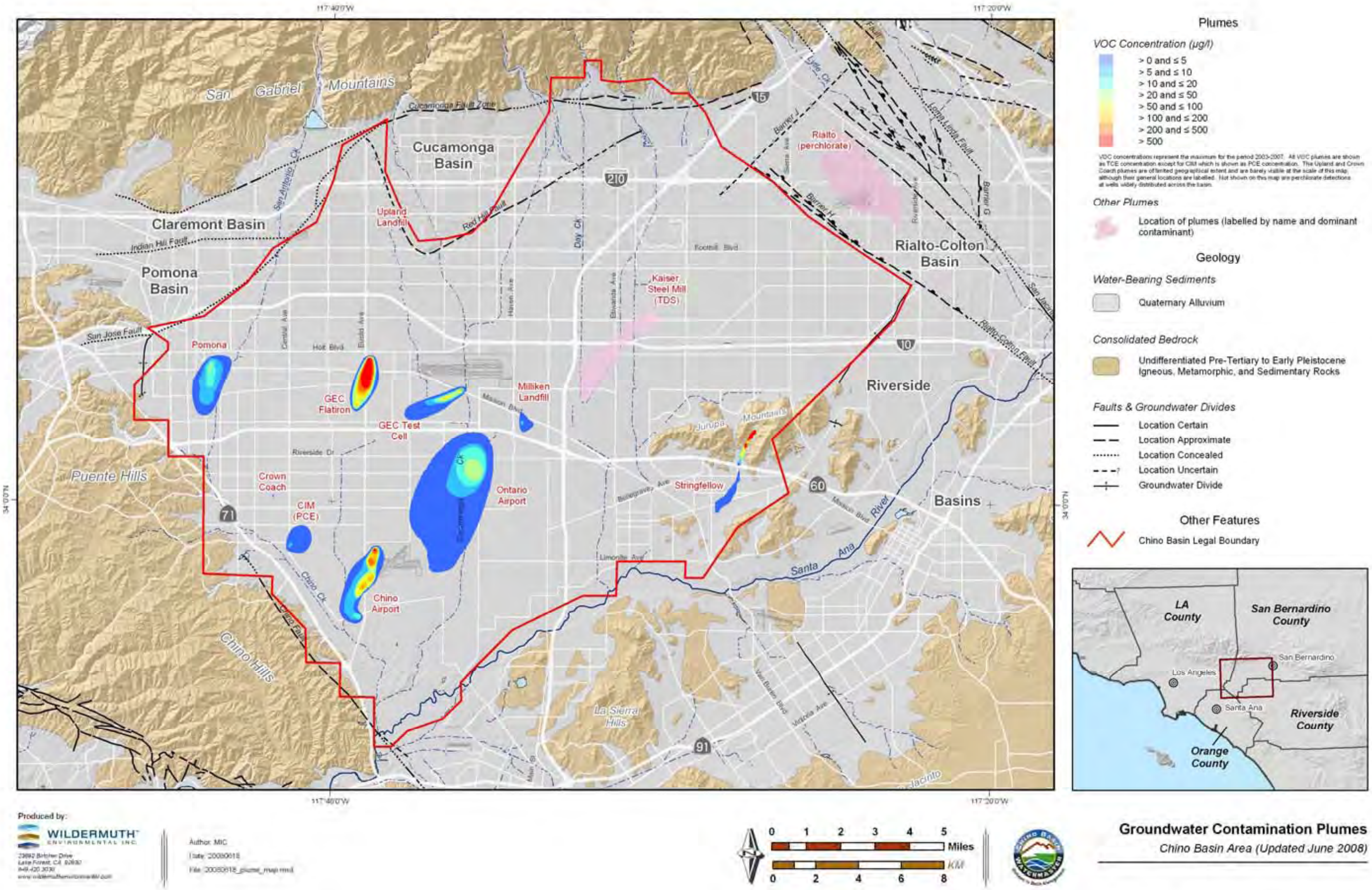
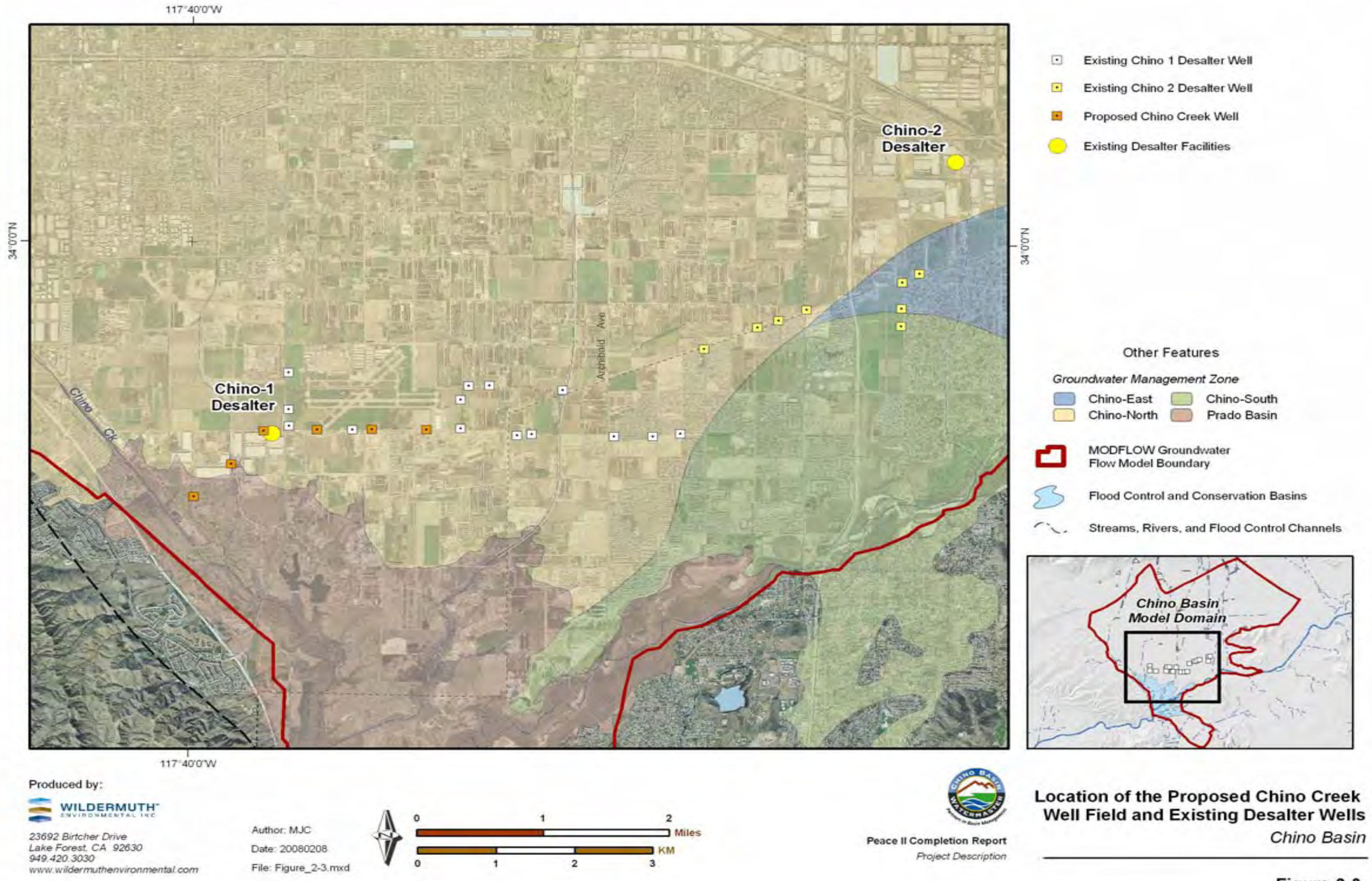


FIGURE 6
Groundwater Contamination Plumes



Tom Dodson & Associates
Environmental Consultants

FIGURE 7
Recycled Water Project Status Map



APPENDIX 1

September 21, 2007

Attachment "A"
Project Description
for the
2007 Amendment to the Chino Basin
Optimum Basin Management Program

Introduction

This document contains the project description for the Chino Basin desalting and re-operation programs that has been distilled from various planning investigations and was described in the Stakeholder Non-Binding Term Sheet. This document was prepared for use in: (a) Chino Basin Watermaster's evaluation of the potential actions to cause Material Physical Injury to the Basin or the Parties to the Judgment; (b) in connection with Watermaster's request for Court review and approval of proposed actions in further implementation of the Optimum Basin Management Program ("OBMP"); and (c) an environmental impact report to be prepared as part of the expansion of the desalters.

Requirements of the 2004 Amendment to the Water Quality Control Plan for the Santa Ana Watershed

Water quality objectives are established by the Regional Water Quality Control Board, Santa Ana Region ("Regional Board") to preserve the beneficial uses of the Chino Basin and the Orange County Basin located downstream of the Chino Basin. Prior to the 2004 Amendment, the Regional Water Quality Control Plan (Basin Plan) contained restrictions on the use of recycled water within the Chino Basin for irrigation and groundwater recharge. The pre-2004 Basin Plan contained TDS "anti-degradation" objectives that ranged from 220 to 330 mg/L over most of the Chino Basin. Ambient TDS concentrations slightly exceeded these objectives. There was no assimilative capacity for TDS; thus, the use of the Inland Empire Utilities Agency's ("IEUA") recycled water for irrigation and groundwater recharge would have required mitigation even though the impact of this reuse would not have materially impacted future TDS concentrations or impaired the beneficial uses of Chino Basin groundwater.

In 1995, the Regional Board initiated a collaborative study with 22 water supply and wastewater agencies, including Watermaster and the IEUA, to devise a new TDS and nitrogen (total inorganic nitrogen or TIN) control strategy for the Santa Ana Watershed. This study culminated in the Regional Board's adoption of the 2004 Basin Plan Amendment in January 2004 (Santa Ana Regional Water Quality Control Board, 2004). The 2004 Basin Plan Amendment included two sets of TDS objectives – antidegradation objectives that ranged between 280, 250 and 260 mg/L for Management Zones 1, 2, and 3, respectively; and a "maximum benefit"-based TDS objective of 420 mg/L for the Chino North Management Zone, which consists of almost all of Management Zones 1, 2, and 3. The relationship of the Management Zones that were developed for the OBMP and the "maximum benefit" based management zones is shown in Figure 1. Under the "maximum benefit"-based objective, the new TDS concentration limit for recycled water that is to be used for recharge and other direct uses is 550 mg/L as a 12-month average. This discharge requirement has been incorporated into the IEUA's National Pollutant Discharge Elimination System (NPDES) permits for its wastewater treatment facilities.

In order for the IEUA and Watermaster to gain access to the assimilative capacity afforded by the "maximum benefit"-based objectives, the IEUA and Watermaster have to demonstrate that the maximum beneficial use of the waters of the State is being achieved. The 2004 Basin Plan Amendment contains a series of commitments that must be met in order to demonstrate that the maximum benefit is being achieved. These commitments include:

1. The implementation of a surface water monitoring program;
2. The implementation of groundwater monitoring programs;
3. The expansion of Desalter I to 10 million gallons per day (mgd) and the construction of a 10-mgd Desalter II
4. The commitment to future desalters pursuant to the OBMP and the Peace Agreement;
5. The completion of the recharge facilities included in the Chino Basin Facilities Improvement Program;
6. The management of recycled water quality;
7. The management of the volume-weighted TDS and nitrogen in artificial recharge to less than or equal to the maximum benefit objectives;
8. The achievement and maintenance of hydraulic control of subsurface outflows from the Chino Basin to protect the Santa Ana River water quality; and
9. The determination of the ambient TDS and nitrogen concentrations in the Chino Basin every three years.

The IEUA and Watermaster have previously demonstrated compliance with all of these requirements with the sole exception of hydraulic control. Hydraulic control is defined as the reduction of groundwater discharge from the Chino North Management Zone to the Santa Ana River to de minimus quantities. Hydraulic control ensures that the water management activities in the Chino North Management Zone do not result in material adverse impacts on the beneficial uses of the Santa Ana River downstream of Prado Dam. Achieving hydraulic control also maximizes the safe yield of the Chino Basin as required by Paragraph 30 and 41 of the Judgment. Two reports by Wildermuth Environmental, Inc. ("WEI"), prepared in 2006 at the direction of Watermaster, demonstrate that hydraulic control has not yet been achieved in the area between the Chino Hills and Chino Desalter I, well number 5 (WEI, 2006a and b).

Without hydraulic control, the IEUA and Watermaster will have to cease the use of recycled water in the Chino Basin and will have to mitigate the effects of using recycled water back to the adoption of the 2004 Basin Plan Amendment, which is December 2004. Table 1 shows the projected aggregate water supply plans for Chino Basin municipal water purveyors. The demand for recycled water in the Chino Basin is projected to reach from about 12,500 acre-ft/yr in 2005 to 58,000 acre-ft/yr in 2010, 68,000 acre-ft/yr in

2015, 79,000 acre-ft/yr in 2020 and 89,000 acre-ft/yr in 2025. Recycled water reduces the demand of State Water Project ("SWP") water by an equal amount, thereby reducing the demand on the Sacramento Delta and reducing energy consumption. Recycled water is a critical element of the OBMP and water supply reliability in the Chino Basin area.

Failure to achieve hydraulic control will lead to restrictions from the Regional Board on the use of imported SWP water for replenishment when the TDS concentration in SWP water exceeds the antidegradation objectives. The Regional Board produced a draft order that would treat the recharge of SWP water as a waste discharge. There would be no assimilative capacity if the Chino Basin antidegradation objectives were in force. Figure 2 shows the percent of time that the TDS concentration at Devil Canyon is less than or equal to a specific value based on observed TDS concentrations at the Devil Canyon Afterbay. This restriction will occur about 35, 52, and 50 percent of the time for Management Zones 1, 2, and 3, respectively. This will affect other basins in the Santa Ana Watershed, and the Regional Board is encouraging all basin managers to propose "maximum benefit"-based objectives similar to those in Chino Basin. With the "maximum benefit"-based TDS objective in the Chino Basin, there is assimilative capacity, and there would be no such restriction on the recharge of imported water.

The Regional Board is using its discretion in granting "maximum benefit" objectives even though hydraulic control has not been demonstrated. The Regional Board will continue to use "maximum benefit"-based objectives in the Chino Basin as long as the IEUA and Watermaster continue to develop and implement, in a timely manner, the OBMP desalter program as described in the project description below.

The Stakeholder Non-Binding Term Sheet: Peace II Implementing Measures

Under Watermaster oversight, the Chino Basin OBMP stakeholders have been engaged in, among other things, complying with the Peace Agreement provision regarding the planning and financing of the expansion of the OBMP desalting program to its full planned capacity generally referred to as Future Desalters (See Peace Agreement Article VII.). The stakeholders have been evaluating various alternatives since early 2004 and produced the Stakeholders' Non-Binding Term Sheet that was transmitted to the Court along with a request by Watermaster for further technical review by the Assistant to the Special Referee in May of 2006. The Assistant's review was completed in March of 2007.

The Non-Binding Term Sheet includes several items that will collectively further implement the existing OBMP Implementation Plan (Peace II Measures). The two items of interest to this project description are: the expansion of the desalting program and "Basin Re-Operation," which are both physically described in Section II, Refined Basin Management Strategy, subsections A and B; and Section IV, Future Desalters.

The construction of a new desalter well field will be sized and located to achieve hydraulic control. The desalter will produce at least 9 mgd of product water. New groundwater production for the expanded desalter program will occur in the Southern end of the basin. Some of this new desalter supply will come from a new well field that will be constructed in a location among Desalter I wells 1 through 4 and west of these wells. These wells will be constructed to pump groundwater from the shallow part of the aquifer system, which is defined herein to be the saturated zone that occurs within about 300 feet of the ground surface. The total groundwater pumping for all of the desalters authorized in the term sheet will be about 40,000 acre-ft/yr.

"Re-operation" means the increase in controlled overdraft, as defined in the Judgment, from 200,000 acre-ft over the period of 1978 through 2017 to 600,000 acre-ft through 2030 with the 400,000 acre-ft increase allocated specifically to the meet the replenishment obligation of the desalters. Re-operation is required to achieve hydraulic control. Re-Operation and Watermaster's apportionment of controlled overdraft will not be suspended in the event Hydraulic Control is secured in any year *before* the full 400,000 acre-feet has been produced so long as: (i) Watermaster has prepared, adopted and the Court has approved a contingency plan that establishes conditions and protective measures to avoid Material Physical Injury and that equitable addresses this contingency, and (ii) Watermaster continues to demonstrate credible material progress toward obtaining sufficient capacity to recharge sufficient quantities of water to cause the Basin to return to a new equilibrium at the conclusion of the Re-Operation period. In addition to contributing to the achievement of hydraulic control, Re-operation will contribute to the creation of new yield. Watermaster has the discretion to apportion the 400,000 acre-feet increase in controlled overdraft under a schedule for re-operation that best meets the needs of the Parties and the conditions of the basin over the Initial Term of the Peace Agreement (before June 30, 2030).

The Project Description

The proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (re-operation) that, along with the expanded desalter program, significantly achieves hydraulic control.

The Expanded Desalting Program. A new well field, referred to as the Chino Creek Well Field (CCWF), will be constructed. The capacity of this well field could range from about 5,000 acre-ft/yr to 7,700 acre-ft/yr. The capacity of the CCWF will be determined during the design of the well field. Groundwater produced at the CCWF will be conveyed to Desalter I. The approximate location of the CCWF is shown in Figure 4. The capacity of Desalter I will not be increased; although, it is likely that the treatment systems at Desalter I will be modified to accommodate the chemistry of the raw water pumped from the CCWF. The product water capacity of Desalter I is about 14,200 acre-ft/yr which corresponds to a raw water pumping requirement of about 16,100 acre-ft/yr. The volume of groundwater pumping at existing Desalter I wells 13, 14, and 15 and conveyed to Desalter I will be reduced to accommodate new pumping at the CCWF.

The treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The increase in groundwater pumping for Desalter II will come in part from greater utilization of the existing Desalter II wells and the addition of new wells to the Desalter II well field from either the construction of new wells and/or connecting Desalter I wells 13, 14, and 15. The Desalter II treatment plant would be expanded to increase its capacity from 10,400 acre-ft/yr to 21,000 acre-ft/yr.

The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District ("JCSD"), the City of Ontario, and/or Western Municipal Water District ("WMWD") through existing and new pipelines. The facilities required to convey this water include pipelines, pump stations, and reservoirs. The precise locations of these facilities are unknown at this time.

The most current working description of these facilities is contained a report that was prepared for the City of Ontario and WMWD, entitled Chino Desalter Phase 3 Alternatives Evaluation (Carollo, 2007). Currently (September 2007), the City of Ontario and the WMWD are working with the JCSD and others to refine the alternatives in the Carollo report. The assumed startup for the expanded desalters is January 2013.

Finally, 40,000 acre-ft/yr of groundwater is expected to be produced by all Existing and Future Desalters. The 40,000 acre-ft/yr value was determined from the prior desalter modeling investigations of WEI (WEI, 2006a and c). The parties that are engaged in developing the desalter expansion are planning for a total of 40,000 acre-ft/yr of desalter groundwater pumping. Watermaster, on behalf of the Parties, will review the desalter pumping requirements to achieve hydraulic control during the project evaluation in the summer of 2007.

Re-Operation. Through re-operation and pursuant to a Judgment Amendment, Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft to off-set Desalter replenishment through 2030. After the 400,000 acre-ft is exhausted and the period of Re-Operation is complete, Watermaster will recalculate the safe yield of the basin. The Re-Operation will have no impact on Operating Safe Yield or on the parties' respective rights thereto. For project evaluation purposes, the Re-Operation and controlled overdraft of 400,000 will be examined under two different schedules that bracket the range in expected schedules. The first schedule will be based on allocating the 400,000 acre-ft at a constant percentage of desalter pumping such that the 400,000 acre-ft is used up in a constant proportion of the desalter pumping through 2030. The second schedule will use the controlled overdraft to off-set desalter the applicable replenishment obligation completely each year until the 400,000 acre-ft is completely exhausted.

The New Yield as defined by the Peace Agreement, attributable to the authorized desalters and the reduction in storage from re-operation, will be assigned to the authorized desalters. The resulting replenishment obligation assigned to the authorized desalters will then be handled as any other replenishment obligation pursuant to the

Judgment. The New Yield is expected to come from a reduction in groundwater discharge from the Chino Basin to the Santa Ana River within the reservoir created by Prado Dam and from new induced recharge of the Santa Ana River upstream of Prado Dam.

Other Important Facility and Operational Plans that Will Occur Concurrently with the Proposed Project

Expansion of Artificial Recharge Capacity. Watermaster and the IEUA will need to expand artificial recharge capacity in the Chino Basin to meet future replenishment obligations. This will occur independently from the proposed project. Current supplemental water recharge capacity is about 70,000 acre-ft/yr. The required recharge capacity to meet future replenishment obligations is about 70,000 acre-ft, a capacity expansion of about 70,000 acre-ft/yr. This expansion will occur through construction of new spreading basins, improvements to existing spreading basins and stormwater retention facilities, aquifer storage and recovery wells. The proposed project will be analyzed without recharge expansion projects.

Expansion of Storage and Recovery Programs. Currently, there is only one groundwater storage program approved in the Chino Basin: the 100,000 acre-ft Dry Year Yield Program with the Metropolitan Water District of Southern California (Metropolitan). Metropolitan, the IEUA, and Watermaster are considering expanding this program an additional 50,000 acre-ft to 150,000 acre-ft over the next few years. Watermaster is also considering an additional 150,000 acre-ft in programs with non-party water agencies. The total volume of groundwater storage allocated to storage programs that could overlay the proposed project is about 300,000 acre-ft.

These storage programs, if not sensitive to the needs of hydraulic control, could cause groundwater discharge to the Santa Ana River and result in non-compliance with hydraulic control and a loss in safe yield. The proposed project will be analyzed with various levels of storage programs up to 150,000 acre-ft, utilizing various "put and take" strategies. There have been no planning investigations that articulate how the expansion from the 150,000 acre-ft program to the to the 300,000 acre-ft and thus this expansion is not included herein. Storage program operating strategies will be developed to assure hydraulic control.

References

Santa Ana Regional Water Quality Control Board, 2004, Resolution No R8-2004-0001, http://www.waterboards.ca.gov/santaana/pdf/04-01.pdf

Stakeholder Non-Binding Term Sheet, in the form transmitted to the Court, 2006

Wildermuth Environmental, Inc., 2006a. Draft Report, Analysis of Future Replenishment and Desalter Plans Pursuant to the Peace Agreement and Peace II Process, April 2006; prepared for the Chino Basin Watermaster.

Wildermuth Environmental, Inc., 2006b. Chino Basin Maximum Benefit Monitoring Program Annual Report, April 2006; prepared for the Chino Basin Watermaster and Inland Empire Utilities Agency.

Wildermuth Environmental, Inc., 2006c. Draft Report, Addendum to the Draft April 2006 Report, Analysis of Future Replenishment and Desalter Plans Pursuant to the Peace Agreement and Peace II Process, December 2006; prepared for the Chino Basin Watermaster.

Carollo Engineers, 2007. Chino Desalter Phase 3 Alternatives Evaluation, May 2007; Prepared for the City of Ontario and the Western Municipal Water District.

SECTION 8.2

NOP MAILING LIST / NOP COMMENT LETTERS

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DEPARTMENT OF PUBLIC WORKS
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COUNTY OF SAN BERNARDINO
PUBLIC AND SUPPORT
SERVICES GROUP

VANA R. OLSON
Director of Public Works

February 26, 2009

File #10(ENV)-4.01

Inland Empire Utilities Agency
Attn: Mr. Ryan Shaw
P.O. Box 9020
Chino Hills, CA 91709

RE: SUBSEQUENT EIR FOR IEUA's PEACE II PROJECT

Dear Mr. Shaw:

Thank you for giving the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project.

After reviewing the submitted document, it appears that the proposed project will not impact existing or future Flood Control District facilities or County roads. However, in Section XVII, Utilities and Service Systems, (c), a clarification should be stated in the Subsequent EIR document.

This section of the Initial Study document asks will the proposed project: "Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?" The substantiation to this issue states that the proposed project has the potential to temporarily adversely impact stormwater facilities during construction. Implementation of mitigation measure VIII-1 in Section VII Hydrology and Water Quality of this Initial Study, which addresses construction stormwater management, will ensure that potential impacts to stormwater drainage facilities during construction are less than significant. This mitigation measure involves the preparation of a Storm Water Pollution Prevention Plan (SWPPP) for the project. The SWPPP does not address the possible project impacts of the possible need of construction of new stormwater drainage facilities or the expansion of existing facilities. Please address this issue in the Subsequent EIR document.

Sincerely,

Frank Molina

FRANK MOLINA, Supervising Planner
Environmental Management Division

FM:nh/CEQA Rec'd_IEUA_Peace II Project

cc: Naresh P. Varma
VRO/ARI Reading File

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

March 5, 2009

Mr. Ryan Shaw
INLAND EMPIRE UTILITY AGENCY
P.O. Box 9020
Chino Hills, CA 91709

Re: SCH#2009021104; CEQA Notice of Preparation (NOP); Draft Environmental Impact Report (DEIR) for the **Peace II Project, Chino Groundwater Basin Program** located in the Chino Groundwater Basin; San Bernardino County, California

Dear Mr. Shaw:

The Native American Heritage Commission (NAHC) is the state 'trustee agency' pursuant to Public Resources Code §21070 designated to protect California's Native American Cultural Resources. The California Environmental Quality Act (CEQA) 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 2007 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 action:

√ Contact the appropriate California Historic Resources Information Center (CHRIS) for possible 'recorded sites' in locations where the development will or might occur.. Contact information for the Information Center nearest you is available from the State Office of Historic Preservation (916/653-7278)/ http://www.ohp.parks.ca.gov. The record search will determine:

- If a part or the entire APE has been previously surveyed for cultural resources.
- If any known cultural resources have already been recorded in or adjacent to the APE.
- If the probability is low, moderate, or high that cultural resources are located in the APE.
- If a survey is required to determine whether previously unrecorded cultural resources are present.

√ If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.

- The final report containing site forms, site significance, and mitigation measurers should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for pubic disclosure.
- The final written report should be submitted within 3 months after work has been completed to the appropriate regional archaeological Information Center.

√ The Native American Heritage Commission (NAHC) performed:

  * A Sacred Lands File (SLF) search of the project 'area of potential effect (APE)': The results: No known Native American Cultural Resources were identified within one-half mile of the 'area of potential effect' (APE)..: However the NAHC SLF is not exhaustive and local tribal contacts should be consulted from the attached list and the there are Native American cultural resources in close proximity..

- The NAHC advises the use of Native American Monitors, also, when professional archaeologists or the equivalent are employed by project proponents, in order to ensure proper identification and care given cultural resources that may be discovered. The NAHC, FURTHER, recommends that contact be made with Native American Contacts on the attached list to get their input on potential IMPACT of the project (APE) on cultural resources.. In some cases, the existence of a Native American cultural resources may be known only to a local tribe(s) or Native American individuals or elders.
- √ Lack of surface evidence of archeological resources does not preclude their subsurface existence.
- Lead agencies should include in their mitigation plan provisions for the identification and evaluation of accidentally discovered archeological resources, per California Environmental Quality Act (CEQA) §15064.5 (f). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all ground-disturbing activities.

- Again, a culturally-affiliated Native American tribe may be the only source of information about a Sacred Site/Native American cultural resource.
- Lead agencies should include in their mitigation plan provisions for the disposition of recovered artifacts, in consultation with culturally affiliated Native Americans.

√ Lead agencies should include provisions for discovery of Native American human remains or unmarked cemeteries in their mitigation plans.

* 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.

√ 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.

√ 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,

Dave Singleton
Program Analyst

Attachment: List of Native American Contacts

Cc: State Clearinghouse

Native American Contacts
San Bernardino County
March 5, 2009

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resource Center
P.O. Box 1477 — Luiseno
Temecula, CA 92593
(951) 308-9295 Ext 8106
(951) 676-2768
(951) 506-9491 Fax

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, Chairman
P.O. Box 391670 — Cahuilla
Anza, CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

San Manuel Band of Mission Indians
James Ramos, Chairperson
26569 Community Center Drive — Serrano
Highland, CA 92346
(909) 864-8933
(909) 864-3724 - FAX
(909) 864-3370 Fax

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C — Gabrielino
Long Beach, CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 — Gabrielino Tongva
San Gabriel, CA 91778
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 Fax

Gabrielino Tongva Nation
Sam Dunlap, Tribal Secretary
P.O. Box 86908 — Gabrielino Tongva
Los Angeles, CA 90086
samdunlap@earthlink.net
(909) 262-9351 - cell

Morongo Band of Mission Indians
Michael Contreras, Cultural Heritage Prog. Manager
13000 Fields Road — Cahuilla, Serrano
Banning, CA 92220
(951) 755-5025
(951)201-1866 - cell
(951) 922-0105 Fax

San Manuel Band of Mission Indians
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26569 Community Center. Drive — Serrano
Highland, CA 92346
abrierty@sanmanuel-nsn.gov
(909) 864-8933 EXT-3250
(909) 649-1585 - cell
(909) 862-5152 Fax

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.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009021104; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Peace II Project of the Chino Groundwater Basin Program; located in the Chino Groundwater Basin; San Bernardino County, California.

Native American Contacts
San Bernardino County
March 5, 2009

Serrano Nation of Indians
Goldie Walker
6588 Valaria Drive Serrano
Highland , CA 92346
(909) 862-9883

Soboba Band of Luiseno Indians
Erica Helms, Cultural Resources Manager
P.O. Box 487 Luiseno
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
FAX: (951) 654-4198

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.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed SCH#2009021104; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Peace II Project of the Chino Groundwater Basin Program; located in the Chino Groundwater Basin; San Bernardino County, California.

State of California—Health and Human Services Agency
California Department of Public Health

CDPH

MARK B HORTON, MD, MSPH
Director

ARNOLD SCHWARZENEGGER
Governor

RECEIVED
MAR 23 2009
STATE CLEARING HOUSE

March 23, 2009

Mr. Ryan Shaw
Inland Empire Utility Agency
P.O. Box 9020
Chino Hills, CA 91709

RE: Notice of Preparation of a Subsequent EIR, Peace II Project, SCH #2009021104

Dear Mr. Shaw;

Thank you for the opportunity to review and comment on the above document. The California Department of Public Health (CDPH), Division of Drinking Water and Environmental Management is responsible for issuing water supply permits administered under the Safe Drinking Water Program. CDPH also funds various loan and grant programs for drinking water related infrastructure projects. In the above mentioned document, there are various drinking water related components subject to permitting from CDPH. CDPH will be a "responsible agency" if Inland Empire Utilities Agency requests any permits and/or funding from our Department.

On November 15, 2007, CDPH received a Proposition 50 Grant Application for Funding, titled <u>Chino Desalter Phase III Expansion</u>. The legal name on the application is Inland Empire Utilities Agency (IEUA) and the public water systems identified are Chino Basin Desalter Authority, Chino I (Water System # 3610075) and Chino Basin Desalter Authority, Chino II (Water System #3310083). <u>Total Prop 50 funds requested is $20,000,000</u>. The assigned project number for this project is #P50-3610075-085.

While the Peace II Project Initial Study describes many features identified in the technical report submitted in November 2007, specific details and locations have not been identified. It appears the Peace II EIR is intended to address broad scope impacts rather than site specific impacts. CDPH is unclear if IEUA intends to use the Peace II EIR to secure funding under Proposition 50 or if a site specific environmental document will be drafted at a later time. Future individual actions including specific well(s), pipeline(s), treatment design and other infrastructure components must be identified in the Peace II EIR <u>or</u> future environmental document prior to securing any funding agreement or permit by CDPH.

Please contact Sean McCarthy, District Engineer, San Bernardino District Office, at (909) 383-4328 if you have any questions regarding permit applications, permits, or permit amendments. If you have any questions about this letter or CDPH's environmental review requirements, please call me at (916) 324-6894 or email to lance.salisbury@cdph.ca.gov.

Sincerely,

Lance Salisbury
CDPH Environmental Review Unit

Cc: CDPH San Bernardino District Office
Richard Atwater, IEUA
Governor's Office of Planning and Research, State Clearinghouse

Department of Toxic Substances Control

Linda S. Adams
Secretary for
Environmental Protection

Maziar Movassaghi
Acting Director
8800 Cal Center Drive
Sacramento, California 95826-3200

Arnold Schwarzenegger
Governor

March 24, 2009

Mr. Ryan Shaw
Inland Empire Utilities Agency
P.O. Box 9020
Chino Hills, California 91709

COMMENTS ON THE NOTICE OF PREPARATION (NOP) OF A SUBSEQUENT ENVIRONMENTAL IMPACT REPORT (SEIR) FOR INLAND EMPIRE UTILITIES AGENCY, PEACE II PROJECT, CHINO GROUNDWATER BASIN, CALIFORNIA

Dear Mr. Shaw:

The Department of Toxic Substances Control (DTSC) has reviewed the Notice of Preparation (NOP) of a Subsequent Environmental Impact Report (SEIR) for the above-referenced project. This document has been prepared by your consultant Tom Dodson and Associates, and submitted to DTSC on February 23, 2009.

DTSC has three specific comments on this SEIR as stated below.

1. (Page 21). The statement describing the Stringfellow perchlorate plume is not accurate. Please refer to the Draft Remedial Investigation (RI) Report dated March 17, 2009 for information regarding the Stringfellow perchlorate plume. A full hard copy of this document was transmitted to Ben Pak, Chino Basin Watermaster. The electronic copy of this report will be posted to:
http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=33490001&cmd=community_involvement.

2. (Figure 6, Groundwater Contamination Plumes). The lateral extent of the Stringfellow Volatile Organic Compound (VOC) plume should be
modified not to exceed 5 ug/l of TCE (as that is the Maximum Contaminant Level (MCL) and the Record of Decision (ROD) cleanup value. The correct Total VOC plume configuration can be found on Plates 5-29 through 5-32 of the Stringfellow 2004 Annual Report at this link:
http://www.envirostor.dtsc.ca.gov/public/final_documents2.asp?global_id=33490001&doc_id=5006361
Additionally, the perchlorate plume is not shown on Figure 6. The correct perchlorate plume configuration can be found on Plate 1-2 of the Draft RI Report that will be posted at the link stated above, or please contact us if you need additional information or electronic files.

3. The following statement in the SEIR is misleading: "*Stringfellow Plume.* *The consultants to the Department of Toxic Substances Control have been investigating whether the perchlorate plume from the site adds to the existing perchlorate levels in the Santa Ana River, or whether the perchlorate plume is diverted towards the Chino II Desalter well field.*" You should consider revising the statement after reviewing the Draft RI Report to language similar to: "The leading edge to the Stringfellow perchlorate plume appears to be reduced due to naturally-occuring biological degradation within the Santa Ana River sediments. The leading edge of the Stringfellow perchlorate plume has been defined, which terminates north of the Santa Ana River. Although the groundwater flow direction trends to the northwest at the leading edge of the perchlorate plume, no concentrations exceeding the California MCL of 6 ug/l have been detected in groundwater monitoring wells west of the Santa Ana River."

If you have any questions, please call me at 916-255-6552 or contact me via email at sfears@dtsc.ca.gov

Sincerely,

Susan Fears

Susan Fears, PG, CHG
Chief, Geologic Unit
Legacy Landfills and Corrective Action Office

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Region 6 – Inland Deserts
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
http://www.dfg.ca.gov

ARNOLD SCHWARZENEGGER, *Governor*
DONALD KOCH, *Director*

March 24, 2009

Mr. Richard Atwater, General Manager
Inland Empire Utilities Agency
6075 Kimball Avenue
Chino, CA 91708

Re: **Notice of Preparation of a Subsequent Environmental Impact Report to Address Implementation of Inland Empire Utilities Agency Wastewater, Peace II Project**

Dear Mr. Atwater:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the Notice of Preparation (NOP) of the Subsequent Environmental Impact Report (SEIR) for the Inland Empire Utilities Agency Wastewater, Peace II Project with regards to impacts to biological resources. The purpose of the proposed project has two main features: the expansion of the desalter program such that the groundwater pumping for the desalters will reach 40,000 acre-ft/yr and that the pumping will occur in amounts and at locations that contribute to the achievement of hydraulic control; and the strategic reduction in groundwater storage (Re-Operation) that, along with the expanded desalter program, significantly achieves hydraulic control for the Chino Groundwater Basin. Through Re-Operation and pursuant to a Judgment Amendment, the Chino Basin Watermaster will engage in controlled overdraft and use up to a maximum of 400,000 acre-ft of groundwater to off-set desalter replenishment through 2030. A new well field, referred to as the Chino Creek Well Field, will be installed and operated. The Treatment capacity of Desalter II will be increased from 10,400 acre-ft/yr to about 21,000 acre-ft/yr, which corresponds to the raw water pumping requirement of 11,800 acre-ft/yr expanding to 23,900 acre-ft/yr. The new product water developed at Desalter II would be conveyed to the Jurupa Community Services District, the City of Ontario, and/or Western Municipal Water District through existing and new pipelines. The proposed project is located in San Bernardino County.

The Department is responding as a Trustee Agency for fish and wildlife resources [Fish and Game Code sections 711.7 and 1802 and the California Environmental Quality Act Guidelines (CEQA) section 15386] and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines section 15381).

The proposed project has the potential to impact numerous sensitive plant and animal species. Therefore, focused surveys for sensitive species that have the potential to occur on-site need to be conducted by a qualified biologist and botanist. Surveys need to be conducted at the appropriate time of year. Surveys need to be conducted following Federal and/or State protocols, if available. The results of the surveys need to be included within the SEIR. If any sensitive species are found on the proposed project site, impacts to the sensitive species need to be evaluated and appropriate mitigation measures to avoid, minimize, and/or compensate need to be incorporated into the SEIR. Impacts to sensitive species are considered significant under CEQA and will require appropriate avoidance, minimization, and mitigation measures to reduce impacts to less than significant. Because this particular project has the potential to have significant environmental impacts on sensitive fauna resources including State and/or Federally-listed threatened or endangered species, critical aspects of the SEIR should include an alternatives analysis which focuses on environmental resources and measures to avoid, minimize, and compensate for impacts identified as significant.

To enable Department staff to adequately review and comment on the proposed project, we suggest that updated biological studies be conducted prior to any environmental or discretionary approvals. The following information should be included in any focused biological report or supplemental environmental report:

1. A complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and sensitive species and sensitive habitats.

    a. Conduct an updated general biological study of the site to determine if any sensitive species or habitat (including, but not limited to, those mentioned above) may be potentially impacted by the proposed project. A complete assessment of sensitive fish, wildlife, reptile, and amphibian species should be included in the SEIR. Seasonal variations in use of the project area should also be addressed;

    b. If appropriate habitat for any listed species occurs on the site, have a qualified biologist conduct focused surveys according to U.S. Fish and Wildlife Service (USFWS) and/or Department protocol;

    c. Have a qualified botanist conduct a focused rare plant survey <u>during the appropriate time of year</u> following USFWS and/or Department protocols;

    d. The Department's California Natural Diversity Data Base in Sacramento should be contacted at (916) 327-5960 to obtain current information on any previously reported sensitive species and habitat, including Significant Natural Areas identified under Chapter 12 of the Fish and Game Code.

    e. If any listed species will potentially be impacted by the proposed project, consultation with the Department and/or the USFWS will be required to establish appropriate mitigation measures to avoid, minimize, or compensate for impacts. An incidental take permit may be required pursuant to Fish and Game Code Section 2080 *et seq* and/or Section 7 or 10 of the Federal Endangered Species Act (ESA). Early consultation with the Department is recommended, since modification of the proposed project may be required to avoid or reduce impacts to listed species. Please refer to Item 4 below for more detailed information regarding compliance with the California Endangered Species Act (CESA).

    f. The Department requests that impacts to State- and Federally-listed species and potential avoidance, alternative and mitigation measures be addressed in the CEQA document and not solely in subsequent negotiations between the applicant and the agencies.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources (including the new Chino Creek Well Field and

impacts associated with the connections to existing and new pipelines), with specific measures to offset such impacts.

a. CEQA Guidelines, 15125 (a), direct that knowledge of the regional setting is critical to an assessment of environmental impacts and that special emphasis should be placed on resources that are rare or unique to the region.

b. Project impacts should be analyzed relative to their effects on off-site habitats. Specifically, this should include nearby river, streams, or lakes located downstream of the project, public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor/movement areas, including access to undisturbed habitat in adjacent areas, should be fully evaluated and provided.

c. The zoning of areas for development projects or other uses that are nearby or adjacent to natural areas may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document.

d. A cumulative effects analysis should be developed as described under CEQA Guidelines, 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.

e. The SEIR should include an analysis of the effect that the project may have on completion and implementation of regional and/or subregional conservation programs. Under 2800-2840 of the Fish and Game Code, the Department, through the Natural Communities Conservation Planning (NCCP) program is coordinating with local jurisdictions, landowners, and the Federal Government to preserve local and regional biological diversity. The Department recommends that the lead agency ensure that the development of this and other proposed projects do not preclude long-term preserve planning options and that projects conform to other requirements of the NCCP program. Jurisdictions participating in the NCCP should assess specific projects for consistency with the NCCP Conservation Guidelines.

3. A range of alternatives should be analyzed to ensure that alternatives to the proposed project are fully considered and evaluated. A range of alternatives which avoid or otherwise minimize impacts to sensitive biological resources should be included. Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Off-site compensation for unavoidable impacts through acquisition and protection of high-quality habitat elsewhere should be addressed.

b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts.

c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. A California Endangered Species Act (CESA) Incidental Take Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA, either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit. For these reasons, the Department recommends including the following information:

   a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

   b. A Mitigation Agreement and Mitigation Plan, approved by the Department, are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent or perennial, should be retained and provided with substantial setbacks which preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations.

   a. Under Section 1600 *et seq* of the Fish and Game Code, the Department requires the project applicant to notify the Department of any activity that will divert, obstruct or change the natural flow or the bed, channel, or bank (which includes associated riparian resources) of a river, stream or lake, or use material from a streambed prior to the applicant's commencement of the activity. Streams include, but are not limited to, intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flow. The Department's issuance of a Lake and Streambed Alteration Agreement for a project that is subject to CEQA will require CEQA compliance actions by the Department as a responsible agency. The Department, as a responsible agency under CEQA, may consider the local jurisdiction's (lead agency) Negative Declaration or EIR for the project. However, if the CEQA document does not fully identify potential impacts to lakes, streams, and associated resources (including, but not limited to, riparian and alluvial fan sage scrub habitat) and provide adequate avoidance, mitigation, monitoring and reporting commitments, additional CEQA documentation will be required prior to execution (signing) of the Streambed Alteration Agreement. In order to avoid delays or repetition of the CEQA process, potential impacts to a lake or stream, as well as avoidance and mitigation measures need to be discussed within this CEQA document. The Department recommends the following measures to avoid subsequent CEQA documentation and project delays:

(1) Incorporate all information regarding impacts to lakes, streams and associated habitat within the SEIR. Information that needs to be included within this document includes: (a) a delineation of lakes, streams, and associated habitat that will be directly or indirectly impacted by the proposed project; (b) details on the biological resources (flora and fauna) associated with the lakes and/or streams; (c) identification of the presence or absence of sensitive plants, animals, or natural communities; (d) a discussion of environmental alternatives; (e) a discussion of avoidance measures to reduce project impacts; and (f) a discussion of potential mitigation measures required to reduce the project impacts to a level of insignificance. The applicant and lead agency should keep in mind that the State also has a policy of no net loss of wetlands.

(2) Include in the SEIR a discussion of potential adverse impacts from any increased runoff, sedimentation, soil erosion, and/or urban pollutants on streams and watercourses on or near the project site, with mitigation measures proposed to alleviate such impacts must be included.

(3) The Department recommends that the project applicant and/or lead agency consult with the Department to discuss potential project impacts and avoidance and mitigation measures. Early consultation with the Department is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources. To obtain a Streambed Alteration Agreement Notification package, please visit our website at: http://www.dfg.ca.gov/habcon/1600/.

Thank you for this opportunity to comment. Please contact Anna Milloy at (909) 987-8176 if you have any questions regarding this letter or need further coordination on these issues.

Sincerely,

Jeff Brandt
Staff Environmental Scientist
Habitat Conservation Planning

cc: Nancy Ferguson, USFWS
Adam Fischer, RWQCB
Anna Milloy, CDFG

Pamela Wright

From: Ryan Shaw [rshaw@ieua.org]
Sent: Wednesday, March 25, 2009 1:42 PM
To: 'Tom Dodson'; 'pam@zygops.com'
Cc: Marvin Shaw
Subject: FW: NOP Inland Empire Utilities Agency Wastewater, Peace II Project

FYI - comment on Peace II Project from Fish & Game.

-----Original Message-----
From: Jeff Brandt [mailto:JBrandt@dfg.ca.gov]
Sent: Wednesday, March 25, 2009 12:19 PM
To: Ryan Shaw
Cc: Anna Milloy; Gabbi Gatchel; Jeff Brandt; Nancy_Ferguson@fws.gov; Adam Fischer
Subject: NOP Inland Empire Utilities Agency Wastewater, Peace II Project

Good afternoon Mr.Shaw.

We are sending comments on the Notice of Preparation (NOP) of the Subsequent Environmental Impact Report (SEIR) for the Inland Empire Utilities Agency Wastewater, Peace II Project. One aspect that was not directly addressed in our comments was the potential for impacts to riparian and riparian transitional habitats and the species supported by these habitats from the hydrologic alterations of the project. Please include an analysis of the hydrologic impacts of the project in the SEIR.

Thank you, Jeff

Jeff Brandt
Department of Fish and Game
Habitat Conservation Branch
Inland Deserts Region

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