FINAL

PROGRAM ENVIRONMENTAL IMPACT REPORT
FOR THE
WASTEWATER FACILITIES MASTER PLAN
RECYCLED WATER MASTER PLAN
ORGANICS MANAGEMENT MASTER PLAN

SCH #2002011116

Prepared for:

Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, California 92335
(909) 357-0241

Prepared by:

Tom Dodson & Associates
2150 North Arrowhead Avenue
San Bernardino, California 92405

in association with:

PARSONS
Myra L. Frank & Associates, Inc.

June 2002

FINAL

Program Environmental Impact Report for the

Wastewater Facilities Master Plan
Recycled Water Master Plan
Organics Management Master Plan

SCH# 2002011116

Prepared for:

Inland Empire Utilities Agency

Attention: Dan Faulkner
9400 Cherry Avenue, Building A
Fontana, California 92335
(909) 357-0241

Prepared by

Tom Dodson & Associates

PARSONS

MFA

June, 2002

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WASTEWATER MASTER PLANS

INLAND EMPIRE UTILITIES AGENCY
NOTICE OF DETERMINATION

To: Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street
P. O. Box 3044
Sacramento, CA 95812-3044, and

San Bernardino County
Clerk of the Board
385 North Arrowhead Avenue
San Bernardino, CA 92415

From: Inland Empire Utilities Agency
9400 Cherry Avenute, Bldg. A
Fontana, CA 92335

FILED
BOARD OF SUPERVISORS
COUNTY OF SAN BERNARDINO
CALIFORNIA
02 JUN 28 PM 3:25

Receipt #, 104389

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

Project Title: Program Environmental Impact Report (PEIR) for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan

SCH# 2002011116	Mr. Richard Atwater	(909) 357-0241
State Clearinghouse Number	**Lead Agency Contact Person**	**Telephone Number**

Project Location

The project will be implemented within the Inland Empire Utilities Agency (IEUA)service area, which is an approximately 242 square mile area located in the western portion of San Bernardino County, including the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, and the Cucamonga County Water District (which generally encompasses the City of Rancho Cucamonga), as well as unincorporated areas of San Bernardino County.

Project Description

The project is to approve and implement three facilities management plans to provide for adequate future administration of services such as water supply/delivery, wastewater treatment and recycling, and organics management for a significant portion of the Inland Empire. Once the facilities management plans are approved, the actions outlined in the Wastewater Facilities Master Plan, the Recycled Water Master Plan, and the Organics Management Master Plan will be implemented.

This is to advise that the Inland Empire Utilities Agency has approved the above described project on June 28, 2002 and certified the PEIR in accordance with the California Environmental Quality Act, and has made the following determinations regarding the above described project:

1. The project [☐ will ☐ will not] have a significant effect on the environment.
2. A PEIR was prepared for this project, and the Agency determined that implementing the project will cause a single significant adverse impacts to the environment. The PEIR was certified and adopted by IEUA pursuant to the provisions of CEQA.
3. All of the mitigation measures identified in the Mitigation Monitoring Reporting Program (MMRP) were made conditions of approval for the project.
4. Findings were made in accordance with Section 15091 of the State CEQA Guidelines and a statement of overriding considerations was adopted for the project.

This is to certify that the Final PEIR and record of project approval are available to the general public at the Inland Empire Utilities Agency in Fontana, at the location referenced above.

Richard W Atwater 6/28 GM / CEO
Signature Date Title

Date received for filing:

Notice of Completion

State of California
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

Inland Empire Utilities Agency Program Environmental Impact Report for the Wastewater, Recycled Water and Organics Management Master Plans

Project Title

The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending 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.

Project Location - Specific

Several

Project Location - City

San Bernardino County

Project Location - County

Description of Nature, Purpose, and Beneficiaries of 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 Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management master plans for wastewater, recycled water and organic materials within its service area

Inland Empire Utilities Agency

Lead Agency

Division

9400 Cherry Avenue, Bldg. A, Fontana, CA 92335

Address Where Copy of Initial Study is Available

April 29, 2002 through June 12, 2002

Review Period

Gary E. Hackney, P.E., Manager of Planning and Process Engineering

Contact Person

909-357-0241

Area Code / Phone / Extension

Notice of Completion and Environmental Document Transmittal Form

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 — 916/445-0613

SCH # See NOTE below

1. Project Title Inland Empire Utilities Agency Program Environmental Impact Report for the Wastewater, Recycled Water and Organics Management Master Plans

2. Lead Agency Inland Empire Utilities Agency
3. Contact Person Gary E. Hackney, P. E.
3a. Street Address 9400 Cherry Avenue, Bldg. A
3b. City Fontana 92335
3c. County San Bernardino County
3e. Phone 909-357-0241

Project Location The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending 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

4. County San Bernardino County
4a. City/Community Several
4b. Assessor's Parcel No. N/A
4c. Section N/A Twp. ______ Range ______
5a. Cross Streets Interstates 15 and 10
5b. For Rural, Nearest Community N/A
6. Within 2 miles: 6a. State Hwy # Interstates 10 and 15
6b. Airports Ontario International
6c. Railways Union Pacific Railroad and Burlington Northern
6d. Waterways Several, including Santa Ana River

7. **Document Type**

CEQA: 01. ☐ NOP; 02. ☐ Early Cons; 03. ☐ Neg Dec; 04. ☑ Draft EIR; 05. ☐ Supplement/Subsequent EIR (Prior SCH No.: ______); 06. ☐ NOE; 07. ☐ NOC; 08. ☐ NOD

NEPA: 09. ☐ NOI; 10. ☐ FONSI; 11. ☐ Draft EIS; 12. ☐ EA

OTHER: 13. ☐ Joint Document; 14. ☐ Final Document; 15. ☐ Other ______

8. **Local Action Type**

01. ☐ General Plan Update
02. ☐ New Element
03. ☐ General Plan Amendment
04. ☑ Master Plan
05. ☐ Annexation
06. ☐ Specific Plan
07. ☐ Community Plan
08. ☐ Redevelopment
09. ☐ Rezone
10. ☐ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
11. ☐ Use Permit
12. ☐ Waste Mgmt Plan
13. ☐ Cancel Ag Preserve
14. ☑ Other: Master Plans

9. **Development Type**

01. ☐ Residential: *Units* ______ *Acres* ______
02. ☐ Office: *Sq.ft.* ______ *Acres* ______ *Employees* ______
03. ☐ Shopping/Commercial: *Sq.ft.* ______ *Employees* ~150
04. ☐ Industrial: *Sq.ft.* ______ *Acres* ______ *Employees* ______
05. ☑ Water Facilities: *MGD* ______
06. ☐ Transportation: *Type* ______
07. ☐ Mining: *Mineral* ______
08. ☐ Power: *Type* ______ *Watts* ______
09. ☐ Waste Treatment: *Type* ______
10. ☐ OCS Related
11. ☐ Other: Wastewater/Recycled Water/Organics Master Plans

10. **Total Acres** 100+
11. **Total Jobs Created** ~150

12. **Project Issues Discussed in Document**

01. ☐ Aesthetics/Visual
02. ☐ Agricultural Land
03. ☑ Air Quality
04. ☑ Archaeological/Historical
05. ☐ Coastal Zone
06. ☐ Economic
07. ☐ Fire Hazard
08. ☑ Flooding/Drainage
09. ☑ Geologic/Seismic
10. ☐ Jobs/Housing Balance
11. ☐ Minerals
12. ☑ Noise
13. ☑ Public Services
14. ☐ Schools
15. ☐ Septic Systems
16. ☑ Sewer Capacity
17. ☐ Social
18. ☑ Soil Erosion
19. ☑ Solid Waste
20. ☐ Toxic/Hazardous
21. ☑ Traffic/Circulation
22. ☑ Vegetation
23. ☑ Water Quality
24. ☑ Water Supply
25. ☑ Wetland/Riparian
26. ☑ Wildlife
27. ☑ Growth Inducing
28. ☑ Incompatible Land Use
29. ☑ Cumulative Effects
30. ☐ Other ______

13. **Funding (approx.)** Federal $ N/A State $ N/A Total $ ______

14. **Present Land Use and Zoning:** variable

15. **Project Description:** 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 Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management master plans for wastewater, recycled water and organic materials within its service area

16. Signature of Lead Agency Representative Tom Dodson for Gary Hackney Date 4/28/02

Reviewing Agencies

- [x] Resource Agency
- [ ] Boating / Waterways
- [ ] Conservation
- [x] Fish and Game
- [ ] Forestry
- [ ] Colorado River Board
- [x] Dept. Water Resources
- [ ] Reclamation
- [ ] Parks and Recreation
- [ ] Office of Historic Preservation
- [x] Native American Heritage Commission
- [ ] S.F. Bay Cons. And Dev't. Commission
- [ ] Coastal Commission
- [x] Energy Commission
- [ ] State Lands Commission
- [x] Air Resources Board
- [x] Solid Waste Management Board
- [x] SWRCB: Sacramento
- [ ] RWQCB: Region # 8
- [ ] Water Rights
- [x] Water Quality
- [x] Caltrans District 8
- [ ] Dept. of Transportation Planning
- [ ] Aeronautics
- [ ] California Highway Patrol
- [ ] Housing and Community Development.
- [ ] Statewide Health Planning
- [x] Health
- [ ] Food and Agriculture
- [ ] Public Utilities Commission
- [ ] Public Works
- [ ] Corrections
- [ ] General Services
- [ ] OLA
- [ ] Santa Monica Mountains
- [ ] TRPA
- [ ] OPR -- OLGA
- [ ] OPR -- Coastal
- [ ] Bureau of Land Management
- [ ] Forest Service
- [ ] Other ___
- [ ] Other ___

For SCH Use Only:

Date Received at SCH ______________ Catalog Number ______________

Date Review Starts ______________ Applicant ______________

Date to Agencies ______________ Consultant ______________

Date to SCH ______________ Contact ______________ Phone ______________

Clearance Date ______________ Address ______________

Notes: ______________

RESOLUTION NO. 2002-6-12

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE INLAND EMPIRE UTILITIES AGENCY* CERTIFYING THE FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE WASTEWATER FACILITIES MASTER PLAN, THE RECYCLED WATER MASTER PLAN, AND THE ORGANICS MANAGEMENT MASTER PLAN (COLLECTIVELY MASTER PLAN) AND ADOPTION OF FINDINGS AND STATEMENT OF OVERRIDING CONSIDERATIONS

Whereas, the California Environmental Quality Act (CEQA) of 1970, as amended, requires that prior to approval of any project, the Lead Agency shall consider the potential impacts and effects of said project, consider alternatives to the project, and identify mitigation measures necessary to reduce or eliminate the impact of the project on the environment; and

Whereas, the Inland Empire Utilities Agency* (IEUA) is the Lead Agency for the Master Plan and has caused to be prepared a Program Environmental Impact Report (PEIR) for the Master Plan in accordance with CEQA and its implementing guidelines; and

Whereas, the IEUA prepared and circulated a Notice of Preparation (NOP) to the public, responsible agencies and other interested parties for their review and comment, pursuant to CEQA Guidelines Section 15083; and

Whereas, pursuant to comments received on the scope and content of the PEIR in response to the NOP document, IEUA prepared and circulated a draft PEIR assessing the project's environmental impact for public review; and

Whereas, IEUA issued the Notice of Completion for the draft PEIR on April 28, 2002 and the draft PEIR was available for public review and comment from April 29, 2002 through June 12, 2002; and

Whereas, IEUA received 27 letters with comments and concerns regarding the content of the draft PEIR for the Master Plan; and

Whereas, the Draft PEIR determined that the majority of potential adverse environmental impacts are either non-significant without mitigation or can be reduced to a level of insignificance with mitigation, including the following: land use, population and housing, geologic resources/constraints, water resources/water quality, air quality construction impacts, transportation and circulation, biological resources, energy, hazards and risk of upset, noise, public services, utilities, cultural resources, and aesthetics and visual resources; and

Whereas, the draft PEIR for the Master Plan identified a single significant adverse environmental impact relating to air quality from emissions due to electricity consumption in support of the Master Plan projects; and

Whereas, IEUA provided a copy of the Responses to Comments to all Responsible Agencies on June 18, 2002, in accordance with CEQA; and

Whereas, the Final Master Plan PEIR will be available for use as the base environmental document by any Responsible Agency proceeding to implement future site-specific projects under the Master Plan in accordance with programmatic procedures outlined in the State CEQA Guidelines Sections 15162 and 15168; and

Whereas, the IEUA Board has received and has reviewed the Final Master Plan PEIR, consisting of the draft PEIR, all Responses to Comments, the Mitigation Monitoring and Reporting Program, Findings of Fact and Statement of Overriding Considerations, and all other material in the administrative record; and

Whereas, pursuant to duly given public notice, the IEUA Board has held a full and fair public hearing on June 5, 2002 concerning the Master Plan and the PEIR and has considered all written and oral comments and testimony relating thereto and is fully advised thereon.

NOW, THEREFORE, BE IT RESOLVED, DETERMINED AND ORDERED BY THE INLAND EMPIRE UTILITIES AGENCY* AS FOLLOWS:

Section 1. A full and fair public hearing having been held on the PEIR prepared in connection with the Master Plan, as stated in the recitals herein, the IEUA hereby approves and certifies the PEIR for the Wastewater Facilities Master Plan, the Recycled Water Master Plan, and the Organics Management Master Plan (collectively, Master Plan) before the IEUA Board at this time which incorporates the written comments incorporated herein by reference, and all as more fully described in the Final Master Plan PEIR, and adopts the Mitigation Monitoring and Reporting Program and Facts, Findings and Statement of Overriding Considerations.

The IEUA further finds that all changes or alterations have been required in connection with the adoption of the Master Plan and have been incorporated in conjunction with the Master Plan which avoid or substantially lessen the significant environmental effects identified in the PEIR.

Pursuant to Public Resources Code Section 21081 (b), the IEUA further finds that where the responsibility for implementation of mitigation measures has been assigned to participating agencies, such mitigation measures are within the responsibility and jurisdiction of such other agencies and such changes can and should be adopted by such agencies when they carry out future site-specific projects under the Master Plan.

Section 2. The IEUA hereby authorizes and directs the filing and posting of a Notice of Determination as required by Section 21152 of the Public Resources Code, and that filing required pursuant to Section 21089 (b) of the Public Resources Code by the General Manager with the Clerk of the Board of Supervisors of San Bernardino County and the State Clearinghouse, Governor's Office of Planning and Research, as soon as possible after the adoption of this Resolution.

Section 3. The IEUA hereby adopts the mitigation measures recommended as conditions of project approval in Sections 1 and 4 of the Final Master Plan PEIR, and the Mitigation Monitoring and Reporting Program prepared for the purpose of monitoring the changes which have been adopted or made a condition of project approval as described in Section 1 of this Resolution and all as more fully described in the Mitigation Monitoring and Reporting Program.

Section 4. The IEUA hereby adopts the Wastewater Facilities Master Plan as the guidance document for preparation of the Ten-Year Capital Improvement Program.

Section 5. This Resolution shall take effect upon adoption

ADOPTED, this 27th day of June, 2002.

John L. Anderson
President of the Inland Empire Utilities Agency* and of the Board of Directors thereof.

ATTEST:

Anne Dunihue
Secretary of the Inland Empire Utilities Agency* and of the Board of Directors thereof.

(SEAL)

* A Municipal Water District

STATE OF CALIFORNIA)
)SS
COUNTY OF)
SAN BERNARDINO)

I, Anne Dunihue, Secretary of the Inland Empire Utilities Agency*,

DO HEREBY CERTIFY that the foregoing Resolution being No. 2002-6-,

was adopted at an adjourned regular Board Meeting on June 28, 2002, of said Agency

by the following vote:

AYES: Anderson, Dunihue, Koopman

NOES: 0

ABSTAIN: 0

ABSENT: Catlin, Troxel

Anne Dunihue
Secretary

*A Municipal Water District

REVISED

Inland Empire
UTILITIES AGENCY

Date:	June 28, 2002
To:	Honorable Board of Directors
From:	Richard W. Atwater Chief Executive Officer/General Manager
Submitted by:	Thomas A. Love Executive Manager – Planning & Engineering
	Gary E. Hackney Manager of Planning and Organics Management
Subject:	Certification of the Final Program Environmental Impact Report (PEIR) for the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan (Master Plan PEIR)

RECOMMENDATION

It is recommended that the Board of Directors:

1. Adopt the Facts, Findings, and Statement of Overriding Considerations for the Program Environmental Impact Report covering the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan;

2. Adopt the Mitigation Monitoring and Reporting Program established in the Final Master Plan Program Environmental Impact Report; and

3. Adopt Resolution No. 2002-6-12, Certifying the Final Master Plan Program Environmental Impact Report as complete and also approving the Wastewater Facilities Master Plan; and,

4. Approve the projects listed on Exhibit A.

5. Approve revised Principles of Agreement (Exhibit C) with Jurupa Community Services District, Western Municipal Water District and the City of Norco.

BACKGROUND

During the past two years, the IEUA, in conjunction with its member agencies, the Chino Basin Watermaster, the Chino Basin Water Conservation District, and the San Bernardino County Flood Control District have undertaken and completed three planning documents. These documents are:

1. The IEUA Recycled Water System Feasibility Study, January 2002;
2. The Chino Basin Organics Management Strategy, Business Plan, May 2001; and
3. The IEUA Wastewater Facilities Master Plan, April 2002.

The latter document provides a comprehensive framework that summarizes the planning effort for the IEUA's wastewater collection and treatment facilities and the interrelated programs described in the first two documents (reuse and recycling of water and organic materials). All three documents contain comprehensive plans for recycled water distribution systems and waste treatment facilities, pipelines and pump stations that will be constructed during the next several decades. In addition, groundwater recharge with recycled water is proposed.

In Section I of the Wastewater Facilities Master Plan, IEUA's ongoing planning activities and related regional planning efforts by other agencies are summarized. Section 2 of the WFMP describes IEUA's Environmental Management Strategy, in particular, IEUA's proactive approach to regulatory compliance and environmental stewardship. IEUA is committed to continuing the regional "collaborative" planning within the Santa Ana River Watershed by formally implementing an MOU with OCWD, Chino Basin Watermaster, Western MWD and the Santa Ana RWQCB to ensure that downstream stakeholders are included in IEUA project planning to ensure protection of Watershed habitat values and water quality to downstream beneficial uses (attached Exhibit B).

Environmental Processing

The PEIR for the Chino Basin Watermaster's Optimum Basin Management Program was certified by IEUA in July, 2000 and is the initial comprehensive CEQA document for these three planning documents.

The subject environmental analysis of the three planning documents was started in late 2001. An Initial Study and Notice of Preparation (NOP) of a Program Environmental Impact Report (PEIR) were distributed on January 25, 2002 for public comment. A scoping meeting was held at the IEUA Administrative Center on February 26, 2002 to receive additional input on potential environmental issues. Input from these solicitations was compiled into a draft PEIR that was circulated on April 29, 2002 for public review.

A public hearing on the draft PEIR was also held on June 5, 2002. The draft PEIR was distributed to over 90 responsible or trustee agencies and other interested parties for comment. The closing date for final written comments was June 12, 2002.

The environmental analysis focuses on the environmental effects of constructing and operating facilities identified in the three master plans. Implementation of the RECYCLED WATER FEASIBILITY STUDY will entail construction of up to 400,000 linear feet of pipeline, 5 storage reservoirs and 8 pump stations as well as construction of recycled water inlets for 20 recharge basins. Overall, approximately 71,800 acre feet of recycled water are expected to be utilized annually when the system is fully developed.

Specific projects that are considered in the ORGANICS MANAGEMENT STRATEGY BUSINESS PLAN include: a High-Tech Manure Digester Project; a Dairy Digester (Lagoon) Project; an Advanced Technology Manure Pyrolysis Process; Co-Composting Operations at RP-1; the Inland Empire Regional Composting Facility; California Institute for Men (CIM); and a Colton Compost Facility.

Major projects considered in the WASTEWATER FACILITIES MASTER PLAN include: Expansion of each of the Agency's Regional Reclamation Facilities; the addition of future "scalping" satellite plants; odor control and modernization of RP-1; a revised alternative site layout for future expansion of RP-5; the Upland Interceptor Relief, the RP-1/RP-5 By-Pass Interceptor; the RP-4 Trunk Sewer; and the San Bernardino Avenue Interceptor Force main and Pump Station. Various other conveyance and treatment plant improvements are also considered.

Most impacts associated with the three plans were capable of mitigation to less than significant levels. The one exception was air quality impacts associated with NOx emissions. The issues where no significant impact is forecast to occur include:

Aesthetics (**MITIGATION REQ'D**)
Agricultural Resources (No Mitigation)
Biological Resources (**MITIGATION REQ'D**)
Cultural Resources (**MITIGATION REQ'D**)
Public Services (**MITIGATION REQ'D**)
Geology and Soils (**MITIGATION REQ'D**)
Hydrology (**MITIGATION REQ'D**)
Hazards and Hazard Material (**MITIGATION REQ'D**)
Water Quality (**MITIGATION REQ'D**)
Transportation & Traffic (**MITIGATION REQ'D**)
Land Use and Planning (No Mitigation)
Mineral Resources (No Mitigation)
Noise (**MITIGATION REQ'D**)
Population and Housing (No Mitigation)
Recreation (No Mitigation)
Utilities and Service Systems (No Mitigation)

The Agency received 27 letters providing comments on the draft PEIR. Tom Dodson Associates, Mark Wildermuth and IEUA staff prepared responses to all comments received. All responses were provided to commenters on June 18, 2002. The comments received in the greatest number were related to the recycled water program, but overall the comments did not substantially alter the findings contained in the draft PEIR. A "Principles of Agreement" has been adopted by Jurupa CSD and IEUA to ensure that recharge of recycled water, stormwater and imported in Management Zone 3 is fully mitigated.

Under the Chino Basin Watermaster OBMP "Peace Agreement" all recharge from any source (stormwater, imported and recycled water supplies) requires Watermaster approval. In addition, all recharge shall not cause "any material physical injury." IEUA submitted an application for recharge of recycled water consistent with the OBMP, the OBMP--PEIR, and the Recharge Master Plan. Watermaster staff and consultants have independently reviewed the application for recycled water recharge. The pool committees, advisory committee and Watermaster Board have approved under Article 10 of Watermaster's Rules and Regulations the recycled water recharge application. All future mitigation (any material physical injury) requirements for recharge of recycled water related to in Basin groundwater production are subject to Watermaster review. In particular, Western MWD's request for a "mitigation agreement with potentially affected parties" has been accomplished through the Principles of Agreement between Jurupa CSD and IEUA.

Western MWD has failed to identify, including itself, a potentially affected party who produces groundwater downstream of any recharge site proposed to be recharged with recycled water. Therefore, IEUA respectfully requests that Western MWD document any potentially affected party and submit to the Chino Basin Watermaster for consideration under Article 10 of the OBMP rules and regulations to ensure that no material physical injury is caused by the recharge of recycled water. In addition, IEUA respectfully requests that Western MWD document any potentially affected party and submit to the Chino Basin Watermaster for consideration under Article 10 of the OBMP rules and regulations to ensure that no material physical injury is caused by the recharge of recycled water. Therefore, Western MWD and the City of Norco have requested to be a signatory party to that agreement (Exhibit C).

Taken together, the following documents constitute the environmental disclosure record that will serve as the basis for future actions by the IEUA Board of Directors regarding the implementation of the multiple projects and related improvements described in the Wastewater Facilities Master Plan: 1) Comment letters and Responses to Comments; 2) the final edited Master Plan PEIR; 3) The Executive Report of the Wastewater Facilities

Master Plan, Volume 1; 4) Technical Memoranda of the Wastewater Facilities Master Plan, Volume II; 5) The Organics Management Strategy Business Plan; 6) The Recycled Water System Feasibility Study; and, 7) The Chino Basin Watermater's OBMP PEIR and planning reports submitted to the Court for approval including the Recharge Master Plan and Initial State of the Basin Report.

The Facts, Findings and Statement of Overriding Considerations for the Master Plan PEIR discuss the single significant adverse impact finding of the Master Plan PEIR. Specifically, the Master Plan, as proposed, will draw heavily upon the electrical utility service within the South Coast Air Basin. The negative result of this electrical power consumption will be the production of additional air pollution. Electrical consumption is offset to the extent possible by renewable energy projects and self generation, plus reductions in energy consumption related to less imported water purchases and reduced transport of organics material in the region. As the Lead Agency under the CEQA Guidelines, the Board's adoption of this finding of the Final Master Plan PEIR is required.

The Mitigation Monitoring and Reporting Program embodies the results of the Master Plan PEIR and, the comments from the review by concerned parties, representing the framework under which the many sub-projects of the Master Plan may go forward. As the Lead Agency under the CEQA Guidelines, the IEUA Board of Directors is required to adopt the Mitigation, Monitoring and Reporting Program.

The certification of the Master Plan PEIR is the final action by the Board of Directors prior to approval of the Wastewater Facilities Master Plan for IEUA implementation. Certification of the Master Plan PEIR reflects the Board's approval of the effort to fairly present the environmental effects of the sub-projects of the Master Plan, the reasons for such projects, the benefits to the local water supplies, the benefits to regional water supplies, and the benefits to air quality and waste management.

Certification also indicates that the Board, after due consideration of the mitigation plans, agrees that all negative impacts are likely to be reduced to a level of less than significant impact except air quality impacts from electricity consumption. In the specific case of the Master Plan PEIR, wherein a Statement of Overriding Consideration was developed, certification indicates that the Board concurs with the facts and findings regarding a negative impact that could not be mitigated to a level of less than significant. Resolution No. 2002-6-12, incorporates the Facts, Findings, and Statement of Overriding Consideration by reference. Adoption of Resolution No. 2002-6-12, by the Board, will serve as the certification of the Final Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan (Master Plans) PEIR.

EXHIBIT A

MASTER PLAN PROJECTS SCHEDULED FOR IMMEDIATE IMPLEMENTATION

Wastewater Facilities Master Plan

a. The RP-1/RP-5 By-Pass Project;
b. The RP-4 Trunk Sewer Project;
c. The San Bernardino Avenue Interceptor Force Main and Pump Station Project;
d. The Upland Interceptor Relief Project;
e. The Freeway Trunk Replacement.
f. The RP-4 Expansion to 14 mgd;
g. The RP-1 Modernization Project;
h. The CCWRF Expansion to 12 mgd

Recycled Water System Feasibility Study

a. Ten Recycled Water Pipelines, (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RWRP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline);
b. Three Pump Stations (RP-1, RP-2 and possibly Jurupa Basin);
c. One Storage Reservoir (Jurupa Basin); and
d. Local Pipelines from the Recycled Water Distribution Pipelines to the Recharge Basins (Turner Basins 1,2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
e. Philadelphia Regional Pipeline to Ontario Soccer Fields.
f. Groundwater Monitoring Wells

Organics Management Strategy Business Plan

a. The Inland Empire Regional Composting Facility (near RP-4)
b. The RP-1 ASP Composting Facility
c. The Dairy Digester (Lagoon) Project

IMPACT ON BUDGET

There is no direct impact on the Agency's Fiscal Year 2002/03 Budget as a result of this item. The Master Plans are also consistent with the Ten-Year CIP.

RWA:GEH:tc

G:\brdrec\2002\02173 Certification – Draft EIR Master Plan

EXHIBIT B
Draft Memorandum of Understanding

OCWD/IEUA Proposed Task Force to Coordinate Planning and Management Within the Lower Chino Basin and Prado Wetlands

Background

1. OCWD Board of Directors in 2000 established a goal of constructing new wetlands in the Prado Basin so that all of the non-storm flows of the Santa Ana River can be naturally treated prior to percolation and recharged below Prado Dam into the Orange County Groundwater Basin. IEUA contributed funding to the OCWD pilot wetlands to treat dairy washwater.
2. SAWPA, OCSD, IEUA and Western MWD jointly sponsored a pilot project to connect dairies to the SARI non-reclaimable line in 2000.
3. IEUA completed a Business Plan for Organics Management Strategy which includes dairy cow manure and biosolids treatment and composting (June 2001), plus pilot projects to sewer dairies, anaerobic digestion of manure, covered dairy lagoons, and possible conversion of RP-2 to a dairy sewage treatment system.
4. IEUA during the summer of 2002 engaged Rocky Mountain Institute to examine (CALFED $125,000 grant) opportunities to implement innovative on-site stormwater retention and capture systems in new development to conserve water, reduce downstream flooding and to enhance the water quality of urban runoff. IEUA has been coordinating these efforts with the Cities of Ontario and Chino plus discussing joint studies with OCWD on stormwater projects along the Cucamonga Creek and Chino Creek drainages.
5. IEUA and Chino Basin Watermaster in the Peace Agreement Optimum Basin Management Program proposed to developed the water resources of the Chino Basin to maximize the use of recycled water, local groundwater, and conservation of stormwater in a manner that complies with the Santa Ana River Judgment and meets the Basin Plan water quality objectives. Initial projects include expanding the Chino I desalter, building a new Chino II desalter, recharging stormwater, imported and recycled water into the Chino Basin and storing 100,000 AF of water from MWD (and building 6 new ion exchange plants to pump and treat high nitrate groundwater for domestic use).
6. IEUA has prepared the Wastewater Facilities Master Plan and Recycled Water Feasibility Study to guide the capital improvement – planning of the water recycling facilities owned and operated by IEUA for the benefit of the Chino Basin area.

Proposed Focus/Objectives of the Work (OCWD and IEUA)

This task force needs to focus on defining a strategy for Basin Management including a site specific monitoring plan for water quality and quantity. Specific objectives include man-made wetlands development; dairy waste treatment at IEUA's RP-5 and RP-2; management and optimizing recycled water, groundwater and stormwater water quality management; and reduction of dairy wastes through primarily composting and anaerobic digestion.

Proposed Initial Scope of Work (OCWD and IEUA)

1. Evaluate the options and technical/financial feasibility of retrofitting RP-2 for treating dairy wastes, including sewering dairies, optimizing the SARI line, additional digesters and dewatering; and other manure treatment technologies (including composting capacity to replace the existing IEUA Co-composting facility).
2. Identify opportunities to master plan the RP-5/RP-2 area (including the Chino Creek Park) along the Chino Creek to enhance wildlife habitat values, natural water quality treatment through wetlands, and stormwater management.
3. Identify opportunities to work with developers, cities of Ontario and Chino for wetlands and stormwater retention facilities along the Cucamonga Creek drainage system and the Chino airport small drainage area above the Prado Basin 566' elevation.
4. Coordinate groundwater, surface and stormwater monitoring programs in the lower Chino Basin area and the Prado Basin in a GIS database for use by Chino Basin Watermaster, Santa Ana River Watermaster, SAWPA, SARWQCB, TIN/TDS task force and other public agencies.
5. Organize a monitoring and modeling task force (Chino Basin Watermaster, IEUA and OCWD) to evaluate the effectiveness of the hydraulic control of salts, nitrates of the Lower Chino Basin groundwater flow into the Santa Ana River (Prado Basin).
6. Evaluate site specific dairy connections to sewers such as the Kimball Interceptor to RP-5 and CIW line to RP-2 as related to cost, fees, salts reduction and monitoring.

Suggested Approach

OCWD and IEUA managers should consider approving a staff team to work with other stakeholders including SARWQCB, Western Municipal Water District and Chino Basin Watermaster. An initial meeting needs to be held the first week after authorized to confirm the scope, milestones and communication aspects of the services. Technical Memoranda will be developed for key items and issues to be studied. Conclusions of the studies and recommended action will be related to a time specific implementation plan. Each recommended action will be related to economic advantages/costs within the Basin.

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EXHIBIT C

Principles of Agreement
Recharge of Recycled Water in the Chino Basin
Management Zone – 3 (MZ-3)

Parties to this agreement include, Inland Empire Utilities Agency, (IEUA) and Jurupa Community Services District (JCSD), Western Municipal Water District and the City of Norco.

I. Basis for Agreement Principles

A. Program Element 2 of the Chino Basin Optimum Basin Management Program (OBMP) identified new artificial recharge projects in the Chino Groundwater Basin. The OBMP Implementation Plan includes the expansion of recharge in the eastern side of the Chino Basin (hereafter Management Zone 3 or MZ-3), through the upgrading of existing facilities, and the construction of new facilities. The sources of recharge water may include storm water, imported water and recycled water.

B. IEUA and Chino Basin Watermaster (Watermaster) have conducted engineering and environmental studies that demonstrate the feasibility of recharging and blending recycled water with storm water and imported water in the Etiwanda Conservation Ponds. The resulting water quality of the proposed recharge water mix must be better than present (June 2001) ambient groundwater tributary to JCSD's most northerly wells, and must meet drinking water requirements.

C. Existing groundwater tributary to JCSD wells contains elevated nitrate concentrations requiring treatment prior to distribution to the public. Unless low nitrate recharge projects are constructed there is a lack of low nitrate recharge upgradient that is tributary to JCSD wells. The nitrate concentration in groundwater produced at JCSD wells is projected to increase rapidly in the future. The likely sources of the nitrate are from a variety of historical activities including: agricultural and industrial land uses, and the operation of RP-3 upgradient of the JCSD wells, the latter which is the subject of a cleanup order issued by the Regional Water Quality Control Board.

D. JCSD will construct nitrate removal facilities, with an estimated capacity of 10,000 gpm (14.4 mgd) in three phases within the next ten (10) years. These nitrate removal facilities are necessary to utilize existing groundwater supplies and provide for new demands; in addition JCSD is purchasing treated groundwater from the Chino I Desalter.

Schedule and Budget

OCWD/IEUA/Chino Basin Watermaster staff task force to work together to carry out assignments and hire consultants to complete specific tasks mutually agreed upon by the management team.

- ✓ Monthly Meetings
- ✓ Review "State of the Basin" Report for monitoring within the Chino Basin
- ✓ Initiate RP-2 Feasibility Study
- ✓ Initiate Prado Basin Water Resources and Habitat Planning
- ✓ Submit "Maximum Benefit" Basin Plan Amendment in SARWQCB.

Inland Empire Utilities Agency	Orange County Water District
Chino Basin Watermaster	
Western Municipal Water District	Santa Ana Regional Water Quality Control Board

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II. Principles of Agreement

A. The recharge of recycled water in conjunction with new storm water and imported water is projected to improve the present TDS and nitrate concentrations at down-gradient wells. Groundwater monitoring will be conducted at agreed upon locations using "Standard Methods for the Examination of Water and Wastewater" to measure and document the groundwater quality improvements through the additional storm water, imported water and recycled water recharged upgradient to the JCSD wells within Management Zone 3 and provided to the MZ-3 Operating Committee and Watermaster which Committee shall be established for purposes of overseeing and making recommendations to Watermaster concerning the provisions of this Agreement.[1]

B. Recharge of recycled water shall initially not exceed twenty percent (20%) on a rolling average, with the time period for the rolling average to be developed and recommended to Watermaster by the MZ-3 Operating Committee, of the blend of storm water and imported water at each recharge basin in MZ-3. Increases in the percentage of recycled water blended with storm water and imported water, and increases in the volume of such blended water used for recharge, will be allowed only after the monitoring program data and groundwater modeling from the initial trial levels of recharge indicates no material physical injury will occur to down-gradient producers, subject to review and approval of the Chino Basin Watermaster and the MZ-3 Operating Committee.

C. Impacts on JCSD wells and increases in TDS or nitrate within MZ-3 shall be prevented by the following activities:

1. Subject to DHS Title 22, California Code of Regulations, Division 1. Environmental Health, Chapter 3. Recycling Criteria, storm water and imported water will be recharged at the same site that recycled water is recharged to minimize TDS and nitrogen impacts to down-gradient producers or, in the alternative, storm water, imported water and recycled water will be recharged in accordance with an operational plan to be developed in conjunction with Watermaster, which will consult with JCSD and the City of Ontario. In addition to the provisions of Section II.B, the recharge of recycled water will be limited by the combined TIN concentration of recycled water, storm water and imported

[1] The proposed membership of the MZ-3 Operating Committee is to include producers within MZ-3, IEUA, and San Bernardino County Flood Control District.

E. JCSD is currently an over-producer, producing groundwater from the Chino Groundwater Basin which exceeds the aggregate of its Appropriative Rights, (its share of Initial Operating Safe Yield and Agricultural Pool Transfers) as provided by and authorized under the Judgment and Peace Agreement, and therefore must purchase imported water for replenishment. Replenishment water purchased by JCSD is currently recharged high in the Chino Basin. Consequently, JCSD does not receive the water quality benefits at its wells commensurate with the recharged imported water.

F. As identified in I-B, the Etiwanda Conservation Basins have been identified for recharge of greater quantities of storm water, imported water and recycled water. Artificial recharge at these facilities may benefit JCSD far sooner than artificial recharge at the existing facilities higher in the Basin; however, recharge in the vicinity of JCSD's wells may influence the transmission of salts and nitrate, presently in the basin, to JCSD's wells.

G. The OBMP identifies the IEUA Regional Plant No. 3 (RP-3) site for additional recharge storm water, imported water and recycled water. Imported water and recycled water will be collected in and pumped from the Jurupa Basin to the RP-3 basins. Excess storm water captured at Jurupa Basin will be collected in and pumped to the RP-3 site. Additionally, storm water will be diverted from the Declez Channel for recharge at the RP-3 site. The recycled water will be blended with storm water and imported water such that the water recharged will meet and/or exceed the California Department of Health Services (DHS), Title 22, California Code of Regulations, Division 1, Environmental Health, Chapter 3. Recycling Criteria for down gradient potable wells.

H. New artificial recharge at the RP-3 site is projected over time to mitigate impacts of TDS and TIN at JCSD wells from previous upgradient farming, industrial and RP-3 operations.

I. The OBMP divides the Chino Basin into five management zones (MZs) for which Watermaster is developing and implementing specific groundwater management plans to address both hydraulic and water quality challenges. Alternatively, the Santa Ana Regional Water Quality Control Plan divides the Chino Basin into three subbasins establishing Water Quality Objectives to protect beneficial uses. It may be mutually beneficial to IEUA and JCSD in coordination with Chino Basin Watermaster to consider recharge operations for Management Zone 2 and Zone 3 water, unless otherwise determined by the MZ-3 Operating Committee and recommended to Watermaster. The TIN mitigation requirement will be computed as the TIN of the recharged water measured in the vadose zone on a rolling average, with the time period for the rolling average determined in accordance with Section II.B., minus the Water Quality Objective for TIN (in mg/l), with the difference multiplied by the total volume (in acre-ft) recharged divided by 735 (converts TIN concentration, expressed as mg/l, to tons).

2. The TIN mitigation requirement (if any) within the basin will be satisfied first by dilution with storm and imported water and then by removing TIN at the Chino Basin desalters located in the southern part of the Chino Basin.

3. Any TDS mitigation requirement for the recycled water recharge component in MZ-3 will be computed as the difference between the TDS of the recharged recycled and storm water on a rolling average, with the time period for the rolling average determined in accordance with Section II.B., minus the Water Quality Objective for TDS (in mg/L) with the difference multiplied by the total volume (in acre-ft) recharged divided by 735 (converts TDS concentration, expressed as mg/l, to tons).

4. The TDS mitigation requirement within the basin will be satisfied by removing salt at the Chino Basin desalters located in the southern part of the Chino Basin. If JCSD and Ontario are unable to meet TDS wastewater discharge standards additional desalter capacity shall be made available to these agencies if Watermaster determines this circumstance is related to the_recharge of water upgradient of JCSD's and Ontario's wells.

D. JCSD shall have the right to purchase twenty percent (20%) of the recharged recycled water in MZ-3at IEUA's annually established wholesale cost plus twenty-five percent (25%). IEUA will deliver recycled water to groundwater recharge basins closest to JCSD well fields, while still complying with the DHS Title 22 requirements of six months retention time in the aquifer before being pumped at any JCSD well. The blend with other water resources will equal 20%, unless otherwise increased as provided in Section II.B., of the recycled water at the site of recharge, which is recharged. JCSD may apply such purchased water on a one-for-one basis to its replenishment obligation, if any, or in the alternative receive a storage credit. IEUA will secure the consent of its regional wastewater member agencies with respect to the terms and conditions for JCSD's purchase of recycled water as provided herein prior to the initiation of this project.

E. IEUA, and JCSD will support the development and adoption of new TDS and nitrate Water Quality Objectives that will maximize the beneficial use of waters available to the Chino Basin.

F. IEUA will assist JCSD in obtaining not less than $2 million of grant funding to help pay the capital cost of the 10,000 gpm (14.4 mgd) of nitrate removal facilities that will be constructed by JCSD, which sources of grant funds may include: HR 131, Proposition 13 and other State and Federal programs. The Parties will collectively endeavor to secure additional funding from the above referenced sources for the additional nitrate removal facilities constructed by benefiting JCSD up to 10,000 gpm. In the event at least $2 million of grant funds is not secured for the first phase of JCSD's nitrate removal facilities, IEUA will contribute the lesser of: i) $2 million or ii) the difference between $2 million and the amount of grant funds actually secured no later than December 31, 2003.

G. The Parties shall evaluate and determine, and accordingly make a joint recommendation to Watermaster concerning, the propriety of collectively operating Management Zone 3 for purposes of recharge and related water quality impacts/benefits.

H. The obligations of the Parties provided for herein, specifically requiring prior actions or approvals by Watermaster as provided for in the Peace Agreement and Watermaster Rules and Regulations, shall be conditional upon such actions or approvals, including but not limited to Watermaster's adoption and implementation of the recharge element of the OBMP.

I. The terms of this Agreement shall not be changed except by written consent of the Parties to this Agreement.

CANDIDATE FACTS, FINDINGS, AND STATEMENT OF OVERRIDING CONSIDERATIONS

CANDIDATE FACTS, FINDING, AND STATEMENT OF OVERRIDING CONSIDERATIONS REGARDING THE ENVIRONMENTAL EFFECTS FROM IMPLEMENTING THE WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN AND ORGANICS MANAGEMENT MASTER PLAN

A. INTRODUCTION

The Inland Empire Utilities Agency (IEUA or Agency), in approving Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan (Master Plans), makes the findings described below, based on the facts summarized in this document, and adopts the statement of overriding considerations presented at the end of the findings. Hereafter, the following document (Final Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan, SCH #2002011116) will be referred to as the "PEIR" for the term Program Environmental Impact Report. The total action that may be implemented by approval of the Master Plans by IEUA consists of all of the actions outlined in the three plans (Wastewater Facilities Master Plan, Recycled Water System Feasibility Study, Chino Basin Organics Management Strategy Business Plan) to achieve cradle to grave management for wastewater and wastewater processing residuals, as well as other organic materials.

Adoption and implementation of the Master Plans constitutes the "proposed project" that will be evaluated in this PEIR. To carry out this proposal, the IEUA compiled the Master Plans to achieve the goals outlined above. It is the total program outlined in the three Master Plans that constitutes the proposed project evaluated in the PEIR.

B. PROJECT SUMMARY

B.1 PROJECT LOCATION

The Master Plans will be implemented within the Chino Basin which 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 of 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 Chino Basin is one of the principle subbasins contributing flow to the Santa Ana River which flows approximately 69 miles from the San Bernardino Mountains to the Pacific Ocean. Pipelines, recharge basins, and other recycled water and wastewater management facilities will be installed within this overall area to meet the objectives of the Master Plans.

B.2 PROJECT CHARACTERISTICS

The Master Plans implementation occurs in the Chino Basin and is intended to properly treat all wastewater generated within the IEUA service area through the year 2050. The Master Plans also identify the programs and facilities required to manage byproducts generated by wastewater generation, treated effluent (termed recycled water in this environmental document) and biosolids. Through the year 2050, the Master Plans identify the anticipated demand for capacity in each of the systems (wastewater, recycled water and organics) and the facilities that will be required to meet this capacity demand over this planning period.

Implementing the Wastewater Facilities Master Plan (WFMP) includes expansion of all the Agency's water reclamation facilities: RP-1's capacity will ultimately be expanded to 60 million gallons per day (MGD); RP-2 will be operated for organics processing for its useful life; RP-4's capacity will ultimately be expanded to 48 MGD; and RP-5's capacity will ultimately be expanded to 48 MGD. Treatment capacity installed by 2050 is forecast to be between 145-155 MGD, with ultimate build-out reclamation capacity at approximately 186 MGD, plus 16 MGD capacity in the non-reclaimable waste systems. The Agency also proposes the installation of up to 10 MGD of scalping satellite reclamation plants in the northern portion of its service area. Additional WFMP facilities include: installation of odor controls, landscaping and plant modernization at RP-1; a revised alternative site layout for RP-5; and installation of major trunk sewer lines with up to 150,000 lineal feet of new trunk sewers being installed within the Agency's service area.

Implementing the Recycled Water Master Plan (RWMP, properly titled the Recycled Water System Feasibility Study) includes construction of up to 400,000 linear feet of pipeline to distributed recycled water, installation of five storage reservoirs and eight pump stations, and installation of connecting lines and inlets for delivery of recycled water to recharge basin located around the upper and middle portions of the Chino Basin. The objective is to utilize an average of 71,100 acre-feet of recycled water for landscape irrigation (29,400 acre-feet), industrial operations (12,500 acre-feet), agricultural uses (1,200 acre-feet), and groundwater basin recharge (28,000 acre-feet).

Implementing the Organics Management Master Plan (OMMP, properly titled the Organics Management Strategy Business Plan) includes installation of the following proposed facilities: a High-Tech Manure Digester Project; a Dairy Digester (Lagoon) Project; an Advanced Technology Manure Pyrolysis Process; Co-Composting operations at RP-1; the Inland Empire Regional Composting facility; a composting facility at the California Institute for Men (CIM); and a Colton Compost facility.

The aforementioned facilities are examples of the necessary types of physical structures that will be implemented to achieve the project objectives that are outlined in the three Master Plans. The detailed list of proposed facilities that may be implemented under the umbrella of the Master Plans is provided in Table 3-17 of the PEIR. This list of immediate, near term (through year 2010) and long term (through 2050) projects comprises the ultimate focus of IEUA's wastewater, recycled water and organics management objectives over the planning period.

It is the implementation of the listed facilities and their ongoing operations where the potential occurs for the Master Plans to cause physical changes in the environment and to produce potential adverse impacts to the environment.

C. ENVIRONMENTAL REVIEW

The entire administrative record, including the three Master Plans, the PEIR, public comments and responses, IEUA Staff reports, and these facts, findings and statement of overriding considerations, serve as the basis for the IEUA Board's environmental determination. The Board's environmental determination is that the PEIR addresses all of the potential impacts from implementing the Master Plans as outlined above and defined in detail in Chapter 3 of the PEIR. The detailed environmental impacts and proposed mitigation measures for the future development projects are presented in Chapter 4 of the PEIR and in the responses to comments (under separate cover) which is part of the PEIR. Alternatives to the proposed project are discussed in Chapter 5 of the PEIR. Evaluations of growth inducement, cumulative impacts, and irreversible commitment of resources are provided in Chapter 6, Topical Issues, of the PEIR. The following findings contain a summary of the facts used in making determinations for each environmental issues addressed in the PEIR.

1. **Consideration of the EIR:** The Final Program Environmental Impact Report, PEIR, dated June 28, 2002 has been presented to the Board of Directors for the Inland Empire Utilities Agency. The Board makes the following certifications pursuant to the California Environmental Quality Act Guidelines Section 15090. The Board finds and certifies that the PEIR has been completed in compliance with CEQA. The Board certifies that all voting members have reviewed and considered the PEIR prior to approving the three Master Plans for implementation. In addition, all voting Board members have reviewed and considered the additional information presented at or prior to the public hearing on June 5, 2002. The Board further finds and certifies that the PEIR reflects the independent judgement and analysis of the Board and is adequate for this proposed project.

2. **Full Disclosure:** The Board finds and certifies that the PEIR constitutes a complete, accurate, adequate and good faith effort at full disclosure under CEQA.

3. **Location of Record Proceedings:** The documents and other materials which constitute the record of proceeding upon which this decision is based are in the custody of the IEUA located at 9400 Cherry Avenue, Bldg. A, Fontana, California. This information is provided in compliance with Public Resources Code §21081.6(a)(2).

4. **Inland Empire Utilities Agency as Lead Agency Under CEQA:** The Inland Empire Utilities Agency is the "lead agency" as defined by CEQA Guidelines Section 15050. In compliance with its authority and responsibility for managing wastewater and residual byproducts within its service area, IEUA has prepared the Draft and Final PEIR for the Master Plan, prepared these findings in accordance with the CEQA Guidelines and the Public Resources Code, and will carry out all other duties and responsibilities required of a lead agency under the Public Resources Code and the CEQA Guidelines.

D. FINDINGS

Presented below are the environmental findings made by the IEUA after its review of the documents referenced above; and consideration of written and oral comments on the proposed project at a public hearing, including all other information provided during the decision-making process. These findings provide a summary of the information contained in the PEIR, related technical documents, and the public hearing record that have been referenced by the IEUA Board in making its decision to approve the Master Plans and specific projects for immediate implementation as the first step in achieving fulfillment of these Master Plans.

The PEIR prepared for the Master Plans addresses the consequences of implementing three major programs (wastewater, recycled water and organic materials) and a large number of potential site-specific projects in the future. This PEIR, and supporting Initial Study, evaluated 16 major environmental issues categories for potential significant adverse impacts. The major environmental issue categories presented in the PEIR, are: land use and planning, population and housing, geologic resources/constraints, water resources/water quality, air quality, transportation and circulation, biological resources, noise, public services, utilities and service systems, and cultural resources. The issues found in the Initial Study to have no potential for significant adverse impact included: aesthetics and visual resources, agricultural resources, hazards and hazardous materials, mineral resources and recreation. When all impact categories are included, the PEIR reached a total of 32 findings on environmental issues. Short and long-term impacts and project-specific and cumulative impacts were evaluated for implementation of the proposed project. Some of the issue categories contained several subissues which are summarized below. Of these 16 major environmental categories, the Board concurs with the findings in the PEIR, that the issues and subissues discussed below can be mitigated below a significant impact threshold; or for those issues which cannot be mitigated below a level of significance, that overriding considerations exist which make those impacts acceptable.

Those environmental issue categories identified in the PEIR and Initial Study as having no potential for significant adverse impact, with or without mitigation, are described below in Section E. The discussion in Section E summarizes the findings contained in the PEIR and Initial Study for the nonsignificant issues, including those for which mitigation has been identified to reduce impacts below a significant level. Unavoidable (unmitigable) significant adverse impacts of the project are described in Section F of this document. An analysis and comparison of the alternatives to the proposed project are described in Section G of this document. Project benefits are described in Section H. The balancing of benefits and impacts and the statement of overriding considerations are described and evaluated in Section I of this document.

Several additional mitigation measures were identified for modification and implementation in the Responses to Comments of the PEIR and these changes have been incorporated into the Final PEIR and Mitigation Monitoring and Reporting Program (MMRP). All of these changes in mitigation measures remain within the scope of the performance standards outlined in the Draft PEIR. Mitigation measures referenced in this document are also contained in the MMRP which is attached to the PEIR. The mitigation measures that were carried forward into the MMRP identified mitigation measures which are the responsibility of IEUA; however, other agencies (CEQA Responsible Agency) will be responsible for projects that they initiate under the Master Plans' auspices. The monitoring program ensures that the measures identified in the PEIR are implemented in accordance with discussions in the PEIR.

E. NONSIGNIFICANT IMPACTS IDENTIFIED IN THE PEIR

The following issues were identified in the PEIR as having no potential to cause significant impact or were capable of having impacts reduced below a significant level of implementing the identified mitigation measures. In the following presentation, each resource issue is identified; it is followed by a summary description of the potential significant adverse environmental effect and a short discussion of the findings and facts in the administrative record, as defined above.

The Board hereby finds that all mitigation measures identified in the Final PEIR will be implemented to mitigate the impacts of this project and will be incorporated into or will be required of the project to avoid or substantially lessen potentially significant environmental impacts to a level of insignificance. Public Resources Code Section 21081 states that no public agency shall approve or carry out a project for which an environmental impact report has been completed which identifies one or more significant effects unless the public agency makes one, or more, of the following findings:

a. Changes or alterations have been required in, or incorporated into the project which mitigate or avoid the significant environmental effects thereof as identified in the completed environmental impact report;

b. Such changes or alterations are within the responsibility and jurisdiction of another public agency and such changes have been adopted by such agency or can and should be adopted by such other agency; and/or

c. Specific economic, social or other considerations make infeasible the mitigation measures or project alternatives identified in the environmental impact report.

The Board hereby finds, pursuant to Public Resources Section 21081, that the following issues are nonsignificant because they have no potential to cause a significant impact or because mitigation measures will be implemented as outlined below. The Board further finds that no additional mitigation measures or project changes are required to reduce the potential impacts discussed below to a level of nonsignificance. These issues and the measures adopted to mitigate them to a level of insignificance are as follows.

Issues Determined to be Nonsignificant in the Initial Study

1. Aesthetics and Visual Resources

Visual resources include natural and human-made features that give a particular environment its aesthetic qualities. These resources include remote and pristine environments, landscapes with unique land forms or vegetation patterns, and water bodies or rock formations with unusual or outstanding qualities. All of the cities within the project area provide protection for aesthetic and visual resources within their design guidelines in general plans and development codes. The project area includes several important visual and aesthetic resources including, but not limited to, views of the San Gabriel Mountains, numerous scenic routes and highways, and scenic vistas. The construction and implementation of project facilities may adversely impact these resources. Potential impacts include lights and glare from new facilities and vehicles traveling to and from these facilities and blockage of views of and from existing neighborhoods. Mitigation measures for this impact include but are not limited to the following:

I-1 *All surface areas disturbed by construction activities, except those area used 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 (note that native vegetation is also eminently suited to man-made landscapes and requires less maintenance). Once construction is completed, revegetation shall begin immediately and, where a formal landscape plan is being implemented, it shall be coordinated with the local agency and the local design guidelines for consistency.*

I-2 *Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, project implementation will conform with design requirements established in these planning documents.*

I-3 *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.*

I-4 *When above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.*

I-5 *All utilities for project facilities shall be placed underground unless such undergrounding is not technically feasible.*

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.*

The aesthetics and visual resources evaluation presented above indicates that although the proposed project has a potential to cause changes in visual settings, no significant adverse impact to aesthetics or visual resources are forecast to occur based on implementation of mitigation measures. Therefore, no significant, adverse aesthetic, visual resource or light and glare impacts are forecast to occur if the proposed project is implemented as outlined above.

2. Agricultural Resources

The Chino Basin contains very significant agricultural resources, primarily dairy ranches that are located in the southern portion of the basin. At the project-specific level, the Master Plans are forecast to cause minimal adverse effects on agricultural resources and/or operations. The Master Plans provide support for continued active agricultural operations on important farmlands, have been found to be beneficial for future agricultural operations. No mitigation was identified or required due to the less than significant effect that the proposed Master Plans will have on agricultural resources.

3. Hazards and Hazardous Materials

The project may pose certain hazards of risks, ranging from construction activities to operation of facilities such as recycled water pipelines, wastewater treatment facilities, composting facilities, etc. The project may also require the transportation and handling of hazardous materials. Implementation of future projects is forecast to create a less than significant hazard or risk to the public or the environment through the routine transport, use or disposal of hazardous materials. Mitigation measures have been identified to reduce these potential hazards and risks to a level of insignificance.

VII-1 *If petroleum products are accidentally released to the environment during any phase of construction, the City shall require the area or contamination to be defined; shall require the removal of any contaminated soil or material from the contaminated area; and ensure that any area exposed to accidentally released contaminants are remediated to a threshold that meets regulatory requirements established by law or agencies overseeing the remediation.*

VII-2 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.

VII-3 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.

VII-4 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.

VII-5 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.

VII-6 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.

VII-7 To the extent feasible, installation of pipelines or other construction activities 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.

VII-8 Where alternative treatment systems are available to reduce potential health risks at proposed facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities.

VII-9 Prior to approving specific recycled water recharge facility locations and volumes, the extent of the aquifer area that would be removed from water production to meet potable water production requirements (6-month detention and 20% concentration in groundwater) shall be defined. If it conflicts with significant water production wells (existing or proposed), an alternative recharge location shall be selected, or wells will be closed and a new supply developed.

VII-10 Hydrogeologic studies, including modeling, will be done for each recharge site to define the recharge impacts on existing known contaminated 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 impacted production facilities will be replaced.

VII-11 All recycled 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 recycled recharge operations shall be terminated or modified to eliminate the adverse impact.*

VII-12 *Prior to installing any above ground structures or facilities that store methane within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B"), a final determination will be made on the acceptability of such facilities within this zone. 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 by 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.*

These mitigation measures were found to mitigate potential hazards and hazardous material impacts to an insignificant level.

4. Mineral Resources

The Chino Basin contains significant mineral resources and mining activities/operations, primarily located in the northern portion of the basin. At the project-specific level, the Master Plans are forecast to cause minimal adverse effects on mineral resources and mining operations. Because the potential for adverse impact is to mineral resource designated areas or existing mining operations was found to be nonsignificant, no mitigation was identified or required.

5. Recreation

The Chino Basin contains significant recreational resources throughout the Basin. At the project specific level, implementation of the proposed project has little potential to cause adverse impacts to existing recreational areas and will create a minimal demand with the limited increase in future employment by IEUA. Because the potential for adverse impact is to recreation areas and recreation demand was found to be nonsignificant, no mitigation was identified or required.

Issues Determined to be Nonsignificant in the PEIR

1. Land Use

a. Disruption of established communities: At the project-specific level, the potential for significant land use conflicts and division of existing communities was determined to pose a less than significant potential for adverse impact. No mitigation measures were identified that will be required to reduce potential incompatible activities or physical division effects below thresholds established in the general plan for the jurisdiction where the facility will be located. IEUA has a commitment to work with local jurisdictions to reduce land use conflicts with local jurisdictions, so no additional mitigation is required

b. ***Conflicts with applicable land use plans, policies or regulations:*** Development of the project facilities has the potential to cause conflicts with adjacent land uses. Mitigation measures, including but not limited to the selection of alternative sites for construction of future desalters where desalter operations can create significant incompatibilities with adjacent uses and/or the preparation of technical reports that identify specific measures that reduce potential incompatible activities or effects below thresholds established in the general plan for the jurisdiction where the facility will be located, have been identified in under other issue evaluations (aesthetics, noise, etc.) and were found adequate to mitigate this potential land use conflicts to an insignificant level.

c. ***Conflicts with applicable habitat conservation plans:*** No area conservation plans have been adopted, and compliance with local jurisdiction conservation plans is a requirement that IEUA must observe. Given the lack of significant habitat resources within the future project areas of impact, not potential for significant adverse environmental impact has been identified and no mitigation was required.

2. Population and Housing

Based on the proposed location of future Master Plans facilities the development of specific facilities, such as pump stations, reservoirs, and pipelines is not forecast to adversely impact existing homes. No mitigation measures have been found necessary to mitigate this impact to an insignificant level. The proposed project is forecast to provide employment for about 100 additional employees at the end of the planning period, and no significant growth inducement was identified in association with project implementation.

3. Geologic Resources / Constraints

a. ***Fault rupture:*** No known faults occur within the project area; therefore, the potential for fault rupture is considered to be low. Mitigation measures, including, but not limited to, requiring adherence to seismic engineering construction, land use, and development standards, have been found to mitigate this impact to an insignificant level.

b. ***Seismic ground-shaking:*** The project site may be subject to significant ground-shaking caused by earthquakes along portions of the fault systems within the vicinity of the project over the life of the proposed project. Mitigation measures, including but not limited to the application of current and appropriate seismic design and construction criteria to all structures subject to significant seismic shaking, have been found to mitigate this impact to an insignificant level.

c. ***Liquefaction:*** Liquefaction results when water-saturated, sandy, unstable soils are subject to intense shaking, such as that caused by an earthquake. A portion of the project area may be prone to liquefaction. Mitigation measures, including but not limited to the requirements that each site within identified Liquefaction Hazard Zones be evaluated by a licensed engineer prior to design and/or land disturbance/construction have been found to mitigate this impact to an insignificant level.

d. ***Erosion and grading:*** The project may result in erosion and/or unstable soil conditions due to grading activities. With the exception of the recharge basins, all ground disturbing activities will affect small areas that can be designated to minimize the amount of ground disturbance. Mitigation measures, including but not limited to use of protective coverings, limiting the amount of area disturbed and the length of time slopes and barren ground are left exposed, construction of diversion dikes and interceptor ditches, and planting of windbreaks, have been found to mitigate erosion and grading impacts to an insignificant level.

e. ***Subsidence hazards:*** A portion of the project area has been identified as experiencing land subsidence impacts within a former artesian area of the valley. A variety of mitigation measures have been adopted to address this impact. The proposed goals of the project include further study of this phenomena as part of a regional monitoring program. Activities associated with the proposed project area not forecast to cause or contribute to cumulatively significant subsidence within the IEUA service area.

4.4-1 *A site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Special Publication 117, Guidelines for Evaluation and Mitigating Seismic Hazards in California.*

4.4-2 *If evidence of faulting is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, then a site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Note 49, Guidelines for Evaluating the Hazard of Surface Fault Rupture. Facility location and design will be adjusted as necessary to provide structural setbacks. Additional measures may include strengthened foundations, other engineering design, and flexible utility connections.*

4.4-3 *Apply appropriate design and construction criteria to all structures subject to significant seismic ground shaking*

4.4-4 *If evidence of liquefaction is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, project design mitigation may include:*

- *In-situ densification of susceptible soil.*
- *Ground improvements such as removal and replacement of susceptible soils or dewatering.*
- *Deep foundations designed to accommodate liquefaction.*
- *Shallow foundation design to accommodate vertical and lateral ground displacement.*

4.4-5 *Comprehensive geotechnical investigations 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 that 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.*
  <u>Acceptable Damage</u>: 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.

4.4-6 All structures previously identified in categories III through V shall be designed in accordance with the applicable multiplier.

4.4-7 The direct impacts of faults upon proposed projects shall be considered during preliminary planning processes, and the engineering design phases

4.4-8 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.

4.4-9 Local grading and building codes should reflect measures to minimize possible seismic damage.

4.4-10 If a conjunctive use program is 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.

4.4-11 Add protective covering of mulch, straw or synthetic material (erosion control blankets, tacking will be required).

4.4-12 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.

4.4-13 *Construct diversion dikes and interceptor ditches to divert water away from construction areas.*

4.4-14 *Install slope drains (conduits) and/or water-velocity-control devices to reduce concentrated high-velocity streams from developing.*

4.4-15 *Construction of facilities and structures areas 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 human's and to capital-intensive facilities*

4.4-16 *Any pipelines crossing the western portion of the Prado Basin and facilities at the CCWRF, RP-5, RP-2 and several OMMP facilities could be subject to subsidence and ground rupture associated with the subsidence. Any construction of facilities in or pipelines crossing this zone is required to have detailed geotechnical and structural engineering studies to ensure designs that can safely accommodate, per building code requirements, the described ground movement(s).*

The mitigation measures presented above have been found to mitigate geologic resource and constraint impacts to an insignificant level.

4. Water Resources / Water Quality

a. ***Violate any water quality standards or waste discharge requirements:*** The detailed evaluation of potential water quality and waste discharge requirements indicates that significant adverse degradation of water quality can occur from implementing the proposed project. During construction, surface water quality, and subsequently groundwater quality, can be degraded by ground disturbing activities and use of equipment. Mitigation is identified to control this impact to a nonsignificant level. WFMP operations and discharges will be conducted to meet Title 22 requirements and detailed waste discharge requirements will be imposed by regulatory agencies as reclamation plant capacity is expanded and modified in the future. Mitigation has been identified, including identification of mandatory recycled water requirements (Appendix 8.7 of the PEIR), that will ensure recycled water discharges do not cause violations of water quality standards or waste discharge requirements. RWMP operations have a potential to conflict with water quality standards of the Basin Plan, but salt balance actions by IEUA and others within the Basin will offset this potential adverse impact. Mitigation will be implemented to reduce RWMP operation impacts to water quality below a level of significance.

b. Deplete groundwater supplies or interfere with groundwater recharge: The three Master Plans were not identified as having a potential to cause significant depletion of groundwater supplies nor to interfere with groundwater recharge. Implementation of the WFMP and RWMP were determined to have a significant benefit to groundwater resources within the Chino Basin. No mitigation was required.

c. Changes in absorption rates, drainage patterns and surface runoff: Implementation of the project may impact absorption rates, drainage patterns and surface runoff. Actions under the project affecting these areas include, but are not limited to, the installation of new organic management facilities, reservoirs and similar facilities. Mitigation measures for this impact were identified, including extensive measures to control erosion and sedimentation. After implementing mitigation measures, potential impacts were determined to be less than significant.

d. ***Water-related hazards, flooding:*** The utilization of flood control facilities for purposes for recharge has the potential to cause increased risks to people and property for flood-related hazards. Mitigation measures have been adopted to address this impact. By establishing an order of priorities for the basin, along with the specific management plans to be create for each basin prior to initiation of recharge operations, potential conflicts between flood control operations and recharge operations will be minimized. Mitigation measures, including but not limited to those set forth below, have been found to mitigate this impact to an insignificant level.

4.5-1 *For each Master Plans project construction site, regardless of size, a SWPPP will be prepared and implemented. Each plan shall identify the BMPs that will be used for that site to minimize the potential for accidental releases of any chemicals or materials on the site that could degrade water quality, including solid waste and require that any spills be cleaned up, contaminated material properly disposed of and the site returned to pre-discharge condition, or in full compliance with regulatory limits for the discharged material. At a minimum, BMPs shall achieve a 60 percent removal of sediment and other pollutants.*

4.5-2 *Prior to authorizing contracts for drilling monitoring wells under the RWMP, IEUA will require the well driller to identify all chemicals that will be used at the drilling site and require the submittal of a SWPPP for review and approval before allowing the drilling to commence. A performance bond shall be provided by the driller to ensure that any residual contamination from will drilling can be corrected.*

4.5-3 *If the facilities are constructed in a flood-zone, the facility will be brought to a level above flood hazards, or hardened against flood-related impacts. Additionally, if facilities must be located within flood plains or hazard areas, a flood management program to minimize impacts to people and surrounding property shall be created and implemented for each facility that may occur within these hazards areas.*

4.5-4 *The IEUA shall confer with the San Bernardino County Department of Transportation and Flood Control and for each flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define that amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as time and 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.*

4.5-5 *When recharge of recycled water with TDS greater than the background groundwater TDS at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TDS to be exceeded. In addition, the amount of additional salt added to the Basin above the background groundwater quality condition shall be calculated and this amount shall be offset by blending with better quality TDS water (storm water) or other measures that remove salts from the Basin. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.*

4.5-6 *When recharge of recycled water with TIN greater than the background groundwater TIN at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the*

Basin Plan water quality objective for TIN to be exceeded. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.

4.5-7 *Pursuant to the proposed DHS regulations, an engineering report must be submitted for each planned recycled water recharge project. The engineering report will include, among other items, a hydrogeologic study that will evaluate and describe, in detail, the vertical and horizontal extent of the underground zone that defines six months of underground retention of the applied recycled water and the 500-foot horizontal buffer zone surrounding the facility.*

4.5-8 *When recharge of water is proposed within the vicinity of an existing or know groundwater quality anomaly (contaminated groundwater plume), modeling shall be conducted to determine whether recharge of the recycled water will increase the local hydraulic gradient and cause more rapid spread of the existing plume. If existing domestic water production wells will be impacted by the plume a minimum of one year earlier that under pre-existing conditions, or if significant qualities of additional groundwater (more that 5,000 acre-feet) will become contaminated within a five year period due to the recharge of water, an alternative location for recharge will be selected to avoid not only the loss of the recharged water due to contamination, but also additional high quality groundwater due to more rapid expansion of the contaminated plume*

4.5-9 *Prior to implementation of any recharge projects to 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 storms events will be carefully monitored and in the event of a significant forecasted storm-event, recharge deliveries to the basins will be ceased until further notice is received form 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 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.*

Mitigation measures were determined to reduce all water-related environmental impacts to a level of nonsignificance.

6. Transportation and Circulation

During the construction of the project, there may be short-term detours, disruptions of traffic flow, and the potential creation of traffic hazards as a result of construction within the road rights-of-way. For long-term operational facilities, the potential exists that a facility, such as a regional composting facility, to create localized traffic impacts. Mitigation measures, including but not limited to the preparation of traffic studies for any project which increases traffic generation, requirements that each construction contractor provide adequate traffic management during construction and that no open trenches or traffic safety hazards be left in the roadways when construction personnel are not present, repair of roads to their pre-construction status, and a requirement that roadway improvements for project facilities be provided that will eliminate traffic hazards associated with access to the facility in accordance with standard agency requirements or prudent circulation system planning requirements, have been found to mitigate this impact to an insignificant level.

The measures include:

4.7-1 *For each development project that will increase trip generation by more than 50 vehicles during peak hour, IEUA shall prepare a traffic study that evaluates the impacts of this traffic on the local circulation system and identify project specific or fair share mitigation to maintain peak hour level of service at LOS "E" or better.*

4.7-2 *The IEUA shall require the construction contractor to provide adequate traffic management resources during construction (signing, protective devices, flag persons, etc.) to maintain the safe flow of traffic, particularly emergency access, on local streets at all times.*

4.7-3 *During construction, IEUA shall require traffic hazards for vehicles, bicycles, and pedestrians to be adequately identified and such traffic controlled to minimize hazards.*

4.7-4 *The IEUA shall require the construction contractor to ensure that no open trenches or traffic safety hazards be left in roadways during periods of time when construction personnel are not present (nighttime, weekends, etc.), without appropriate signing and protection to minimize hazards.*

4.7-5 *The IEUA shall require all roads to be repaired adequately after construction activities to ensure that traffic can move in the same manner as before construction without damage to vehicles.*

4.7-6 *The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.*

4.7-7 *IEUA shall emphasize transportation demand management or non-motorized transportation alternatives for project related employees, where feasible, to reduce demand for roadway capacity.*

4.7-8 *Future facility ingress/egress shall be reviewed with the local agency having land use jurisdiction or jurisdiction over the roadway providing access. Roadway improvements required to eliminate any circulation system impacts or traffic hazards associated with access to a facility shall be mitigated in accordance with standard agency requirements or prudent circulation system planning requirements . Strategies that can be considered for application include the following:*

- *signalization, signing and striping improvements*
- *additional through or turn lanes as dictated by volume*
- *additional storage area for vehicle queuing (i.e., right- and left-turn bays)*
- *increasing curb radii to accommodate higher turning radius trucks*
- *pavement/roadbed improvements*
- *widening to provide sufficient lane widths for trucks, and*
- *improvements to enhance sight distances.*

4.7-9 *The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.*

4.7-10 *The concept improvements should be specifically oriented toward facilitating the movement of large trucks at facility driveways and nearby intersections.*

4.7-11 *Conduct additional analysis on the availability of right-of-way, adjacent land uses and locations of driveways, existing improvement plans, roadway cross-sections and unique characteristics such as difficulty in making turns, truck queues from adjacent intersections to driveways and pavement conditions.*

4.7-12 *Maintain access to the Chino Airport, Ontario Airport, and Cable Airport.*

The above mitigation measures ensure that traffic and circulation effects can be mitigated to a nonsignificant level of impact.

7. Biological Resources

Implementation of the project has a limited potential to impact biological resources depending on the site(s) selected for project facilities and the amount of site disturbance required to install the project facilities. The vast majority of the project locations are already paved, graded, or fully disturbed and the remaining areas contain a very limited extent of natural habitat. It is possible, depending on the location of the project facilities and improvements, that the project may impact candidate, sensitive, or special status species and other sensitive natural communities. Since several endangered species occur in the Chino Basin, including the Arroyo Toad, Least Bell's Vireo, Southwestern Willow Flycatcher, Quino Checkerspot Butterfly, San Bernardino Kangaroo Rat, and the Coastal California Gnatcatcher, the possibility that these species will be impacted must be considered. Some individuals of the species may be displaced or succumb due to direct construction impacts or otherwise be impacted due to competition for limited adjacent holding capacities. Several unique plant communities occur within the project area, including chaparral, coastal sage scrub, deciduous woodlands, grasslands and wetlands. In addition, the project area contains the California Sycamore Series, the Arroyo Willow Series and Delhi Sands. Depending upon the siting of project facilities and improvements, these plant communities could be impacted by the project.

a. Special status species: Due to the numerous endangered, threatened and special status species found throughout the project area, the mitigation measures set forth below have been adopted. Prior to facility construction or installation, project-specific biological resource surveys will be conducted onsite when any previously undeveloped area may be disturbed by project implementation. If any sensitive species have the potential to occur on the site where project facilities are proposed, or if previous environmental studies have not been conducted, surveys will be conducted in accordance with all established state, federal and generally accepted biological survey protocols for each potential species that may be located onsite. Further, all mitigation measures recommended by jurisdictional agencies will be implemented. Project facilities will be designed to protect habitat values and to preserve significant, viable habitat areas. Within designated habitat areas of rare, threatened or endangered species, disturbance of protected biotic resources will be prohibited. Impacts and disturbances to individuals and species considered sensitive by jurisdictional agencies will be avoided, whenever feasible. With respect to the continued preservation of the Least Bell's Vireo, an endangered species, the amount of water taken from or added to the Santa Ana River will ensure that the water level is maintained between th 505-foot and 498-foot elevation mark. Mitigation measures, including but not limited to those listed above, have been found to mitigate the project's impact on special status species to an insignificant level.

b. ***Vegetation communities:*** Due to the numerous communities present throughout the project area and the potential impact to the project may have on these communities, the mitigation measures set forth below have been adopted. Conservation or open space easements, granting of development rights, or other similar protections for biological habitats which are to be preserved in their natural state will be required. To maximize habitat protection, primary emphasis will be placed on the preservation of large, unbroken blocks of natural open space and wildlife habitat area as well as protecting the integrity of habitat linkages. Preservation of sensitive habitat areas will be emphasized. Landscaping adjacent to areas containing important biological resources will be designed to avoid invasive species which could negatively impact the value of the preserved resources. The preservation of individual oak, sycamore and walnut trees within proposed development sites will be maximized. Buffer zones will be required adjacent to areas of preserved biological resources. Mitigation measures, including but not limited to those discussed above, have been found to mitigate the impact on vegetation communities to an insignificant level.

4.8-1 *Prior to increasing future recycled water discharges by more than 5,000 acre feet per year, IEUA shall consult with the Corps of Engineers and verify that the Corps' 1995 Cooperative Agreement will be implemented in a manner to keep inundation levels during the water conservation period to 505 feet in elevation under routine operation conditions and excluding periods when storm flows make this commitment infeasible.*

4.8-2 *Within those areas identified as potentially containing sensitive biological resources (several of the satellite plant corridors/ sites and several recharge basins), proposed facilities will not be installed until future protocol surveys have been 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. *IEUA shall provide compensation for acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of 3:1 for habitat lost. The property acquisition shall include the presence of at least animal per animal 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 IEUA 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 IEUA and FWS and CDFG for any incidental take permits. IEUA 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.*

4.8-3 *If burrowing owls are present within the construction right-of-way, the following measures will be implemented.*

a. *Owls should be excluded from burrows in the immediate impact zone and within 50 feet of construction by installing one-way doors at the burrow entrances. One-way doors should be left in place 48 hours prior to excavating the burrow.*

b. *One alternate natural or artificial burrow shall be provided for each burrow that will be excavated.*

c. *The impact zone should be monitored daily for one week to confirm owl use of alternate burrows before excavating the burrows.*
d. *Burrows should be excavated using hand tools and filled to insure the owls cannot reoccupy the burrows.*
e. *Flexible plastic pipe should be placed in burrows while excavating to allow any animals inside the burrows to escape.*

The mitigation outlined above can reduce potential biological resource impacts to a level of nonsignificant impact.

8. Noise

The project has the potential to generate short and long-term changes in the noise environment of the project area. The project may also contribute to the cumulative increase in noise that accompanies urban growth and development.

a. Short-term noise: Construction noise would be generated by any of the project facilities and would include trucks, construction equipment, portable generators and concrete mixers. Since construction noise is of a temporary nature, most jurisdictions do not require such noise to be mitigated to specific threshold levels. Mitigation measures, including but not limited to restricting construction hours to the hours of 7 a.m. to 7 p.m. on Monday through Friday and 9 a.m. to 6 p.m. on Saturday, equipping all construction vehicles with properly operating and maintained mufflers, providing adequate hearing protection for construction employees, and installing portable noise barriers where appropriate, have been found to mitigate the short-term noise impact to an insignificant level.

b. Long-term noise: Operation of several facilities contemplated under the project could result in noise levels greater than the 60-65 dBA CNEL values that are considered acceptable for noise sensitive uses. Noise generation from the project facilities will come not only from the facilities themselves, but also from traffic to and from the facilities and from equipment used at the facility. Mitigation measures for this impact include:

4.9-1 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.

4.9-2 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.

4.9-3 All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers.

4.9-4 Schedule the construction such that the absolute minimum number of equipment would be operating at the same time.

4.9-5 Maintain good relations with the school and community 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.

4.9-6 *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.*

4.9-7 *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.*

4.9-8 *All production wells or booster pumps shall have their noise levels attenuated to 50 dBA CNEL at 50 feet from the well head.*

4.9-9 *Project facilities 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 relatively noisy operations a sufficient distance from sensitive noise receptors; by incorporating attenuation features in the facility or designing attenuation features at the boundary of the property.*

Mitigation measures have been determined to mitigate the potential noise impacts to an insignificant level.

9. Public Services

The implementation of the project could increase the demand for police protection services, specifically with respect to potential trespass upon project facilities. Mitigation measures, including but not limited to the installation of fences or some other form of controlled access to project facilities, have been found to mitigate this impact to an insignificant level. Mitigation measures include:

4.10-1 *To the extent possible, construction vehicles should use routes that do not conflict with school walksheds or streets routes heavily used by buses.*

4.10-2 *A schedule would need to be established to offset large truck movements from peak student pedestrian activity.*

4.10-3 *Potential air quality issues would be countered by application of Best Management Practices (BMPs) and specific mitigation measures that are discussed in detail in the Air Quality Section 4-6.*

4.10-4 *Large truck movements (i.e., fill hauling) should be done during off-peak student pedestrian hours.*

4.10-5 *Schedule all intense noise activities to be performed during non-school hours.*

4.10-6 *Large truck movements that could impeded ingress and egress should, to the extent possible, be done during non-peak employee commuting hours.*

4.10-7 *Street access to public facilities must be maintained for employees and the local citizens.*

4.10-8 *Most public facilities have more than one entrance/exit; should construction interrupt access points to these facilities at least one entrance/exit would need to remain accessible at all times. In the event that a facility has only one entrance/*

exit, an off-hours construction schedule may be required to avoid creating a significant effect on access to the facility.

4.10-9 *Communication should be established prior to any construction and maintained throughout the construction process to ensure that all local emergency and correctional facilities are updated with construction schedules.*

4.10-10 *Development of Traffic Management Plans for police, fire, EMS, and correctional services.*

10. Utilities

The utility issues of concern are increased demand for utility capacity without existing capacity or comparable increases in capacity from implementing the project. The project, as proposed, will not significantly impact utilities in the project area. Thus, no mitigation measures were identified as part of the PEIR.

a. Electricity: Proposed building construction must comply with Title 24 of the California Administrative Code. Onsite electrical lines should be installed underground. Project planners and architects should consult with Southern California Edison regarding current energy conservation techniques. Architectural planning and design, to the extent feasible, should take full advantage of such concepts as natural heating and/or cooling through sun and wind exposure and solar energy collection systems.

b. Natural gas: Insulation installed in walls and ceilings should meet the standards established by the State of California. Windowless walls for western exposures and sill orientation of buildings to use solar hearing systems and efficient heating-cooling systems should be installed whenever feasible. Landscaping should be used to moderate building heat gain. Use of energy conservation methods that can be readily incorporated into project design.

c. Wastewater: The proposed project will provide adequate treatment capacity through 2050 and will meet Title 22 treatment requirements. No adverse impacts are forecast and no mitigation is required.

d. Solid Waste: All proposed development/redevelopment projects within the proposed project area that will generate solid waste should be reviewed on a project-by-project basis by the permitting jurisdictional agencies in coordination with County landfill officials to determine the degree of impact upon remaining landfill capacity. Projects should be approved only after it is determined that the additional solid waste generated can be disposed of within existing landfill facilities.

e. Water Supplies: All project-related development/redevelopment that includes exterior landscape elements should employ xeriscape plant design and water conservation concepts. The xeriscape requirements should include use of drought tolerant species, drip irrigation, soil moisture sensors, and automatic irrigation systems. Mulch should be used extensively in all landscaped areas to reduce erosion and evaporation. Lawns should be kept to a minimum and warm-season grasses used.

11. Cultural Resources

A large portion of the project area contains sensitive cultural sites, as do the project facility alignments. Activities requiring the excavation or movement of soil material at any location within the project area have the potential to adversely effect cultural resources. Cultural resources within the project area include prehistoric food processing sites and campsites, village sites, historic privy pits, barns, foundations, and dams. While a large portion of the project area has been surveyed for cultural resources, many potential project area sites have not. Mitigation measures for this impact include but are not limited to the following:

4.12-1 *Complete archaeological survey of final alignments or project locations, with recordation, testing and evaluation, and data-recovery and monitoring if needed, of any newly located cultural resources.*

4.12-2 *Archaeological monitoring not required for ground disturbing activities; however, if cultural resources are located during construction, construction in that area must stop, the resources must be protected, and treatment by a qualified archaeologist must occur, following the procedures prescribed in Mitigation Measure 1.*

4.12-3 *Archaeological testing and evaluation of recorded resources known to exist in the Project alignment or location. Further treatment, including data-recovery and monitoring, if required.*

4.12-4 *Archaeological monitoring required, due to high potential for buried cultural resources.*

4.12-5 *Paleontological monitoring required for all ground disturbing activities, following the monitoring procedures described below.*

4.12-6 *Paleontological monitoring required for all ground disturbing activities below a depth of five feet from the modern ground surface, following the monitoring procedures described below.*

4.12-7 *Paleontological monitoring required for all ground disturbing activities below a depth of ten feet from the modern ground surface, following the monitoring procedures described below.*

4.12-8 *Spot monitoring at depths below 10 feet, to determine if high sensitivity deposits are being excavated. If high sensitivity deposits are being disturbed, then paleontological monitoring will be required for all ground disturbing activities within these deposits.*

4.12-9 *Assessment of lithology during preliminary ground disturbance, or at required depth, to determine if older Pleistocene deposits have high sensitivity. If deposits being excavated do have high sensitivity, then paleontological monitoring will be required for all ground disturbing activities within these deposits.*

Mitigation measures have been found to mitigate the impacts on archaeological resources to an insignificant level.

This concludes the summary of environmental impacts that are considered nonsignificant or that can be mitigated below a significant level.

F. SIGNIFICANT UNAVOIDABLE EFFECTS OF THE PROJECT

The IEUA Board finds that despite the incorporation of extensive changes and alterations into the proposed project, approving and implementing the three Master Plans will allow one impact to remain unavoidably significant because this impact cannot be mitigated to a nonsignificant level. This unavoidable significant adverse environmental impact is air quality, where emissions associated with cumulative construction of the proposed facilities and cumulative electrical consumption during operations to support the three Master Plans facilities will exceed the South Coast Air Quality Management District's thresholds of significant for nitrogen oxides and reactive organic gases. These emissions may exceed thresholds during both construction and operations. This impact and the measures identified to minimize it to the extent feasible are summarized below. Thus, the potential for significant effects to occur for this issue would continue to exist regardless of whether or not participating agencies implement the project changes and mitigation measures contained in the PEIR.

The potential impact to the above listed resource and existing background conditions were concluded to be significant based on the whole record which demonstrated that this impact could not be reduced below thresholds of significance by the proposed project changes to the Master Plans (alternatives, mitigation measures or design changes). To the extent that future site-specific projects implemented under the Master Plans project generate the emissions forecast from construction activities and electricity consumption, approval of the Master Plans contributes to the significant impact as described above. Thus, despite the incorporation of changes to the proposed project, air quality impacts cannot be fully mitigated to a level of insignificance and a statement of overriding consideration is thereby included herein.

a. Construction impacts: Construction of the various facilities identified as part of the proposed project may cause temporary adverse effects to the air quality of the project area, particularly with respect to dust and airborne particulate. Mitigation measures, including but not limited to the application of non-toxic soil stabilizers, replacement of ground cover or pavement immediately after construction is complete, watering grading sites, and suspending grading activities when wind exceeds 25 miles per hour, have been determined to mitigate the impact of construction activities on air quality to the lowest achievable level.

b. Operational impacts:Operational pollutant emissions, specifically nitrogen dioxide and reactive organic compound emissions, are considered to be adverse, unavoidable, and unable to be fully mitigated to insignificance. Changes or alterations have been incorporated into the project which substantially lessen the significant environmental air quality impact, as set forth below, although these changes and alterations have not reduced the impact to a level of insignificance. To the extent these impacts remain significant and unavoidable, such impacts are acceptable when weighed against the overriding social, economic, legal, technical, and other benefits provided by the project, as stated in the Statement of Overriding Considerations presented below.

The Master Plans Final PEIR describes air quality impacts associated with operation of project facilities as an unavoidable significant impact. The construction and operation of new pump stations, wastewater reclamation facilities, organic management facilities is an unavoidable adverse impact that cannot be mitigated. Mitigation measures, including but not limited to compliance with SCAQMD rules, regulations and permit conditions have been identified in the OBMP Final PEIR. No other feasible mitigation measures are identified by the OBMP Final PEIR, or are other feasible mitigation measures known, which could avoid or further lessen this impact.

4.6-1 *Limit construction equipment use to a mix of equipment that is substantially the same as that used for the estimation of pollutant emissions.*

4.6-2 *All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.*

4.6-3 *General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.*

4.6-4 *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.*

4.6-5 *Construction activities should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.*

4.6-6 *Water active grading sites at least twice daily and when dust is observed migrating from the site.*

4.6-7 *Suspend all grading and excavation operations when wind speeds exceed 25 mph.*

4.6-8 *Apply non-toxic chemical soil stabilizers according to manufacturers specifications to inactive construction areas (previously graded areas inactive for 10 days or more).*

4.6-9 *Replace ground cover or pave disturbed areas immediately after construction is completed in the affected area.*

4.6-10 *Sweep streets once per day and when soil material is observed on traveled roadways.*

After implementing the above mitigation measures air quality emissions cannot be controlled to a level of insignificance when compared to the SCAQMD Handbook emission thresholds.

This concludes the discussion of all potential significant unavoidable adverse impacts attributable to the implementation of the proposed project

G. ALTERNATIVES TO THE PROPOSED ACTION

The California Environmental Quality Act (CEQA) requires discussion of reasonable project alternatives that could feasibly attain the project's objectives (14 CCR §15126(d)). CEQA requires that an EIR evaluate a reasonable range of alternatives to the project, or to the location of the project that: (1) offers substantial environmental advantages over the proposed project, and (2) may be feasibly accomplished in a successful manner and within a reasonable period of time considering the economic, environmental, legal, social, and technological factors involved.

The basic objectives of the Master Plans is to identify and provide for implementation of the facilities required to manage wastewater generated within the IEUA service area in the future, including the management of residual byproducts of the treatment process, recycled water and organic materials (biosolids). To carry out this purpose, the Master Plans establish an assumed rate of growth which identifies anticipated future demand for wastewater treatment capacity, an volume of recycled water generation, and an assumed volume of organic material generation that will require management. The Master Plans identify the facilities and rate of facility implementation required to address the demand created by growth within the IEUA service area.

The PEIR considered a total of two alternatives to the proposed action. These alternatives were defined based on mandatory requirements and an alternative designed to reduce the identified significant impacts of the project as previously identified. The two alternatives that were subject to evaluation in the PEIR with the proposed action are:

a. No Project/No Implementation of the Master Plans
b. Modified rate of expanding the wastewater treatment, recycled water and organics management systems

The purpose in analyzing alternatives to the proposed project is to determine if an alternative is capable of eliminating or reducing potential significant adverse environmental effects, "even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly" (State CEQA Guidelines, Section 15126(d)(3)). The following discussion summarizes the PEIR evaluation for each of these alternatives in determining whether they are feasible alternatives to the proposed action (State CEQA Guidelines, Section 15126(d)) and whether an alternative can eliminate or substantially lessen significant impacts described in this document for the proposed action. Each of these alternatives specified below is considered infeasible or less desirable than the proposed project, and therefore is rejected, for the reasons set forth below.

a. No Project Alternative: Under this alternative, the operation of each of the systems would remain as they currently are. Thus, wastewater systems would be expanded in a case-by-case or reactive manner, with no long term concept guiding the expansion of this critical public utility system. The recycled water system would not be installed and the volume of treated effluent, recycled water, discharged and allowed to flow downstream would increase to over 100 million gallons per day. This valuable resource would be lost to the residents of the Chino Basin and more imported water would have to be purchased to meet future water demand. Organic materials management would continue as it presently does, with outdoor composting continuing for some of the biosolids and green waste, and transport of organic materials out of the basin with attendant mobile source air emissions.

Adverse impacts associated with odors, drowning existing riparian areas, increased air emissions would all result from implementing the no project alternative. Thus, this alternative cannot be considered the environmentally superior alternative to the proposed project from a total environmental standpoint because the environmental damage from continued implementation of the existing wastewater and organics management systems on a case-by-case basis is forecast to be substantially more significant than that arising from implementing the Master Plans. In addition, the project objectives of safe and effective management of wastewater, recycled water and organic material cannot be insured under the no-project alternative. Therefore, this alternative would not provide an overall environmental benefit, would achieve none of the project objectives, and would forego all project benefits. For these reasons, the no project alternative is infeasible and, therefore, is rejected.

b. Reducing the Rate of Expansion Alternative: The only unavoidable significant environmental impact identified in association with proposed project implementation is air quality, both during construction, using the project implementation scenarios identified in the air quality section, and during operations when all facilities are constructed and in operation. Thus, an alternative which can reduce construction emissions and operational emissions could be an environmentally superior alternative. However, the rate of expanding the management systems is dictated by the rate of growth and reducing the rate of system expansion cannot be reduced below the rate of growth without the potential for system failure. By slowing the rate of expanding treatment capacity the ability to meet waste discharge requirements is reduced. Potential water quality degradation can result from such circumstances.

Slowing the rate of recycled water utilization requires the importation of more State Water Project water with attendant higher energy consumption and higher costs to IEUA customers. Reducing the rate of organic management system expansion will result in the increased transport of biosolids and green waste out of the region. This results in greater cost, greater air pollutant emissions, more odor and continued impacts of manure waste on water quality.

Thus, the alternative of slowing the rate of expansion of these various Master Plans is an alternative that could reduce construction pollutant emissions below a significant level, but it will conflict with the project objectives for implementing the RWMP and the OMMP. Therefore, it is not considered a reasonable or feasible alternative to the proposed project and will not be given further consideration in this document.

The two alternatives to the proposed project are not considered feasible alternatives. An examination of other alternatives did not identify any alternatives that would result in reducing the single unavoidable significant adverse impact, air quality, the would result from implementing the proposed project. Operational and construction air pollution emissions are unavoidable, and significant, if the project objectives are to be fulfilled. No alternative has been identified that could reduce these air emissions to a level of nonsignificance and all feasible mitigation measures available have already been incorporated into the proposed project to minimize emissions to the extent possible. Each of the two alternatives have associated environmental impacts that will not eliminate the single significant impact identified in this PEIR, air quality, and may result in different and more significant adverse environmental effects. Based on the analysis contained in this chapter, the proposed project, the implementation of the WFMP, RWMP and OMMP, is considered to be comparably the environmentally superior alternative available that will meet project goals and objectives.

This concludes the discussion of alternatives to the proposed project and the Board findings regarding each of the alternatives evaluated in the project in the EIR.

H. PROJECT BENEFITS

The benefits from approving the proposed project are related to the enhanced capacity and quality of management of wastewater, organic materials and recycled water that will result from the implementation of the Master Plans. The project benefits outlined below were considered by the IEUA Board in performing the balancing test with the single unavoidable significant adverse impact presented earlier in this document.

1. Benefits of Implementing the Proposed Project

Recycled Water Project Benefits

1) Allow for judicious water resources management through the reuse of highly treated recycled water.

2) Provide a more dependable local supply of water.

3) Provide for a full gamut of water recycling opportunities, including agricultural and landscape irrigation, recreational ad non-recreational impoundments, industrial and commercial uses, and groundwater recharge.

4) Contribute to an effective regional water resources management strategy, especially the implementation of the Optimum Basin Management Program for the Chino Basin.

5) Help "drought proof" the Chino Basin.

6) Help achieve the objectives of the Chino Basin Optimum Basin Management Program.

7) Support IEUA's Urban Water Management Plan.

8) Protect and enhance the safe yield and groundwater supply of the Basin.

9) Reduce the salt load and improve the water quality of the Chino Basin and Santa Ana River.

10) Provide a more dependable local water supply and reduce the likelihood of water rationing during future droughts.

11) Lower the anticipated costs of water and sewer rates to customers.

12) Create incentives to attract new businesses and industries, thereby creating new jobs.

13) Allow for the incorporation of water savings envisioned through the water conservation program presented in IEUA's UWMP.

14) Provide better distribution capability to local agencies.

15) Provide recycled water more efficiently and at an economical rate for landscaping, cooling towers, boiler feeders, and other various non-potable uses, thereby conserving potable groundwater and reducing dependency on imported water (State Project Water).

16) Facilitate redevelopment of existing recharge basins, and the construction of new recharge basins.

17) Provide fore over 70,000 AFY of recycled water to be available within the IEUA service area for local beneficial uses.

18) Avoid wastewater disposal costs and reduce nitrate discharge into the SAR.

19) Qualify for SWRCB grants and loans.

20) Reduce potable water system operations and maintenance expenditures.

21) Reduce water utility system capital costs by delaying or avoiding future expenditures due to slower expansion of potable water demands.

22) Reduce costs of purchasing imported water

23) Provide for local community economic development (local construction jobs).

24) Improved business climate from reduced costs and increased reliability of recycled water that may help retain existing industries and attract new ones.

25) Improved physical delivery system reliability (resulting from two potential sources of supply.)

26) Increased water supply reliability for urban and agricultural water agencies and Central Valley Project water.

27) Reduced overdraft from replacement of potable water supply.

28) Reduced energy use and reduced air pollution by demanding less energy usage to pump in state project water.

29) Environmental enhancement from increased volume in Basin streams and lakes for aesthetic recreational and fishing environments.

30) Improve Bay-Delta ecosystem from reduced import of Bay-Delta water diverted to Southern California.

Organics Management Plan

1) Address the groundwater contamination problem in the Chino Basin

2) Protect the Santa Ana River from degradation due to stormwater runoff, which transports manure directly into the Prado Basin of the Santa Ana River.

3) Utilize anaerobic digesters to generate methane gas that can be converted into an environmentally clean source of power for the region.

4) Help supplement energy needs.

5) Provide necessary electrical back-up systems in the event of power outages.

6) Supply power to water treatment facilities.

7) Provide other utility related services to the communities served by IEUA in support of its mission statement in a regionally planned, managed, and cost effective manner.

8) Protect public health and the environment through the reuse of water and solids in the service area, protecting and cleaning up the Groundwater Basin.

9) Protect the Basin from the infiltration of salts and nitrogen compounds generated on dairies, so as to reduce the future cost of removing such contaminants from the groundwater.

10) Protect future land uses by upgrading facilities to meet expected future need, and by possibly moving facilities to allow for future residential land use.

11) Help IEUA member agencies to comply with a legal mandate to divert 50% of their solid waste by the year 2000, under the terms of AB939, thus extending the life of landfills.

12) Create a high quality compost product (fertilizer/soil amendment) through the mixing of biosolids or manures with recycled green materials generated as waste by each community.

13) Reduce air pollution emissions from Chino dairies, which may be a significant source of dust, ammonia, and VOC emissions by enclosing composting operations.

14) Reduce vehicle trips by reducing truck trips transporting organic waste out of the basin; thus, reduce both air quality impacts and traffic impacts.

15) Increase energy self-sufficiency in the face of rolling blackouts occurring throughout the state.

16) Develop a short term strategy to clean up the accumulation of manure within the area, and provide interim drainage controls to minimize the amount of dairy wastes reaching the SAR and groundwater basin.

17) Help IEUA implement its adopted seven point emergency energy action plan.

18) Develop a long term strategy to provide for sustainable dairy operations within the area that complies with state and federal water quality requirements, and that proposes a strategy for the transition of the CBDA (Chino Basin Dairy Area) to potential urban reuses to the extent that the dairy operators intend to relocate.

19) Enhance opportunities to further conserve wildlife and open space uses within portions of the CBDA.

20) Allow for metropolitan and urban sustainability and "smart growth" programs.

21) Facilitate watershed management programs and to coordinate the use of organic materials previously characterized as "waste" to allow for the conversion of waste to energy.

22) Provide for salt recovery from manure to create better quality fertilizer.

Wastewater Facilities Master Plan

1) Provide an integrated water resource planning framework that addresses master planning of all current and future wastewater and wastewater related facilities.

2) Provide a plan for the implementation of projects that will be required to provide for expected population increases for both near term (10 years) and long-term (50 years) population needs within the Chino Basin.

3) Implement water conservation programs in a cost effective manner.

4) Identify opportunities to maximize the beneficial use of recycled and local groundwater supplies, proving the region with new local water resources to reduce the need for imported water.

5) Coordinate the implementation of the Chino Basin Optimum Basin Management Plan with other local water supplies to ensure efficient water resources management.

6) Develop a "drought proofing" strategy for the region and minimize future dependence on costly imported water supplies.

7) Provide and integrated and comprehensive strategy for water and wastewater infrastructure development.

8) Assist in implementing a salinity management action plan.

9) Work towards decreasing discharges to the SARI line to allow for regaining capacity needed for future brine disposal from inland desalters.

I. OVERRIDING CONSIDERATIONS

This section of the findings addresses the requirements in Section 15093 of the California Environmental Quality Act Guidelines. Section 15093 requires the Lead Agency to balance the benefits of the proposed project against its unavoidable significant adverse impacts, and to determine whether the project-related significant impacts can be acceptably overridden by the project benefits when the two are compared and balanced. As outlined in Section F above, the proposed project is forecast to contribute to cumulative, unavoidable significant adverse environmental impacts in one environmental category: air quality.

The IEUA Board finds that the previously stated benefits of the proposed project, outlined in Section H above and as will result from implementation of the IEUA Master Plans, outweigh the cumulative unavoidable adverse environmental effect to air quality that has been outlined above. In a region where water resources are limited; where wastewater generation will increase due to forecast population growth; and where organic waste generation will also increase due to forecast population growth, the Board concludes that these benefits outweigh the indirect, significant cumulative adverse effects to the region's air quality.

The Board's findings set forth in the preceding section shave identified all of the adverse environmental impacts and feasible mitigation measures which can reduce potential adverse environmental impacts to insignificant levels where feasible, or to the lowest achievable levels where significant unavoidable adverse environmental impacts remain. The findings have also analyzed two alternatives to determine whether they are reasonable or feasible alternatives to the proposed action, or whether these alternatives might reduce or eliminate the significant air quality impacts of the proposed action.

The Final Master Plans PEIR presents evidence that implementing the proposed project will contribute to significant adverse air quality impacts which cannot be substantially mitigated to an insignificant level. This significant air quality impact has been outlined above and presented in detail in the PEIR and the Board finds that all feasible alternatives and mitigation measures have been adopted or identified for implementation by IEUA and other agencies where appropriate. Other agencies may serve as CEQA Responsible Agencies for projects (recharge of recycled water in existing basins) and they will be required to implement mitigation measures outlined in the Final Master Plans PEIR, as is appropriate for a future specific project being considered by an agency under the Master Plans program.

The Board finds that the project's benefits are substantial as outlined in Section H of this document and that these benefits justify overriding the unavoidable significant adverse impacts associated with the proposed project. This finding is supported by the fact that many of the benefits listed above result in the project fulfilling a critical role for the IEUA in managing wastewater, reusing recycled water and managing organic wastes within their service area. These are critical societal management responsibilities, which if not properly managed, could result in much greater public health impacts and risks than the cumulative air quality impacts that may result from implementing the Master Plans. The Board further finds that the benefits outlined above, when balanced against the single unavoidable significant adverse environmental impact outweighs this impact because of the environmental, social, and economic benefits which accrue to IEUA and the residents in its service area as outlined in Section H of this document.

As the CEQA Lead Agency for the proposed action, the Board has independently reviewed the applicable sections of this document and the Master Plans PEIR, and fully understands the scope of the proposed project. Further, the Board finds that all potential adverse environmental impacts and all feasible mitigation measures to reduce these impacts have been identified in the PEIR, public comment, and public testimony. These impacts and mitigation measures are discussed in Section E and F and the Board concurs with the facts and findings contained in those sections. The Board also finds that a reasonable range of alternatives was considered in the PEIR, as summarized in Section G of this document and that no feasible alternatives which substantially lessen project impacts are available for adoption.

The Board concurs with the extensive environmental, economic and societal benefits identified above, which will accrue to IEUA and the population residing within its service area. The Board has balanced these substantial environmental, social and economic benefits against the unavoidable significant adverse environmental effect of the proposed project. Given that these substantial benefits will support the residents of the Chino Basin as a result of implementing the Master Plans, the IEUA Board hereby finds that the benefits identified herein, collectively and individually, outweigh the unavoidable, cumulative significant adverse air quality impact, and hereby override this impact to obtain the benefits listed in Section H that will result from approval and implementation of the three Master Plans.

COMMENT LETTERS AND RESPONSES TO COMMENTS OF THE DRAFT PROGRAM EIR

TOM DODSON & ASSOCIATES
2150 N. ARROWHEAD AVENUE
SAN BERNARDINO, CA 92405
TEL (909) 882-3612 • FAX (909) 882-7015
E-MAIL tda@tstonramp.com

MEMORANDUM

June 17, 2002

From: Tom Dodson

To: Mr. Gary Hackney, Inland Empire Utilities Agency

Subj: Completion of the Final Program Environmental Impact Report (PEIR) for the IEUA Master Plans

The Inland Empire Utilities Agency (IEUA) received written comments on the Draft PEIR for the three IEUA master plans (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan) from 27 agencies and interested parties. CEQA requires a Final EIR to consist of:

- the Draft EIR or a revised draft;
- comments and recommendations received on the Draft EIR;
- a list of persons, organization and public agencies commenting on the draft EIR;
- the responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
- any other information added by the lead agency.

In this case, the Draft PEIR has not been revised and Draft PEIR distributed for public review will be utilized as one component of the Final PEIR. Thus, this package, combined with the Draft PEIR, constitutes the Final PEIR. The following agencies and parties submitted written comments which are addressed in the attached Responses to Comments:

1. San Bernardino County Land Use Services Department
2. San Bernardino County Economic Development and Public Services Group
3. Chino Valley Independent Fire District
4. Department of the Army, Los Angeles District, Corps of Engineers
5. San Bernardino County, Department of Public Health, Environmental Health Services
6. City of Chino Hills
7. Cucamonga County Water District
8. Southern California Association of Governments
9. City of Rancho Cucamonga
10. City of Chino Hills
11. State of California, Department of Corrections, California Institution for Men
12. Associated Engineers, Inc.
13. South Coast Air Quality Management District

14. San Bernardino County, Department of Public Health, Environmental Health Services
15. California Regional Water Quality Control Board, Santa Ana Region
16. City of Chino
17. City of Ontario
18. City of Chino Hills
19. Chino Basin Watermaster
20. Western Municipal Water District
21. County of Orange Planning and Development Services Department
22. County Sanitation Districts of Los Angeles County
23. Orange County Water District
24. State Clearinghouse
25. Jurupa Community Services District
26. California Integrated Waste Management Board
27. California Department of Transportation, District 8

The Mitigation Monitoring and Reporting Program is attached as part of this Final PEIR package. Tom Dodson and Matthew Fagan will be attending the Board meeting on June 28, 2002 to address any questions that the Board members or other parties may have regarding the certification of the Final PEIR for the proposed project. Do not hesitate to give me a call if you have any questions regarding the contents of this package.

Tom Dodson

Tom Dodson

Attachments

COMMENT LETTER #1

LAND USE SERVICES DEPARTMENT

COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

PLANNING DIVISION
385 North Arrowhead Avenue • San Bernardino, CA 92415-0182 • (909) 387-4131
Current Planning Fax (909) 387-3249 • Advance Planning Fax (909) 387-3223
15505 Civic Drive • Victorville, CA 92392 • (760) 243-8245 • Fax (760) 243-8212
http://www.sbcounty.gov/landuseservices

MICHAEL E. HAYS
Director of Land Use Services

MAY 28 2002

MAY 24 2002

May 23, 2002

Mr. Gary Hackney
P.O. Box 697
Rancho Cucamonga, CA 91729

RE: REVIEW AND COMMENT ON THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR IMPLEMENTATION OF IEUA WASTEWATER, RECYCLED WATER, AND ORGANICS MANAGEMENT PLANS

Dear Mr. Hackney:

1-1 Thank you for providing San Bernardino County Land Use Services Department a copy of the Draft Environmental Impact Report (DEIR) for the above-stated proposed project. We have reviewed this document and have no comments at this time. Please continue to keep our office on the distribution list for the Final EIR. If you have any questions, please call me at (909) 387-4372.

Sincerely,

Matthew W. Slowik

MATTHEW W. SLOWIK, M.U.R.P.
Senior Associate Planner
Advance Planning Division

MWS:dja

C: Tom Dodson
A. Morgan
M. Wildermuth
J. Gundlach

Env Team\Comment Letters\IEUA Draft EIR Water-Wastewater-Organics Plan.doc

RESPONSES TO COMMENTS
LETTER #1
SAN BERNARDINO COUNTY
LAND USE SERVICES DEPARTMENT

1-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA will maintain the Department on their distribution list for these plans.

COMMENT LETTER #2

FLOOD CONTROL • REGIONAL PARKS • SOLID WASTE MGMT • SURVEYOR • TRANSPORTATION

ECONOMIC DEVELOPMENT AND PUBLIC SERVICES GROUP

825 East Third Street • San Bernardino, CA 92415-0835 • (909) 387-8104
Fax (909) 387-8130

KEN A. MILLER
Director of Public Works

May 29, 2002

MAY 31 2002

File#10(ENV)-4.01

Mr. Gary E. Hackney
Planning and Organics Management
Inland Empire Utilities Agency
P O Box 697
Rancho Cucamonga, CA 91729

REFERENCE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT WASTEWATER FACILITIES MASTER PLAN, WATER RECYCLING FEASIBILITY STUDY AND ORGANICS MANAGEMENT STRATEGY BUSINESS PLAN

Dear Mr. Hackney:

Thank you for giving the San Bernardino County Department of Public Works the opportunity to comment on the above-referenced project.

The site encompasses the following Flood Control District (District) Basins: Brooks Basin; 8th Street Basins; Ely Basins; Etiwanda Spreading Grounds; Hickory Basin; Day Creek Basin; San Sevaine Basins 1-5; Turner Basins 1-4; Victoria Basin; Banana Basin; Declez Basin; Etiwanda Conservation Basin; Jurupa Basin; & Wineville Basin.

2-1 The Water Resources Division's comments are as follows:

1. In general, it appears that the Draft has identified the major concerns of the District.

2-2

2. Prior to any activity on District right of way, a permit will be required from the District's Flood Control Operations Division, Permit Section. Site specific recommendations will be made upon the submittal of construction plans and supporting data.

2-3

3. Regarding Item 4.5-9:

   This item refers to the establishment of a management plan that would (in part): a) ensure safety of surrounding property and people, b) establish a priority of flood-control functions over and above recharge-related operations, c) monitor weather forecasts for upcoming storms, d) establish criteria for resuming recharge deliveries, and e) determine allowable basin capacities suitable for recharge that would not restrict flood control needs.

The Water Resources Division would most likely play a significant role in the implementation of such a plan. Considering the plan's magnitude, we recommend that the Inland Empire Utility Agency contact this Division at the earliest opportunity. Please contact Mary Lou Mermilliod at (909) 387-8213.

C: [illegible]
M. L. [illegible]

RESPONSES TO COMMENTS
LETTER #2
SAN BERNARDINO COUNTY
ECONOMIC DEVELOPMENT AND
PUBLIC SERVICES GROUP

2-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

2-2 IEUA in cooperation with the Chino Basin Watermaster and Chino Basin Water Conservation District understand that permits must be obtained to work within District=s right-of-way and have already established procedures for acquisition of such permits. IEUA will continue to work closely with the District as the master plans are implemented.

2-3 Discussions have already been initiated with the District regarding a mutually acceptable management agreement for recharge activities. This agreement is intended to be in place before recharge of the basins actually begins.

2-4

The Traffic Division's comments are as follows:

The mitigations outlined in section 4.7.4 of the report, to reduce potential significant adverse circulation systems impacts to a level of non significance, should be made to reflect the following:

A traffic study shall be prepared for each IEUA development project having the potential of generating sufficient passenger equivalent trips to impact local circulation systems to a level that degrades the level of service to worst than desired in the local agency circulation element of their general plan.

2-5

The San Sevaine/Etiwanda Project Division's comments are as follows:

1. Page 3-43, Items 9 and 10, San Sevaine Basins 1, 2 and 3 and San Sevaine Basins 4 and 5. This is actually a series of five (5) Basins, Basin No. 3 goes into Basin No. 4.

   San Sevaine Basin No. 5 outlets into San Sevaine Channel. The Flood Control Channel from north of Highland Avenue/I-30 (210) Freeway to Foothill Boulevard is a double parallel channel. The east channel is San Sevaine Channel, the west channel is Etiwanda Channel. At Foothill Boulevard, San Sevaine Channel continues due south, existing Etiwanda Channel continues southwest in its historic flow path. The District's San Sevaine Creek Water Project will provide a RCB culvert at Foothill Boulevard to combine the San Sevaine and Etiwanda Channel flows into a single channel to the San Bernardino/Riverside County line. The RCB culvert will be the last item of work constructed for the San Sevaine Creek Water Project.

2-6

2. Page 3-48, Table 3-13, Victoria Basin will have a turnout from both the Etiwanda Channel and the San Sevaine Channel.

2-7

3. Page 3-49, Table 3-14, Etiwanda Spreading Grounds do not receive flows from Henderson Channel. Flows in Henderson Channel, Wardman Channel and Morse Creek are collected into a channel and outlet into the west side of San Sevaine Spreading Grounds, north of Summit Avenue.

   Hickory Basin also has a turnout from San Sevaine Channel into the basin. San Sevaine Basin No. 5 will also have a turnout from Etiwanda Channel into the basin.

2-8

4. Page 3-51, Table 3-15, Jurupa Basin receives flows from San Sevaine Channel. Mulberry Creek Channel enters San Sevaine Channel at the I-10 Freeway. Mulberry Creek Channel is also known as the I-10 Channel.

Responses to Comment Letter #2 (continued)

2-4 IEUA will revise mitigation measure 4.7-4, but believes that there are *de minimus* levels of trip generation below which a traffic study is not required. IEUA suggests that this value is 200 trips per day, with no more than 50 trips during the morning and evening peak hours. Beyond this threshold, if traffic counts indicate that V/C ratios on affected streets may be reduced below a local level of service threshold (LOS), a traffic study will be prepared.

2-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Final PEIR text will be modified to incorporate this information

2-6 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Final PEIR text will be modified to incorporate this information.

2-7 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Final PEIR text will be modified to incorporate this information.

2-8 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Final PEIR text will be modified to incorporate this information.

5. Page 3-107, Etiwanda Spreading Grounds. The Etiwanda Debris Basin to be constructed by the San Sevaine Creek Water Project, north of 24th Street (Wilson Street), will be a State Department of Water Resources Division of Safety of Dams (DSOD) jurisdictional facility.

2-9

The Lower Etiwanda Spreading Grounds are being used as a conservation area for the San Sevaine Creek Water Project. Three San Bernardino kangaroo rats (SBKR) were trapped in the Lower Spreading Grounds several years ago. This area is also within the critical habitat for SBKR and California gnatcatcher. The U. S. Fish and Wildlife Service (Service) will have to be contacted regarding the use of the Lower Spreading Grounds for the recycled water pipeline and inlet structure. The Service has expressed concerns regarding the recycled water going into the Lower Spreading Grounds.

2-10

6. Page 3-108, Hickory Basin – The District has recently improved Hickory Basin as part of the San Sevaine Creek Water Project at a cost of over $3 million. The basin is a DSOD jurisdictional facility. The basin levees are a graded material, compacted to DSOD requirements. Any excavation through the levees will require approval from DSOD and the District. The District has constructed a concrete outlet spillway, enlarged the basin, and constructed an interior levee for water conservation. There is a 36-inch gated outlet pipe and a 36-inch ungated outlet pipe that both go into San Sevaine Channel. There is also an existing 48-inch turnout from San Sevaine Channel into Hickory Basin. Any proposed excavation for pipelines and pumps will need review and approval by DSOD. The Bureau of Reclamation (Bureau) should also be advised of the proposed additional improvements.

2-11

7. Page 3-111, San Sevaine Basin Nos. 4 and 5. The District is not providing any improvements in Basin No. 4 other than enlarging the spillway from Basin No. 4 into Basin No. 5. The District has a construction project that should advertise sometime this year (2002). The project will enlarge the basin, deepen the basin and raise the levees. The District will construct an interior levee for water conservation and a portion of the 48-inch inlet pipe from Etiwanda Channel will be constructed through the north levee. The inlet will be completed when the Etiwanda Channel turnout structure is constructed. There is an existing 96-inch gated basin drain. The District will construct an ungated 8-foot wide by 10-foot high RCB culvert through the embankment under the new concrete spillway that will be constructed as part of the San Sevaine Creek Water Project. This will be a DSOD jurisdiction facility. Any pipelines and inlet structures will require DSOD review and approval. The Bureau should be advised of any other proposed improvements that are not part of the Bureau project.

2-12

8. Page 3-114. Victoria Basin – The District was to design and construct a turnout from Etiwanda Channel. The District was also going to design and construct a turnout from San Sevaine Channel into Victoria Basin. IEUA and the Chino Basin Watermaster have requested and are taking over the design of the two turnouts and will fund the construction of both turnouts into Victoria Basin.

Responses to Comment Letter #2 (continued)

2-9 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA and Watermaster are aware of the concerns by the Service and in coordination with the District will carry out the appropriate consultations prior to initiating modifications or recharge within the spreading grounds.

2-10 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA in cooperation with the Chino Basin Watermaster and Chino Basin Water Conservation District understand that additional permits will be required from the Division of Safety of Dams (DSOD) to make modifications within Hickory Basin. IEUA will continue to work closely with the District as the recycled water master plan is implemented, including any required consultation with the Bureau of Reclamation.

2-11 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Please refer to response to comment 2-10.

2-12 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

RE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT WASTEWATER FACILITIES MASTER PLAN, WATER RECYCLING FEASIBILITY STUDY AND ORGANICS MANAGEMENT STRATEGY BUSINESS PLAN

9. Page 3-118, Jurupa Basin – The District is improving Jurupa Basin as part of the San Sevaine Creek Water Project. The concrete spillway, two gated outlet pipes (78-inch and 96-inch), and an 84-inch ungated pipe have been completed, as well as the construction of the levee embankments and portion of San Sevaine Channel adjacent to the basin. The last phase (Phase III) includes the channel, weir, and inlet channel structure into the basin. The District will also construct a 48-inch turnout from San Sevaine Channel into Jurupa Basin and an interior levee for water conservation. Jurupa Basin is also a DSOD jurisdictional facility and will require DSOD approval for any pumps and pipelines to be constructed through the levee embankment. The Bureau should also be advised of any
2-13 proposed improvements that are not part of the San Sevaine Creek Water Project.

This Division provides only a cursory review of this Environmental Impact Report as it pertains to the San Sevaine Creek Water Project, which includes Bureau of Reclamation funding. The District also has Army Corp of Engineers' 404 permit conditions, California Regional Water Quality Control Board conditions, California Department of Fish and Game Streambed Alteration Agreement and a U. S. Fish and Wildlife Service Biological Opinion, with terms and conditions that the District has to implement. These items will also have to be taken into consideration by this proposed Environmental Impact Report.

Should there be any changes to this project, please notify our Department so that we may have the opportunity to comment on the changes. If you have any questions or need additional information please contact Ms. Kelly A. Rozich at (909) 387-8114.

Sincerely,

NARESH P. VARMA, Chief
Environmental Management Division

NPV:KR/West End Utilities Master Plans-Response.doc

cc: Mike Fox, Water Resources
William Collins, San Sevaine/Etiwanda
Jacob Babico, Traffic Division
Kelly A. Rozich, Environmental Management
KAM/PJM Reading File

Responses to Comment Letter #2 (continued)

2-13 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

COMMENT LETTER #3

Chino Valley Independent Fire District

2005 Grand Avenue
Chino Hills, CA 91709
(909) 902-5260 Administration
(909) 902-5280 Fire Prevention
(909) 902-5250 Fax

May 7, 2002

Inland Empire Utilities Agency
Mr. Gary Hackney
P.O. Box 697
9400 Cherry Avenue, Building A
Fontana, CA 92335

MAY - 9 2002

RE: WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLANS FIRE PROTECTION COMMENTS

Dear Mr. Hackney:

The Fire District has reviewed the Program Environmental Impact Report for the IEUA Wastewater, Recycled Water and Organics Management Plans (dated April, 2002). Fire protection requirements for the project are outlined below:

All development is to comply with current fire protection requirements, including Fire District standards. All development and construction plans are to be submitted directly to the Fire District for review and approval.

All Fire District access standards are to be complied with, including road widths at a minimum of 26 feet (without parking) and a minimum of 13 feet 6 inch height clearance.

3-1 Buildings with fire sprinklers require a maximum of 4,000 gallons per minute (gpm) for a 4-hour duration, and a minimum of 1,500 gpm for a 2-hour duration, based on square footage.

Recycled water is not to be used for fire protection systems.

Any increase in the quantity or types of hazardous materials used is to be submitted to the Fire District and County of San Bernardino Environmental Health for review and approval.

Please let us know if further clarification is needed. We appreciate the opportunity to continue to be involved in this planning process.

Sincerely,

Paul L. Benson
Fire Chief

By: Tom J. Maxham
Division Chief

RESPONSES TO COMMENTS
LETTER #3
CHINO VALLEY INDEPENDENT FIRE DISTRICT

3-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). For those facilities requiring fire protection, IEUA will incorporate Fire District standards and coordinate review of designs with the District.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. Box 532711
LOS ANGELES, CALIFORNIA 90053-2325

May 7, 2002

REPLY TO
ATTENTION OF:

Office of the Chief
Operations Branch

MAY 14 2002

Mr. Gary Hackney
Inland Empire Utility Agency
9400 Cherry Avenue, Building "A"
Fontana, CA 92335

Dear Mr. Hackney;

4-1 The Corps Operations staff has received a copy of your CEQA document, *Program Environmental Impact Report for the Wastewater Facilities Master Plan - Recycled Water Master Plan - Organics Management Master Plan.* According to your map, *3.4 Regional & Local Recycled Water Distribution System*, a portion of this project involves Federal (Corps) property in the Prado Flood Control Basin, (FCB) such as the Pine Avenue pipeline, Phase 1. This CEQA document is insufficient for our review because NEPA review is required for projects involving Federal funding, permits and/or property. Your project fits into the last category.

4-2 In your NEPA document please discuss only those aspects of your project, which effect or impact Corps fee property at Prado FCB. Please do not discuss your flowage easement lands in the NEPA document. Our lack of comments to your CEQA document does not imply Corps approval. Any portion of IEUA's project on Federal land will require independent NEPA review. Katie Parks is the Corps POC for Prado, at 213.452.3399.

RESPONSES TO COMMENTS
LETTER #4
DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT
CORPS OF ENGINEERS

4-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). If and when IEUA proposes any project=s that may involve federal property, IEUA will submit application and coordinate the requisite NEPA review with the Corps District office.

4-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Upon implementing a project within the Corps= jurisdiction, a narrowly defined project description will be provided to the Corps for review and any site specific environmental data will be provided as required by NEPA.

4-3 Carvel Bass and Phyllis Träbold are handling NEPA review of your project. at 213.452.3392 / 213.452.3391, respectively. We recommend a meeting at your plant on El Prado Road to discuss the NEPA document.

Sincerely,

Charles S. Nguyen

for GEORGE L. BEAMS, P.E.,
Chief, Construction-
Operations Division

Responses to Comment Letter #4 (continued)

4-3 IEUA will work with the identified points of contact in this comment to fulfill NEPA requirements when necessary.

COMMENT LETTER #5

DEPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO
HUMAN SERVICES SYSTEM

ENVIRONMENTAL HEALTH SERVICES

- [x] 385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
- [ ] 1647 East Holt Boulevard • Ontario, CA 91764 • (909) 458-9673
- [ ] 15505 Civic Drive • Victorville, CA 92392 • (760) 243-8141
- [ ] 17780 Arrow Boulevard • Fontana, CA 92335 • (909) 356-6444
- [ ] San Bernardino County Vector Control Program
2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 388-4600

THOMAS J. PRENDERGAST, JR., MD, MPH
Director of Public Health

DANIEL J. AVERA, REHS
Chief, Division of Environmental Health

Also serving the cities of:

Adelanto	Montclair
Apple Valley	Needles
Barstow	Ontario
Big Bear Lake	Rancho Cucamonga
Chino	Redlands
Chino Hills	Rialto
Colton	San Bernardino
Fontana	Twentynine Palms
Grand Terrace	Upland
Hesperia	Victorville
Highland	Yucaipa
Loma Linda	Yucca Valley

May 10, 2002

MAY 13 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
Rancho Cucamonga, CA 91729

SUBJECT: **LEA COMMENTS ON DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (DPEIR) FOR THE WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT MASTER PLAN.**

Dear Mr. Hackney:

Thank you for sending a copy of the above-stated DPEIR to the LEA for review and comment. After review of the DPEIR, it is unclear what level of regulatory permit or approval is needed for each proposed composting project under the Organics Management Plan. In order to help identify environmental issues and determine the regulatory permit tier, the following comments and questions should be addressed in future project specific environmental documents:

- Quantities and types of materials to be accepted/handled/processed.
- Design capacity.
- 5-1 Quantities of residuals/contaminants in the feedstocks.
- Sources of input materials (including sludge).
- Permitted area (acreage), facility, and operations area boundaries.
- Traffic volume.
- Quantities and types of materials to be "stored" as defined in Chapter 3 of Title 14.
- Prohibited wastes.
- Environmental impacts associated with crushing, grinding screening, baling, or other processing at the facility.
- Load-checking/hazardous waste prevention.
- Litter control.
- Drainage/erosion control.
- Hours open to the public/hours of site activities.

5-1 cont.

- Proposed sampling and pathogen reduction method(s).
- Potential creation of health hazards and/or public nuisances including:
  - Noise
  - Odors
  - Dust
  - Vectors

If you have any questions, please call me at (909) 387-4655.

Sincerely,

Gregory Adams For

Raymond A. Britain, REHS
Waste Management/LEA Section

RAB:ar

RESPONSES TO COMMENTS
LETTER #5
SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SERVICES

5-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Upon implementing a specific organics management project, IEUA will submit all of the requisite information identified in this comment to the Local Enforcement Agency to use in obtaining appropriate permits for the facility.

COMMENT LETTER #6

CITY OF CHINO HILLS

2001 Grand Avenue
Chino Hills, California 91709-4869
(909) 364-2600 · (909) 364-2695 Fax

MAY 21 2002

MAY 21 2002

May 15, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

Re: Draft Program Environmental Impact Report for The Inland Empire Utilities Agency (IEUA) Wastewater, Recycled Water and Organics Management Plans

Dear Mr. Hackney:

Thank you for the opportunity to comment on the subject Draft Program Environmental Impact Report (PEIR).

6-1 The proposed project evaluated in the PEIR encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin. As stated in the PEIR, NOx emissions from the project operations are expected to exceed the threshold of significance and other than compliance with SCAQMD rules, regulations and permit conditions no further mitigation can be identified.

We respectfully request that the IEUA make every effort to research and investigate all feasible mitigation measures and to identify and implement the appropriate mitigation measure(s) to ensure that the NOx emissions are not significant.

Please feel free to call me if you have any questions regarding this matter.

Sincerely,

Douglas N. LaBelle,
City Manager

Cc: Mayor and City Council

RESPONSES TO COMMENTS
LETTER #6
CITY OF CHINO HILLS

6-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). It is important to note that the majority of nitrogen oxide emissions are associated with energy consumption and due to the large amount of energy required to move water and material from one place to another, it will be difficult to reduce such emissions below those already achieved by electricity generators and vehicle manufacturers. However, the City may want to take into consideration that the programs being implemented under the IEUA master plans will substantially reduce air emissions within the region. Specifically:

a. By using recycled water and storm water recharge the volume of imported State Water Project (SWP) water will be reduced by an equivalent amount. Based on previous calculations by IEUA, energy required to deliver SWP water is about 5-10 times that required to move water around in the Basin

b. Very substantial motor vehicle emissions (including substantial NOx emissions from heavy duty trucks) will be eliminated within the South Coast Air Basin as a result of reducing vmt for transport of organic wastes out of the Basin. These emission reductions have not been quantified, but they will be substantial since round trip distances will be reduced from 50-100 miles to 5-10 miles, essentially an order of magnitude reduction in emissions.

c. A substantial amount of ammonia, particulate and VOC emissions will be eliminated by managing organic wastes within enclosed facilities relative to the current situation.

Overall, IEUA believes that it will have offset most if not all of the NOx emissions from operations. However, on a case-by-case basis, the Agency must obtain permits for its own energy generation equipment and if any emissions exceed permitted thresholds, then the Agency is required to provide offsets in accordance with SCAQMD rules and regulations.

COMMENT LETTER #7

CCWD

Cucamonga County Water District

10440 Ashford Street
Rancho Cucamonga, CA 91729-0638
P.O. BOX 638 • (909) 987-2591 • Fax (909) 476-8032

Robert A. DeLoach
General Manager
Chief Executive Officer

MAY 21 2002

May 16, 2002

Gary Hackney, P.E.
Manager of Planning and Process Engineering
Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg.
Fontana, CA 92335

Subject: Inland Empire Utilities Agency Program Environmental Impact Report for the Wastewater, Recycled Water and Organics Management Master Plans.

Dear Mr. Hackney;

7-1 As a member of the Regional Sewerage Program, the Cucamonga County Water District is very supportive of the progress in the preparation and planning that has been taken by IEUA to develop plans for addressing issues regarding wastewater, recycled water and the handling of biosolids generated at the treatment plants. All issues and hopefully several answers will be forth coming with the approval of the above referenced PEIR. This District believes this PEIR is the stepping stone to providing a pathway for all agencies in the Chino Basin area to address water shortage problems, water quality problems and a fast growing solids handling problem.

7-2 The few significant impacts indicated in the PEIR can be mitigated and will be greatly offset by the other areas of positive impact that will be generated by the implementation of the Wastewater, Recycled Water and Organics Management Master Plans. This District appreciates the opportunity to review and respond to the PEIR and look forward to continued communications as these projects are implemented.

Yours truly,
CUCAMONGA COUNTY WATER DISTRICT

James H. Cline Jr.
Special Projects Administrator

RESPONSES TO COMMENTS
LETTER #7
CUCAMONGA COUNTY WATER DISTRICT

7-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

7-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

May 29, 2002

Mr. Gary Hackney, P.E.
Manager
Planning and Process Engineering
Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

RE: **Comments on the Draft Program Environmental Impact Report for the IEUA Wastewater, Recycled Water and Organics Management Plans - SCAG No. I 20020235**

Dear Mr. Hackney:

8-1 Thank you for submitting the **Draft Program Environmental Impact Report for the IEUA Wastewater, Recycled Water and Organics Management Plans** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations.

Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you.

Sincerely,

Jeffrey M. Smith

JEFFREY M. SMITH, AICP
Senior Planner
Intergovernmental Review

c: T. Dodson
M. Wildermuth
J. Dundlach
J. Morgan

RESPONSES TO COMMENTS
LETTER #8
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

8-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

COMMENTS ON THE DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE IEUA WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT MASTER PLANS SCAG NO. I 20020235

PROJECT DESCRIPTION

The proposed Project considers the implementation of management master plans for wastewater, recycled water and organic materials with in the IEUA service area.

INTRODUCTION TO SCAG REVIEW PROCESS

The document that provides the primary reference for SCAG's project review activity is the Regional Comprehensive Plan and Guide (RCPG). The RCPG chapters fall into three categories: core, ancillary, and bridge. The Growth Management (adopted June 1994), Regional Transportation Plan (adopted April 2001), Air Quality (adopted October 1995), Hazardous Waste Management (adopted November 1994), and Water Quality (adopted January 1995) chapters constitute the core chapters. These core chapters respond directly to federal and state planning requirements. The core chapters constitute the base on which local governments ensure consistency of their plans with applicable regional plans under CEQA. The Air Quality and Growth Management chapters contain both core and ancillary policies, which are differentiated in the comment portion of this letter. The Regional Transportation Plan (RTP) constitutes the region's Transportation Plan. The RTP policies are incorporated into the RCPG.

Ancillary chapters are those on the Economy, Housing, Human Resources and Services, Finance, Open Space and Conservation, Water Resources, Energy, and Integrated Solid Waste Management. These chapters address important issues facing the region and may reflect other regional plans. Ancillary chapters, however, do not contain actions or policies required of local government. Hence, they are entirely advisory and establish no new mandates or policies for the region.

8-2 Bridge chapters include the Strategy and Implementation chapters, functioning as links between the Core and Ancillary chapters of the RCPG. Each of the applicable policies related to the proposed project are identified by number and reproduced below in italics followed by SCAG staff comments regarding the consistency of the Project with those policies.

Responses to Comment Letter #8 (continued)

8-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Agency notes that based on a review of all the consistency evaluations, the master plans are consistent with and conform with the relevant policies of the regional plans.

SUMMARY OF SCAG STAFF COMMENTS

1. The Draft PEIR provides a discussion of the relationship of the proposed Project to **applicable regional plans** as required by Section 15125 [d] of Guidelines for Implementation of the California Environmental Quality Act.

8-3 2. The Final PEIR should address the relationships (consistency with core policies and support of ancillary policies) to SCAG's Regional Comprehensive Plan and Guide, utilizing commentary from the following detailed SCAG staff comments. The response should also discuss any inconsistencies between the proposed project and applicable regional plans. We suggest that you identify the specific policies, by policy number, with a discussion of consistency or support with each policy.

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The Growth Management Chapter (GMC) of the Regional Comprehensive Plan and Guide contains a number of policies that are particularly applicable to the IEUA Wastewater, Recycled Water and Organics Management Plans.

Core Growth Management Policies

3.01 The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.

8-4 SCAG staff comments. The Draft PEIR references SCAG's current growth forecasts (2001 RTP Growth Forecasts) in Section 4.3 (Population and Housing). The analysis concludes the proposed Project will provide adequate capacity to accommodate growth. The Project is consistent with this core RCPG policy.

3.03 The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.

8-5 SCAG staff comments: The Draft PEIR, on page 3-4, provides a discussion on project characteristics and phasing. The proposed Project will be developed in multiple phases over 20+-year period. Infrastructure improvements and services will be implemented concurrently with each phase of development. The Project is consistent with this core RCPG policy

Responses to Comment Letter #8 (continued)

8-3 As noted in response to comment 8-2, a review of comments indicates that the master plans are consistent with the Regional Comprehensive Plan and Guide.

8-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

The 2001 Regional Transportation Plan (RTP) also has goals, objectives, policies and actions pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. Among the policies of the RTP are the following:

Core Regional Transportation Plan Policies

4.02 Transportation investments shall mitigate environmental impacts to an acceptable level.

8-6 SCAG staff comments. The Draft PEIR in Section 4.7 (Traffic/Circulation) identifies traffic related construction and operation impacts and recommends improvement measures to mitigate these impacts. The Project is consistent with this core RCPG policy.

4.04 Transportation Control Measures shall be a priority.

8-7 SCAG staff comments. The Draft PEIR in Sections 4.7 (Traffic/Circulation) includes a mitigation measure that addresses the extent to which the Project considers the implementation of Transportation Demand Measures. The Project is consistent with this core RCPG policy.

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates.

3.18 Encourage planned development in locations least likely to cause adverse environmental impact.

8-8 SCAG staff comments. The Summary Section of the Draft PEIR includes Table 1.2-1, Summary of Impacts and Mitigation Measures, which lists environmental

Responses to Comment Letter #8 (continued)

8-6 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-7 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-8 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-8 cont. impacts of the proposed project and summarizes the types of measures to mitigate the impacts outlined in the Draft PEIR. The Project is proposed in a manner that will minimize the environmental impacts. The Project is supportive of this ancillary RCPG policy.

3.20 *Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.*

8-9 SCAG staff comments. The Draft PEIR in Section 4.8 (Biological Resources) discusses the Projects' impacts on riparian habitat, wetlands, vegetation sensitive species, and wildlife. Mitigation measures have been recommended to address the identified impacts. The Project is supportive of this ancillary RCPG policy.

3.22 *Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.*

8-10 SCAG staff comments. The 2nd Draft PEIR in Section 4.4 (Geological Setting) identifies potential impacts related to fault rupture, ground shaking, liquefaction and landslide. Mitigation measures are recommended to address identified impacts through the implementation of building codes and specific requirements and/or project design. The Project is supportive of this ancillary RCPG policy.

3.23 *Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans*

8-11 SCAG staff comments. See SCAG staff comments on policies 3.18, 3.20 and 3.22. The Draft PEIR, in Section 4.9 (Noise) identifies potential short and long-term impacts related to construction and operations noises. Mitigation measures included in this section have been recommended to address the identified impacts. The Project is supportive of this ancillary RCPG policy.

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter (AQC)** core actions that are generally applicable to the Project are as follows:

8-12 5.07 *Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle*

Responses to Comment Letter #8 (continued)

8-9 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-10 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-11 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-12 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). For additional information regarding air quality please refer to response to comment 6-1.

services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.

8-12 cont.

<u>SCAG staff comments.</u> See SCAG staff comments on policy 4.04. The proposed Project considers the implementation of demand management based programs. The Project is consistent with this core RCPG policy.

5.11 Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.

8-13 <u>SCAG staff comments.</u> The Draft PEIR, in Section 4.7 (Air Quality), discusses regional, local and Project air quality relationships and regulatory requirements. Mitigation measures are recommended to address emission impacts related to construction and operations. The Project is consistent with this core RCPG policy.

WATER QUALITY CHAPTER RECOMMENDATIONS AND POLICY OPTIONS

The Water Quality Chapter core recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters.

11.07 Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.

8-14 <u>SCAG staff comments.</u> The proposed Project includes the proposed implementation of a Recycled Water Master Plan. The master plan consists of a series of recycled water infrastructure facilities for the use of recycled water. The Project is consistent with this core RCPG policy.

CONCLUSIONS AND RECOMMENDATIONS:

1. As noted in the staff comments, the Draft Program Environmental Impact Report for
8-15 the IEUA Wastewater Facilities, Water Recycling and Organics Management Master Plans is consistent with or supports some of the core and ancillary policies in the

8-13 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-14 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-15 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

8-15 cont. Regional Comprehensive Plan and Guide.

8-16 2. As noted in the General Staff Comments, the Final Program Environmental Impact Report should address the relationships (consistency with core policies and support of ancillary policies) to SCAG's Regional Comprehensive Plan and Guide and discuss any inconsistencies between the proposed project and applicable regional plans.

8-17 3. All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA.

Responses to Comment Letter #8 (continued)

8-16 Since SCAG has not identified any inconsistencies with regional policies, the existing analysis is assumed to meet the intent of this comment.

8-17 A mitigation monitoring and reporting program has been developed for all mitigation measures, and these measures will be implemented, as appropriate, on a project-by-project basis in the future.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) is a ***Joint Powers Agency*** established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. '134, 49 U.S.C. '5301 et seq., 23 C.F.R. '450, and 49 C.F.R. '613. SCAG is also the designated ***Regional Transportation Planning Agency,*** and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080 and 65082 respectively.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan,*** pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. '7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the State Implementation Plan, pursuant to 42 U.S.C. '7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, Environmental Impacts Reports of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. '1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency.***

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment,*** pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the Association of Bay Area Governments, the Sacramento Area Council of Governments, and the Association of Monterey Bay Area Governments) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

Revised July 2001

COMMENT LETTER #9

THE CITY OF

RANCHO CUCAMONGA

June 5, 2002

JUN 6 2002

Mr. Gary Hackney, Manager
Planning and Process Engineering
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

SUBJECT: WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN AND ORGANICS MANAGEMENT MASTER PLAN – PROGRAM ENVIRONMENTAL IMPACT REPORT

Dear Mr. Hackney:

We appreciate the opportunity to comment on the Draft Program Environmental Impact Report (EIR) for the above referenced project. At this time, the City does not have any comments on the environmental evaluations contained in the EIR.

Please be aware however, that the City will be extending Young's Canyon Road along the southern boundary of San Sevaine Basin 3 to Cherry Avenue. Refer to the attached exhibit, which identifies the proposed extension. The City requests that the final design, alignment, and
9-1 grading plans for Basin 3 take into account the City's plans for the Young's Canyon Road extension.

Though we have no comments on the EIR, we would appreciate being notified of any future developments occurring with the proposed project and San Sevaine Basin 3. We request participation in reviewing any final design, alignment, and/or grading plans for Basin 3.

If you have any further questions, please contact me or Larry Henderson at (909) 477-2750, Monday through Thursday, from 7:00 a.m. to 6:00 p.m.

Sincerely,

PLANNING DEPARTMENT

Brad Buller
City Planner

BB:DM/ls

c: T. Dodson
M. Wildermut
A. Morgan
J. Gundlach

RESPONSES TO COMMENTS
LETTER #9
CITY OF RANCHO CUCAMONGA

9-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA is working with the Chino Basin Watermaster on the designs for San Sevaine Basin 3 and will ensure that the City is included in the design review for this project. The City will be notified and afforded an opportunity to review the design when it is completed to ensure that the City=s proposed extension of Young=s Canyon Road is taken into consideration.

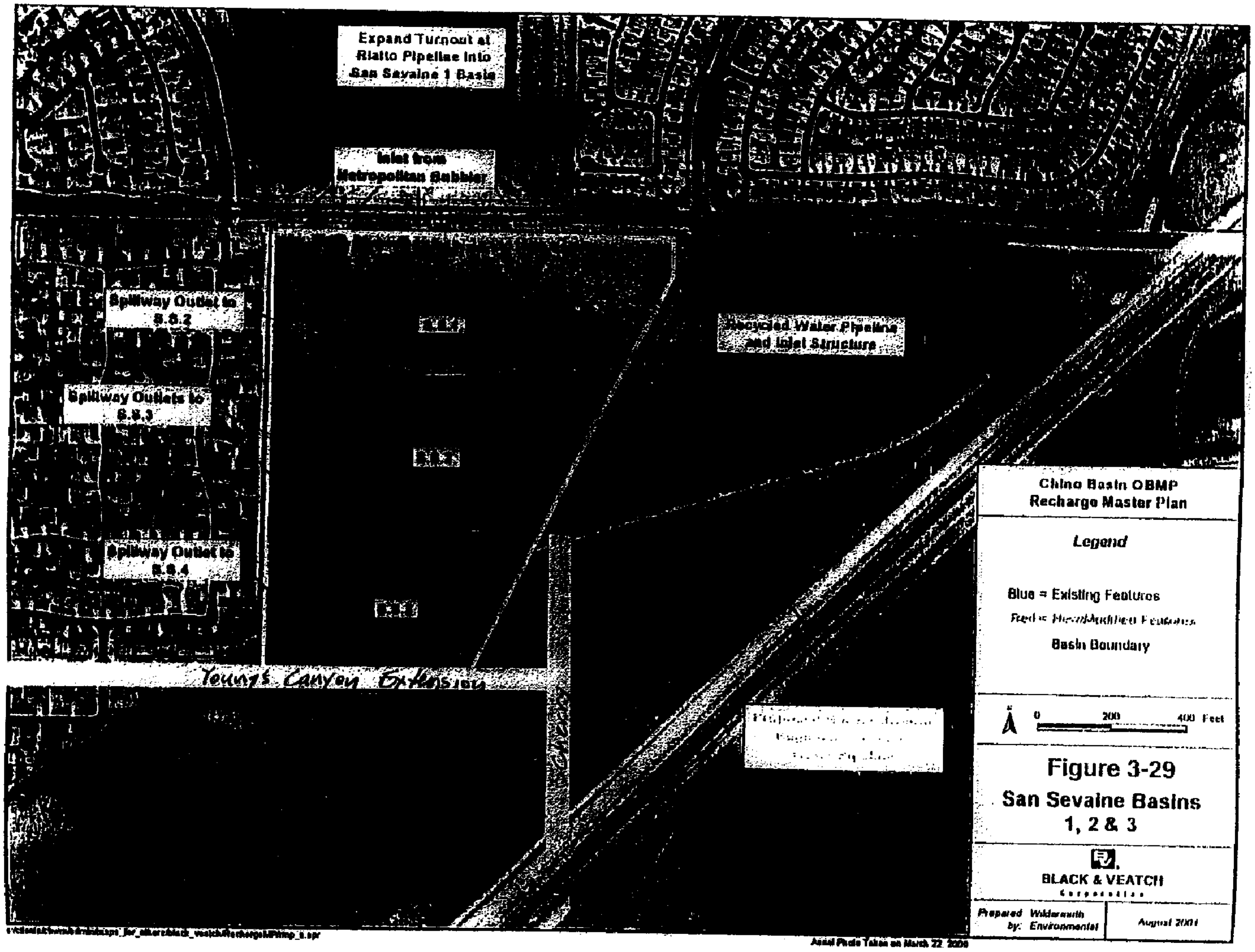

Figure 3-29
San Sevaine Basins
1, 2 & 3

COMMENT LETTER #10

CITY OF CHINO HILLS

2001 Grand Avenue
Chino Hills, California 91709-4869
(909) 364-2600 • (909) 364-2695 Fax

Ed M. Graham
W.C. "Bill" Kruger
Gary G. Larson
Gwenn E. Norton-Perry
James S. Thalman

June 3, 2002

JUN 6 2002

Richard Atwater
Executive Director
Inland Empire Utility Agency
9400 Cherry Avenue, Building A
Fontana, California 92335

Re: Draft Program EIR re Wastewater, Recycled Water and Organics Master Plans ("EIR")

Dear Richard:

10-1 The City is in receipt of the above-referenced EIR. While we are still reviewing such, it has come to our attention that there are potential projects identified in the EIR that are not allowed under the August 1, 2002 "Biosolids/Waste Treatment Agreement ("Agreement")" entered into by the IEUA and the City of Chino Hills.

10-2 To date, the City has identified the following proposed projects that are inconsistent with the Agreement:

Koopal Property: Section 2.2 of the Agreement provides that the facilities on the site are limited to those set forth in the IEUA's July 11, 2001 Mitigated Negative Declaration ("MND"). Moreover, the agreement provides that the project on the site cannot be expanded beyond the phase 2, 1.75 megawatt parameters set forth in the MND.

The EIR (page 3-70) states that "The ultimate power production for the project will be approximately 1,500 to 2,000 kilowatts. Thus, the EIR is inconsistent with the Agreement to the extent it might provide for the project to produce in excess of 1.75 megawatts.

10-3 **CIM/RP-5:** Section 3 and 4 set forth the facilities that are permitted to operated at CIM and RP-5. CIM is allowed to have a fully enclosed odorless composting facility that processes no more than 30,000 tons a year (with a cap of 10,000 dry tons of animal manure). RP-5 is allowed to build "sewage treatment facilities"

C: T. Dodson
M. Wildermuth
M. ...

RESPONSES TO COMMENTS
LETTER #10
CITY OF CHINO HILLS

10-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

10-2 Your comment is correct. The upper value at the Koopal Property should be 1.75 megawatts (1750 kilowatts), not 2000 kilowatts. The Final PEIR will be revised to incorporate this change.

10-3 Upon review, it appears that the statement on page 3-72 of the PEIR, relating to consideration of relocating the CIM facility to the RP-5 site, could be considered contrary to the August 1, 2001 agreement. IEUA intends to comply with the August 1, 2001 Chino Hills Agreement. Any alternative plans at the RP-5 site will be reviewed with the City prior to revising the affected facilities at the RP-5 site.

that were approved in the IEUA's 1999 EIR for the site. Additionally, RP-5 can be used for processing dairy wash water in the same manner as human waste.

The EIR (page 3-72) states:

10-3 cont.

> The initial plan (for CIM) would be to construct a 30,000 ton per year facility some time between 2005 and 2009. The design would be modular and potentially expandable to about 120,000 tons per year to treat biosolids, manure and green material. As an alternative, IEUA may consider locating the proposed CIM facility operations on the RP-5 site, which is located immediately south of the CIM facility.

This statement in the EIR is directly contrary to the terms of the Agreement.

10-4 We are assuming at this point that those involved in the preparation of the EIR were unaware of the terms of the Agreement. Given the Agreement was executed less than a year ago, it does not seem likely that the IEUA is intentionally ignoring the terms of the Agreement.

10-5 Given the importance of this issue to the City of Chino Hills and the IEUA I would request an extension until June 30, for our comments to thoroughly review the EIR and ensure that there are no other provisions in the document contrary to our Agreement. I would suggest that our respective staffs schedule a meeting to review these matters as soon as possible. After all of the objectionable provisions are identified, the IEUA should then strike such provisions from the EIR.

I look forward to discussing this matter with you at your earliest convenience.

Sincerely,
CITY OF CHINO HILLS

Douglas N. LaBelle
City Manager

Responses to Comment Letter #10 (continued)

10-4 The assumption in this comment is correct.

10-5 The schedule for finalizing the PEIR remains June 28, 2002. IEUA staff is available to meet with the Chino Hills staff at any time to address these issues. However, where the PEIR contains content that is in conflict with the August 1, 2001 agreement, these sections will be revised to reflect the agreement.

DEPARTMENT OF CORRECTIONS
California Institution for Men
P.O. Box 128
Chino, CA 91708

COMMENT LETTER #11

June 6, 2002

Mr. Gary E. Hackney, P.E.
Inland Empire Utilities Agency
P.O. Box 697
Rancho Cucamonga, CA 91729

JUN 11 2002

Dear Mr. Hackney:

11-1 I want to thank you for the opportunity to review and comment upon the draft Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan (SCH # 2002011116) dated April 2002. The California Department of Corrections has the following comments:

The California Department of Corrections (CDC) has not decided nor does it have plans to dispose of any property that borders Kimball Avenue. Thus, the organic management facility alternative titled "California Institute for Men" described on pages 3-72 is not a viable alternative.

11-2 The CDC is having a Master Land Use Plan developed for the California Institution for Men. Should you have any questions regarding that plan, please feel free to contact George Sifuentes, Chief, Project Development and Management Branch, Facilities Management Division, at (916) 323-2254.

Sincerely,

LORI R. DICARLO
Warden
California Institution for Men

cc: George Sifuentes, Chief,
Project Development and Management Branch, Facilities Management Division

RESPONSES TO COMMENTS
LETTER #11
STATE OF CALIFORNIA
DEPARTMENT OF CORRECTIONS
CALIFORNIA INSTITUTION FOR MEN

11-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The proposed organics management facility at the CIM is an alternative under consideration that will be reviewed with the Department of Corrections prior to initiating any detailed planning or engineering efforts for such a facility.

11-2 IEUA staff will meet with the Department during the preparation of the Master Land Use Plan and we will initiate contact with the Department=s identified point of contact in the future to discuss possible mutually beneficial projects in the near future.

Associated Engineers, Inc. CONSULTING CIVIL ENGINEERS

3311 E. SHELBY STREET, ONTARIO, CA 91764-4872 (909) 980-1982 FAX (909) 941-0891

June 5, 2002

Mr. Greg Hackney
Planning and Organics Management
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

Re: **Draft Environmental Impact Report – Wastewater Facilities Master Plan**

Dear Mr. Hackney:

The owners of the Colonies Crossroads project appreciate this opportunity to submit our comments on the Draft Environmental Impact Report for the Wastewater Facilities Master Plan.

The Colonies project is a 450-acre project located in the City of Upland. It is a mixed-use development of commercial and residential uses located just south of the new I-210 corridor, generally between Sapphire Street and Campus Avenue. Phase One of the project, which consists of 305 residential lots and supporting infrastructure, is currently under construction, and we are nearing completion of an amendment to the Specific Plan and EIR for the balance of the project.

12-1 Our concerns with the draft EIR for the Wastewater Facilities Master Plan pertain to the siting of a satellite treatment plant (SP-2) on our property. Inland Empire Utilities Agency does not own property within the boundaries of our specific plan, and no infrastructure exists to support such a facility.

12-2 There are also environmental factors which we believe should be considered:

- The Colonies' proposed open space is designed to serve as a park; the risk of sewage treatment plant spills could pose a health risk to park visitors.
- The Colonies' development incorporates bio-swales and bio-filters in its Open Space Concept design to handle local runoff. These are not designed to incorporate treated effluent or spills from a treatment plant.

12-3 We also feel that the location of this plant within our project fails to meet two of the siting criteria listed in the draft EIR on page 3-24. Specifically:

1. The sites should be located in less developed areas: *The Colonies site will be highly developed and will be a focal point for the City of Upland.*
4. Close proximity to recycled water distribution pipelines. *No recycled water pipelines exist within the project or in the surrounding area.*

12-4 Colonies Crossroads, Inc. as owner and developer of the property in question, does not consent to locating a treatment plant within our project and we respectfully request that Satellite Plant SP-2 be considered for another more suitable location.

Thank you again for this opportunity to comment on the Draft EIR.

Sincerely,
Robert R. Otte, P.E.
representing
Colonies Crossroads, Inc.

c.c Jeff Burum, Colonies Crossroads, Inc.
Dan Richards, Colonies Crossroads, Inc.
Phil Burum, Colonies Crossroads, Inc.
Pete Pitassi, Pitassi Architects

RESPONSES TO COMMENTS
LETTER #12
ASSOCIATED ENGINEERS, INC.

12-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The location being considered by IEUA may or may not be on the Colonies Crossroads project site. Prior to selecting a final site(s) for a satellite plant, IEUA will take into consideration property ownership, development plans and other relevant factors. As to infrastructure, the Upland Hills WRP Site is located a short distance away and could serve the vicinity of 19th Street and Campus Avenue.

12-2 Although your concern is legitimate, the potential risk for a sewage spill from a treatment plant is very low, and probably no greater than a break in sewer lines serving the future development at the Colonies. As described in the PEIR, the intent is to treat the wastewater and deliver the solids to one of IEUA=s other plants through the existing sewer collection system. Under routine operations, no untreated water would be released to the environment. Further, recycled water could be of benefit to landscape irrigation requirements at the Colonies. Regardless, your concerns will be taken into consideration if the SP-2 site is selected for a satellite plant. Additional environmental documentation would have to be prepared at that time and the issues raised in this comment will be given full evaluation.

12-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The area reviewed in the field is undeveloped at this time, and if developed when a satellite plant is actually proposed for implementation, this factor would be taken into consideration during the siting review. Regarding recycled water pipelines, please refer to Figure 3-41 which shows such lines in the general project vicinity in the future.

12-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

FAXED: JUNE 12, 2002

June 12, 2002

Mr. Gary Hackney
Planning and Process Engineering
Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

Dear Mr. Hackney:

Inland Empire Utilities Agency Program Environmental Impact Report (PEIR)
For the Wastewater, Recycled Water and
Organics Management Master Plans

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated in the Final Program Environmental Impact Report.

13-1 Pursuant to Public Resources Code Section 21092.5, please provide the AQMD with written responses to all comments contained herein prior to the certification of the Final Program Environmental Impact Report. The AQMD would be happy to work with the Lead Agency to address these issues and any other questions that may arise. Please contact Charles Blankson, Ph.D., Transportation Specialist – CEQA Section, at (909) 396-3304 if you have any questions regarding these comments.

Sincerely

Mike A. Nazemi
Manager
Planning, Rule Development & Area Sources

Attachment

MN: CB

SBC020507-01
Control Number

RESPONSES TO COMMENTS
LETTER #13
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

13-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). These responses to comments are being provided to the District in accordance with Section 21092.5. The public meeting for adoption of the master plans will be on June 28, 2002 at the IEUA Board room.

Wastewater, Recycled Water and Organics Management Master Plans PEIR

13-2 1. **Project Air Quality Impacts:** The discussion on project's air quality impacts begins on page 4.6-11 of the PEIR. On page 4.6-15 it is stated that the "construction of the Wastewater Facilities Master Plan infrastructure would result in the emission of air contaminants. These emissions would be temporary and cease at the end of the construction period. Therefore construction emissions would not add to the long-term emissions burden of the region." Similar statements are made with respect to the construction of the Recycled Water Master Plan as well as the Organics Management Master Plan. No data is presented to support these statements in these paragraphs. It is not until page 4.6-17 that reference is made to the air quality tables in Appendix 8.3. To facilitate the review of the air quality impacts of the proposed projects, it is recommended that reference be made to Appendix 8.3 at the beginning of the section on project impacts so reviewers are made aware of the tables supporting these statements earlier on.

13-3 2. **Construction Emissions:** Regarding the comment that construction emissions "would be temporary and would cease at the end of the construction period," the lead agency is reminded that designations of nonattainment are based on daily exceedances of an ambient air quality standard. Consequently, whether or not emissions are temporary is not material to determining air quality significance.

13-4 3. **EMFAC7F.1 Emission Factors**: According to Appendix 8.3, emission factors from EMFAC7F-1 were used to calculate both truck and worker vehicle emissions. Please note that the California Air Resources Board (ARB) has released more recent and updated emission factors in EMFAC2001. Current emission factors have been demonstrated to be generally higher than those in EMFAC7F-1. The AQMD therefore recommends that the lead agency use the current emission factors to recalculate the motor vehicle emissions to reflect the most accurate data currently available. The EMFAC2001 factors can be obtained from the ARB webpage www.arb.ca.gov/msei/msei.html.

Responses to Comment Letter #13 (continued)

13-2 The text of the Final PEIR will be modified to insert the reference at the beginning of the project impact analysis section as requested.

13-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). It is understood that construction emissions do add to the daily burden of emissions within the South Coast Air Basin. The purpose in noting that such emissions are not permanent is to ensure that these Atemporary@ emissions are not assumed to be a continuous addition to daily air emissions within the Basin.

13-4 EMFAC2001 was not used for this PEIR because it is not officially released yet. EMFAC7F-1 was used to maintain consistency with Caltrans usage.

DEPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO
HUMAN SERVICES SYSTEM

ENVIRONMENTAL HEALTH SERVICES
☒ 385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
☐ 1647 East Holt Boulevard • Ontario, CA 91764 • (909) 458-9673
☐ 15505 Civic Drive • Victorville, CA 92392 • (760) 243-8141
☐ 17780 Arrow Boulevard • Fontana, CA 92335 • (909) 356-6444
☐ San Bernardino County Vector Control Program
2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 388-4600

THOMAS J. PRENDERGAST, JR., MD, MPH
Director of Public Health

DANIEL J. AVERA, REHS
Chief, Division of Environmental Health

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Grand Terrace	Upland
Hesperia	Victorville
Highland	Yucaipa
Loma Linda	Yucca Valley

May 6, 2002

MAY - 9 2002

Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A
Fontana, Ca 92335
Attn: Gary Hackney

Subject: Program Environmental Impact Report dated April 2002 for the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan

Thank you for the opportunity to review the subject PEIR. I have several comments for consideration:

14-1 a. The use of percolation basins for recharge could create conditions for breeding mosquitoes. I recommend a contract with this Department's vector control program be considered as mitigation.

14-2 b. The Carbon Canyon-Sleepy Hollow area of the city of Chino Hills is experiencing rising groundwater. This may be from septic tank systems in that area. No facilities are proposed for this area in the PEIR; this area should be considered for sewer infrastructure.

14-3 c. The PEIR needs to discuss impacts from rising groundwater on septic tank systems in the area of Prado Lake. Currently, groundwater is as shallow as 4 feet in some locations.

14-4 The Local Enforcement Agency (LEA) will comment under separate cover on the organics management master plan. If you have any concerns or questions on my comments, please contact the undersigned at 909-387-4666.

Sincerely,

Safe Drinking Water Program

Scott Maass

Scott Maass, REHS
Supervising Environmental Health Specialist

RESPONSES TO COMMENTS
LETTER #14
SAN BERNARDINO COUNTY
DEPARTMENT OF PUBLIC HEALTH
ENVIRONMENTAL HEALTH SERVICES

14-1 As part of the overall recharge effort, which includes storm water and imported water in addition to recycled water, IEUA, the Watermaster and Chino Basin Water Conservation District have implemented a program to control mosquitos and midges. Currently a pesticide called DIMLIN is used, but in response to your comment, the Agency will contact the Department=s vector control specialists to verify that appropriate chemicals are being used and the necessary level of vector control is being achieved.

14-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The decision to extend sewers into an area is usually made by the Regional Water Board and the local jurisdiction, which appears to be the City of Chino Hills in this instance. IEUA will pass on this comment to them and will respond to requests to sewer the area if appropriate in the future.

14-3 This issue of rising groundwater and septic tank failure is outside the purview of these master plans. The information in you comment will be made available to the Regional Board.

14-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

COMMENT LETTER #15

California Regional Water Quality Control Board

Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

June 12, 2002

Mr. Gary E. Hackney, P.E.
Manager of Planning and Process Engineering
Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A.
Fontana, CA 92335

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN, ORGANICS MANAGEMENT MASTER PLAN

Dear Mr. Hackney:

We are providing comments on the subject report. Our comments focus on the proposed Recycled Water Master Plan. We have four areas of major concern:

1. Projected Waste Water Quality

15-1 It appears that a single constant value has been used for future projections of average waste water treatment plant quality as measured by TDS. Based on our understanding from discussions at the N/TDS Task Force meetings, we are assuming that the waste water treatment plant discharge permit limits for TDS will not change in the future. Therefore, even though groundwater quality will continue to degrade as a result of increased waste water reclamation, causing degradation of raw waste water quality received by the treatment plants, additional salt removal programs need to be considered in order to continue to meet discharge limits. These programs should be identified and discussed in the Final EIR.

2. Mass Salt Balance

15-2 The mass salt loads to groundwater as shown on Tables 4.5- 11a appear to be evaluated against the proposed historical ambient concentrations developed by the N/TDS Task Force effort. How are this salts loads going to change if the proposal to modify the historical ambient concentrations based on a "Maximum Benefit" proposal goes forward?

Table 4.5-11a also needs to be much more detailed to reveal what values are being used for waste water quality, storm water quality, and imported water quality. Also, this Table should be presented for 5, 10 15, 20, and 30 years to show both short and long-term effects on the groundwater subbasins quality.

3. Storm Water

15-3 Capability for storm water recharge should be better demonstrated. The only storm water that can be credited to mitigating the new additions of recycled water is storm water recharge that is in

15-3 cont. excess of the average storm water that has been recharged over a long historic period, such as the last 20 years. We are also concerned about the feasibility for recharging the planned amount of additional excess storm water in the future since the Plan calls for only two new recharge basins. Are these two additional recharge basins going to allow for the recharge of storm water that is needed to mitigate for recycled water recharge? To allow for varying hydrologic conditions, storm water recharge used to create assimilative capacity should be averaged over some finite time period such as 3 to 5 years.

15-4 4. Vadose Zone
We are concerned about the proposed large amount of recharge (storm water, recycled water, imported water) on existing salts in the vadose zone and the ultimate affect on the groundwater quality. This should be addressed in the Final EIR.

Detailed Comments

15-5 1. Page 1-4, last paragraph – the text states that some inlets to recharge basins will deliver only recycled water. We believe that all recharge basins should blend water to avoid local groundwater degradation.

15-6 2. Page 1-15 & 16, 4.5-5 & 4.5-6 – the word "background" should be replaced with "water quality objectives".

15-7 3. Fig. 3-19, page 3-100 – the map shows Turnout #6 on the Upper Feeder. Is this Colorado River water? It so, given the TDS quality of Colorado River water, how can it be used for dilution of recycled water?

15-8 4. Table 4.5-11b – title should be TIN not TDS.

If we can be of any additional assistance, please feel free to call on me at (909) 782-4493, or you may contact Robert Nicklen at (909) 782-4492.

Sincerely,

Hope A. Smythe

Hope A. Smythe, Chief
Planning Section – Inland Waters

cc: Don Harriger, Western Municipal Water District

Tom Dodson
Tom Dodson & Associates
2150 N. Arrowhead Ave.
San Bernardino, CA 92405

RESPONSES TO COMMENTS
LETTER #15
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

15-1 The Chino Basin Watermaster has submitted a proposal to the TIN/TDS Task Force to set the TDS and TIN objectives and new management zones that promote maximum beneficial use of waters available to the Basin. In that proposal, Watermaster has demonstrated that the TDS concentration in the areas affected by the recharge and direct use of recycled water, and the recharge of state project water will asymptotically approach about 400 mg/L in the distant future without the recharge of recycled water described in Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan, SCH 2002011116 (Draft PEIR); and that the TDS increase caused from the proposed recycled water recharge is estimated to be about 30 mg/L. The estimated current TDS concentration in the area affected by the proposed recycled water program is about 270 mg/L. Clearly, at some point in the future and with or without recycled water recharge, IEUA or its member agencies will have to desalt groundwater and/or recycled water such that the TDS concentration in IEUA recycled water will meet the TDS limitation in IEUA's current permit. The Regional Board will ensure that this will happen through its regulatory authority. IEUA will not request higher TDS and TIN concentration limitations in their effluent as a result of future increases in TDS and TIN in Chino Basin groundwater. IEUA staff are currently working with RWQCB permit staff on the discharge permit for the future RP-5 facility.

15-2 Please refer to response to comment number 20-2.

15-3 Watermaster's recently completed Phase 2 Recharge Master Plan demonstrates that with existing recharge facilities and operations that an average of about 5,600 acre-ft/yr of storm water recharge occurs in the Chino Basin. Much of the channel recharge was lost in the late 1950's through mid 1970's as San Antonio, Cucamonga, Dear and Day Creek were lined with their storm flows diverted to the Santa Ana River or other users north of the Chino Basin. Watermaster and IEUA are improving 19 existing basins that have small incidental storm water recharge (included in the 5,600 acre-ft/yr) and are constructing 2 new facilities that will bring the average annual storm water recharge to 25,000 acre-ft/yr (a 19,000 acre-ft/yr increase). These facilities improvements are now in design and should be completed within 24 months. The recharge master plan can be viewed at www.cbwm.org. IEUA and the Watermaster agree that an averaging period should be established to account for hydrologic variability. Watermaster and IEUA will be monitoring the volume of recharge and the water quality of the recharge, and as part of the already mandated OBMP reporting process, will produce a report in July or August each year that will document the volume and water quality of the recharge.

Responses to Comment Letter #15 (continued)

15-4 With the exception of the RP3 site, most of the recharge basins that are being developed for the OBMP and that could be used by IEUA to recharge recycled water have been existence for 20 or more years. These facilities have had some degree of incidental recharge since they were created and there has been no documented water quality issues. None are expected. The volume of pre-project storm and imported water recharge compared to the volume of water stored in the vadose zone beneath each site and historically prior to rècharge is extremely large and any salts stored under the sites that originated from agriculture would have been leached out many years ago.

IEUA submitted a report to the Regional Board on March 25, 2002 entitled Estimate of Potential Impact of Legacy TDS and Nitrogen in the Vadose Zone of the Proposed RP3 Recharge Facility (WEI, 2002). RP3 was former recharge site for primary effluent during the period of the mid 1950's through the mid 1980's. The report presents a theoretical analysis of the impact of flushing salts under the IEUA RP-3 site on groundwater. The finding of this report is that the TDS impacts from salts stored in the vadose zone from prior primary effluent recharge are negligible. This finding was verified through a site investigation (URS, 2002) carried out subsequent to the WEI report. Regional Board staff was involved in the design of the site investigation and has reviewed the preliminary findings of site investigation. The final report for the site investigation will be sent to the Regional Board in late June or early July 2002.

15-5 Because of the existing facilities at many of the recharge basins, storm water and imported water can be delivered without new inlet facilities. On the other hand, the recycled water will be delivered to the basins in proposed new pipeline and specific inlet structures are required, in most cases. It is not IEUA=s or the Watermaster=s intent to blend sources of water for recharge before it is delivered to the recharge basin. Water from a particular source will be delivered to a recharge basin and may be blended in the basin or allowed to percolate. Recharge water from different sources may be recharged in a sequential fashion and the blending will be achieved underground.

15-6 The change requested will be incorporated into the Final PEIR.

15-7 MWD turnout No. 6 is a new turnout delivering State Water Project water from the Etiwanda Intertie. No connection to the MWD upper feeder will be made and no Colorado River Water will be used for recharge.

15-8 The change requested will be incorporated into the Final PEIR.

June 12, 2002

Tom Dodson & Associates
Tom Dodson
2150 N. Arrowhead Ave,
San Bernardino, CA 92405

Dear Mr. Dodson:

Attached is a list of our comments on the Draft Program Environmental Impact Report for the Inland Empire Utilities Agency's Facilities Management Plans.

Should you have any questions please feel free to call Joe Indrawan, at 909.464.8314.

Sincerely,

Approved by Jim Hill, 6/12/02

Jim Hill, P.E.
Assistant Public Works Director

City of Chino Comments
Draft Program Environmental Impact Report
for the Inland Empire Utilities Agency's Facilities Management Plans.
Chapter 1 Executive Summary

	PLANNING DEPARTMENT		MITIGATION MEASURES
16-1	Population and Housing		What about constructing new facilities to accommodate future demand – is this not an inducement for population growth?
16-2	Water Resources/Water Quality	4.5-3	What about obtaining necessary permits from the local agency to ensure compliance with their rules/regulations?
16-3	Air Quality/Operation		It is not clear – which air quality issue is the impact?
16-4	Traffic/Circulation	4.7-1	Is "50 vehicles" an adopted threshold of significance by IEUA to determine a study is needed at this point what about 1 – 49 vehicles? City of Chino has a goal of LOS "D", this LOS "E" is in conflict with Chino. Approval from the local agency is typically required.
		4.7-3	How are the traffic hazards adequately identified?
		4.7-4	Local agency shall issue encroachment permit for works within the public rights-of-way.
		4.7-5	Any damage to public improvements shall be repaired per local agency standards.
16-5	Biological Resources	4.8-1	Is 5,000 acre feet per year a threshold of significance adopted by IEUA?
		4.8-2	What happens if an agreement cannot be reached? Is the impact now significant?
		4.8-3	Applies to right-of-way and/or onsite
		4.8-3	b. Who determines location?
			c. ~~Should~~ shall
			d. ~~Should~~ shall
			e. Not clear
16-6	Public Services	4.10-6	~~Impeded~~ impede

ENVIRONMENTAL DIVISION

16-7	Exec. Summary, p. 1-2, 4th line from the bottom	Typo	…22MGD of ~~low~~ flow…"
	Exec. Summary, p. 1-4, 9th line from the top	Typo	…or full body contact~~)~~.
	Water Resources/Water Quality	4.5-1	At a minimum, BMPs shall meet the Maximum Extent Practicable requirements.
		4.5-2	Obtain coverage under the deminimus Permit?

RESPONSES TO COMMENTS
LETTER #16
CITY OF CHINO

16-1 Please refer to the responses to comment letter #8 from SCAG and the detailed discussion of growth inducement in the Population and Housing subchapter and Chapter 6. Planning for growth based on historic patterns of growth and allowed growth within a city=s general plan, such as the City of Chino=s General Plan, is a requirement for a water/wastewater management agency. As long at the agencies proposed infrastructure remains within the regional forecasts for growth, as do these master plans, the implementation of the project is not forecast to cause significant growth inducement.

16-2 Acquisition of local permits depends on the type of permit and the type of facility. Water facilities are generally exempt from local jurisdiction (not state or federal) so local rules and regulations do not often apply. However, IEUA makes every effort to accommodate local jurisdictions, such as the City of Chino, in the design of its facilities.

16-3 The consumption and generation of energy is the cause of the operational emissions to exceed SCAQMD CEQA Handbook thresholds.

16-4 Regarding the traffic issues raised in this comment: IEUA selected the 50 vehicle threshold based on the CMP requirement to prepare traffic studies for projects that generate 50 vehicle trips per hour on a CMP roadway. Also, please refer to response to comment letter #2. Traffic studies will be prepared where warranted, but most future master plan facilities will generate *de minimus* levels of traffic, a few trips per day. Potential traffic hazards will be identified on a project-by-project basis depending upon which roads will be affected. IEUA obtains encroachment permits and develops traffic management plans with local jurisdictions which construction within their road rights-of-way. Repair of damage on local roads is coordinated with the local jurisdictions engineering requirements.

16-5 The value of 5,000 acre-feet of increased discharge is based on IEUA=s judgment of when the volume of discharge could begin to cause adverse biological resource impacts in the Prado Basin area. An agreement is already in place and would simply be re-verified. However, if problems should arise then IEUA would have to find some other way to manage its wastewater discharges in about 30 years. The term construction right-of-way refers to any areas where construction will be carried out by IEUA in support of the plans. Language in measure 4.8-3 will be modified as suggested.

16-6 The suggested change will be incorporated into the Final PEIR.

16-7 The suggested changes will be incorporated into the Final PEIR. For measures 4.5-1 and 4.5-2 minimum requirements for BMPs and permits will be fulfilled.

TRAFFIC DIVISION

16-8 Traffic/Circulation

4.7-2 Obtain City permits for road closures and implement conditions specified therein.

4.7-3 Sounds awkward.

JI:dz
R:\My Documents\ld\Joe.JLI\IEUA Facilities-EIR Comments.doc

16-8 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Please refer to response to comment 16-4. Note that measure 4.7-3 simply requires the Agency to keep roads open for all kinds of traffic.

COMMENT LETTER #17

CITY OF ONTARIO

303 EAST "B" STREET, CIVIC CENTER ONTARIO CALIFORNIA 91764-4196

(909) 395-2000
FAX (909) 395-2070

GARY C. OVITT
MAYOR

GERALD A. DuBOIS
MAYOR PRO TEM

ALAN D. WAPNER
PAUL S. LEON
DEBORAH S. ACKER
COUNCIL MEMBERS

GREGORY C. DEVEREAUX
CITY MANAGER

MARY WIRTES, MMC
CITY CLERK

JAMES R. MILHISER
TREASURER

June 12, 2002

Inland Empire Utilities Agency
Attn: Mr. Gary Hackney
P.O. Box 697
Fontana, California 92335

RE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR INLAND EMPIRE UTILITIES AGENCY WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLANS

Dear Mr. Hackney:

Thank you for giving the City of Ontario the opportunity to review and comment on the above referenced project. Although most of our comments have been addressed from our previous comment letter dated February 21, 2002, on the NOP, below are comments, we believe need to be addressed in the EIR for the Management Plans:

17-1 1. Page PD-14 in the old NOP and Page 3-10 (c) in the PEIR - This comment deals with co-composting yard debris. It was not clear if refuse trucks will enter the site, if there will be residual wastes and how these wastes will be handled, or will access be limited to transfer or "processed clean" green wastes from transfer stations. This item needs further review.

17-2 2. Figures 9, 10 and 11 from the NOP were unchanged. This relates to open storage of primary sewage without odor control and retaining the trickling filter without odor control. This is unacceptable to Ontario and would require further mitigation.

17-3 3. Page 3-14, Section 3.3.1.4 f (Regional Plant No. 5) – This paragraph should be corrected to indicate that RP-5 will also treat flow from the Model Colony (existing City north of Riverside Drive) when flow from Ontario's pump stations in the future will flow by gravity to the Kimball Interceptor.

RESPONSES TO COMMENTS
LETTER #17
CITY OF ONTARIO

17-1 It is intended that only "processed clean" green material will be utilized at our composting facilities. Accordingly, it is not expected that refuse trucks will enter the site except for routine trash collection.

17-2 Figures 9, 10, and 11 describe alternative expansion scenarios at RP-1 that were examined in the Wastewater Facilities Master Plan. Figure 12 illustrates the preferred alternative, which includes covered equalization tanks with odor control for equalizing dry weather flow. In all scenarios, infrequent wet weather peaks will continue to be equalized in the lagoons. The IEUA is still examining the potential future usefulness of the trickling filter. Whether the trickling filter or equalization lagoons are removed or not, the Agency is committed to making RP-1 a nuisance free facility. Accordingly, odors from either facility will be fully contained and treated if the facilities are retained

17-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

17-4 4. Page 3-27 (Co-Composting) - The last paragraph under this section indicates that sixteen sites were evaluated as possible locations for new co-composting facilities. Based on Figure 3-47, sites 14 and 16 are located within the New Model Colony, whereby their adopted land use designations are Residential-Low Density and Industrial Business Park respectively. IEUA should be aware that such proposals for a co-composting facility within the identified areas might be permitted subject to the approval of a Conditional Use Permit. However, the approval may be subject to a five (5) year time limit through an agreement with the applicant, in order to assess potential impacts from the Conditional Use upon surrounding land uses.

17-5 5. Page 3-38, paragraph 3 – Although the PEIR indicates that the Easter Trunk Sewer is planned to start construction in spring/summer of 2002, construction funds for the Eastern Trunk Sewer are not currently available.

17-6 6. Bottom of Page 3-38. The bypass sewer capacity is via a joint project and joint ownership between IEUA and the City of Ontario.

17-7 7. Page PD-86 in the NOP – No additional information was provided regarding the ultimate alignment of the 4th Street Regional pipeline. Is the 6th Street alignment still being considered?

17-8 8. Page 3-72 - ASP is still referred to as a Pilot Project. More details are needed regarding specific definition, source definition, and specific review of potential impacts and mitigation measures.

17-9 9. Page 3-85 (Figure 3-5) – The map identifies the New Model Colony as being area "(13)", however, the legend refers to the New Model Colony as being area "(12)". The legend needs to be corrected to refer to the New Model Colony as area "(13)".

17-10 10. Page 4.2-14 – The third paragraph indicates that the Upland Interceptor Sewer is planned for construction in the cities of Upland and Ontario. However, actual construction locations are not identified for either city. Please identify construction locations.

17-11 11. Page 4.2-15 (Organics Management Master Plan – Construction Phase) – Second paragraph states that the Vander Poel Dairy is located in the City of Ontario, within an area designated for agricultural uses, thereby allowing for the planned Diary Digester Project. However, no specific location is given. The location of the dairy needs to be identified to ensure project compatibility with the planned use for the subject site pursuant to the General Plan.

Responses to Comment Letter #17 (continued)

17-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Although the sixteen sites were identified, at this time only those sites discussed in the PEIR are being considered for implementation please refer to page (3-71).

17-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Based on this comment, construction can begin when funds are available.

17-6 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Based on this comment, construction can begin when funds are available. The text of the Final PEIR will be corrected to incorporate this comment.

17-7 The 6th Street alignment is still being considered, but no decision has yet been reached. The PEIR analyzes the 4th Street alignment.

17-8 ASP is the process that will be employed for enclosed composting. It is described as a pilot process until it is proven to be nuisance free. Biosolids and digested manure from RP-1 will be processed at the RP-1 Enclosed ASP Project. Full enclosure with odor control is expected to cause a net reduction in nuisance originating at the plant. On-site processing of biosolids with imported bulking material will have a near neutral impact on traffic patterns.

17-9 The suggested change will be incorporated into the Final PEIR.

17-10 The construction locations for the Upland Interceptor in both cities are shown on Figure 3-17 and described on page 3-37.

17-11 The Vander Poel Dairy is located in the City of Chino's proposed Sub Area II, that is currently unincorporated. The project is described on page 3-70 and illustrated on Figure 3-45.

17-12 12. Page 4.4-29 (Figure 4.4-1) - The heavy lines identified on the map as C-C" and G'-G' need to be identified in the legend.

17-13 13. Page 4.7-10, Paragraph 1 - Construction of the Eastern Trunk Sewer should create minimal, if any, disruption of traffic to and from ONT.

In addition to the above, we offer the following comments:

17-14 A. Table 3-17, page 3-75 - RP-1 Enclosed ASP Project (also Figure 5-2 in Wastewater Facility Master Plan) regarding **"Landscaping, screening of plant using trees and block wall"** to mitigate the co-composting facility. In lieu of a block wall, Ontario preference is to use vinyl coated chain link fence and use the savings in cost to expand the landscaping area on the west side of RP-1 (see the attached diagram). The expanded landscaping should be consistent with the City's golf course reconstruction program. This work, which involves both reconstruction and grading of the expansion area, must be completed before the co-composting building is put into operation.

17-15 B. RP-1 co-composting building should be designed and sized to handle only the bio-solids generated at RP-1 plus any appropriate amount of filler and other co-composting materials.

17-16 C. Recycled water is currently being used at the Whispering Lakes Golf Course. On this course there is an unused pond which should be evaluated for use to recharge recycled water in conjunction with the use of the Ely Basin.

We appreciate being informed of the project and look forward to continued communications regarding this project. If you have any questions regarding our comments, please contact me at (909) 395-2036 or Ken Jeske, Public Works Director, at (909) 395-2611.

Sincerely,

ONTARIO PLANNING DEPARTMENT

For

Jerry L. Blum
Planning Director

JB:ra:dak

Attachment

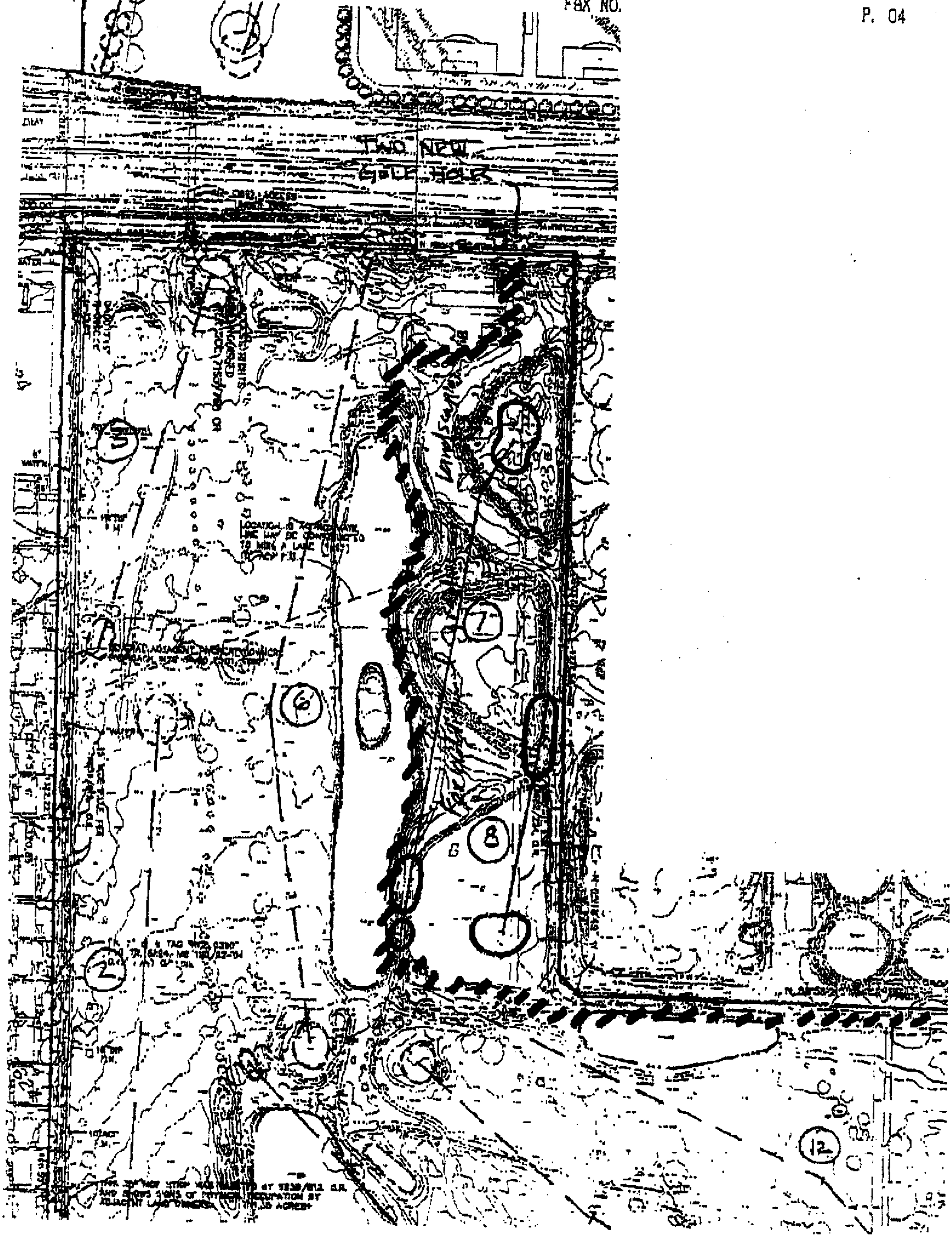
17-12 The suggested change will be incorporated into the Final PEIR.

17-13 The suggested change will be incorporated into the Final PEIR.

17-14 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The IEUA is agreeable to contributing the savings between a block wall and chain link fence to the identified landscape area as part of the RP-1 ASP project.

17-15 Please refer to response 17-8.

17-16 IEUA will consider this additional pond location for recharge (consistent with City design requirements) in conjunction with the RP-1 improvements. The IEUA would like to meet with City staff to discuss this issue.


TWO NEW
GOLF HOLE
3
6
7
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2
12

COMMENT LETTER #18

CITY OF CHINO HILLS

2001 Grand Avenue
Chino Hills, California 91709-4869
(909) 364-2600 • (909) 364-2695 Fax

TRANSMITTED VIA FACSIMILE AND HAND-DELIVERED

June 12, 2002

JUN 12 2002

Mr. Gary E. Hackney
Inland Empire Utilities Agency
P. O. Box 697
Rancho Cucamonga, CA 91729

Dear Mr. Hackney:

Thank you for the opportunity to comment on the Program Environmental Impact Report (PEIR) for the Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan.

As you are aware, IEUA and the City of Chino Hills entered into a Biosolids/Waste Treatment Agreement (the Agreement) last year as a result of the City's opposition to a co-composting facility being located at the RP-5 site, which is in close proximity to Chino Hills residential areas. The agreement is specific in its intent to provide a constructive working relationship between IEUA and the City in developing solutions for the biosolids and manure problems facing the Chino Basin. The PEIR, however, contains numerous statements that contradict the Agreement.

18-1 From the onset, the PEIR references RP-5 as a potential composting site to process biosolids, dairy manure and green waste (Section 3.1 Project Description, p.3-2). The Agreement indicates that an enclosed composting facility shall be permitted on CIM property. No other facility shall be constructed within 1.7 miles of the City's territorial boundaries (Section 4).

18-2 Section 3.3.3.4, Table 3-17 (p.3-79) of the PEIR cites "RP-5 or CIM compost facility". This leaves the possibility for co-composting at RP-5, contrary to the Agreement. Also, pursuant to the Agreement, there was a 30,000-ton cap on composting operations at CIM. The EIR (p.3-72) contemplates this number could grow to 120,000 tons.

18-3 Section 4.2.3.2, Land use Planning (p.4.2-10) of the PEIR states that IEUA is planning a High Tech Manure Digester Project west of the RP-5 Renewable Energy project. It is unclear if this refers to the Teunissen Project described in the Agreement. The Agreement, Section 5, indicates that no facilities other than those identified in the

RESPONSES TO COMMENTS
LETTER #18
CITY OF CHINO HILLS

18-1 Please refer to response to comment 10-3. IEUA intends to comply with the August 1, 2001 Chino Hills Agreement. Any alternative plans at the RP-5 site will be reviewed with the City prior to revising the affected facilities at the RP-5 site.

18-2 Please refer to responses to comments 10-3, and 18-1.

18-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The IEUA fully intends to comply with the Biosolids/Waste Treatment Agreement dated August 1, 2002.

18-3 cont. Agreement shall be constructed for a period of ten years within 1.7 miles of the City's boundaries except on-site dairy digester facilities. Such facilities shall not be constructed until the Koopal and Teunissen projects have been fully and successfully operational.

18-4 Section 4.4.3.2, Impact Analysis (p.4.4-20); Section 4.5.3.1, Significance Criteria/Threshold of Significance (p.4.5-40); Section 4.8.3.1, Threshold of Significance (p.4.8-30) and Section 4.11.3.2, Significance Criteria (p.4.11-16) all reference RP-5 as a possible composting facility. This is in violation of Section 3 of the Agreement.

18-5 The Agreement also calls for the Koopal Project to be limited to 1.75 megawatts. Throughout the PEIR, reference is made to the "RP-5 Renewable Energy Project (increased power projection from .75 MW to 2.0 MW)". This statement is made in Section 4.2 Land Use Planning (p.4.2-5); Section 4.3.3, Population and Housing (p.4.3-6); and Section 4.8.3.1, Thresholds of Significance (p. 4.8-31). Additionally these sections in the PEIR discuss the CIM compost facility treating 30,000 tons of biosolids per year. The Agreement, Section 4, includes the same tonnage with the additional statement that animal manure will be no more that 10,000 tons annually.

18-6 The Agreement, Section 4.1 states that both RP-1 and RP-4 shall have been in operation for a period of at least two years prior to the time construction is commenced at the CIM facility. There appears to be no comment in the PEIR indicating this. Also, no comment could be found regarding the issue that no on-site facilities shall be constructed or supported by IEUA until the Koopal and Teunissen projects have been fully and successfully operational and the data from the projects evaluated in a public setting. This is included in Section 5 of the Agreement.

18-7 In addition to the conflicts with the Agreement, the City of Chino Hills has objections to other inclusions in the PEIR. Section 3.3.2.3, Improvements Necessary to Support the Recycled Water Program (p. 3-62) states that the Monte Vista Water District owns the Ramona Feeder pipeline. This water line is jointly owned by the City of Chino Hills and MVWD.

18-8 In Section 4.4.2.7, Settlement/Subsidence (p.4.4-14), references are made to Chino Hills' deep-well production as being a cause of subsidence. This statement is based on opinion papers. The specific cause of subsidence is not scientifically established.

18-9 Lastly, as stated in the PEIR, NOx emissions from the project operations are expected to exceed the threshold of significance and other than compliance with SCAQMD rules, regulations and permit conditions, no further mitigation can be identified. The City of Chino Hills respectfully requests that IEUA make every effort to research and

Responses to Comment Letter #18 (continued)

18-4 Please refer to responses to comments 10-3 and 18-1.

18-5 The Agency intends to comply with the August 1, 2001 Agreement.

18-6 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The text of the Final PEIR will be corrected to incorporate this comment. The Agency intends to comply with the August 1, 2001 Agreement.

18-7 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The text of the Final PEIR will be corrected to incorporate this comment.

18-8 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The text of the Final PEIR will be corrected to incorporate this comment.

18-9 For the NOx issue, please refer to response to comment 6-1. These responses to comment constitute modifications and commitments by IEUA to abide by the August 1, 2001 Agreement. Where inconsistencies exist between the two documents, the Agreement is controlling.

18-9 cont. investigate all feasible mitigation measures and to identify and implement the appropriate mitigation measures to insure that the NOx emissions are alleviated. The City of Chino Hills requests that the EIR be modified to be consistent with the Agreement and that the EIR contain a statement that the limitations and restrictions set forth in the Agreement are controlling to the extent the EIR contains statements or projects inconsistent with the Agreement.

Again, thank you for the opportunity to comment on the IEUA PEIR. I feel certain that the City of Chino Hills and IEUA can continue to work together for the good of all concerned while maintaining a safe and pleasant environment for the public. Please feel free to call me if you have any questions regarding the comments and concerns expressed in this letter.

Sincerely,

Douglas N. La Belle
City Manager

DLB:PH:ssr

cc: Mayor and City Council
Rich Atwater, Chief Executive Officer/General Manager
Mark Hensley, City Attorney

COMMENT LETTER #19

CHINO BASIN WATERMASTER

8632 Archibald Avenue, Suite 109, Rancho Cucamonga, Ca 91730
Tel: 909.484.3888 Fax: 909.484.3890 www.cbwm.org

JOHN V. ROSSI
Chief Executive Officer

TRACI STEWART
Chief of Watermaster Services

DRAFT

June 12, 2002

Richard W. Atwater,
General Manager/Chief Executive Officer
Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A, Fontana, CA 92335

Subject: Review comments on IEUA's *Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan, SCH 2002011116*

We have completed our review of the *Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan, SCH 2002011116* (hereafter PEIR). The PEIR is generally very good. We are including the following comments where the text appears incorrect, misleading, or problematic for implementation of recycled water recharge. These comments are included below. Some are repetitious.

Page 1-4, second paragraph, number 3. This paragraph says a regional recycled water distribution system will be installed to meet the following objectives: "3. Provide for utilization of eighteen existing recharge basins and for the construction of two new recharge basins"... This is inconsistent with the last sentence of the third paragraph on this page which CORRECTLY indicates that "These basins are already in the process of being modified to facilitate recharge of greater volumes of storm water and SWP water under a recent decision by IEUA acting as the CEQA lead agency for the above agencies."

19-1 The modifications referred to in the last sentence of the third paragraph are being completed as part of a Recharge Facilities Improvements Project (RFIP) where IEUA is acting as lead agency for the primary project proponent, the Chino Basin Watermaster, to implement the Optimum Basin Management Program's Recharge Master Plan (in association with the Chino Basin Water Conservation District and the San Bernardino Flood Control District). The primary purpose of the RFIP is to improve the capture and recharge of storm water and to improve the ability to recharge imported water in the Chino Basin. The RFIP is funded and under construction. It includes improvements at up to 18 recharge locations and the construction of basins at two new recharge locations as well as any conveyance structures to convey the water from these sources to the basins. This project will be completed and implemented and is not dependent in any way on the IEUA RWMP covered by the PEIR currently under review. The RWMP PEIR is misleading and inconsistent in many places especially in chapters 3 and 4, some of which are identified below, in that it talks about components of the RFIP as if they are being done under the RWMP project. The distinction between the two projects should be clarified.

19-2 Page 1-4, third paragraph, first sentence. Add "/or" in third line to indicate recycled water ..."will be blended with storm water and/or imported water to recharge the Chino Basin groundwater aquifers". This should be done in this sentence, and throughout the document, to reflect that this "blending" will not occur at the same time. In other words, when recycled water is being blended with storm water, it is very likely that it will not be being blended with imported water at the same time and visa versa.

19-3 Page 1-4, fourth paragraph, first and second sentences. See comments above. These sentences imply multi-purpose inlets will be constructed as part of the RWMP. All multi-purpose inlets will be constructed under the Recharge Facilities Improvement Projects currently being completed. The

RESPONSES TO COMMENTS
LETTER #19
CHINO BASIN WATERMASTER

19-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The text of the Final PEIR will be corrected at all locations noted in your comment to distinguish between already approved recharge project improvements (RFIP) and those associated solely with the Recycled Water Management Plan.

19-2 The text of the Final PEIR will be corrected at all locations noted in your comment to clarify the blending scenarios.

19-3 The suggested change will be incorporated into the Final PEIR.

June 12, 2002

Comments regarding Draft PEIR

19-3 cont. RWMP will include inlets that are single purpose, to recharge recycled water, in cases where one is necessary for that purpose alone.

Page 1-15, Table 1.2-1, Summary of Impacts and Mitigation Measures, mitigation measure 4.5-5. This measure states IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TDS to be exceed whenever recycled water with TDS greater than the background groundwater TDS at a recharge site is utilized.

19-4 With implementation of the basin management activities planned under the OBMP, it is probably not necessary to conduct specific modeling as indicated above. Watermaster is currently evaluating the monitoring and modeling that will be necessary to effectively manage the Chino Basin under the OBMP, and anticipates that the ultimate program proposed as mitigation by IEUA under its RWMP will satisfy, or augment as necessary, the effort identified by Watermaster.

19-5 Page 3-41, second paragraph, second sentence. Replace "improve groundwater quality in" with "augment the safe yield of". Perhaps the combined wastewater, recycled water and organics master plans can be shown to improve groundwater quality, but there has been no demonstration to that effect.

19-6 Page 3-41, third paragraph, number 3. Misleading – see comments above. Replace "and the construction of new recharge basins...to end" with "by supplying recycled water as an additional source of water along with storm water and SWP water." There are no recharge basins being constructed in these master plans. Throughout this document there are places where it suggests that improvements and construction of basins are being made as part of the RWMP. They are not. PEIR should assume that the RFIP already exists.

19-7 Page 3-41, fourth paragraph, second sentence. Not correct. See previous comment.

19-8 Page 3-41, fourth paragraph, last two sentences. These sentences correctly state the activities not covered and those covered by this PEIR. They should be emphasized and set apart earlier in the PEIR as well so that they are not lost in the text. They accurately reflect the difference in the projects covered by the RFIP and the RWMP by stating "The evaluation in this program EIR of recycled water recharge will consider only the incremental environmental effects of those additional facilities that must be installed to deliver recycled water to these recharge basins and the environmental effects of recharging certain volumes of recycled water in the Chino Basin at these basins."

19-9 Page 3-47, fifth paragraph, last sentence. Generally, imported water will be recharged from October through April, the wet season, unless it is available & needed in the dry season.

19-10 Page 3-47 through 3-50. In general, why do we distinguish the basins as *flow-through* and *flow-by* basins? It is not important to this discussion, it's confusing, and some characterizations are not accurate. Some of the basins are both *flow-through* and *flow-by* basins.

19-11 Page 3-48, first paragraph. See previous comment. Paragraph suggests that recharge basins are being improved as part of the RWMP. They are not. PEIR should assume that the RFIP already exists.

19-12 Page 3-48, first paragraph. Since all water discharged from the Chino Basin is typically recharged by the Orange County Water District, it is not likely that water will be pumped to the sanitary sewer system. Also, there are no plans to "dewater" imported water at the present time, since it is anticipated that close coordination and storm event monitoring with the SBFCD coupled with appropriate maintenance will negate any need for this to occur.

19-13 Page 3-48 and 3-49, Tables 3-13 and 3-14. These tables present draft information compiled from preliminary results of analyses conducted under the RFIP. They should indicate their

Responses to Comment Letter #19 (continued)

19-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Groundwater modeling is not necessary in this instance.

19-5 The suggested change will be incorporated into the Final PEIR.

19-6 Please refer to response to comment 19-1.

19-7 Please refer to response to comment 19-1.

19-8 Please refer to response to comment 19-1.

19-9 The suggested change will be incorporated into the Final PEIR.

19-10 The basins are identified as flow through or flow by because of the regulatory permitting issues. Where necessary, the characterization will be corrected in the Final PEIR.

19-11 Please refer to response to comment 19-1.

19-12 Your comment is noted. The text of the Final PEIR will be corrected to clarify this section of the document.

19-13 The qualification noted in this comment will be incorporated into the Final PEIR.

19-13 cont. value to the reader in that context and that they are subject to change based on actual operating experience or be deleted from the text.

19-14 Page 3-50, second paragraph. Recharge operations will be managed such that there will be <u>no</u> increase in flood hazard. San Bernardino County will never allow us to recharge in their basins if we increase the downstream flood hazard.

19-15 Page 3-50, last full paragraph, third sentence beginning "The Upland Basin...". This sentence indicates the Upland Basin will receive storm water from the San Antonio Channel. This is incorrect, and therefore misleading. It is not anticipated that any basins along the San Antonio Channel (Brooks, Montclair, College Heights & Upland) will receive anything but incidental storm water from the San Antonio Channel. There is no storm water in this channel for use as it is being fully utilized by upstream users in all cases except the most extreme events. It is anticipated that the basins will receive imported water from the CB-59T Metropolitan connection once the imported water inlets are constructed under the RFIP.

19-16 Page 3-51, Table 3-16. This table utilized the draft information compiled from preliminary results of analyses conducted under the RFIP referenced above. In that context, it should caution the reader that it is a preliminary estimate that is subject to change based on actual experience.

19-17 Page 4.4-10, Paragraph 4.4.2.7 Settlement/Subsidence. This section does not represent the current understanding that Watermaster has with regard to settlement and subsidence. Under the Optimum Basin Management Program, Watermaster recognizes that subsidence and fissuring occurred in the past and as a result is installing piezometers and extensometers in the area. The use of recycled water will not have any adverse impact with regard to subsidence or fissuring, and will help reduce the demand for water from other sources in the future.

19-18 Page 4.5-27, last paragraph. Figure reference is incorrect. Should be figure 4.5-3, not 4.5-4.

19-19 Page 4.5-27, last paragraph, third sentence. Absolutely not true! Statements like this will cause a lot of trouble later.

19-20 Page 4.5-28, first paragraph, second sentence. Reference should be *WEI, 1999*, not *IEUA, 1999*.

19-21 Table 4.5-11b. Replace *TDS* in the title with *TIN*.

19-22 Page 4-5-30, fourth paragraph. We need to say how monitoring will be used to avoid adverse impacts from recharge of recycled water. For example, monitoring could be used to measure the impacts on water quality and recharge operations could be modified based on the monitoring to ensure that there are no unmitigated adverse impacts downs stream.

19-23 Page 4-30, last paragraph. Upon reading this paragraph it seems that tables 4.5-3 and 4.5-4 should be modified to include drinking water standards so that the reader can refer to them at this point and see that the conclusions stated are indeed correct.

19-24 Page 4.5-32, fourth paragraph, last sentence. Only the increase in storm water recharge will lead to an increase in safe yield. Suggest the deletion of this sentence or rewording to say that the benefits are "an increase in local water available for use and a decrease in the use of imported water – a statewide benefit."

19-25 Page 4.5-32, fourth paragraph. Paragraph suggests that recharge basins are being improved as part of the RWMP. They are not. PEIR should assume that the RFIP already exists.

Responses to Comment Letter #19 (continued)

19-14 Your comment is noted and the text of the Final PEIR will be corrected to clarify this section of the document.

19-15 The text of the Final PEIR will be corrected to clarify this section of the document.

19-16 Your comment is noted. The text of the Final PEIR will be corrected to clarify this section of the document.

19-17 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

19-18 The suggested change will be incorporated into the Final PEIR.

19-19 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The text of the Final PEIR will be corrected to clarify this section of the document.

19-20 The suggested change will be incorporated into the Final PEIR.

19-21 The suggested change will be incorporated into the Final PEIR.

19-22 The text of the Final PEIR will be corrected to clarify this section of the document.

19-23 The suggested change will be incorporated into the Final PEIR.

19-24 The suggested change will be incorporated into the Final PEIR.

19-25 Please refer to response to comment 19-1.

Comments regarding Draft PEIR

June 12, 2002

19-26 Page 4.5-35, sixth paragraph. Paragraph suggests that recharge basins are being improved as part of the RWMP. They are not. PEIR should assume that the RFIP already exists.

19-27 Page 4.5-36, fifth paragraph, last sentence. It is unlikely that imported water will be recharged in the dry season. Generally, this imported water recharge occurs from October through April, the wet season.

19-28 Page 4.5-36, last paragraph, first sentence. Literally read, this sentence makes no sense. I think that the word *quantity* should replace *quality*.

19-29 Page 4.5-37, second paragraph. See previous comments with regard to this.

19-30 Page 4.5-37, fifth paragraph. Recharge operations will be managed such that there will be no increase in flood hazard. San Bernardino County will never allow us to recharge in their basins if we increase the downstream flood hazard.

19-31 Page 4.5-39, sixth paragraph. Paragraph suggests that recharge basins are being improved as part of the RWMP. They are not. PEIR should assume that the RFIP already exists.

19-32 Page 4.5-46, mitigation measures 4.5-5 and 4.5-6. These mitigations measures need to be modified. Modeling is not necessary. We have already stated that the recycled water recharge is better than drinking water standards. We will need to mitigate TDS and TIN loading if the concentration of these constituents exceeds their respective objectives. We should say how we are going to this as was done on pages 4.5-28 through 4.5-30.

Please call me if you have any questions.

Sincerely,

John V. Rossi
Chief Executive Officer

Cc: Tom Love; Gary Hackney

Responses to Comment Letter #19 (continued)

19-26 Please refer to response to comment 19-1.

19-27 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

19-28 The text of the Final PEIR will be corrected to clarify this section of the document.

19-29 Please refer to response to comment 19-12.

19-30 Please refer to response to comment 19-14.

19-31 Please refer to response to comment 19-1.

19-32 Please refer to response to comment 19-4.

COMMENT LETTER #20

WESTERN MUNICIPAL WATER DISTRICT

June 12, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
9400 Cherry Ave., Bldg. A
Fontana, CA 92335

RECYCLED WATER MASTER PLAN DRAFT PEIR

Dear Mr. Hackney:

Western Municipal Water District appreciates the opportunity to respond to the Recycled Water Master Plan Draft PEIR. You will recall that we have worked with the Utilities Agency to develop a Mitigation Agreement in connection with the Ely Basin recycled water recharge project, and to obtain necessary Court approval for that project.

20-1 Western also commenced discussions with Inland regarding a Mitigation Agreement for recharge of wastewater from RP-4 at the Etiwanda, Jurupa, Declez and RP-3 basins. The Draft Recycled Water Master Plan includes plans for wastewater recharge at these same locations and therefore projects that are a part of the plan need to address similar TDS and TIN mitigation requirements.

In response to prior Notices of Preparation for these recharge projects, we have indicated that the EIR should address in particular: (1) compliance with the Basin Plan, especially with respect to TDS and nitrates; and (2) the consequence of substituting treated wastewater, recharged lower in the basin, for State Project water, recharged higher in the basin.

The purpose of this letter is to provide comments and to propose changes to Mitigation Measures 4.5-5 and 4.5-6 including a provision for prior approval of a Mitigation Agreement among parties potentially affected by discharge of wastewater with TDS and TIN in excess of water quality objectives.

<u>TDS and TIN of Proposed Wastewater Discharge Exceeds Groundwater Quality Objectives for TDS and TIN.</u>

20-2 The draft PEIR correctly concludes on Page 4.5-28 that the tertiary treated effluent exceeds the TDS and TIN objectives that may be adopted if the boundaries of

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RESPONSES TO COMMENTS
LETTER #20
WESTERN MUNICIPAL WATER DISTRICT

20-1 Refer to response to comments in letter No. 15. A mitigation agreement (Principles of Agreement - Recharge of Recycled Water in the Chino Basin - Management Zone - 3) has been negotiated with Jurupa Community Services District (JCSD) the party potentially affected by recharge of recycled water in Western Municipal Water District's (WMWD) service area. WMWD participated in the initial negotiations on this agreement, but since JCSD was the affected party WMWD was not signatory to the final agreement. In addition recharge of water within the Chino Groundwater Basin is subject to Chino Basin Watermaster Article X approval in accordance with section 5.1(b) of the Peace Agreement. An Article X application for IEUA's planned recycled water recharge has been submitted to Watermaster and is subject to Chino Basin Watermaster Board approval and continuing review to ensure that no material physical injury to a party of the Judgment or to the Basin results from the recharge of recycled water is a specific requirement of the Peace Agreement Rules and Regulations. Determination of mitigation of any impacts on groundwater quality by recharge of recycled water is the responsibility of the Chino Basin Watermaster.

Please note that Western MWD was provided with all three Master Plan reports (Recycled Water Feasibility Study, Organics Management Strategy Business Plan and the Wastewater Facilities Master Plan during the past year and was requested to comment on each document in both initial draft and final draft reports. Secondly, Western MWD was invited to comment specifically on the notice of preparation and to participate in the scoping meeting held on February 26, 2002. Western MWD did not provide any written or oral comments during the past year regarding the draft master plan documents or the notice of preparation of the PEIR. The three Master Plans address the issues of salinity and nitrogen management in a comprehensive manner and include IEUA=s adopted Salinity Action Plan (see Section 1.4.8 of the Wastewater Facilities Master Plan). Clearly, the issues of long-term salinity and nitrogen management within the Chino groundwater basin and the protection of downstream water quality consistent with the Basin Plan and the Santa River Judgement is the intended purpose of the three coordinated master plan reports and is why all three were evaluated in one Program EIR.

20-2 The current Regional Water Quality Control Plan (Basin Plan) for the Santa Ana (1995) watershed divides the Chino Basin into three subbasins - I, II and III as shown in Figure 1. IEUA plans to recharge 20,000 to 30,000 acre-ft/yr of recycled water at nineteen recharge facilities in the Chino I and Chino II subbasins shown in Figure 1. The TDS and TIN objectives for these subbasins are

Subbasin	TDS (mg/L)	TIN (mg/L - N)
Chino I	220	5
Chino II	330	6

20-2
cont. The Basin Plan declares that there is no assimilative capacity for TDS or TIN in Chino II. The assimilative capacity available in Chino I is limited. The Regional Board has complete discretion in allowing discharges that will cause degradation and reduce the assimilative capacity. The Regional Board is not likely to permit recharge of recycled water to Chino I that will encroach on the assimilative capacity of Chino I and or subsequently degrade Chino II that is hydraulically downgradient of Chino I.

The Regional Board is currently developing a significant update to the Basin Plan that should be adopted late in 2002 or early 2003. This update was developed by the TIN/TDS Task Force and is reported in TIN/TDS Study - Phase 2A, Final Technical Memorandum (WEI, 2001). In this update, the Chino Basin is divided into five management zones as shown in Figure 2 along with the recharge facilities. The recharge facilities of interest for the Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan, SCH 2002011116 (Draft PEIR) are in northern parts of Management Zones 1, 2 and 3. The TDS and TIN objectives for these management zones are:

Management Zone	TDS (mg/L)	TIN (mg/L - N)
Chino 1 290	4.9	
Chino 2 255	2.9	
Chino 3 262	3.5	
Chino 4 730	13.3	
Chino 5 650	4.1	

The WEI report demonstrated that there is no assimilative capacity in Management Zones 1, 2 and 3 for TDS and TIN. These proposed management zones and objectives are more restrictive than the existing objectives.

The Chino Basin Watermaster has made a proposal to the Regional Board to establish TDS and TIN objectives for the Chino Basin that will promote maximum beneficial use of waters available to the Basin (draft letter to Gerard Thibeault, Executive Officer of the Regional Board, from John Rossi, CEO of the Chino Basin Watermaster, dated April 19, 2002). Watermaster proposes using California Water Code section 13241 and other criteria to establish TDS and TIN objectives in the Chino Basin. Section 13241 states criteria that need to be considered in establishing water quality objectives other than the minimum requirement stated in Executive Order 68-16. Section 13241 states:

"Each regional board shall establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance; however, it is recognized that it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses. Factors to be considered by a regional board in establishing water quality objectives shall include, but not necessarily be limited to, all of the following:

Responses to Comment Letter #20 (continued)

20-2 cont

(a) Past, present, and probable future beneficial uses of water.
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto.
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area.
(d) Economic considerations.
(e) The need for developing housing within the region.
(f) The need to develop and use recycled water."

Watermaster proposes that the Chino Basin be divided into Chino North and Chino South management zones, instead of the five management zones presented in the TIN/TDS Study - Phase 2A, Final Technical Memorandum. The boundary between Chino North and Chino South is a line that runs generally east west through the Desalter 1 and 2 well fields. Most if not all the groundwater north of this internal boundary will be produced by wells north of the boundary or be captured by the desalter well fields. Most of the groundwater in the Chino South zone will be produced by the desalter wells or other wells located within the zone. Some water in the Chino South zone may seasonally rise and become surface discharge in the Santa Ana River. Watermaster proposes that the TDS and TIN objectives for these new zones be:

Zone	TDS (mg/L)		TIN (mg/L-N)	
	Objective	Current	Objective	Current
Chino North	420	270	6	6.4
Chino South	650	690	8	19.3

The current estimate listed above is an estimate of the volume-weighted quality in these management zones in 1997. It is consistent with and used the same data and computational methods as the current ambient concentrations listed in the TIN/TDS Study - Phase 2A, Final Technical Memorandum. The proposed TDS objective for Chino North is based on the long-term flow-weighted average of waters recharging Chino North. For Chino South the proposed TDS objective is based on the average TDS in Santa Ana River recharge. The proposed TIN objectives are based on values that can accommodate planned recycled water recharge in Chino North and Santa Ana River recharge in Chino South without impairing beneficial uses in either management area. Watermaster demonstrated that the TDS concentration in the areas affected by the recharge and direct use of recycled water, and the recharge of state project water will asymptotically approach the mid 400 mg/L in the distant future, without the recycled water recharge proposed in IEUA's Draft PEIR; and that the TDS increase caused from the IEUA proposed recycled water recharge plan is estimated to be about 30 mg/L. The estimated current TDS concentration in the area affected by the proposed recycled water program is about 270 mg/L.

20-2 cont.

Chino Basin Watermaster's Optimum Basin Management Program (OBMP). The Chino Basin Watermaster developed a management program for the Chino Basin and described this plan in the Phase 1 Report Chino Basin Optimum Basin Management Program (WEI, 1999). Subsequently the Peace Agreement was consummated by the Parties to the Chino Basin Judgment in June 2000, and a program environmental impact report was prepared and certified in July 2000. Two key elements of the OBMP are:

- $ the construction of 40 MGD of desalting facilities in the lower Chino Basin;
- $ the construction of recharge improvements that will increase storm water recharge by about 19,000 acre-ft/yr from 5,600 to 25,000 acre-ft/yr) and supplemental water recharge capacity by about 80,000 acre-ft/yr.

Supplemental water consists of imported water and recycled water. The OBMP envisioned supplemental water recharge averaging about 40,000 to 60,000 acre-ft/yr and that recycled water recharge could range from 20,000 to 30,000 acre-ft/yr (see the OBMP PEIR Tables 4.5-25 and 4.5-27). The recycled water recharge plans proposed by IEUA were included in the OBMP and the OBMP Program EIR that was certified in July 2000.

TDS and TIN Compliance with the TIN/TDS Task Force Proposed Objectives

The TDS and TIN of IEUA tertiary treated effluent exceeds the proposed TDS and TIN objectives in groundwater Management Zones 1, 2 and 3. Therefore the TDS and TIN in the recycled water must be reduced to a concentration less than or equal to their respective objectives or an offset program must be implemented. In the OBMP development and the certified OBMP PEIR it was assumed that an offset program would be used to mitigate the recharge of recycled water.

The offsets created in the OBMP for the recharge of recycled water consists of the dilution of the recycled water with new storm water recharge, and TDS and TIN removal from groundwater prior to use from the new desalter facilities (production and treatment of high TDS and TIN groundwater downgradient of the recycled water recharge). Tables 1, 2 and 3 describe the TDS and TIN inputs to groundwater from the Watermaster's recharge program as described in the OBMP, OBMP PEIR and updated to reflect the current knowledge on the quality of storm water and groundwater in the vicinity of the desalter well fields. Table 1 shows the recharge program envisioned in the OBMP and contains the following components:

- $ Recycled water starting at 4,000 acre-ft/yr in 2003/04 and reaching 22,000 acre-ft/yr in 2019. The TDS and TIN in recycled water is assumed to be 550 mg/L and 10 mg/L-N. The nitrogen loss through percolation was assumed to be 50 percent of the TIN discharged to recharge basin. In this example, recycled water would be half the supplemental water recharge in the Basin.

- $ State project water starting at 6,500 acre-ft in 2002/03 through 2004/05 and thereafter gradually increasing to 22,000 acre-ft/yr in 2019. The TDS and TIN in state project water is assumed to be 250 mg/L and 0.25 mg/L-N.

20-2
cont.

$ New Storm Water recharge will begin in 2002/03 and average 3,000 acre-ft/yr through 2004/05 and thereafter will average about 19,000 acre-ft/yr. The TDS and TIN in storm water is assumed to be 110 mg/L and 0.25 mg/L-N.

TDS and TIN credits and debits from this recharge program are based on assuming the TDS and TIN objectives for the basin north of the existing and proposed desalter wells is 255 mg/L and 2.9 mg/L which are the lowest of the proposed objectives for Management Zones 1, 2 and 3. In this scenario the total recharge program, that includes the recharge of recycled water, new storm water, and state project water, produces salt credits in the early years (no mitigation required) and TDS debits (mitigation required) after about 2006/07. The mitigation for TDS must be provided by the desalters. Note that the TDS concentration assumed for state project water is similar to the TDS objective and therefore does not provide a significant mitigation for TDS in recycled water recharge.

Table 2 shows the desalter program envisioned in the OBMP that is available in part to mitigate the TDS and TIN loading from the recharge of recycled water and contains the following components:

$ Desalter 1 currently is designed for 8 mgd of product water and will be expanded to 12 mgd in 2003/04. The TDS and TIN removal credits for initial 8 mgd capacity are assumed not available for mitigation of recycled water recharge as they were assigned to mitigate the Kaiser TDS plume and the discharge of liquid dairy waste. A portion of the expansion from 8 mgd to 12 mgd is available to mitigate recycled water recharge. The TDS and TIN of groundwater produced by the desalter expansion are assumed to be 800 mg/L and 50 mg/L-N, respectively. Product water TDS and TIN concentrations are assumed to be 350 mg/L and 8 mg/L, respectively.

$ Desalter 2 is designed for 8 mgd of product water and is assumed to be expanded to 28 mgd before 2019/20. This would put total desalter water production at 40 mgd as required by the OBMP and as ordered by the Court. Alternatively, a third desalter could be constructed in the lower Chino Basin in which case Desalter 2 production capacity would be less than 28 mgd and the third desalter capacity would be established such that the production from all three desalters would be greater than or equal to the 40 mgd. The A portion of the TDS and TIN removal credits from Desalter 2 (or Desalter 2 and 3) is available to mitigate recycled water recharge. The TDS and TIN of groundwater produced by the desalter expansion are assumed to be 600 mg/L and 50 mg/L-N, respectively. Product water TDS and TIN concentrations are assumed to be 350 mg/L and 8 mg/L, respectively.

Responses to Comment Letter #20 (continued)

20-2 cont.

- $ Some of the water produced by the desalters will come from areas south of the desalter wells that will not be impacted from the recharge of recycled water. This water will consist of returns from use from overlying land applications of water, deep percolation of precipitation, and from the Santa Ana River. In Watermaster's planning it is assumed that 50 percent of the water tributary to the desalter well field will come from the south and will include Santa Ana River water. Therefore, 50 percent of the TDS and TIN credits generated by these desalters is not available for mitigation of recharge of recycled water

- $ The Regional Board has stated that 20 percent of the desalter capacity should be dedicated to reducing the TDS and TIN mass in the basin that are a results of past agricultural practices.

- $ The TDS and TIN credits are computed by:

Credit = groundwater production * (source water concentration - max (product water concentration, Basin Plan objective) * (1 - fraction from SAR) * (1 - fraction committed to legacy contamination)/735

Table 2 summarizes a probable desalter construction and resulting salt credit schedule through 2019/20. There is always a significant TDS and TIN credit being generated by the OBMP desalter program even with the reduction due to origin of the groundwater tributary to the desalter (50 percent) and the provisions for legacy contamination (20 percent). Table 3 summarizes the results of Tables 1 and 2 and demonstrates that given the conservative assumptions built in to this analysis that there will be enough mitigation capacity for recycled water recharge and there will exist a surplus of TDS and TIN credits.

TDS and TIN Compliance with the Watermaster Proposed Objectives Based on Maximum Benefit

With the Watermaster proposal the objectives would be greater than current ambient concentrations and high enough to establish assimilative capacity. Therefore there would be no mitigation requirement until the TDS and TIN concentration in ambient groundwater exceeds their respective objectives. Watermaster, IEUA and other entities charged with the implementation of the OBMP would still construct and operated storm and imported recharge facilities and would construct and operate the groundwater treatment systems described above and in Tables 1 and 2. A salt credit and debit system would not be required.

<u>Summary</u>

The OBMP included the recharge of recycled water in its certified PEIR. With either the TIN/TDS Task Force or Watermaster proposed TDS and TIN objectives, implementation of the OBMP recharge or groundwater treatment programs will mitigate the new TDS load to groundwater that will occur with recycled water recharge and still have the capacity to improve groundwater quality. With either set of objectives the groundwater quality changes over time would be identical.

groundwater subbasins are changed to reflect proposed Management Zones. The data on Page 4.5-5 clearly indicates that the effluent also exceeds the current adopted TDS and TIN objectives for both the Chino I and Chino II subbasins.

20-2 cont. The draft PEIR also indicates on Page 4.5-11 that the Regional Board has determined that there is no assimilative capacity in the Chino II subbasin and the Chino I assimilative capacity is limited. Thus, the Regional Board will prohibit or limit discharge of wastewater that exceeds objectives.

The draft PEIR proposed to address the adverse impact of TDS and TIN through mitigation measures which include a reference to offsets. However, the methodology for determining when mitigation is required and how offsets are accomplished needs revision. (Reference Page 1-15 and 1-16 attached)

Compliance with the Regional Board Basin Plan and any required mitigation needs to be determined by comparing the quality of wastewater discharged to groundwater basin water quality objectives.

20-3 Mitigation Measures 4.5-5 and 4.5-6 on Pages 1-15 and 1-16 provide for modeling studies and offset "when recharge of recycled water with TDS (and TIN) greater than the background groundwater TDS (and TIN) at a recharge site is utilized." These measures need to be revised to provide for modeling and offset when the TDS and TIN of the wastewater discharged is greater than the water quality objective for the groundwater subbasin underlying the recharge site.

Any assimilative capacity associated with storm water flow may already be committed to addressing current salt load in the groundwater basins or in the river at Prado, and blending wastewater with storm water for purposes of meeting a discharge requirement is not normally permitted by the Regional Board.

20-4 Mitigation Measures 4.5-5 and 4.5-6 on Pages 1-15 and 1-16 provide that the "salt added" shall be offset "by blending with better quality TDS (or TIN) water (storm water)". The mineral quality of groundwater in the upper subbasins of the Chino Basin has continued to degrade since the objectives were set nearly thirty-years ago. Urbanization has decreased deep percolation of storm water, runoff has increased, and in the absence of comparable increases in artificial recharge of storm water, assimilative capacity associated with storm water has probably declined. Recharging storm water in basins that was previously deep percolated on overlying land may simply restore lost assimilative capacity that is already committed to offset existing waste load.

20-5 Another important consideration is that storm water from Chino Basin provides a part of the assimilative capacity necessary to meet the mineral quality objectives at Prado. Therefore, it is necessary to determine the extent to which storm water assimilative

Responses to Comment Letter #20 (continued)

20-3 Please refer to response to comment number 20-2

20-4 The commenter is correct when he states that the need for offsets is required when the TDS and TIN are greater than the respective objective. The text of mitigation measures 4.5-5 and 4.5-6 will be changed accordingly. The commenter should be aware that mitigation measures 4.5-5 and 4.5-6 incorrectly stated that modeling will be required when the TDS and TIN exceed the background water quality. Such modeling is not required and mitigation measures 4.5-5 and 4.5-6 have been revised to delete the modeling requirement.

20-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Prior the original 1975 Basin Plan, all of the storm water in San Antonio Creek and Cucamonga Creek had been diverted outside of the Chino Basin. Deer and Day Creek storm was diverted out of the Chino Basin just after the 1975 Basin Plan was adopted. The engineering for the 1975, 1984 and 1995 Basin Plans all assumed that the storm water recharge (channels and recharge basins) in the Chino Basin averaged 2,300 acre-ft/yr based on computations by William (Bud) Carroll. Most of the precipitation falling on undeveloped land or land in agricultural uses is lost to evapotranspiration. Storm flow increases dramatically with urbanization due to an increase in impervious land cover, decrease in evapotranspiration of rainfall, and construction of drainage improvements. The urbanization that has occurred since the original basin plan has dramatically increased the volume of runoff produced in the Chino Basin area and this increase is a new source of water for recharge. Watermaster has demonstrated this effect and documented it in the Phase 2 Recharge Master Plan completed in 2001. The master plan can be reviewed at www.cbwm.org. OCWD, SBVMWD and WMWS have made a similar determinations in their pending water rights applications filed with the State Water Resources Control Board. The assertion that storm water recharge that will be increased from the current level of about 5,600 acre-ft/yr to 25,000 acre-ft/yr has or "may" already be included in the existing wasteload in Chino Basin is not correct.

Mr. Gary Hackney
June 12, 2002
Page 3

capacity is already committed for waste loads in the groundwater basins or in the Santa Ana River at Prado Dam before assuming that it is available to offset additional waste load from treated municipal wastewater.

20-5 cont. It is also uncharacteristic of the Regional Board to allow a discharger to meet a water quality standard by blending with storm water. Storm water is the only natural source of assimilative capacity and basin plans have been based on the assumption that rainfall and the assimilative capacity from the related deep percolation or runoff is fully committed to existing waste loads.

A Mitigation Agreement with potentially affected parties is needed to definitively establish the methodology for quantifying the amount of TDS and TIN discharged in excess of waste discharge requirements and identify specific arrangements for acquisition of TDS and TIN salt offset credits sufficient to mitigate the adverse impacts.

The opening paragraphs of this letter reference the prior success we have had in addressing this type of environmental issue through mitigation agreements. Mitigation for this plan and the individual projects can be addressed similarly.

Meetings among affected parties which were commenced to address some of these projects should be resumed for the purpose of reaching an understanding regarding salt mitigation for the master plan and all its individual projects. The potentially affected parties within Western include: City of Norco, Jurupa Community Services District, and the Santa Ana River Water Company.

20-6

The commitment to enter a Mitigation Agreement with affected parties prior to discharge of any wastewater with TDS or TIN greater than the objective should be included in Mitigation Measures 4.5-5 and 4.5-6. Western is committed to working cooperatively with Inland to prepare such an agreement.

In conclusion, Western recommends the following language for the TDS Mitigation Measure 4.5-5 and parallel language for TIN in measure 4.5-6. Underline denotes changes from the draft PEIR.

4.5-5 When recharge of recycled water with TDS greater than the water quality objective for the underlying groundwater subbasin is utilized, IEUA will conduct modeling to identify the water quality impacts. In addition, the amount of salt added to the subbasin above the water quality objective shall be calculated. Prior to discharge of any wastewater with TDS greater than the subbasin water quality objective, a Mitigation Agreement will be entered with potentially affected parties that will definitively establish the methodology for quantifying the amount of TDS discharged in excess of waste discharge requirements and identify specific arrangements for acquisition of TDS salt offset credits sufficient to mitigate the adverse impacts. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.

Responses to Comment Letter #20 (continued)

20-6 Taken by itself, the diversion of storm water runoff from the Chino Basin will increase the TDS in the Santa Ana River at Prado during storm events and may cause a slight TDS increase in the water diverted for recharge in Orange County during those storm events. However new storm water will be generated in lower Chino Basin and other areas of the watershed as a result of current and future urbanization that will not being diverted for recharge above Prado and will therefore flow to the River and mitigate TDS impacts from Chino Basin diversions. Note that Chino Basin interests have a right to conserve water upstream of Prado reservoir per the 1969 Judgment in Orange County Water District (OCWD) vs. City Chino et al, which was recently affirmed by OCWD in the Santa Ana River Accord. OCWD can replace the water diverted by Chino Basin interests with low TDS state project water. IEUA and the Chino Basin interests are curious as to know how WMWD and SBVMWD plan to mitigate their diversions from the Santa Ana River at Seven Oaks dam if their application to appropriate water is granted.

The additional potentially affected parties, City of Norco and Santa Ana River Water Company, noted in the comment are located down gradient of the Chino II Desalter well field. Based on the hydrogeologic studies for the Desalter project well production and the maintenance of hydraulic control will be achieved thereby intercepting groundwater flow from the northern portions of the basin. Parties located down gradient of the Desalter well field will not be impacted by the project (e.g., City of Norco and Santa Ana River Water Company).

Additionally, please refer to response to comment 20-1.

20-7 Western looks forward to joining with IEUA and others with similar concerns regarding this draft PEIR to address the salt balance issues in a manner that allows implementation of these important projects, protects water quality and maintains the integrity of the Basin Plan and Regional Board regulatory function.

Sincerely,

Donald Harriger
General Manager

DH/lh

Attachments

Cc: Arthur Littleworth
Gerry Thibeault
Joe Schenk
Carole McGreevy
Arnold Rodriguez
Virginia Grebbien

Responses to Comment Letter #20 (continued)

20-7 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Chino Basin Watermaster Optimum Basin Management Plan and PEIR address the issues of salinity management and water quality of the Basin. The proposed recharge of recycled water is consistent with the OBMP. As noted in response 20-1, the Chino Basin Watermaster will through its Article 10 process determine, if any, mitigation is required from the recharge of recycled water.

TABLE 1.2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

[illegible]	[illegible]	[illegible]	[illegible]
Water Resources / Water Quality (continued)	d. 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 of 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. Degrade water quality. g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard 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 flow. 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. j. Inundation by seiche, tsunami or mudflow.	4.5-3 If the facilities are constructed in a flood-zone, the facility will be brought to a level above flood hazards, or hardened against flood related impacts. Additionally, if facilities must be located within flood plains or hazard areas, a flood management program to minimize impacts to people and surrounding property shall be created and implemented for each facility that may occur within these hazards areas. Operation 4.5-4 The IEUA shall confer with the San Bernardino County Department of Transportation and Flood Control and for each flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define that amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as time and 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. 4.5-5 When recharge of recycled water with TDS greater than the background groundwater TDS at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TDS to be exceeded. In addition, the amount of additional salt added to the Basin above the background groundwater quality condition shall be calculated and this amount shall be offset by blending with better quality TDS water (storm water) or other measures that remove3 salts from the Basin. Under no	Less than significant

TABLE 1.2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Water Resources / Water Quality (continued)		circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body. 4.5-6 When recharge of recycled water with TIN greater than the background groundwater TIN at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TIN to be exceeded. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body. 4.5-7 Pursuant to the proposed DHS regulations, an engineering report must be submitted for each planned recycled water recharge project. The engineering report will include, among other items, a hydrogeologic study that will evaluate and describe, in detail, the vertical and horizontal extent of the underground zone that defines six months of underground retention of the applied recycled water and the 500-foot horizontal buffer zone surrounding the facility. 4.5-8 When recharge of water is proposed within the vicinity of an existing or know groundwater quality anomaly (contaminated groundwater plume), modeling shall be conducted to determine whether recharge of the recycled water will increase the local hydraulic gradient and cause more rapid spread of the existing plume. If existing domestic water production wells will be impacted by the plume a minimum of one year earlier that under pre-	Less than significant

County of Orange
Planning & Development Services Department

THOMAS B. MATHEWS
DIRECTOR

300 N. FLOWER ST.
SANTA ANA, CALIFORNIA

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CA 92702-4048

NCL 02-57

June 12, 2002

Gary Hackney
Planning and Organics Management
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

SUBJECT: DEIR for the Wastewater Facilities Master Plan, Water Recycling Feasibility Study, and Organics Management Strategy Business Plan

Dear Mr. Hackney:

21-1 Thank for the opportunity to respond to the above referenced project. The County of Orange has reviewed the Draft Environmental Impact Report (DEIR) and has no comment at this time. However, we would appreciate being informed of any further developments.

If you have any questions, please contact Charlotte Harryman at (714) 834-2522.

Sincerely,

for Timothy Neely, Manager
Environmental Planning Services Division

ch

RESPONSES TO COMMENTS
LETTER #21
COUNTY OF ORANGE
PLANNING & DEVELOPMENT SERVICES DEPARTMENT

21-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

COMMENT LETTER #22

COUNTY SANITATION DISTRICTS OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

JAMES F. STAHL
Chief Engineer and General Manager

June 12, 2002

File No: 31-370.20.14

Mr. Gary E. Hackney
Inland Empire Utilities Agency
P.O. Box 697
Rancho Cucamonga, CA 91729

Dear Mr. Hackney:

Wastewater, Recycled Water and Organics Management Master Plans

The County Sanitation Districts of Los Angeles County (Districts) received a Draft Program Environmental Impact Report for the subject project on May 20, 2002. We offer the following general comments:

22-1 1. The Inland Empire Utility Agency (IEUA) project area is outside the jurisdictional boundaries of the Districts, however, the Districts serves the project area's northern portion of the Non-Reclaimable Wastewater System (NRWS) through the contract *Waste Water Capacity Agreement*, dated April 27, 1966, as amended June 30, 1997 (Amended Contract).

22-2 2. Industrial wastewater generated by the served northern portion of the NRWS flows to the Districts' JOA-1A Chino Basin Wastewater Line located in Grand Avenue at East End Avenue. The 36-inch diameter JOA-1A Chino Basin Wastewater Line has a design capacity of 22 million gallons per day (mgd) and conveyed a peak flow of 6.6 mgd when last measured in 2001. However, per the Amended Contract, IEUA has the capacity rights for only 13.16 mgd of peak flow and 13.16 mgd of average flow.

22-3 3. Industrial wastewater generated within the served northern portion of the NRWS will be treated at the Joint Water Pollution Control Plant (JWPCP) located in the City of Carson. The JWPCP has a design capacity of 385 mgd and currently processes an average flow of 320.1 mgd.

22-4 4. Amendments to existing Districts' Industrial Wastewater Discharge permits may be required. Additionally, new industrial wastewater dischargers within the served northern portion of the NRWS will require a Districts' Industrial Wastewater Discharge permit. The Districts' Industrial Waste Section should be contacted at extension 2900, in order to reach a determination on these matters. For more detailed Industrial Wastewater Discharge Permit information, you may visit the Districts' website at www.lacsd.org under "Industrial Waste."

RESPONSES TO COMMENTS
LETTER #22
COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

22-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

22-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

22-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

22-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The Industrial Wastewater Discharge permit section will be contacted regarding the need for future amendments.

22-5 5. In order for the Districts to conform with the requirements of the Federal Clean Air Act (CAA), the design capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into the Air Quality Management Plan, which is prepared by the South Coast Air Quality Management District in order to improve air quality in the South Coast Air Basin as mandated by the CAA. All expansions of Districts' facilities must be sized and service phased in a manner which will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels which are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

We offer the following specific comments:

22-6 1. Page 1-5, 4th paragraph, 7th line — A typographical error; correct "mature" to "manure."

22-7 2. Page 3-10 and 3-27 — Statements concerning future solids treatment handling facilities on the Southern California Edison site north of 6th Street should be revised to state that these facilities could potentially be located on the Edison property through future acquisition by either the IEUA or IERCA.

22-8 3. Page 3-72 — Should state that 17 trucks of biosolids will be delivered to the project daily, not 35 trucks.

22-9 4. Page 3-73 — Two main sewers used to convey manure; the flows of 377,000 MGD and 539,000 MGD were probably intended to be in "gallons per day" not MGD.

22-10 5. Page 3-74 — The construction schedule should indicate that these are only "Estimated" construction start dates.

22-11 6. Page 3-79 — Capacity of IERCF is listed as 150,000 to 250,000 tons per year. IERCF capacity should be stated as 75,000 tons/year biosolids for IEUA, 150,00 tons/year total for IEUA (150,000 tons/year biosolids and 300,000 tons/year total capacity for the IERCF).

22-12 7. Page 4.6-3, Table 4.6-1 — There are errors in year 2000 data and all NOx annual average values should be an order of magnitude lower.

22-13 8. Page 4.6-9, 2nd paragraph — Table 10-2 of SCAQMD Air Quality Handbook identifies POTWs as an emission source of chloroform.

22-14 9. Page 4.6-9, 4th paragraph — Correct "Rule 140w" to "Rule 1401." Change "greater" in three bullets items to "less."

22-15 10. Page 4.6-10, 2nd paragraph — One of the most significant rules applicable to Master Plan is Proposed Rule 1133 that would impact all composing operations

Responses to Comment Letter #22 (continued)

22-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Please refer to SCAG comments, letter 8-1.

22-6 The suggested change will be incorporated into the Final PEIR.

22-7 Comment noted, increasing the ultimate capacity of RP-4 to 48 MGD, will require that additional land be acquired for solids and liquid treatment processes. IEUA is currently evaluating the availability of land in close proximity to RP-4 for this purpose. It is also possible that land near RP-4 will be used for activities associated with the proposed Inland Empire Regional Composting Facility.

22-8 The reference to page 3-72 relates to 35 truck trips and is correct. The commenter has calculated the number of inbound truck loads.

22-9 The suggested change will be incorporated into the Final PEIR.

22-10 The suggested change will be incorporated into the Final PEIR.

22-11 We have interpreted the comment to relate to clarifying the basis for the IERCF capacity rating on page 3-79. The range stated, is the anticipated biosolids through-put. Additional materials such as bulking agents will also enter the facility and would be in addition to the 150,000-250,000 tons per year stated.

22-12 The suggested change will be incorporated into the Final PEIR.

22-13 The text of the Final PEIR will be corrected to clarify this section of the document.

22-14 The suggested change will be incorporated into the Final PEIR.

22-15 The suggested change will be incorporated into the Final PEIR.

22-16 11. Page 4.6-10, 4th paragraph — Key impact of Regulation XIII should include dispersion modeling analyses to show no impact on air qualities and plume visibility to Cucamonga and other federal Class I areas nearby.

22-17 12. Pages 4.6-27 through 4.6-30 — It is assumed that since the composting operations will be fully enclosed and vented to biofilters, no significant air pollution emissions are anticipated from all composting facilities, and thus no composting emissions are included in their emission estimates. We believe this is not a reasonable assumption; SCAQMD should be consulted to estimate potential emissions of VOCs, ammonia and PM10 from composting operations.

22-18 13. Page 4.6-33, 1st paragraph — Table 10-2 of the SCAQMD Air Quality Handbook identifies POTWs as an emission source of chloroform.

22-19 14. Page 4.11-4 — The first word "pipeline" is also the last word on the preceding page.

22-20 15. Page 4.11-4 — IEUA only has capacity rights for discharging 13.16 mgd into the Districts' system per the Amended Contract (see above general comment No. 2) which expires April 26, 2016.

If you have any questions, please contact the undersigned at (562) 699-7411, extension 2722.

Very truly yours,

James F. Stahl

Dainis Kleinbergs

Dainis Kleinbergs
Senior Engineer
Planning & Property Management Section

DK:rf

Responses to Comment Letter #22 (continued)

22-16 The text of the Final PEIR will be corrected to clarify this section of the document.

22-17 Please refer to Appendix 8.3 which characterizes air emissions and odors from a biofilter system.

22-18 Please refer to response to comment 22-13.

22-19 The suggested change will be incorporated into the Final PEIR.

22-20 Please refer to response to comment 22-2.

SINCE 1933 ORANGE COUNTY WATER DISTRICT A TRADITION OF INNOVATION

ORANGE COUNTY WATER DISTRICT

June 12, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

Subject: Comments on April 2002 Draft Program EIR

Dear Mr. Hackney:

The Orange County Water District (OCWD) appreciates the opportunity to provide comments on the Inland Empire Utilities Agency (IEUA) Draft Program Environmental Impact Report (PEIR) for the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan.

OCWD supports water recycling and enhancement of the water resources in the Santa Ana River watershed. OCWD is committed to working cooperatively with water and
23-1 wastewater agencies throughout the watershed to encourage efficient use of water resources, protect water quality, and safeguard and enhance environmental habitat.

IEUA is taking positive steps to address water quality issues in the Chino Basin that also benefit downstream groups like Orange County. OCWD commends IEUA for its proactive steps to address the issue of dairy manure through the Organics Management Master Plan and sewering of dairies for disposal of dairy washwater. We also appreciate IEUA's efforts to reduce the TDS impacts of self-regenerating water softeners through various means, including public education and rebate programs. These efforts help address the buildup of salts and nutrients in the Chino Basin and minimize the effects of water softeners, bringing benefits to both the Chino Basin and Orange County.

In the past few weeks, OCWD staff have had several discussions with IEUA's staff and consultants to confer about the proposed projects and clarify key issues. OCWD
23-2 appreciates the openness of IEUA's staff and consultants in this effort to move your projects forward in a manner that maintains Orange County's interests in protecting water quality in the Santa Ana River and habitat viability in the Prado Basin.

P.O. Box 8300, Fountain Valley, CA 92728-8300 • 10500 Ellis Avenue, Fountain Valley, CA 92708

RESPONSES TO COMMENTS
LETTER #23
ORANGE COUNTY WATER DISTRICT

23-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA appreciates the cooperation of OCWD in developing coordinated actions to address the long term water quality issues within the Santa Ana River watershed. IEUA intends to use the three Master Plans as a basis to develop projects that more efficiently use water through recycling and recovering poor quality water supplies for beneficial use, protecting downstream water quality, and to assist in the maintenance of environmental habitat values within the Prado Basin.

23-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA supports the TIN/TDS process and the update of the Basin Plan.

As you are aware, OCWD, IEUA and the Regional Water Quality Control Board
(RWQCB) among others have long standing positions on watershed issues and water
quality impacts in the Santa Ana River. OCWD has historically opposed any water
23-2 cont. supply use that was inconsistent with the RWQCB's Basin Plan due to downstream
water quality concerns. With the advent of the TIN/TDS process we are pleased to see
our agencies and the RWQCB working cooperatively to address longstanding basin plan
issues regarding TDS and nitrate.

IEUA's approach on its Master Plan relies heavily on three main concepts; regulation by
the RWQCB and DHS, implementation of TIN/TDS recommendations by the RWQCB
most likely from a maximum benefit approach, and implementation of a "Hydraulic
Barrier" and Groundwater Monitoring Program to verify that the Hydraulic Barrier is
effective. OCWD is a full participant in the TIN/TDS process and seeks to reach
23-3 consensus with the participants in the TIN/TDS Task Force to protect water quality and
allow reclamation in a collaborative manner. We will however, continue to stress that
compliance with Basin Plan objectives is mandatory. Further, while OCWD understands
that the Basin Plan may be modified, OCWD has been assured by the RWQCB that there
would not be a corresponding relaxation in the Waste Discharge Requirements of the
Water Reclamation Plants. This is important as only with a combination of the Hydraulic
Barrier and continued TDS discharge requirements for the Water Reclamation Plants can
the water quality of the Santa Ana River be protected.

OCWD's comments on the PEIR revolve around several key issues.

- Water quality in the Santa Ana River must be protected.
- Habitat viability in the Prado Basin must be ensured.
- The Hydraulic Barrier if properly implemented would appear to protect water quality in the Santa Ana River.
- 23-4 In order to gauge the effectiveness of the Hydraulic Barrier and ensure water quality and habitat protection a Groundwater Monitoring Program must be implemented.
- We respectfully request that the monitoring program be documented in a Memorandum of Understanding or agreement between our two agencies (and other appropriate agencies) and that this MOU be documented in the PEIR as a mitigation measure.

Attached please find a detailed list of comments corresponding to specific sections in the
23-5 PEIR. Also, I have attached for your consideration components that should be included
in the monitoring program for the Hydraulic Barrier.

I look forward to coordinating with IEUA as you expand your ability to recharge the
23-6 Chino Basin. If you would like to discuss these issues in further detail, please contact me
or Greg Woodside at 714-378-3275.

Responses to Comment Letter #23 (continued)

23-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

23-4 IEUA is working cooperatively with the Chino Basin Watermaster and the Chino Desalting Authority to develop a comprehensive monitoring program that encompasses the objectives of all three entities within the framework of Watermaster=s Chino Basin Groundwater Monitoring Program. IEUA welcomes OCWD's comments and suggestions related to the development of the monitoring program. Chino Basin Watermaster has recently published the final draft AState of the Basin@ report which does include a draft monitoring plan and plan for hydraulic control of the Basin outflows. IEUA appreciates your review and comments on the draft comprehensive report to ensure we incorporate your suggestions on an effective monitoring program to measure the hydraulic control pumping program.

23-5 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

23-6 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

Sincerely;

Virginia Grebbien, P.E.
General Manager

Attachment One
OCWD Specific Comments on IEUA Draft PEIR

23-7 1. The salt offset calculations shown in Table 4.5-11a in the draft PEIR need further documentation. The reference of the source of the information (Source: OBMP, 1999) is not adequate to evaluate the calculations because the OBMP document does not have sufficient information.

23-8 2. In regards to Table 4.5-11a and the discussion of salt offsets on page 4.5-28, salt and nitrate credits or offsets from the Chino I desalter should not be used to offset recycled water recharge at concentrations above the Basin Plan objectives because the Chino I desalter salt credits have already been allotted or assigned to the dairies and the Kaiser Steel facility plume (as documented in the Regional Board's Fact Sheet for NPDES No. CAG018001, Order NO. 99-11, General Waste Discharge Requirements for Concentrated Animal Feeding Operations).

23-9 3. Table 4.5-11a in the draft PEIR lists the desalter offset capacity, but it is not clear who owns the desalter salt credits or offsets.

23-10 4. Table 4.5-11a and page 4.5-28 in the Draft PEIR discuss offsets generated by new stormwater recharge. OCWD understands the phrase "new stormwater recharge" to mean the additional stormwater recharge that occurs as a result of engineered structural basin improvements to be built in the future and is therefore stormwater recharge that would not have occurred as part of the system currently in place. The PEIR should commit to documenting the existing amount of stormwater recharge so that new stormwater recharge can be calculated and compliance with the Basin Plan can be demonstrated.

23-11 5. Regarding the proposed offsets described in Table 4.5-11a and Table 4.5-11b, it should be noted that IEUA is relying upon offsets that are not entirely under IEUA's control. For example, the increased stormwater recharge and desalter salt removal require successful completion of projects by entities besides just IEUA. If these projects upon which IEUA is relying are not successfully implemented, then IEUA would need to adjust its project implementation approach to avoid negative impacts. Specifically, if the proposed offsets do not occur or otherwise are not properly implemented, groundwater quality in the Chino Basin could worsen and this worsening of groundwater quality may impact the quality of the Santa Ana River. As described on page 4.5-2 of the Draft PEIR, rising groundwater (discharge of groundwater to surface water) occurs in Chino Creek, in the Santa Ana River at Prado Dam, and potentially other locations on the Santa Ana River. The rising groundwater contains high concentrations of TDS and nitrate. Any deterioration of water quality in the Santa Ana River impacts Orange County, since the Santa Ana River is the primary source of replenishment water for the Orange County Groundwater Basin. The proposed Groundwater Monitoring Program should be the vehicle that provides enough early warning to allow for adjustments and avoidance of negative impacts.

23-12 6. The Draft PEIR does not have a detailed calculation of the salt balance in the combined water and wastewater system in the Chino Basin. OCWD is therefore

Responses to Comment Letter #23 (continued)

23-7 Please refer to response to comment number 20-2.

23-8 The commenter is correct. Please refer to comment number 20-2.

23-9 Watermaster has the authority to allocate salt credits created by the desalters (with the exception of the first 8 mgd from Desalter No. 1) and from the recharge of new storm water. See Section 5.5 Salt Credits on page 38 of the Chino Basin Peace Agreement (www.cbwm.org).

23-10 We agree. Watermaster and IEUA will provide documentation for the baseline (pre project conditions) within 12 months of the certification of the PEIR. Watermaster and IEUA will be monitoring the volume of recharge and the water quality of the recharge and, as part of the OBMP reporting process, will produce a report in July or August each year that will document the volume and water quality of recharge.

23-11 It is the intent of IEUA and CBWM to assure that offsets are in place when recharging recycled water to the Chino Basin Aquifer, whether it is offset by storm water recharged in the basin, construction and operation of Chino Basin Desalter No. 1 and the future Desalter No. 2, and/or export of additional brine in the Non Reclaimable Wastewater lines from the Basin plus more effective source control of salinity into the recycled water plants through regulation of water softeners and activities that increase the salinity of wastewater.

23-12 Comment noted. The estimated current TDS concentration in the area affected by the proposed recycled water program is about 270 mg/L. Watermaster estimates that the TDS concentration in the areas affected by the recharge and direct use of recycled water, and the recharge of state project water will asymptotically approach about 400 mg/L in the distant future without the recharge of recycled water described in Program Environmental Impact Report for the Wastewater Facilities Master Plan, Recycled Water Master Plan, Organics Management Master Plan, SCH 2002011116 (Draft PEIR); and that the TDS increase caused from the proposed recycled water recharge is estimated to be about 30 mg/L. Clearly, at some point in the future, IEUA will have to desalt groundwater and/or recycled water such that the TDS concentration in IEUA recycled water will meet the TDS limitation in IEUA's current permit. The Regional Board will ensure that this will happen through its regulatory authority. IEUA will not request higher TDS and TIN limitations in their effluent as a result of future increases in TDS and TIN in Chino Basin groundwater.

23-12 cont. concerned that a gradual TDS and/or nitrate increase may occur in the effluent discharged by IEUA. We have discussed this issue with the RWQCB staff and they have indicated that the Waste Discharge Requirements for TDS and/or nitrate will not be changed. Further, it is our understanding that IEUA will not request numeric limits for TDS and/or nitrate from the Regional Board for IEUA's NPDES permits or Waste Discharge Requirements that are higher than the numeric limits in IEUA's existing NPDES permits. OCWD respectfully requests that these understandings be documented in the PEIR.

23-13 7. On page 4.5-32 and following, the draft PEIR discusses 'hydraulic control.' The definition of 'hydraulic control' needs to be more precise. What does the term "minimize" mean when the draft PEIR states, "... to minimize or eliminate rising groundwater losses to the Santa Ana River."?

23-14 8. On page 4.5-33 the Draft PEIR states "Hydraulic control is an important management tool in the Chino Basin because it maximizes the yield of the basin by maximizing streambed recharge in the Santa Ana River upstream of Prado Flood Control Basin and minimizes or eliminates rising groundwater losses in the Santa Ana River. Hydraulic control is necessary to ensure that groundwater, heavily contaminated with nitrate and TDS, does not discharge to the river and impact water users in Orange County." OCWD concurs that the concept of hydraulic control is important. The linkage between maintaining hydraulic control and mitigating impacts from the proposed project is important, because a lack of hydraulic control could cause additional heavily contaminated groundwater to discharge to the Santa Ana River. It should be noted that absent hydraulic control, the additional recharge in the proposed projects will increase the amount of groundwater discharge to the Santa Ana River and impact water users in Orange County. On page 4.5-33 the Draft PEIR states "CBWM and IEUA will conduct monitoring programs to determine the state of hydraulic control, use these data to modify OBMP operations to maintain hydraulic control, and use these data to update CBWM's modeling tools." The monitoring program(s) mentioned on page 4.5-33 have not been described in detail in the Draft PEIR. OCWD requests that the monitoring program(s) be documented in a Memorandum of Understanding or agreement between our agencies and other appropriate agencies. OCWD has outlined general components for the monitoring program(s) as listed in Attachment Two.

23-15 9. As a result of the various activities in the Chino Basin, multiple monitoring plans are possible, and it would be best to have the smallest number of plans possible to minimize duplication of effort and overlap. The Draft EIR indicates IEUA will have a monitoring plan regarding recycled water recharge for DHS purposes. The Chino Basin Desalter Authority and Chino Basin Watermaster have each committed to developing and implementing groundwater monitoring plans. The existence of multiple plans could lead to undesirable overlap. OCWD requests that these plans be coordinated and merged to the extent possible.

23-16 10. From the aspect of wildlife and habitat impacts, OCWD's main concern is viability of the riparian forests and other wetland habitats of the Prado Basin. This habitat is of national significance for the diversity and abundance of their

Responses to Comment Letter #23 (continued)

23-13 Watermaster, in developing the OBMP, recognized that since at least the early 1960's there has been very little flow from the northern part of the Basin through the agricultural area to the River, and that the yield of the Basin could be increased if the groundwater discharge was "minimized or eliminated. Santa Ana River water recharges the Basin on the south and provides some water to wells in the southern end of the Basin, supports riparian vegetation along the River, and some rising water near Prado dam. Watermaster's goal is to eliminate the groundwater discharge from the areas north of the existing and future desalter well fields and maximize the recharge in the Santa Ana River that can be captured by the desalter wells. There will be times in extraordinary wet periods when some water from the north could pass through the desalter well fields and discharge to the River. Watermaster has control of the artificial recharge in the Chino Basin. Through Watermaster and IEUA monitoring and modeling efforts, Watermaster will adopt recharge practices that will minimize or eliminate the discharge of groundwater from north of the desalter well fields to the Santa Ana River. Watermaster has already begun this process by deferring half the replenishment obligation of the Chino No. I desalter in fiscal 2001/02 and will consider complete deferment in 2002/03.

23-14 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

IEUA agrees in concept to the monitoring program proposed in OCWD comment letter, Attachment Two. IEUA, Chino Basin Watermaster, and other involved Chino Basin interests will use best efforts to develop a monitoring program and Memorandum of Understanding with OCWD within the next 12 months.

Additionally, please refer to response to comments number 23-4.

23-15 It is anticipated that there will be one coordinated monitoring plan that will be implemented through the Watermaster that will provide the comprehensive monitoring required for all of the OBMP related programs, including the Recycled Water Master Plan.

23-16 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

23-16 cont.

wildlife populations including Federally listed species. Multiple agencies have provided the stewardship and management in the Prado Basin that has resulted in these significant biological resources. This habitat has enabled both the upper and lower watersheds to improve their water resource opportunities by providing mitigation for storing water behind Prado Dam to providing storm water treatment and nitrate removal. These resources are water dependant and require resources to operate and maintain.

23-17

11. The current discharge of recycled water from Mill and Chino Creeks into Prado Basin is estimated to be 45,000 acre-feet per year in the Draft EIR (Page 4.8-17, paragraph 4, line 4). This is proposed to be cut to 22,000 acre-feet by 2005, but future discharges will vary but generally be higher. OCWD is concerned that contracts negotiated for Recycled Water Reuse could leave too little water to maintain habitat viability during dry seasons and dry years especially during the "pinch point years". OCWD requests the PEIR commit to ensure an adequate base flow for the purposes of maintaining habitat viability under all possible hydrologic circumstances. The PEIR should commit to developing a cooperative program to monitor the riparian forest for water stress during drought years and low-flow periods. The monitoring plan also must designate specific response actions if problems are observed. This monitoring plan should contain similar elements as and be coordinated and integrated with the monitoring plan committed to by the Chino Basin Desalter Authority in the EIR and response to comments for the Chino I Desalter Expansion and Chino II Desalter Project (prepared for the Chino Basin Desalter Authority by Tom Dodson and Associates and RBF Consulting, Draft EIR prepared November 2001, with response to comments dated January 2002).

23-18

12. Our review of the Draft PEIR could not find any discussion of the potential need for salt offsets for irrigation with recycled water when the TDS exceeds the Basin Plan objective.

Responses to Comment Letter #23 (continued)

23-17 Over the many years of implementing the proposed master plans, one of the monitoring issues committed through the Chino Basin Desalter Authority (CDA) is the establishment of a monitoring system for determining changes in riparian and wetland habitat that supports the key species identified in these comments. IEUA, as a CDA member agency, is also committed to this monitoring program. The key issue will be over the next few years to establish a minimum volume of flow required to support the existing riparian/wetland habitat. Under the provisions of the 1969 Santa Ana River Judgement, IEUA is required to discharge a minimum of 17,000 acre-feet of wastewater annually. The amount of flow required, particularly during the natural low flow conditions, will be critical to define, and IEUA will be participating with the CDA to establish this value through the ongoing monitoring program being established at this time.

23-18 Incidental recharge due to Irrigation with recycled water, in lieu of State Water Project Water, is not anticipated to result in a significant impact to the TDS of the Basin. In addition the expected TDS of the recycled water is below the drinking water standard thereby avoiding impacts to pumpers within the basin. Impacts to parties downstream of the basin will be avoided by achieving hydraulic control with the Chino Desalter Projects.

Attachment Two
General Components for Groundwater Monitoring Plan

The purpose of the Groundwater Monitoring Plan is to adequately address the requirements for monitoring and mitigating the identified potential water level and water quality impacts resulting from the proposed projects and to verify the existence of hydraulic control. The groundwater monitoring program (GMP) should contain, at a minimum, the following components:

- The GMP shall be considered the cornerstone to providing the data needed to measure and evaluate the success and/or potential negative impacts of the proposed projects and verification of hydraulic control.

- The general goals of the monitoring program are to provide data and analyses that: a) verify that the proposed projects will not have a negative impact on water quality in the Santa Ana River, b) demonstrate that the desalters entirely capture the high-TDS and high-nitrate groundwater between the desalter wells and the Santa Ana River, and c) demonstrate the ability of the desalters to fully achieve the "Hydraulic control is necessary to ensure that groundwater, heavily contaminated with nitrate and TDS, does not discharge to the river and impact water users in Orange County."

- The area in which monitoring is required (monitoring area) is the portion of the Chino Basin bounded by the Santa Ana River to the south, including the Prado Basin and the area of the desalters' estimated drawdown of five feet or
23-19 greater (the estimated drawdown of five feet or greater is shown on Figure 4.3-18 in the Draft Subsequent EIR for the Chino I Desalter Expansion and Chino II Desalter Project, prepared for the Chino Basin Desalter Authority by Tom Dodson and Associates and RBF Consulting, November 2001).

- The objectives of the GMP shall include providing data of sufficient quality and quantity to reasonably evaluate: a) temporal and spatial trends in groundwater quality (including TDS, nitrate, VOCs, perchlorate, and other contaminants of concern) b) temporal changes in depth-specific groundwater quality with respect to the aforementioned constituents; c) temporal changes in horizontal groundwater level gradients, and d) temporal changes in vertical groundwater level gradients.

- Data collection shall be of sufficient frequency and spatial density to identify and assess seasonal and long-term changes in groundwater levels and quality such that groundwater equipotential maps and chemical constituent isoconcentration maps can be prepared at a minimum on an annual basis by a qualified professional exercising a reasonable standard of care.

- Existing or proposed new wells from which water level and/or quality data are to be collected for the GMP shall be of sufficient construction and protection from vandalism or unauthorized access to provide technically-defensible data.

- The GMP should include monitoring of pumping rates in the Chino Basin, since the maintenance of hydraulic control is linked to the maintenance of production by wells owned by others (not just the desalter wells).

- New monitoring wells shall be constructed as needed to fill data gaps that, otherwise, would preclude or jeopardize achieving of the GMP objectives.

23-19 cont.

- Baseline conditions shall be established and shall include establishment of horizontal and vertical groundwater gradients and spatial and depth-specific water quality constituent concentrations throughout the monitoring area.

- All data collected for the purposes of the GMP shall be publicly available and shall be compiled in an annual monitoring report.

- A GMP technical group of interested stakeholders shall be formed, including agencies such as IEUA, the Chino Basin Watermaster, the Chino Basin Desalter Authority, the Santa Ana RWQCB and OCWD, to review the data and findings of the GMP on a minimum annual basis. The GMP technical group shall be initially tasked with reviewing the proposed GMP and shall be able to make recommendations for changes to the GMP.

COMMENT LETTER #24

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Tal Finney
INTERIM DIRECTOR

June 13, 2002

Gary E. Hackney
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

Subject: Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Master Plan
SCH#: 2002011116

Dear Gary E. Hackney:

24-1 The State Clearinghouse submitted the above named Draft EIR to selected state agencies for review. The review period closed on June 12, 2002, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Terry Roberts

Terry Roberts
Director, State Clearinghouse

Responses to Comment Letter #23 (continued)

23-19 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA concurs with OCWD=s components for inclusion in the hydrologic control groundwater monitoring program.

RESPONSES TO COMMENTS
LETTER #24
STATE CLEARINGHOUSE

24-1 This letter is acknowledgment by the State Clearinghouse that the environmental document was received by the State for public review. It also identifies the State agencies that were provided copies of the environmental document for public review and comment. No specific response is required to this letter since it does not raise any environmental issues.

Document Details Report
State Clearinghouse Data Base

SCH# 2002011116
Project Title Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Master Plan
Lead Agency Inland Empire Utilities Agency

Type EIR Draft EIR

Description The Inland Empire Utilities Agency (IEUA) will serve as the Lead Agency under the California Environmental Act (CEQA) and will coordinate the preparation of a focused Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management master plans for wastewater, recycled, water and organic materials within its service area.

Lead Agency Contact

Name Gary E. Hackney
Agency Inland Empire Utilities Agency
Phone 909-357-0241 ***Fax***
email
Address 9400 Cherry Avenue, Building A
City Fontana ***State*** CA ***Zip*** 92335

Project Location

County San Bernardino
City Chino Hills, Fontana, San Gabriel
Region
Cross Streets Interstates 15 and 10
Parcel No.
Township ***Range*** ***Section*** ***Base***

Proximity to:

Highways I-10 & 15
Airports Ontario International
Railways UP & BN
Waterways Several, including Santa Ana River
Schools
Land Use Variable

Project Issues Air Quality; Archaeologic-Historic; Flood Plain/Flooding; Drainage/Absorption; Geologic/Seismic; Noise; Public Services; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies Resources Agency; Department of Fish and Game, Region 6; Department of Parks and Recreation; Department of Water Resources; Caltrans, District 8; Department of Health Services; Integrated Waste Management Board; State Water Resources Control Board, Division of Water Quality; Regional Water Quality Control Board, Region 8; California Energy Commission; Native American Heritage Commission; State Lands Commission

Date Received 04/29/2002 ***Start of Review*** 04/29/2002 ***End of Review*** 06/12/2002

COMMENT LETTER #25

RECEIVED JUN 14 2002 IEUA PLANNING

jurupa
COMMUNITY SERVICES DISTRICT

RECEIVED

INLAND EMPIRE UTILITIES AGENCY

June 11, 2002

Mr. Gary E. Hackney, P.E.
Manager of Planning and Process Engineering
Inland Empire Utilities Agency
P.O. Box 697
Rancho Cucamonga, CA 91729

RE: DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE WASTEWATER FACILITIES MASTER PLAN RECYCLED WATER MASTER PLAN ORGANICS MANAGEMENT MASTER PLAN

Dear Mr. Hackney:

25-1 Jurupa Community Services District (District) has reviewed the referenced document. As a participant in the planning process, we appreciate the difficulty of evaluating a program of this nature and magnitude. We find that the analyses included within the Program EIR are sufficient at this time however, we anticipate reviewing further environmental documents as the master plans are implemented.

25-2 At this time, the District requests that the terms established in the "Principles of Agreement; Recharge of Recycled Water in the Chino Basin; Management Zone - 3 (MZ3)" (copy attached), as adopted by the Boards of Inland Empire Utilities Agency and Jurupa Community Services District on June 5, and June 10, 2002 respectively, be integrated into the Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan Program EIR as mitigation measures. We feel this will further insure that both parties involved in the agreement will be satisfied throughout the implementation of the master plans.

Thank you for your consideration of these comments. Please provide a copy of the final EIR for District review prior to the decision-making hearing.

Sincerely,

Carole A. McGreevy
General Manager

C: T. Dodson
M. Wildermuth
D. Morgan
J. Hondlao

Copy: John Schatz, Esq.
Richard W. Atwater, IEUA
2210dp.ltr.IEUA.reDEIRcmts

RESPONSES TO COMMENTS
LETTER #25
JURUPA COMMUNITY SERVICES DISTRICT

25-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

25-2 IEUA will incorporate the APrinciples of Agreement: Recharge of Recycled Water in the Chino Basin: Management Zone - 3 (MZ3)@ as a mitigation measure into the Final PEIR and will also incorporate this document into the Mitigation Monitoring and Reporting Program. A more recent version of the copy of the Agreement is attached to this set of responses and will be utilized in the Final PEIR. Please refer to the attached copy of the Agreement.

Principles of Agreement
Recharge of Recycled Water in the Chino Basin
Management Zone B 3 (MZ-3)

Parties to this agreement include, Inland Empire Utilities Agency, (IEUA) and Jurupa Community Services District (JCSD).

I. Basis for Agreement Principles

A. Program Element 2 of the Chino Basin Optimum Basin Management Program (OBMP) identified new artificial recharge projects in the Chino Groundwater Basin. The OBMP Implementation Plan includes the expansion of recharge in the eastern side of the Chino Basin (hereafter Management Zone 3 or MZ-3), through the upgrading of existing facilities, and the construction of new facilities. The sources of recharge water may include storm water, imported water and recycled water.

B. IEUA and Chino Basin Watermaster (Watermaster) have conducted engineering and environmental studies that demonstrate the feasibility of recharging and blending recycled water with storm water and imported water in the Etiwanda Conservation Ponds. The resulting water quality of the proposed recharge water mix must be better than present (June 2001) ambient groundwater tributary to JCSD=s most northerly wells, and must meet drinking water requirements.

C. Existing groundwater tributary to JCSD wells contains elevated nitrate concentrations requiring treatment prior to distribution to the public. Unless low nitrate recharge projects are constructed there is a lack of low nitrate recharge upgradient that is tributary to JCSD wells. The nitrate concentration in groundwater produced at JCSD wells is projected to increase rapidly in the future. The likely sources of the nitrate are from a variety of historical activities including: agricultural and industrial land uses, and the operation of RP-3 upgradient of the JCSD wells, the latter which is the subject of a cleanup order issued by the Regional Water Quality Control Board.

D. JCSD will construct nitrate removal facilities, with an estimated capacity of 10,000 gpm (14.4 mgd) in three phases within the next ten (10) years. These nitrate removal facilities are necessary to utilize existing groundwater supplies and provide for new demands; in addition JCSD is purchasing treated groundwater from the Chino I Desalter.

E. JCSD is currently an over-producer, producing groundwater from the Chino Groundwater Basin which exceeds the aggregate of its Appropriative Rights, (its share of Initial Operating Safe Yield and Agricultural Pool Transfers) as provided by and authorized under the Judgment and Peace Agreement, and therefore must purchase imported water for replenishment. Replenishment water purchased by JCSD is currently recharged high in the Chino Basin. Consequently, JCSD does not receive the water quality benefits at its wells commensurate with the recharged imported water.

F. As identified in I-B, the Etiwanda Conservation Basins have been identified for recharge of greater quantities of storm water, imported water and recycled water. Artificial recharge at these facilities may benefit JCSD far sooner than artificial recharge at the existing facilities higher in the Basin; however, recharge in the vicinity of JCSD=s wells may influence the transmission of salts and nitrate, presently in the basin, to JCSD=s wells.

G. The OBMP identifies the IEUA Regional Plant No. 3 (RP-3) site for additional recharge storm water, imported water and recycled water. Imported water and recycled water will be collected in and pumped from the Jurupa Basin to the RP-3 basins. Excess storm water captured at Jurupa Basin will be collected in and pumped to the RP-3 site. Additionally, storm water will be diverted from the Declez Channel for recharge at the RP-3 site. The recycled water will be blended with storm water and imported water such that the water recharged will meet and/or exceed the California Department of Health Services (DHS), Title 22, California Code of Regulations, Division 1, Environmental Health, Chapter 3. Recycling Criteria for down gradient potable wells.

H. New artificial recharge at the RP-3 site is projected over time to mitigate impacts of TDS and TIN at JCSD wells from previous upgradient farming, industrial and RP-3 operations.

I. The OBMP divides the Chino Basin into five management zones (MZs) for which Watermaster is developing and implementing specific groundwater management plans to address both hydraulic and water quality challenges. Alternatively, the Santa Ana Regional Water Quality Control Plan divides the Chino Basin into three subbasins establishing Water Quality Objectives to protect beneficial uses. It may be mutually beneficial to IEUA and JCSD in coordination with Chino Basin Watermaster to consider recharge operations for Management Zone 2 and Zone 3

II. Principles of Agreement

A. The recharge of recycled water in conjunction with new storm water and imported water is projected to improve the present TDS and nitrate concentrations at down-gradient wells. Groundwater monitoring will be conducted at agreed upon locations using "Standard Methods for the Examination of Water and Wastewater" to measure and document the groundwater quality improvements through the additional storm water, imported water and recycled water recharged upgradient to the JCSD wells within Management Zone 3 and provided to the MZ-3 Operating Committee and Watermaster which Committee shall be established for purposes of overseeing and making recommendations to Watermaster concerning the provisions of this Agreement.[1]

B. Recharge of recycled water shall initially not exceed twenty percent (20%) on a rolling average, with the time period for the rolling average to be developed and recommended to Watermaster by the MZ-3 Operating Committee, of the blend of storm water and imported water at each recharge basin in MZ-3. Increases in the percentage of recycled water blended with storm water and imported water, and increases in the volume of such blended water used for recharge, will be allowed only after the monitoring program data and groundwater modeling from the initial trial levels of recharge indicates no material physical injury will occur to down-gradient producers, subject to review and approval of the Chino Basin Watermaster and the MZ-3 Operating Committee.

C. Impacts on JCSD wells and increases in TDS or nitrate within MZ-3 shall be prevented by the following activities:

~~1.~~ Subject to DHS Title 22, California Code of Regulations, Division 1. Environmental Health, Chapter 3. Recycling Criteria, storm water and imported water will be recharged at the same site that recycled water is recharged to minimize TDS and ~~nitrate~~ nitrogen impacts to down-gradient producers or, in the alternative, storm water, imported water and recycled water will be recharged in accordance with an operational plan to be developed in conjunction with Watermaster, which will consult with JCSD and the City of Ontario. In addition to the provisions of ~~s~~Section II-B, the recharge of recycled water will be limited ~~such that the TIN mitigation requirement for the recycled water component in MZ-3 results in a net~~ by the combined TIN concentration of recycled water, storm water and imported water, unless otherwise determined by the MZ-3 Operating Committee and recommended to Watermaster ~~credit.~~ The TIN mitigation requirement will be computed as the TIN of the recharged water measured in the vadose zone on ~~a~~a ~~five-year~~ rolling average, with the time period for the rolling average determined in accordance with Section II-B, minus the Water Quality Objective for TIN (in mg/L), with the difference multiplied by the total volume (in acre-ft) recharged, divided by 735 (converts ~~TIN concentration in mg/L acre-ft*mg/L~~ to TIN concentration, expressed as mg/L, to tons).

[1] The proposed membership of the MZ-3 Operating Committee is to include producers within MZ-3, IEUA, and San Bernardino County Flood Control District.

2. The TIN mitigation requirement (if any) within the basin will be satisfied first by dilution with storm and imported water and then by removing TIN at the Chino Basin desalters located in the southern part of the Chino Basin.

~~2~~3. Any TDS mitigation requirement for the recycled water recharge component in MZ-3 will be computed as the difference between the TDS of the recharged recycled and storm water on ~~a~~ a rolling average ~~of five (5)three (3) years~~, with the time period for the rolling average determined in accordance with Section II.B., minus the Water Quality Objective for TDS (in mg/L) with the difference multiplied by the total volume (in acre-ft) recharged divided by 735 (converts ~~acre-ft*mg/LTDS concentration in mg/L~~ TDS concentration, expressed as mg/l into tons). ~~*IEUA to provide example of how formula works.*~~

~~3~~4. The TDS mitigation requirement within the basin will be satisfied ~~first by dilution with storm and imported water and then~~ by removing salt at the Chino Basin desalters located in the southern part of the Chino Basin. If JCSD and Ontario are unable to meet TDS wastewater discharge standards additional desalter capacity shall be made available to these agencies if Watermaster determines this circumstance is related to the recharge of water upgradient of JCSD's and Ontario's wells.

D. JCSD shall have the right to purchase twenty percent (20%) of the recharged recycled water in MZ-3 at IEUA's annually established wholesale cost plus twenty-five percent (25%). IEUA will deliver recycled water to groundwater recharge basins closest to JCSD well fields, while still complying with the DHS Title 22 requirements of six months retention time in the aquifer before being pumped at any JCSD well. The blend with other water resources will equal 20% , unless otherwise increased as provided in Section II.B., of the recycled water at the site of recharge, which is recharged. JCSD may apply such purchased water on a one-for-one basis to its replenishment obligation, if any, or in the alternative receive a storage credit. IEUA will secure the consent of its regional wastewater member agencies with respect to the terms and conditions for JCSD's purchase of recycled water as provided herein prior to the initiation of this project.

E. IEUA, and JCSD will support the development and adoption of new TDS and nitrate Water Quality Objectives that will maximize the beneficial use of waters available to the Chino Basin.

s available to the Chino Basin.

F. IEUA will assist JCSD in obtaining not less than $2 million of grant funding to help pay the capital cost of the 10,000 gpm (14.4 mgd) of nitrate removal facilities that will be constructed by JCSD, which sources of grant funds may include: HR 131, Proposition 13 and other State and Federal programs. The Parties will collectively endeavor to secure additional funding from the above referenced sources for the additional nitrate removal facilities constructed by benefitting JCSD up to 10,000 gpm. In the event at least $2 million of grant funds is not secured for the first phase of JCSD's nitrate removal facilities, IEUA will contribute the lesser of: I) $2 million or ii) the difference between $2 million and the amount of grant funds actually secured no later than December 31, 2003.

G. The Parties shall evaluate and determine, and accordingly make a joint —recommendation to Watermaster concerning, the propriety of collectively

~~c~~operating Management Zone 3 for purposes of recharge and related water quality impacts/benefits.

H. The obligations of the Parties provided for herein, specifically requiring prior actions or approvals by Watermaster as provided for in the Peace Agreement and Watermaster Rules and Regulations, shall be conditional upon such actions or approvals, including but not limited to Watermaster's adoption and implementation of the recharge element of the OBMP.

I. ~~T~~The terms of this Agreement shall not be changed except by written consent ~~o~~of the Parties to this Agreement.

California Integrated Waste Management Board

Linda Moulton-Patterson, Chair

1001 I Street • P.O. Box 4025 • Sacramento, California 95812-4025 • (916) 341-6000

www.ciwmb.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Post-it® Fax Note 7671	Date 6/14/02	# of pages ▶ 3
To Gary Hackney	From Steven L. Hooper	
Co./Dept. IEUA	Co. CIWMB	
Phone #	Phone # 916-341-6730	
Fax # 909-257-2884	Fax #	

RECEIVED
14 2002
STATE CLEARING HOUSE

June 13, 2002

Gary Hackney
P.O. Box 697
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

Subject: SCH No. 2002011116: Draft Program Environmental Impact Report (PEIR) to Address Implementation of Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Plans, San Bernardino County. A Co-Compost Facility is permitted by the CIWMB under Solid Waste Facility Permit (SWFP) No. 36-AA-0316.

Dear Mr. Hackney:

26-1

California Integrated Waste Management Board (CIWMB or Board) Environmental Review Section (ERS) staff received and reviewed the Draft PEIR cited above. This Draft PEIR was received on May 6, 2002.

ERS STAFF PROJECT DESCRIPTION

ERS staff offer the following description and analysis of the proposed project based on ERS staff's understanding of the project as described in the above document. If our project description varies substantially from the project as proposed by the Lead Agency, ERS staff request notification of any significant differences prior to circulation of FPEIR and approval of the project.

26-2

According to the Draft PEIR, the Inland Empire Utilities Agency, acting as Lead Agency, has prepared and circulated to prospective Responsible Agencies this environmental document (ED) in order to help identify and evaluate potential environmental impacts and/or other Responsible Agency concerns that could occur with the approval and/or implementation of the proposed project. The proposed project will consider the implementation of three long-term management/master plans. These three plans are:

1. Wastewater Facilities Master Plan (WFMP)
2. Recycled Water Feasibility Plan (RWFS)
3. Organics Management Strategy Business Plan (OMSBP)

c: T. Dodson
M. Wilders

RESPONSES TO COMMENTS
LETTER #26
CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

26-1 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The project description summarized in this comment letter adequately reflects the contents of the PEIR.

26-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan).

26-2 cont. The PEIR, when certified, is proposed by the Lead Agency to serve as the foundation environmental document (ED) for the three plans listed above.

Specific projects that are permitted by the Local Enforcement Agency (LEA) and concurred on by the Board that would be affected by the implementation of the plans include the Chino Co-Compost Facility. This facility is owned and operated by the Inland Empire Utilities Agency (IEUA) and operates under a SWFP No. 36-AA-0316 issued by the Local Enforcement Agency (LEA). Additional composting sites may be constructed as a part of the proposed project—these projects would require a SWFP and additional project specific CEQA review and analysis.

26-3

The LEA for San Bernardino County is the County of San Bernardino Division of Environmental Health Services. The proposed relocated Chino Co-Compost Facility will accept the same waste streams as currently permitted which include processed sewage sludge and dairy manure for recycling and composting into soil amendment products at the same volume.

SUMMARY OF DRAFT PEIR FINDINGS

26-4 According to page 1-6 of the Executive Summary, Summary of Environmental Analysis, "The only environmental issue with impacts identified to be potentially significant and unavoidable was project specific air pollution emissions. The issues where no significant impact is forecast to occur include: Air Quality, Biological Resources, Cultural Resources Public Services, Geology and Soils, Hydrology, Water Quality, Transportation and Traffic, Land Use and Planning, Noise, Population and Housing, and Utilities and Service Systems."

ERS STAFF GENERAL COMMENTS

26-5 The CIWMB ERS staff previously provided a comment letter to the same lead agency, dated March 1, 2002, responding to the Initial Study/Notice of Preparation (IS/NOP) for the preparation of this PEIR. ERS staff has no additional comments beyond the general comments contained within our March 1, 2002 letter which focused on those aspects of the project that deal with co-composting. A copy of our March 1, 2002 letter is contained within Appendix 8.1 of the draft PEIR. However, in order to assist the Board during a SWFP process, please provide ERS staff with a copy of any Statement(s) of Overriding Consideration(s) (SOC) for environmental impacts that are found unmitigatable in the PEIR.

SUMMARY

26-6 ERS staff thanks the Lead Agency for the opportunity to review and comment on this draft PEIR. ERS staff hopes that this comment letter will be useful to the Lead Agency in carrying out their responsibilities in the CEQA process. ERS staff request copies of any subsequent environmental documents for this project including the Final PEIR, copies of public notices, MRMPs, Notices of Determination and any Statement of Overriding Consideration prepared for this project. ERS staff request receipt of a written proposed response to our comments (or a copy of the FEIR) at least 10 days prior to certification of the FEIR in accordance with CEQA

Responses to Comment Letter #26 (continued)

26-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). IEUA concurs that additional permit applications, supporting materials and a follow-on environmental determination will be required for the future organics management facilities.

26-4 The conclusion presented in this document is correct. Cumulative operational air quality emissions represent the only potential significant unavoidable adverse impact of implementing the master plans. However, please refer to response to comment 6-1 for additional discussion of this issue.

26-5 A copy of the Facts, Findings and Statement of Overriding Considerations will be provided to the Board when adopted.

26-6 A copy of this response letter is being provided 10-days in advance of the IEUA Board meeting on certifying the Final PEIR. The Board meeting will occur on June 28, 2002. Future environmental documents addressing IEUA organics management projects will be forwarded to the Board for consideration in the future.

26-6 cont. Statutes, PRC Section 21092.5(a). If the Final PEIR is to be certified during a public hearing, ERS staff requests a ten-day prior notice of this hearing. If the document is to be certified without a public hearing, ERS staff requests a ten-day prior notification of the proposed date of the certification and project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at (916) 341-6730.

Sincerely,

Steven L. Hooper
Environmental Review Section
Permitting and Inspection Branch
Permitting and Enforcement Division
CIWMB

cc: Scott Morgan
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Sue O'Leary Supervisor
Environmental Review Section
Permitting and Inspection Branch
Permitting and Enforcement Division
California Integrated Waste Management Board

Bill Marciniak
Permitting and Inspection Branch, Region 3
Permitting and Enforcement Division
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Permitting and Inspection Branch, Region 3
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Dan Avera, Program Director
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Division of Environmental Health Services
385 N. Arrowhead Ave.
San Bernardino, CA 92415-0160

BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
464 W. Fourth St. MS 726
SAN BERNARDINO, CA 92401
PHONE (909) 383-6327
FAX (909) 383-6890

COMMENT LETTER #27

Flex your power! Be energy efficient!

June 13, 2002

08-SBd-10-Varies
SCH 2002011116

Mr. Gary Hackney, P.E.
Inland Empire Utilities Agency
9400 Cherry Ave., Bldg. A
Fontana, CA 92335

7 2002

Dear Mr. Hackney:

WASTEWATER FACILITIES MASTER PLAN RECYCLED WATER MASTER PLAN
ORGANICS MANAGEMENT MASTER PLAN

27-1 Thank you for transmitting the Draft Program Environmental Impact Report dated April 2002 for the above referenced proposal. Our Environmental Studies and Support Unit have reviewed this document and we request consideration of the following comments:

- We suggest that you include a statement in Section 1.2 along the lines of, "Compliance with all permits and regulations from the appropriate agencies will be required at the project-specific level."

27-2 In Chapter 4.8 – Biological Resources:

- P.4.8-5: Category 2 designation for listed species was eliminated in July 1995. The Los Angeles pocket mouse is currently listed as a federal species of special concern and a state species of special concern.
- P.4.8-7: The Bald Eagle is currently listed as federally threatened and state endangered.
- P.4.8-7: The long eared owl is currently listed as a state species of special concern.

27-3
- Various pages, beginning in P.4.8-11: The phrase "no candidate, sensitive, or special status species can occur within the project area" should be revised to "no candidate, sensitive, or special status species are expected to occur within the project area."

c: Tom Dodson
M. Windermuth

RESPONSES TO COMMENTS
LETTER #27
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 8

27-1 IEUA intends to comply with all permits and regulations. Since compliance with permits and regulations issued to or applicable to the Agency is mandatory, no mitigation is required to ensure that IEUA will comply. Such a measure would be redundant and not result in any greater assurance of compliance.

27-2 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). The corrections will be incorporated in the Final PEIR.

27-3 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Where the terminology Acan occur@ is contained in the text, it is utilized because the site of a specific master plan improvement is in the middle of an existing facility, paved area or otherwise totally disturbed area which does not contain any habitat that could support a specific species. For example, by analogy Caltrans could make a finding that no listed plant habitat exists on top of the new Caltrans building in San Bernardino and that statement would be accurate. IEUA believes that the current language is appropriate for those locations where it is used.

27-4 • Various pages: Phrases such as "...have no potential to adversely impact sensitive biological resources" and "no adverse impact to sensitive species can occur..." should be avoided. Instead, phrases such as "have minimal potential to adversely impact" and "no adverse impact is expected to occur should be used.

If you have any questions, please contact R B Balanza, Development Reviewer, at (909) 383-6212, or FAX (909) 383-6890.

Sincerely,

Linda Grimes

LINDA GRIMES
Office of Forecasting/
IGR/CEQA Review

c: Wes Gleason/Lindsay Anderson, Environmental Studies and Support, MS 823

27-4 Your comment is noted and will be made available to the IEUA decision makers for their consideration before a project approval is made to approve the three master plan documents (Wastewater Facilities Master Plan, Recycled Water Master Plan and Organics Management Master Plan). Please refer to response to comment 27-3. Again, for those locations that have no potential to support biological resources, IEUA concludes that the language is appropriate.

MITIGATION MONITORING AND REPORTING PROGRAM

Type of Projects	Mitigation Measures
Treatment Plant Expansion (including Satellite Plants)	4.4-1, 4.4-3, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, 4.4-10, 4.4-11, 4.4-17, 4.4-19, 4.5-3, 4.7-7, 4.7-8, 4.7-9, 4.7-10, 4.7-11, 4.9-6, 4.9-7, 4.9-9, 4.10-7
Pipelines	4.4-9, 4.4-12, 4.4-18, 4.7-9
Pump Stations / Monitoring Wells	4.4-9, 4.5-2, 4.5-3, 4.9-8, 4.9-9
Reservoirs	4.4-1, 4.4-2, 4.4-3, 4.4-4, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, 4.4-10, 4.4-11, 4.5-3, 4.7-8, 4.7-9
Biosolids Facilities	4.4-1, 4.4-5, 4.4-6, 4.4-7, 4.4-8, 4.4-9, 4.4-10, 4.4-11, 4.4-17, 4.5-3, 4.7-7, 4.7-8, 4.7-9, 4.7-10, 4.7-11, 4.9-6, 4.9-7, 4.9-9, 4.10-2, 4.10-3, 4.10-4, 4.10-6, 4.10-7
Construction on any exterior ground surface	4.4-13, 4.4-14, 4.4-15, 4.4-16, 4.5-1, 4.5-3, 4.6-1, 4.6-2, 4.6-3, 4.6-4, 4.6-5, 4.6-6, 4.6-7, 4.6-8, 4.6-9, 4.6-10, 4.7-1, 4.7-2, 4.7-3, 4.7-4, 4.7-5, 4.7-6, 4.8-2, 4.8-3, 4.9-1, 4.9-2, 4.9-3, 4.9-4, 4.9-5, 4.9-6, 4.9-7, 4.10-1, 4.10-2, 4.10-4, 4.10-5, 4.10-6, 4.10-7, 4.10-8, 4.10-9, 4.12-1, 4.12-2, 4.12-3, 4.12-4, 4.12-5, 4.12-6, 4.12-7, 4.12-8, 4.12-9
Recycled Recharge Basin	4.5-4, 4.5-5, 4.5-6, 4.5-7, 4.5-8, 4.5-9, 4.8-1

WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN, AND ORGANICS MANAGEMENT MASTER PLAN - MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Geologic Resources / Constraints						
4.4-1	A site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Special Publication 117, *Guidelines for Evaluation and Mitigating Seismic Hazards in California.*	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic and seismic constraints will be completed prior to any groundbreaking activities for structures that will be occupied or is required to be functional following a seismic event. This report will conform to the *Guidelines for Evaluation and Mitigating Seismic Hazards in California.*	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	
4.4-2	If evidence of faulting is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, then a site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Note 49, *Guidelines for Evaluating the Hazard of Surface Fault Rupture.* Facility location and design will be adjusted as necessary to provide structural setbacks. Additional measures may include strengthened foundations, other engineering design, and flexible utility connections.	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic and seismic constraints will be completed prior to any groundbreaking activities for the referenced facilities. This report will conform to the *Guidelines for Evaluating the Hazard of Surface Fault Rupture.*	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	
Geologic Resources / Constraints (continued)						
4.4-3	Apply appropriate design and construction criteria to all structures subject to significant seismic ground shaking.	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic and seismic constraints, and measures to minimize damage due to seismic ground shaking, will be completed prior to any groundbreaking activities for structures to be occupied or required to be function following a seismic event. This report will conform to the *Guidelines for Evaluating the Hazard of Surface Fault Rupture.* Additionally, the project will be designed in conformance with all UBC's appropriate for the greatest predicted earthquake magnitude.	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	
4.4-4	If evidence of liquefaction is identified at CCWRF, RP-5,	IEUA Facilities	A geotechnical report detailing project-specific onsite	Inland Empire	A copy of the geotechnical report shall be retained	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	RP-2 and several OMMP facilities, project design mitigation may include: • In-situ densification of susceptible soil. • Ground improvements such as removal and replacement of susceptible soils or dewatering. • Deep foundations designed to accommodate liquefaction. • Shallow foundation design to accommodate vertical and lateral ground displacement.	Management Plans Program EIR	geologic constraints, including liquefaction-related issues and appropriate design mitigation, will be completed prior to any groundbreaking activities.	Utilities Agency	in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	
Geologic Resources / Constraints (continued)						
4.4-5	Comprehensive geotechnical investigations 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 that 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.	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic constraints, including risk tolerance classes, acceptable damage levels, multipliers, and appropriate design mitigation, will be completed prior to initiation of any groundbreaking activities for facilities that will be occupied or that must be functional following a seismic event.	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	

WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN, AND
ORGANICS MANAGEMENT MASTER PLAN - MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Geologic Resources / Constraints (continued)						
4.4-5 (cont.)	<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.					
4.4-6	All structures previously identified in categories III through V shall be designed in accordance with the applicable multiplier.	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic constraints, including risk tolerance classes, acceptable damage levels, multipliers, and appropriate design mitigation, will be completed prior to initiation of any groundbreaking activities.	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	
Geologic Resources / Constraints (continued)						
4.4-7	The direct impacts of faults upon proposed projects shall be considered during preliminary planning processes, and the engineering design phases.	IEUA Facilities Management Plans Program EIR	A geotechnical report detailing project-specific onsite geologic and seismic constraints, including fault locations and measures to minimize damage due to seismic ground shaking, will be completed prior to any groundbreaking activities for facilities that will be occupied or that must be functional following a seismic event. This report will conform to the	Inland Empire Utilities Agency	A copy of the geotechnical report shall be retained in the project file, and IEUA project managers and field inspectors shall verify that the recommendations outlined in the report are being implemented during construction of facilities.	

WASTEWATER FACILITIES MASTER PLAN, RECYCLED WATER MASTER PLAN, AND ORGANICS MANAGEMENT MASTER PLAN - MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
			Guidelines for Evaluating the Hazard of Surface Fault Rupture. Additionally, the project will be designed in conformance with all UBC's appropriate for the greatest predicted earthquake magnitude.			
4.4-8	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.	IEUA Facilities Management Plans Program EIR	An IEUA representative will inspect all engineering design drawings to ensure compliance with all applicable UBC standards.	Inland Empire Utilities Agency	A copy of the inspected design drawings shall be retained in the project file to demonstrate compliance with UBC standards.	
Geologic Resources / Constraints (continued)						
4.4-9	Local grading and building codes should reflect measures to minimize possible seismic damage.	IEUA Facilities Management Plans Program EIR	An IEUA representative will inspect all grading plans and engineering drawings to ensure compliance with all local applicable engineering standards prior to ground disturbance.	Inland Empire Utilities Agency	A copy of the inspected and approved design drawings and grading plans shall be retained in the project file to demonstrate compliance with UBC standards.	
4.4-10	If a conjunctive use program is 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	IEUA Facilities Management Plans Program EIR	Prior to groundbreaking, a geotechnical study will be conducted evaluating liquefaction risk and potential, including at what water depth, if any, liquefaction may pose a hazard. Upon implementation of the project, water levels will be monitored on a periodic basis if a conjunctive use program is implemented that may raise water levels. If water levels pass the threshold established in the geotechnical report, a qualified hydrologist or engineer will determine an appropriate management program to decrease in basin storage	Inland Empire Utilities Agency	Retention of all water level monitoring data collected on a yearly basis in the project file, in conjunction with retention of the original geotechnical evaluation of potential for liquefaction (conducted prior to groundbreaking), will demonstrate compliance with this mitigation measure. If additional studies and water storage volumes are established, the reports documenting these studies or changes will be retained in the project file.	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	people.		volume.			
4.4-11	Add protective covering of mulch, straw or synthetic material (erosion control blankets, tacking will be required).	IEUA Facilities Management Plans Program EIR	This measure will be included in the SWPPP that will be prepared for each project. The SWPPP will be prepared prior to any groundbreaking activities for a specific project.	Inland Empire Utilities Agency	A copy of the SWPPP shall be retained in the project file to demonstrate compliance with this mitigation measure, and a field inspection will be conducted by an IEUA representative to ensure that the measure has been implemented prior to project operation.	
Geologic Resources / Constraints (continued)						
4.4-12	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.	IEUA Facilities Management Plans Program EIR	This measure will be included in the SWPPP that will be prepared for each project. The SWPPP will be prepared prior to any groundbreaking activities for a specific project.	Inland Empire Utilities Agency	A copy of the SWPPP shall be retained in the project file to demonstrate compliance with this mitigation measure, and a field inspection will be conducted by an IEUA representative to ensure that the measure has been implemented prior to project operation.	
4.4-13	Construct diversion dikes and interceptor ditches to divert water away from construction areas.	IEUA Facilities Management Plans Program EIR	This measure will be included in the SWPPP that will be prepared for each project. The SWPPP will be prepared prior to any groundbreaking activities for a specific project.	Inland Empire Utilities Agency	A copy of the SWPPP shall be retained in the project file to demonstrate compliance with this mitigation measure, and a field inspection will be conducted by an IEUA representative to ensure that the measure has been implemented prior to project operation.	
4.4-14	Install slope drains (conduits) and/or water-velocity-control devices to reduce concentrated high-velocity streams from developing.	IEUA Facilities Management Plans Program EIR	This measure will be included in the SWPPP that will be prepared for each project. The SWPPP will be prepared prior to any groundbreaking activities for a specific project.	Inland Empire Utilities Agency	A copy of the SWPPP shall be retained in the project file to demonstrate compliance with this mitigation measure, and a field inspection will be conducted by an IEUA representative to ensure that the measure has been implemented prior to project operation.	
Geologic Resources / Constraints (continued)						
4.4-15	Construction of facilities and structures areas with high	IEUA Facilities	Prior to groundbreaking, a geotechnical study will be	Inland Empire	Retention in the project file of the original	

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	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.	Management Plans Program EIR	compiled evaluating liquefaction risk and potential, including at what water depth, if any, liquefaction may pose a hazard. If liquefaction potential is high, a geotechnical report with specific liquefaction related mitigation measures will be conducted to demonstrate risk minimization to both humans and capital-intensive facilities.	Utilities Agency	geotechnical evaluation of potential for liquefaction, along with any addition studies that include design mitigation measures for liquefaction, will demonstrate compliance with this mitigation measure.	
4.4-16	Any pipelines crossing the western portion of the Prado Basin and facilities at the CCWRF, RP-5, RP-2 and several OMMP facilities could be subject to subsidence and ground rupture associated with the subsidence. Any construction of facilities in or pipelines crossing this zone is required to have detailed geotechnical and structural engineering studies to ensure designs that can safely accommodate, per building code requirements, the described ground movement(s).	IEUA Facilities Management Plans Program EIR	Prior to groundbreaking, the geotechnical study will be conducted evaluating potential for subsidence and ground rupture. If ground rupture or subsidence damaged is identified, mitigation measures will be implemented to demonstrate risk minimization to both humans and capital-intensive facilities.	Inland Empire Utilities Agency	Retention in the project file of the original geotechnical evaluation of potential for subsidence and ground rupture, along with all additional studies that include design mitigation measures that reduce potential risks associated with liquefaction, will demonstrate compliance with this mitigation measure.	
Water Resources / Water Quality						
4.5-1	Construction For each Master Plans project construction site, regardless of size, a SWPPP will be prepared and implemented. Each plan shall identify the BMPs that will be used for that site to minimize the potential for accidental releases of any chemicals or materials on the site that could degrade water quality, including solid waste and require that any spills be cleaned up, contaminated material properly disposed of and the site returned to pre-discharge condition, or in full compliance with regulatory limits for the discharged material. At a minimum, BMPs shall achieve a 60 percent removal of sediment and other pollutants.	IEUA Facilities Management Plans Program EIR	The SWPPP shall be approved and ready for implementation prior initiating ground disturbance activities. The SWPPP shall be implemented through completion of the construction period.	Inland Empire Utilities Agency / construction contractor	Copy of the SWPPP shall be retained in the project file and IEUA field inspectors shall verify that the BMPs are being implemented during construction of the pipeline and related facilities.	
4.5-2	Prior to authorizing contracts for drilling monitoring wells under the RWMP, IEUA will require the well driller to	IEUA Facilities Management	The SWPPP shall be approved and ready for implementation prior initiating ground disturbance	Inland Empire Utilities Agency /	Copy of the SWPPP, the chemical list, and proof of a performance bond shall be retained in the project	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	identify all chemicals that will be used at the drilling site and require the submittal of a SWPPP for review and approval before allowing the drilling to commence. A performance bond shall be provided by the driller to ensure that any residual contamination from will drilling can be corrected.	Plans Program EIR	activities. The SWPPP shall be implemented through completion of the construction period. The list of chemicals and the performance bond that shall be provided by the driller will be in place prior to any ground disturbing activities.	drilling contractor	file and IEUA field inspectors shall verify that the BMPs are being implemented during construction of the project.	
Water Resources / Water Quality (continued)						
4.5-3	If the facilities are constructed in a flood-zone, the facility will be brought to a level above flood hazards, or hardened against flood related impacts. Additionally, if facilities must be located within flood plains or hazard areas, a flood management program to minimize impacts to people and surrounding property shall be created and implemented for each facility that may occur within these hazards areas.	IEUA Facilities Management Plans Program EIR	Documentation that the facility is not in a flood zone, or a flood management program will be provided prior to design finalization.	Inland Empire Utilities Agency	A letter documenting the project location is not in a flood zone, or a flood management program for project areas within a flood-zone, will be retained in the project file.	
4.5-4	<u>Operation</u> The IEUA shall confer with the San Bernardino County Department of Transportation and Flood Control and for each flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define that amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as time and 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.	IEUA Facilities Management Plans Program EIR	Prior to initiating recharge activities, a Memorandum of Agreement between San Bernardino County Department of Transportation and Flood Control, IEUA, and Watermaster will be in place that outlines coordinated operational parameters for safe and effective basin utilization.	Inland Empire Utilities Agency	The signed Memorandum of Agreement between all agencies will be retained in the project file.	
Water Resources / Water Quality (continued)						
4.5-5	When recharge of recycled water with TDS greater than the water quality objective for TDS at a recharge site is utilized, IEUA will conduct modeling to identify the volume	IEUA Facilities Management Plans Program	Prior to operation of any basin recharging recycled water with TDS greater than the background groundwater TDS after TDS offsets are applied,	Inland Empire Utilities Agency	The data showing the background water quality and blended water quality TDS to be recharged, and (if modeling is mandated) the modeling study	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TDS to be exceeded. In addition, the amount of additional salt added to the Basin above the background groundwater quality condition shall be calculated and this amount shall be offset by blending with better quality TDS water (storm water) or other measures that remove salts from the Basin. A mitigation agreement will be entered into with Western MWD, Jurupa CSD, and the City of Norco (see Exhibit C) that will definitively establish the methodology for quantifying the amounts of TDS discharge in excess of waste discharge requirements and identify specific arrangements for TDS offset credits sufficient to mitigate the adverse impacts. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.	EIR	appropriate modeling will be conducted to ensure the proposed mixture of waters to be recharged does not exceed the Basin Plan Water Quality Objectives on a 3-year rolling average.		demonstrating Basin Plan Water Quality Objectives will not be exceeded, along with TDS offset mitigation will be maintained in the project file.	
Water Resources / Water Quality (continued)						
4.5-6	When recharge of recycled water with TIN greater than the water quality objective for TIN at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TIN to be exceeded. A mitigation agreement will be entered into with Western MWD, Jurupa CSD, and the City of Norco (see Exhibit C) that will definitively establish the methodology for quantifying the amounts of TIN discharge in excess of waste discharge requirements and identify specific arrangements for TIN offset credits sufficient to mitigate the adverse impacts. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.	IEUA Facilities Management Plans Program EIR	Prior to operation of any basin recharging recycled water with TIN greater than the background groundwater TIN after TIN offsets are applied, appropriate modeling will be conducted to ensure the proposed mixture of waters to be recharged does not exceed the Basin Plan Water Quality Objectives on a 3-year rolling average.	Inland Empire Utilities Agency	The data showing the background water quality and blended water quality TIN to be recharged, and (if modeling is mandated) the modeling study demonstrating Basin Plan Water Quality Objectives will not be exceeded with TIN offset mitigation, will be maintained in the project file.	

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Water Resources / Water Quality (continued)						
4.5-7	Pursuant to the proposed DHS regulations, an engineering report must be submitted for each planned recycled water recharge project. The engineering report will include, among other items, a hydrogeologic study that will evaluate and describe, in detail, the vertical and horizontal extent of the underground zone that defines six months of underground retention of the applied recycled water and the 500-foot horizontal buffer zone surrounding the facility.	IEUA Facilities Management Plans Program EIR	Prior to discharge of any recycled water an engineering report including the hydrogeologic study evaluating in detail, the vertical and horizontal underground zone that defines six months of underground retention of the applied recycled water and the 500-foot horizontal buffer zone surrounding the facility.	Inland Empire Utilities Agency	The approved engineering report and proof of approval shall be retained in the project file.	
4.5-8	When recharge of water is proposed within the vicinity of an existing or know groundwater quality anomaly (contaminated groundwater plume), modeling shall be conducted to determine whether recharge of the recycled water will increase the local hydraulic gradient and cause more rapid spread of the existing plume. If existing domestic water production wells will be impacted by the plume a minimum of one year earlier that 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, an alternative location for recharge will be selected to avoid not only the loss of the recharged water due to contamination, but also additional high quality groundwater due to more rapid expansion of the contaminated plume.	IEUA Facilities Management Plans Program EIR	During the design phase of a project, known groundwater anomalies in the vicinity of the project will be identified. Appropriate modeling will be conducted if the recharge has the potential for increase the local hydraulic gradient, and it will be relocated if modeling demonstrates either of the thresholds mentioned in the mitigation measure are met.	Inland Empire Utilities Agency	A map with locations of known groundwater anomalies will be kept in the project file, and if modeling is conducted, all data and studies will be kept in the project file to verify compliance with the stipulations of the mitigation measure.	
Water Resources / Water Quality (continued)						
4.5-9	Prior to implementation of any recharge projects to 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	IEUA Facilities Management Plans Program EIR	Prior to ground disturbing activities, a Memorandum of Agreement between San Bernardino County Department of Transportation and Flood Control, IEUA, and Watermaster will be in place that outlines coordinated operational parameters for safe and effective basin utilization, which will include the aforementioned stipulations of this mitigation	Inland Empire Utilities Agency	The signed Memorandum of Agreement between all agencies will be retained in the project file.	

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	flood-control functions over and above recharge -related operations. Weather forecasts of upcoming storms events will be carefully monitored and in the event of a significant forecasted storm-event, recharge deliveries to the basins will be ceased until further notice is received form 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 basin at a time if such basin is also used for flood control activities. Additionally, each SBCFCB 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.		measure.			
Air Quality						
4.6-1	Construction Limit construction equipment use to a mix of equipment that is substantially the same as that used for the estimation of pollutant emissions.	IEUA Facilities Management Plans Program EIR	This requirement will be included in the construction contract and will require the contractor to use a mix of equipment that is substantially the same as that used for the estimation of pollutant emissions. If equipment should differ substantially from the previous estimate, an air quality study with mitigation measures to reduce impacts to a less than significant level will be prepared and implemented.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with a comparable mixture of equipment. If an air quality study is prepared, it shall be retained in the project file and field inspections will be conducted by IEUA personnel to verify compliance with all mitigation measures.	
4.6-2	All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.	IEUA Facilities Management Plans Program EIR	This requirement will be included in the construction contract and will be implemented from the time that equipment is first operated for construction activities throughout the duration of the equipment usage.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file along with a licensed mechanic's signed statement that all equipment is properly tuned and maintained in accordance with manufacturer's specifications.	
4.6-3	General contractors shall maintain and operate construction equipment so as to minimize exhaust	IEUA Facilities Management	During construction when equipment is being used.	Inland Empire Utilities Agency /	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	emissions.	Plans Program EIR		construction contractor	with the requirement for proper muffling devices on equipment.	
4.6-4	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.	IEUA Facilities Management Plans Program EIR	During construction when vehicles are being used.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with the requirement for vehicles to be kept with engines off when not in use.	
Air Quality (continued)						
4.6-5	Construction activities should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.	IEUA Facilities Management Plans Program EIR	During construction when equipment is being used.	Inland Empire Utilities Agency / construction contractor	Copy of contract with a phasing schedule requirement will be retained in the IEUA project file, and field inspections shall verify compliance with the requirement for monitoring smog alert status with a log book showing alert status and a signed declaration that vehicle usage was discontinued if a second or third stage alert occurs.	
4.6-6	Water active grading sites at least twice daily and when dust is observed migrating from the site.	IEUA Facilities Management Plans Program EIR	This requirement shall be included as a condition or stipulation of the construction contract and the watering shall be implemented while bare ground is exposed during project construction.	Inland Empire Utilities Agency / construction contractor	Copy of the contract shall be retained by IEUA, and field inspectors shall verify that watering is occurring during construction activities.	
4.6-7	Suspend all grading and excavation operations when wind speeds exceed 25 mph.	IEUA Facilities Management Plans Program EIR	During construction when winds speeds exceed 25 mph at Ontario Airport. As a rule of thumb if fugitive dust is being blown from the construction site, construction should be stopped until the wind subsides.	Inland Empire Utilities Agency / construction contractor	Field inspections during high winds to verify that construction activities in disturbed areas have been terminated.	
4.6-8	Apply non-toxic chemical soil stabilizers according to manufacturers specifications to inactive construction areas (previously graded areas inactive for 10 days or more).	IEUA Facilities Management Plans Program EIR	Prior to initiation of ground disturbance, the erosion control measures for short and long-term mitigation shall be identified and these measures shall include the use of non-toxic chemical soil stabilizers according to manufacturers specifications to inactive construction areas (previously graded areas inactive for 10 days or more). The use of stabilizers will be included as a condition or stipulation of the	Inland Empire Utilities Agency / construction contractor	A copy of the erosion control plans shall be retained in the project file, and inspectors shall verify the use of stabilizers throughout the duration of project construction.	

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			construction contract.			
Air Quality (continued)						
4.6-9	Replace ground cover or pave disturbed areas immediately after construction is completed in the affected area.	IEUA Facilities Management Plans Program EIR	Following completion of construction within project areas, the ground cover or paving shall be installed as soon as possible.	Inland Empire Utilities Agency / construction contractor	Field inspections of the installed ground cover or paving.	
4.6-10	Sweep streets once per day and when soil material is observed on traveled roadways.	IEUA Facilities Management Plans Program EIR	Each day when construction activities are underway and construction traffic utilizes roads.	Inland Empire Utilities Agency / construction contractor	Field inspections each day shall verify that sweeping is being implemented.	
Traffic / Circulation						
4.7-1	<u>Construction</u> For each development project that will increase trip generation by more than 50 vehicles during peak hour, IEUA shall prepare a traffic study that evaluates the impacts of this traffic on the local circulation system and identify project specific or fair share mitigation to maintain peak hour level of service at LOS "E" or better. A traffic study shall be prepared for each IEUA development project having the potential of generating sufficient passenger equivalent trips to impact local circulation systems to a level that degrades the level of service to worst than desired in the local agency circulation element of their general plan.	IEUA Facilities Management Plans Program EIR	The contractor shall provide a written estimate of the anticipated number of trips generated during peak hours, and if this exceeds 50 trips, a traffic study, including a trip reduction plan, will be prepared or a study reviewed and implemented at all construction sites on the local or area circulations system. This study/plan, if the number of trips exceed 50, shall be completed and approved prior to initiating construction and its implementation shall be verified during construction by IEUA representatives.	Inland Empire Utilities Agency / construction contractor	A copy of the traffic study and trip reduction plan, or letter stating that the number of trips generated is less than 50 trips per day during peak hours, shall be retained in the project file and field inspections during construction shall verify that the plan measures are being implemented.	
4.7-2	The IEUA shall require the construction contractor to provide adequate traffic management resources during construction (signing, protective devices, flag persons, etc.) to maintain the safe flow of traffic, particularly emergency access, on local streets at all times.	IEUA Facilities Management Plans Program EIR	The contractor shall prepare a traffic management plan for implementation at all construction sites on the local or area circulations system. This plan shall be completed and approved prior to initiating construction and its implementation shall be verified during construction.	Inland Empire Utilities Agency / local jurisdiction / construction contractor	A copy of the traffic management plan shall be retained in the project file and field inspections during construction shall verify that the plan measures are being implemented.	
Traffic / Circulation (continued)						

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4.7-3	During construction, IEUA shall require traffic hazards for vehicles, bicycles, and pedestrians to be adequately identified and such traffic controlled to minimize hazards.	IEUA Facilities Management Plans Program EIR	The contractor shall prepare a traffic management plan for implementation at all construction sites on the local or area circulations system. This plan shall be completed and approved prior to initiating construction and its implementation shall be verified during construction.	Inland Empire Utilities Agency / construction contractor	A copy of the traffic management plan shall be retained in the project file and field inspections during construction shall verify that the plan measures are being implemented, including those measures to minimize hazards.	
4.7-4	The IEUA shall require the construction contractor to ensure that no open trenches or traffic safety hazards be left in roadways during periods of time when construction personnel are not present (nighttime, weekends, etc.), without appropriate signing and protection to minimize hazards.	IEUA Facilities Management Plans Program EIR	The contractor shall prepare a traffic management plan for implementation at all construction sites on the local or area circulation system. This plan shall be completed and approved prior to initiating construction and its implementation shall be verified during construction.	Inland Empire Utilities Agency / construction contractor	A copy of the traffic management plan shall be retained in the project file and field inspections during construction shall verify that the plan measures are being implemented. In areas where little or no vehicle, pedestrian or bicycle traffic occur, it will not be necessary to cover trenches each night or when construction personnel are not present, however, adequate signage must be in place.	
4.7-5	The IEUA shall require all roads to be repaired adequately after construction activities to ensure that traffic can move in the same manner as before construction without damage to vehicles.	IEUA Facilities Management Plans Program EIR	Prior to initiating construction within roads, IEUA shall require the construction contractor to submit an approved encroachment permit from the local jurisdiction and implement the permit requirements.	Inland Empire Utilities Agency / construction contractor	Field inspections each day shall verify that road repairs are installed as required.	
Traffic / Circulation (continued)						
4.7-6	The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.	IEUA Facilities Management Plans Program EIR	During the design phase of the project a detailed operational analysis considering project traffic patterns and conceptual design plans to accommodate such patterns will be prepared for and submitted to each final site location.	Inland Empire Utilities Agency / construction contractor	Project designs and operational analysis data will be maintained in the project file. IEUA representatives will verify that recommendations of the study are being implemented by the contractor.	
4.7-7	Operation IEUA shall emphasize transportation demand management or non-motorized transportation alternatives for project related employees, where feasible, to reduce demand for roadway capacity.	IEUA Facilities Management Plans Program EIR	This requirement shall be placed in the contract and the construction contractor shall identify specific actions that will be taken to implement this measure prior to initiating any ground disturbance.	Inland Empire Utilities Agency / construction contractor	The specific actions to meet this requirement shall be approved by IEUA and shall be by random field inspections during project construction.	
4.7-8	Future facility ingress/egress shall be reviewed with the local agency having land use jurisdiction or jurisdiction	IEUA Facilities Management	See provisions for Measure 4.7-2. The measures listed in this mitigation measure will be included in the	Inland Empire Utilities Agency /	See provisions for Measure 4.7-2. The analysis and recommendations will be retained in the project file.	

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	over the roadway providing access. Roadway improvements required to eliminate any circulation system impacts or traffic hazards associated with access to a facility shall be mitigated in accordance with standard agency requirements or prudent circulation system planning requirements . Strategies that can be considered for application include the following: • signalization, signing and striping improvements • additional through or turn lanes as dictated by volume • additional storage area for vehicle queuing (i.e., right- and left-turn bays)	Plans Program EIR	analysis discussed in 4.7-2, and where determined appropriate by IEUA, the recommendations of the study will be incorporated into construction contracts.	construction contractor	Contracts including recommendations of the analysis will be retained in the project file and verified by IEUA field inspections of the project site.	
Traffic / Circulation (continued)						
4.7-8 cont.	• increasing curb radii to accommodate higher turning radius trucks • pavement/roadbed improvements • widening to provide sufficient lane widths for trucks, and • improvements to enhance sight distances.					
4.7-9	The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.	IEUA Facilities Management Plans Program EIR	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	Inland Empire Utilities Agency / construction contractor	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	
4.7-10	The concept improvements should be specifically oriented toward facilitating the movement of large trucks at facility driveways and nearby intersections.	IEUA Facilities Management Plans Program EIR	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	Inland Empire Utilities Agency / construction contractor	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	
4.7-11	Conduct additional analysis on the availability of right-of-way, adjacent land uses and locations of driveways, existing improvement plans, roadway cross-sections and unique characteristics such as difficulty in making turns, truck queues from adjacent intersections to driveways and pavement conditions.	IEUA Facilities Management Plans Program EIR	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	Inland Empire Utilities Agency / construction contractor	See provisions for Measures 4.7-2, 4.7-6 and 4.7-8.	

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4.7-12	Maintain access to the Chino Airport, Ontario Airport, and Cable Airport.	IEUA Facilities Management Plans Program EIR	See provisions for Measure 4.7-6.	Inland Empire Utilities Agency construction contractor	See provisions for Measure 4.7-6.	
Biological Resources						
4.8-1	Prior to increasing future recycled water discharges by more than 5,000 acre feet per year, IEUA shall consult with the Corps of Engineers and verify that the Corps' 1995 Cooperative Agreement will be implemented in a manner to keep inundation levels during the water conservation period to 505 feet in elevation under routine operation conditions and excluding periods when storm flows make this commitment infeasible.	IEUA Facilities Management Plans Program EIR	Prior to any ground disturbing activity, the site will be evaluated to determine whether or not it is located within an area identified as potentially containing sensitive biological resources. If so, compensation/mitigation/ endowments will be in place prior to initiation of ground disturbing activities. Prior to 5,000 acre-feet of recharge water discharges, the verification of the Corps agreement shall be obtained.	Inland Empire Utilities Agency / CDFG / USFWS	A letter from a qualified biologist stating whether or not the project area is located within an area identified as potentially containing sensitive biological resources will be retained in the project file. If additional studies and/or permits are necessary, all findings will be completed and approved by the appropriate regulatory agency(ies) prior to initiation of ground disturbing activities. A copy of the verified Corps agreement shall be retained in the project file.	
4.8-2	Within those areas identified as potentially containing sensitive biological resources (several of the satellite plant corridors/ sites and several recharge basins), proposed facilities will not be installed until future protocol surveys have been 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:	IEUA Facilities Management Plans Program EIR	Prior to any ground disturbing activity, the site will be evaluated to determine whether or not it is located within an area identified as potentially containing sensitive biological resources. If so, compensation/mitigation/ endowments will be in place prior to initiation of ground disturbing activities. Prior to 5,000 acre-feet of recharge water discharges, the verification of the Corps agreement shall be obtained.	Inland Empire Utilities Agency / CDFG / USFWS	A letter from a qualified biologist stating whether or not the project area is located within an area identified as potentially containing sensitive biological resources will be retained in the project file. If additional studies and/or permits are necessary, all findings will be completed and approved by the appropriate regulatory agency(ies) prior to initiation of ground disturbing activities. A copy of the verified Corps agreement shall be retained in the project file.	
Biological Resources (continued)						
4.8-2 (cont.)	a. IEUA shall provide compensation for acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of 3:1 for habitat					

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	lost. The property acquisition shall include the presence of at least animal per animal 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 IEUA 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 IEUA and FWS and CDFG for any incidental take permits. IEUA 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.					
Biological Resources (continued)						
4.8-3	If burrowing owls are present within the construction right-of-way, the following measures will be implemented. a. Owls should be excluded from burrows in the immediate impact zone and within 50 feet of construction by installing one-way doors at the burrow entrances. One-way doors should be left in place 48 hours prior to excavating the burrow. b. One alternate natural or artificial burrow shall be provided for each burrow that will be excavated. c. The impact zone shall be monitored daily for one week to confirm owl use of alternate burrows before excavating the burrows. d. Burrows shall be excavated using hand tools and filled to insure the owls cannot reoccupy the burrows. e. Flexible plastic pipe should be placed in burrows while excavating to allow any animals inside the burrows to escape.	IEUA Facilities Management Plans Program EIR	Prior to any ground disturbing activity, the site will be evaluated to determine whether or not burrowing owls are located within the construction area. If so, the measures identified above shall be implemented prior to ground disturbance.	Inland Empire Utilities Agency / CDFG	A letter from a qualified biologist stating whether or not the potential habitat is occupied by burrowing owls within the construction area will be retained in the project file. If additional studies and/or permits are necessary, all findings will be completed and approved by the appropriate regulatory agency(ies) prior to initiation of ground disturbing activities.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Noise						
4.9-1	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.	IEUA Facilities Management Plans Program EIR	This requirement will be included in the construction contract and will be implemented from the time that noise generating construction activities are initiated.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with the scheduled hours of construction.	
4.9-2	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.	IEUA Facilities Management Plans Program EIR	This requirement to utilize new equipment or to utilize other methodology to reduce noise levels will be included in the construction contract and will be implemented from the time that noise generating construction activities are initiated.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with the scheduled hours of construction.	
4.9-3	All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers.	IEUA Facilities Management Plans Program EIR	During construction when equipment is being used.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with the requirement for proper muffling devices on equipment.	
4.9-4	Schedule the construction such that the absolute minimum number of equipment would be operating at the same time.	IEUA Facilities Management Plans Program EIR	Prior to equipment operation, a tentative schedule of operation that will minimize utilization of multiple pieces of equipment. Additionally, monitoring of adherence to the schedule will be conducted during construction when equipment is being used.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file along with the proposed operations schedule, and field inspections shall verify that the minimum amount of equipment is being operated simultan-eously.	
Noise (continued)						
4.9-5	Maintain good relations with the school and community 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.	IEUA Facilities Management Plans Program EIR	Prior to initiation of construction activities.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file along with the project construction timeline. IEUA and the project contractor will provide regular updates to the public through either a visible sign with the estimated completion time for the project, or through a mailing of an informational package with project construction dates to all surrounding parties. If a sign is to be utilized, its installation shall be verified by IEUA through field inspections.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
4.9-6	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.	IEUA Facilities Management Plans Program EIR	This requirement will be included in the construction contract and will be implemented from the time that noise generating construction activities are initiated.	Inland Empire Utilities Agency / construction contractor	Copy of contract will be retained in the IEUA project file, and field inspections shall verify compliance with the requirement for proper hearing protection devices for employees.	
4.9-7	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.	IEUA Facilities Management Plans Program EIR	Where required, sound attenuation equipment shall be available during construction, prior to carrying out the activity which could cause hearing damage.	Inland Empire Utilities Agency / construction contractor	Field inspections shall be performed during periods when activities generate noise levels that can damage hearing to verify the attenuation devices are in place.	
Noise (continued)						
4.9-8	All production wells or booster pumps shall have their noise levels attenuated to 50 dBA CNEL at 50 feet from the well head.	IEUA Facilities Management Plans Program EIR	During facility siting and prior to the initiation of operations, sound attenuation shall be considered during project design, and if necessary due to noise sensitive uses being present, attenuation features shall be utilized prior to the start of operations to ensure that the 50 and 65 dB thresholds are not exceeded. IEUA will verify sound levels at potentially sensitive noise receptors and record these reports in the project file.	Inland Empire Utilities Agency / construction contractor	Field inspections shall be performed during periods when activities generate noise levels that can damage hearing to verify the attenuation devices are in place.	
4.9-9	Project facilities 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 relatively noisy operations a sufficient distance from sensitive noise receptors; by incorporating attenuation features in the facility or designing attenuation features at the boundary of the property.	IEUA Facilities Management Plans Program EIR	During facility siting and prior to the initiation of operations, sound attenuation shall be considered during project design, and if necessary due to noise sensitive uses being present, attenuation features shall be utilized prior to the start of operations to ensure that the 50 and 65 dB thresholds are not exceeded. IEUA will verify sound levels at potentially sensitive noise receptors and record these reports in the project file.	Inland Empire Utilities Agency / construction contractor	Field inspections shall be performed during periods when activities generate noise levels that can damage hearing to verify the attenuation devices are in place.	
Public Services						
	Schools					

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
4.10-1	To the extent possible, construction vehicles should use routes that do not conflict with school walksheds or streets routes heavily used by buses.	IEUA Facilities Management Plans Program EIR	Prior to any transportation involving large equipment or trucks to the project site, a route analysis will be conducted to determine the best routing alternative to avoid school walksheds and streets heavily utilized by buses.	Inland Empire Utilities Agency / construction contractor	The route analysis will be retained in the project file and compliance with the approved route shall be verified by IEUA field representatives during the construction and/or operation phase (if appropriate).	
Public Services (continued)						
4.10-2	Schools (continued) A schedule would need to be established to offset large truck movements from peak student pedestrian activity.	IEUA Facilities Management Plans Program EIR	Prior to any transportation involving large equipment or trucks to the project site, a route analysis will be conducted to determine the best routing alternative to avoid school walksheds and streets heavily utilized by buses. If such routes cannot avoid pedestrian areas, a schedule will be established to offset large truck or equipment usage from peak student pedestrian activity.	Inland Empire Utilities Agency / construction contractor	The route analysis and schedule will be retained in the project file and compliance with the approved route shall be verified by IEUA field representatives during the construction and/or operation phase (if appropriate).	
4.10-3	Potential air quality issues would be countered by application of Best Management Practices (BMPs) and specific mitigation measures that are discussed in detail in the Air Quality Section 4-6.	IEUA Facilities Management Plans Program EIR	The BMP's to meet this measure must be initiate prior to ground disturbing activities for this project.	Inland Empire Utilities Agency / construction contractor	A copy of the BMP's will be maintained in the project file, and compliance will be verified by field inspections by IEUA representatives.	
4.10-4	Large truck movements (i.e., fill hauling) should be done during off-peak student pedestrian hours.	IEUA Facilities Management Plans Program EIR	Prior to any transportation involving large equipment or trucks to the project site, a route analysis will be conducted to determine the best routing alternative to avoid school walksheds and streets heavily utilized by buses. If such routes cannot avoid pedestrian areas, a schedule will be established to offset large truck or equipment usage from peak student pedestrian activity.	Inland Empire Utilities Agency / construction contractor	The route analysis and schedule will be retained in the project file and compliance with the approved route shall be verified by IEUA field representatives during the construction and/or operation phase (if appropriate).	
Public Services (continued)						
4.10-5	Schools (continued) Schedule all intense noise activities to be performed during non-school hours.	IEUA Facilities Management	Prior to commencement of noise intense activities in the vicinity of a school.	Inland Empire Utilities Agency /	The schedule will be retained in the project file and compliance with the approved schedule shall be	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
		Plans Program EIR		construction contractor	verified by IEUA field representatives during the construction and/or operation phase (if appropriate).	
4.10-6	Parks, Community Centers & Government Facilities Large truck movements that could impede ingress and egress should, to the extent possible, be done during non-peak employee commuting hours.	IEUA Facilities Management Plans Program EIR	A contract requirement for the construction contractor will include this mitigation measure.	Inland Empire Utilities Agency / construction contractor	A copy of the contract will be retained in the project file and compliance verified by IEUA representative's field inspections.	
4.10-7	Street access to public facilities must be maintained for employees and the local citizens.	IEUA Facilities Management Plans Program EIR	The construction contract shall require that during construction, the contractor shall identify the access required by this measure in the traffic management plan that will be prepared for each project.	Inland Empire Utilities Agency / construction contractor	A copy of the construction contract and the traffic management plan will be retained in the project file and verification will be conducted by IEUA representative's field inspections.	
4.10-8	Most public facilities have more than one entrance/exit; should construction interrupt access points to these facilities at least one entrance/exit would need to remain accessible at all times. In the event that a facility has only one entrance/ exit, an off-hours construction schedule may be required to avoid creating a significant effect on access to the facility.	IEUA Facilities Management Plans Program EIR	The construction contract shall require that during construction, the contractor shall identify the access required by this measure in the traffic management plan that will be prepared for each project. If necessary, a schedule to allow construction activities during off-hours will be prepared.	Inland Empire Utilities Agency / construction contractor	A copy of the construction contract, the traffic management plan, and the off hours schedule (if necessary) will be retained in the project file and verification will be conducted by IEUA representative's field inspections.	
Public Services (continued)						
4.10-9	Emergency Services and Correctional Facilities Communication should be established prior to any construction and maintained throughout the construction process to ensure that all local emergency and correctional facilities are updated with construction schedules.	IEUA Facilities Management Plans Program EIR	The construction contract shall require that the contractor provide regular updates to emergency and correctional facilities regarding construction schedules, at minimum on a monthly basis.	Inland Empire Utilities Agency / construction contractor	A copy of the construction contract and the monthly updates will be retained in the project file.	
4.10-10	Development of Traffic Management Plans for police, fire, EMS, and correctional services.	IEUA Facilities Management Plans Program EIR	The construction contract for any project shall require that prior to any groundbreaking activities, or movement of large equipment or trucks to the site, a traffic management plan will be prepared, submitted to police, fire, EMS, and correctional services, and	Inland Empire Utilities Agency / construction contractor	A copy of the construction contract and the approved traffic management plan will be retained in the project file.	

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ORGANICS MANAGEMENT MASTER PLAN - MITIGATION MONITORING AND REPORTING PROGRAM

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
			approved by local jurisdictional authority.			
Cultural Resources						
4.12-1	Archaeological Complete archaeological survey of final alignments or project locations, with recordation, testing and evaluation, and data-recovery and monitoring if needed, of any newly located cultural resources.	IEUA Facilities Management Plans Program EIR	Prior to any ground-disturbing activities the survey and all follow-on activities required by the survey will be completed.	Inland Empire Utilities Agency / construction contractor	A copy of the survey and records of any follow-on actions (if any) will be retained in the project file to demonstrate compliance with this mitigation measure.	
4.12-2	Archaeological monitoring not required for ground disturbing activities; however, if cultural resources are located during construction, construction in that area must stop, the resources must be protected, and treatment by a qualified archaeologist must occur, following the procedures prescribed in Mitigation Measure 1.	IEUA Facilities Management Plans Program EIR	The measure will be incorporated into the construction contract.	Inland Empire Utilities Agency / construction contractor	A copy of the contract will be retained in the project file to demonstrate compliance with this mitigation measure. If cultural resources are encountered, documentation of all resource protection and archaeological treatments and procedures relating to the project site will be kept on file.	
Cultural Resources (continued)						
4.12-3	Archaeological testing and evaluation of recorded resources known to exist in the Project alignment or location. Further treatment, including data-recovery and monitoring, if required.	IEUA Facilities Management Plans Program EIR	Prior to any ground-disturbing activities the testing, evaluation, and further treatment (if deemed necessary by a qualified archaeologist) of recorded resources known to exist onsite will be completed. Monitoring of all ground disturbing activities will be conducted if testing and evaluation by a qualified archaeologist finds significant on-site or proximate resources.	Inland Empire Utilities Agency / construction contractor	A copy of the testing and evaluation of any recorded resources (if any) will be retained in the project file to demonstrate compliance with this mitigation measure. If further monitoring or testing is deemed necessary by the evaluation, IEUA will conduct field inspections to verify compliance with the mitigation measure and with all recommendations made by a qualified archaeologist, whose report/ evaluation will be retained in the project file.	
4.12-4	Archaeological monitoring required, due to high potential for buried cultural resources.	IEUA Facilities Management Plans Program EIR	Prior to any ground-disturbing activities in an area determined to have a high potential for buried cultural resources, monitoring will be conducted by a qualified archaeological monitor.	Inland Empire Utilities Agency / construction contractor	This mitigation measure will be incorporated into the construction contract. A statement regarding the potential for encountering cultural resources will be retained in the project file, as well. If the potential is high, a qualified archaeological monitor to be approved by IEUA will be present onsite to monitor all ground-breaking activities.	
Cultural Resources (continued)						

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Measures 4.12-5 through 4.12-9 are prescribed for the various activities of the IEUA master plan projects. Please note that in all cases, monitoring may be reduced if potentially fossiliferous units are not encountered, or upon exposure and following examination by qualified paleontologic personnel, these units are determined to have low potential to contain fossil resources. For specific monitoring procedure please refer to Table 4.12-2 and to page 4.12-9.						
4.12-5	<u>Paleontological</u> Paleontological monitoring required for all ground disturbing activities, following the monitoring procedures described below.	IEUA Facilities Management Plans Program EIR	If a paleontologic monitor is required as per Table 4.12-2, the monitor shall be present for all earth moving or ground disturbing activities.	Inland Empire Utilities Agency / construction contractor	A copy of the contract retaining a paleontological monitor will be retained in the project file to demonstrate compliance with this mitigation measure.	
4.12-6	Paleontological monitoring required for all ground disturbing activities below a depth of five feet from the modern ground surface, following the monitoring procedures described below.	IEUA Facilities Management Plans Program EIR	A copy of the contract retaining a paleontological monitor will be retained in the project file to demonstrate compliance with this mitigation measure.	Inland Empire Utilities Agency / construction contractor	A copy of the contract retaining a paleontological monitor will be retained in the project file to demonstrate compliance with this mitigation measure.	
4.12-7	Paleontological monitoring required for all ground disturbing activities below a depth of ten feet from the modern ground surface, following the monitoring procedures described below.	IEUA Facilities Management Plans Program EIR	If a paleontologic monitor is required as per Table 4.12-2, the monitor shall be present for all earth moving or ground disturbing activities during construction.	Inland Empire Utilities Agency / construction contractor	A copy of the contract retaining a paleontological monitor will be retained in the project file to demonstrate compliance with this mitigation measure.	
4.12-8	Spot monitoring at depths below 10 feet, to determine if high sensitivity deposits are being excavated. If high sensitivity deposits are being disturbed, then paleontological monitoring will be required for all ground disturbing activities within these deposits.	IEUA Facilities Management Plans Program EIR	If spot paleontologic monitoring is required (below all depths greater than 10 feet at all sites) the monitor shall conduct the checks until sufficient evidence exists that no highly sensitive cultural resource deposits are being encountered. If sensitive deposits are encountered at any time during construction, from that point forward, monitoring for all ground disturbing activities will be conducted.	Inland Empire Utilities Agency / construction contractor	A copy of the contract retaining a paleontological spot check monitor will be retained in the project file to demonstrate compliance with this mitigation measure. Additionally, reports of all spot checks will be retained in the project file and if sensitive resources are encountered, a permanent qualified paleontological monitor (approved by IEUA) will be retained for the duration of ground disturbing activities, and the contract will be kept in the project file.	
Cultural Resources (continued)						
4.12-9	Assessment of lithology during preliminary ground disturbance, or at required depth, to determine if older Pleistocene deposits have high sensitivity. If deposits being excavated do have high sensitivity, then paleontological monitoring will be required for all ground disturbing activities within these deposits.	IEUA Facilities Management Plans Program EIR	At initiation of ground disturbing activities, the monitor shall conduct the lithology assessment at the required depth. If Pleistocene deposits are encountered, from that point forward, paleontologic monitoring for all ground disturbing activities will be conducted.	Inland Empire Utilities Agency / construction contractor	A copy of the contract retaining a paleontologist to conduct the lithology assessment will be retained in the project file to demonstrate compliance with this mitigation measure. Additionally, reports of all assessments will be retained in the project file and if sensitive deposits are encountered, a permanent qualified paleontological monitor (approved by	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
					IEUA) will be retained for the duration of ground disturbing activities, and their contract will be kept in the project file.	
The following Mitigation Measures were compiled from the Wastewater Facilities Master Plan, Recycled Water Management Plan, and Organics Management Plan Initial Study						
Aesthetics						
I-1	All surface areas disturbed by construction activities, except those area using 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 (note that native vegetation is also eminently suited to man-made landscapes and requires less maintenance). Once construction is completed, revegetation shall begin immediately and, where a formal landscape plan is being implemented, it shall be coordinated with the local agency and the local design guidelines for consistency.	IEUA Facilities Management Plans Initial Study	Prior to operation of new facilities.	Inland Empire Utilities Agency	A copy of the revegetation plan and/or landscape plan shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the plan prior to operation of the facility.	
Aesthetics (continued)						
I-2	Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, project implementation will conform with design requirements established in these planning documents.	IEUA Facilities Management Plans Initial Study	During project design phase.	Inland Empire Utilities Agency	A copy of the project design shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the local agency planning documents.	
I-3	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.	IEUA Facilities Management Plans Initial Study	During project design phase.	Inland Empire Utilities Agency	A copy of the visual simulation report shall be retained in the project file, and IEUA project managers and field inspectors shall verify design compliance with the visual simulation report recommendations.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
I-4	When above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.	IEUA Facilities Management Plans Initial Study	During project design phase.	Inland Empire Utilities Agency	A copy of the project design shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the local agency planning documents whenever feasible.	
I-5	All utilities for project facilities shall be placed underground unless such undergrounding is not technically feasible.	IEUA Facilities Management Plans Initial Study	During project engineering design phase.	Inland Empire Utilities Agency	A copy of the project design shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the stipulation for undergrounding whenever feasible.	
Aesthetics (continued)						
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.	IEUA Facilities Management Plans Initial Study	During project design phase.	Inland Empire Utilities Agency	A copy of the project lighting design shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the stipulations of the mitigation measure.	
Hazards and Hazardous Materials						
VII-1	If petroleum products are accidentally released to the environment during any phase of construction, the IEUA shall require the area of contamination to be defined; shall require the removal of any contaminated soil or material from the contaminated area; and ensure that any area	IEUA Facilities Management Plans Initial Study	During project construction and operation.	Inland Empire Utilities Agency	Copies of residual contamination tests and final repository data sheets for the contaminated material shall be retained in the project file.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	exposed to accidentally released contaminants are remediated to a threshold that meets regulatory requirements established by law or agencies overseeing the remediation.					
Hazards and Hazardous Materials (continued)						
VII-2	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.	IEUA Facilities Management Plans Initial Study	Prior to delivery of hazardous materials to the project site.	Inland Empire Utilities Agency	A copy of the project Business Plan shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the stipulations of the mitigation measure.	
VII-3	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.	IEUA Facilities Management Plans Initial Study	Prior to delivery of hazardous materials to the project site.	Inland Empire Utilities Agency	A copy of the business plan assessing potential accidental release scenarios shall be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the stipulations of the mitigation measure.	
VII-4	For the storage of any acutely hazardous material at a 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.	IEUA Facilities Management Plans Initial Study	Prior to project operation and/or prior to storage of any acutely hazardous material at a project facility.	Inland Empire Utilities Agency	copy of the storage plan and modeling of pathways of release and potential exposures, and methods for secondary containment will be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the storage plan prior to operation of the facility, and in accordance with all federal state and local laws.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
Hazards and Hazardous Materials (continued)						
VII-5	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.	IEUA Facilities Management Plans Initial Study	Subsequent to a release of hazardous substances that contaminate the environment.	Inland Empire Utilities Agency / contractor	A copy of the disposal or recycling plan for contaminated materials will be retained in the project file, and IEUA project managers and field inspectors shall verify compliance with the plan prior to operation of the facility, and in accordance with all federal state and local laws governing hazardous materials.	
VII-6	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.	IEUA Facilities Management Plans Initial Study	Sampling shall be completed subsequent to completion of remediating a contaminated site.	Inland Empire Utilities Agency / contractor	Copies of the laboratory analyses verifying remediation thresholds have been achieved shall be retained in the project file.	
VII-7	To the extent feasible, installation of pipelines or other construction activities 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.	IEUA Facilities Management Plans Initial Study	Prior to project operation involving any potential for generation of contaminated material.	Inland Empire Utilities Agency	A copy of the major evacuation and emergency response routes within the immediate vicinity of the project area will be retained in the project file, and IEUA project managers shall verify compliance with the mitigation measure by notifying local emergency response of the construction activities and allowing for access sufficient to meed emergency service providers needs. A copy of the letter notifying the emergency service providers of the construction activity and the description of sufficient access that the service providers require will be maintained in the project file.	
Hazards and Hazardous Materials (continued)						
VII-8	Where alternative treatment systems are available to reduce potential health risks at proposed facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities.	IEUA Facilities Management Plans Initial Study	Evaluation of alternatives during the project engineering design phase.	Inland Empire Utilities Agency	Copies of the alternatives evaluation shall be retained in the project file.	
VII-9	Prior to approving specific recycled water recharge facility	IEUA Facilities	Prior to final recharge site selection for the project.	Inland Empire	The analysis of potential conflicts with existing wells	

	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	locations and volumes, the extent of the aquifer area that would be removed from water production to meet potable water production requirements (6-month detention and 20% concentration in groundwater) shall be defined. If it conflicts with significant water production wells (existing or proposed), an alternative recharge location shall be selected, or wells will be closed and a new supply developed.	Management Plans Initial Study		Utilities Agency	and any mitigation shall be retained in the project file.	
VII-10	Hydrogeologic studies, including modeling, will be done for each recharge site to define the recharge impacts on existing known contaminated 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 impacted production facilities will be replaced.	IEUA Facilities Management Plans Initial Study	Prior to delivery of recycled water for recharge within a recharge basin.	Inland Empire Utilities Agency	Hydrogeologic studies and modeling reports will be maintained in the project file demonstrating compliance with this mitigation measure, where appropriate.	
Hazards and Hazardous Materials (continued)						
VII-11	All recycled 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 recycled recharge operations shall be terminated or modified to eliminate the adverse impact.	IEUA Facilities Management Plans Initial Study	During project operation.	Inland Empire Utilities Agency	Copies of all monitoring reports shall be maintained in the project file, and if recharge operations must be modified, the modifications will be documented.	
VII-12	Prior to installing any above ground structures or facilities that store methane within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B") , a final determination will be made on the acceptability of such facilities within this zone. 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	IEUA Facilities Management Plans Initial Study	Prior to any ground disturbing or installation activities for methane storage facilities.	Inland Empire Utilities Agency	Copies of approval for the project location within a FAA restricted Use Development and Height Area will be maintained in the project file.	

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	Mitigation Measure	Source	Implementation Schedule	Responsible Party	Verification	Status / Date / Initials
	(ACLUP Referral Area "B") will be reviewed by the Airport Manager, and any exceptions will be obtained in accordance with FAA regulations.					
Hazards and Hazardous Materials (continued)						
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.	IEUA Facilities Management Plans Initial Study	Prior to initiation of construction activities.	Inland Empire Utilities Agency	Copies of road operation management plan containing all elements listed in the mitigation measure shall be maintained in the project file, and an IEUA representative will conduct field inspections in order to determine compliance with the road operation management plan.	

FINAL

PROGRAM ENVIRONMENTAL IMPACT REPORT
FOR THE
WASTEWATER FACILITIES MASTER PLAN
RECYCLED WATER MASTER PLAN
ORGANICS MANAGEMENT MASTER PLAN

SCH #2002011116

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ABBREVIATIONS AND ACRONYMS

AFY	acre-feet per year
ADT	Average Daily Traffic
ADWF	Average Dry Weather Flow
Agency	Inland Empire Utilities Agency
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ASP	Aerated Static Pile
Basin	Chino Groundwater Basin
Basin Plan	Water Quality Control Plan, Santa Ana River Basin
BMP	Best Management Practices
CAA	Clean Air Act
CARB	California Air Resources Board
CBWM	Chino Basin Watermaster
CCAA	California Clean Air Act
CCWD	Cucamonga County Water District
CCWRF	Carbon Canyon Wastewater Reclamation Facility
CEQA	California Environmental Quality Act
CIGSM	Chino Basin Integrated Groundwater Model
CIM	California Institute for Men
CIP	Capital Improvement Program
CIW	California Institute for Women
CO	Carbon Monoxide
COE	United States Army Corps of Engineers
CSDLAC	County Sanitation Districts of Los Angeles County
CTP	Comprehensive Transportation Plan
EMS	Emergency Medical Service
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FEIR	Final Environmental Impact Report
FY	Fiscal Year
g	gravity

ABBREVIATIONS AND ACRONYMS (continued)

gpcd	gallons per capita per day
gpm	gallons per minute
I	Interstate
IEUA	Inland Empire Utilities Agency
kW	kilowatt
kWH	kilowatt per hour
LF	lineal foot
m	Magnitude
MGD	Million gallons per day
m.s.l.	mean sea level
MWD	Metropolitan Water District of Southern California
MZ-1	Management Zone-1
NAAQS	National Ambient Air Quality Standards
NOP	Notice of Preparation
NO2	Nitrogen Dioxide
NRWS	Non-Reclaimable Wastewater System
NSA	Northern Service Area
OBMP	Optimum Basin Management Program
OCWD	Orange County Water District
OMMP	Organics Management Master Plan
OMP	Organics Management Plan
O3	Ozone
NOP	Notice of Preparation
Pb	Lead
PDWF	Peak Dry Weather Flow
PEIR	Program Environmental Impact Report
PM 2.5	Particulate Matter <2.5 Microns
PM 10	Particulate Matter <10 Microns
PS	Pump Station
PWWF	Peak Wet Weather Flow

ABBREVIATIONS AND ACRONYMS (continued)

RCPG	Regional Comprehensive Plan and Guide
RMP	Risk Management Plan
RP	Regional Plant
RTP	Regional Transportation Plan
RWFS	Recycled Water Feasibility Study
RWMP	Regional Water Master Plan
RWQCB	Regional Water Quality Control Board, Santa Ana Region
SANBAG	San Bernardino Associated Governments
SAR	Santa Ana River
SARI	Santa Ana River Interceptor Sewer Line
SCAB	South Coast Air Basin
SCADA	Supervisory control and data acquisition system
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SO2	Sulfer Dioxide
SCGC	Southern California Gas Company
SP	Satellite Plant
sq. ft.	square-feet
SR	State Route
SRP	Satellite Recycling Plant
SSA	Southern Service Area
SWP	State Water Project
TDS	Total Dissolved Solids
TIN	Total Inorganic Nitrogen
TOC	Total Organic Carbon
UBC	Uniform Building Code
USGS	United States Geological Survey
WFMP	Wastewater Facilities Management Plan
WRCOG	Western Riverside Council of Governments

ABBREVIATIONS AND ACRONYMS (continued)

WRMP	Recycled Water Master Plan

CHAPTER 1
EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Inland Empire Utilities Agency (IEUA or Agency) is one of the water management agencies located within the Chino Groundwater Basin (Basin). The Basin is a major subbasin in the upper Santa Ana River watershed. The Agency has a service area of approximately 242 square miles, with approximately 700,000 residents, located in the western portion of San Bernardino County. Cities within this service area include Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, and the Cucamonga County Water District (which generally encompasses the City of Rancho Cucamonga), as well as unincorporated areas of San Bernardino County. The IEUA service area is divided into a Northern Service Area (NSA) and a Southern Service Area (SSA). In addition, there is a mixed use Northern and Southern Service Area which is located on the westerly edge of IEUA's service area and is able to send flows to either the NSA, SSA or the Non-reclaimable Waste System (NRWS).

Current services provided by IEUA include: wastewater conveyance and treatment; production of recycled water; distribution of imported and recycled water supplies; co-composting of manure and municipal biosolids; desalinization of groundwater supplies; power generation peripheral to its areas of responsibility and disposal of non-reclaimable industrial wastewater high in brine. The Agency currently operates four Regional Wastewater Recycling Plants (RWRP, RP, or Regional Plants), RP-1, RP-2, RP-4 and Carbon Canyon Wastewater Reclamation Facility (CCWRF). A fifth plant, RP-5, is currently under construction. When RP-5 is brought on line, the liquid processing facilities at RP-2 will be phased out because of age and being located in a flood plain. Additionally, the Agency operates a system of regional interceptor sewers to serve the areas tributary to each of the plants.

The proposed project evaluated in this Program Environmental Impact Report (PEIR) encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin. The proposed project area is bounded on the north by the San Gabriel Mountains, on the south by the Prado Basin, on the west by the City of Chino Hills and on the east by the City of Fontana. The aforementioned project elements and project area have been elucidated over the past year through the development of several master plans prepared by IEUA. These master plans lay the necessary foundation for the successful long-term management of the Agency's various water, wastewater, and organic management responsibilities. IEUA will serve as the Lead Agency under the California Environmental Quality Act (CEQA) for this PEIR, based on its responsibility for constructing and implementing the three proposed management plans set forth in this document.

Three management plans are being considered within this single environmental document because of the large degree of overlap and interrelatedness between the topics and projects addressed in each plan. In addition to being intertwined with the other two master plans discussed within this PEIR, the Recycled Water System Feasibility Study (RWSFS) (item number two in the list following this paragraph) has also been evaluated as a second tier project within the scope of the Optimum Basin Management Plan (OBMP) PEIR that was approved by IEUA and other related agencies in August of 2000. 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. While aspects of the recycled water master plan studied in this document qualify as second tier projects under the OBMP, it will be fully evaluated in conjunction with the other two master plans in such a way that this document will serve as a "stand alone" analysis of environmental impacts for all three master plans. The three plans collectively address the comprehensive strategy for managing the IEUA's regional wastewater system in the future and the strategy for management of the wastewater system's residual materials, recycled water and organic material, termed biosolids. Other organic materials, manure and green waste are also addressed because they are part of the overall resource base used to process and market biosolids. These three plans are:

1. Wastewater Facilities Master Plan Volume 1 Executive Report, which will be referenced in this document as the "Water Facilities Master Plan" (WFMP);

2. IEUA Recycled Water System Feasibility Study, which will be referenced in this document as the "Recycled Water Master Plan" (RWMP); and

3. Chino Basin Organics Management Strategy Business Plan, which will be referenced in this document as the "Organics Management Master Plan" (OMMP).

A brief summary of elements included in each of the three master plans is provided below.

Wastewater Facilities Master Plan

IEUA has prepared a Wastewater facilities Master Plan (WFMP) for the entire area to address future management of wastewater collection, treatment and disposal. The plan provides a detailed accounting of projected future needs and the upgrade/expansions options available to meet the projected needs in a flexible and environmentally sensitive manner. The IEUA wastewater management strategy focuses on the key issues of wastewater collection and treatment, flow management and flow bypass, biosolids management and optimization, energy recovery optimization, and water recycling optimization

The year 2050 projected wastewater flows total approximately 155 million gallons per day (MGD). At build out, total wastewater flows are estimated at 202 MGD. The total proposed wastewater treatment capacity requirements for regional processing plants, CCWRF and satellite plants is between 145 and 155 MGD. The capacity owned by IEUA in the non-reclaimable waste systems for both the northern and southern service areas is 19.5 MGD, the projected need for the NRWS is only 16 MGD if the treatment facilities are constructed to approximate the forecasted needs.

In order to effectively meet the relatively higher needs of the NSA as compared to the SSA at build out, there is a future need for the ability either to bypass water from the NSA to the SSA or to utilize the NRW Systems' capacity. This project includes a provision for up to 22 MGD of low to ultimately be bypassed to the SSA. The ability to bypass assists in the elimination of current pump stations and allows flows to be treated where capacity currently resides at existing treatment plant sites to optimize construction needs.

To meet the forecasted wastewater treatment needs in the most cost efficient and waste-equitable way for the Basin, satellite plants have been proposed that will treat and recycle water locally in the basin through a "skimming" process that retains good quality wastewater from the trunk sewer system and treats it to the standards that permit recycling and reuse such as landscape irrigation and groundwater recharge. Groundwater recharge will be integrated with the IEUA's and the Chino Basin Watermaster's (CBWM) overall plan to percolate a variety of sources of water including recycled water, imported water and storm water. Satellite plants will preclude the need to pump recycled water from either RP-1 or RP-4 to the principal reuse areas in the northern part of the service area. Solids would be returned to sewers to be treated at other major treatment facilities including the regional processing plants, thus reducing the potential for odors at satellite plants and allowing satellite plants to be of compact design and easy to enclose.

Biosolids from wastewater treatment will be stabilized (digested) at RP-1, RP-2, RP-5 and a new biosolids management facility near RP-4. The proposed RP-4 digestion facility would also accommodate the biosolids generated by satellite treatment plants. The RP-1 proposed facility is a small scale composting facility. The RP-2 facility will stay in operation for approximately thirty years or until it exceeds its useful life. The biosolids produced at each site will be Class A, in conformance with Federal Regulations 40 CFR Part 503, permitting essentially unrestricted land application. Additionally, a second step to ensure quality and marketability of the biosolids will include composting with other organic materials. The biosolids process will be optimized in such a way as to minimize the amount of biosolids to be disposed of and to maximize the production of digester gas for cogeneration facilities at the treatment plants which will enable the conversion of the biogas into electrical energy. Through this methodology, the IEUA goal of energy self-sufficiency could essentially be met.

The wastewater treatment facilities currently produce about 60,000 AFY of recycled water, which is projected to grow to over 100,000 AFY within 20 years. IEUA projects that for about 70,000+ acre feet per year (AFY) of this total volume of recycled water 40 percent can be used for groundwater recharge, 40 percent for landscape irrigation and the remaining 20 percent to non-potable industrial reuse.

Transport of wastewater through the current and planned sewer system is also evaluated and additional facilities to augment the Regional Trunk Sewer System and to meet the wastewater management strategy are addressed in this master plan. Ultimate phasing of projects beyond 2010 will depend on how deficient a pipe segment is and will require periodic re-evaluation depending on the rate and location of growth within the IEUA service area. IEUA's goals for this aspect of wastewater treatment include the sizing of interceptor sewers for ultimate build out capacity, with redundancy, and to provide flexibility in the trunk sewer system, pump stations, and force mains necessary to convey the wastewater flows to the appropriate sites for treatment and/or stabilization processes.

Recycled Water Master Plan (RWMP)

The proposed project that will be implemented under this master plan consists of a series of recycled water infrastructure facilities that will allow IEUA to utilize (directly consume, use for irrigation or recharge to the Chino Basin groundwater aquifer) a substantial amount of the treated wastewater effluent produced by IEUA's water reclamation plants that meets Title 22 water quality standards. Although this recycled water system component of the overall project is one of the OBMP components, this EIR has been prepared as a stand alone PEIR for IEUA's implementation of all three master plan systems.

IEUA's goal is to reuse, to the extent practicable, recycled water to produced at the Agency's Regional Wastewater Treatment Plants, except for the 17,000 acre-feet per year (AFY) required to be released to the Santa Ana River (SAR) under the 1978 Judgment for Orange County's use. A primary Agency goal is to reduce dependency of the Chino Basin on imported State Water Project (SWP) water to offset pumping that exceeds the Basin's safe yield and to improve groundwater quality in the Basin. Wastewater treated by each of the Agency's regional plants produces a recycled water product that meets the California State Department of Health Standards for "Non-Restricted Recreational Use", or full-body contact).

To achieve this objective, a regional recycled water distribution system will be installed to meet the following objectives:

1. Install a distribution system that will interconnect the Carbon Canyon Wastewater Reclamation Facility (CCWRF), Regional Wastewater Reclamation Plant-1 (RP-1), Regional Wastewater Reclamation Plant-2 (RP-2), Regional Wastewater Reclamation Plant-4 (RP-4) and Regional Wastewater Reclamation Plant-5 (RP-5, which is still under construction). This will provide better distribution capability to local agencies.

2. Provide recycled water more efficiently and at an affordable rate for landscaping, cooling towers, boiler feed, and other various non-potable uses that require large volumes of water and thereby conserve potable groundwater and reduce dependence on imported water from the SWP.

3. Provide for the utilization of eighteen existing recharge basins and for the construction of two new recharge basins for blending storm water and imported water, plus an appropriate percentage of recycled water.

Once the recycled water distribution system is installed and operational, IEUA will deliver recycled water to IEUA contract agencies, other retail water utilities, direct industrial customers and to recharge basins where it will be blended with storm water and imported water to recharge the Chino Basin groundwater aquifers. As part of the effort, IEUA is working cooperatively with the Chino Basin Water Conservation District (CBWCD), San Bernardino County Flood Control District (SBCFCD), CBWM, and its retail member agencies to deliver recycled water to 18 existing groundwater recharge basins and to develop two new basins (described in detail below), all of which overly the Chino Basin groundwater aquifer. These basins are already in the process of being modified to facilitate recharge of greater volumes of storm water and SWP water under a recent decision by IEUA acting as the CEQA lead agency for the above agencies.

The implementation of the RWMP will entail the construction of inlets to many of the recharge basins, so as to enhance the recharge of storm water, imported water and recycled water. Some of these inlets will be multipurpose, serving all three water sources, while others will deliver only recycled water. An estimated total of 16,150 lineal feet of new pipeline and laterals is proposed to be installed over a fourteen month period to provide recycled and storm water tie-ins between major distribution lines and the recharge basins. For almost all of the basins, an operation and management agreement will be developed between the IEUA the San Bernardino County Flood Control District, Chino Basin Water Conservation District and the Watermaster. This will ensure that no conflicts occur between flood control management objectives and storm water, imported water and recycled water conservation efforts at each basin. The total potential volume of recycled water proposed for these basins is storm water: 18,790 to 23,700 acre feet per year (AFY), imported water: 81,800 to 122,100 AFY, and recycled water: 18,790 to 23,700 AFY.

To complete a regional distribution system for the conveyance of recycled water to customers for various beneficial uses, it is estimated that approximately 397,500 linear feet of pipeline could be installed over the next ten years. Based on current market surveys conducted the IEUA staff, regional recycled water use is projected to be as much as 72,000 AF by 2020. In addition to pipelines, new pump stations and storage reservoirs will be installed to support the recycled water distribution system. The IEUA will continue to work with all water purveyors and cities within the service area to encourage new developments to install dual plumbed systems for recycled water service, ensuring that all non-potable irrigation and industrial users can maximize their utilization of this valuable resource.

Organics Management Master Plan (OMMP)

The Organics Management Master Plan has been developed by IEUA with two primary foci: (a) to generate enough energy to be self-sufficient for power to operate IEUA facilities; and (b) to implement a self-sufficient organics management system capable of utilizing and/or disposing of biosolids and manure wastes produced in the Basin. Through the effective use of organic solids as an energy source, an estimated potential exists for the generation of 50 megawatts of electrical energy from the anaerobic digestion process of organic wastes produced in the Basin. Approximately 25 megawatts of this potential is forecast to come from the digestion and co-generation of manure produced by the numerous dairy farms present in the Basin.

Organics used in the energy generating process can be reduced to approximately one half of their original volume and can be further utilized for a variety of purposes. Processed biosolid wastes can be used as fertilizer, soil amendments, and compost products. Currently, biosolids are produced in the service area at a rate of over 64,000 tons per year (tpy), and are forecast to increase to over 74,000 tpy by the year 2015. Currently, over one million tpy of manure are generated each year and as a result of urbanization that is occurring in the IEUA service area, the rate of mature generation is anticipated to be reduced to 547,000 tpy by 2020. Due to air and water quality problems related to the production of large quantities of manure, much of it is presently removed from dairies twice each year for agricultural land application in other areas.

Specific projects that are considered in this master plan include the following: RP-5 Energy Recovery Project, RP-1 Manure Digester Pilot Project, RP-4 Microturbine Project, RP-5 Renewable Energy Project, High Tech Manure Digester Project, Dairy Digester Project, Advanced Technology Manure Pyrolysis Process, and Co-Composting Operations at RP-1, Inland Empire Regional Composting Facility, California Institute for Men, and Colton Compost Facility.

At IEUA's proposed biosolid treatment facilities, the combination of the following treatment processes are being considered: anaerobic digestion, co-generation, and pyrolysis. The anaerobic digestion process releases methane gas that can be utilized to fuel generators for the generation of electricity to support IEUA projects. The management program is designed so that the resultant Class A output of the digestion/stabilization process is a desirable, marketable product that can be retailed or utilized within the Basin without further increasing the nitrate and salt load delivered to the Basin. The facilities proposed in this master plan are to be constructed in such a way that prevents the nitrates/salts present in the de-watered sludge from percolating to the groundwater aquifer. This management program also contributes to the long-term beneficial use of groundwater in the service area through the removal and/or stabilization of potential groundwater contaminants while also lowering the IEUA demand for power from outside agencies.

1.2 SUMMARY OF ENVIRONMENTAL ANALYSIS

The issues discussed in the master plan and feasibility study documents are so intertwined that to provide an environmental impact analysis of any single management plan would necessitate a concurrent and equally thorough evaluation of the other two management plans. Thus, to provide the most accurate and comprehensive evaluation of the proposed project, a single document has been selected as the best format for addressing potential impacts relating to all three management plans.

Additionally, the proposed project encompasses variety of potentially similar facility types for implementation. Due to these considerations, a decision was made to prepare a PEIR. The procedures for program EIRs are outlined in Section 15168 of the State CEQA Guidelines. In accordance with these procedures, IEUA chose to prepare and circulate a Notice of Preparation which determined that all standard issues contained in the CEQA Environmental Checklist Form would be examined in the PEIR prepared for this project. Seventeen (17) comment letters were received in response to the circulated Notice of Preparation (NOP). All comment letters and a summary of comment contents is included as Appendix 8.1. The PEIR addresses these comments as part of the evaluation for each of the issues summarized below.

A copy of the NOP for the proposed project is provided in this document as Appendix 8.1 of Chapter 8 of this PEIR. The following issues were evaluated in the PEIR and a determination was made that no significant impacts would occur to the natural resources and man-made systems if the project is implemented as described in the Chapter 3, Project Description of this PEIR.

The only environmental issue with impacts identified to be potentially significant and unavoidable was project specific air pollution emissions. The issues where no significant impact is forecast to occur include:

Air Quality	Geology and Soils	Land Use and Planning
Biological Resources	Hydrology	Noise
Cultural Resources	Water Quality	Population and Housing
Public Services	Transportation and Traffic	Utilities and Service Systems

Please refer to discussions in Chapter 4 of this PEIR for a detailed discussion of these issues and the substantive basis for concluding that implementation of the proposed project will or will not cause any significant adverse impacts that cannot be mitigated to a less than significant level.

A summary of the environmental findings and mitigation measures in this Environmental Impact Report is contained in Table 1.2-1 which begins on the following page. The summary shows that the proposed project will cause only one unavoidable adverse environmental impacts if implemented as described in the this document. Some environmental impacts caused by the project are nonsignificant without any mitigation. Most of the impacts described in the following table and the analysis in Chapter 4 are required to be mitigated to less than significant levels with implementation of recommended mitigation measures.

CHAPTER 2
INTRODUCTION

2.1 BACKGROUND

The Inland Empire Utilities Agency (IEUA or Agency) distributes water, provides industrial/municipal wastewater collection and treatment and performs other related utility services for the middle portion of the Santa Ana River watershed in southwestern-most portion of San Bernardino County, including management of organic waste materials. Current services provided by IEUA also include: production of recycled water; sewage 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 Agency currently operates four Regional Wastewater Reclamation Plants (in this document the acronym "RP" (Regional Plants) will used to refer to these facilities), with a fifth plant currently under construction. The Agency also operates a system of regional interceptor sewers to serve the surrounding areas tributary to each of the plants.

The Agency serves the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland, the Cucamonga County Water District (which generally encompasses the City of Rancho Cucamonga), as well as unincorporated areas of San Bernardino County. Approximately 700,000 people are currently estimated to reside in the Agency's service area. This service area encompasses approximately 242 square miles in the southwest end of San Bernardino County. The Agency's service area generally overlies the Chino Groundwater Basin (Basin), which is a major subbasin in the upper Santa Ana River watershed. The IEUA service area is divided into a Northern Service Area (NSA) and a Southern Service Area (SSA). A third area, the mixed Northern and Southern Service Area (NSSA) is located on the westerly edge of IEUA's service area and wastewater flows can either be diverted to the NSA, SSA or the Non-reclaimable Waste (NRW) System for treatment and disposal.

Over the past year, IEUA has been preparing several master plans to provide the foundation for long-term management of its various water, wastewater, and organic management functions. The first of these plans, the Optimum Basin Management Program (OBMP), was approved by the Agency, Chino Basin Watermaster and various other stakeholders in July 2000. The OBMP addresses long-term water quality and water supply issues in the Chino Groundwater Basin and provides a framework for developing a cooperative groundwater management program among agencies, which use, manage or regulate water resources in the Basin. It is currently being implemented, and one of the programs being evaluated in this environmental impact report (EIR) is a second-tier project under the OBMP.

Three IEUA facility master plans have now reached the stage where the Agency intends to consider these plans for approval and implementation. These plans collectively address the comprehensive strategy for managing the IEUA regional water, wastewater, biosolids and organics management systems in the future. These three plans include:

1. Wastewater Facilities Master Plan Volume 1 Executive Report, which will be referenced in this document as the "Water Facilities Master Plan" (WFMP);
2. IEUA Recycled Water System Feasibility Study, which will be referenced in this document as the "Recycled Water Master Plan" (RWMP); and

3. Chino Basin Organics Management Strategy Business Plan, which will be referenced in this document as the "Organics Management Master Plan" (OMMP)

Thus, this environmental impact report (EIR) will serve as a program EIR (PEIR) for the three plans listed above. IEUA is in the unique position to integrate the management of these various plans within the Chino Basin, and derive important benefits by cooperating with various other water and waste management agencies in the Basin and surrounding areas. The three plans are being considered within one environmental document because IEUA has concluded that they are all being proposed for implementation within the same geographic area by the Agency; they are interrelated as a logical part in the chain of contemplated actions by the Agency; and they are essentially part of the overall program (one large project) being implemented by the IEUA to fulfill its water resource, water quality and organics management responsibilities within its service area.

The California Environmental Quality Act (CEQA) requires that the Lead Agency (in this case the IEUA) consider the environmental information in the project record, including this PEIR, prior to making a decision on the proposed project. The decision that will ultimately be considered by the governing board of the IEUA is whether or not to certify the Final PEIR (FEIR) as adequate to in addressing environmental effects of implementing the three water and wastewater resource management plans.

This PEIR has been prepared by Tom Dodson & Associates (TDA), Parsons and Myra L. Frank & Associates, Inc. under contract to the Inland Empire Utilities Agency in accordance with Section 21151 of CEQA. The Agency retained this team to assist in performing the independent review of the project required by CEQA prior to releasing the PEIR as a draft for public review. IEUA has reviewed the content of the Draft PEIR and concurs with the evaluations, conclusions and findings contained herein.

2.2 SCOPE AND CONTENT OF THIS PEIR

As the Lead Agency, IEUA initially concluded that the proposed project could result in one or more potentially significant adverse impacts to the environment and, therefore, a PEIR should be prepared. In accordance with Sections 15063 and 15082 of the State CEQA Guidelines, the IEUA prepared a Notice of Preparation of a PEIR to solicit comments identifying the environmental resources and manmade systems that could experience significant environmental impacts if the proposed master plans and related projects are implemented. Additionally, a public scoping meeting was held for the same purpose. Comments on the scope of the PEIR received during the NOP process and public meeting process are summarized in Appendix 8.1 and have been considered and evaluated in this document.

In addition to evaluating the specific environmental issues, this PEIR contains all of the sections mandated by the State CEQA Guidelines. Table 2.2-1 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. This PEIR is comprised of two volumes. Volume 1 contains the CEQA mandated sections with Volume 2 containing the technical appendices.

2.3 PEIR FORMAT AND ORGANIZATION

This PEIR contains eight chapters which, when considered as a whole, provide the reviewer with an evaluation of the potentially significant adverse impacts from implementing the proposed projects outlined in the master plans and the construction and operation of the facilities proposed by IEUA. The following paragraphs provide a summary of the content of each chapter of this PEIR.

Chapter 1 contains the executive summary for the PEIR. 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 PEIR is identified. Technical evaluations prepared for the PEIR are discussed and the format and availability of the PEIR are described.

Table 2-1
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
Introduction	Chapter 2	2-1
Project Description (Section 15124)	Chapter 3	3-1
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 15126e)	Chapter 4	4-1
Cumulative Impacts (Section 15130)	Chapter 4	4-1
Alternatives to the Proposed Project (Section 15126f)	Chapter 5	5-1
Growth-Inducing Impacts (Section 15126d)	Chapter 6	6-1
Irreversible Environmental Changes (Section 15126c)	Chapter 6	6-1
Effects Found Not to be Significant (Section 15128)	Chapter 4	4-1
Organizations and Persons Consulted (Section 15129)	Chapter 7	7-1
Initial Study, Notice of Preparation, and Comment Letters	Chapter 8	8-1
Technical Appendices and Other Materials	Volume 2	--

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 assessment contained in the next several chapters.

Chapter 4 presents the environmental impact assessment for the issues considered in this PEIR. For the environmental issue identified in Chapter 1, 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 an evaluation of alternatives to the proposed project. Included in this chapter is an analysis of the no project alternative and other project alternatives.

Chapter 6 presents the topical issues that are required in a PEIR. These include: any significant irreversible environmental changes; and growth inducing effects of the project.

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

Chapter 8 contains those materials referenced as appendices to the PEIR, such as the Notice of Preparation, comment letters, distribution list, and other materials referred to in the PEIR.

Volume 2 contains the technical appendices referenced in Volume 1 of the PEIR.

2.4 AVAILABILITY OF THE PEIR

The Draft PEIR for the master plans has been distributed directly to all public agencies and interested persons identified on the NOP mailing list (see Appendix 8.1 of Chapter 8), as well as the State Clearinghouse, and any other requesting agencies or individuals. All reviewers will be provided 45-days to review the Draft PEIR and submit comments to the IEUA for consideration and response. The Draft PEIR is also available for public review at the following locations during the 45-day review period:

Chino Branch Library
13180 Central Avenue
Chino, CA 91710

Chino Hills Branch Library
2003 Grand Avenue
Chino Hills, CA 91709

Fontana Branch Library
8334 Emerald Street
Fontana, CA 92335

Ontario City Library
215 East "C" Street
Ontario, CA 91764-4198

Rancho Cucamonga Public Library
7368 Archibald Avenue
Rancho Cucamonga, CA 91730

2.5 INCORPORATION BY REFERENCE

The following documents are cited throughout this Draft PEIR and are hereby incorporated by reference as permitted by State CEQA Guideline Section 15150, and are available at Inland Empire Utilities Agency at the following address:

Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335

1. *Chino General Plan*, City of Chino, 1993
2. *Chino Hills General Plan*, City of Chino Hills, 1994
3. *Fontana General Plan*, City of Fontana, 1989
4. *Montclair General Plan*, City of Montclair, 1983
5. *Ontario General Plan*, City of Ontario, 1992
6. *Rancho Cucamonga General Plan*, City of Rancho Cucamonga, 1994
7. *Upland General Plan*, City of Upland, 1992.

All EIR documents related to the aforementioned General Plans and those summarized below are hereby included as reference and supporting informational materials for this PEIR.

- *Chino Basin Municipal Water District Final Report on Reclaimed Water Master Plan,* Montgomery Watson, April 1993.
- *Chino Basin Watermaster Optimum Basin Management Program Phase 1 Report,* Wildermuth Environmental, October 1999.
- *Chino Basin Water Resources Management Study Final Summary Report,* Montgomery Watson et al., September 1995.
- *Chino Basin Water Resources Management Study Model Calibration Results,* Montgomery Watson Americas, Inc., August 26, 1993.
- *Chino Basin Water Resources Management Task Force Final Task 1 Memorandum: Water and Wastewater Planning Environment,* James M. Montgomery, Consulting Engineers, Inc. et al., March 1993.
- *Chino Basin Water Resources Management Task Force Final Task 2 Memorandum: Develop Management Planning Elements,* James M. Montgomery, Consulting Engineers, Inc. et al., June 1992.
- *Chino Basin Water Resources Management Task Force Final Task 3 Memorandum: Description of Economic Procedures to be Used for Evaluating Planning Alternatives,* CH2M Hill, July 5, 1995.
- *Chino Basin Water Resources Management Task Force Final Task 4 Memorandum: New Planning Model Implementation Plan,* James M. Montgomery, Consulting Engineers, Inc. et al., May 1992.
- *Chino Basin Water Resources Management Task Force Final Task 5 Memorandum: Chino Basin Conceptual Model,* James M. Montgomery, Consulting Engineers, Inc. et al. September 1992.
- *Chino Basin Water Resources Management Task Force Final Task 6 Memorandum: Development of Three Dimensional Groundwater Model,* Montgomery Watson et al. March 1994.
- *Chino Basin Water Resources Management Task Force Final Task 7 Memorandum: Water Resource Planning Module User's Manual,* Diba Consulting Software Engineers (under contract to Montgomery Watson et al.) December 1995.
- *Chino Basin Water Resources Management Study Final Task 9 Memorandum: Evaluate Legal, Institutional and Regulatory Constraints,* Camp Dresser & McKee, Inc., March 1996.
- *Chino Basin Water Urban Water Management Plan,* Metropolitan Water District of Southern California, 1995.
- *Draft Water Supply Plan Facilities Report Alternative 6A – Phase 1,* Black and Veatch Corporation, November 9, 1999.
- *Integrated Water Resources Plan,* Metropolitan Water District of Southern California, 1996.
- *Phase 1 Final Report Chino Basin Recharge Master Plan,* Wildermuth et al., January 1998.
- *Regional Urban Water Management Plan,* Metropolitan Water District of Southern California,

1995.

- *Santa Ana Watershed Project Authority Water Resources Plan, June 1998,* prepared by SAWPA Planning Department.
- *Optimum Basin Management Program,* June 2000.
- *Optimum Basin Management Program Program Environmental Impact Report,* June 2000.
- *Chino 1 Desalter Enhancement and Chino II Desalter Project Subsequent Environmental Impact Report*, January 2002
- *Wastewater Facilities Master Plan, Draft Report,* February 2002
- *IEUA Recycled Water System Feasibility Study,* January 2002
- *Organics Management Strategy Business Plan,* 2001

2.6 REVIEW PROCESS

In summary, after receiving comments on the Draft PEIR, the IEUA will prepare a Final PEIR for review by the IEUA Board of Directors prior to their making a decision about the project. The IEUA Board of Directors will review the Final PEIR for adequacy and when determined adequate, the PEIR can be used as the informational document for compliance with CEQA. As described previously in Section 2.1, other responsible agencies may also choose to review and approve the PEIR document in support of the master plan projects. Information concerning the PEIR public review schedule for this project can be obtained by contacting:

Mr. Gary Hackney or Mr. Matthew Poeske
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
Fontana, CA 92335
(909) 357-0241

CHAPTER 3
PROJECT DESCRIPTION

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

3.1 INTRODUCTION

The Inland Empire Utilities Agency (IEUA or Agency), originally named the Chino Basin Municipal Water District, was formed by popular vote of its residents in June 1950 to become a member agency of the Metropolitan Water District of Southern California (MWD) for the purpose of importing supplemental water supplies to augment local stream and groundwater supplies. Since its formation in 1950, the Agency has significantly expanded its services. Current services provided by IEUA include: wastewater conveyance and treatment; production of recycled water; distribution of imported and recycled water supplies; co-composting of manure and municipal biosolids; desalinization of groundwater supplies; power generation peripheral to its areas of responsibility and disposal of non-reclaimable industrial wastewater high in brine. The Agency currently operates four Regional Wastewater Recycling Plants (RP-1, RP-2, RP-4 and Carbon Canyon Wastewater Reclamation Facility (CCWRF). A fifth plant, RP-5, is currently under construction. When RP-5 is brought on line, the liquid processing facilities at RP-2 will be phased out because of age and being located in a flood plain. Additionally, the Agency operates a system of regional interceptor sewers to serve the areas tributary to each of the plants.

IEUA, as a member of the MWD, distributes imported water, and provides municipal and industrial wastewater collection and treatment services and other related utility services for the mid-portion of the Upper Santa Ana River watershed in the southwestern-most portion of San Bernardino County (Figure 3-1). In its wastewater management role, the Agency serves the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland, and the Cucamonga County Water District (which generally encompasses the City of Rancho Cucamonga), as well as some unincorporated areas of San Bernardino County. Approximately 700,000 people are currently estimated to reside in the Agency's service area, which encompasses approximately 242 square miles (Figure 3-2).

The Agency's service area generally overlies the Chino Groundwater Basin (Basin), which is a major subbasin in the upper Santa Ana River watershed (Figure 3-3). The IEUA service area is divided into a Northern Service Area (NSA) and a Southern Service Area (SSA). In addition, there is a mixed use Northern and Southern Service Area which is located on the westerly edge of IEUA's service area and is able to send flows to either the NSA, SSA or the Non-reclaimable Waste (NRW) System. The various proposed water management facilities in IEUA's service area, including the RPs, are shown on Figure 3-4.

Over the past year IEUA, in conjunction with the Chino Basin Watermaster (CBWM), has prepared or participated in the preparation of several master plans to provide the foundation for long-term management of Chino Basin and the Agency's service area, covering water, wastewater, and organic management responsibilities. The first of these plans, the Optimum Basin Management Program (OBMP), was prepared by the Chino Basin Watermaster in August of 1999. IEUA was asked to be the CEQA Lead Agency by the Chino Basin Watermaster and various other stakeholders and in July 2000 IEUA approved the OBMP and certified the Program Environmental Impact Report. The OBMP addresses long-term water quality and water supply issues in the Basin and provides a framework for developing a cooperative groundwater management program among member agencies of the CBWM which use, manage or regulate water resources in the Basin. The

OBMP consists of recommended programs and facilities to further the objective of developing cost-effective and reliable potable water supplies for the long-term, while enhancing and protecting the safe yield and water quality of the Basin's groundwater aquifers and downstream uses. One of the programs being evaluated in this environmental document is a second-tier project under the OBMP (the Recycled Water Master Plan).

Three IEUA facility plans have now reached the stage where the Agency intends to consider these plans for approval and implementation. The three plans collectively address the comprehensive strategy for managing the IEUA's regional wastewater system in the future and the strategy for the treatment and disposal of biosolids and manure. These three plans are:

1. Wastewater Facilities Master Plan Volume 1 Executive Report, which will be referenced in this document as the "Water Facilities Master Plan" (WFMP);

2. IEUA Recycled Water System Feasibility Study, which will be referenced in this document as the "Recycled Water Master Plan" (RWMP); and

3. Chino Basin Organics Management Strategy Business Plan, which will be referenced in this document as the "Organics Management Master Plan" (OMMP)

This environmental impact report (EIR) serves as a program EIR (PEIR) for the three plans listed above. A PEIR has been selected as the appropriate document for compliance with the California Environmental Quality Act (CEQA) based on the definition of a program document contained in Section 15168 of the State CEQA Guidelines which states:

"A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) Geographically, (2) As a logical part in the chain of contemplated actions, (3) In conjunction with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways."

IEUA is working from a core concept that these three plans and their associated activities are so interrelated that they merit consideration under a single PEIR. The rationale supporting this concept includes the following key concepts:

1. IEUA intends to recycle as much tertiary treated wastewater (recycled water) as possible in the future to provide supplemental water supply in the Basin. The demand for recycled water is higher in the NSA than in the SSA. The existing treatment plants are located in the lower service area. Therefore, a future goal is to shift as much wastewater treatment capacity into the NSA as possible to minimize the energy required to pump recycled water to serve users in this area. RP- 1, which is located in the City of Ontario, was historically planned to treat 100 million gallons per day (MGD). Its maximum treatment capacity in the future is being reduced to 60 MGD. RP- 4's ultimate treatment capacity is being increased from 28 MGD to 48 MGD as part of IEUA's strategy to capture higher quality water in the upper watershed. However, this maximum capacity may be reduced by the installation of satellite treatment plants, which would skim and treat wastewater flows for recycled water use and groundwater recharge at locations perhaps even higher in the watershed than RP-4. This is feasible because the water quality of both the influent raw water and treated effluent in the upper watershed are low in dissolved solids (TDS). The Agency will therefore be able to provide a higher quality of recycled water for recharge and reuse throughout the service area, while reducing the need to pump these flows back from existing RP-1 or RP-4.

2. A primary goal of the OMMP is to distribute organics processing facilities (digesters and composters) geographically throughout the Agencies service area at RP-1, RP-4, and RP-5, which balance between the NSA and SSA. An important ancillary benefit of this concept will be the establishment of "state-of-the-art" odor control systems at IEUA's wastewater facilities throughout its service area. Specifically, indoor composting facilities of

varying sizes will be installed throughout the service area (near RP-1, RP-4 and RP-5) to process biosolids, dairy manure, and some green waste. One can ask why treat biosolids, manure and green waste in IEUA's service area rather than shipping it out of the region? The primary reason is because it is the responsible/accountable approach to managing organic wastes within IEUA's service area. In addition, regulations are limiting other options (transport out of the area, land spreading and use at landfills), and at the scale of composting and energy production envisioned in these master plans, it is economically feasible to control most, if not all, of the adverse impacts that people usually associate with organics processing facilities. In addition to odor control and responsible management of organic wastes, the proposed composting operations will achieve three other primary goals: energy generation (through generation of biogas); removal of salts from percolation into the lower portion of the Chino Basin (which satisfies portions of OBMP Program Elements 6 & 7) by removal of manure; and significant reduction in air pollution through reduced truck hauling trips out of the watershed.

3. Finally, the WFMP projects that very large quantities of recycled water (over 170,000 acre feet per year (AFY) by 2050 and over 226,000 AFY at build-out) could be generated in the future as IEUA's service area builds out to its ultimate population. Much of this recycled water can be directly reused (irrigation and industrial cooling are two examples), while indirectly recycled water can also be used to recharge the Chino Basin. Depending upon the quality of the recycled water, it may be recharged directly or blended with storm water or imported water to meet the established water quality standards. This has two secondary benefits. First, recharging recycled water can increase the safe yield of the Chino Basin because it adds additional supplies to the Basin and offsets the need to pump additional local groundwater. Second, it reduces the overall costs associated with operating all of the above systems by reducing reliance on expensive and energy intensive imported water to offset water pumping from the groundwater basin.

IEUA is in the unique position to integrate the management of these various plans within the Chino Basin and derive important benefits by cooperating with various other water and waste management agencies in the Basin.

What follows are descriptions of each of the management plans including: project objectives; physical facilities; construction activities to implement these facilities; and facility operations once each plan's facilities are installed and operational. Review and evaluation of three master plans is inherently complex, but sufficient information is deemed essential for the reviewer to understand the chain of events that fully describe the physical changes to the environment from implementing these plans that have a potential to cause adverse impacts to natural and man-made systems in the affected environment. The following descriptions of each plan have been simplified to the extent feasible to make clear how the implementation of the three plans can cause physical changes to the environment and related adverse impacts. Copies of each master plan are available at the IEUA office in Fontana for review upon request by interested parties.

3.2 LOCATION

Figure 3-5 depicts the IEUA service area boundary and the WFMP Study Area. The project area is bounded by the following topographic, groundwater basin and political boundaries:

- 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.

All of the project facilities are proposed to be located within the Agency's boundaries as shown on Figure 3-5. The Agency's boundaries overlay, but are not totally within, the Chino Basin, which is shown on Figure 3-3. The principal drainage course for the Chino Basin is the Santa Ana River (SAR). The SAR flows sixty-nine miles across the Santa Ana Watershed from its origin in the San Bernardino Mountains to the Pacific Ocean (Figure 3-1). The SAR enters the Chino Basin at the

Riverside Narrows and flows along the southern boundary of the Basin to the Prado Flood Control Basin where it is eventually discharged through an outlet at Prado Dam.

The project area is traversed by a series of ephemeral and perennial streams that include: Chino Creek, San Antonio Creek, West Cucamonga Creek, Cucamonga Creek, Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. These creeks, flowing primarily north to south, carry significant flows only during, and for a short time after, intermittent storms that typically occur from October through April. Perennial flow occurs in the southern portions of Cucamonga/Mill Creeks and Chino Creek, primarily due to wastewater discharges from IEUA facilities and non-point source runoff from local cities. Year-round flow also occurs along the entire reach of the SAR in the Chino Basin due to year round wastewater discharges upstream of the Riverside Narrows, discharges from municipal water recycling plants that intercept the SAR between the Narrows and Prado Dam, non-point source runoff and rising groundwater. Rising groundwater occurs in Chino Creek, in the SAR at Prado Dam, and potentially at other locations on the SAR, depending on climate and season.

3.3 PROJECT CHARACTERISTICS

This section contains the description of all project facilities and construction and operation activities that are proposed to be implemented in each master plan. As much detail as is available is provided for the proposed facilities. Some information is very general because proposed facilities may be 20 or more years in the future, while the information about certain projects, that are proposed for implementation within the next few years contain, more detail. Each master plan document is discussed in a separate section, and a tabular summary of proposed facilities is provided following the discussion of the OMMP.

3.3.1 <u>Wastewater Facilities Master Plan</u>

3.3.1.1 Introduction

As mentioned earlier, IEUA provides wastewater conveyance and treatment to southwestern San Bernardino County (Figure 3-5). IEUA's service area is now one of the fastest growing areas in the United States. As a result of the rapid growth in the service area, IEUA has prepared a Wastewater Facilities Master Plan (WFMP) for the entire area to address future management of wastewater collection, treatment and disposal. The WFMP considered year 2000 census population, recent developments, and new regulations in evaluating the immediate, near term, and long term collection, treatment, and disposal needs of the service area. The upgrade and expansion of the IEUA's existing collection and treatment facilities is essential in meeting the future needs.

The IEUA wastewater management strategy consists of a focus on the following key issues:

- Wastewater Collection and Treatment;
- Flow Management and Flow Bypass;
- Biosolids Management and Optimization;
- Energy Recovery Optimization; and
- Water Recycling Optimization.

A brief discussion of each issue is provided below.

a. <u>Wastewater Collection and Treatment Strategy</u>

The IEUA's wastewater collection and treatment strategy is based on the following principles:

a. Size interceptor sewers for the ultimate build-out capacity.

b. Provide flexibility in the trunk sewer system and treatment plant capacity in order to respond to changes in the location where growth is occurring.

c. Use the NRW System for poor quality industrial wastewaters, high nitrogen recycle flows, and brines from desalters.

d. Divert wastewater to RP-4 from some of the areas now tributary to RP-1 to maximize reuse potential and better balance treatment capacity throughout the IEUA. Construct a new RP-4 Trunk sewer to intercept flows from the area in Cucamonga County Water District (CCWD) that currently discharges to RP-1. Construct a pump station and force main to convey wastewater flows from the City of Fontana's proposed San Bernardino Interceptor to RP-4 as this is less costly than pumping recycled water up from RP-1 and will keep higher quality water in the upper watershed areas to maximize reuse.

e. Provide additional bypass capacity from the Northern Service Area (NSA) to the Southern Service Area (SSA) to better balance regional wastewater treatment capacity. IEUA and the City of Ontario will construct a joint use facility to allow the bypass of 9 MGD of NSA flow through the proposed Eastern Trunk sewer in the near future. Up to 11 MGD of additional bypassed flow could be conveyed in the future through the proposed Western Trunk sewer.

f. In addition to the NSA/SSA bypass, provide redundancy in the regional sewers downstream of wastewater treatment plants to allow flow bypass of up to one process train during emergencies and allow better utilization of existing treatment capacity.

g. Balance the wastewater treatment capacity throughout the IEUA so that all areas share equally the burden of wastewater treatment and biosolids management.

h. Limit the wastewater treatment capacity at RP-1 to 60 MGD ultimately, with the ability to bypass surplus flows from the NSA to RP-5 and CCWRF for treatment and disposal.

i. Maximize the liquid treatment capacity at the RP-4 site. Provide biosolids processing at a site adjacent to, or in close proximity to RP-4.

j. Consider diverting recycle flows from the RP-2 biosolids processing to the SARI. This will free up capacity at CCWRF and permit expansion of CCWRF to about 12 MGD with minimal cost.

k. Provide space at the RP-5 complex for a new IEUA Administrative Headquarters Building. Consider joint use of the portion of the site below the "Prado Dam Flood Elevation 566 Take Line" for a park, recreation fields, demonstration wetlands and the like. Plan for joint public/IEUA use of the parking facilities. Consider moving biosolids handling facilities to an adjacent site to free up land for liquid treatment processing.

l. Provide site space planning for wastewater treatment facilities based on ultimate build-out capacity and the most stringent discharge requirements that can be reasonably anticipated. Phase construction of treatment facilities in increments to follow flow projections.

m. Consider the use of the proposed bypass trunk sewer capacity when available to permit better peak flow management at RP-1.

n. Consider the use of under-utilized capacity at other facilities for short-term redundancy or "peaking" in lieu of constructing additional or "stand-by" facilities at each wastewater treatment facility.

o. Modernize RP-1 to maintain the IEUA's leadership role in water and wastewater management and maintain good relations with the City of Ontario and the surrounding community. Control all odors at RP-1 through improved containment at the headworks, and containment and treatment at the primary clarifiers and solids handling facilities. Phase out the open, frequently used, primary effluent flow equalization basins. Provide facilities to accommodate the daily peaks or provide modern, state-of-the-art covered facilities. Provide effective peripheral landscaping in conjunction with an attractive block wall for security and to screen the facility from the surrounding neighbors and golf course. Provide interior landscaping where practical, in locations that have not been planned for near-term construction. Provide a unified architectural theme and common color scheme for the existing buildings and structures. Provide internal screen walls to enclose or hide mechanical equipment.

p. Work with the U.S. Army Corps of Engineers and surrounding communities to optimize the RP-2 site utilization. Consider integrating the RP-2 site with RP-5 for wildlife enhancement or wetlands. Evaluate the feasibility of using the existing liquid stream reactors and tankage at RP-2 for dairy wastewater treatment during dry weather, once wastewater liquid processing at the facility is relocated to RP-5.

q. Develop a plan for the optimum utilization of the non-wastewater treatment facilities at the old RP-3 site.

The wastewater tributary areas for the NSA and the SSA are shown in Figure 3-5. Under the current wastewater system operation a portion of the flows in Tributary Area "Montclair Diversion" can either be diverted to RP-1, CCWRF or the NRW System for treatment and disposal. This flow is currently estimated to be about 3.0 MGD although there is capacity to divert as much as 6.3 MGD to either the SSA or NRW System, if needed in the future. Tributary Area "Pumped flows in Ontario" (Figure 3-5), which lies south of RP-1, is currently pumped into RP-1. Wastewater effluent in this area is expected to flow by gravity to RP-5 in the future. Current and projected average daily dry weather wastewater flow (ADWF) data for ultimate build-out of the IEUA service area for the major tributary areas are presented in Table 3-1.

Table 3-1
Wastewater Flow Projections and Treatment Facility Capacity Requirements

	2000	2010	2020	2030	2040	2050	Ultimate
Projected Wastewater Flow, MGD							
NSA	44	54	70	85	94	104	134
SSA	12	26	36	42	51	51	68
Total Flow	56	80	106	127	145	155	202
Wastewater Treatment Capacity Requirements, MGD							
RP-1	44	44	52	60	60	60	60
RP-2	5	-	-	-	-	-	-
RP-4	7	14	28	35	35	35	48
RP-5	15 (1)	30	30	30	30	30	48
CCWRF	10	12	12	20	20	20	20
Satellite Plants (2)	-	0-5	0-10	0-10	0-10	0-10	10
Treatment Capacity Subtotal	81	100-105	122-132	145-155	145-155	145-155	186
To NRW System (3)	3	8	5	8	10	10	16
Total Capacity	84	108-113	127-137	153-163	155-165	155-165	202
Total Bypass Flow from NSA to SSA, MGD (3) (4)							
Montclair Diversion & RP-1/RP-5 Bypass	As Needed	8	9	8	17	25	26

(1) Facility to be on-line in 2003

(2) Satellite plant(s) adds flexibility to the operation of the overall system. Building satellite plant(s) in the RP-4 service area may require adjustment to the RP-4 expansion plan, as the ultimate tributary flow to the RP-4 service area is 48 MGD.

(3) Assumes NRW system flows are split between NSA and SSA. At the writing of WFMP, IEUA owns 16.4 MGD of NRW capacity (13.04 MGD peak capacity committed) in the NSA and 6.5 MGD of NRW (SARI) pipeline capacity (4.3 MGD peak treatment capacity committed) in the SSA.

(4) Additional bypass capability may be desirable to provide redundancy for treatment plants.

Table 3-1 indicates that about 104 MGD of wastewater flows are projected to be produced in the NSA in 2050 and an estimated 51 MGD of flows in the SSA in 2050. This brings the total 2050 projected wastewater treatment capacity requirement to about 155 MGD. Table 3-1 also projects that about 134 MGD of wastewater flows will be produced in the NSA, and 68 MGD of flows in the SSA at build out. This brings the total build out wastewater treatment capacity requirement to an estimated 202 MGD. When the capacity owned by IEUA in the NRW Systems (NSA and SSA) is taken into consideration the projected 16 MGD of use in this system is well under the system capacity of 19.5 MGD. As such, sufficient treatment capacity will be available to meet both 2050 and ultimate future flows as summarized in Table 3-1.

Referring to Table 3-1, the data clearly indicate that the system has, and will construct, sufficient wastewater treatment capacity to meet projected future flows without constructing excess capacity. Acknowledging that ultimate build-out will be 50 or more years away, the projected ultimate treatment capacity very closely approximates the needed capacity. Table 3-1 indicates a total ultimate wastewater flow from the NSA of 134 MGD; while total wastewater treatment capacity is projected to be only 118 MGD, including the satellite plants. This clearly indicates the importance of the ability to by-pass (to the SSA), or utilize the NRW System, for 16 MGD of excess flows generated in the NSA at system build-out. As indicated, based on a tentative phasing plan for treatment plant construction, up to 22 MGD of flow could be ultimately bypassed to the SSA (6 MGD through the Montclair Diversion, 9 MGD through the Eastern Trunk and up to 7 MGD through a proposed Western Trunk).

Total ultimate NSA Average Dry Weather Flow (ADWF):	151 MGD
Less flow through the Montclair diversion to SSA:	-8.8 MGD
Less the flow from Area 3 now pumped to RP-1: (which will gravity flow to SSA in the future)	-8.2 MGD
Net NSA Wastewater Flow:	134 MGD
Ultimate capacity of RP-1:	60 MGD
Ultimate capacity of RP-4:	48 MGD
Estimated Satellite Plant capacity:	10 MGD
Subtotal NSA treatment plant capacity:	118 MGD
NSA bypass to SSA:	16 MGD
Less By-passed flow to the Eastern Trunk Sewer	9 MGD
Flow that will need to be bypassed to a future Western Trunk Sewer	7 MGD

The proposed satellite plants are an important element of IEUA's wastewater management strategy, and greatly impact RP-1's ultimate treatment capacity. The ability to expand the major plants (RP-1, CCWRF, RP-4 and RP-5) is constrained by the available land area and an understanding to allocate wastewater treatment regionally. The satellite plants are envisioned as "skimming" plants and will be designed to skim good quality wastewater from the trunk sewer system and treat it to standards that permit recycling and reuse such as landscape irrigation and groundwater recharge. Groundwater recharge will be integrated with the IEUA's and the CBWM's overall plan to percolate a variety of sources of water including: recycled water; imported water; and storm water. This integration is necessary to achieve the blending needed to minimize or preclude the need for advanced membrane treatment for the recycled water. The satellite plants will eliminate the need to pump recycled water from either RP-1 or RP-4 to the principal reuse areas in the northern part of the service area. Solids collected at satellite plants would be returned to the sewers to be treated at the Agency's other major treatment facilities.

The satellite plants would be designed to minimize the need for full time operators. Operations would be monitored from a central facility (e.g. RP-1, RP-4, or RP-5). The satellite plants would utilize technologically up-to-date processes that are proven to be reliable and cost effective. These plants would not have solids handling facilities. This was done intentionally in order to make the plants much more compact and less odor prone. The solids, which would be taken out of the wastewater, would be returned to the trunk sewer for delivery and treatment at one of the downstream central plants with digestion facilities. The compact design of the satellite plants is meant to enable them to be easy to enclose to control potentially odorous processes and treat/control the odors before being released to the surrounding environment. These plants will also be designed to be "good neighbors."

The following siting requirements have been developed to serve as selection/screening criteria for potential sites for the satellite recycling plants (SRPs).

1. SRPs will be developed in the upper NSA to take advantage of the lower total dissolved solids (TDS) concentration in the wastewater, to meet the lower TDS objectives of the groundwater basin in the NSA.

2. Solids removed and/or generated in the treatment processes will be returned to the wastewater collection system for treatment downstream at one of the regional treatment plants.

3. SRPs will be located in less developed areas and in close proximity to trunk sewer lines that carry adequate wastewater flows for the intended reuse needs.

4. SRPs will be located in close proximity to major irrigation/industrial users, freeways, groundwater recharge basins, and backbone recycled water distribution lines.

5. Priority of reuse demands will be given to direct non-potable uses such as irrigation over groundwater recharge, where supply is limiting.

6. SRPs will be designed to be "neighborhood friendly," as such, they will be housed in buildings and/or totally covered so as to be noise and odor free. They will be designed to architecturally blend in with the surrounding environment.

7. SRPs will be designed to minimize the need for full-time operation. Plant operation would be monitored from one of the regional plants via the IEUA's supervisory control and data acquisition (SCADA) system.

8. Recycled water generated by SRPs, in excess of amounts reused under Title 22 uses, will be recharged to the Basin through recharge basins located throughout the mid to upper Basin.

9. For groundwater recharge, recycle flows will most likely range between 10 and 20 percent of the total amount of water (including storm water and imported water) applied to any recharge basin, if additional treatment is not provided to reduce the total organic carbon (TOC) content in the recycled water.

The specific locations of the SRPs are not yet defined, however ten potential sites are considered to be likely candidates because they appear to meet the siting requirements with one site located in the

City of Montclair, two sites located in the City of Upland, three sites located in the City of Rancho Cucamonga, and four sites identified in the City of Fontana and its vicinity (Figure 3-6):

A tenth site that has a good deal of potential for a future satellite plant is the former Regional Plant No. 3 (RP-3) site, in the City of Fontana. This site currently has more than sufficient wastewater flow tributary to it. There is also a great deal of potential for recycled water reuse for local green belts, parks and groundwater percolation. Presently, the site is planned as an area where IEUA will percolate storm and recycled water for groundwater recharge. However, given the terms of the Fontana Settlement Agreement - between the City of Fontana and IEUA - to not construct a wastewater treatment plant at this site, Fontana's concurrence would be required to move foreword at this location. Nevertheless, the Agency is studying the effects of placing a satellite plant at this location so that if Fontana so chooses, a satellite plant could be constructed at this location.

The siting and integration of satellite plants will require very careful consideration when they are implemented in the future. Table 3-2 presents a summary of the locations where wastewater flow meets the volume and screening criteria aspects of satellite plant development. In the overall wastewater management strategy, RP- 4 is intended to operate at its maximum site capacity of about 48 MGD in order to maximize the capture of lower TDS wastewater for recycling, and to minimize the pumping of recycled water from RP-1 for use in the NSA. The maximum site capacity (48 MGD) essentially balances the amount of wastewater potentially tributary to RP-4, (47 MGD).

Table 3-2
Wastewater Flow Potentially Tributary to RP-4

Area	Tributary Area	2000 MGD	2010 MGD	2020 MGD	2030 MGD	2050 MGD	Ultimate Build-out MGD
4	Northern CCWD/RP-4 (Gravity to RP-4)	4.7	5.9	6.9	8	10.4	11.5
5	San Bernardino Interceptor (Pump to RP-4)	2.1	4.4	5.5	6.5	7.9	8.7
6	Potential Diversion to SB Interceptor	4.1	4.4	4.8	5	5.4	5.8
8	Original RP-4 (RP-4)	5	8.9	12.9	15.9	18.3	21
	Total Potential Flow to RP-4	15.9	23.6	30.1	35.4	42.0	47.0

b. Flow Management and Flow Bypass

IEUA has planned for wastewater flows generated throughout the IEUA service area to be bypassed, where necessary and feasible, to eliminate current pump stations and to treat flows where capacity currently resides at existing treatment plant sites to meet the Agency's goals. This allows capacity to be optimized throughout the Agency service area and reduces the overall capacity that needs to be constructed by eliminating stranded capacity at "dead end" treatment plants. Based on the flow and treatment capacities presented previously in Table 3-1, some wastewater generated in the NSA may eventually need to be bypassed to the SSA. The amount of flow, which is proposed to be by-passed to eliminate pumping, is approximately 16 MGD; nine MGD to the Eastern Trunk Sewer; and seven MGD through the Western Trunk Sewer.

c. Biosolids Management and Optimal Use

Biosolids from wastewater treatment will be stabilized (digested) at RP-1, RP-2, RP-5 and a new biosolids management facility near RP-4. The biosolids handling facilities at RP-1 and the new site adjacent to and north of RP-4 will accommodate the biosolids generated at the RP-4 and satellite plants. The existing biosolids handling facilities located at the RP-2 site will stay in operation for a number of years until the current facilities have served their useful life. This would likely not occur for another 30 plus years.

The biosolids produced at each site will be "Class A", conforming to Federal Regulations 40 CFR Part 503 which permits essentially unrestricted land application. The Agency's three-stage digestion process is expected to produce biosolids that meet this requirement. The Federal Environmental Protection Agency (EPA) certified biosolids produced from IEUA's three-stage digestion process at RP-1 as "Class A" in December 2001. In addition, as a second step to ensure quality and marketability, the biosolids will be composted with other organic materials.

The new biosolids handling facilities located in the NSA are necessary to permit expansion of RP-4 to accommodate the 48 MGD of treatment capacity needed for future growth. The existing RP-4 site cannot accommodate the biosolids handling facilities that are associated with a 48 MGD wastewater treatment facility. As such, biosolids processing may take place on the north side of 6th Street and an adjacent tilt-up building that will be utilized for co-composting with Los Angeles County (Inland Empire Regional Composting Facility) through future acquisition by either the IEUA or IERCA. The proposed new NSA biosolids handling facility will include digestion, composting, and biogas recovery and cogeneration. It is also possible that RP-4 liquid processes could be laid out to the north of the current site and digestion facilities would be placed on the existing RP-4 site adjacent to the Inland Empire Regional Composting Facility.

A small-scale composting facility at RP-1 is proposed to be constructed within the next year. It will handle about 10,000 wet tons of biosolids/year (12,500 cubic yards/year or 24.7 wet tons/day). The facility will co-compost yard debris, manure and wood wastes with biosolids in an enclosed structure. The air from the structure will be scrubbed thorough a biofilter(s) on the RP-1 site. All loading and unloading will be performed within the structure. The purpose of the project is to demonstrate the ability to produce a nuisance free "designer fertilizer."

RP-1 is master planned to handle the biosolids generated from the wastewater treatment processes at RP-1. It is also likely that RP-1 will receive biosolids from the upstream skimming (satellite) plants via the incoming trunk sewers. Dependent upon how the existing capacity is utilized, biosolids from RP-4 could also be treated at RP-1's digestion facilities to optimize available capacity. Further, with the Eastern Trunk and Western Trunk bypasses, RP-5 could eventually treat RP-1/RP-4 biosolids.

d. Energy Recovery Optimization

IEUA's Board and the Regional Sewage Policy Committee adopted a Seven Point Emergency Energy Policy in March 2001. IEUA's goal is to be essentially energy "self-sufficient" at its facilities. To achieve this goal, the biosolids processes will be optimized to stabilize and reduce the amount of biosolids to be disposed of and to maximize the production of digester gas (biogas). Cogeneration facilities at the treatment facilities will convert the biogas into electrical energy utilizing a number of different technologies.

e. Recycled Water Optimization

Water recycling is an important element of the IEUA's overall water resource program. Water recycling can protect the IEUA from a drought and improve the reliability and yield of local water resources. This program will maximize reuse while maintaining compliance with the Santa Ana River Basin Water Quality Control Plan (Basin Plan), the Chino Basin OBMP, and the IEUA's Urban Water Management Plan. It will also reduce statewide energy use by reducing imported water use and related pumping demand. The IEUA currently produces approximately 60,000 acre-ft per year (AFY) of recycled water, most of which could be used directly or indirectly in the Chino Basin. This is projected to grow to over 100,000 AFY within 20 years. The IEUA projects that about 40 percent of this production can be used for groundwater recharge and 40 percent for landscape irrigation. The remaining 20 percent is for non-potable industrial reuse (e.g., cooling towers, boiler feed, etc.).

A large portion of the potential recycled water use is located north of Baseline Road - primarily as groundwater recharge. Satellite plants, as described previously, are intended to supply a portion of this recycled water demand. The bulk of the remainder is proposed to be supplied from RP-4. This will maximize the use of lower TDS recycled water in the upper service area, minimize pumping and energy costs, and reduce the costs for desalting should this be required. Recycled water from RP-1 will be most effectively used in the southern part of the NSA and parts of the SSA; CCWRF and RP-5 will also serve recycled water users in the SSA.

3.3.1.2 Project Location

As mentioned previously, the facilities proposed in support of the WFMP will be spread throughout the IEUA's service area. Specific locations are further discussed below, but the general location of all facilities is described herein. Included are miscellaneous unincorporated County of San Bernardino areas, which include the agricultural areas being converted in the San Bernardino Agricultural Preserve, a large industrial corridor between the cities of Fontana and Rancho Cucamonga, and the State of California's correctional facility at the California Institutes for Women located within the Agricultural Preserve in the southern part of IEUA's service area (Figure 3-7).

3.3.1.3 Project Background

IEUA is a special assessment district, governed by a five-seat, publicly elected Board of Directors. Technical and policy direction is provided by Regional Technical and Policy Committees, whose membership is made up of representatives from each of IEUA's signatory agencies.

As stated previously, IEUA currently owns and operates four wastewater recycling treatment plants and is constructing a fifth wastewater treatment plant (Figure 3-4). These plants include: RP-1, located in the City of Ontario; RP-2, located in the City of Chino; RP-4, located in the City of Rancho Cucamonga; and CCWRF, which is also located in the City of Chino. RP-5 is meant to replace the flood prone RP-2 liquid processes (as required by a Regional Board Order) and provide additional capacity for development in the converting Agricultural Preserve, whose EIR was certified in 1998. The RP-5 facility will also be located in the urbanized portion of the City of Chino, and resides about a mile north of the current RP-2 site, just above the proposed Prado Dam, United States Corps of Engineers (COE), 566-foot take line (the proposed 500-year flood elevation contour for the proposed Santa Ana Main-Stem Project).

Biosolids processing is anticipated to continue into the future at RP-2 to handle biosolids generated from the CCWRF and the new RP-5 until the useful life of the existing facilities is completed (estimated to be at least 30 years). As noted previously, it is anticipated that RP-2 current liquid processes will be converted for treating agricultural waste under dry weather conditions with the remaining site being utilized for environmental mitigation.

IEUA also owns a retired wastewater treatment facility site in the City of Fontana known as RP-3. As part of an agreement between IEUA and the City of Fontana, it was agreed that the current RP-3 site would not be utilized for wastewater disposal in the future. Instead, the IEUA would relocate this facility. Alternatives for treating flows originating from the RP-3 service area include: treating those flows at a site identified by the City of Fontana, located generally in the vicinity of San Bernardino Avenue and San Sevaine Wash; bypassing these flows to RP-1; identifying some new alternative facility location; or pumping the flows up to RP-4 for treatment and disposal. As noted previously, this site is not available or planned for wastewater treatment unless the City indicates a preference to have a SRP located at this site to support local reuse projects. IEUA proposes to use this site for recharge of storm water, imported water and recycled water in the future because of the high permeability of the soils on the site.

Flows from the northern part of the IEUA are generally directed to RP-4 and RP-1. RP-4 has the ability to bypass flows to RP-1. Likewise, the IEUA also has the ability to bypass flows from the NSA to the SSA through the Montclair Diversion. Flows from the Montclair Diversion (up to 6.3 MGD) can be diverted from RP-1 to CCWRF, which is able to bypass flows to RP-2 or eventually RP-5. Flows from the southern part of the IEUA are currently directed to CCWRF and RP-2. In the future, the proposed Eastern Trunk and more distant Western Trunk will allow flows at RP-4 and RP-1 to also be bypassed to RP-5.

3.3.1.4 Conveyance and Treatment Capacity

The Agency provides wastewater treatment capacity at its regional plants, which are served by a number of regional conveyance facilities. The NSA encompasses about 162 square miles and contains two active treatment plants, RP-1 and RP-4. One treatment plant is no longer in use (RP-3). Other NSA facilities include more than 19 regional conveyance facilities and more than 73 tributary areas that provide service to the seven signatory, or contract, agencies.

The SSA encompasses approximately 80 square miles, has two active treatment plants (CCWRF and RP-2) and one treatment plant under construction (RP-5). Other facilities include more than seven Regional Interceptors and more than 29 tributary areas that provide service to five contract agencies.

a. <u>Regional Plant No. 1</u>

RP-1 is located near the intersection of Archibald Avenue and the Pomona State Route (SR) 60 freeway in the City of Ontario on a 61-acre site. Module sizing of this activated sludge plant is approximately 15 MGD. Currently the site is zoned as open space, but it is master planned as a public facility. The surrounding community, that landlocks the site, contains various uses, including a neighboring golf course, a residential neighborhood to the southeast, a commercial center to the northeast and the SR 60 freeway to the north. This site is highly visible and as expansions occur, facility nuisance factors will become increasingly important. The plant is flow equalized beyond primary treatment and provides sufficient tertiary treatment to meet full body contact recreation standards, in compliance with California Title 22 regulations. The existing plant has a rated capacity of 44 MGD and in the past has been master planned to treat up to 100 MGD.

In the past, RP-1 has used a single phased mesophilic digestion process to reduce solids from RP-1 and RP-4 and create biogas for running IEUA's co-generation facility. To gain greater digestion capacity, reduce solids, generate higher gas production, while meeting Class "A" treatment criteria, IEUA has converted to a three-stage digestion configuration. It has been concluded that by converting from the single stage digestion process to a Mesophilic/Thermophilic/Mesophilic process, enhanced digestion with greater solids reduction will be achieved. In addition, the three-stage digestion also increases biogas production by approximately 15 percent, and thereby reduces the need for natural gas to fuel the onsite generators.

b. Regional Plant No. 4

RP-4 is built on a 28-acre site purchased in 1987. Module sizing is approximately seven MGD. The site is on the west side of Etiwanda Avenue, between Fourth and Sixth streets, immediately south of Reliant Energy Etiwanda Generating Plant in the City of Rancho Cucamonga. RP-4 currently serves as a scalping plant for RP-1. The site is zoned light industrial, with a conditional use permit granted by Rancho Cucamonga in 1991 that allows for the construction of a seven MGD plant. This is the first phase of a master planned site that was laid-out to ultimately process up to 28 MGD of wastewater (liquids and biosolids).

The plant has an advanced oxidation ditch design, with interchannel secondary clarifiers and aerobic digestion. Current work at the site will add a primary clarifier to reduce solids-loading and - mixing energy requirements at the oxidation ditch. The aerobic digesters are currently not in use; rather, biosolids are transported down to RP-1 for treatment and disposal to provide additional gas production for IEUA's RP-4 Co-Generation Facility.

c. Regional Plant No. 3 (closed)

RP-3 was a 3 MGD primary treatment plant with solids stabilization and effluent percolation, which is no longer used for wastewater treatment. The plant was purchased from the City of Fontana at the onset of the Regional Sewage Program in 1972. The RP-3 site is located at the southwest corner of Beech and Jurupa Avenues, near the Southridge Village specific planned community in the City of Fontana, on a 63-acre site.

Original master planning of the site was for a build-out treatment capacity of 32 MGD. With the agreement between IEUA and Fontana to discontinue consideration of this site for future wastewater treatment, an alternative location will need to be identified for the relocation of this facility's treatment capacity. As noted previously, alternatives include pumping up to a new site located south of California Steel Inc., diverting flows to RP-4 (the preferred alternative), expanding RP-1, or finding a new treatment site location.

d. Regional Plant No. 2

RP-2 is a five MGD (rated capacity) plant located at Pine Avenue and El Prado Road in the southwest portion of the City of Chino. RP-2 receives sewerage from the cities of Chino and Chino Hills. Flows are conveyed to the plant through the Prado Park Interceptor, Chino Interceptor, Butterfield Ranch Force-Main and Los Serranos Trunk Sewers. The RP-2 plant site is currently leased from the COE, with a lease that extends through 2010. This 30-acre plus site is part of a much larger 410-acre COE lease that was acquired from the City of Chino at the onset of the Regional Sewerage Program.

RP-2 is IEUA's oldest plant. A significant portion of the leased land is within the proposed inundation area of an elevated Prado Dam. In addition, Chino Creek - a major tributary of the Santa Ana River - runs adjacent to the RP-2 site. In response to the flooding events at RP-2 caused by the adjacent Chino Creek, the Regional Water Quality Control Board (RWQCB) issued a Cease and Desist Order (95-56) that required the IEUA to either flood protect the RP-2 site for the 100-year flood elevation of 552 feet above mean sea level (m.s.l.) or cease liquid stream treatment at RP-2. A deadline of June of 2003 was specified as the compliance date.

That portion of RP-2, which is not below the 100-year flood plain and not currently planned for relocation, is the solids handling system, which was constructed in 1991. The RP-2 solids handling facilities (anaerobic digestion and belt presses) were designed and constructed to handle the solids from both CCWRF and RP-2. Primary solids and secondary waste activated sludge are transferred to RP-2 from CCWRF. All recycle flows from RP-2 are treated at CCWRF. Biosolids handling facilities will remain at RP-2 on an interim basis (until the expiration of its expected design life sometime beyond the year 2030). In the future, biosolids handling facilities expansion or replacement for RP-5 and CCWRF will be located at RP-5 and, ultimately, no processing units will remain at the RP-2 site.

It is envisioned that existing liquids processes will be useable during non-rainfall months to treat dairy or other wastes or to be utilized as a pilot testing facility by IEUA or others. The current equalization basins could be used for habitat restoration and/or a biological treatment area for stream flows.

e. Carbon Canyon Wastewater Reclamation Facility

CCWRF is a 10 MGD scalping plant for RP-2/RP-5, constructed in 1990 and located at Chino Hills Parkway and Telephone Avenue in southeastern Chino. Module sizing is approximately 10 MGD. CCWRF receives wastewater from the Westside Interceptor and Westside Interceptor Relief Sewers and discharges treated effluent to Chino Creek. CCWRF discharges a very high quality effluent, a portion of which is designated for industrial and irrigation use by means of a recycled water project. The master planned capacity of CCWRF is 20 MGD. As noted previously, CCWRF solids are pumped to RP-2 for digestion and dewatering. CCWRF's secondary units treat the recycle flows from RP-2.

f. Regional Plant No. 5

RP-5 is planned as a replacement for RP-2. Additional capacity has been provided to meet the needs of future anticipated development with the Agricultural Preserve, which consists of thousands of acres of land presently being used for dairies and agricultural operations that are in the process of transition to suburban and urban uses in the cities of Chino and Ontario. The first phase capacity of this plant is expected to be 15 to 16 MGD, with two additional 16 to 17 MGD modules planned for the future. Future expansions of RP-5 will provide additional treatment capacity for the cities of Chino and Chino Hills and the areas that currently make up the Agricultural Preserve in Chino and Ontario. The past master-planned capacity of this 150-acre site (including the adjacent Koopal and Douma dairy acreage) was 60 MGD. Current planning for this site is for 48 MGD.

3.3.1.5 Project Characteristics: Wastewater Facilities Master Plan

The WFMP envisions the following improvements to the existing wastewater management facilities.

a. RP-1 Location and Effluent Discharge

RP-1 is located near the intersection of Archibald Avenue and SR 60 freeway in the City of Ontario on a 61-acre site (Figure 3-8). The surrounding community, that land locks the site, contains various uses, including a neighboring golf course, a residential neighborhood to the southeast and a commercial center to the northeast. The plant is flow equalized, beyond primary treatment, and provides sufficient tertiary treatment to meet full body contact recreation standards. The plant has a current rated capacity of 44 MGD and in the past has been master planned to treat up to 100 MGD. However, with more stringent NPDES permit requirements anticipated in the future, particularly regarding effluent total inorganic nitrogen (TIN), the current plant capacity could be derated.

The facility is split by the Cucamonga Creek flood control channel, which runs north to south through the site. The plant facilities for the following processes are located west of Cucamonga Creek: Headworks, Primary Treatment, Secondary Treatment, and Solids Handling. Flow equalization facilities are located on the east side of the creek with intermediate pumping on the west and equalization basins on the east. The tertiary treatment facilities are located east of Cucamonga Creek.

The final, disinfected effluent is discharged or reused in several different ways at different locations. A portion of the flow is discharged through an outfall pipeline to the Prado Park Lake. In addition, a majority of the flows are discharged to the lined Cucamonga Creek adjacent to RP-1, or reused at the adjacent golf course.

RP-1 Modernization Strategy

RP-1 evolved to its current capacity and configuration through several upgrades and expansions since 1948. The plant has gone through many changes in the NPDES permit and other regulatory requirements since its inception. Because it has been expanded and upgraded so often, the plant design and layout lacks a coordinated theme and is not aesthetically pleasing or space efficient. However, this is not unusual for older plants such as RP-1. When the plant was first constructed, it was remote from any development. Over the years, development has encroached onto the outskirts of the facility; therefore, the plant has become more noticeable, and to some people, objectionable.

It is the IEUA's goal to upgrade and modernize RP-1 so that it also meets the good neighbor standards established at Carbon Canyon Wastewater Reclamation Facility (CCWRF) and Regional Plant No. 5 (RP-5). The RP-1 Modernization Plan is intended to achieve the following goals:

1. Upgrade to an odor-free facility. In particular, eliminate odors from the daily storage of partially treated peak wastewater flow in open basins, primary clarifiers, and solids handling facilities.
2. Provide only influent wet weather storage in open basins at RP-1.
3. Landscape and screen the entire plant to blend into the surrounding area.
4. Provide an architectural theme that unifies the look of the plant.
5. Remove/replace old and inefficient unit processes and facilities, which clutter the site affecting the aesthetics and adding to the cost of operation.

These key modernization elements are described in the following text.

RP-1, an Odor Free Facility in Near Future

At the present time, RP-1 has been equipped with odor control systems at the headworks. Limited odor control is offered at the primary clarifiers and digester control facilities. Adequate odor control is needed at RP-1 for primary flow equalization and biosolids handling facilities.

Odor is a major issue at RP-1 and the IEUA is aggressively pursuing implementation of an odor control program that would make RP-1 an odor-free facility. The IEUA is leaning towards a *"zero tolerance policy"* for odor control to enhance public image and provide a more pleasant working environment for its own staff. All of the existing odor sources are planned to be properly scrubbed for odor control, and will be an integral part of all future facilities.

The RP-1 odor control program consists of the following three steps:

1. Characterize and quantify the odors from various plant sources;
2. Implement odor control measures for existing facilities; and
3. Develop an odor control strategy to implement at future facilities.

The IEUA has recently completed a baseline odor characterization study for RP-1 and is currently implementing a monthly odor-monitoring program. The IEUA will construct biofilters for odor control at all solids handling facilities beginning in 2002.

Landscape and Screen Entire Plant

As a part of the Modernization Plan, the IEUA plans to continue landscape and screening RP-1 from the surrounding area. The IEUA has landscaped the interior and exterior of the plant along the northern boundary and has landscaped the area adjacent to the Cucamonga Channel. During development of the WFMP, the IEUA retained Lawrence R. Moss and Associates to develop a landscape plan to improve the views of the plant from the west and the south of the facility.

The landscape master plan for RP-1 includes a number of different treatments, all of which will provide an effective and aesthetically pleasing visual screen around the plant. The plan also calls for physical and thematic linkages with adjacent recreational uses, such as the City of Ontario's Soccer Complex and the golf course. Ultimately, it is anticipated that the City's bike trail system will traverse the site (location and layout to be determined). In Spring 2002, the IEUA is expected to begin implementing some of these landscaping improvements.

Architectural Face Lift

As mentioned earlier, RP-1 has gone through numerous expansions and upgrades since its inception. A single, unifying architectural theme should be developed and the structures modified to conform to the theme. In addition, facilities such as the ferric chloride storage tanks should be screened to be aesthetically pleasing.

As part of the WFMP effort, the IEUA retained Thomas G. Matlock Associates, Inc. to develop an architectural theme and improvement plan for consistency and modernization at RP-1, as described below.

- **Building improvements** - improvements to upgrade on-site facilities to one cohesive building style. Improvements will include upgrading exterior materials of older buildings to match the newer facilities such as the Maintenance Building. Concrete utility structures will remain with use of painted murals to break up blank wall areas.
- **Paint improvements** - improvements may consist of painting metal equipment, railings and piping. Paint colors may be neutral in tone to help blend facilities into the surrounding area. It is anticipated that earth tones including greens & browns will be utilized. It is also possible that certain paints may be more vibrant to create a contrast to the gray concrete.
- **Block wall screening** - split faced concrete block walls can be used to help screen the base of equipment. Vegetation such as climbing vines or trees may be used with the walls to help soften appearances and add interest.
- **General improvements** - provide new curb, gutter, and paving where needed to define vehicle access areas and landscaped areas. Provide site clean up in needed areas. Block walls may be used as containment areas for unsightly equipment storage.

b. <u>RP-1 Proposed Ultimate Facilities</u>

The phasing plan for liquid and biosolids treatment at RP-1 is summarized in Table 3-3. RP-1's phasing plan and specific process requirements are further discussed below.

At the beginning of the WFMP development effort, the RP-1 site was laid out for an ultimate 100 MGD facility. The alternative site layouts were eliminated from further consideration after the IEUA determined, along with the City of Ontario, that the site capacity would be limited to no more than 60 MGD. A total of four alternatives were evaluated for the RP-1 site expansion plan at a 60 MGD capacity.

An intermediate development phase is planned to expand the treatment capacity to 52 MGD. Note that covered primary flow equalization tanks will eventually replace the existing primary effluent flow equalization basins, which are consistent with the planning goal of making RP-1 odor free.

Table 3-3
RP-1 Liquid and Biosolids Phasing Plan

Year	Liquid Treatment		Biosolids Treatment	
	Phase Capacity	Cumulative Capacity	Phase Capacity	Cumulative Capacity
Existing	-	44	-	60
2010	0	44	0	60
2020	8	52	0	60
2030	8	60	0	60
2040	0	60	0	60
2050	0	60	0	60

Nevertheless, this WFMP also envisions that RP-1 will be able to bypass flows to the SSA, once the Eastern Trunk Sewer is constructed (see Section 4), in partnership with the City of Ontario. This will allow RP-1 to be operated as a skimming plant at a nearly constant influent rate, or with minimal peaking.

At some later date, when tributary flow to RP-1 dictates, there may no longer be excess capacity in the Eastern Trunk bypass system to send daily diurnal peaks to RP-5. As a result, the need for covered primary flow equalization tanks will become necessary to continue equalizing primary effluent and to control odors on the site. The timing for the construction of a secondary sewer bypass relief system (Western Trunk Sewer), that is anticipated to be built as a joint use facility with the City of Ontario to work in parallel with the Eastern Trunk Sewer, is unknown at this time and could delay the need for covered primary effluent equalization depending on when it is eventually constructed.

Even after covered primary flow equalization tanks are constructed at RP-1, there will still be times that equalized primary Peak Wet Weather Flows (PWWF) will need to be stored in the open emergency/wastewater storage basin, due to capacity limitations of the covered primary flow equalization tanks. However, these rare occurrences are not expected to be odor generators and will be the first flows bypassed to RP-5, or treated onsite, after a storm subsides.

Space has also been allocated for composting and desalination facilities at the RP-1 site. The composting facility is to be constructed within the next two years, while a desalination facility will only be built if stringent salt reduction measures are imposed on the plants effluent or recycled water production.

Considering the necessity to install those facilities discussed above, four site layouts have been prepared for RP-1 at build out. The four site layouts, as given in Table 3-4, have been provided for master planning RP-1 to reach a 60 MGD plant capacity. These alternatives will be implemented in conjunction with a bypass line to send peak dry weather flow (PDWF) and PWWF's – as excess capacity is available - from RP-1 to RP-5. The use of a bypass line will allow daily peaks to initially be bypassed to RP-5 to help limit primary effluent equalization. In the future odor controlled equalization tanks will be constructed.

Table 3-4
RP-1 Ultimate Facilities Site Layout Alternatives

Alternative	Description
1	60 MGD plant capacity with extensions of existing aeration basins and with wet weather storage provided
2	60 MGD plant capacity without extensions of existing aeration basins and with wet weather storage provided
3	60 MGD plant capacity without extensions of existing aeration basins and without wet weather storage
4	60 MGD plant capacity without extensions of existing aeration basins, with primary flow equalization, and with wet weather storage provided

Alternative No. 1: 60 MGD Plant Capacity With Extension of Existing Reactors and With Wet Weather Storage Provided

Alternative No. 1 optimizes utilization of land at RP-1 with the extension of existing aeration basins by filling in the gaps in between them. However, the secondary clarifiers will still limit the existing capacity of the aeration basin and its extensions. Wet weather storage is provided after the primary treatment process at RP-1 (Wet Weather Storage), thus from the secondary treatment process onward, only PDWFs will be observed. PWWF's will be stored in the open and will be gradually fed back into the plant or the RP-1 to RP-5 By-pass once a storm ceases. It is anticipated that PDWF's of primary effluent equalization will be bypassed to RP-5 or storage tanks will be constructed in the wet weather storage area, at ultimate development, that can equalize the appropriate diurnal flows. PWWF would still be stored in the open due to cost. However, as utilized each year, these flows would be the first bypassed or treated after storm events. The advantages and disadvantages for this alternative are as follows. Advantages: Optimizes utilization of land and provides additional space for future development on the west side of the plant. Disadvantages: Costly because numerous pipes that would need to be rerouted in the gaps between the existing aeration basins where the extensions of existing aeration basins will take place; the capacity of the existing aeration basins with extensions would not be fully utilized due to limiting secondary clarifiers; and wet weather storage of primary effluent (only used 4 to 5 times a year), possible odor source. Bypassing PDWF to RP-5 through the proposed bypass line, as discussed earlier, could eliminate this. However, insufficient conveyance size and treatment capacity at RP-5 could limit the amount of bypassed flows. The site layout for alternative No. 1 is provided in Figure 3-9. No tanks for storing PDWF are shown.

Alternative No. 2: 60 MGD Plant Capacity Without Extension of Existing Reactors and With Wet Weather Storage Provided

Alternative No. 2 is similar to Alternative No.1, with the exception that the existing aeration basins will remain as they currently are, without extensions. Wet weather storage is also provided, thus, only peak dry weather flow will be observed from secondary treatment onward. The stored wet weather flow will be gradually fed back to the plant.

The advantages and disadvantages are as follows. Advantages: easier to construct than Alternative No.1; and optimizes all aeration basin capacities. Disadvantages: does not optimize utilization of land; does not leave space for future development on west side of the plant; and wet weather storage of primary effluent (only used 4 to 5 times a year) is a possible odor source. Bypassing PDWF to RP-5 through the proposed bypass line, as discussed earlier, could eliminate this. However, insufficient conveyance size and treatment capacity at RP-5 could limit the amount of bypassed flows. The site layout for Alternative No. 2 is provided in Figure 3-10.

Alternative No. 3: 60 MGD Plant Capacity Without Extension of Existing Reactors and Without Wet Weather Storage

Wet weather storage is not provided in this alternative. Without wet weather storage available, peak wet weather flows will be observed from the headworks through the secondary treatment, as flows will be equalized after secondary treatment. The existing circular secondary clarifiers will have to be replaced with rectangular secondary clarifiers to optimize the existing aeration basins and utilization of land.

The advantages and disadvantages for Alternative No. 3 are as follows. Advantages: no wet weather storage; eliminates any concern over odors associated with wet weather storage; and no extensions to existing aeration basins required. Disadvantages: highest in cost of the three alternatives, because the existing circular secondary clarifiers must be replaced with rectangular secondary clarifiers, as PWWF is observed through secondary treatment; and no space is left for future development on west side of the plant. The site layout for alternative No. 3 is provided in Figure 3-11.

Alternative No. 4: 60 MGD Plant Capacity Without Extension of Existing Reactors, With Primary Flow Equalization, and With Outside Wet Weather Storage Provided

Primary flow equalization is provided in Alternative No. 4, as the previous three alternatives all have secondary flow equalization. The existing primary flow equalization basins will be replaced with primary flow equalization tanks, which include chemical scrubbers for odor control. Wet weather storage is also provided outside of the covered equalization tanks in the depressed Wet Weather Storage Area for expected large storm flows that will require use 5 to 6 times per year. As such, only PDWF will be observed from secondary treatment onward. Alternative No. 4 is the preferred alternative.

The advantages and disadvantages of Alternative No. 4 are as follows. Advantages: constructability, optimizes all aeration basin capacities; odor control for primary flow equalization, no extensions to existing aeration basins would be required, and this alternative provides additional space for future development on the west side of the plant. Disadvantages: does not optimize existing circular secondary clarifiers if the TIN limit is ever reduced to 2-3 mg/L for proposed groundwater percolation requirements and wet weather storage of primary effluent (only used 4 to 5 times a year) is a possible odor source. Bypassing PDWF to RP-5 through the proposed bypass line, as discussed earlier, could eliminate this. However, insufficient conveyance size and treatment capacity at RP-5 could limit the amount of bypassed flows. The site layout for Alternative No. 4 is provided in Figure 3-12.

RP-1 Expansion Plan

The expansion of RP-1 to 60 MGD plant capacity will take place in up to five phases summarized in Table 3-5.

Near Term

- The IEUA plans to implement Phase IA, Phase IB and Phase II of the RP-1 master plan in the near future (approximately in the next ten years). Implementation of these phases will provide a reliable 44 MGD plant capacity at RP-1 with a TIN limit of 8-10 mg/L. The objectives of RP-1's near-term expansion plan include:

Table 3-5
Phasing of RP-1 Expansion

Term	Phase	Year[1]	RP-1 Phasing Plan
Near-term (Within 10 Years)	Phase IA[2]	Within 10 years	Provide odor control, plant modernization, and side-stream treatment[3] (44 MGD capacity)
	Phase IB[3]	Within 10 years	Plant upgrade to meet more stringent TIN requirements of 8-10 mg/L (44 MGD capacity)
	Phase II	Within 10 years	Convert existing open primary effluent flow equalization basins to covered tanks with odor control system
Long-term (Up to Year 2050)	Phase III	2020	52 MGD plant capacity expansion
	Phase IV	2030	60 MGD plant capacity expansion
	Phase V	[4]	Plant upgrade (if needed) to meet more stringent regulatory requirements[5]

(1) Projected year of construction completion for each phase.
(2) Phase IA plant modernization includes landscape, screening, and architectural treatment.
(3) Side-stream treatment could be deferred until it is no longer desired to divert filtrate to NRW System.
(4) Time frame for Phase V implementation will be determined when a new, more stringent regulatory requirements is promulgated.
(5) Considers a TIN limit as low as 2 to 3 mg/L in the long term for the entire, or only partial flow. Used for space planning only, not included in the capital outlay.

- RP-1 will essentially be odor-free, as odor control facilities will be constructed for primary clarifiers, gravity thickeners and other solids handling facilities. In addition, the open primary effluent flow equalization basins will be phased out in favor of covered tanks with chemical scrubbers.
- Maintain RP-1's "Good Neighbor" reputation.
- Implement a well thought out architectural theme at RP-1.
- Provide extensive landscaping and screening.
- Maintain the plant capacity at 44 MGD with primary flow equalization.
- Produce a final effluent TIN of 8 to 10 mg/L consistently and reliably all year round.

All of the components discussed in Section 5.8 are to be implemented during Phase IA of the site expansion, dependent on the flow to the facility and the total conveyance capacity available for bypassing to RP-5.

Long Term

In the long-term expansion plan (beyond ten years), RP-1 will gradually be expanded to 60 MGD plant capacity (Phases III, IV, and V). Phase III is an intermediate phase to expand RP-1 from the current 44 MGD capacity to the ultimate capacity of 60 MGD. The objectives of RP-1's long-term expansion plan include:

- Increase plant capacity to accommodate the growth in the NSA.
- Ultimately, produce higher quality final effluent (in particular associated with the possibly lower TIN limits), if needed, to meet groundwater basin objectives. It is likely that only the portion of flow used for groundwater recharge needs to comply with the lower TIN limit.

The recommended projects for RP-1 plant modernization and expansion include:

1. Routine odor monitoring program.
2. Phase IA – Provide odor control, plant modernization, and side-stream treatment (44 MGD capacity)
   - Provide odor control facilities for primary clarifiers, biosolids handling facilities, and headworks;
   - Modernize RP-1 with landscaping, screening and architectural treatment;.
   - Provide side-stream treatment for belt press filtrate (could be deferred until it is no longer desired to send filtrate to the NRW System).
3. Phase IB – Upgrade plant to meet more stringent discharge requirements (44 MGD capacity)
   - Expand aeration basins and add secondary clarifiers to maintain 44 MGD capacity and provide a final effluent TIN of 8-10 mg/L;
   - Expand chlorine contact basins to 44 MGD capacity.

4. Phase II – Convert existing open primary effluent flow equalization basins to covered tanks with an odor control system (44 MGD capacity)
   - Construct new covered primary effluent flow equalization tanks with new odor control facilities to replace the current open basins. Peak flows are to be bypassed through the RP-1 bypass line during construction.
5. Phase III – Expand plant capacity to 52 MGD
   - Expand aeration basins and add secondary clarifiers for 52 MGD capacity;
   - Add additional pump for intermediate pumping;
   - Add new filters and gravity thickener for 52 MGD capacity;
   - Expand plant utility water system.
6. Phase IV – Expand plant to 60 MGD capacity
   - Add primary clarifiers for 60 MGD capacity;
   - Expand RP-1 influent channel, add an additional Parshall flume and mechanical bar screen;
   - Expand aeration basins and add secondary clarifiers for 60 MGD capacity;
   - Add additional pump for intermediate pumping;
   - Add new chlorine contact basin and filters for 60 MGD capacity.
7. Phase V – Maintain plant capacity at 60 MGD with lower TIN limit, if needed, to meet groundwater basin objectives
   - Expand aeration basins and add secondary clarifiers to maintain 60 MGD treatment capacity while providing a final effluent with lower TIN limits for the portion of flow used for groundwater recharge, if needed.

c. Satellite Plants

Background

IEUA plans to significantly expand the existing recycled water system so that recycled water can be delivered to all of the retail agencies throughout its service area. The proposed recycled water program is designed to maximize reuse of this resource in compliance with the existing Basin Plan, the OBMP, and the IEUA Urban Water Management Plan. IEUA, in conjunction with the Chino Basin Water Conservation District, the SBCFCD, the CBWM and its other member agencies, proposes to redevelop over 20 existing groundwater recharge basins overlying the groundwater basin with an additional 200 to 250 acres of recharge basins by the year 2020 - as outlined in the OBMP.

In order to maximize reuse, IEUA has proposed the phasing of the recycled water resources components of the program to include the sequenced construction of several pipeline projects and pump stations. The facilities will comprise the "backbone" distribution network to be known as the Regional Recycled Water Distribution System. The completion of this distribution system will result in the inter-connection of all IEUA's wastewater recycling plants. The Regional Recycled Water Distribution System will provide the ability to deliver recycled water to major industrial, municipal, and irrigation customers throughout the IEUA service area. Water reuse is best practiced where wastewater treatment plants are relatively close to reuse areas or to existing conveyance facilities for transporting effluent to users. However, because of the pumping requirement, it is a low priority for IEUA to develop the upper-most pressure zone of the Regional Recycled Water Distribution System to serve the new I-210 Freeway and the area north of Highland Avenue that traverses the upper Basin. As imported water costs increase and availability decreases, recycled water would become more attractive and more cost effective to be delivered in the upper areas of the IEUA service area.

As an alternative to serve users in the up gradient area, smaller plants could be customized for local reuse projects. These "satellite" plants typically are small "skimming" facilities that do not process sludge but return it to the sewer for processing at a downstream main treatment plant. It is anticipated that several satellite plants will be constructed over the 50-year planning period to provide sufficient treatment capacity and to provide higher quality water for recycled water reuse were it is needed. It would also eliminate the need to pump from RP-1/RP-4 to sites where the water is needed and could provide water with lower TDS and nitrogen for groundwater recharge. This will maximize the use of lower TDS recycled water in the upper service area, minimize pumping and energy costs and reduce the costs for desalting should this become a requirement.

The satellite plants would be designed to minimize the need for full time operation. Operation would be monitored from a central facility (e.g., RP-1, RP-4, etc.). The satellite plants would utilize technologically up-to-date processes that are proven to be reliable and cost effective. Satellite plants typically provide primary, secondary, and tertiary treatment consisting of coagulation, sedimentation (not always), filtration, and disinfection. Several options for various processes can be considered for the potential satellite plants to produce Title 22 quality effluent with nutrient removal, including:

Secondary Treatment Process Options:

1. Activated sludge;
2. Oxidation Ditch (primary clarification not required);
3. Sequencing Batch Reactor (primary clarification not required); and
4. Membrane Bioreactor (fine screening required, primary clarification recommended).

Filtration Process Options:

1. Granular Media Filtration;
2. Membrane Filtration (Microfiltration, Ultrafiltration); and
3. Membrane Bioreactor.

Disinfection Process Options:

1. Chlorination (liquid); and
2. Ultraviolet Irradiation.

Any combination from each category of treatment processes would be able to produce recycled water with the targeted quality. Additional salt and nitrogen could be removed through the membrane filtration process to achieve more stringent water quality goals; however, this may not be a necessity for satellite plants that have adequate quality and quantity of dilution water. The OBMP recognized the desalting needs for the Chino Basin. One desalter (Chino I) has been installed, and a second (Chino II) is in the process of being installed in the lower portion of the Basin for removing salt and providing high quality water to local users. The desalters also help to clean up the local Basin from years of agricultural and dairy denigration related to nitrates and salts that have leached into the groundwater. Treatment processes beyond achieving Title 22 quality requirement (e.g. nanofiltration or reverse osmosis) will not be further considered in this environmental document, but may be considered in the future.

The satellite plants would not have solids handling facilities, in order to make the plants much more compact. The solids, which are taken out of the wastewater, will be returned to the trunk sewer for treatment at one of the downstream plants. The compact nature of the satellite plants would enable them to be relatively easy to enclose to contain odorous processes. Treatment for odor control would be provided at each of these facilities to treat odors. These plants will be designed to be "good neighbors."

It is anticipated that a 5-MGD satellite plant would be constructed in the near term within 10 years. Another 5-MGD satellite plant would be constructed after that time (up to the year 2050). However, if sufficient interest and demand is found, more SRP's could be constructed in lieu of larger expansions at the larger Regional plants down gradient.

Area Requirements

In order to identify appropriate locations for siting purposes, general layouts were prepared to estimate the footprint requirements for a 1-MGD and a 5-MGD plant (Figure 3-13). These layouts were developed based on the process design criteria formulated for RP-1, with the following features:

1. Conventional Title 22 treatment processes
2. Circular clarifiers
3. Compact layout
4. Odor control

Different treatment processes may reduce the footprint requirement (e.g. membrane bioreactor, rectangular clarifiers, etc.). However, the selected site(s) may not allow the most efficient use of the site(s). In addition, the site(s) can be expected to require landscape screening and other buffers to minimize land use incompatibilities. The estimated area requirements for a satellite plant are approximately two acres for a 1-MGD plant and four acres for a 5-MGD plant. Since these plants may be located in residential or populated areas, they must be "neighborhood friendly" and essentially odor and noise free. The buildings and landscaping have to be consistent with the surrounding land use and local jurisdiction design requirements, with underground facilities (for noise control), covered tanks and special air handling systems (for odor control).

Siting Considerations

The location of satellite plants needs very careful consideration. The following siting requirements have been developed to serve as the preliminary screening criteria for potential satellite plant sites:

1. Less developed areas
2. Close proximity to major irrigation/industrial users
3. Close proximity to groundwater recharge basins
4. Close proximity to recycled water distribution pipelines
5. Close proximity to a trunk sewer with adequate wastewater flow
6. Higher in the system (less pumping, better water quality)

In the overall wastewater management strategy, RP- 4 is intended to operate at its maximum site capacity of about 48 MGD in order to maximize the capture of lower TDS wastewater for recycling, and to minimize the pumping of recycled water up from RP-1. The maximum site capacity of RP-4 (48 MGD) essentially balances the amount of wastewater potentially tributary to it (~47 MGD), as shown in Table 3-2. If satellite plants are placed in its service area, this could reduce flows to RP-4 which in turn could either require additional satellite plants or expansion of existing treatment and conveyance facilities down gradient, since it has been assumed that at least 10 MGD of SRP's will be required in the RP-1 service area to meet the ultimate flow requirements of the Agency.

Potential Siting Areas

Nine likely candidate areas were originally identified for the potential SRP (Figure 3-6) based on the general siting considerations discussed above and discussions with IEUA and its member agencies. A tenth candidate area, the former RP-3 site, was recently added by IEUA.

1. Upland Hills WRP (SP-1);
2. San Antonio Lakes (SP-2);
3. Church Basin (SP-3);
4. CCWD - Baseline (SP-4);
5. Foothill/I-15 Corridor (SP-5);
6. Kaiser/CSI WWTP (SP-6) ;
7. Sierra Lakes (SP-7) ;
8. Fontana - Baseline (SP-8);
9. Montclair (SP-9); and
10. Former RP-3 Site (SP-10).

With the exception of the Upland Hills WRP, Church Basin, and RP-3 sites, the specific locations of the satellite plants are not yet defined. Each of the ten siting areas is discussed below based on the information that is available. Additional site information is summarized in Table 3-6.

- Existing Upland Hills WRP Site (SP-1) – The Upland Hills Water Recycling Plant (WRP) is located off Campus Avenue at 17th Street in the City of Upland, an the northwest corner of the Upland Hills Country Club Golf Course. The plant was constructed in 1981 with a 0.2-MGD capacity, serving Title 22 water to the Upland Hills Country Club. The City of Upland has turned this plants operation over to IEUA.

  The plant skims flow from the trunk sewer in Campus Avenue and returns sludge back to the sewer to be treated at RP-1. Tributary flow to the plant is generally from residential areas north of the treatment plant site. The plant influent TDS is about 485 mg/L; total inorganic nitrogen runs about 11 mg/L. Treatment processes at the plant include influent screening, primary sedimentation, flow equalization, and three aerobic-anaerobic fixed film reactors in series. The aerobic reactor is downflow; the anaerobic reactor is upflow. Effluent from the third stage reactor is filtered through multi-media pressure filters. Filtered effluent is chlorinated and sent to lakes at the adjacent golf course to be utilized for irrigation. The plant is currently being reviewed by IEUA to determine the reliability of the facility to comply with its waste discharge permit and Title 22 for unrestricted irrigation uses.

  The plant is enclosed in a building that resembles a large residence and there is little, if any, odor. There are several residences immediately adjacent to the property and a community swimming pool is across the street. The property is approximately 0.5 acre in size and there is no room for expansion as concluded in a 1995 study by CDM. Upsizing tertiary filters will allow more flow to pass through, but an increase in plant capacity is still limited. The current plant operating budget as reported by the City of Upland is $110,000 to $120,000 per year. Treatment costs are about $1,500 per million gallons. It is also noteworthy that two spreading basins are located just south of the existing Upland site, which could be utilized for percolation of effluent from this plant, if it can be expanded to produce more water than is currently consumed by the adjacent Upland Hills Country Club for irrigation purposes. It is also notable that a former landfill, nearby, produces methane that could be utilized to power the plant through the use of micrturbines, cogenerators, fuel cells etc.

Utilization of the adjacent golf course for expansion of this facility could be done in such a way so that additional water would be available for the golf course without affecting the course in an adverse manner.

- San Antonio Lakes (SP-2) – The San Antonio Lakes site is located near the intersection of 19th Street and Campus Avenue, very close to the Upland Hills WRP. The site is currently vacant.
- Church Basin (SP-3) – The Church Basin site is located south of Church Street between Center Avenue and Haven Avenue adjacent to a County Flood Control District Spreading Basin in Rancho Cucamonga. This site is also vacant and would be suitable for a satellite plant. However, the available tributary flow to this potential satellite plant may be significantly reduced if the proposed RP-4 Trunk Sewer is constructed.
- CCWD - Baseline (SP-4) – There are a number of sites along Baseline Road from Upland to Fontana that could also be suitable for satellite plants. No specific locations have been identified at this time. However, the eastern portion of Rancho Cucamonga along Baseline Road appears to be more likely for satellite plant siting because it is relatively undeveloped at this time. The satellite plant could potentially intercept flow from trunk sewers along Milliken Avenue, Rochester Avenue, or Etiwanda Avenue. Additional flow could be readily available to the satellite plant from the western portion of CCWD with the proposed RP-4 Trunk Sewer. However, this would reduce tributary flow to RP-4 as discussed earlier.
- Foothill/I-15 Corridor (SP-5) – No specific locations have been identified for the Foothill/I-15 corridor siting area at this time. The site is currently open and undeveloped (zoned general commercial) on both sides of I-15 freeway in Rancho Cucamonga. The satellite plant could intercept flow from either the Rochester Avenue trunk sewer or the Etiwanda Interceptor. This site is approximately one mile north of RP-4 and may very likely reduce the availability of wastewater flow to RP-4.
- Kaiser/CSI WWTP (SP-6) – The Kaiser/CSI WWTP site is located on the California Steel property on the south side of San Bernardino Avenue between the San Sevaine Flood Control Channel and Mulberry Avenue. The plant was built in the 1950's and treats wastewater from the California Speedway. Effluent is currently reused at the California Steel facilities. The condition of the existing treatment facilities is unknown and the potential of converting the existing treatment facilities to an IEUA satellite plant requires further investigation. This site is located at the proposed terminus of City of Fontana's San Bernardino Interceptor, about one mile southeast of RP-4. A booster station and force main may also be sited in the vicinity of this plant to convey the San Bernardino Interceptor flows to RP-4. The viability of siting a satellite plant at this location is highly dependent upon the final regional wastewater management strategy and negotiation with all parties involved.
- Sierra Lakes (SP-7) – The Sierra Lakes' site is located near the intersection of Citrus Avenue and Highland Avenue in the City of Fontana. This site could also be located west of Citrus Avenue along Highland Avenue to facilitate direct delivery of recycled water to the groundwater recharge basins west of I-15. This general area is relatively undeveloped at this time. Wastewater could be conveyed to this site via the trunk sewer in Citrus Avenue. This site is also located in the RP-4 service area.
- Fontana - Baseline (SP-8) – Similar to SP-4 and SP-5, no specific locations have been identified for the Fontana-Baseline siting area. This general area is more developed than the Sierra Lakes site (SP-7). SP-8 can be located essentially at any feasible site between Cherry Avenue and Citrus Avenue. A satellite plant closer to Cherry Avenue may be more attractive because more flow would be available (City of Fontana is planning to install trunk sewer along Baseline Avenue to divert flow from the Citrus trunk sewer) with a shorter distance to directly serve the groundwater recharge basins. This site is again located in the RP-4 service area.
- Montclair (SP-9) – A Montclair site is specifically identified because of its many advantages over the other sites, including: better flow management opportunity for the region (outside of RP-4 service area); close proximity to several groundwater recharge basins; and sufficient tributary flow to allow economy of treatment. However, this site is located in the lower portion of IEUA's northern service area (elevation 900-950 ft) and may require additional pumping to tie into the regional recycled water distribution network in order to serve additional users. No specific locations have been identified for this site at this time. The area between Holt Boulevard and Mission Boulevard west of Central Avenue appears to be a likely

candidate. The area near IEUA's Montclair Diversion can also be considered. A siting study is needed to further evaluate possible locations for the satellite plant in this area.

- RP-3 (SP-10) - Another site that has a great deal of potential for a future satellite plant is the former RP-3 site, located at the southwest corner of Jurupa Avenue and Beech Avenue intersection in the City of Fontana. This site currently has more than sufficient wastewater flow tributary to it. There is also a great deal of potential for recycled water reuse for local green belts, parks and groundwater percolation. Presently, the site is planned as an area where IEUA will percolate storm and recycled water for groundwater recharge. However, given the terms of the Fontana Settlement Agreement - between the City of Fontana and IEUA - to not construct a wastewater treatment plant at this site, it would require Fontana's concurrence to move foreword at this location. Nevertheless, the Agency is studying the effects of placing a satellite plant at this location so that if Fontana so chooses, a satellite plant could be constructed at this location.

d. RP-4 Location and Effluent Discharge

RP-4 is located on a 28-acre parcel on the west side of Etiwanda Avenue, between Fourth and Sixth Streets, immediately south of Reliant Energy-Etiwanda Generating Plant in the City of Rancho Cucamonga. RP-4 acts as a scalping plant for RP-1. The site is zoned light industrial, with a conditional use permit granted by Rancho Cucamonga in 1991 that allows for the construction of a 7 MGD plant. This is the first phase of a master planned site that was laid-out to ultimately process up to 28 MGD of wastewater.

The plant is an advanced oxidation ditch design, with interchannel secondary clarifiers and aerobic digestion. Current work at the site will add a primary clarifier to reduce solids loading and mixing energy requirements at the oxidation ditch. The aerobic digesters are currently not in use; rather, solids are transported down to RP-1 for treatment and disposal to provide additional gas production for the IEUA's Co-Generation Facility to help power the RP-1 site. Effluent from RP-4 is discharged to Cucamonga Creek at RP-1 and flows through the Prado Basin, into the Santa Ana River, through the Prado Dam, to Orange County where it's percolated into the Orange County Basin through ponds operated by the Orange County Water District. Treated effluent is also distributed for recycled water use through its pipe outfall from RP-4 to RP-1.

RP-4 Expansion

Regional Plant No. 4 (RP-4) is one of the IEUA's four wastewater reclamation plants currently in operation. RP-4 is located near the intersection of Interstate 15 and Interstate 10 freeways between Ontario and San Bernardino in the City of Rancho Cucamonga. The northeast corner of the plant is at the intersection of Sixth Street and Etiwanda Avenue, near the Reliant Power Plant. Based on the original design, the plant has a rated capacity of 7 MGD (maximum month). A downstream bypass line is available to divert wastewater down to RP-1 when necessary. Currently, RP-4 only provides liquid treatment to its tributary areas, as discussed earlier in Section 3. All biosolids generated at RP-4 are currently being treated at RP-1. In addition, a new recycled water pump station is currently under design at RP-4.

The liquid treatment facilities at RP-4 will be modified and expanded from the original design capacity of 7 MGD up to 35 MGD within the year 2050 planning horizon to an ultimate planned capacity of 48 MGD on the existing site. New solids treatment and handling facilities may be located at a site currently owned by Southern California Edison (SCE) between 6th Street and the railroad right-of-way (SCRRA). The property could potentially be used for the treatment facilities after future acquisition by either the IEUA or IERCA. Table 3-7 summarizes the phasing plans for liquid and biosolids processing trains at RP-4. The phased expansion of RP-4 liquids could be confined to the existing 28-acre site (Figure 3-14).

Table 3-6
Comparison of Potential Satellite Plant Sites

Plant No.	City		Flow Availability		Site Viability			Reuse Potential				
		Siting Area	Existing/ Future Wastewater Service	Potential Tributary Flow[1] (MGD)	Proximity to Major Trunk Sewer	Adjacent Land Use at Build-Out	Approx. Elev. (ft)	Potential Major Recycled Water Users	Potential Groundwater Recharge Basins[7]	Proximity to Planned RW Distribution Pipelines	Approx. Recycled Water Demand[2] afy (MGD)	Preliminary Screening
SP-1	Upland	Upland Hills WRP	Upland Hills WRP/RP-1	2	Campus	Residential, Commercial	1450-1500	Upland Hills Country Club[8] American Golf Corp., Red Hill Community Park	7^{th} & 8^{th} St.	< 1 mile from IEUA Planned Pipeline	3000 (2.7)	Site constraints – not expandable
SP-2	Upland	San Antonio Lakes	RP-1	2	Campus	Residential, Commercial	1550-1600	Upland Hills Country Club[8] American Golf Corp.	---	< 1 mile from IEUA Planned Pipeline	450 (0.4)	Lack of demand – mainly existing user
SP-3	Rancho Cucamonga	Church Basin	RP-1	3	Haven/ Hermosa	Mixed	1200-1250	Legacy Partners, Lewis Operating Corp., Cucamonga S.D., General Dynamics	---	< 1 mile from CCWD Planned Pipeline	3300-4000 (2.9-3.6)	Tributary flow may be significantly reduced if RP-4 Trunk Sewer is constructed.
SP-4	Rancho Cucamonga	Baseline Road	RP-4	1.5-5.5 [3]	Milliken/ Rochester/ Etiwanda/ RP-4 Trunk	Mixed	1300-1350	City of Rancho Cucamonga, Etiwanda S.D., Inland Greenhouses	Victoria/ Etiwanda Perc. Pond/ San Sevaine	At IEUA Planned Pipeline	2900-8900 (2.6-7.9)	Divert flows from RP-4
SP-5	Rancho Cucamonga	Foothill/I-5 Corridor	RP-4	4-5	Rochester/ Etiwanda	General Commercial	1200-1250	Reliant Energy Plant, City of Rancho Cucamonga, Gallo's Nursery	Hickory/Banana	< 1 mile from CCWD Planned Pipeline	3200-3900 (2.9-3.5)	Divert flows from RP-4
SP-6	Fontana/ S.B. County	Kaiser (CSI) WWTP	RP-1/RP-4	8.7/14.5[4]	San Bernardino Interceptor	Industrial	1000-1050	California Steel, Fontana Paper Mill, Cal Trans I-10	Etiwanda Conservation Basins	At City of Fontana Planned Pipeline	7400 (6.6)	May divert flows from RP-4
SP-7	Fontana	Sierra Lakes	RP-4	2.7	Citrus	Residential, Commercial	1500-1550	Fontana USD, Fontana Parks & Recreation, Untied Merchandising Corp.	San Sevaine/ Victoria/ Etiwanda Perc Pond	< 1 mile from City of Fontana Planned Pipeline	5500-7500 (4.9-6.7)	Divert flows from RP-4
SP-8	Fontana	Baseline Avenue	RP-4	4-9[5]	Citrus/ Beech/ Cherry	Residential, Commercial	1400-1450	City of Fontana, Fontana U.S.D.	Victoria/ San Sevaine/ Etiwanda Perc Pond	< 1 mile from City of Fontana Planned Pipeline	1200-7200 (1.1-6.4)	Divert flows from RP-4
SP-9	Montclair/ S.B. County	Montclair[6]	RP-1/CCWRP	5.5-8.5 [6]	Roswell/ Ramona/ Monte Vista	Mixed	900-950	---	Brooks Street/ Montclair/Upland/ College Heights	< 1 mile from IEUA Planned Pipeline	3800-21000 (3.4-18.8)	Lower in system – may require more pumping.
SP-10	Fontana	RP-3							RP-3 Basins			

Notes:
(1) Rough estimate based on build-out land use.
(2) Within 1-mile radius, base on IEUA Recycled Water System Feasibility Study, Final Draft, February 2001.
(3) Depending on site selected; 5.5 MGD of flow could be collected if RP-4 Trunk is constructed.
(4) Availability of flows from east of Citrus/Cypress depends on City of Fontana's final trunk sewer configuration.
(5) More flow can be collected if sited near Cherry Avenue.
(6) Depending on site selected, more flow can be collected if sited near IEUA's Montclair Diversion Station.
(7) Most plants need to be connected to the planned distribution system in order to serve the recharge basins without a separate pipeline.
(8) Existing user served by Upland Hills WRP.

Table 3-7
RP-4 Liquid and Biosolids Phasing Plan

Year	Liquid Treatment Process		Biosolids Treatment Process		
	Phase Capacity	Cumulative Capacity	Phase Capacity	Cumulative Capacity	Remarks
Existing	-	7	-		Biosolids are sent to RP-1
2010	7	14	16	16	Biosolids facilities built between 2010 and 2020
2020	14	28	16	32	Biosolids facilities built between 2020 and 2030
2030	7	35	8	40	
2040	7	35	8	40	
2050	0	35	8	40	

Short-term process improvements for the liquid train include the addition of primary clarification and replacement of the existing surface aerators with a diffused aeration system in the existing oxidation ditches. In addition, the existing UV disinfection system will be replaced with chlorine disinfection. The total chlorine contact basin volume will be a combination of the existing post aeration basins plus new basins. At 14 MGD and 21 MGD plant capacity, additional primary clarifiers, new conventional secondary clarifiers, additional filtration, and additional disinfection will be provided. The existing biological basins will be modified from racetrack configurations (oxidation ditches) to plug flow basins. Expansion beyond 21 MGD will require complete new treatment trains.

The existing liquid treatment plant will be expanded from 7 MGD to 35 MGD in three phases to meet the projected growth for the RP-4 service area up to year 2050. The first phase will be 7 MGD to reach a treatment capacity of 14 MGD. The second phase will be 14 MGD to increase capacity to 28 MGD. The third phase will be 7 MGD for 35 MGD capacity. To best match the expansion phasing of the liquid treatment train, the solids processing facilities will also be expanded in three phases; however, the facility sizes will not exactly match the liquid train capacity. The first and second phases will be 16 and 32 MGD, which will be slightly greater than the liquid capacity. However, 8 MGD trains were selected to best match expansion phasing over the entire planning period and not have excessive digesters. The third phase will be 8 MGD to reach 40 MGD.

With the expansion of RP-4 to 48 MGD, the existing outfall would need to be modified to accommodate the increase in discharge. The needed capacity for 48 MGD average dry weather flow is approximately 88 MGD (peak wet weather flow). The existing outfall from RP-4 connects RP-4 with RP-1 and discharges to Cucamonga Creek. The outfall is comprised of three segments: 4,400 feet of 42-in diameter pipe in the lower segment; 14,900 feet of 36-in diameter pipe in the middle segment; and 25,300 ft of 42-in diameter in the upper segment. The outfall has a total length of 44,600 ft (approximately 8.4 miles). The difference in elevation between the upper and lower ends of the outfall is about 280 feet. The pipe is cement mortar lined and coated steel pipe for most of its length.

There are several alternatives for modifying the outfall. One outfall alternative is to install a parallel pipeline or recycled water loop around the 36-in diameter portion of the pipeline. This would allow the capacity to reach 40 MGD or more and would be limited by the allowable velocity in the 42-in diameter sections. Extension of the Wineville Avenue Regional Pipeline to tie back into the outfall is also a viable solution and expands the current recycled water system. Likewise, a release valve to the Day Creek, Etiwanda Creek or Cucamonga Channel is also a viable alternative.

Another alternative is to integrate the outfall with the master recycled water distribution system to provide the remaining capacity. A pressure control valve (dump valve) could be put on the pipeline to discharge to a watercourse, e.g., Day Creek, Etiwanda Creek Channel, San Sevaine Creek, or Cucamonga Creek. The Fourth Street Regional Pipeline could be utilized for this use as could any of the other Regional Reclaimed Water Pipelines.

Another outfall alternative would be a separate gravity discharge to Day Creek or Etiwanda Creek Channel. In the long term, this alternative could be converted to a pressurized reclaimed water pipeline and made part of the regional system.

e. Carbon Canyon Wastewater Reclamation Facility (CCWRF)

The Carbon Canyon Wastewater Reclamation Facility (CCWRF) is located just west of El Prado Road and south of Chino Hills Parkway in the City of Chino and acts as a scalping plant for RP-2 and eventually RP-5 when it comes on line. The plant has been in operation since May 1992 and serves the areas of Chino, Chino Hills, Montclair and Upland. CCWRF is one of several IEUA wastewater reclamation plants in the Agency's SSA. It is designed and built to treat liquid stream only. Biosolids from the plant currently are diverted to RP-2 for treatment and disposal with recycled liquids pumped back to the plant for treatment and disposal. Currently, CCWRF acts as a hub for producing, storing and distributing recycled water to the Cities of Chino and Chino Hills.

Table 3-8
CCWRF Liquid and Biosolids Phasing Plan

Year	Liquid Treatment		Biosolids Treatment		Remarks
	Phase Capacity	Cumulative Capacity	Phase Capacity	Cumulative Capacity	
Existing	-	10	at RP-2	at RP-2	
2010	2	12	at RP-2	at RP-2	Biosolids recycle flows from RP-2 diverted to NRW System
2020	0	12	at RP-2	at RP-2	
2030	8	20	at RP-2 or RP-5	at RP-2 or RP-5	
2040	0	20	at RP-5	at RP-5	
2050	0	20	at RP-5	at RP-5	
Note: All CCWRF biosolids are treated at RP-2 for the next 20-30 years and subsequently at RP-5					

CCWRF Expansion

The CCWRF is designed to provide Title 22 level liquid stream treatment to the wastewater. CCWRF's current and ultimate liquid stream treatment capacities are 10.3 and 20.3 MGD, respectively (Figure 3-15). The phasing plan proposed for CCWRF is shown in Table 3-8. The biosolids generated at the plant are pumped to RP-2 where they are thickened, anaerobically digested and dewatered on belt presses. Recycle flows from the biosolids operations at RP-2 are returned to CCWRF, where they are pretreated and combined with the liquid train for final treatment. Ultimately, at the end of the useful life of biosolids handling and treatment facilities at RP-2, CCWRF biosolids will be diverted to RP-5 for treatment. Since the ultimate plant capacity (20.3 MGD) is essentially twice the present capacity (10.3 MGD), most of the unit processes will be generally duplicated to accommodate the ultimate capacity.

Currently, approximately 1.0 MGD of recycle flow from the biosolids processing operations at RP-2 is pumped to the CCWRF. IEUA believes, however, that it is preferable, both from the cost-effectiveness and operational standpoint, to discharge this high strength waste (with particularly high ammonia/nitrogen concentration) to the SARI pipeline, in which IEUA currently owns excess capacity. If this strategy is implemented, this recycle stream, via SARI, will flow to the Orange County Sanitation District's Plant in Fountain Valley, for treatment and disposal. This will "free up" some of the capacity (equivalent to approximately 2 MGD of treatment of normal domestic sewage) at the CCWRF and eliminate the need to re-pump the recycled flows back to CCWRF.

The following recommendations are made in regard to expanding CCWRF:

- Expand CCWRF, with a current liquid stream treatment capacity of 10.3 MGD (under current NPDES permit requirements), to an ultimate capacity of 20 MGD to meet future, more stringent NPDES requirements.
- In the short-term, the liquid stream treatment capacity at CCWRF can be increased to 12.3 MGD by diverting the recycled flows to the SARI line for further treatment at the Orange County Sanitation District's wastewater treatment plants.
- Provide an 8 MGD to 10 MGD liquid stream treatment expansion by year 2015 to meet the projected treatment needs of 20 MGD at CCWRF (please refer to Figure 3-15).
- Continue sending biosolids generated from wastewater treatment at CCWRF to RP-2, ultimately at RP-5, for handling and processing.

Near-Term Expansion Plan

The near-term expansion plan for CCWRF is as follows:

- Divert recycle flows from RP-2 to the SARI line;
- Replace gaseous chlorine with sodium hypochlorite for disinfection and use sodium bisulfite for dechlorination.

Long-Term Expansion Plan

The long-term expansion plan at CCWRF will be a single phase, 8 MGD to 10 MGD expansion of the liquid treatment facilities, sometime between year 2010 and 2020. The major components of this expansion include the following:

- Additional headworks grit chamber, two primary clarifiers, and a new primary effluent pump system;
- Add additional aeration basins, blowers and an additional secondary clarifier;

- Provide three additional tertiary filters; and
- Add new chlorine contact basin.

f. Wastewater Conveyance Facilities

Background

IEUA owns and operates two separate wastewater collection networks: the Regional Trunk Sewer System (also known as the reclaimable waste system) and the Non-Reclaimable Wastewater (NRW) System. The Regional Trunk Sewer System collects raw municipal/ domestic wastewater from over 130 approved "Regional Connection" points. These connection points and their tributary areas, within the corresponding contracting agencies boundaries, are approved by the IEUA Board of Directors. The NRW System collects and diverts brine and other high-strength industrial wastewater away from the regional treatment facilities to reduce the salinity intake to the regional system and the basin. Of the two systems described above, the Regional Trunk Sewer System is far larger in capacity.

Existing Trunk Sewer System

Gravity Interceptors

The Regional Trunk Sewer System consists of ten major interceptor systems, termed gravity interceptors. Each interceptor services a unique tributary area, varies in size, length and usage load. Some were installed as early as 1948 and others were installed as recently as 2001. The existing Regional Trunk Sewer System along with the approximate capacity of each interceptor is listed in Table 3-9.

Pump Stations and Force Mains

The Regional Trunk Sewer System consists of two existing pump stations and force mains and one that is under construction. These facilities are: the Montclair Interceptor Pump Station/Force Main in the NSA; the Prado Park Lift Station/ Force Main in the SSA; and The RP-2/RP-5 Pump Station and Force Main at RP-2 in the SSA.

The Montclair Interceptor Pump Station and Force Main conveys wastewater from the cities of Montclair, Upland, and Chino to RP-1. The pump station is located at Philadelphia Street and Cypress Avenue in the City of Ontario.

The Prado Park Lift Station/Force Main conveys wastewater flows from the State of California Institution for Women (CIW), which is no longer used, and Prado Regional Park to RP-2. The lift station is located on Johnson Avenue within the City of Chino Sphere of Influence (SOI) area.

A third pump station located at RP-2 is currently under construction. This pump station is part of the RP-5 project and is meant to collect flows that are tributary to RP-2 and pump them up to RP-5 when it is completed and liquid flows are no longer treated at RP-2.

Flow Bypass

The Westside Interceptor Diversion is located at the Regional Connections 'M-1' and 'U-3', near Roswell Avenue and Grand Avenue in Montclair. This diversion structure connects the Westside Interceptor Relief with the Montclair Interceptor and the NRW System, allowing Upland and Montclair flows to bypass to the CCWRF service area or NRW System providing relief capacity for the Montclair Interceptor and RP-1.

Table 3-9
Existing Regional Trunk Sewer System

Interceptor	Year Built	Age (yrs)	Pipe Size (inch)	Pipe Length (feet)	Max. Capacity d/D= 0.75 – 1 (cfs)	Min. Capacity d/D= 0.75 – 1 (MGD)
Etiwanda Interceptor System						
Etiwanda Interceptor	1987	15	15-42	31,087	549-602	NA (siphon)
Upland Interceptor System						
Upland Interceptor Sewer	1957	45	21-30	13,966	43.6-47.8	16.4-18.0
Upland Interceptor Relief Sewer	1991	11	12-27	5,850	23.5-25.8	2.5-5.1
Grove Avenue Trunk Sewer	1961	41	18-21	3,906	28.3-31.0	13.6-14.9
Freeway Trunk Sewer	1961	41	18-33	5,985	34.0-37.3	7.7-8.4
RP-1 Influent Lines:						
Philadelphia Ave. Project	1968	34	33-42	1,965	43.7-47.9	38.6-42.3
Philadelphia Ave. Diversion	1988 1948	14 54	54-60	1,750 250	53.1-47.4	NA
Cucamonga Interceptor System						
Cucamonga Trunk Sewer	1964	38	24-36	8,000	11.2-18.0	NA(siphon)
Cucamonga Trunk Relief Sewer	1985	17	24-39	12,865	152-167	37.6-41.2
Archibald Avenue Trunk Sewer	1964	38	18-24	12,972	14.9-16.3	6.5-7.2
Archibald Avenue Trunk Relief	1981	21	24-54	5,217	311-341	11.6-12.7
Turner Avenue Trunk Sewer	1964	38	24	2,618	26.2-28.8	20.7-22.7
Cucamonga Interceptor Sewer	1974	28	24-42	11,471	72-79	8.4-9.2
Cucamonga Interceptor Relief	1988	14	42	12,431	100-98	NA (siphon)
Cucamonga Relocation	1990	12	42	1,385	463-508	16.3-17.9
Fontana Interceptor System						
Fontana Interceptor Sewer	1984	18	21-39	34,806	517-567	NA (siphon)
Fontana Interceptor Relief	1989	13	21-78	32,432	730-800	11.2-12.3
Montclair Interceptor System						
Montclair Interceptor	1977	25	18-36	39,476	115-126	4.1-4.5
Westside Interceptor System						
Westside Interceptor	1976	26	10-24	24,117	15.3-16.7	1.3-2.5
Westside Interceptor Relief	1994	8	15-54	39,970	854-936	NA (siphon)
Chino Interceptor System						
Chino Interceptor	1960	42	24-30	13,957	54.6-59.9	NA
Chino Interceptor Diversion	2001	1	42	2,576	57.9-60.1	NA
Los Serranos Trunk Sewer	1974	26	30-36	2,350	179-196	14.3-15.6
Kimball Interceptor System	2001	1	42-66	19,866	296-325	28.8-31.6
Prado Park Interceptor System	1976	26	8-10	9,356	5.0-9.9	NA (siphon)

Non-Reclaimable Wastewater System

The IEUA owns and operates two non-reclaimable waste pipeline systems, also known as "brine lines." One of the systems is located in the NSA and the other is in the SSA. The locations of the two systems are shown in Figure 3-16. This Non-Reclaimable Wastewater (NRW) System provides a disposal point for industries that produce saline or brackish wastewaters that would otherwise adversely affect the ability of the Regional Treatment Plants to meet their discharge requirements. The NRW System is a key element in the IEUA's salinity management program. For example in Fiscal Year (FY) 1998/1999, over 18,000 tons of salt were removed from the service area through the NRW System. Capacity in this system is sold based on the peak discharge of its users/ capacity purchasers.

Northern Service Area NRW System

The NSA NRW System conveys wastewater to the County Sanitation Districts of Los Angeles County (CSDLAC) system for treatment at the County's Joint Water Pollution Control Plant in Carson. The collector pipelines of this system traverse the central portion of the Agency's service area in a generally east-west direction as shown in Figure 3-16. Branches of the pipelines pass by RP-1 and RP-4 along the streets adjacent to these plant sites. Therefore, this system is capable of receiving the brine discharges from these two treatment plants. In FY2000/2001, 33 industries had direct connections to the northern NRW System and seven trucked their non-reclaimable wastewater to the NRW System. The largest single user - Reliant - owns 3.24 MGD of peak capacity in this system while the remaining industries own approximately 7.37 MGD of peak capacity. The Regional Sewage Program also owns 2.43 MGD of peak capacity in this system as a result of a resolution of charges owed CSDLAC related to the Regional Program's historic use of this system. Since the Agency has an entitlement to 16.4 MGD of capacity, this leaves 3.36 MGD of peak capacity available for new industries. Of note, average discharge in FY 2000/2001 on 13.04 MGD of peak capacity was 5 MGD.

Southern Service Area SARI System

The SARI system is a regional facility for disposal of non-reclaimable wastewater, serving a number of cities and municipal agencies in the northwest portion of Riverside County and the southwestern portion of San Bernardino County. The system collects brine and other non-reclaimable wastewater from the users and conveys the flow to the facilities of the Orange County Sanitation District (OCSD) for treatment and ocean disposal. The major elements of the system are collector pipelines that converge at an interceptor trunk sewer, which runs to OCSD Plant in Fountain Valley. The SARI system located in IEUA is shown in Figure 3-16. The overall hydraulic capacity of the SARI system is rated at 30 MGD, which is based on the hydraulic capacity of the interceptor trunk sewer, which passes under Prado Dam. The sum of the design capacities of the individual collector pipelines draining into the interceptor sewer exceeds 30 MGD; however, ownership in the line is limited to the hydraulic capacity of this line.

The SSA NRW System conveys wastewater to the SARI for treatment and disposal by the OCSD. In FY2000/2001 there were five direct connections to the system with five industries that trucked their wastewater to dump in the southern NRW System. IEUA owns 6.5 MGD of SARI pipeline capacity and 4.3 MGD of treatment capacity in this system. As of FY 2000/2001, 3.5 MGD of peak capacity had been sold to industries. The Regional Sewage Program owns the remaining 3.0 MGD of peak capacity in this system. Total average flow in this system was approximately 1.3 MGD for FY 2000/2001. As flows increase and indicate, the IEUA will need to purchase up to 2.2 MGD of the remaining treatment capacity (6.5 MGD pipeline capacity less 4.3 MGD of treatment capacity currently owned) not currently owned in the OCSD's system.

While the SARI system is managed and operated by the Santa Ana Watershed Project Authority (SAWPA), the construction of the system was financed by four other agencies in addition to SAWPA as shown in Table 3-10. Accordingly, the hydraulic capacity (hereinafter referred to as "pipeline capacity") rights of the system are under the primary ownership of these five agencies. Additionally, the wastewater collected by the SARI system is treated by OCSD. The SARI system ownership agencies are required to purchase separate treatment capacity rights from OCSD for the flows discharged into the SARI system. The treatment capacity ownership is summarized in Table 3-10.

The current flows discharged by the various agencies are less than their respective pipeline capacity rights and treatment capacity rights. As shown in Table 3-10, the pipeline capacity owned by IEUA is 6.5 MGD. There are 3.5 MGD dedicated to the NRWS to serve the needs of industries in the IEUA service area. The remaining three MGD are reserved for other regional uses, only a small portion of which is utilized at this time. About 0.4 MGD are committed to serve the Green River Golf Course and the California Institute for Women, so IEUA's remaining available pipeline capacity is 2.6 MGD.

Table 3-10
Primary Ownership of SARI Capacity Rights

Agency	Pipeline Capacity (MGD)	Treatment Capacity (MGD)
Santa Ana Watershed Project (SAWPA)	2.30	2.48
San Bernardino Valley Municipal Water District (SBVMWD)		
Eastern Municipal Water District (EMWD)	7.20	0.09
Western Municipal Water District (WMWD)	4.38	0
Inland Empire Utilities Agency (IEUA)	9.62	3.67
	6.50	4.30
TOTAL	30	10.54

The treatment capacity owned by IEUA is 4.3 MGD. There is 3.5 MGD dedicated to the NRWS to serve the needs of industries in the IEUA service area. The remaining 0.8 MGD are reserved for other regional uses. About 0.4 MGD is committed to serve the golf course and correctional facilities leaving 0.4 MGD of treatment capacity. The remaining treatment capacity is available on a first come first served basis.

<u>RP-5 Discharge to SARI</u>

The IEUA may treat up to one MGD of manure flow and 8 to 10 MGD of domestic wastewater at RP-5 initially (the 15 MGD first phase of an ultimate 48 MGD plant). The brine generated from the digested sludge operation is estimated at an average of 300,000 gallons per day. This amount of discharge can currently be accommodated in the SARI. Unless the needs of other projects arise prior to the commitment of the SARI capacity to the Organics Management Project, the IEUA also has available treatment capacity to accommodate this brine discharge.

The estimated discharge of 300,000 gallons per day is a daily average. The most likely scenario is that the sludge dewatering facilities would operate five days per week and 16 hours per day. Based on this assumption, the instantaneous discharge during the dewatering operation is estimated at 630,000 gallons per day or 440 gallons per minute. For conveyance of this brine to the SARI line, a 10-inch diameter pipeline is needed.

The western collector of the SARI system, in Figure 3-16 traverses the western portion of the IEUA's service area in a generally northwest-southeast direction along a route that passes by the CCWRF, RP-5 and RP-2. This pipeline is 36 inches in diameter and has a hydraulic capacity of 8.94 MGD. This pipeline is able to accommodate the RP-5 discharge at a rate of 0.63 MGD. In the vicinity of RP-5, the pipeline is located in El Prado Road at an elevation that will permit the treatment plant to discharge the brine by gravity. The connection from RP-5 to the SARI line will be a 10-inch pipeline.

Near-Term Trunk Sewer Projects

- RP-4 Trunk Sewer
- San Bernardino Interceptor Pump Station and Force Main
- Upland Interceptor Relief System
- RP-1/RP-5 Bypass & Kimball Interceptor Extension
- Freeway Trunk Replacement

RP-4 Trunk Sewer

In order to divert more high quality, low TDS wastewater flow to RP-4 from areas now tributary to RP-1, a new trunk sewer (the "RP-4 Trunk sewer") is planned. This trunk sewer will be located in the Cucamonga County Water District (CCWD) service area to intercept raw sewage, which now flows to RP-1 for treatment. The objective of installing this new trunk sewer is to maximize reuse potential and better balance treatment capacity throughout the Agency. A total of five reaches are planned, however, only three may be needed initially. Table 3-11 provides a summary of the RP-4 Trunk sewer project.

Table 3-11
Proposed RP-4 Trunk Sewer Data

	Trunk Alignment Location	Cross Street	Station	Pipe Length	Pipe Depth (ft)	Approx. Diameter (Inch)
Reach 1	Etiwanda Arrow Arrow Arrow Haven	RP-4 Etiwanda Rochester Milliken Arrow	34000 29000 22400 18500 13200	5,000 6,600 3,900 5,300 2,700	9 20 19 22 8	48 48 48 48 48
Reach 2	Foothill	Haven	10500	2,500	20	39
Reach 3	Foothill	Hermosa	8000	3,700	4.5	36
Reach 4	Foothill	Archibald	4300	1,600	10	21
Reach 5	Foothill Foothill	Hellman Vineyard	2700 0	2,700	4 10.2	15

San Bernardino Interceptor Pump Station and Force Main

The City of Fontana is planning to construct an 18- to 42-inch-diameter trunk sewer along San Bernardino Avenue between Cypress Avenue and San Sevaine Channel to intercept wastewater generated north of San Bernardino Avenue and west of Citrus Avenue that currently flows via the Fontana Interceptor System to RP-1 for treatment. This will allow IEUA to divert this lower TDS water to RP-4 for treatment and help to better balance regional treatment throughout the Agency. An extension east to Citrus Avenue is now planned to allow additional flow contribution to this trunk sewer. Three options are available to convey this flow to the regional facilities for treatment and disposal:

1. Extend the San Bernardino Interceptor west to the Etiwanda Interceptor and up-size/ parallel the existing Etiwanda Interceptor and other conveyance facilities to RP-1.
2. Construct a pump station and force main at the terminus of San Bernardino Interceptor and pump the flow up to RP-4.
3. Up-size/parallel the Fontana Interceptor and Fontana Interceptor Relief to continue the conveyance of flows to RP-1. The Etiwanda Interceptor would also have to be upsized or paralleled for RP-4 bypass in this case.

Because the ultimate capacity of RP-1 is proposed to be limited to 60 MGD, pumping a short distance (approximately 6,200 ft) to convey this flow to RP-4 would benefit the Agency more than having to up-size the interceptors and expand RP-1. In addition, this will keep better quality water in the upper watershed areas to maximize reuse.

The IEUA is currently investigating acquiring a property generally east of San Sevaine Channel for this pump station. A lot up to 2 acres would be required to accommodate the pump station facilities. The flows can be conveyed through either a 30-inch-diameter force main, or two 24-inch-diameter force mains. While it is easier to construct only one larger force main to handle the ultimate flow condition, it may be more desirable to install two smaller force mains in parallel for maintenance purposes and to allow a higher flow velocity to minimize debris deposition in the force main during the lower flow period expected prior to ultimate development (this is particularly important, because the force main has to first cross the San Sevaine channel). This alternative would also allow redundancy for pipe cleaning. The construction of the dual force mains can be either concurrent, or phased. Only one 24-inch-diameter force main would be required to handle the flows in the initial 10 years of planning. The pump station needs to be equipped with a combination of pumps with a total capacity of approximately 16.8 MGD to handle the peak wet weather flow in 2010.

Upland Interceptor Sewer Capacity Expansion

According to a memorandum issued in October 2000, by IEUA, the Upland Interceptor currently collects a daily peak flow of 18 MGD with wet weather peak flows of 23.5 MGD. No wastewater overflows were reported from this system but development patterns and generally accepted wastewater flow generation rates and dry weather depth measurements indicate that portions of pipeline should be at, or close to, its full pipe capacity during rainstorms. Four alternatives were developed to address the capacity deficiency. The recommended alternative is laid out to completely avoid construction near I-10 and Fourth Street and future construction within the airport security area using the most direct alignment available, Grove Avenue, as shown in Figure 3-17. The reach from the south side of the airport to I-10 would be constructed as a single project. This alternative is, long term, the most cost effective and reliable relief project. Additional relief is also needed for the Upland Interceptor from Philadelphia Street to Francis Street, which is also currently running at capacity. The length of this pipeline is approximately 19,900 feet and the pipeline diameter would range from 18 inches to 27 inches.

RP-1 to RP-5 By-Pass (Eastern Trunk Interceptor & Kimball Interceptor Extension)

IEUA's master plan envisions bypassing approximately 20 MGD of primary effluent, raw sewage or solids from RP-1 to RP-5. This by-pass is planned to be in conjunction with construction of trunk sewers master planned by the City of Ontario for the New Model Colony. The City of Ontario's New Model Colony Sewer Master Plan dated January 2001, recommends the implementation of two trunk sewer systems that will convey all of the City of Ontario's existing and future sewer flows generated from areas that cannot gravity flow to RP-1. These trunk sewer systems are tributary to RP-5 via the Kimball interceptor Trunk Sewer. They are identified as the Eastern Trunk Sewer and the Western Trunk Sewer (Figure 3-18).

The Western Trunk Sewer is proposed to convey all of New Model Colony flows generated from areas west of Cucamonga Creek and flows tributary to Whispering Lakes Pump Station to RP-5. It will start at the Kimball Interceptor Trunk Sewer and extend north in Euclid Avenue to Merrill Avenue; thence, extend east to Merrill Avenue to Walker Avenue, north in Walker Avenue to Edison Avenue, east in Edison to Vineyard Avenue, north in Vineyard Avenue to Riverside Drive, and east in Riverside Drive to the Whispering Lakes Pump Station.

The Eastern Trunk Sewer is proposed to convey all sewage generated in New Model Colony area east of Cucamonga Creek, all flows tributary to Archibald Ranch Pump Station and Riverside Archibald Pump Station, and partial flows from the Turner Pump Station. The Eastern Trunk Sewer is planned to start construction in spring/summer of 2002. It will start at the Kimball Interceptor Trunk Sewer at Walker Avenue, extending north in Walker Avenue to Remington Avenue; then east in Remington Avenue, crossing Cucamonga Creek and extending along the County Line to Archibald Avenue; then, turn north in Archibald Avenue to Archibald Ranch Pump Station at Schaefer Avenue. North of Archibald Ranch Pump Station it will tie into an existing 15-inch sewer that extends to approximately 175 feet south of Riverside Drive, then extend east in Riverside Drive to Turner Avenue, intercepting all the flow from Riverside Archibald Pump Station and partial flow from the Turner Pump Station. Due to the partial interception of flows by the Eastern Trunk Sewer, the Turner Pump Station will have to remain in service until the implementation of the future master planned Haven Trunk Sewer in Haven Avenue. The overall pipeline length for the RP-1 to RP-5 Bypass using the Eastern Trunk Sewer is approximately 34,203 feet, with pipeline diameters ranging from 18 inches to 54 inches. The bypass sever capacity is via a joint project and joint ownership between IEUA and the City of Ontario.

IEUA proposes to utilize the available excess capacity of the Kimball Interceptor Trunk Sewer, east of Euclid Avenue; bypassing approximately 9 MGD ADF to the Eastern Trunk Sewer and bypass the remaining 11 MGD to a future Western Trunk Sewer, by purchasing capacity in the City of Ontario owned conveyances.

Unlike other Regional Interceptors operated by IEUA, both the Eastern and Western Trunk Sewers will be joint use facilities, which will require the City and Agency to purchase a fixed capacity in these lines. If one of the owners of this facility exceeds their capacity, they would need to purchase capacity owned from the other owner(s) of this line, or construct a new parallel line. Both members will also be responsible for replacement costs.

IEUA will need to extend the existing Kimball Interceptor in order to connect with City of Ontario's Eastern Trunk Sewer. This extension will connect to the existing Kimball Interceptor at its upper most extreme at Walker/Baker Avenue, then extend north on Walker/Baker, then east on Remington, to a location between Hellman Avenue and Carpenter Street. This line will be considered a Regional Interceptor and its final length will conform to a determination of the Regional

Technical Committees and Board of Directors that oversee IEUA, as it relates to the contractual requirements for a Regional Facility. This line will generally be located in the public right-of-way.

Freeway Trunk Replacement

The Freeway Trunk System (approximately 4,600 feet of 24 inch line) will be replaced or paralleled along with the Upland Interceptor Relief Sewer project. The Freeway Trunk Sewer was constructed in 1961 and insufficient capacity is noted when conveying the flows predicted for the ultimate build-out of the system. This is an optional project for the near-term, but is recommended for ease of implementation.

<u>Ultimate Trunk Sewer Facility Needs</u>

The phasing of projects beyond 2010 is driven by when and how deficient a pipe segment is, which needs to be re-evaluated periodically. The following projects are the extension of the 'planned' projects identified above that should be implemented to augment the hydraulic capacity of the Regional Trunk Sewer System and to meet the IEUA's overall wastewater management strategy. These projects were included in the model to provide hydraulic relief to areas that would have been inadequate had they not been considered. They include:

- RP-4 Trunk Sewer Extension
- Additional San Bernardino Interceptor Pump and Force Main
- Additional RP-1/RP-5 Bypass Capacity
- SARI Diversion Pump Station (City of Chino Hills)

RP-4 Trunk Sewer Extension

Construct the remaining two segments (Reach 4 and Reach 5) of the RP-4 Trunk Sewer.

San Bernardino Interceptor Pump Station and Force Main

Additional capacity would be needed in the San Bernardino Interceptor Pump Station and Force Main. A 24-inch-diameter force main needs to be installed to parallel the existing line by the year 2030. A total capacity of 30.4 MGD would be needed for the pump station to ultimately convey the flow to RP-4.

RP-1/RP-5 Bypass Capacity

IEUA needs to incorporate the required bypass capacity in the Western Trunk Sewer Project when the City of Ontario implements the project, in order to bypass ultimate flows from RP-1 to RP-5 for treatment and final disposal.

SARI Diversion Pump Station

IEUA needs to preserve capacity in its NRW System for high strength wastewater flows and brines. IEUA plans to divert all domestic wastewater flows that would have likely been discharged to the SARI line in the southern tip of its service area (City of Chino Hills undeveloped southwest corner). A pump station would be required to convey these flows to RP-5. IEUA will need to work with the City of Chino Hills to make sure this need is addressed as development occurs in this area.

After incorporating the above projects in the Trunk Sewer networks, the system was modeled to determine additional project needs, based on hydraulic deficiencies, using the projected ultimate flows. The following are the recommendations that would need to be implemented ultimately for the Regional Trunk Sewer System based on this analysis:

- Replace Turner Trunk Sewer

- Replace Archibald Avenue Trunk Relief Sewer
- Replace Cucamonga Interceptor Relief System
- Replace Lower Westside Interceptor

Construction Scenario

Regional Plant Modifications

Regional Plant modification projects would be constructed in several phases over the next 50 years. Each project is anticipated to be divided up into three construction phases that would not overlap each other. The construction phases would include; (1) Site Preparation/Earthwork; (2) Piping and Forming Concrete; and (3) Site Finishing. The typical equipment mix and estimated number of construction workers for each of the three phases is shown below.

Site preparation/earthwork would require a dozer, compactor, grader, excavator, dump/haul trucks (2), front-end loader, and water truck. Approximately 16 workers would be required during this phase.

Piping and forming concrete placement would require a backhoe, crane (2), water truck, concrete trucks (15 trips), concrete pump, concrete vibrator, diesel generator (2), material truck (2 with 5 trips each), welding machine (3), and concrete saw. Approximately 24 construction workers would be required during this phase.

Site finishing would require a paver, material truck (10 trips), sand blaster, dozer, roller/compactor, and water truck. Approximately 12 construction workers would be required during this phase.

Satellite Plants

Construction of the satellite plants would also be conducted in three phases as described above. The construction equipment mix and number of construction workers for site preparation/earthwork and for finishing work would be the same as described above for Regional Plant Modifications. Piping and forming concrete placement would be the same as described above with the exception that only one crane and one welding machine would be required. The approximate number of construction workers required would be 16.

Wastewater Conveyance

The following construction scenario for wastewater pipeline installation will be evaluated. Construction equipment would include a backhoe, pavement cutter, crane, compactor, flatbed truck, dump truck (2), grinder, roller/vibrator, paver, and grinder. Approximately 12 workers would be required to during pipeline installation at each construction location.

3.3.2 Recycled Water Master Plan (RWMP)

3.3.2.1 Introduction and Background

In July 2000, the IEUA certified a PEIR and approved the 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.

The IEUA is one of the water management agencies located within the Basin and was the CEQA lead agency for preparation of the OBMP PEIR. IEUA has developed a "Recycled Water System Feasibility Study" to implement one of the component systems identified in the OBMP. As previously noted, for purposes of this document, the Recycled Water System Feasibility Study will be referred to as the Recycled Water Master Plan (RWMP). Also, in this document, the proposed recycled water system is being evaluated as one of three, facility master planning documents that define the project to be evaluated in this program EIR. The proposed project that will be implemented under the RWMP consists of a series of recycled water infrastructure facilities that will allow IEUA to put (consume, irrigate or recharge to the Chino Basin groundwater aquifer) a substantial amount of the treated wastewater effluent produced by IEUA's water reclamation plants that meet Title 22 water quality standards to beneficial uses. Although this recycled water system component of the overall project is one of the OBMP components, this program EIR has been prepared as a stand-alone program EIR for IEUA's implementation of all three master plan programs.

IEUA's goal is to reuse, to the extent practicable, recycled water produced at the Agency's Regional Water Recycling Plants, except for the 17,000 acre-feet per year (AFY) required to be released to the SAR under the 1969 Santa Ana Judgment for Orange County's use. A primary Agency goal is to provide a reliable supplemental replenishment supply for the Chino Basin and to reduce dependency on imported State Water Project (SWP) water to offset pumping that exceeds the Basin's safe yield and to augment the safe yield of the Basin. Wastewater treated by each of the Agency's regional plants produces a recycled water product that meets the California State Department of Health Standards for "Non-Restricted Recreational Use", or full-body contact (Title 22 Regulations).

To achieve this recycled water objective, a regional recycled water distribution system will be installed to meet the following objectives:

1. Install a distribution system that will interconnect the CCWRF, RP-1, RP-2, RP-4 and RP-5, which is still under construction. This will provide better distribution capability to local agencies, which are responsible for delivering the water to local users.
2. Provide recycled water more efficiently and at an affordable rate for landscaping, cooling towers, boiler feed, and other various non-potable uses that require large volumes of water and thereby conserve potable groundwater and reduce dependence on imported water from the SWP.
3. Provide for the utilization of existing recharge basins by supplying recycled water as an additional source of water along with storm water and SWP water.

Once the recycled water distribution system is installed and operational, IEUA will deliver recycled water to IEUA contract agencies, other retail water utilities, direct industrial customers and to recharge basins where it will be blended with storm water and imported water to recharge the Chino Basin groundwater aquifers. As part of the effort, IEUA is working cooperatively with the Chino Basin Water Conservation District (CBWCD), San Bernardino County Flood Control District (SBCFCD), Chino Basin Watermaster (CBWM or Watermaster), and its retail member agencies to deliver recycled water to 18 existing groundwater recharge basins and to develop two new basins (described in detail below), all of which overlay the Chino Basin groundwater aquifer. As part of the already approved RFIP, these basins are already in the process of being modified to facilitate recharge of greater volumes of storm water and SWP water under a recent decision by IEUA acting as the CEQA lead agency for the above agencies. The evaluation in this program EIR of recycled water recharge will consider only the incremental environmental effects of those additional facilities that must be installed to deliver recycled water to these recharge basins and the environmental effects of recharging certain volumes of recycled water into the Chino Basin at these basins.

Finally, IEUA has established a goal of having a fully implemented regional recycled water distribution system within the next ten years to serve customers in its service area.

3.3.2.2 Summary Overview of Recharge Basins and Locations

The IEUA and its partners in the recharge portion of this proposed project (SBFCD, CBWCD and Watermaster) have identified a number of recharge basins throughout the Chino Basin for specific improvements to permit recycled water recharge and for operational changes designed to meet the OBMP objectives. As noted above, modifications to the recharge basins discussed below were approved recently by the IEUA for basin topographic modifications, imported and storm water recharge and appurtenant facilities, which relied upon a finding of consistency with the OBMP PEIR (verified by an Initial Study) for compliance with CEQA that is titled: "Initial Study for the Implementation of Storm Water and Imported Water Recharge at 20 Recharge Basins in Chino Basin." Much of the information regarding the location of facilities and background data regarding the recharge basins is applicable to this proposed project. Portions of this Initial Study are reproduced in this EIR to assist the reviewer to understand the full extent of the proposed project.

Also, since this is a key environmental document for the overall Watermaster Recharge Master Plan (Recharge Master Plan, Phase II Report, 2001), it is hereby incorporated by reference into this document as permitted by Section 15150 of the State CEQA Guidelines. Summaries and text from the document are provided where appropriate, and the original document is available at IEUA's office in Fontana, 9400 Cherry Avenue, Building A, Fontana, CA 92335. The following basins have been identified for receipt of recycled water for recharge, where it will be blended with storm water and/or imported water to recharge the Chino Basin groundwater aquifers in compliance with Basin Plan Water Quality Objectives.

The 18 existing recharge basins scheduled to receive recycled water for recharge include:

Brooks Street Basin	Etiwanda Spreading Basins	Turner Basin 2, 3 & 4	Etiwanda Conservation Ponds
Montclair Basins	Hickory Basin	San Sevaine Basins 4 & 5	Jurupa Basins
7th & 8th Street Basins	Lower Day Basin	Victoria Basin	Wineville Basin
Upland Basin	San Sevaine Basins 1-3	Banana Basin	
Ely Basins	Turner Basin No. 1	Declez Basin	

The two proposed new basins that are scheduled to receive recycled water for recharge are:

College Heights Basins
RP-3 Basins

Figure 3-19 shows the location of all of the recharge basins in the Chino Basin that will be considered in this document. Figure 3-20 shows more clearly the Management Zones in the Chino Basin that are discussed with each of the recharge basins. The specific location of each recharge basin is as follows:

1. Brooks Street Basin: This basin is located in the City of Montclair at the southeast corner of the intersection of Brooks Street and Silicon Avenue, located south of Holt Avenue and west of Ramona Avenue. The San Antonio Channel is located approximately 1/4 mile to the west. This is an unsectioned portion of the Valley (part of an old rancho). The Longitude of the site is approximately 117° 42'30" and the Latitude is approximately 34°03'45" (Ontario 7.5' USGS Topographic Map).
2. Montclair Basins: This recharge area consists of four basins (M1-M4) located in a series (from north to south) beginning immediately south of Arrow Highway; extending to just south of Interstate 10; east of San Antonio Channel; and west of Monte Vista Avenue in the city of Montclair. The San Antonio Channel is located immediately west of the recharge basins. The Longitude of the area is approximately 117º42'25" and the Latitude is approximately 34º05'00" (Ontario 7.5' USGS Topographic Map).

3. Seventh and Eighth Street Basins: These recharge area consists of two basins located in a series (from north to south) beginning immediately south of 8th Street; extending to just north of Interstate 10; west of Grove Street; and east of Campus Avenue in the City of Ontario. The West Cucamonga Creek channel enters the upper (northern) basin adjacent to 8th Street and exists at the southern end of the lower basin. The Longitude of the area is approximately 117°37'45" and the Latitude is approximately 34°05'10" (Ontario 7.5' USGS Topographic Map).

4. Upland Basin: This basin is located at the southeast corner of Monte Vista Avenue and Arrow Route in the City of Montclair. San Antonio Creek channel is located immediately west of the basin. This site is located in the southwest 1/4 of Section 11, T1S, R8W, San Bernardino Base and Meridian (SBB&M). (Ontario 7.5' USGS Topographic Map).

5. Ely Basins: This recharge area consists of three basins, oriented east to west, located immediately north of Philadelphia Street; east and west of Vineyard Avenue; and east and west of Baker Avenue. The West Cucamonga Creek channel enters the western-most basin and exits the eastern most basin to flow about 1/2 mile to the east into Cucamonga Creek channel. The basins are located in the south 1/2 of Section 33 and 34, T1S, R7W, SBB&M. (Guasti 7.5' USGS Topographic Map).

6. Etiwanda Spreading Basins: This recharge area consists of a series (6-8) north to south oriented recharge basins located north and south of Summit Avenue; east of East Avenue; and west of Wardman Road in the City of Rancho Cucamonga. The Etiwanda Creek channel is located along the east side of this recharge area. The basins are located in the south 1/2 of Section 21 and the northeast 1/4 of Section 28, T1N, R6W SBB&M. (Cucamonga Peak 7.5' USGS Topographic Map).

7. Hickory Basin: This basin is located south of Whittram Avenue; east of Etiwanda Avenue; and west of Cottonwood Avenue. The San Sevaine Creek channel is located immediately west of the basin. This site is located in the southwest 1/4 of Section 10, T1S, R6W, SBB&M. (Guasti 7.5' USGS Topographic Map).

8. Lower Day Creek Basin: This basin is located south of Highland Avenue, east of Rochester Avenue and west of the Day Creek channel in the City of Rancho Cucamonga. This site is located in the northeast 1/4 of Section 31, T1N, R6W, SBB&M. (Cucamonga Peak 7.5' USGS Topographic Map).

9. San Sevaine Basins 1, 2 & 3: This recharge area consists of a series of three recharge basins oriented north to south located north of Interstate 15 and south of Summit Avenue; west of Cherry Avenue; and west of Interstate 15 in the City of Rancho Cucamonga. The San Sevaine channel (and a channel entering recharge Basin 3 from the Rich Basin) is located along the east side of this recharge area. The Basins are actually a series of 5 basins, as Basin No. 3 goes into Basin No. 4. The basins are located in the northeast 1/4 of Section 27 and the northwest 1/4 of Section 26, T1N, R6W, SBB&M. (Cucamonga Peak 7.5' USGS Topographic Map).

10. San Sevaine Basins 4 & 5: This recharge area consists of a series of two recharge basins oriented northeast to southwest located north of Interstate 15 and south of Summit Avenue; west of Cherry Avenue; and west of Interstate 15; and north of the new I-210 Freeway in the City of Rancho Cucamonga. The San Sevaine channel is located east of this recharge area and Basin No. 5 outlets into San Sevaine Channel. The Flood Control Channel from north of Highland Avenue/I-30 (210) Freeway to Foothill Boulevard is a double parallel channel. The east channel is San Sevaine Channel, the west channel is Etiwanda Channel. At Foothill Boulevard, San Sevaine Channel continues due south, existing Etiwanda Channel continues southwest in its historic flow path. The District's san Sevaine Creek Water Project will provide a RCB culvert at Foothill Boulevard to combine the San Sevaine and Etiwanda Channel flows into a single channel to the san Bernardino/Riverside County line. The RCB culvert will be the last item of work constructed for the the San Sevaine Creek Water Project. The basins are located in the south 1/2 of Section 27, T1N, R6W, SBB&M. (Cucamonga Peak 7.5' USGS Topographic Map).

11. Turner Basin No. 1: This basin is located between the Cucamonga Creek and Deer Creek Channel, between Vineyard Avenue and Archibald Avenue, south of 4th Street and north of Inland Empire Boulevard in the City of Ontario. The Cucamonga Creek channel is located immediately west of this recharge basin. The basin occupies part of Section 22 of T1S, R7W, SBB&M. (Ontario 7.5' USGS Topographic Map).

12. Turner Basins 2, 3 and 4: This recharge area consists of three recharge basins located between the Deer Creek channel and Archibald Avenue, south of 4th Street and north of Inland Empire Boulevard in the City of Ontario. The Deer Creek channel is located immediately north and west of this recharge basin. The basin occupies part of Section 22 of T1S, R7W, SBB&M. (Ontario 7.5' USGS Topographic Map).

13. Victoria Basin: This basin is located north of Victoria Avenue and west of Interstate 15; west of East Avenue and west of the Etiwanda and San Sevaine channels in the City of Rancho Cucamonga. This site is located in the northeast 1/4 of Section 33, T1N, R6W, SBB&M. (Cucamonga Peak 7.5' USGS Topographic Map).

14. Banana Basin: This basin is located west of Cherry Avenue; immediately south of Whittram Avenue; north of California Speedway and east of Calabash Avenue in the City of Fontana. This basin receives its storm water from an unnamed channel that enters the site from the north. The basin occupies part of Section 10 of T1S, R6W, SBB&M. (Fontana 7.5' USGS Topographic Map).

15. Declez Basin: This basin is located east of Mulberry Avenue; immediately south of Philadelphia Street; and north of the Jurupa Mountains in an unincorporated portion of Riverside County. This basin receives its storm water from the Declez Channel that enters the recharge basin from the north. The basin occupies part of Section 3 of T2S, R6W, SBB&M. (Guasti 7.5' USGS Topographic Map).

16. Etiwanda Conservation Ponds: This series of shallow basins/ponds are located at the southeast corner of the intersection of Etiwanda Avenue and San Bernardino Avenue in an unincorporated portion of San Bernardino County. These basins can receive runoff from Etiwanda Creek and the San Sevaine Channel. The ponds occupy about 40 acres located in the northeast 1/4 of Section 21, T1S, R6W, SBB&M. (Guasti 7.5' USGS Topographic Map).

17. Jurupa Basin: This basin is located west of Mulberry Avenue; east of Etiwanda Avenue; immediately north of Jurupa Avenue; and south of Santa Ana Avenue in the City of Fontana. This basin receives its storm water from the San Sevaine Channel which is located immediately west of the basin. The basin is located in the southeast 1/4 of Section 28, T1S, R6W, SBB&M. (Guasti 7.5' USGS Topographic Map).

18. Wineville Basin: This basin is located between Interstate 15 and Wineville Avenue, north of Philadelphia Street and south of Jurupa Street in the City of Ontario. This basin receives its storm water from both the Day Creek channel (northeast corner of the basin) and Etiwanda Creek channel (east side of the basin). The flows from these two channels are combined and storm water is discharged to the south down the Day Creek channel. The basin is located in the northeast 1/4 of Section 31, T1S, R6W, SBB&M. (Guasti 7.5' USGS Topographic Map).

19. College Heights Basins: Two existing abandoned quarries are located at the northeast corner of Arrow Route and Monte Vista Avenue intersection in an unincorporated area of San Bernardino County. These two quarries are divided by the San Antonio Creek channel which would provide storm water for recharge to these two prospective basins. The basins are located in the northwest 1/4 of Section 11, T1S, R8W, SBB&M. (Ontario 7.5' USGS Topographic Map).

20. RP-3 Basins: The closed Regional Plant No. 3 site is located at the southwest corner of Jurupa Avenue and Beech Avenue intersection in the City of Fontana. Several recharge basins are proposed to be constructed at the RP-3 project site which would receive storm water flows from the Declez Channel, which is located immediately south of the project site. The proposed basins would be located in the northeast 1/4 of Section 35, T1S, R6W, SBB&M. (Fontana 7.5' USGS Topographic Map).

As previously noted, the physical and operational changes to the basins in support of the implementation of storm water and imported water recharge were previously reviewed and approved at a hearing held on October 3, 2001 before the Board of Directors of the Inland Empire Utilities Agency. At that time the IEUA Board made a CEQA finding that the potential impacts from implementing improvements and/or modifications to these basins and the recharge of up to 145,800 acre-feet per year of storm water and State Project Water (SPW) would fall within the scope of the environmental impacts identified in the OBMP PEIR. The long-term annual average storm water and SPW recharge forecast to occur is 70,000 AFY.

Table 3-12 summarizes the estimated "Potential Recharge Capacity" of the recharge basins in acre-feet per year. Note that the total estimated recycled water recharge ranges between 18,790 and 23,700 AFY, which is the same annual range as the estimated volume of storm water that can be recharged annually. The improvements that have already been approved at the basins are summarized in detail in Appendix 1 to this document. For additional detail the reader is referred to the "Recharge Master Plan Phase II Report" adopted by the Watermaster in August 2001, prepared by Wildermuth Environmental, Inc. and Black & Veatch Corporation and IEUA's "Recycled Water

System Feasibility Study," January 2002. A copy of these reports is available at the IEUA Fontana office referenced above.

Table 3-12
Basin Recharge Capacities and Costs

Recharge Facility	Mgmt Zone	Potential Recharge Capacity (acre-ft/yr)[1]			Project Capital Cost
		Storm water	Imported Water	Recycled Water[2]	
Existing Basins					
Brooks Street Basin	1	1,600 to 1,800	2,200 to 3,300	1,600 to 1,800	$1,466,000
Montclair Basin Nos. 1-4	1	2,100 to 2,100	10,300 to 15,300	2,100 to 2,100	$1,858,000
Seventh and Eight Street Basin	1	1,100 to 1,600	1,400 to 2,100	1,100 to 1,600	$2,048,000
Upland Basin	1	1,000 to 1,000	5,800 to 8,700	1,000 to 1,000	$1,205,000
Ely Basins	2	2,300 to 2,800	3,400 to 5,100	2,300 to 2,800	$2,686,000
Etiwanda Spreading Basins	2	1,200 to 1,700	5,800 to 8,600	1,200 to 1,700	$523,000
Hickory Basin	2	600 to 900	3,100 to 4,600	600 to 900	$2,340,000
Lower Day Creek Basin	2	400 to 500	2,800 to 4,200	400 to 500	$2,540,000
San Sevaine Basin Nos. 1-3	2	1,420 to 1,700	15,200 to 22,700	1,420 to 1,700	$783,000
San Sevaine Basin Nos. 4 and 5	2	400 to 500	5,400 to 8,100	400 to 500	$4,123,000
Turner Basin No. 1	2	700 to 900	600 to 900	700 to 900	$3,995,000
Turner Basin Nos. 2, 3, 4	2	1,300 to 1,800	2,300 to 3,400	1,300 to 1,800	$3,364,000
Victoria Basin	2	800 to 1,000	3,400 to 5,100	800 to 1,000	$589,000
Banana Basin	3	600 to 800	2,400 to 3,600	600 to 800	$3,134,000
Declez Basin	3	200 to 300	1,200 to 1,800	200 to 300	$2,049,000
Etiwanda Conservation Ponds	3	8,000 to 1,100	3,900 to 5,800	800 to 1,100	$3,118,000
Jurupa Basin	3	500 to 700	800 to 1,200	500 to 700	$1,700,000
Wineville Basin	3	500 to 700	700 to 1,100	500 to 700	$2,884,000
New Basins					
College Heights Basin	1	70 to 100	5,300 to 7,900	70 to 100	$5,625,000
RP-3 Basins	3	1,200 to 1,700	5,800 to 8,600	1,200 to 1,700	$5,595,000
TOTAL	—	**18,790 to 23,700**	**81,800 to 122,100**	**18,790 to 23,700**	**$51,625,000**

(1) Based on optimum recharge operations.
(2) Availability of recycled water was assumed to be equal to the potential storm water recharge capacity. IEUA will refine upon further development.

Source: OBMP Recharge Master Plan Phase II Report, Black & Veatch and Wildermuth Environmental, Inc., August 2001

3.3.2.3 Improvements Necessary to Support the Recycled Water Program

The physical components of the regional recycled water program necessary to recharge recycled water include physical modifications to the 18 basins and to the two new basins. Typical modifications to support the recycled water recharge program include extension of pipelines a minor distance from the trunk distribution lines to the basins; controlled inlets in some cases; outlet structures; and construction of several new monitoring wells. The IEUA Regional Recycled Water Distribution System includes adding extensive recycled water pipelines or pipeline segments, and several pump stations and reservoirs. As noted above, the local recycled water pipelines include those pipelines that extend from distribution pipelines to locations for reuse, such as the recharge basins, irrigation systems and direct consumers of the recycled water. The physical changes to the individual basins are summarized below. 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.

A cumulative summary of physical modifications (such as total length of pipeline) is presented at the end of Section 3.3.B of this document.

a. Pump Stations

The most important features of the Regional Recycled Water Distribution System are the RP-1/RP-4 pump stations, which will be located at both respective RPs. The pump stations will be installed during Phase I and will have the capacity to deliver 50,000 to 60,000 AFY of recycled water to all areas of the IEUA service area. Separate environmental review has been conducted for the RP-1/RP-4 pump stations. An additional pump station is proposed to be installed during Phase I. A booster station will be installed at RP-5 (8,000 gpm).

During Phase I, a pump station (5,100 gpm) will be installed at the Jurupa Basin to transfer storm water, imported water and recycled water east to the RP-3 site.

No pump stations are proposed for installation during Phase III.

In Phase IV, two pump stations (three pumps each) will be added. One pump station will be located at a new Etiwanda facility (12,000 gpm) and another at a location on Benson Avenue (2,600 and 2,000 gpm).

In Phase V, one pump station will be located in the Montclair area (6,800 gpm).

b. Storage Reservoirs

In conjunction with the new pump station at the Jurupa Basin, a new reservoir (2.5 MG of storage) will be installed during Phase I. This reservoir is proposed to be located at Jurupa Avenue and Mulberry Avenue, at an elevation of 900 feet above sea level. It is needed to pressurize the Jurupa Regional Pipeline system from the Jurupa Basin to the RP-3 site and to serve Fontana-4 Local Lateral.

In Phase II, IEUA proposes to install an approximately 2.5 MG storage reservoir for recycled water at the RP-4 site.

No storage reservoirs are proposed for installation during III of IEUA's program.

In Phase IV, two reservoirs are proposed for installation. At the Etiwanda site a 1.2 MG reservoir is proposed for installation and a 4.25 MG storage reservoir will be installed at the Benson Avenue site.

In Phase V, an additional recycled water storage reservoir would be installed at a new location in the City of Montclair. It would store up to 4.25 MG of recycled water.

c. Groundwater Recharge Basins – Coordination of Flood Control Usage and Imported Water and Recycled Water

Currently, the Chino Basin Watermaster (CBWM), the San Bernardino County Flood Control District (SBDFCD), the Chino Basin Water Conservation District (CBWCD) and the IEUA are improving the groundwater recharge basins within the Chino Basin to increase the capture and recharge of storm water and imported water. This effort is being funded, in part by Proposition 13 funds, and in part by local funds on a 50/50 basis. This project (the Chino Basin Recharge Facilities Improvement Project) began with identification of the need to improve the recharge capability in the Chino Basin when the Optimum Basin Management Program (OBMP) and its associated Program Environmental Impact Report were completed in July 2000 and was further developed with completion of the OBMP Recharge Master Plan and its associated environmental documentation in August 2001.These improvedments are part of the RFIP which has already been approved and is currently being implemented.

Under the Chino Basin Judgment, and as part of the OBMP and Recharge Master Plan, recycled water has always been considered as a potential high quality, reliable, economic source of new water for the Chino Basin. Projected quantities and qualities were considered during development of the OBMP and Recharge Master Plan. However, the issues of what specific times and how much recycled water would be recharged were not addressed, primarily because the basin improvements to increase the capture of storm water and recharge of imported water were planned irrespective of whether recycled water would some day be a source of water for recharge at a particular basin.

As part of the Facilities Improvement Project, the flow-through basins in specific channels and the flow-by basins will be enlarged. This will increase the ability to control flood waters and will, in turn, enhance the groundwater storage in the Chino Basin. The best quality water and the most economical source of water in the Chino Basin is generally storm water. Capture of additional storm water and improved ability to recharge to the aquifer in the Basin is a major goal of the Chino Basin OBMP, Program Elements 2, 3 and 8. Under the OBMP and the Recharge Master Plan, it was anticipated that storm water recharge would be used to mitigate or offset the higher total dissolved solids in the recharge of recycled water.

Several groundwater recharge basins have been developed within the streams or channels for flood control. These flow-through facilities include: the San Sevaine Basins – 1 through 5, Etiwanda Spreading Basins, Hickory and Banana basins, the 8th Street basins (formerly known as the 7th & 8th Street Basins), and Jurupa and Wineville Basins. Additionally, 13 flow-by basins have been developed too. All of the 20 recharge locations with 47+ basins will be used to capture, store and recharge storm water, with surplus water released to the flood control channels on a controlled basis. These same basins will be used to recharge imported and recycled water during the dry seasons and during lull periods when storms are not forecast. Generally, imported water will be recharged from October through April, the wet season, unless it is available and needed in the dry season.

Operation of the Basins Through proper management, the quantity of imported or recycled water in the basins will be highly controlled when a storm event is forecast, thereby assuring flood control as top priority. Proper management will also avoid the need to release and lose water from the basins; this will be accomplished based on criteria established for each recharge location that will be agreed upon by the entities involved. A System Control and Data Acquisition system (SCADA) will be installed at each basin to control inlets, and where possible outlets, and to monitor the amount of water in a basin. When a storm is forecast for the Inland Empire area, delivery of imported and/or recycled water to the respective basins will be discontinued. The remaining water will be allowed to percolate in anticipation of the storm.

Since all water discharged from the Chino Basin is typically recharged by the Orange County Water District, it is not likely that water will be pumped to the sanitary server system. Also, there are no plans to dewater imported water from basins at the present time, since it is anticipated that close coordination and storm even monitoring with the SBFCD coupled with appropriate maintenance will negate any need for this to occur.

Table 3-13
Diversion Structures – Peak Discharge to Flow-By-Basins & Conservation Storage

BASIN RECEIVING DIVERTED FLOW	DIVERSION LOCATION	PEAK DIVERSION FLOW, CFS*	PEAK DIVERSION FLOW, AFD*	Basin Acreage & Depth	Conservation Storage*** Acre Feet
College Heights Basins (SE&SW)	San Antonio Channel	100	198.3	22.0 ac. / 30'	293
Brooks Street	San Antonio Channel	100	198.3	7.7ac. / 60'	505
Etiwanda Conservation Basins	Local flows & Lower Etiwanda Creek Channel	0	0	20.0 ac. / 15'	300
Montclair Basins 1,2,3, & 4	San Antonio Creek Channel	100	198.3	28.2 ac. / 40'	1128
Turner No. 1 2 inlets – Storm & Imported Water	Cucamonga & Deer Creek Channel	150 & 100	297.5 & 198.3	6.2 ac. / 35'	217
Turner No. 2, 3, & 4 Basins	Deer Creek Channel	100	198.3	23.3 ac. / 35'	816
Victoria Basin	Etiwanda and San Sevaine Creek Channel	110	218.2	11.8 ac. / 25'	295
RP-3	Declez Channel	150	297.5	40 ac. / 15'	600
Upland Basin	San Antonio Creek Channel	100	198.3	10.1 ac. / 55'	555
Total – New Storm Water Conservation Storage – AF for flow-by Basins					4,709

*1 cfs = 646,320 gallons per day (gpd) = 1.983 acre feet per day (afd)
**1 acre foot = 325,900 gallons
***Conservation Storage = the acre-feet of storm water that can be safely stored in a basin without endangering the side slopes of the facility

d. Potential Increased Downstream Flood Hazards

Under the CBWM OBMP, operation and maintenance of each site's respective basins will receive greater attention than in past years. The 20 groundwater recharge locations with the 47+ recharge basins are being redeveloped to capture and store greater quantities of storm water.

Table 3-13 above lists the proposed new diversion flow rates for nine flow-by basins currently being developed as part of the approved basin improvements. These basins have not been fully utilized in the past to reduce flood hazards. This table present draft information compiled form preliminary results of analyses conducted under the RFIP. These values may be subject to change based on actual operating experience.

Table 3-14
Peak Retention Uses for Flow-Through-Basins & Conservation Storage

BASIN RECEIVING DIVERTED FLOW	DIVERSION LOCATION	Basin Acreage & Depth	Conservation Storage*** Acre Feet
Banana Basin	West Fontana Channel	6.2 ac. / 12'	65
8th Street Basins 1 & 2	West Cucamonga Channel	14.5 ac. / 10'	145
Declez Basin	Declez Channel	6.0 ac. / 20'	120
Ely Basins 1,2 & 3	Deer Creek & Cucamonga Channel	35.7 ac. / 15'	522
Etiwanda Spreading Basins	Etiwanda Creek Channels	10.0 ac. / 10'	100
Hickory Basin	West Fontana Channel & San Sevaine Channel	8.0 ac. / 15'	120
Jurupa Basin	Mulberry Creek & San Sevaine Channels	39.0 ac. / 30'	1,170
Lower Day Basin	Day Creek Channel	14.4 ac. / 60'	864
San Sevaine Basins 1, 2, & 3	San Sevaine Channel	33.6 ac. / 20'	672
San Sevaine Basins 4 & 5	San Sevaine and Etiwanda Channels	56.5 ac. / 20'	1,130
Wineville Basin	Lower Etiwanda Creek Channel	36.0 ac. / 30'	1,080
Total – Flood Conservation Storage – AF flow through basins			5,992

*1 cfs = 646,320 gallons per day (gpd) = 1.983 acre feet per day (afd)
**1 acre foot = 325,900 gallons
***Conservation Storage = the acre feet of storm water that can be safely stored in a basin without endangering the side slopes of the facility

The eleven flow-through basins are planned to be enlarged and SCADA control equipment will be installed to instantaneously monitor each basin. These same activities are planned for the flow-by basins. Table 3-14 lists the peak retention uses for the 11 flow-through basins and conservation storage. The benefits are two-fold: (1) the ability to control greater quantities of flood water – the capture, storage and release under improved controlled conditions; and (2) the ability to recharge greater quantities of storm water, thereby improving the quality of groundwater and the resultant cost savings from reduced quantities of imported State Project Water needed to meet the growth needs of the residents, industries and farmers of the Chino Basin. The Jurupa and Wineville basins have very low percolation rates, thus, these two basins will continue to be used as retention basins to control flood hazards and Jurupa Basin will be used as an intermittent reservoir to transfer water to RP-3. This table present draft information compiled form preliminary results of analyses conducted under the RFIP. These values may be subject to change based on actual operating experience .

Thus, there will be no net increase in flood hazard with the redevelopment of both flow-through and flow-by groundwater recharge basins.

e. Adequacy of percolation capacity at each basin to receive and recharge storm water, imported water and recycled water.

Many of the Chino Basin groundwater recharge basins have already undergone preliminary geological evaluation as part of the Facilities Improvement Project. It is anticipated that all major capital improvements (primarily inlet/outlet works and SCADA systems) for storm water and imported water will be complete or under construction by June 30,2003. It is anticipated that recycled water will percolate at near the same rates as storm water and imported water. The Basins are not planned for recharge (Jurupa and Wineville as noted above) if their projected percolation rates are not adequate to justify further development at this time. If in the future, methods are developed to increase percolation rates, further consideration may be given to development of undeveloped basins as that time. Table 3-15 lists each basin's percolation rate as developed for the RWMP. The percolation rate, the positioning within the Chino Basin and the ease of redevelopment will be used in determining priority for redevelopment of the respective basins.

The hydrogeologic studies have been completed at each groundwater recharge basins as part of the ten percent preliminary engineering design study. Soils stratification has been characterized to assess percolation capacity of each recharge basin. The capability to recharge at the various sites ranges from a high of 36 inches per day at the Upland Basin, the RP-3 site and the Etiwanda Spreading Grounds, the latter two basins are near mountainous outcroppings. The ability to recharge diminishes to 0.05 inches per day at the Jurupa and Wineville basins.

The RP-3 site has eight, 5-acre recharge basins as an initial conceptual design, and if properly managed has the capability of recharging up to 36,000 AFY, assuming the site would be operated a minimum of 300 days per year. Imported and recycled water would be delivered to the RP-3 facility via a pump station located in a wet well or pump constructed in the Jurupa Basin to an IEUA Regional Recycled Water Distribution System pipeline. The Upland Basin is located on the west side of the Chino Basin and would receive imported water delivered via theCB-59T Metropolitan connection once the imported water inlets are constructed under the RFIP; recycled water could ultimately be pumped to the site through the IEUA Regional Recycled Water Distribution System. Imported water will flow to the Etiwanda Spreading Grounds from a MWD, Foothill Feeder pipeline via the Etiwanda Creek Channel. Delivery of recycled water will require pumping the resource to the site, thus the cost effectiveness of delivering recycled water to the site needs to be evaluated in depth.

Table 3-15

Percolation Rates from Redevelopment of the Basins

BASIN RECEIVING DIVERTED FLOW	CHANNEL OR STREAM SOURCE	TOTAL SPREADING AREA (ACRES)	INFILTRATION RATE FEET/DAY	RECHARGE CAPACITY (AF/DAY)	Recharge Capacity* (AF**/yr.)
Banana Basin	West Fontana Channel	6.2	2.0	12.4	3,750
Brooks Street	San Antonio Channel	7.7	1.5	11.55	3,500
College Heights	San Antonio Channel	22.0	2.5	55	16,500
Declez Basin	Declez Channel	6.0	5.9	35.4	10,600
Ely Basins 1, 2, & 3	Cucamonga & Deer Creek Channels	35.7	0.5	17.9	5,400
Etiwanda Spreading Grounds	Etiwanda Creek Channel	20.0	3.0	60.0	18,000
Etiwanda Conservation Basins	Local Runoff Channel	20.0	1.0	20	6,000
Hickory Basin	West Fontana Channel	8.0	2.0	16.0	4,800
Jurupa Basin	San Sevaine Channel	39.0	0.05	2.0	600
Lower Day Basin	Day Creek Channel	14.4	1.0	14.4	4,320
Montclair Basins 1,2,3, & 4	San Antonio Creek Channel	28.2	2.0	56.4	16,920
RP-3	Declez Channel	40.0	3.0	120	36,000
8th Street Basins	Cucamonga Channel	14.5	2.3	33.4	10,050
San Sevaine Basins No's 1,2,3,	San Sevaine Channel	33.6	0.5	17	5,100
San Sevaine Basin No. 4 & 5	San Sevaine Channel	56.5	0.3	17	5,100
Turner No. 1	Cucamonga Channel & Deer Creek Channel	6.2	0.5	3.1	930
Turner No. 2, 3, & 4	Deer Creek Channel	23.3	2.9	68	20,400
Upland Basin	San Antonio Creek Channel & local runoff	10.1	3.0	30.3	9,090
Victoria	Etiwanda Creek Channel	11.8	1.5	17.7	5,300
Wineville Basin	Day Creek Channel & Lower Etiwanda Creek Channel	36.0	0.05	1.8	540
Total Percolation Rates – AF					177,800

*Assumes 300 days per year operation
**1 acre foot = 325,900 gallon

1. Installation of a 900-foot pipeline from the proposed Regional Montclair 4 Recycled Water Pipeline within Ramona Street. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 22,500 square feet, or 0.52 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-21.

The other recharge basins will receive storm water, imported water and recycled water in a similar manner to the basins described above. Storm water and imported water will be delivered via existing natural drainage channels, while recycled water will be delivered through a series of IEUA Regional Recycled Water Distribution System pipelines. It has been proven that the Jurupa and Wineville Basins are underlain with clay layers limiting the rate of percolation to less than 0.01 feet per day. These two basins are flow through basins and are needed for flood control purposes. The Jurupa Basin will also serve for a holding basin for storm water, imported water and recycled water that will be pumped via a pipeline to the RP-3 site. It is not anticipated that any basins along the An Antonio Channel (Brooks, Montclair, College Heights and Upland) will receive anything but incidental storm water from the San Antonio Channel as all storm water in this channel is currently being fully utilized by upstream users. Any waters into the basins would be strictly incidental. The basins will receive imported water from the CB-59T Metropolitan connection once the imported water inlets are constructed under the RFIP.

A combination of storm water, imported water and recycled water equaling 177,800 acre feet per year is calculated to be able to be recharged at the 20 locations with 47 or more recharge basins, helping to meet the projected 20-year needs of the CBWM OBMP.

f. <u>Improvements at Individual Recharge Basins</u>

Brooks Street Basin

The estimated basin capacity for recycled water is 920 AFY. The proposed improvements to the Brooks Street Basin for recycled water are shown on Figure 3-21 and include

Montclair Basins

The estimated capacity for recycled water for the Montclair Basins is 2,655 AFY. The proposed improvements to the Montclair Basins for recycled water are shown on Figure 3-22 and include:

1. Installation of 2,200-feet of pipeline from the Montclair 1 Regional Recycled Water Pipeline to the Montclair Basin Nos. 1-4 within Monte Vista Avenue. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 55,000 square feet, or 1.26 acre.
2. Construction of an inlet structures to the basins as shown on Figure 3-22.

7th and 8th Street Basins

The estimated capacity for recycled water for the 7th and 8th Street Basins is 683 AFY. The proposed improvements to the 7th and 8th Street Basins for recycled water are shown on Figure 3-23 and include:

1. Installation of a 1,200-foot lateral from the Grove Regional Recycled Water Pipeline to the 8th Street Basin southerly of 8th Street. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 30,000 square feet, or 0.69 acre.
2. Construction of an inlet structure to the 8th Street Basin as shown on Figure 3-23

Upland Basin

The estimated capacity for recycled water is 1,484 AFY. The proposed improvements to the Upland Basin for recycled water are shown on Figure 3-24 and include:

1. Installation of a 400-pipeline from the Montclair 1 Regional Recycled Water Pipeline to the Upland Basin within Monte Vista Avenue. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 10,000 square feet, or 0.23 acre.
2. Construction of an inlet structure to the Upland Basin as shown on Figure 3-24.

Ely Basins

The estimated capacity for recycled water for the Ely Basins is 1,427 AFY. The proposed improvements to the Ely Basins for recycled water are shown on Figure 3-25 and include:

1. Installation of a 2,000-foot lateral from the proposed Regional Recycled Water Pipeline to the Ely Basin No. 3. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 50,000 square feet, or 1.15 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-25.
3. A monitoring and gate control system (SCADA) will be installed at the outlet works (previously approved).

Etiwanda Spreading Basins

The estimated basin capacity for recycled water is 1,630 AFY. The proposed improvements to the Etiwanda Spreading Basins for recycled water are shown on Figure 3-26 and include:

1. Installation of a 1,300-foot pipeline connecting the Wilson Recycled Water Reservoir to the Etiwanda Spreading Basins. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 32,500 square feet, or 0.75 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-26.

Hickory Basin

The estimated capacity for recycled water is 861 AFY. The proposed improvements to the Hickory Basin for recycled water are shown on Figure 3-27 and include:

1. Installation of a 700-foot pipeline connecting the Whittram Avenue Regional Recycled Water Pipeline to Hickory Basin within the Whittram Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 17,500 square feet, or 0.40 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-27.

Lower Day Creek Basin

The estimated capacity for recycled water is 711 AFY. The proposed improvements to the Lower Day Creek Basin for recycled water are shown on Figure 3-28 and include:

1. Installation of a 200-foot lateral pipeline connecting the Wineville Regional Recycled Water Pipeline to the Lower Day Creek Basin within the Rochester Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 5,000 square feet, or 0.11 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-28.

San Sevaine Basins 1, 2 and 3

The estimated basin capacity for recycled water (in acre feet per year) is 3,595 AFY. The proposed improvements to the San Sevaine Basins 1, 2 and 3 for recycled water are shown on Figure 3-29 and include:

1. Installation of a 1,500-foot lateral from the proposed North Etiwanda Regional Recycled Water Pipeline to the Basins along the Interstate 15 right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 37,500 square feet, or 0.86 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-29.

San Sevaine Basins 4 and 5

The estimated basin capacity for recycled water is 1,275 AFY. The proposed improvements to the San Sevaine Basins 4 and 5 for recycled water are shown on Figure 3-30 and include:

1. Installation of a 400-foot lateral pipeline connecting the North Etiwanda Regional Recycled Water Pipeline to Basin No. 5. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 10,000 square feet, or 0.23 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-30.

Turner Basin 1

The estimated capacity for recycled water is 341 AFY. The proposed improvements to Turner Basin No. 1 for recycled water are shown on Figure 3-31 and include:

1. Installation of a 300-foot lateral pipeline from the 4th Street Regional Recycled Water Pipeline to the basin within the 4th Street right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 20,000 square feet, or 0.46 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-31.
3. Bore and jack a pipeline under the Deer Creek Channel for an estimated distance of 100-feet.

Turner Basins 2, 3 and 4

The estimated basin capacity for recycled water is 924 AFY. The proposed improvements to the Turner Basins 2, 3 and 4 for recycled water are shown on Figure 3-32 and include:

1. Installation of an 800-foot lateral pipeline from the 4th Street Regional Recycled Water Pipeline to the basin within the 4th Street right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 7,500 square feet, or 0.17 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-32.

Victoria Basin

The estimated capacity for recycled water is 956 AFY. The proposed improvements to the Victoria Basin for recycled water are shown on Figure 3-33 and include:

1. Installation of a 200-foot lateral pipeline connecting the proposed North Etiwanda Regional Recycled Water Pipeline to the basin adjacent to the Interstate 15 right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 5,000 square feet, or 0.11 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-33.

Banana Basin

The estimated capacity for recycled water is 705 AFY. The proposed improvements to the Banana Basin for recycled water are shown on Figure 3-34 and include:

1. Installation of a 100-foot pipeline connecting the Whittram Avenue Regional Recycled Water Pipeline to the Banana Basin within the Whittram Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 2,500 square feet, or 0.06 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-34.

Declez Basin

The estimated capacity for recycled water is 309 AFY. The proposed improvements to the Declez Basin for recycled water are shown on Figure 3-35 and include:

1. The proposed Regional Recycled Water Pipeline from Jurupa Basin to the RP-3 Basins will deliver recycled water to the RP-3 site. Recycled water will then be discharged to the Declez Channel, which will flow to the Declez Basin for recharging to the Basin Aquifer.
2. Construction of an inlet structure to the basin as shown on Figure 3-35.

Etiwanda Conservation Ponds

The estimated capacity for recycled water is 1,079 AFY. The proposed improvements to the Etiwanda Conservation Ponds for recycled water are shown on Figure 3-36 and include:

1. Installation of a 50-foot lateral pipeline connecting the proposed 4th Street Regional Recycled Water Pipeline to the basin within the 4th Street right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 1,250 square feet, or 0.03 acre.
2. Construction of an inlet structure to the ponds as shown on Figure 3-36.

Jurupa Basin

The estimated capacity for recycled water was thought to be as much as 1,646 AFY in the Recharge Master Plan. Subsequent geotechnical investigations indicate it has very low percolation rates. It is now planned to serve as a transfer point for storm water and imported water to the RP-3 and Declez Basins. The proposed improvements to the Jurupa Basin for recycled water are shown on Figure 3-37 and include:

1. Installation of a 200-foot lateral pipeline connecting the Jurupa Regional Recycled Water Pipeline to the basin within the Mulberry Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 5,000 square feet, or 0.11 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-37.

Wineville Basin

The estimated capacity for recycled water was thought to be as much as 321 AFY in the Recharge Master Plan. Subsequent geotechnical investigations indicate it has very low percolation rates. Utilization of this basin for recharge will be deferred to the final phase of the project, after additional geotechnical investigations are completed or when more cost effective methods of improving recharge are developed. The proposed improvements to the Wineville Basin for recycled water are shown on Figure 3-38 and include:

1. Installation of a 200-foot lateral pipeline connecting the Wineville Regional Recycled Water Pipeline to the basin within the Wineville Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 5,000 square feet, or 0.11 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-38.

College Heights Basins

The estimated capacity for recycled water is 2,264 AFY. The proposed improvements to the College Heights Basins for recycled water are shown on Figure 3-39 and include:

1. Installation of a 1,000-foot pipeline from the Montclair 1 Regional Recycled Water Pipeline to the basin within the Monte Vista Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 25,000 square feet, or 0.57 acre.
2. Construction of up to two inlet and structures and an outlet structure to the basin as shown on Figure 3-39.

RP-3 Recharge Basins

The estimated capacity for recycled water is 1,243 AFY. The proposed improvements to the RP-3 Recharge Basins for recycled water are shown on Figure 3-40 and include:

1. Installation of a 600-foot pipeline from the proposed Regional Recycled Water Pipeline to the basins within the Jurupa Avenue right-of-way. Assuming a construction area width of 25 feet, the total area of disturbance is estimated to be 15,000 square feet, or 0.34 acre.
2. Construction of an inlet structure to the basin as shown on Figure 3-40.

Over the 14-month period, it is assumed that the following physical changes to the basins discussed above will be made:

1. Where needed, inlets to the basins will be installed to allow site specific management of the basins to enhance recharge of storm water, imported water and recycled water. Some inlets will be multi-purpose, serving all three sources of water. Other specific inlets will be constructed to deliver recycled water only.
2. An estimated total of 16,150 lineal feet of new pipeline and laterals will be installed to convey recycled water to basins or ponds.
3. The maximum total area under disturbance at any given time is estimated to be 9.19 acres assuming the acreages of disturbance outlined above.
4. Operations and management agreement will be developed between the IEUA, the SBCFCD, CBWCD and the Watermaster. This will ensure that no conflicts occur between flood control management objectives and storm water, imported water and recycled water conservation efforts at each basin.
5. The total potential volume of recycled water proposed for these basins is storm water: 18,790 to 23,700 AFY, imported water: 81,800 to 122,100 AFY, and recycled water: 18,790 to 23,700 AFY.

Phase I construction will deliver recycled water to the largest, most convenient customers first, thereby helping to develop financial resources to continue the development and expansion of the remaining phases of the regional and local systems. Major industries and groundwater recharge basins will be the greatest users of recycled water in the beginning. IEUA will share the cost for developing the groundwater recharge basins with other agencies responsible for groundwater recharge, i.e., SBCFCD, CBWCD and the Watermaster.

g. <u>Regional Distribution System</u>

The IEUA Regional Recycled Water Distribution System will initially be developed in the central area of the Basin, where the greatest industrial demand is present and the greater number of groundwater recharge basins are located. Eventually over the next 10 years, as part of the five phases outlined above, the distribution system will reach as far north as the foothills in the northeast corner of the Basin. Some interest has been expressed by one agency outside the service area, JCSD, in purchasing and using recycled in its service area immediately southeast of the IEUA boundary. This will be considered as part of the overall recycled water management program for the Chino Basin. Figure 3-41 (back pocket of this document) shows the various components of the regional recycled water distribution system. One of the proposed recycled water pipelines, Wineville Avenue Regional Pipeline, has already completed its CEQA review and is in the process of being approved for construction.

Proposed Pipeline Improvements

<u>4th Street Distribution Line</u>

Based on the IEUA recycled water market survey, the logical point to begin immediate expansion of the IEUA Regional Recycled Water Distribution System is in the central portion of the Basin, the proposed 4th Street distribution line. This line would form Pressure Zone No. 3. The line would inter-connect centrally in the Basin and would serve several potential major industrial users. Additionally, several of the groundwater recharge basins are located near the alignment of the 4th Street distribution line. The 4th Street Regional Pipeline will be implemented under Phase 1, which includes a 30-inch diameter 39,000 lineal foot (LF) pipeline. This pipeline will also allow delivery to the six sets of groundwater recharge basins in the central area of the Chino Basin.

The 4th Street Regional Pipeline will be constructed in two phases, Phase I (2001 - 2003) and Phase II (2003 - 2004). The Arrow Route Regional Pipeline and 4th Street Regional Pipeline - Phase II, to be described later, will be coupled with the 4th Street Pipeline - Phase I, to deliver recycled water to the Turner Basins No. 1 through 4, the 7th and 8th Street Basins, College Heights Basins, Upland Basin, Brooks Street Basin, and Montclair Basins.

The recharge of recycled water in the above series of basins, progressing from east to west across the middle of the Basin, could reduce the demand for imported water from the State Water Project (SWP) by as much as 10,200 AFY. Thus, it is critical to the water purveyors of the Basin to construct the combination of the 4th Street pipeline, the Arrow Route pipeline and the 4th Street Regional Pipeline, Phase II as soon as possible.

Philadelphia Avenue Regional Pipeline

This pipeline is a 16-inch diameter line that will extend 6,285 lineal feet from RP-1 to the Ely Basins. It is a Phase I project that will also serve the new Ontario soccer fields and a new Kaiser Hospital building near the Ely Basins.

CCWRF/RP-5 Intertie Pipeline

The CCWRF/RP-5 Regional Pipeline, a 20-inch diameter pipeline extending 8,650 LF, will connect the existing north and south recycled water systems, joining the two systems together in Pressure Zone No. 1, Management Zone 3 (MZ-3). This is a Phase I recycled water pipeline project. The intertie will be part of the intertie between RP-1/RP-4 facilities, and will serve as a supplemental supply to the CCWRF and the new RP-5 facility, assuring a continuous uninterruptible supply of recycled water to the cities of Chino and Chino Hills. The regional pipeline serves as part of the intertie system of the existing north and south systems. No local laterals are projected for service from the CCWRF/RP-5 Regional Pipeline.

RP-5/RP-2 Intertie Pipeline

The RP-5/RP-2 Regional Pipeline, a 12-inch diameter pipeline extending 6,345 LF, will connect the interconnection of the existing north and south recycled water systems together in Pressure Zone No. 1. It is a Phase I project. The intertie will deliver water from the new RP-5 facility to the CCWRF recycled water system. The regional pipeline serves as part of the intertie system of the existing north and south systems. No local laterals are projected for service from the RP-5/RP-2 Regional Pipeline.

Pine Avenue Intertie Pipeline

The Pine Avenue Intertie would complete Pressure Zone No. 1 in the lowermost part of the Basin. The intertie would be constructed simultaneously with the lines forming Pressure Zone No. 3. It is a Phase I project. The intertie will provide additional recycled water to the lower area of the Chino Basin, plus serve as a backup for the CCWRF system when demands exceed the facility's capacity. Two industrial facilities, golf courses and parks are located in the area. The Pine Avenue Intertie Pipeline, a 16-inch pipeline extending 3,000 LF, is the last segment, completing the connection tying together the existing north and south recycled water systems, joining the two systems together in Pressure Zone No. 1. The intertie will deliver water from the RP-1/RP-4 distribution line to the RP-5/RP-2 Regional Pipeline connecting to the CCWRF recycled water system.

Etiwanda North Distribution Line, Phase I Segment

The Etiwanda North Regional Pipeline will be constructed in Phases I and II, and in four segments. The first reach, Phase I (2001 - 2003), a 48-inch pipeline extending 5,873 LF, will extend northward from the RP-4 outfall pipeline to Arrow Route for the short-term Phase I. The Arrow Route Pipeline and the 4th Street distribution pipelines will be connected to this section of the North Etiwanda Pipeline and will deliver recycled water from the east side of the service area to the western boundary of IEUA within Pressure Zone No. 3.

The next three reaches, Phase II (2003 - 2004), of the Etiwanda North Pipeline will eventually be extended northward over the next 4 years delivering recycled water to all northern pressure zones. Local laterals service from the Etiwanda North Regional Pipeline, Phase I includes a direct connection to Reliant Energy.

Interim Groundwater Recharge Project-Etiwanda Conservation Ponds Pipeline

The pipeline to the Etiwanda Conservation Ponds, located in the SCE power corridor, along Etiwanda Avenue between Valley Boulevard and San Bernardino Avenue (see Figure 3-41), covers only a short distance, less than 0.125 mile (~660 feet), from the RP-1 outfall pipeline to the groundwater recharge basins. It is a Phase I project. A decision to make a single tap into the outfall line or a series of taps will be decided in the final design phase of the Chino Basin Recharge Facilities Improvement Project. The lateral pipeline(s) will deliver 800 to 1,100 AFY of recycled water.

Jurupa Regional Pipeline

The Jurupa Regional Pipeline is a combined 20- and 16-inch diameter pipeline, located in MZ-3, and is an extension off of the Etiwanda South Regional Pipeline. The pipeline extends eastward along Slover Avenue to Mulberry Avenue and turns southward on Mulberry, then east along Jurupa Avenue to the RP-3 site Groundwater Recharge Basins (note that RP-3 is no longer in operation). It is a Phase I project, with Segment 1 (20") being approximately 9,489 LF and Segment 2 (16") being approximately 7,978 LF. The pipeline will deliver 1,646 AFY of recycled water to the Fontana-3 local lateral and to the RP-3 site. Additionally, excess storm water captured in the Jurupa Basin, and imported water collected therein, will be pumped to the RP-3 Groundwater Recharge Basins via the Jurupa Regional Pipeline for recharge to the aquifer. Local laterals service from the Jurupa Regional Pipeline include Regional (Jurupa Basin) and Fontana-3.

Whittram Regional Pipeline

The Whittram Regional Pipeline, a combination of 16- and 12-inch diameter pipeline, 8,630 LF, extending eastward along Whittram Avenue, will be fed off the North Etiwanda Pipeline between 7th Street and Arrow Route. It is a Phase I project with Segment 1 (16") being approximately 3,668 LF and Segment 2 (12") being approximately 5,099 LF. The pipeline will distribute recycled water for recharge in Hickory Basin and Banana Basin, plus irrigation water to the California Speedway. The pipeline would deliver 2,000 AFY to the four user sources; California Speedway, California Steel Industries, Hickory Basin and Banana Basin.

4th Street Regional Pipeline

The 4th Street Regional Pipeline, a Phase II project, is an extension of the 4th Street Regional Pipeline Phase I pipeline to the Turner Basins. The 4th Street Regional Pipeline will be a 24-inch diameter pipeline, extending westward 34,700 LF from the Turner Basins to Ramona Avenue on the west side of the IEUA service area. The 4th Street Regional Pipeline, Phase II, is proposed for construction in 2002 - 2003. Local laterals service from the 4th Street Regional Pipeline, Phase II, include: CCWD-6, Montclair-1 (Regional), Montclair-3 (Benson), Ontario-6, Ontario-7, Ontario-11, Ontario-12, Upland-1 and Upland-2.

Etiwanda North Distribution Line, Segment II

The Etiwanda North Regional Pipeline, Segment II, is an extension of the Phase I pipeline. It is a combined 36-, 24-inch pipeline. Segment II extends 5,912 LF (36"); Segment III is 3,325 LF (24"); and Segment IV is 11,469 LF (24"). Segment II extends northward from Arrow Route north to the I-15 Freeway. Segment III extends from I-15 north to Baseline Avenue serving the CCWD-13 lateral. Segment IV, the final section, extends to the San Sevaine Basins in the foothills of the San Gabriel Mountains. The pipeline will distribute recycled water to the future I-210 Freeway pipeline, to the CCWD 13 local lateral and the Fontana-1 local lateral. The future I-210 Freeway pipeline will deliver recycled water from the upper east side of the IEUA service area to the Agency's western boundary within Pressure Zones No's. 2 & 3.

The Etiwanda North Regional Pipeline, Segment II, is proposed for construction in Phase II with delivery of water planned for the summer of 2003. The pipeline will deliver an estimated 7,567 AFY of recycled water for groundwater recharge and irrigation. Local lateral service from the Etiwanda North Regional Pipeline, Segment 11 includes: Regional (San Sevaine & Rich), CCWD-13, CCWD-14 and Fontana -1.

Grove Avenue Regional Pipeline

The 12-inch diameter, 9,675 LF Grove Avenue Regional Pipeline, will draw from the 12-inch diameter, 4th Street Regional Pipeline, Phase II. The Grove Avenue Regional Pipeline would connect to the 4th Street Regional Pipeline just south of 6th Street in the City of Ontario and extend northward, serving CCWD and the City of Upland. The Grove Avenue pipeline is also a Phase II project and will deliver recycled water to the 7th and 8th Street Basins; plus, provide water to CCWD lateral No. 6 and to the City of Upland's lateral No. 1. A combined total of 1,727 AFY will be delivered to the two basins for recharge and for recycled water customer use.

Eventually, the Grove Avenue Regional Pipeline will interconnect with the proposed Foothill Regional Recycled Water Pipeline that extends over to the Benson Avenue Pipeline, scheduled for construction in Phase V. Local Laterals service from the Grove Avenue Regional Pipeline includes: Regional (7th & 8th Street) and Upland-1. The Grove Avenue Regional Pipeline is proposed for construction in 2003 - 2004.

Monte Vista Regional Pipeline

The Monte Vista Regional Pipeline, located in MZ-1, extends northward from the Sixth Street Pipeline or the new Central Regional Recycled Water Pipeline to deliver recycled water to the College Heights Basin, Upland Basin and the four Montclair Basins. It is a Phase II project with a 20-inch diameter pipeline that will extend for about 10,350 LF. The pipeline will deliver up to 3,200 AFY of recycled water to the three basins. No local service laterals are scheduled for connection to the Monte Vista Regional Pipeline.

Etiwanda South Regional Pipeline

The Etiwanda South Regional Pipeline is an 18-inch diameter, 7,880 LF pipeline, located in MZ-3. This Regional Pipeline connects to the RP-4 outfall line at Inland Empire Avenue and extends southward from to Marlay Avenue. The pipeline will deliver 2,351 AFY of recycled water to the Ontario 1-10 local lateral, and to the Jurupa Regional Pipeline that in turn will deliver recycled water to the Jurupa Basin and onto the RP-3 Basins and Declez Basin, and to the Fontana-3 and Fontana-4 and Ontario-10 local laterals. The Etiwanda South Regional Pipeline is proposed for construction in 2004 - 2006.

Arrow Route Regional Pipeline

The Arrow Route Regional Pipeline is a 30-inch diameter pipeline with a length of 18,970 LF (Etiwanda Avenue east to Archibald Avenue) plus, 9,900 LF (Archibald Avenue south to Fourth Street). It is a primary delivery line for recycled water to centrally located industries and businesses in the CCWD service area. It is a Phase II project that will also deliver recycled water to six sets of groundwater recharge basins, in the central area of the Chino Basin, via connection to the Fourth Street Regional Pipeline. The pipeline will deliver 3,459 AFY of recycled water to the CCWD-7, 8, 9, 10 and 15 local laterals, and then to the 4th Street pipeline. The Arrow Route Regional Pipeline is proposed for construction in 2004 - 2006.

The Phase IV projects are dependent upon completion of the Phase I, II and III projects. Pressure Zone No. 4, that serves the upper most areas of the Chino Basin, has a high potential for use of recycled water with the ever-changing climate of energy and water needs. The capability to recharge recycled water in the upper area of the Basin will provide greater mixing with naturally and artificially recharge storm water, plus, imported water. Phase IV will deliver recycled water to the northerly most portions of the IEUA service area. Recycled water will be used to irrigate the 210 Freeway, golf courses and other landscaped areas, plus recharging the water to the Chino Basin aquifer. The five recharge basins in the northern service area will recharge an estimated 5,400+ AFY of recycled water.

I-210 Freeway Distribution Pipeline

The distribution system to serve the new I-210 Freeway, traversing the upper Basin would the last pressure zone to be developed. The area north of Highland Avenue would receive limited service due to pumping requirements. As imported water costs increase due to power costs and other operation and maintenance costs, recycled water would become more cost effective to be delivered in the upper areas of the IEUA service area. Again, several basins used for capture and recharge of storm water and imported water could be used for recharge of recycled water.

The I-210 Freeway Pipeline, Phase IV (2006 - 2010), will be connected to the Etiwanda North pipeline immediately north of 14th Street and Etiwanda Avenue. Both the 210 Freeway and North Etiwanda Pipeline will deliver recycled water to groundwater recharge basins in the upper Basin. The 210 Freeway Regional Distribution Pipeline is divided into four separate projects:

1. Segment No. 1, begins at Etiwanda Avenue and 1-15 Freeway and reaches north along Etiwanda Avenue to the I-210 Freeway. It will be a 42-inch diameter line about 5,179 LF.

2. Segment No. 2, begins at Etiwanda Avenue and the I-210 Freeway, and reaches west along the freeway with a diagonal from Baseline to 19th Street. It will be a 20- and 30-inch diameter line about 25,400 LF.
3. Segment No. 3, begins at the I-210 Freeway and the diagonal at 19tt, Street reaches west to Benson Avenue. It will be a 16-inch diameter line about 22,559 LF.
4. Segment No. 4, begins at Eighth Street reaches west to Benson Avenue, and extends south along Benson Avenue to 5th Street. It will be a 20-inch diameter line about 18,200 LF.

The four I-210 Freeway Regional Pipeline projects will deliver an estimated 4,115 AFY of recycled water for irrigation, equaling 1,906 AFY along the 210 Freeway, and the remaining 2,209 AFY will be delivered to the CCWD-2, 3, 4, 5, 11, and 16 local laterals, and to the Upland-3 Local lateral, equaling a total of 5,210 AFY.

The I-210 Freeway Regional Distribution System components require two pumping stations and two above ground reservoirs (previously described) to maintain pressure in the system and to meet nighttime demands. The Etiwanda Avenue Regional 1.2-million gallon storage reservoir, located at Etiwanda Avenue and Highland Avenue in the City of Rancho Cucamonga, at an elevation of 1,410 feet above sea level, is needed as an equalizing reservoir for water demand during the evening hours and to maintain an equalizing pressure during peak demand periods during the daytime.

The Etiwanda Avenue Regional 1,000 gpm pump station will be located at Etiwanda Avenue and Highland Avenue in the City of Rancho Cucamonga in conjunction with the 1.2-million gallon storage reservoir. The pump station will lift recycled water into the reservoir and also lift water up-gradient above the 1,410 feet elevation to serve users in the upper Basin. It will help maintain pressure during peak demands during the evening hours and restore the reservoir to full capacity during the daytime.

The I-210 Freeway Regional Distribution System components are proposed for construction in 2006 - 2010.

<u>Benson Avenue Regional Pipeline</u>

The Benson Avenue Regional Pipeline, an 8-inch diameter, 5,060 LF pipeline, connects to the I-210 Freeway Regional Distribution System at 19th Street in the City of Upland, extending southward to Kingsley Street bordered by the Cities of Montclair and Ontario. The Benson Avenue pipeline will interconnect with the Foothill Boulevard/Grove Avenue Regional Pipelines creating a looped system with the Fourth Street Regional Pipeline, Phase II. The Benson Avenue Regional Pipeline will provide recycled water to two local laterals, plus provide pressure and flow to the Foothill Boulevard/Grove Avenue Regional Pipelines. The Benson Avenue Regional Pipeline is proposed for construction in 2006 - 2010.

Like the Etiwanda Avenue Regional storage reservoir and pumping station, the Benson Avenue Regional 1.2-million gallon storage reservoir, located on the west side of the service area at Benson Avenue and 14th Street in the City of Upland, at an elevation of 1,410 feet above sea level, is needed as an equalizing reservoir for water demand during the evening hours and to maintain an equal pressure during peak demand periods during the daytime.

The Benson Avenue Regional 1,000 gpm pump station will be located at Benson Avenue and 14th Street in conjunction with the 1.2-million gallon storage reservoir. The pump station will lift recycled water into the reservoir and also lift water up-gradient above the 1,410 feet elevation to serve users in the upper Basin and will help maintain pressure during peak demands during the evening hours and restore the reservoir to full capacity during the daytime.

Some Phase V projects in Pressure Zone No. 2, may be moved up in time depending upon recycled water demand as the Chino Agricultural area begins to be build-out with homes, businesses and industries. The cities of Chino and Ontario will be requiring installation of dual plumbing for use of recycled water wherever and whenever the resource can be used due to new growth in the agricultural area. The construction of the Walnut/Riverside Regional Pipeline will establish the No. 2 pressure zone. An alternate to the Walnut/Riverside Regional Pipeline, is the Edison/Merrill Regional Pipeline, proposed for a lower area of the Basin. The Edison/Merrill Regional Pipeline would border the south of the City of Ontario, and pass through the center of the City of Chino. It may be that both regional lines will be constructed within the next 10 years to accommodate growth in the agricultural area of the Basin.

Walnut Avenue/Riverside Avenue Regional Distribution Line

The Walnut Avenue/Riverside Avenue regional distribution line, when completed, will form Pressure Zone No. 2. This major distribution line will serve the middle area of the City of Ontario and the upper area of the City of Chino. This regional line would deliver a second supply of recycled water to the proposed Euclid Avenue pipeline, in the City of Ontario, an intertie delivering water from the Walnut/Riverside line to the 4th Street distribution line. The Euclid line would deliver recycled water to several parks and schools in the Ontario area. The Euclid Avenue pipeline would be an alternate to rehabilitating the older Rialto water line.

The Walnut/Riverside Regional Pipeline will be constructed in two segments. Segment 1 is a 30-inch line about 19,753 LF. Segment 2 is a 36-inch line about 15, 638 LF. This pipeline is a primary delivery line for recycled water from RP-1 Outfall line connecting to the converted Ramona Feeder on the west side of the Agency's service area. The regional pipeline will provide recycled water to the Chino-1 local lateral and the Ontario-13 and 14 local laterals. Local Laterals service from the Walnut/Riverside Regional Pipeline includes: Euclid Regional Line, Chino-1, Ontario-13 and Ontario-14. The Walnut/Riverside Regional Pipeline is proposed for construction in 2006 - 2010, Phase V.

Edison Avenue/Merrill Avenue Distribution Line

This is an alternative alignment to the Walnut/Riverside Regional Pipeline. It may not be constructed if the Walnut/Riverside Regional Pipeline is installed. The Edison Avenue/Merrill Avenue regional distribution line, when completed, is considered an alternate line to the Walnut/Riverside Regional Line within Pressure Zone No. 2. This major distribution line will serve the agricultural area and a proposed housing development along the alignment that will have dual plumbing for landscape irrigation of homes, plus a golf course and decorative fountains.

The Edison/Merrill Regional Pipeline, a 24-inch diameter pipeline about 29,192 LF, is a primary delivery line for recycled water from CCWRF, and eventually RP-5 within two years and from the RP-1/RP-4 Outfall line, connecting to the existing CCWRF Recycled Water Distribution System in the southwest corner of the Agency's service area. The regional pipeline will provide recycled water to the City of Chino and the City of Ontario as both cities expand into the Agricultural Area. No local laterals are identified for this regional line. Direct connections to the line would include a golf course, a school, a health club, and local landscaping, equaling a projected use of 500 to 530 AFY of recycled water. As the Agricultural Area develops the demand for local laterals will increase. The Edison/Merrill Regional Pipeline is proposed for construction in 2006 - 2010, Phase V.

Euclid Avenue Regional Pipeline (Alternative A)

The Euclid Avenue Regional Pipeline is proposed as an alternate to the Ramona Feeder Regional Pipeline. The potential for new customers in the area of the Ramona Feeder Regional Pipeline is limited to five customers that would use 25 AF or less. This line will range from 8 to16 inches in diameter with a length of about 19,700 LF. Potential new customers in the area or the Euclid Avenue Regional Line is much greater, approximately 32 customers including schools, parks and churches. The Euclid Avenue Regional Pipeline is proposed for construction in 2006 - 2010.

Conversion of the Ramona Feeder Regional Pipeline (Alternative B)

The Ramona Feeder Regional Pipeline is an existing water line presently jointly owned by the Monte Vista Water District and the City of Chino Hills. The line is used for delivery of potable water to the lower Montclair residential area and to the cities of Chino and Chino Hills. The feeder line is under-sized for future water deliveries to the Chino and Chino Hills area. The line is projected for replacement in the next 3 to 5 years. Converting the Ramona Feeder from potable use to recycled water use would require substantial re-piping.

The pipeline would deliver recycled water to the Montclair-4 and 5 local laterals in the upper area. The Montclair-4 local lateral would deliver water to the Brooks Groundwater Basin in the amount of 920 AFY. It will be a 30-inch line of about 28,740 LF. Local lateral No. 5 would supply 211 AFY to city parks. Local Laterals service from the Ramona Feeder Regional Pipeline includes: Ramona Regional Line, Montclair-4, Brooks Basin, and Montclair-5. The Ramona Feeder Regional Pipeline, if selected as an alternative line, would be reconstructed in 2006 - 2010.

h. Potential Water Market

The IEUA regularly surveys the service area to identify potential water reuse markets. The results of the most recent market survey conducted by IEUA staff are shown on Table 3-16. Based on the survey results and on the results of other IEUA evaluations, regional recycled water use is projected to exceed 100,000 AF by 2020.

The IEUA will continue to work with all water purveyors and cities within the service area to encourage all new developments to install dual plumbed systems for recycled water service, ensuring that all non-potable irrigation and industrial uses, maximize the use of this valuable resource.

Table 3-16
Regional Recycled Water Program Through 2020

Category	Current Number of Users*	Current Use (AFY)	Projected Number of Users	Projected Total Use (AFY)
Landscape	37	4940	1700	29400
Industrial	1	10	27	12500
Agricultural	3	1350	1	1200
Groundwater Recharge Basins	1	500	20	28000
TOTAL	42	5600	1768	71100

* Current users are those receiving service as of December 31, 2000.

i. Construction Scenario

Recycled Water Recharge System Components

The recycled water facilities include pipelines and inlet structures that will be installed in support of delivery of recycled water to the recharge basins. The regional pipelines proposed for construction will be installed as outlined in the pipeline construction scenario presented below. A total of 16,150 lineal feet of new lateral pipeline will be installed to support the recharge of recycled water at the 20 basins.

The inlet structures will be constructed by small construction crews during or after the pipelines are installed. Typical construction equipment will include a backhoe, one dump truck, and a crew of up to a maximum of eight persons. Field construction crews will excavate the area for the inlet structure; set forms; oversee pouring of concrete; and carry out final connection of the inlet to the pipelines. Periodic deliveries of concrete and other construction materials will occur in support of the installation of the inlet structures. It is assumed that during construction of each inlet structure a maximum of ten truck trips will occur.

All other facilities that are shown on the recharge basin as improvements have been approved and are being constructed in support imported water and storm water recharge projects.

Pipelines

It is estimated that if all the pipelines identified above are installed (including some that may be duplicative), a total of ~397,500 feet of pipeline could be installed over the next ten years (through 2010) to support the Recycled Water Management Plan. The following construction scenario will be evaluated. Up to five construction teams may be installing pipeline at any one time. It is assumed that the construction crews will be able to install up to 1,000 lineal feet of pipe each day; therefore, up to 5,000 lineal feet of pipeline may be installed each day within the project area. A crew of eleven persons is assumed to be involved on each team. The construction team crew will consist of: a foreman; two operating engineers; two dump truck drivers; and six persons per pipe installation crew. Equipment that is assumed to be available at each site includes: a large pipeline excavator (equivalent to a backhoe); one pickup truck; two dump trucks; one backhoe to lift pipes; a paver; and a roller. With 397,500 total feet of pipeline to install in support of this project, it is estimated that at 5,000 feet of pipeline being installed each day, a total of ~80 days of pipeline construction will occur in support of this master plan over the ten-year period of time. It is assumed that for every 1,000 feet of pipeline, four truck deliveries will be required.

Pump Stations

A total of up to eight pump stations will be installed with a total pumping capacity of up to 65,300 gallons per minute, excluding the RP-1/RP-4 pump station. Each pump station will require about two months to construct and will occupy a maximum of 1,000 square feet of area. The construction crew will consist of a maximum of seven people on the project site at any one time: a foreman, operating engineer and five support crew persons. The equipment at the site will consist of a backhoe for part of the time and a small crane when the pump is installed. It is assumed that one truck load of concrete, one truck with rebar and other construction material, and one truck delivery for the pump station will occur during the construction of each pipeline.

Reservoirs

The proposed reservoirs will encompass an approximate diameter of 100 feet and be approximately 24 feet in height. A total of five reservoirs may be constructed with a total storage capacity of 22.7 MG. Construction includes grading (leveling) the project site, which will be approximately one acre in size at the locations selected. Grading will include rough grading with a dozer, dump truck and backhoe over an one-to-two week period. With a crew of eight persons including: three operating engineers; foreman; and four support personnel. Final grading will involve a grader or equivalent machine and four support personnel.

The second phase of construction involves constructing the reservoir's concrete foundation. This will include a foreman, laborers, and one backhoe. Delivery of steel rebar and the concrete is assumed to require about 20 truck deliveries over a period of one month.

The final stage is the assembly of the steel reservoir at the site. A crew of 15 persons will be required for this stage, including one crane operator, a foreman and 12 support crew members. This stage also requires about one month to complete. Thus, reservoir construction requires approximately three months to complete.

3.3.3 Organics Management Master Plan

3.3.3.1 Background

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 through a variety of methods and by a number of agencies. The IEUA plays a significant role in the existing system of organics management. The Agency has developed an Organics Management Master Plan (OMMP) titled "Organics Management Strategy Business Plan" that defines its future role in managing organic wastes within the Agency's service area.

a. Biosolids

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. Currently, the IEUA transforms biosolids produced at its treatment plants into soil amendments and fertilizers by windrow composting at a facility located in the Chino Dairy Preserve. A portion of the compost is blended with other natural ingredients to make compost products. Some of the resultant composted product is sold in the marketplace, some is used for land application at locations in Kern County and some is used at landfills as an alternative cover. It will become increasingly important in the future for IEUA to become more self sufficient in managing biosolids, due to a reduction in available sites for land application, increasingly stringent regulations that are being developed for land application and reduced landfill capacity. Currently, biosolids are produced in the IEUA at a rate of over 64,000 tons per year (tpy) and are forecast to increase to over 74,000 tpy by the year 2015.

b. Dairy Manure

There are a large number of dairies located within the IEUA service area. They are located primarily in the southeastern portion of the IEUA service area. Urban sanitation becomes more complex when traditional agricultural areas such as these are located in close proximity to new urbanized communities that are themselves being converted into those communities by large-scale development. Currently, over 300,000 milking cows and other livestock are located in this area and produce more than 1.0 million tons per year of manure. As a result of urbanization that is occurring, by the year 2015 the rate of manure generation is anticipated to be reduced to 547,000 tpy, about 50 percent of the current amount. Manure presents a variety of problems, including air quality concerns relating to odors and dust, and water quality problems due to percolation of salts and nitrogen into groundwater basin and contamination of the Santa Ana River from storm water runoff. Manure is removed from dairies twice each year and is generally used for agricultural land application in Moreno Valley and other areas.

The Chino Groundwater Basin is part of the Upper Santa Ana River Watershed, the largest river basin in southern California. A large portion of the Basin is within IEUA's service area. The Basin offers an opportunity to store more than 500,000 acre-feet of additional or supplemental groundwater, which would provide enough water to make the basin "drought proof" during any foreseeable future water shortage. In order for this to occur, however, the groundwater in the Basin will require significant cleanup efforts to remove salts, nitrates and other undesirable contaminants left over from years of agricultural, dairy and other activities. Effective management of dairy manure is a key component in the effort to control clean-up of the Basin.

c. Other Organics

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 stream 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. Green material is well suited to recycling via composting, but is primarily hauled away to either local landfills or recycling facilities. Currently, approximately 43,000 tpy of food waste is produced and by 2015 this is expected to be 50,000 tpy.

3.3.3.2 Existing Facilities

Within the IEUA system, biosolids handling and processing occurs at RP-2 for flow into RP-2 and the Carbon Canyon Water Recycling Facility and at RP-1 from flow into RP-1 and from RP-4. The RP-5 facility is currently under construction and scheduled to be completed in 2003. RP-5 includes the digesters and other solids handling facilities planned after completion of the facility. Implementation of RP-5 was cleared under a separate EIR (certified on June 16, 1999). These facilities are shown in Figures 3-4 and 3-41.

a. Biosolids Processing at IEUA Treatment Plants

RP-1

All solids removed from the liquid train are subject to further processing to reduce volume, stabilize solids, and facilitate disposal. Solids handling facilities include: gravity thickeners, dissolved air flotation thickeners (DAFT), anaerobic digestion, thickened sludge pumps, sludge blending, and belt presses.

Sludge and scum removed during the primary treatment phase are sent to the gravity thickener to increase the solids content. The clear supernatant at the top of the thickener overflows the effluent weirs and is transported back to the Headworks. The scum from the gravity thickener is pumped out along with thickened sludge and sent to the anaerobic digesters for further treatment. Waste activated sludge (WAS) from the secondary clarifiers is subject to the DAFT process to increase solids content. Sludge thickening minimizes influent flow to the digesters, to maximize digester treatment capacity and operation.

RP-1 currently operates a three-stage anaerobic digestion process in an effort to produce Class A biosolids. The first stage is the Mesophilic-Acid stage, second stage is the Thermophilic-Gas stage, and the last stage is the Mesophilic-Gas stage. Anaerobic digestion provides volume reduction, stabilization, and pathogen reduction and as a side benefit, produces digester gas.

After anaerobic digestion, sludge blending is performed to mix digested sludge into a homogenous mixture and then sent to the belt presses for dewatering. The belt filter presses are provided to remove liquid from the processed sludge to further reduce the volume of the sludge for transportation and co-composting.

RP-2

Solids handling facilities at RP-2 were designed to handle the solids from both RP-2 and CCWRF. These facilities consist of digesters, thickeners (both gravity and DAFT), belt presses, sludge drying beds, and a digester gas flare. The solids handling facilities are located above the 100-year flood plain.

Modifications to the existing solids handling facilities at RP-2 consist of structural rehabilitation of a gravity thickener, DAF thickener, and two out-of-service digesters. Additional process piping would be installed to convert the system to three-stage anaerobic digestion mode (using RP-1 criteria). New sludge transfer pumps would be constructed and high-pressure digester gas storage would be installed.

RP-4

RP-4 has aerobic digesters for stabilization and centrifuges to dewater the solids. However, these facilities are currently not in use. Solids from RP-4 are transported down to RP-1 for treatment and disposal to provide additional gas production for IEUA's Co-Generation Facility located at the RP-1 facility.

CCWRF

There are no solids treatment facilities located at CCWRF. Solids removed during the treatment process at CCWRF are transported by underground pipeline to RP-2 for thickening, stabilization in anaerobic digesters, and belt press dewatering before removal by a contractor for composting.

RP-5

Solids handling facilities at RP-5 will consist of digesters, thickeners (both gravity and DAFT), and centrifuges/belt presses. RP-5 is designed to treat solids from CCWRF. Solids from CCWRF will be routed to the gravity thickeners. Anaerobic digesters will receive solids from the gravity thickeners and scum from the primary and secondary clarifiers.

Solids from the DAFT and digesters are pumped to the belt presses for dewatering. The dewatering facilities will be housed in an enclosed building for odor control. Dewatered solids will be transported in covered trucks to the Agency's co-composting facility located approximately three miles east of RP-5 or sent to other commercial composting plants.

Odor control measures to be implemented at RP-5 include covering or enclosing process units that present significant potential for odor generation. Biofilters will provide an easily operated and maintained method of odor control that involves exhaust fans and ducting that pull foul air from enclosed spaces and conveys it to perforated ducting at the bottom of a bed of moistened woodchips/compost blend about 5 feet deep. . The woodchips/compost blend requires periodic refreshing: preliminary design studies assume that filter media would be replaced every five years.

The biofilter will be installed for the headworks, primary clarifiers, aeration basins, and solids facilities.

Co-Composting Facility

The IEUA currently operates a co-composting facility, located at 8100 Chino-Corona Road, in the southern portion of the Chino Dairy Preserve. The daily operation of this facility is contracted to two private companies for the co-composting of manure, both with and without municipal biosolids. The facility was built in 1995 for the purpose of recycling biosolids produced at the IEUA's treatment plants and to remove a portion of the large amount of dairy manure produced in the area.

In 2000, the facility processed a record 200,000 tons of manure (about 20 percent of the total annual manure production) and about 55,000 tpy of biosolids. The co-composting facility consists of two bays, each of which is 2,300-feet long and 600 feet wide. The biosolids/manure composting area is sealed with approximately 10 inches of compacted soil-cement and capped with two inches of asphalt. The manure-only composting bay is sealed with 13 inches of soil cement.

Berms are installed to provide protection from unwanted runoff and a large catch basin (216 feet x 1,240 feet) provides storage for approximately 12 million gallons. The facility was designed with a low permeability surface cover to prevent infiltration of salts into the groundwater. The co-composting facility currently handles about 90 percent of the biosolids generated from the IEUA treatment plants. The remainder is hauled out of the service area for disposal. Figure 3-42 illustrates the windrow layout and other features of the Co-Composting Facility. This facility is anticipated to be sold and all activity relocated to enclosed facilities by the end of 2006.

3.3.3.3 Future Organics Management

a. Organics Management Master Plan (OMMP)

The IEUA has developed the OMMP to guide its organics management strategy over the next 10 years. The OMMP is reviewed and updated as necessary. This Plan contains goals and objectives for managing target quantities of material and it also proposes the development and use of new approaches and technologies. Energy self-sufficiency is also an objective of the Plan. The OMMP is intended to satisfy two goals: (a) self-sufficient energy and (b) self-sufficient organics management. A 5-year Action Plan will be pursued to implement the OMMP. The key elements of the OMMP are: (a) biosolids processing and energy production; (b) co-composting; and (c) manure processing.

Biosolids Processing and Energy Production

Three general categories of organics management/treatment are available for energy recovery: anaerobic digestion/co-generation/pyrolysis; gasification and combustion; and direct burning. IEUA does not intend to pursue the latter two categories (gasification and combustion and direct burning). 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. Facilities are planned at RP-1, RP-4 and RP-5 for anaerobic digestion and subsequent co-generation.

Methane gas is a natural by-product of anaerobic digestion, which is captured and used as generator fuel. 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 OMMP 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 10 years.

Of the estimated 547,000 tpy of manure forecasted to be available in 2015, it is estimated that approximately 60-percent, or 323,000 tpy of manure, will be available for biogas conversion. This amount would yield an estimated 25 megawatts of energy, or about one-half of the target amount identified in the OMMP. 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. These projects are described as follows:

RP-5 Energy Recovery Project

A description of this facility is provided in the previously prepared EIR. The Final EIR for this project was published May 17, 1999.

RP-1 Manure Digester Pilot Project

The goal of this pilot project is to demonstrate the application of high-rate anaerobic digestion technology to "wet manure" and quantify operational parameters including solids thickening and dewatering. Digester No. 4 at RP-1 has been converted to a three-stage thermophilic/mesophilic operation in order to digest manure and to pilot dewaterability of digested manure. It is expected that this project will utilize 150 tons per day of wet manure and generate 105 tons per day of exceptional quality organic fertilizer. The digester will receive and digest the fresh manure, which is conveyed to the digester by a vacuum truck. The anticipated truck trips to deliver manure to the project is 5 to 6 trucks per day and 4 to 5 truck per day to removed digested manure from the site. The estimated power produced from the project is 250 kilowatts and power usage for the facility is 144 kilowatts. An estimated 4.5 tons per day of salts and nitrates would be prevented from entering the environment. This project is part of a public-private partnership with area dairy operators. One aspect of the technology being demonstrated would be equipment to receive, process and pump manure slurry into the digester. It is expected that this project will be operational by January 2002. This pilot project is illustrated in Figure 3-43.

RP-4 Microturbine Project

This project would install natural gas-fired microturbines at RP-4 and the Carbon Canyon Water Recycling Plant to provide sufficient energy to reduce or eliminate the need for Southern California Edison electricity and also to demonstrate the effectiveness of microturbines. This is part of a program in conjunction with the South Coast Air Quality Management District to reduce air pollutant emissions within the South Coast Air Basin.

RP-5 Renewable Energy Project

This project is an anaerobic (plug-flow) digester technology system, which has been constructed at the Koopal dairy for treatment of dairy cow manure. The project represents a public-private partnership between IEUA, the Milk Producers Council and Synagro to demonstrate a solution to the manure management issues in the Chino Basin. The facility is located adjacent to RP-5 as shown on Figure 3-44. The process operates at mesophilic temperatures to optimize volatile solids reduction and the production of biogas. Through the process, approximately 30-percent of the biogas will be used to generate approximately 2,900 kilowatt-hours per day using four Capstone microturbines to power the digester facility equipment. The remaining gas will be sent to two Waukesha generators to generate the 42,000 kilowatt-hours per day needed for an off-site groundwater desalting facility. The digested manure will be dewatered on-site and transported to an existing Co-Composting Facility and converted into a fertilizer/soil amendment. Although the first stage of the plug-flow digester was placed in operation in December 2001, the design is modular and can be expanded in phases to about four times its initial capacity if it proves to be effective and provides economical power generation from manure.

The project will receive and digest the fresh manure, which will be conveyed to the digester by truck. The anticipated truck trips to deliver manure to the project are 21 trucks per day and two trucks per day to remove digested manure from the site. The estimated power to be produced from the project is 750 kilowatts and power usage for the facility is 500 kilowatts. The ultimate power production for the project will be approximately 1,500 to 1,750 kilowatts.

High-Tech Manure Digester Project

Another approach to handling dairy manure in an environmentally friendly and economical way incorporates a highly developed technology for the production of salable by-products. This approach has been utilized in Denmark and other European countries. The technology that has been reviewed includes the potential construction of digesters to serve clusters of dairies and generate power that would be used by the dairies to reduce their power costs. In addition, some of the systems in operation in Europe recover concentrated ammonia and potassium and phosphorous salts to be sold for fertilizer. They utilize membrane technology and relatively sophisticated controls to accomplish these ends. Preliminary cost estimates indicate such systems can be cost effective in the Chino Basin area, and IEUA is prepared to assist the proponents and the dairy industry in establishing a demonstration facility to determine true costs and efficiency. The potential location of this project is west of the RP-5 Renewable Energy Project.

Dairy Digester Pilot Project

This project is a covered lagoon system that would be implemented in order to test low technology lagoon digesters for the generation of power from dairy washwater. Although anticipated to be located on the Tuenissen Dairy in the Business Plan, a recent decision to sell the Tuenissen property has necessitated its relocation. Currently, planned location is the Vander Poel dairy located on Pine Avenue east of the existing Co-composting facility. The Vander Poel dairy has a well-operated flush system that is ideal for supplying wash water and manure to the covered lagoon. It is anticipated that the lagoon will treat 100,000 gallons per day from 1,400 cows in a four million gallon lagoon with a 40-day detention time. There are no anticipated truck trips to deliver manure to the project. The estimated power via gas generated will produce from the project approximately 2,880 kilowatts and power usage for the facility is anticipated at 1,880 kilowatts. The project will potentially prevent over 3.5 tons per day of salts and nitrates from entering the groundwater. This project is expected to be on line in summer of 2004 and is illustrated in Figure 3-45.

Advanced Technology Manure Pyrolysis Process

A process approach to handle dried manure is an Advanced Technology Manure Pyrolysis Process project, which is designed to process corral dried manure conveyed to a facility by dump truck and thus eliminates its accumulation on the ground. If successful, this technology would be employed to process additional quantities of corral-dried manure. The pyrolysis process is based on the established principles employed in heating organics to high temperatures under pressure and converting the organics to a gas that can be burned in turbines to generate electricity. This proposal is for construction of a demonstration manure pyrolysis unit that can operate on corral-dried manure through employment of grinding and screening facilities to convert the material from the dairies into a useable organic energy source. The proposed site is on property owned by the County of San Bernardino adjacent to and east of the Chino Airport where several dairies are located and likely to remain if their wastes can be economically handled (Figure 3-46). However, corral-dried manure can be brought to the site from any dairy in the preserve. Alternatively, the process will be located adjacent to the RP-5 Renewable Energy Project. There are several potential pyrolysis systems that will be evaluated prior to selecting the one to be tested. Typically, the process involves pulverizing and screening the manure, removing the sand and foreign materials picked up in the corrals, utilization of heat exchangers and a liquid stream to raise the temperatures and finally burning the gases produced to generate electricity while the waste heat is used to raise the temperature of the incoming organics stream. The proposed facility would process about 100,000 tons of corral-dried manure per year, which would amount to about 10 percent of the 1,000,000 tons of corral-dried manure produced in the preserve each year. The energy in the manure is projected to supply about 7,000 kilowatts of power that can be used to supply a portion of the power requirements of IEUA facilities, dairies or the adjacent airport.

Co-Composting

There is a major market for compost products, with lawn, garden and horticultural activities being prime users. The demand for compost materials is expected to grow at a healthy pace. It is unlikely that IEUA would be able to launch a new product line, and therefore it intends to develop strategic partnerships with well-established private sector firms. Bulk agriculture will become a target market sector for expanding IEUA's compost distribution. Due to the perceived strength of the compost market, IEUA will maintain a strategic focus on developing its composting facility infrastructure.

Biosolids, as a component of all composted material, must be processed at the rate at which it is produced, as opposed to other forms of composting. Therefore, it will be important for IEUA to continue to develop markets for its composted products. Two types of markets will be pursued: reuse and fail-safe. Reuse markets are the traditional revenue-producing markets that include such lawn, garden, horticulture and agriculture uses. Fail-safe markets include IEUA member-agency reuse, alternative daily cover, land filling, contract disposal, and application to publicly-owned landscape.

It is intended that the existing co-composting facility be replaced with a newly-located fully enclosed facility using the so-called Aerated Static Pile (ASP) form of composting at RP-1 and adjacent to RP-4 and RP-5 sites. This will be combined with odor control and wind protection. For manure-only composting, either an amended ASP process (with wood wastes or yard waste) or the unamended windrow process would be used, depending upon location. Green materials in the year 2015 would likely continue to flow primarily to outside compost operators. A portion, though, will be included as a bulking agent in IEUA's co-compost operation.

Sixteen sites (Figure 3-47) were evaluated as possible locations for the new co-composting facility. The evaluation yielded four sites for further consideration, which are located such that biosolids could be piped rather than trucked, and are as follows:

b. <u>Enclosed Composting Operation</u>

The following four organics management facilities would be constructed as completely enclosed, state-of-the-art, facilities. This would virtually eliminate stray odors and dust from the composting process, including the loading/unloading operation, which would also be enclosed. When completed, the existing outdoor co-composting facility would be removed. High quality fertilizers would be created at these new facilities for sale in the marketplace. Also to be located at these facilities would be educational facilities, including a demonstration garden and displays explaining the region's water and wastewater system. The facilities will be professionally landscaped. This operation is illustrated in Figure 3-48.

RP-1 Enclosed ASP Project

This project is to build a pilot demonstration enclosed composting facility at RP-1 to treat RP-1 biosolids by aerated static pile (ASP) composting methods with treatment of process and enclosure air through biofilters to assure odor control and prevention of dust emissions off the site. These facilities are now in the final design stage and are expected to be operational by early 2003. The enclosed ASP composting structure will cover approximately 40,000 square feet. It is anticipated that the project will process 10,000 tons per year, which is all of the biosolids produced at RP-1, and generate 5,000 tons per year of exceptional quality organic fertilizer. The anticipated number of truck trips to deliver bulking agents to the project is 1 truck per day and 1 truck per day to remove final compost from the site. No truck trips are anticipated to deliver biosolids to the project site. The estimated power usage for the facility is 362 kilowatt-hours per day or 90,563 kilowatt-hours per year. This facility is illustrated in Figure 3-49.

Inland Empire Regional Composting Facility

This project would convert an existing warehouse/distribution building to a totally enclosed biosolids and yard waste composting operation. The site is just over 24 acres in size and the building encloses an estimated 410,000 square feet of space. A totally enclosed "aerated static pile" (ASP) composting process would be used. All air from the facility would be captured in a new filter, which would be sized to permit a substantial number of air changes per hour (10 per hour in the composting area; 6 per hour in all other areas). The anticipated truck trips to deliver biosolids to the project is 35 trucks per day, to deliver bulking agent to the project is 12 trucks per day, and 14 trucks per day would be needed to remove the final compost from the site. The estimated power usage for the facility is 4,745 kilowatt-hours per day or 1.19 million kilowatt-hours per year. There would be no significant storage on site for any of the composting materials, which means a high degree of trucking organization will need to be maintained, resulting in the delivery of a biosolids load every 40 minutes over the course of 24-hours. Compost products will be marketed to bulk horticulture and agricultural users and wholesalers for intended resale to retail horticultural markets. This facility is illustrated in Figure 3-50 and is proposed to come on line in 2004. This proposed facility has the potential for rail haul if it becomes economical in the future, both bringing material from source areas and transport of composted products to markets.

California Institute for Men

The California Department of Prisons has decided to dispose of a portion of their land at the Chino Institute for Men (CIM) across Kimball Avenue from RP-5. This land area is illustrated in Figure 3-51. This site appears the most logical location for another composting facility. The anticipated truck trips for the 30,000-tpy facility to deliver biosolids to the project are 3 trucks per day, and animal manure will be no more than 10,0000 tons annually. In addition, bulking agent to the project will be delivered and is anticipated at two trucks per day, with three trucks per day to remove final compost from the site. The estimated power usage for the facility is 300 kilowatt-hours per day or 75,000 kilowatt-hours per year. Biosolids from RP-5 could be conveyed to the facility by conveyor, thereby avoiding the problems associated with moving biosolids by truck. The initial plan would be to construct a 30,000-ton per year facility some time between 2005 and 2009. The design would be modular and potentially expandable to about 120,000 tons per year to treat biosolids, manure and green material. As an alternative, IEUA may consider locating the proposed CIM facility operations on the RP-5 site, which is located immediately south of the CIM facility. The Agreement between CIM and IEUA, Section 4.1 states that both RP-1 and RP-4 shall have been in operation for a period of at least two years prior to the time construction is commenced at the CIM facility. No on-site facilities shall be constructed or supported by IEUA until the Koopal and Teunissen projects have been fully and successfully operational and the datat from the projects evaluated in a public setting. This is included in Section 5 of the Agreement.

Colton Compost Facility

This facility has been cleared under a separate EIR, prepared by Inland Composting and Organic Recycling. This document was certified in October 1998. The IEUA will occupy only a small portion of this future facility (less than 10 percent), with an estimated processing of 700 tons per day (Figure 3-52) of biosolids and 1,000 tons per day of green waste.

c. <u>Manure Processing</u>

In order to fully address the manure problem, a broad range of options must be developed as quickly as possible. The recommended program will pursue the following objectives:

(1) Maximize energy recovery from manure.

(2) Maximize local composting of manure.

(3) Develop regional agricultural land application markets.

(4) Examine and develop new technologies through continued research and development.

A portion of the manure generated by the dairy farms in the service area will be collected and conveyed along with domestic wastewater via new sewer lines to RP-5 for treatment. Only a portion of the manure generated in the area is suitable for this manner of conveyance, namely manure from the milking area, which is continually washed down and therefore has an appropriate liquid content. With some modifications to the existing dairy drainage systems, this material can easily be captured and readily discharged into the nearby sewers.

New sewers will be constructed that later will serve as domestic collection sewers, when dairy property has been developed into residential use. Master plans in the Cities of Chino and Ontario have identified as number of sewer lines running along streets close to many dairies and therefore will be convenient for the intended interim purpose. In addition, all of the sewers planned by the City of Ontario will drain to RP-5 where biosolids processing will be centralized.

Two main sewers will be used initially for manure conveyance. The first is the existing Kimball Interceptor Sewer (66 inch diameter), which can be readily connected to a number of dairies. Approximately 377,000 gallons per day of manure flow could be handled in this facility. The second is called the Eastern Truck Sewer or RP-1/RP-5 Bypass (ranging in diameter from 12 to 42 inches) and is being designed. Approximately 539,000 gallons per day of manure flow could be handled in this facility. It is also possible that the Western Trunk Interceptor, when constructed, could also be utilized for conveying dairy wastes. In total, an estimated 30 dairy farms can be connected initially to these two sewers, providing 916,000 gallons of manure per day from 18,000 cows. Taking into account the wash-down water, the total volume to be conveyed would be an estimated 1.0 MGD. Both the two near-term conveyances and the larger system are shown in Figure 3-53.

3.3.3.4 Construction Scenario

IEUA has been implementing various organics management projects over the past few years. The RP-5 Renewable Energy Recovery Project and the RP-1 Manure Digester Pilot Project are already constructed. The RP-4 Microturbine Project is nearing completion. Following are estimated construction schedules for the projects.

The Dairy Digester Pilot Project will start in Fall 2002 and is scheduled for completion Winter 2002. The major construction steps include: lagoon liner and cover installation, pipeline(s) installation, landscaping, mechanical equipment installation, and electrical installation.

- Estimated Grading: None
- Estimated Truck Trips: No truck trips before or after the facility is completed
- Estimated Construction
- Crew and Shifts: Three person crew on a one shift operation with a one-month construction schedule
- Estimated Construction Equipment: One front-end loader, 10 percent usage rate

The construction scenario for the Inland Empire Regional Composting Facility is scheduled as follows:

- Start construction Winter 2002 and complete early Spring 2003
- Major Construction Steps: Demolition, excavation, two new buildings, biofilter installation, pipeline(s) installation, landscaping modifications, mechanical equipment installation, and electrical installation
- Estimated Grading: Minimal excavation (less than 1,000 cubic yards of cut)
- Estimated Truck Trips: 10 truck trips per day
  After the facility is complete: 61 truck trips per day
- Estimated Construction
  Crew and Shifts: 30-person crew on a one-shift operation with a four-month construction schedule
- Estimated Construction
  Equipment: Dozer, front end loader, two dump/haul trucks, water truck, grader, excavator, backhoe, two material trucks, crane (five-ton), roller/compactor, scraper - assume all equipment used up to six hours per day

The construction scenario for the RP-1 Enclosed ASP is scheduled as follows:

- Start construction Late summer of 2002 and complete late 2003
- Major Construction Steps: On-site grading in support of each facility is expected to last between 2 to 4 weeks in duration. All material excavated will be replaced on the site and properly compacted to support the operations outlined above.
- Estimated Grading: The maximum amount of grading at the site is estimated to be approximately 4,743 cubic yards.
- Estimated Truck Trips: After the facility is complete: 2 truck trips per day

- Estimated Construction Crew and Shifts: 15-person crew on a one-shift operation with a 6-month construction schedule
- Estimated Construction Equipment: Two scrapers, one dozer, one grader, one backhoe, two dump/haul trucks, and one water truck - assume all equipment used up to six hours per day

The above construction scenarios are preliminary and represent best estimates at this time.

Table 3-17
IEUA Master Plans PEIR Components

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
WFMP			
RP1 Expand liquid treatment capacity to 60 MGD (Already have biosolids treatment capacity for 60 MGD)	Modernization of Plant • Odor Control facilities • Expand chlorine contact basins • Provide side stream treatment for belt press	**Phase I** (Maintain 44 MGD capacity) • Expand aeration basins • Add secondary clarifiers • Landscaping, screening of plant using trees and block wall • Provide primary effluent storage and odor control **Phase II** (Maintain 44 MGD capacity) • Construct new covered primary flow equalization basins	**Phase III** (Expand to 52 MGD capacity) • Expand aeration basins • Add secondary clarifiers • Add additional pump • Add new filters and gravity thickener • Expand plant utility water system **Phase IV** (Expand to 60 MGD capacity) • Expand influent channel • Add Parshall flume and bar screen • Expand aeration basins • Add secondary clarifiers • Add additional pump • Add new chlorine contact basin
RP4 Expand liquid treatment capacity to 35 MGD Expand biosolids treatment capacity to 40 MGD		**Liquid Treatment** (Expand up to 21 MGD capacity) • Add primary clarifiers • Modify oxygen ditches • Odor control • Chlorination system • Expand chlorination basins • Expand headworks • Add secondary filters • Add tertiary filters	**Liquid Treatment** (Expand to 35 MGD capacity in 7 MGD increments) • Add primary clarifiers • Expand chlorination basins • Expand headworks • Add secondary filters • Add tertiary filters **Biosolids Treatment** (Expand to 40 MGD capacity in 8 MGD increments) • Thickening centrifuges • 3-stage digestion process • Dewatering centrifuges • Gas storage • Cogeneration facility • Odor control • Sludge storage facilities • Centrate treatment facilities

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
CCWRF Expand to 20 MGD capacity	Expand capacity to 12 MGD • Divert recycled flows to SARI line • Replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination		Expand capacity to 20 MGD • Add additional headworks grit chamber • Two primary clarifiers • New primary effluent pump system • New aeration basins and blowers • Additional secondary clarifier • Three additional tertiary filters • Add new chlorine contact basin
RP2		• Conversion of four digesters to three-phase digestion • Install Microturbine generator	•
RP5			• Add 15 to 17 MGD liquids to 30 to 32 MGD • Add 15 MGD in solids processing • Add 15 to 17 MGD of biosolids processing to 30 to 32 MGD • Add 25 MGD biosolids handling capacity to 55 MGD
Satellite Plants Total of 10 MGD capacity 9 potential sites		Construct a 5 MGD plant • Primary clarification • Multi-stage aeration • Secondary clarification • Filtration • Disinfection system	Construct a 5 MGD plant • Primary clarification • Multi-stage aeration • Secondary clarification • Filtration Disinfection system
Conveyance Systems	Upland Interceptor Relief System • Pipe size range - 18" to 27" dia. • Length = 19,900 ft		
		San Bernardino Interceptor Pump Station & Force Main • Two 24" dia. lines in parallel (worse case) • Length = 6,200 ft each • Pump station area is two acres	

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
	RP4 Truck Sewer (Reaches 1, 2, & 3) • Pipe size range – 36" to 48" dia. • Length = 29,700 ft		RP4 Trunk Sewer (Reaches 4 & 5) Pipe size range – 15" to 21" dia. Length = 4,300 ft

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
Conveyance Systems (Continued)	RP1/RP5 Bypass (Eastern Trunk) & Kimball Interceptor Extension • Pipe size range – 18" to 54" dia. • Length = 34,203 ft		
			SARI Diversion Pump Station
		Freeway Trunk Sewer • Replace or parallel with 24" line • Length = 4,600 ft	
			Turner Truck Replacement • Pipe size 30" dia • Length 3,000 ft
			Archibald Avenue Trunk Relief Sewer Replacement • Pipe size 48" dia • Length 5,650 ft
			Cucamonga Relief Replacement • Pipe size 84" dia • Length 8,750 ft
			Lower Westside Replacement • Pipe size 30" dia • Length 3,200 ft
			Southwest Chino Trunk Replacement • Pipe size 24" dia • Length 1,240 ft
			Los Serranos Interceptor Replacement • Pipe size 36" dia • Length 3,000 ft
RWMP		**Phase 1** (2001 through 2003) • Add 9 pipelines or pipeline segments • Add 3 pump stations and a reservoir • Pipelines from distribution pipelines and 10 recharge basins	

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
RWMP (Continued)		**Phase 2** (2003 through 2004) • Add 4 pipelines or pipeline segments • Add 1 pump station and a reservoir • Pipelines from distribution pipelines and 4 recharge basins	
		Phase 3 (2004 through 2006) • Add 2 pipelines	
		Phase 4 (2006 through 2010) • Add 6 pipelines • Add 3 pump stations and 2 reservoirs • Pipelines from distribution pipelines and 5 recharge basins	
		Phase 5 (2006 through 2010) • Add 3 pipelines • Add 1 pump station and 1 reservoir	
	Philadelphia Regional Pipeline From RP1 to Ontario Soccer Fields		
OMMP			
RP1	RP1 Enclosed ASP • Pilot demonstration project to treat biosolids and digested manure • Treat 10,000 tons per year • Located on approx. 40,000 sqft • Biofilters for odor control		
	Dairy Digester Pilot Project • Covered 4 million gallon lagoon • Treat 100,000 gallons per day • Generate 80 kilowatts of power through use of microturbine generators		

Master Plan	Immediate Projects (0-6 months)	Near Term Projects (up to Year 2010)	Long Term Projects (up to Year 2050)
RP4	Inland Empire Regional Composting Facility • Treat 150,000 to 250,000 tons per year • Facility size 410,000 sqft • Separate receiving/mixing building • Product loading building • Biofilter for odor control • Treat biosolids, manure, and green waste		
RP-5		RP5 Renewable Energy Project • Increase power production from 0.75 MW to 2.0 MW • Treat an additional 100,000 wet tons of manure	
		RP5 or California Institute for Men (CIM) Compost Facility • Treat 30,000 tons of biosolids per year • Odor control • Biosolids from RP5 conveyed to site via conveyor	
		High Tech Manure Facility • 4 Capstone 30 kW Microturbines • Flare for off spec gas	
		Advanced Technology Manure Pyrolysis Process • Treat 100,000 tpy of corral-dried manure • Heat organics to high temperatures under pressure • Blade-less turbine to generate 7 MW	
		Convey Dairy Manure by Sewer	

WFMP: Wastewater Facilities Master Plan
RWMP: Recycled Water Master Plan
OMMP: Organics Management Master Plan

3.4 SUMMARY OF IEUA MASTER PLANS PROJECT COMPONENTS

The range of individual projects described above and being considered for implementation under the three proposed master plans is extensive. To assist the reviewer to grasp the total range of projects being contemplated over the next 50 years, a summary of the proposed projects and their schedule (general) for implementation is provided in the attached table, Table 3-17. In addition to the summary compiled in Table 3-17, the following specific projects have been identified for possible approval by the IEUA Board of Directors at the same time as the master plans, in mid-2002:

1. RP-4 Liquid Expansion to 14 MGD;
2. RP-1 to RP-5 Sewer Line By-pass;
3. San Bernardino Pump Station and Force main to RP-4;
4. RP-4 Interceptor;
5. Upland Interceptor Relief Sewer; and
6. RP-1 Landscape and Architectural Modifications (modernization)

Each of these projects scheduled for near-term implementation is described in the preceding text. Adequate information is available regarding the specific engineering design for these facilities to permit a detailed forecast of potential adverse environmental impacts from their immediate implementation. As other second-tier projects are considered in the future, it is IEUA's intent to perform a review of each future project's impacts in accordance with Section 15162 of the State CEQA Guidelines to determine what level of review may be required before authorization for the project can proceed to be implemented. The test that will be used to determine whether a second tier project falls within the scope of a program EIR, such as this document, is to determine whether new circumstances or reassessment of previously identified impacts may result in new significant impacts. As the text in Sections 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 those second tier projects as they are proposed for implementation in the future. Based on substantiating data, a determination will be made regarding the appropriate CEQA procedure to implement future proposed projects. Based on the evaluation of second tier projects in the future, the CEQA Lead Agency, most likely the Inland Empire Utilities Agency, will make one of the following determinations:

1. The proposed project's environmental effects are encompassed by the environmental evaluation in the PEIR. No new significant impacts or 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. A new Notice of Determination will be filed if the Agency chooses to approve the proposed project.

2. The proposed project's environmental effects are encompassed by the environmental evaluation in the PEIR, but the project has changed sufficiently to justify the preparation of an Addendum in accordance with Section 15164 of the State CEQA Guidelines. An Addendum to the previously certified PEIR need not be recirculated, but a new Notice of Determination will be filed if the Agency chooses to approve the proposed project.

3. The project and associated impacts fall within the scope of impacts identified for the program. However, due to more detailed, project-specific information not available at the time the PEIR was prepared, additional impacts and mitigation not addressed in that document are identified in the Initial Study. Adequate measures, however, are provided in the Initial Study compiled to evaluate the second tier project to mitigate these new potential impacts to a level of less than significant. Based on such a finding, a Negative Declaration is the appropriate CEQA determination it will be processed as required by State CEQA Guidelines, Article 6. A new Notice of Determination will be filed at the end of the public review process if the Agency chooses to approve the proposed project.

4. An Initial Study for a second tier project identifies potential impacts that fall outside the impact forecast in the PEIR and, assuming such impact(s) cannot be mitigated below a less than significant level, a supplemental or subsequent EIR must be prepared.

By following the above procedures in reviewing specific second tier projects in the future, IEUA ensures that adequate environmental review is carried out for each project and that all second tier projects fully comply with the content and intent of CEQA. Note that this Program Environmental Impact Report is not a "Master EIR" which will sunset in five years. As long as the PEIR's basic data, analyses and conclusions remain accurate, the PEIR can be referenced for second tier project reviews.

3.5 USES OF THIS ENVIRONMENTAL IMPACT REPORT

As previously stated, the Inland Empire Utilities Agency Board of Directors must approve and certify the PEIR before any of the proposed development will be allowed to proceed and cause the corresponding changes to the physical environment. This PEIR will be used as the information source and CEQA compliance document for the following discretionary actions or approvals by the Inland Empire Utilities Agency, and subsequently by Watermaster and any constituent agencies should they also decide to adopt the OBMP. Responsible agencies for this PEIR may include:

- Chino Basin Watermaster
- Metropolitan Water District of Southern California
- Three Valleys Municipal Water District of Southern California
- Western Municipal Water District
- Various agencies of the State of California, including Department of Justice, Department of Fish and Game, Department of Toxic Substances Control, and Department of Transportation
- County of San Bernardino (including San Bernardino County Flood Control District)
- Regional Water Quality Control Board
- Department of Health Services
- Other various cities and water supply agencies
- South Coast Air Quality Management District

Other public agencies not listed here may also choose to utilize this PEIR to evaluate discretionary actions for compliance with CEQA guidelines and regulations.

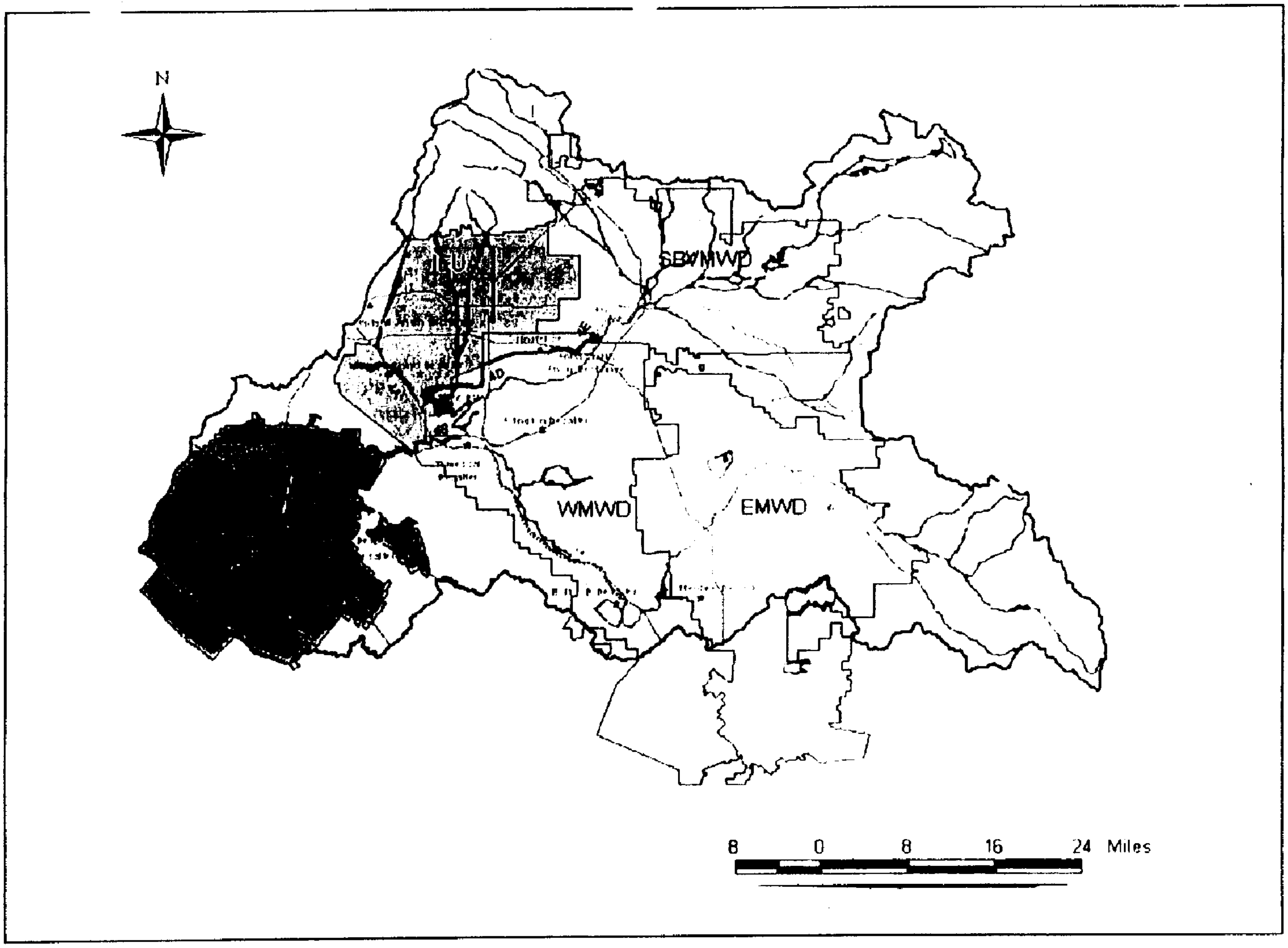


Figure 3-1 Santa Ana Watershed Boundaries

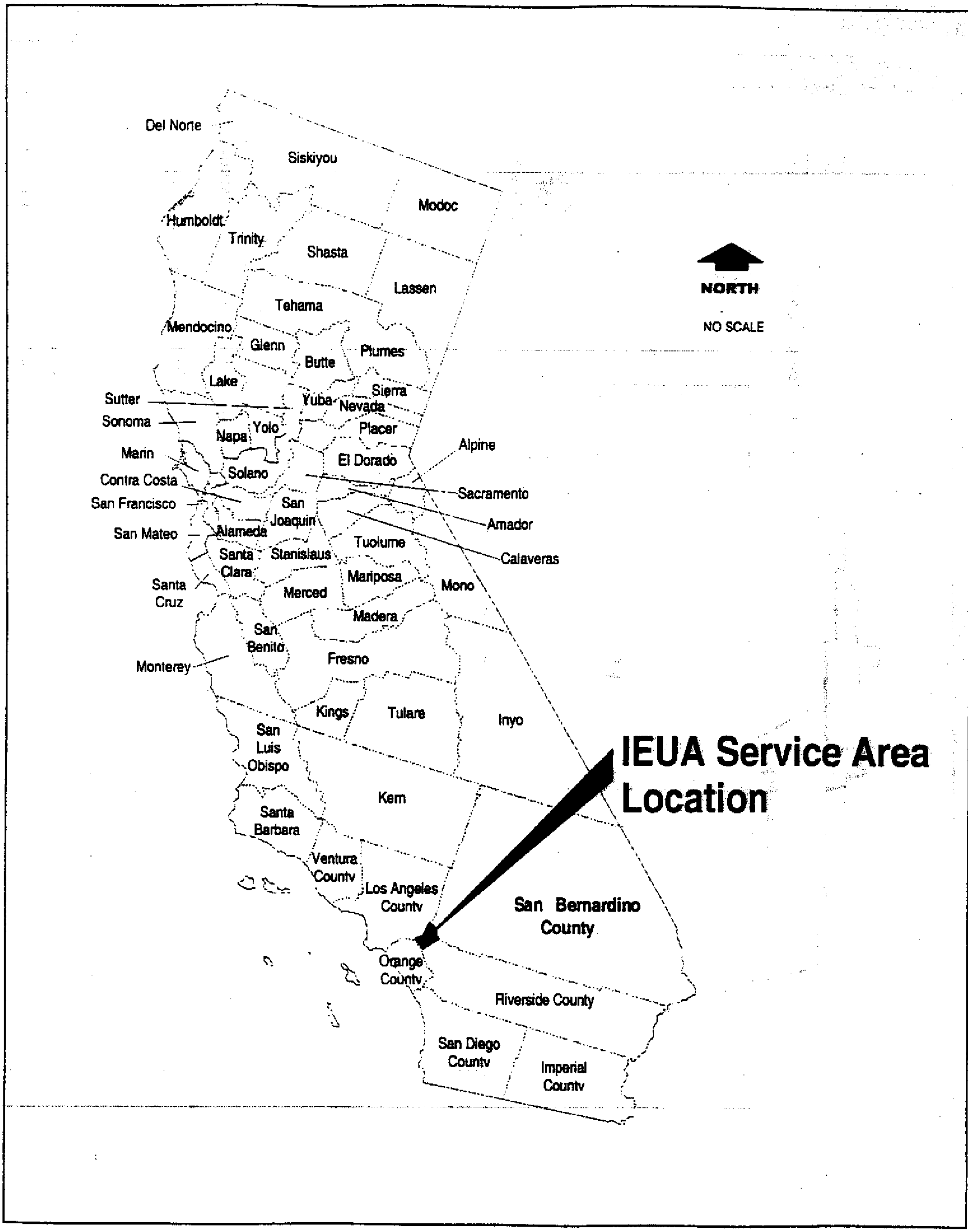


Figure 3-2 Regional Map Showing IEUA Service Area Location

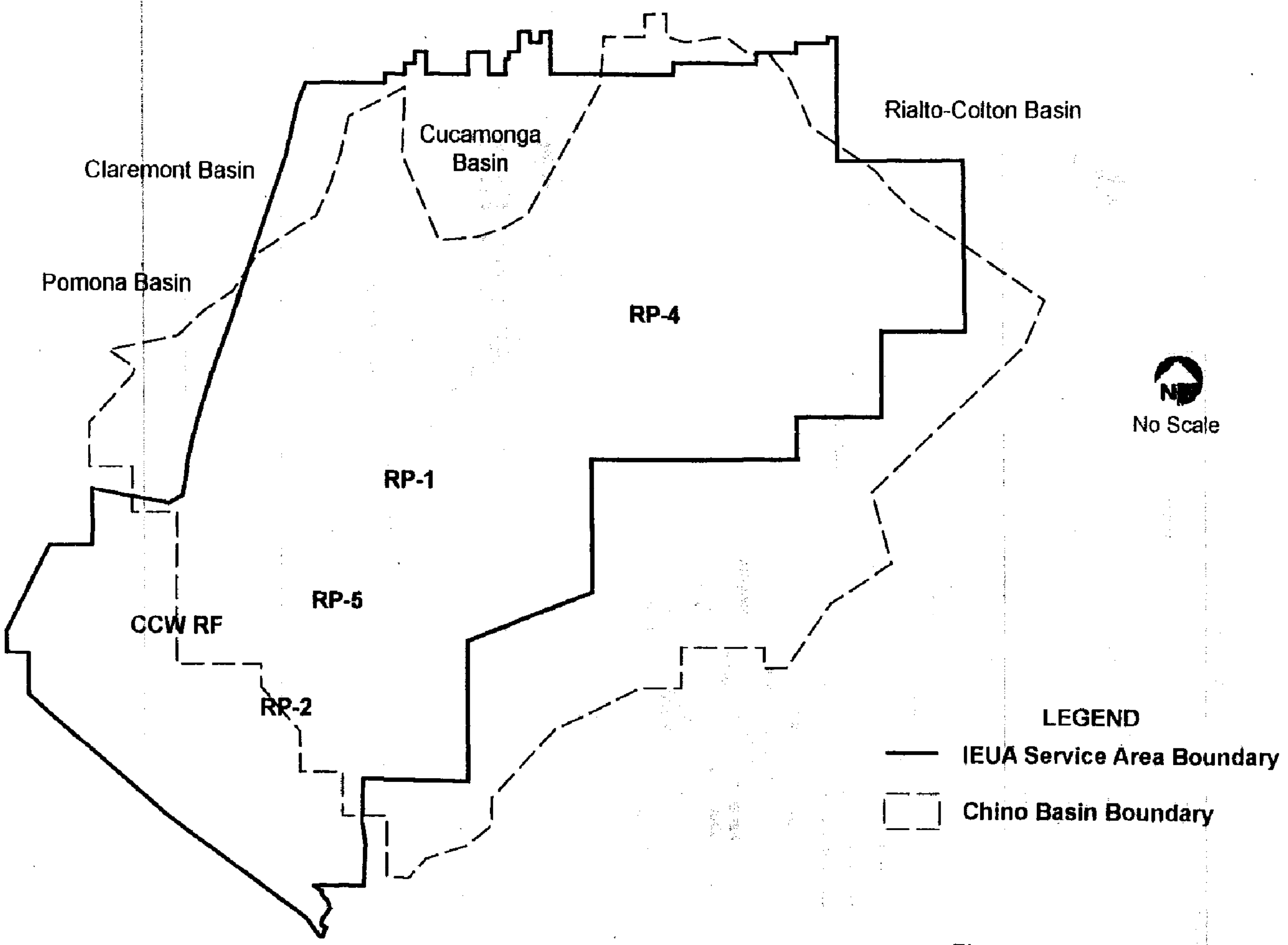


Figure 3-3
IEUA Service Area Boundary and Chino Basin Boundary

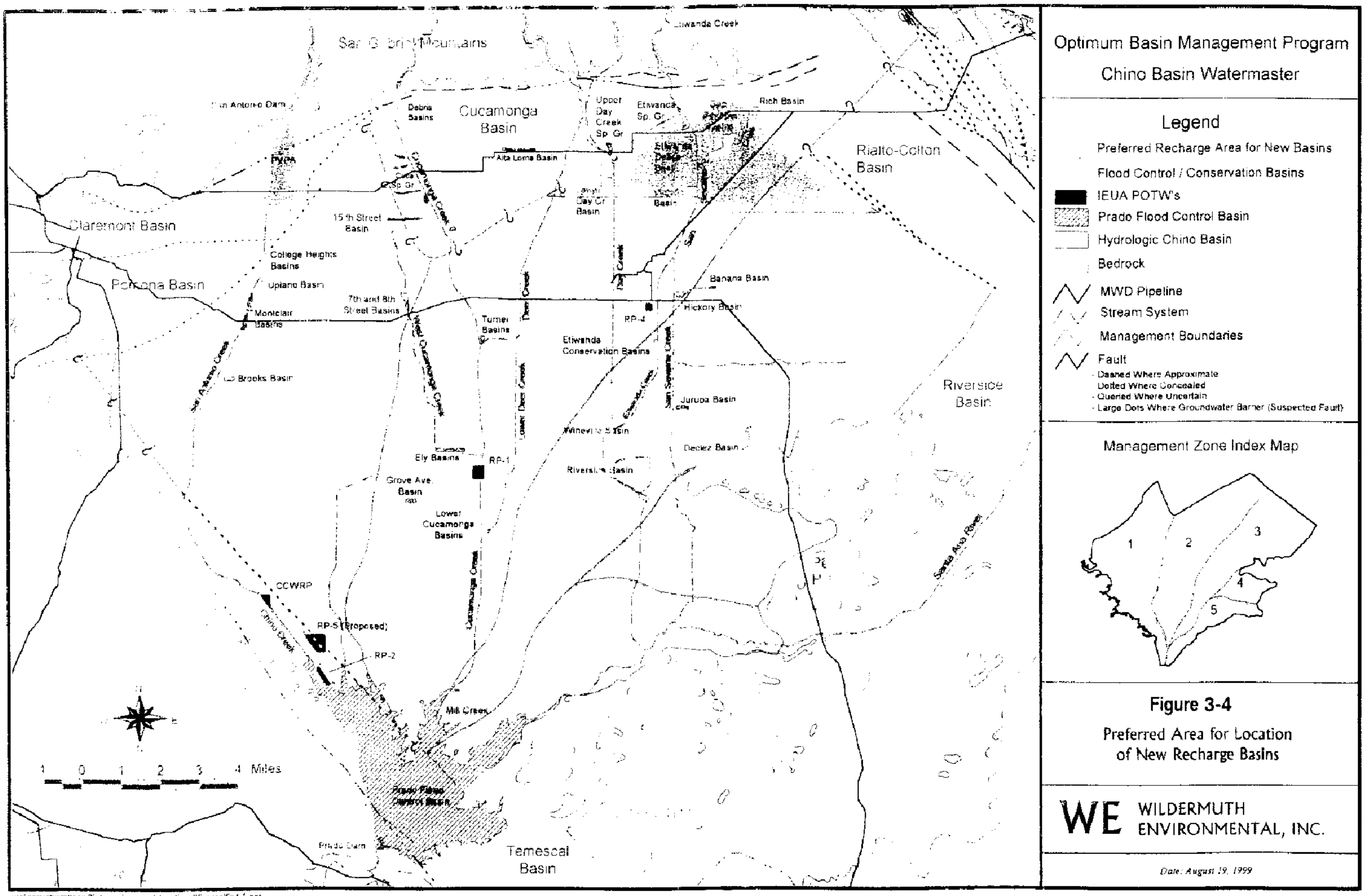


Figure 3-4

Preferred Area for Location of New Recharge Basins

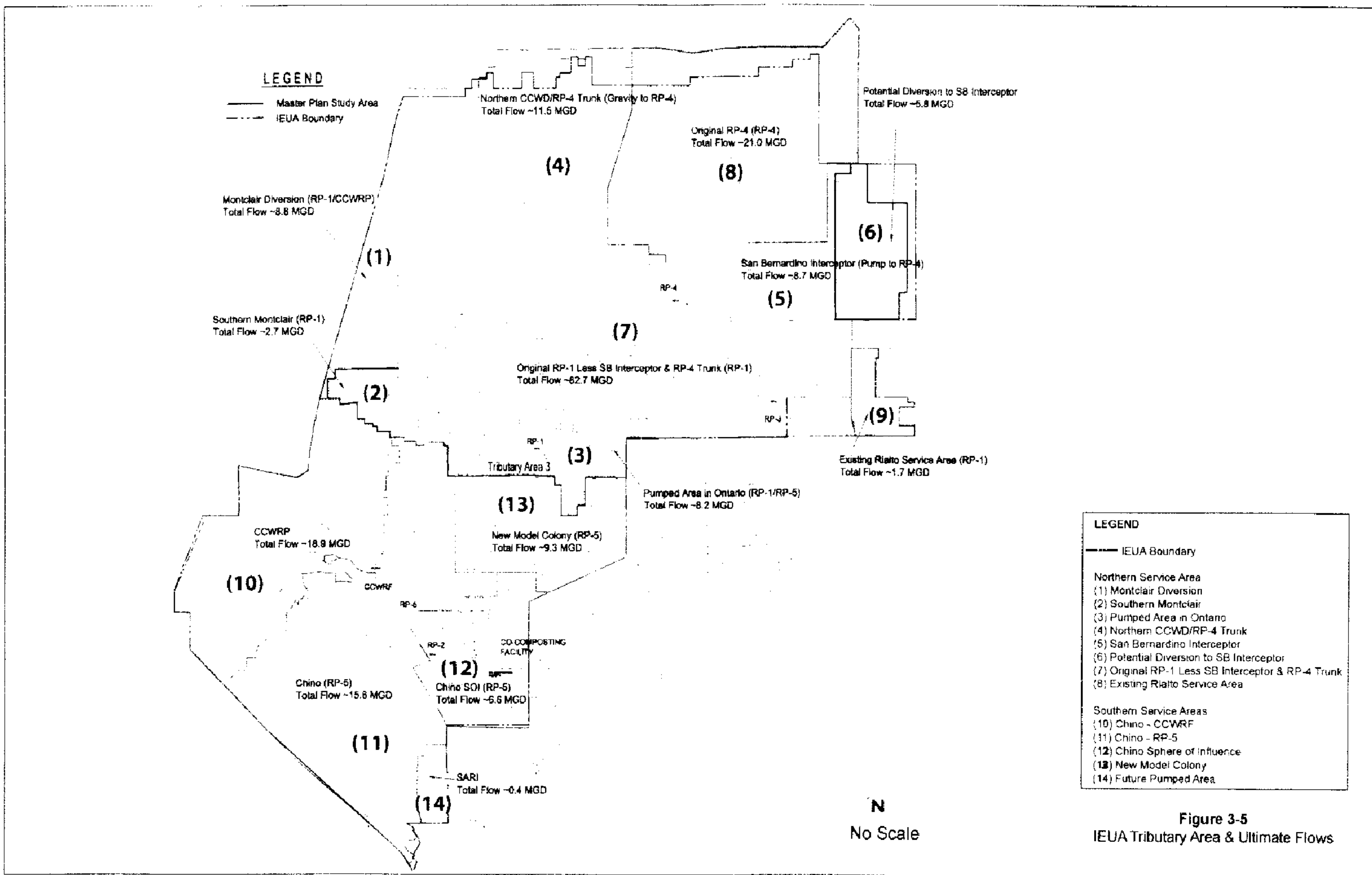


Figure 3-5
IEUA Tributary Area & Ultimate Flows

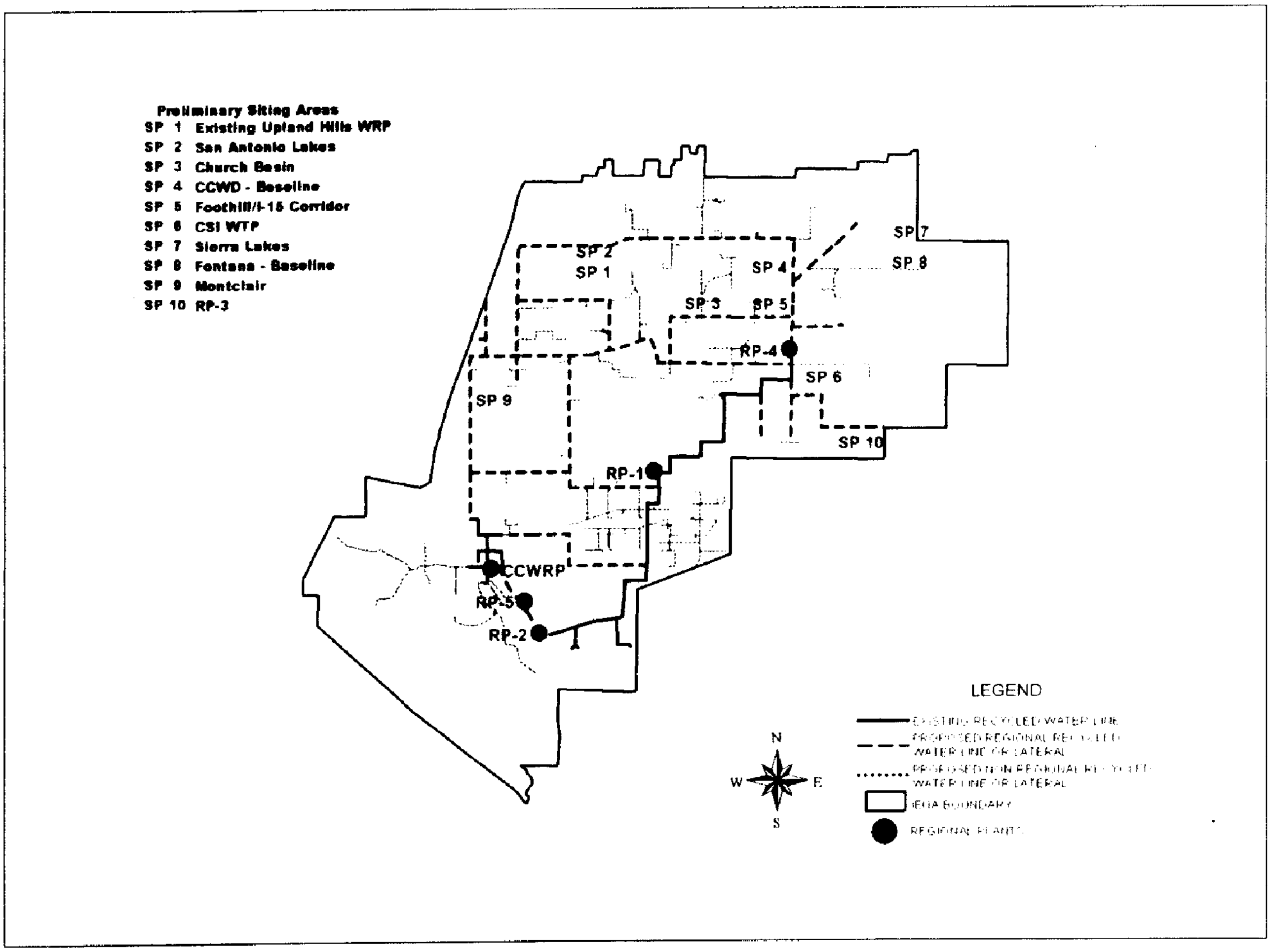


Figure 3-6
Potential Satellite Siting Areas

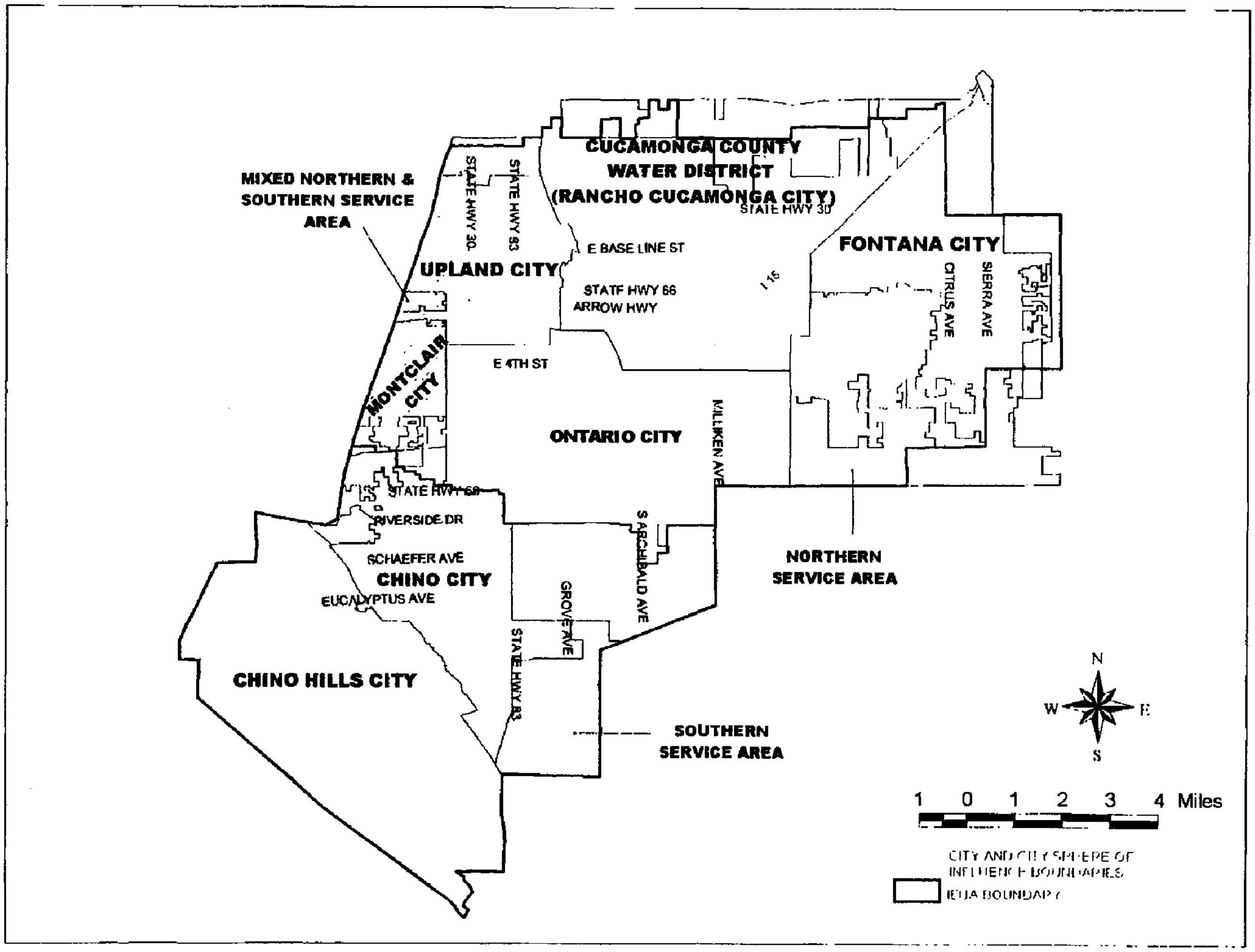


Figure 3-7
IEUA Service Area Contract Customers

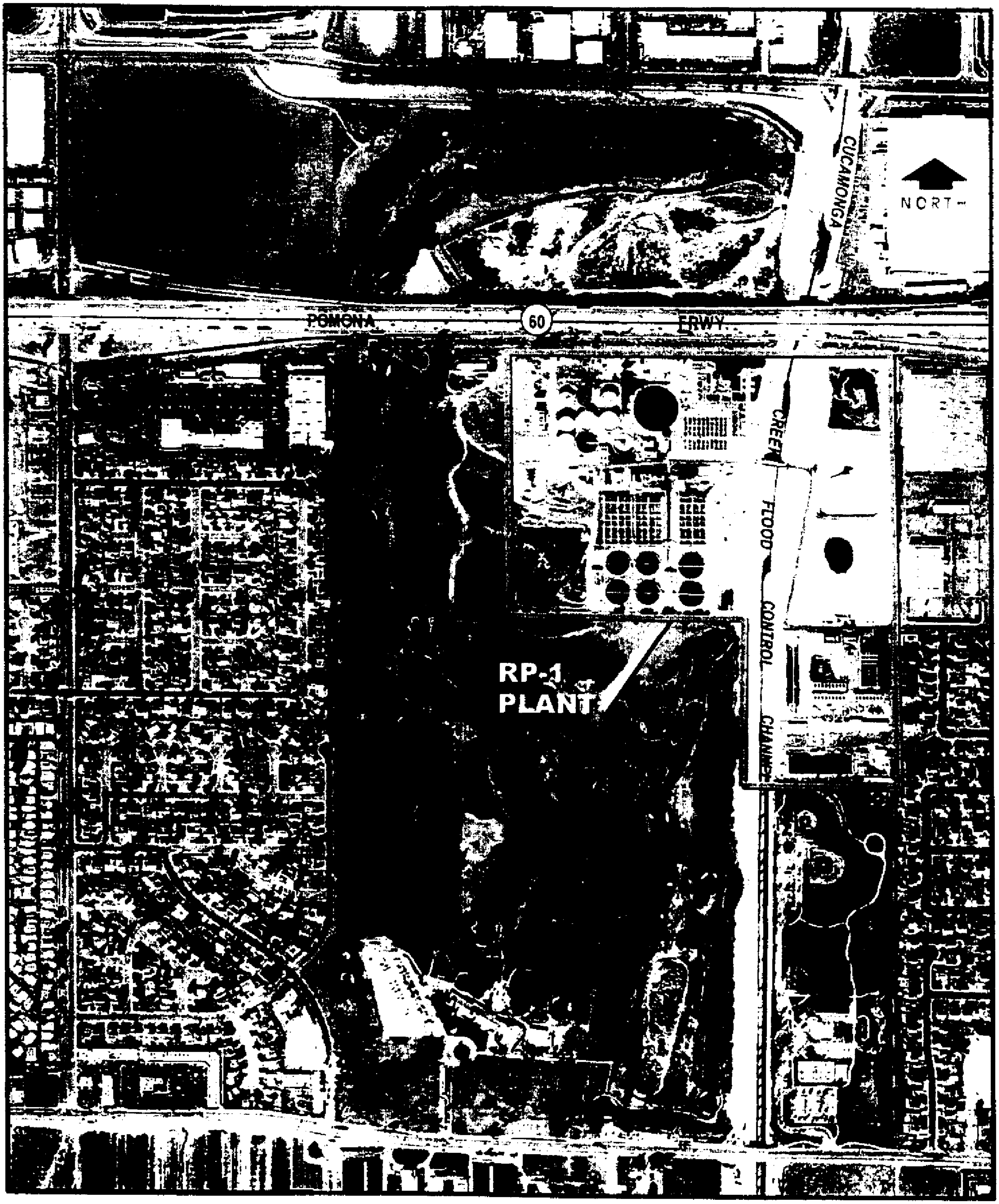


Figure 3-8

RP-1 Plant Location Map

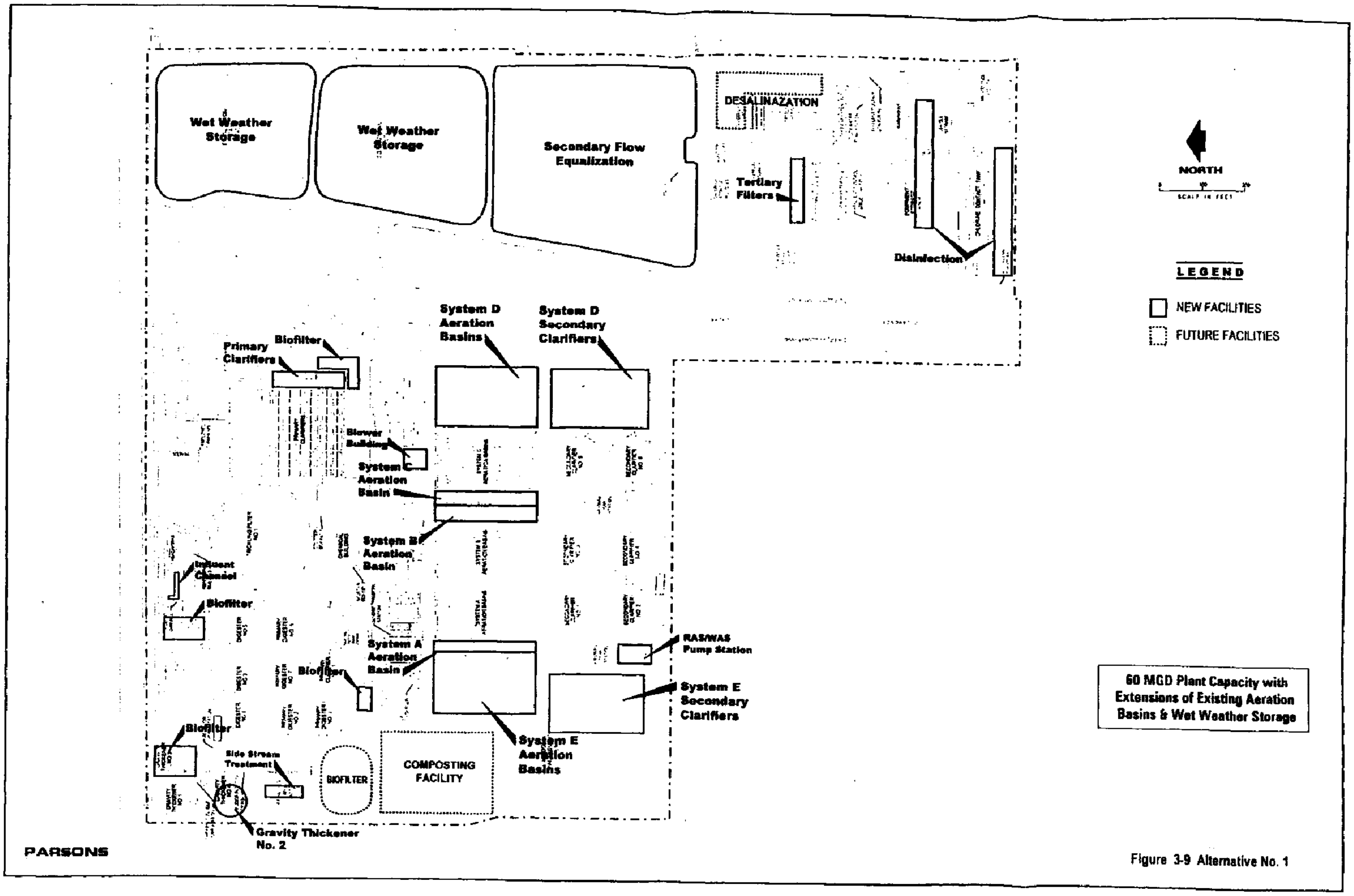


Figure 3-9 Alternative No. 1

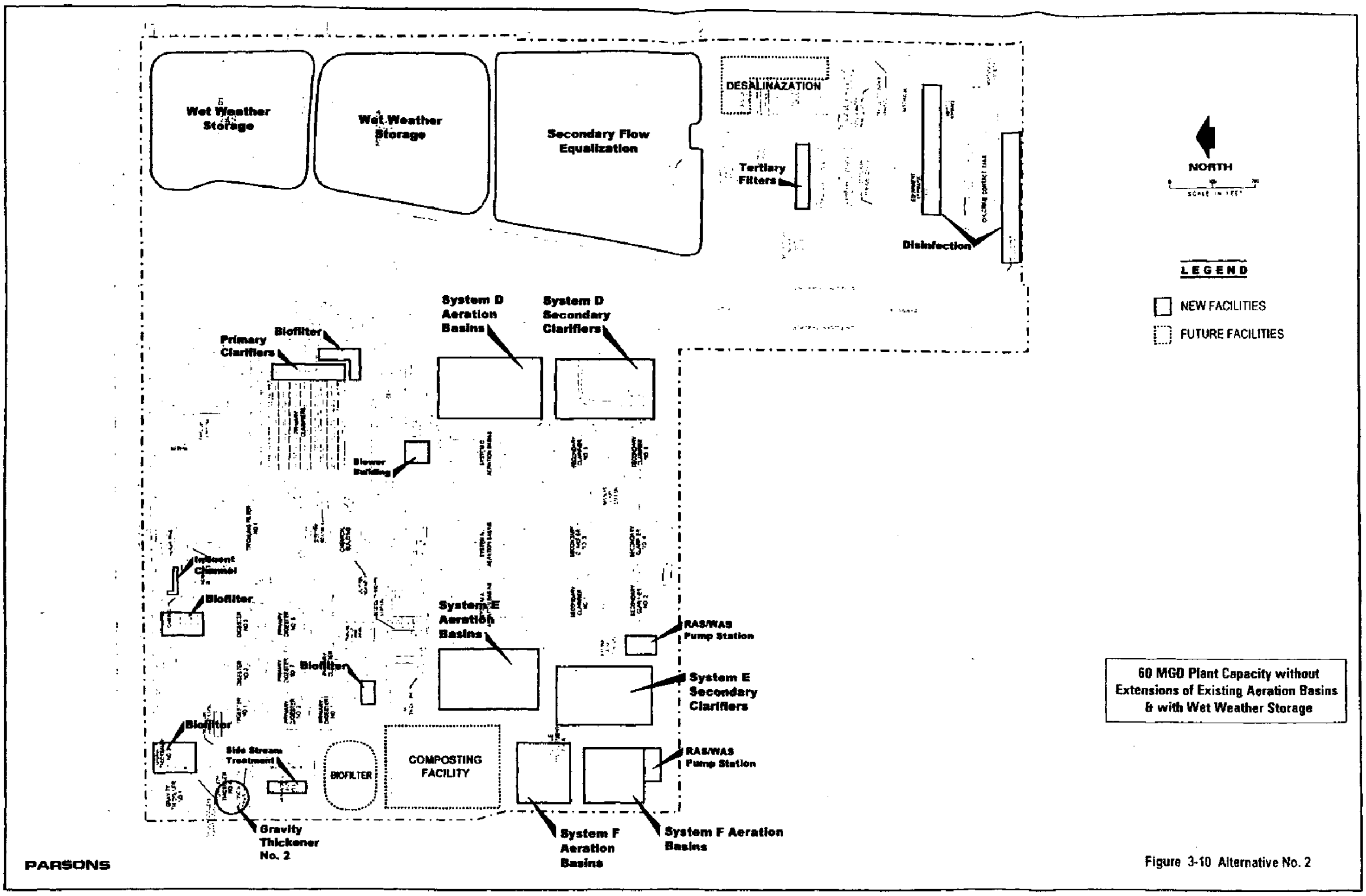


Figure 3-10 Alternative No. 2

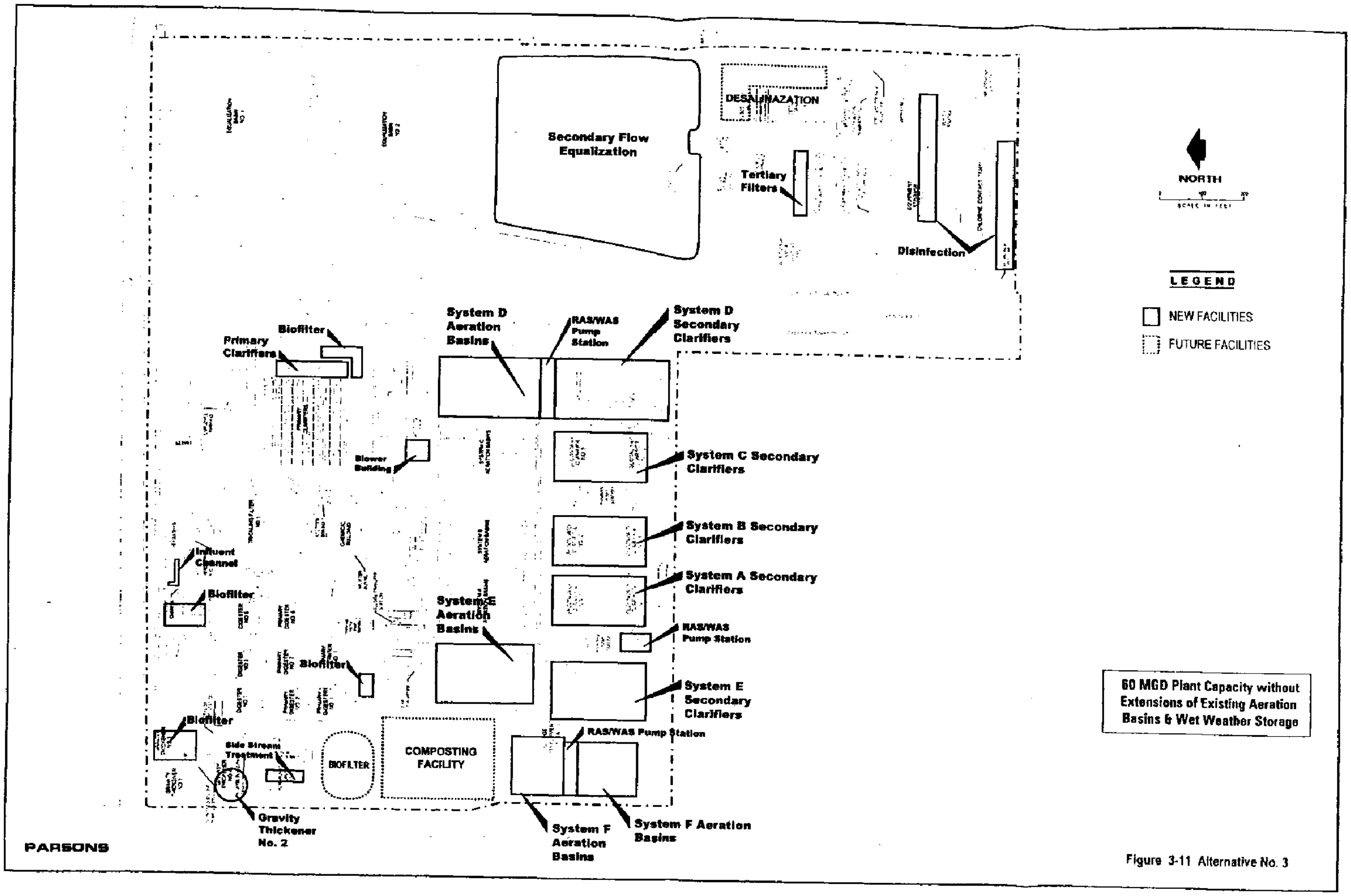
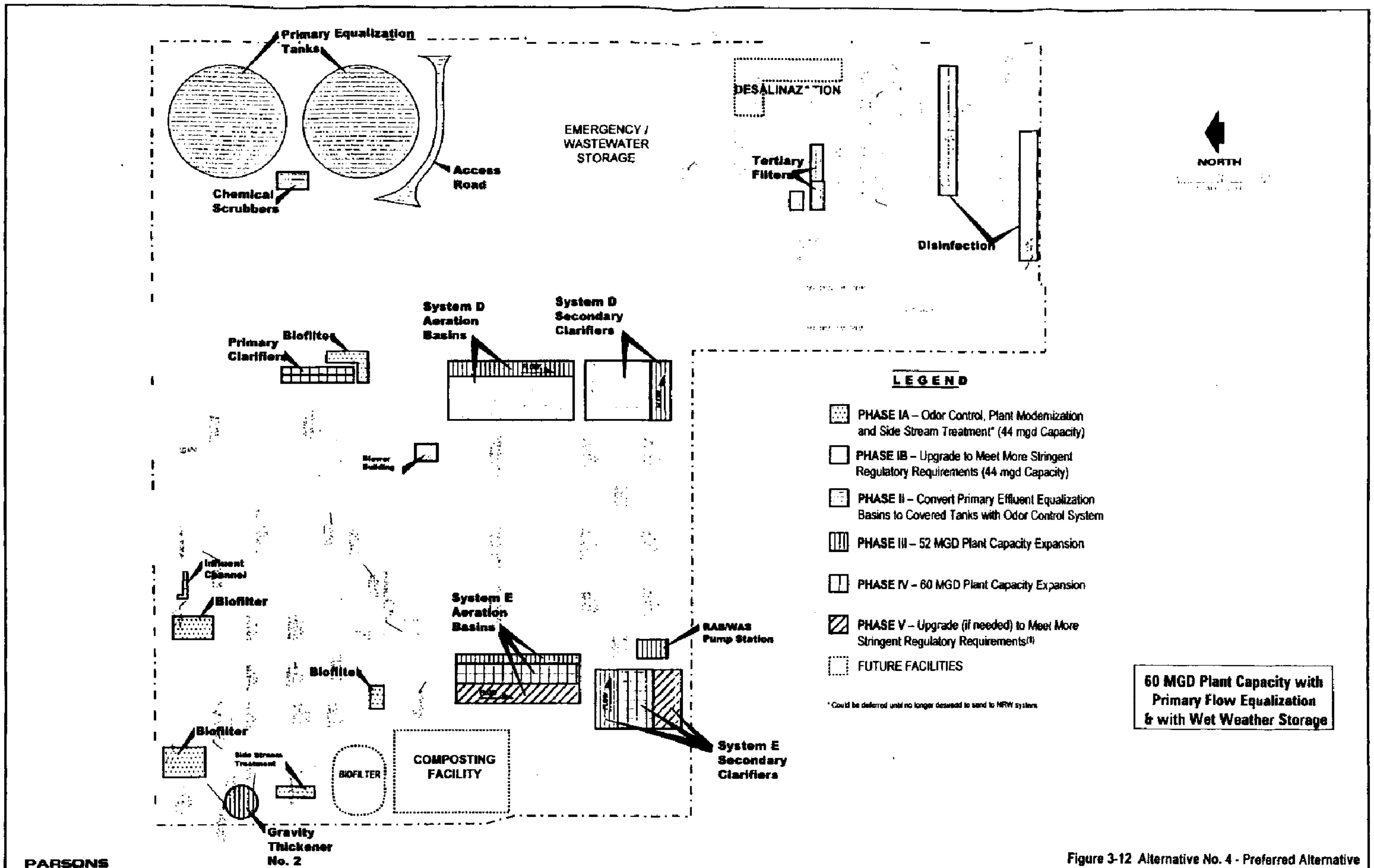
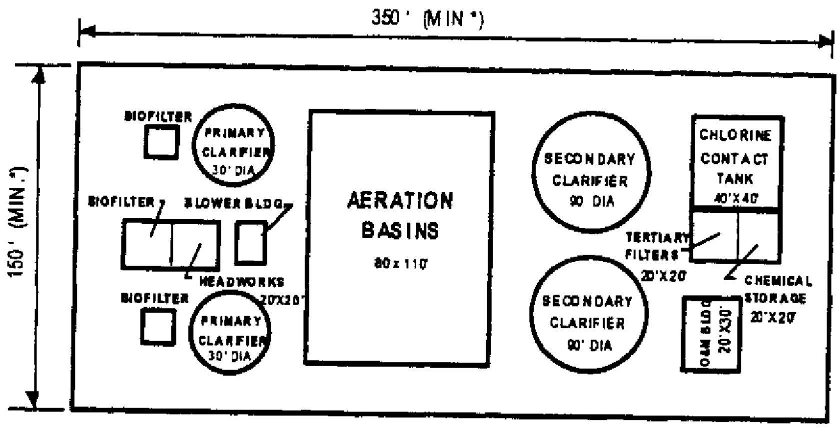


Figure 3-11 Alternative No. 3



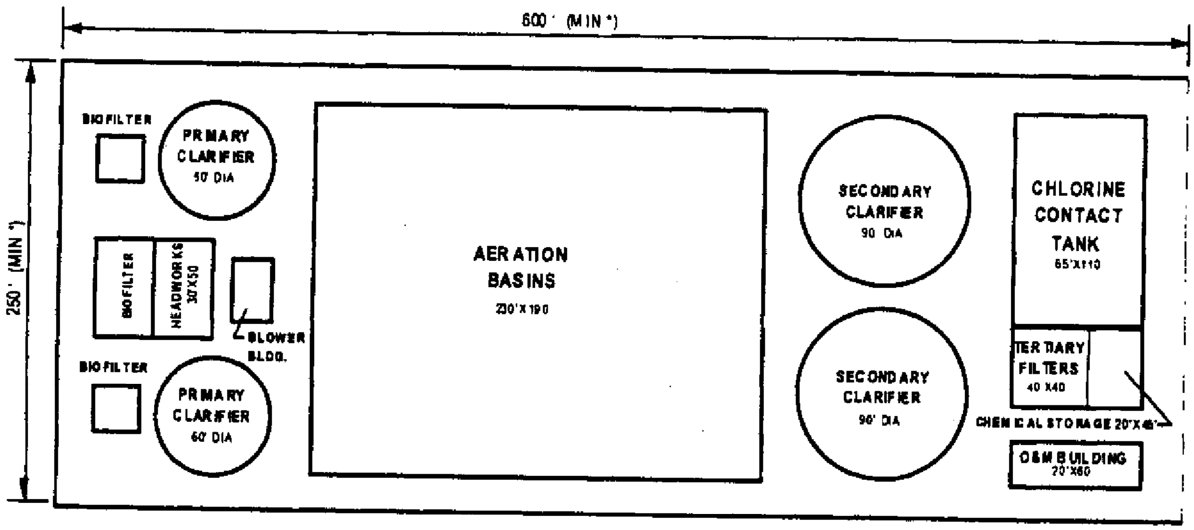
PARSONS

Figure 3-12 Alternative No. 4 - Preferred Alternative



* ADDITIONAL BUFFER MAY BE REQUIRED

1 MGD Plant Layout



* ADDITIONAL BUFFER MAY BE REQUIRED

5 MGD Plant Layout

Figure 3-13
Typical Satellite Plant Layout with Conventional Treatment Processes

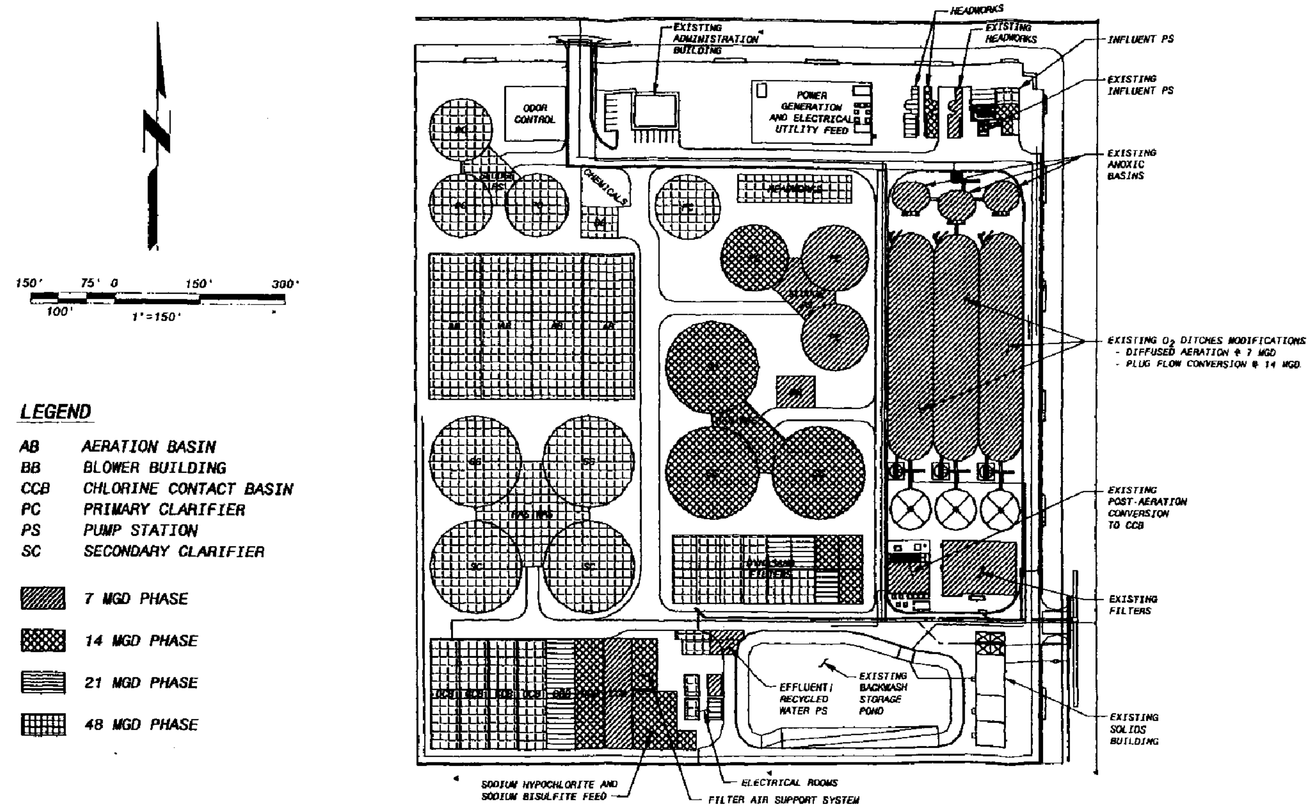


Figure 3-14
RP-4 Liquid Treatment Facilities

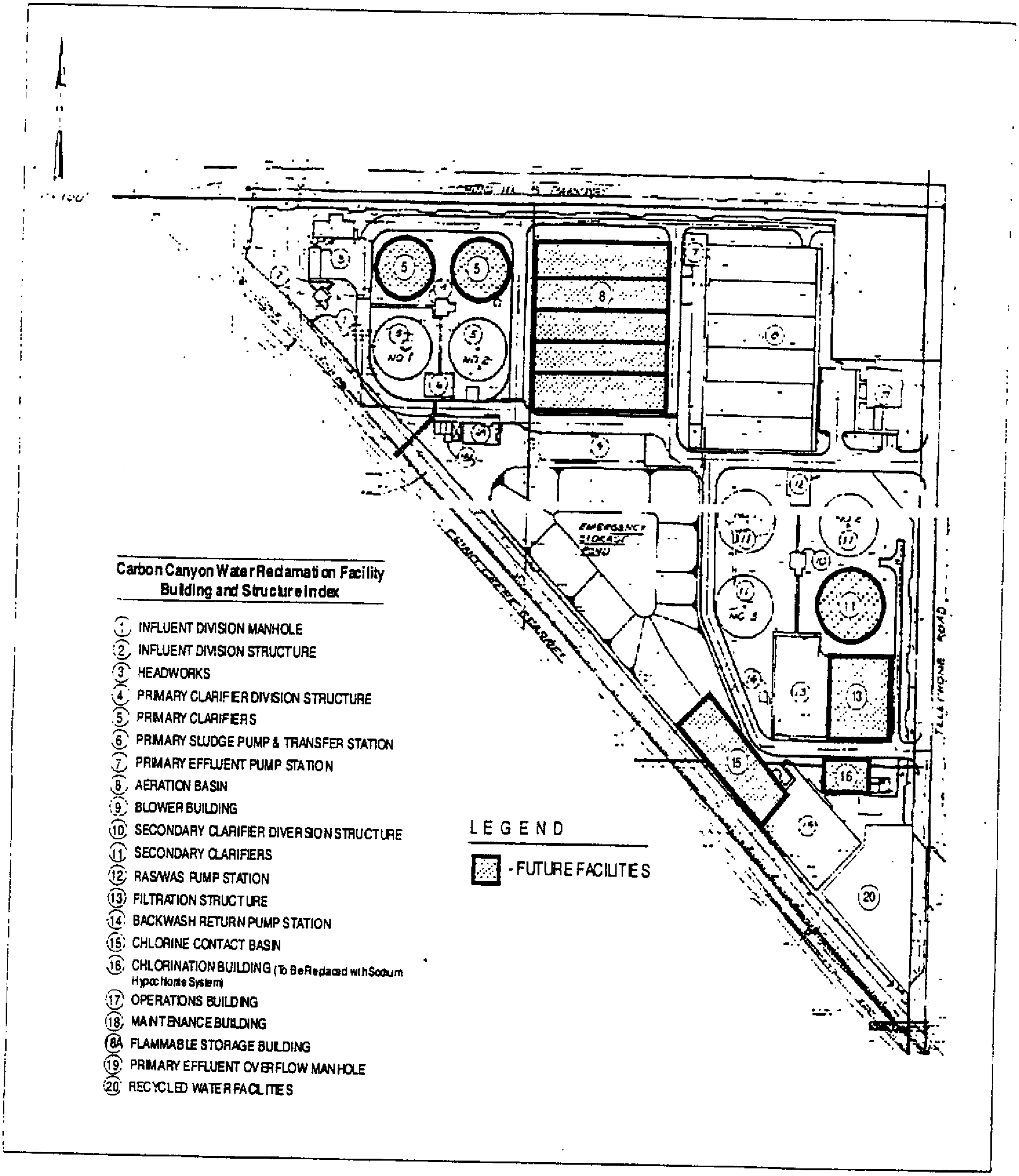


Figure 3-15

Carbon Canyon Water Reclamation Facility
Ultimate Layout

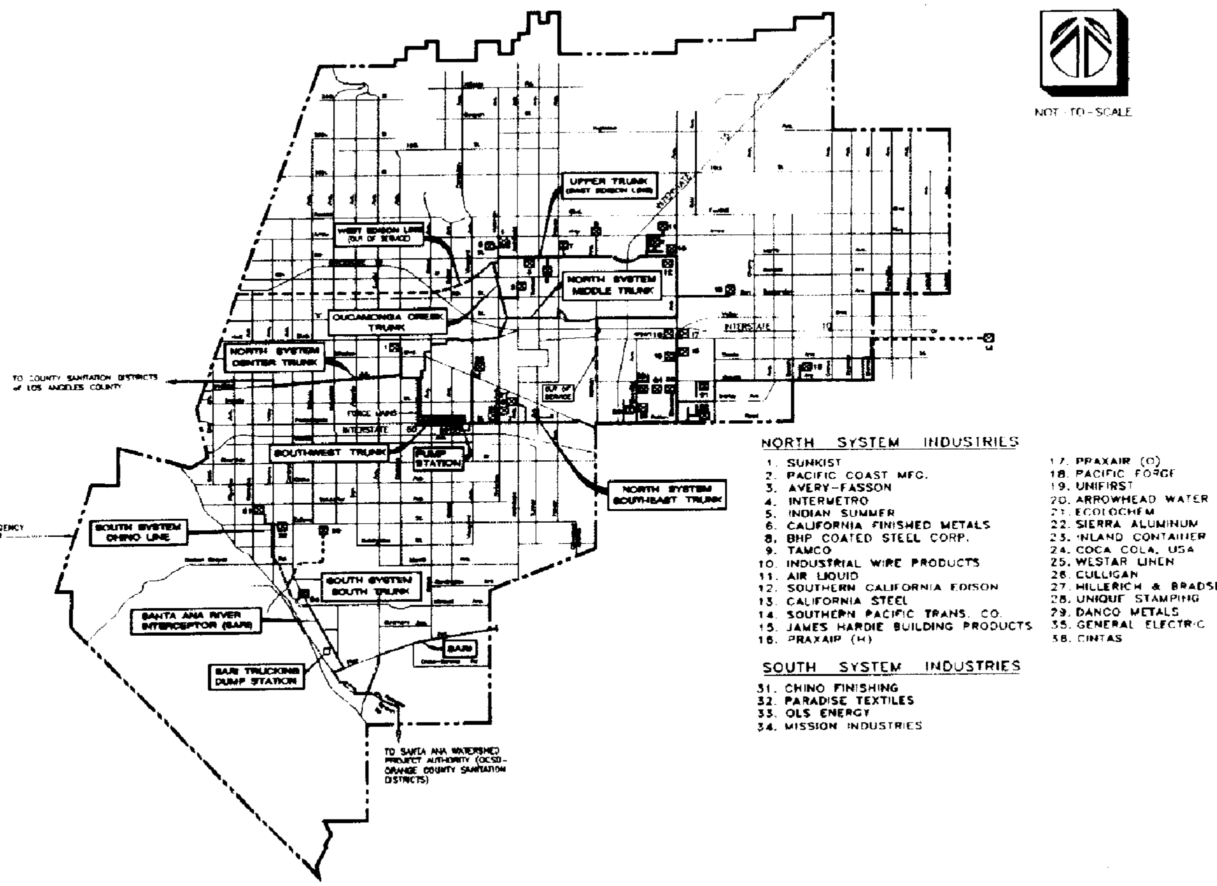


Figure 3-16 Non-Reclaimable Waste Lines, SARI System and NRWS System

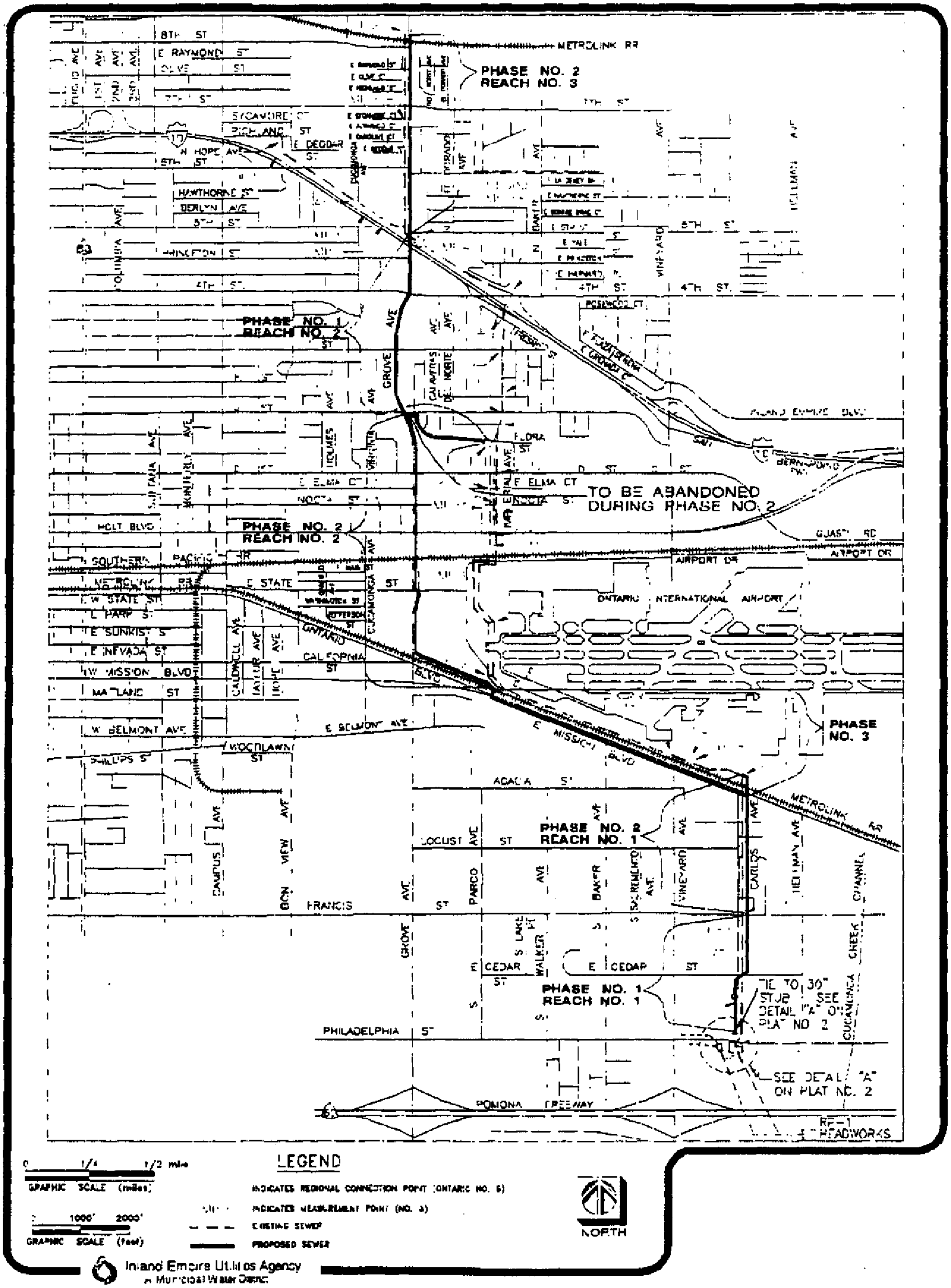


Figure 3-17

Upland Interceptor Relief Sewer

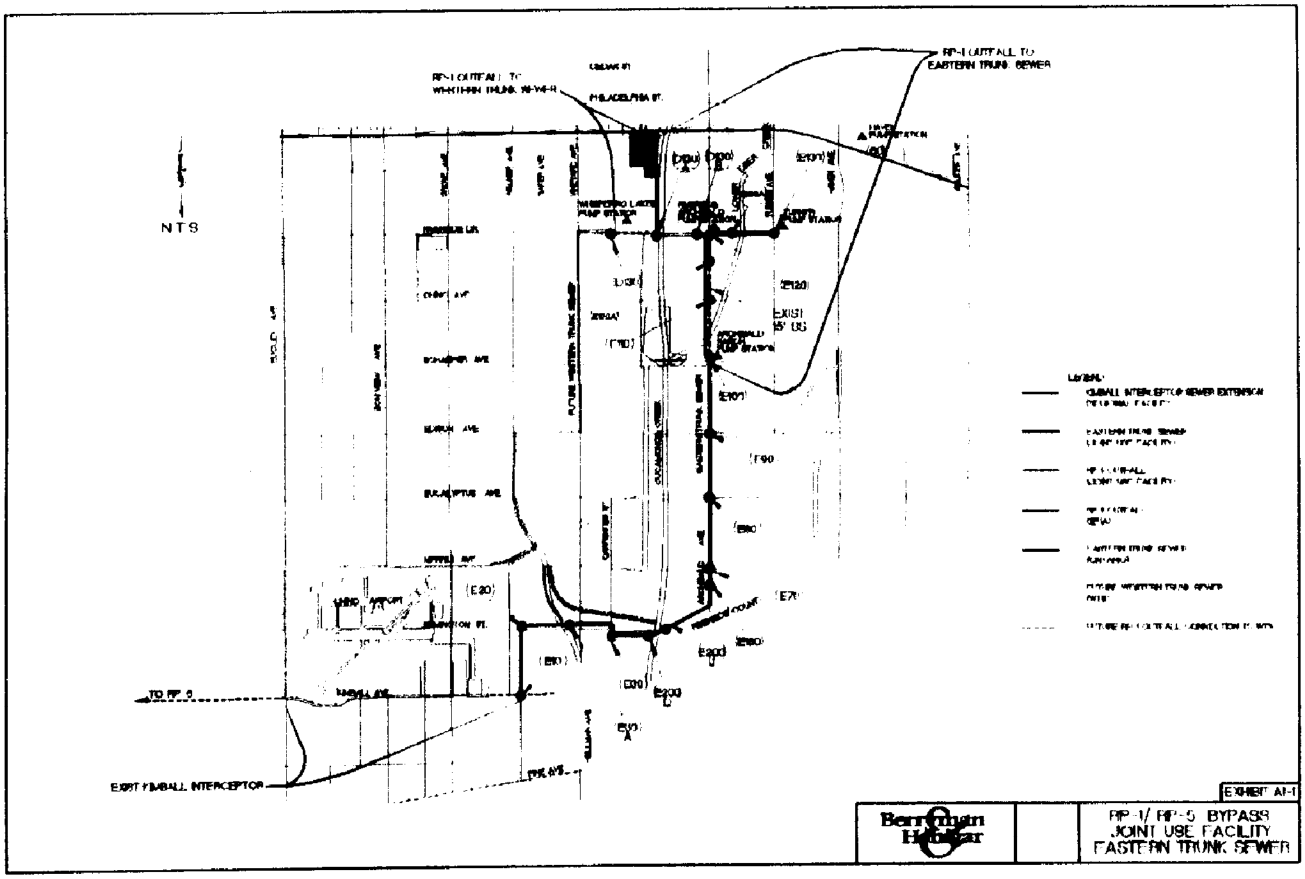
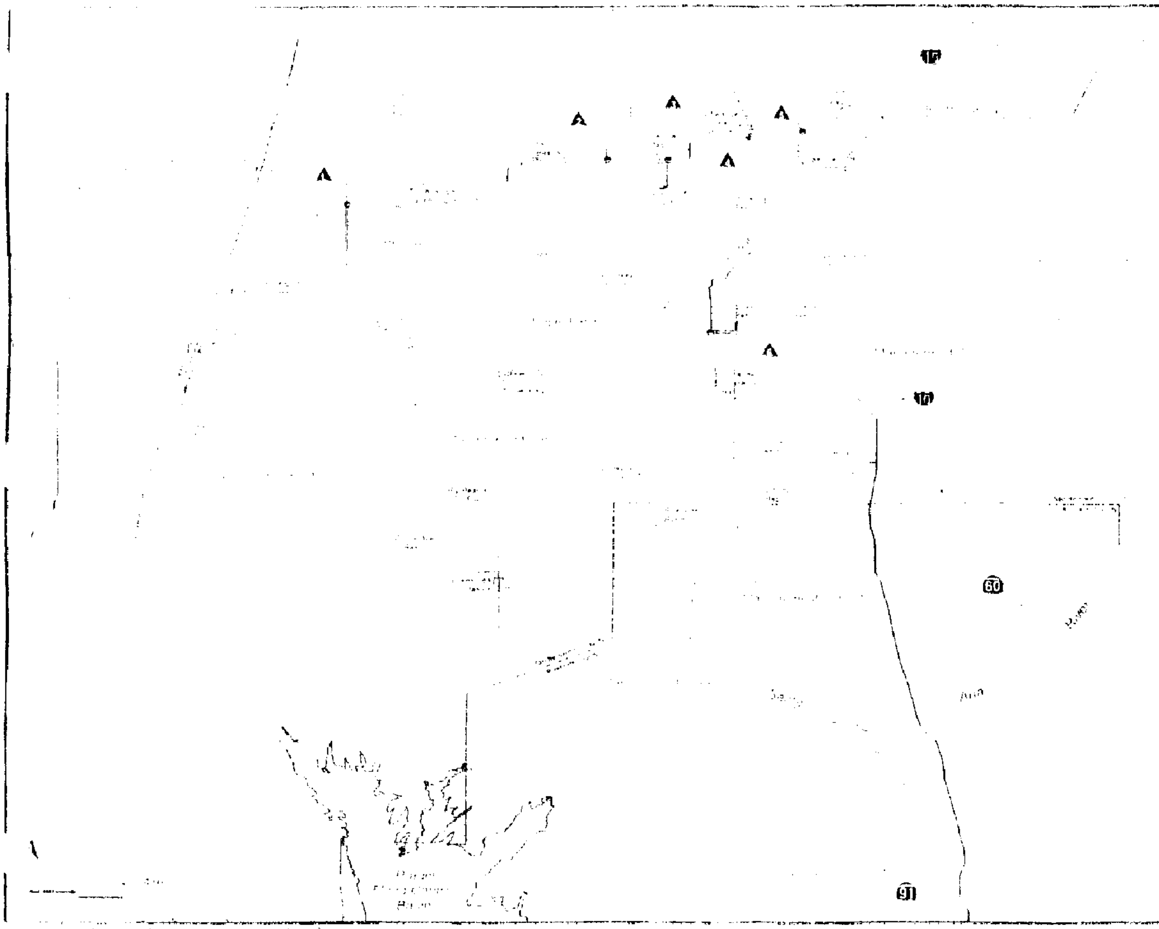


Figure 3-18

Proposed RP-1/RP-5 Bypass Trunk Sewer



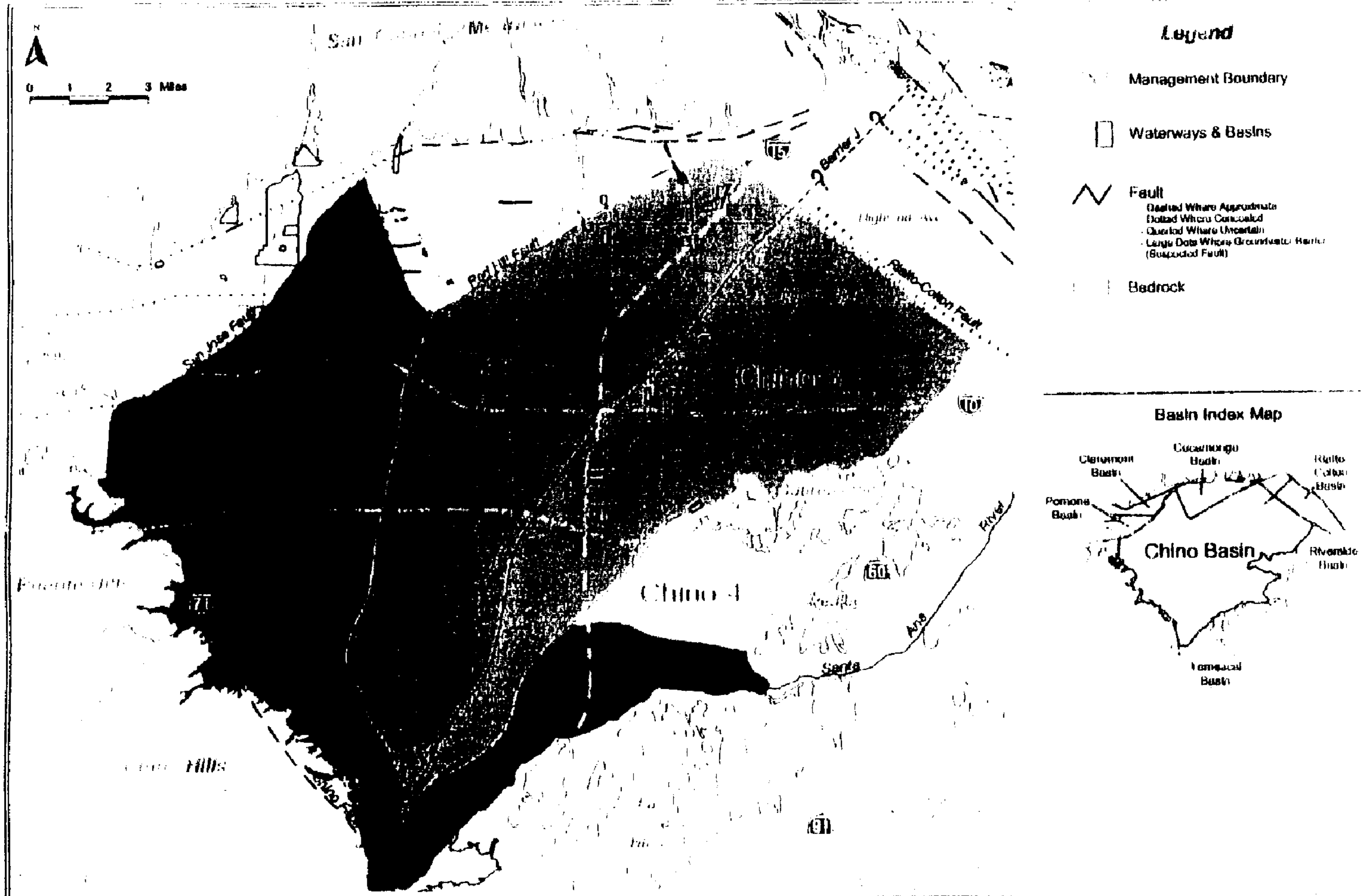
Chino Basin OBMP
Recharge Master Plan

Legend

Figure 3-19

Chino Basin Recharge Basins

BLACK & VEATCH
Corporation



CHINO BASIN MANAGEMENT ZONES

Source: Wildermuth Environmental, Inc

TOM DODSON & ASSOCIATES
Environmental Consultants

FIGURE 3-20

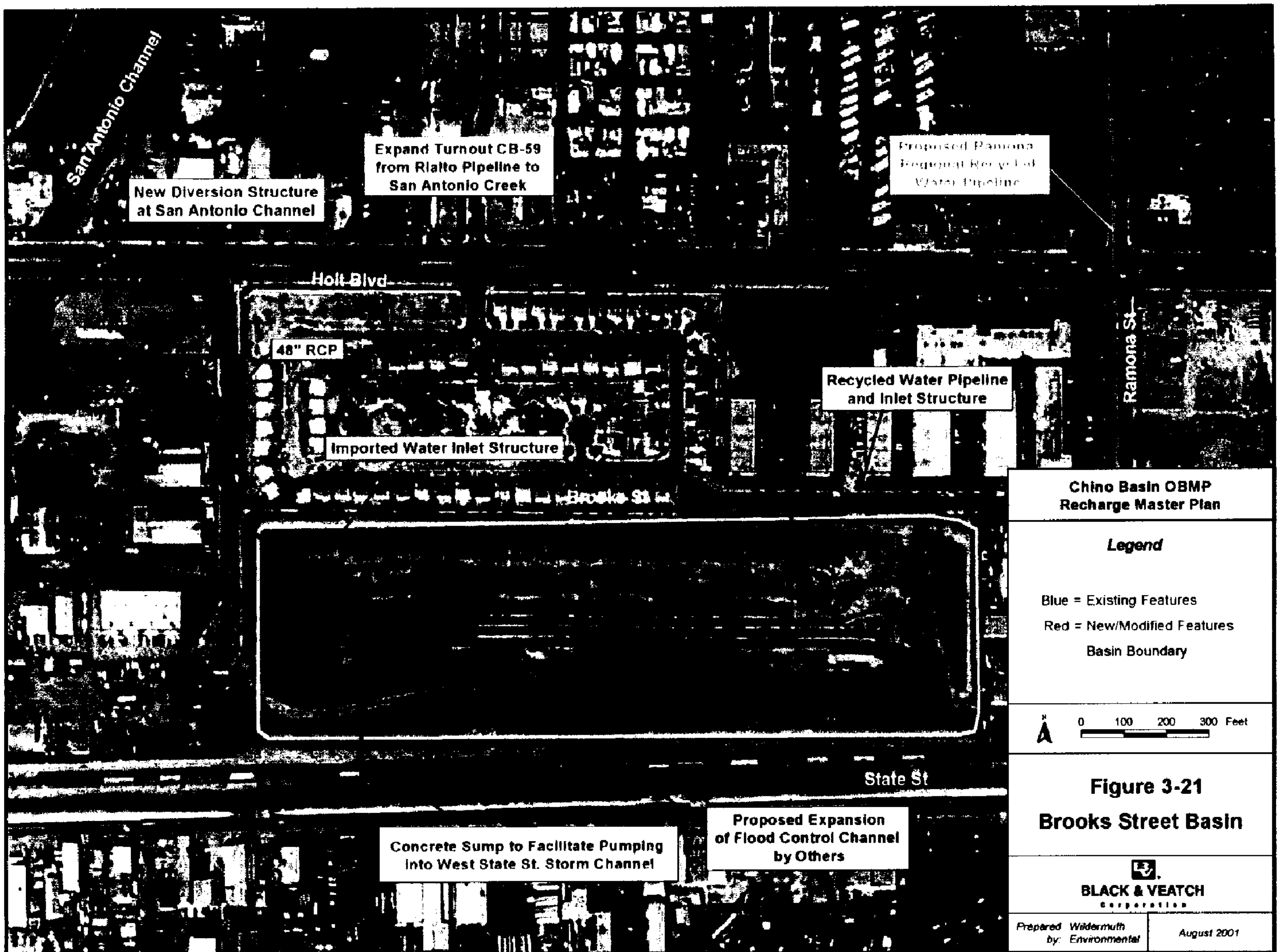


Figure 3-21
Brooks Street Basin

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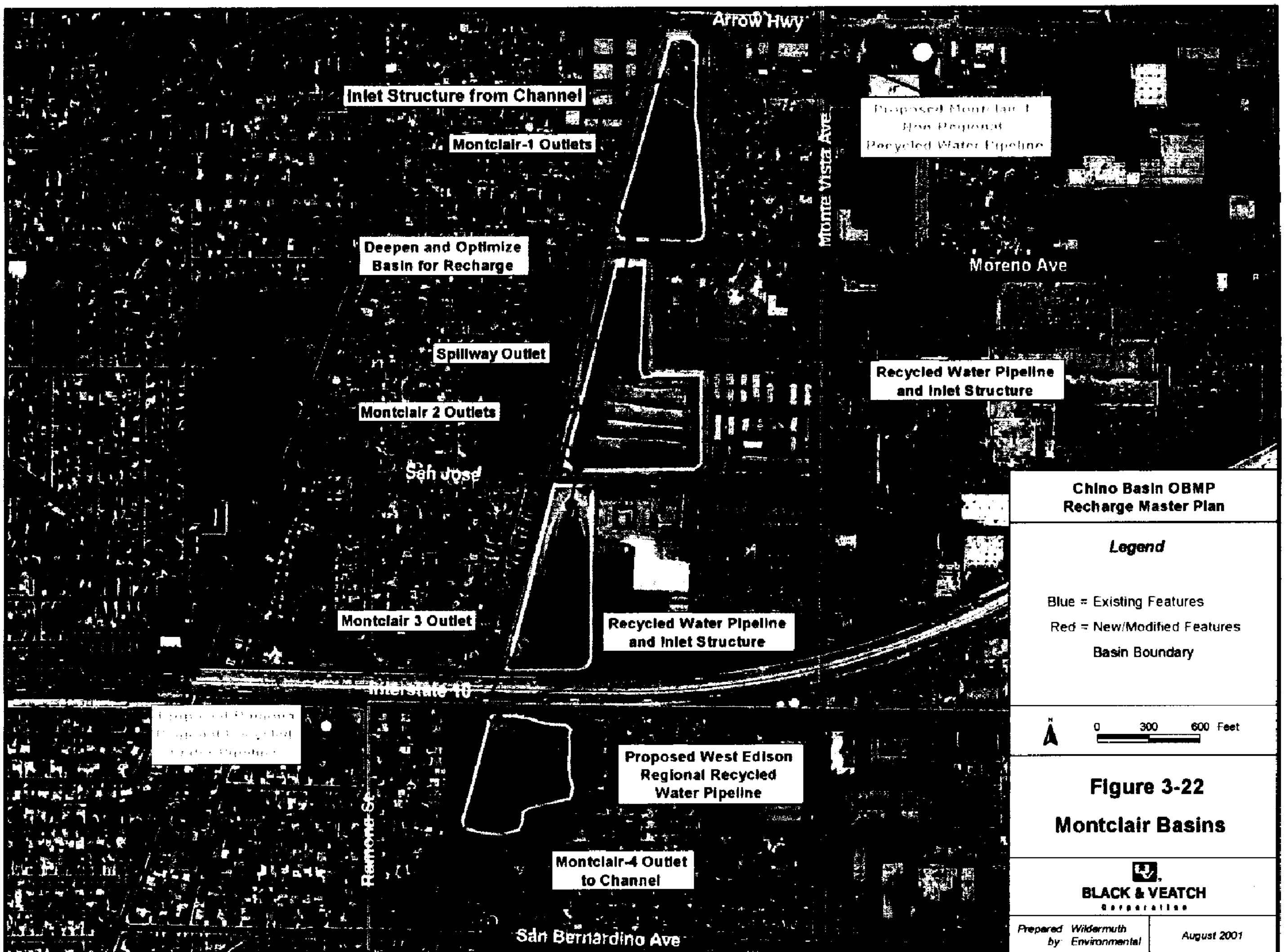
Aerial Photo Taken on March 22, 2000



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Aerial Photo Taken on March 22, 2000

s:/clients/cbwm/admin/maps_for_others/black_veatch/RechargeMP/rmp2.apr

Aerial Photo Taken on March 22, 2000

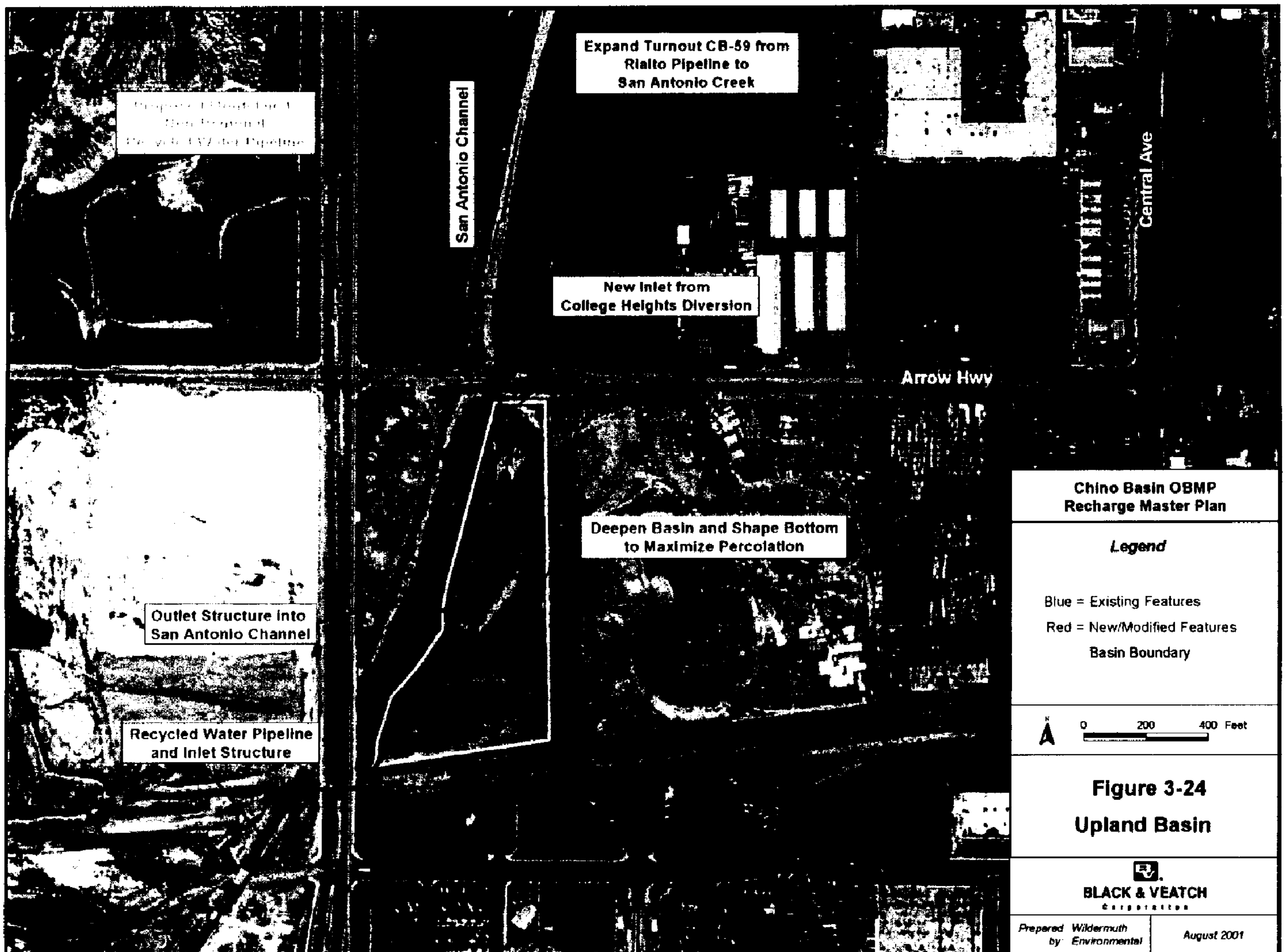

Figure 3-24
Upland Basin

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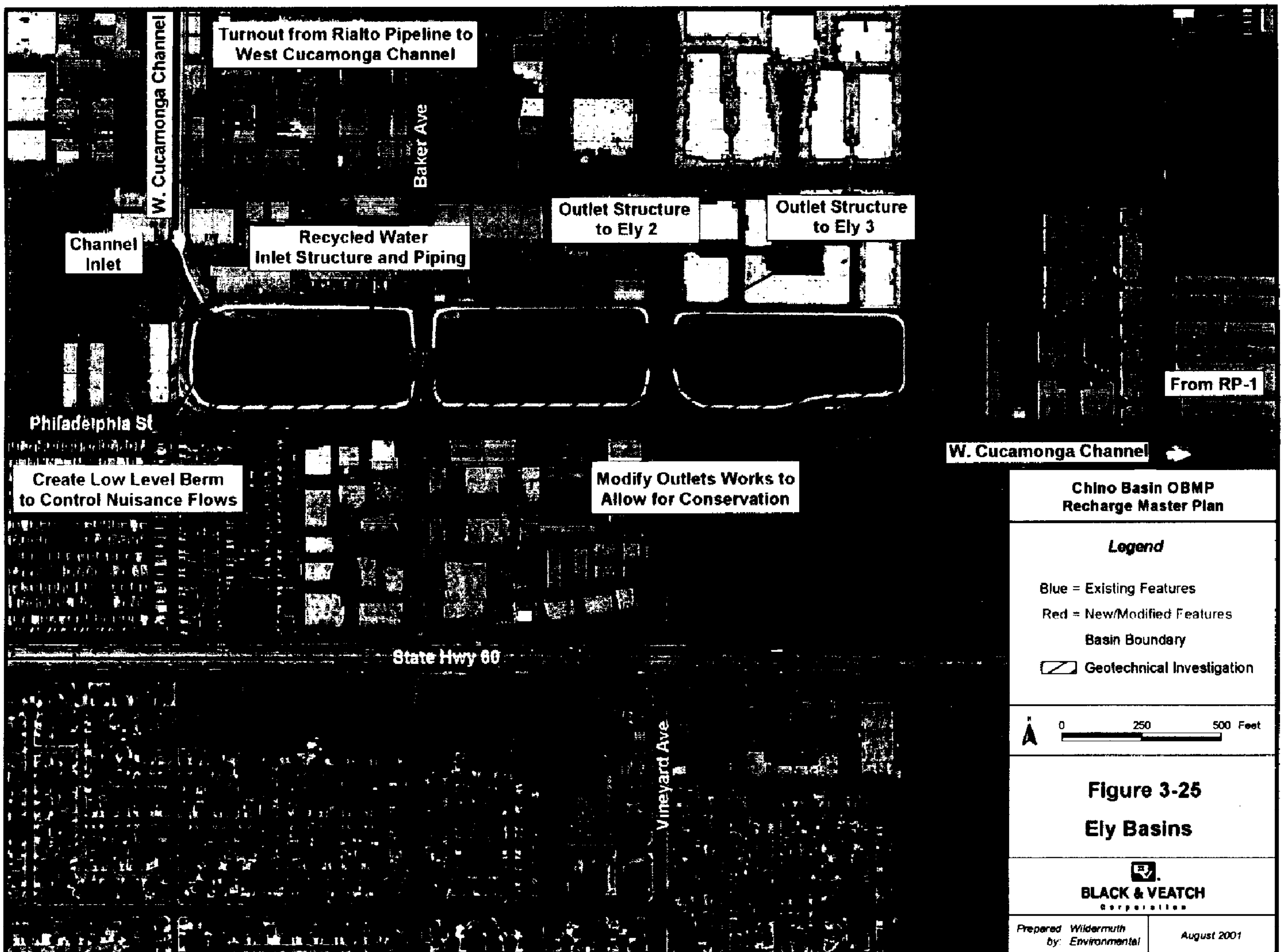
Aerial Photo Taken on March 22, 2000



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Aerial Photo Taken on March 22, 2000

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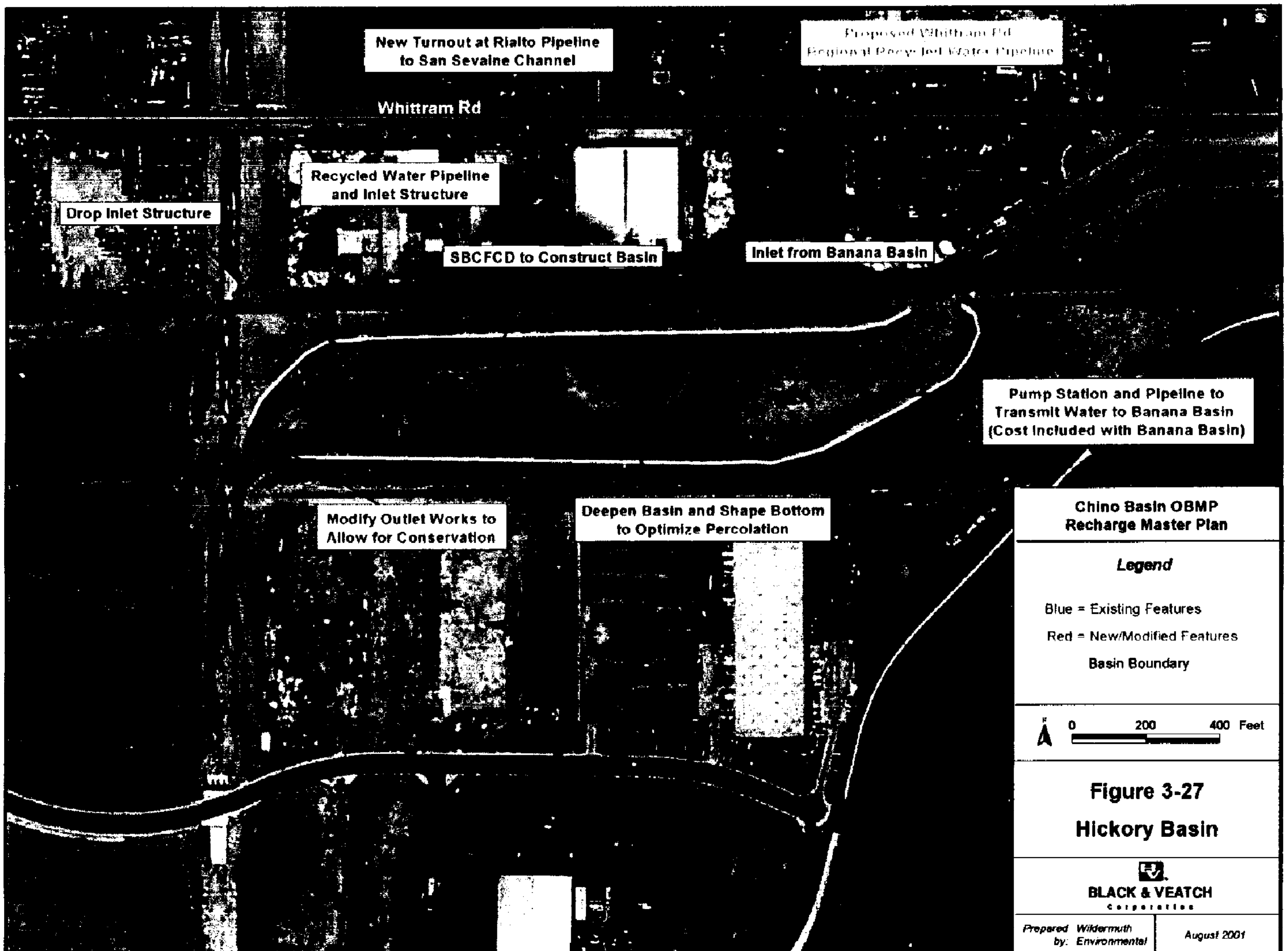
Aerial Photo Taken on March 22, 2000



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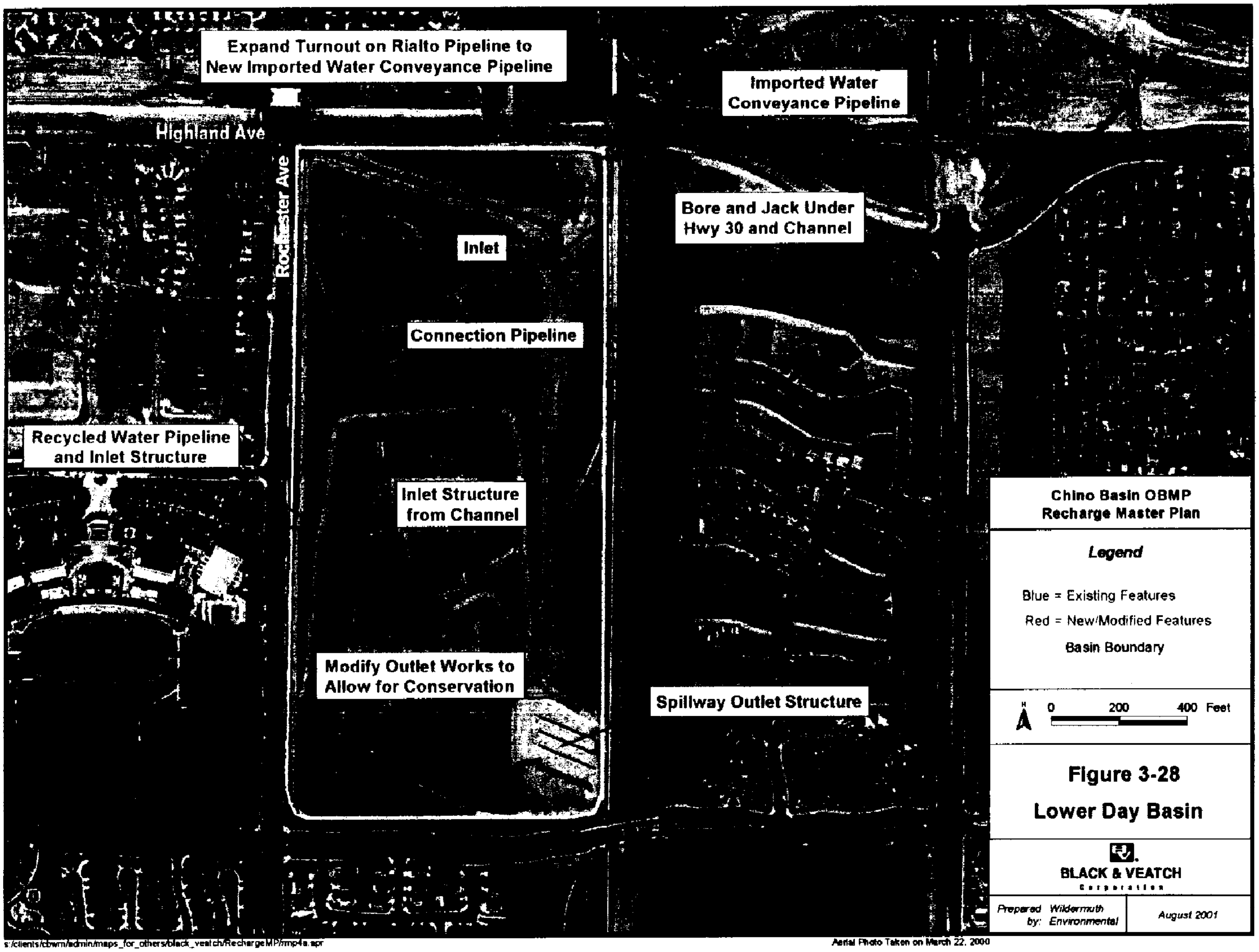
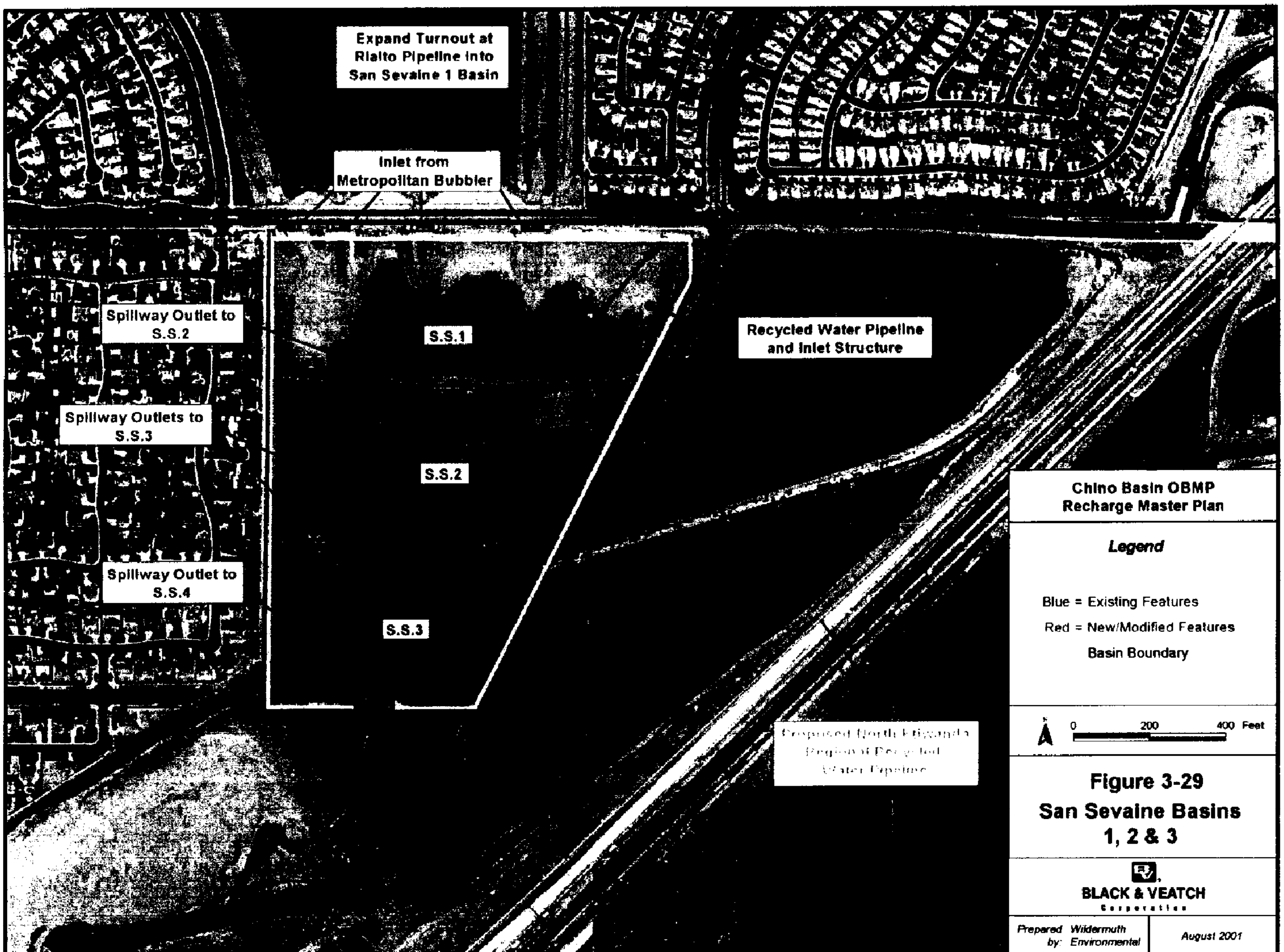
Aerial Photo Taken on March 22, 2000



Expand Turnout on Rialto Pipeline to New Imported Water Conveyance Pipeline
Imported Water Conveyance Pipeline
Highland Ave
Rochester Ave
Bore and Jack Under Hwy 30 and Channel
Inlet
Connection Pipeline
Recycled Water Pipeline and Inlet Structure
Inlet Structure from Channel
Modify Outlet Works to Allow for Conservation
Spillway Outlet Structure
Chino Basin OBMP
Recharge Master Plan
Legend
Blue = Existing Features
Red = New/Modified Features
Basin Boundary
N
0 200 400 Feet
Figure 3-28
Lower Day Basin
BLACK & VEATCH
Corporation
Prepared by: Wildermuth Environmental
August 2001
s:/clients/cbwm/admin/maps_for_others/black_veatch/RechargeMP/rmp4a.apr
Aerial Photo Taken on March 22, 2000



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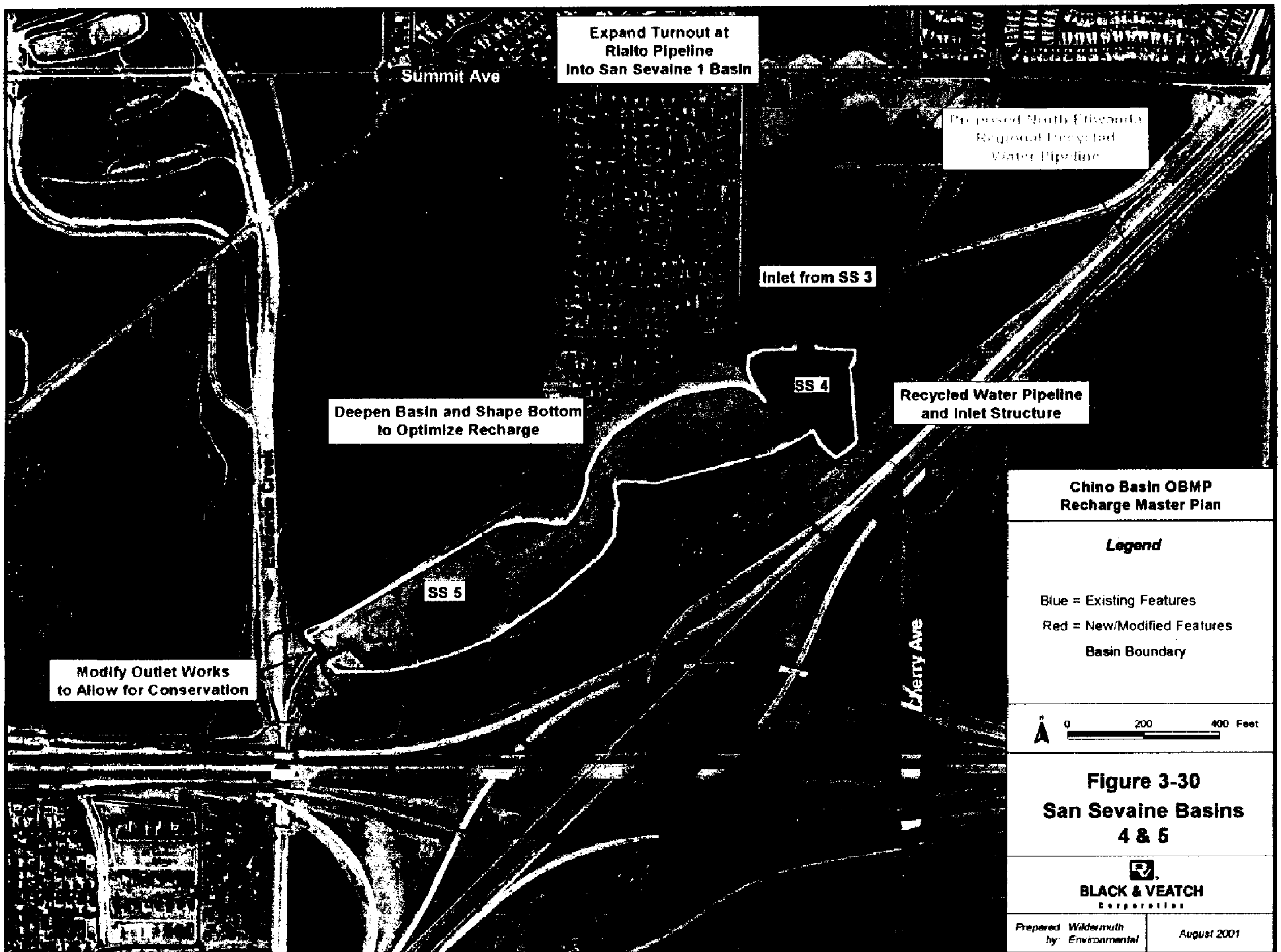

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Aerial Photo Taken on March 22, 2000

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Aerial Photo Taken on March 22, 2000

Figure 3-32
Turner 2-3-4 Basins

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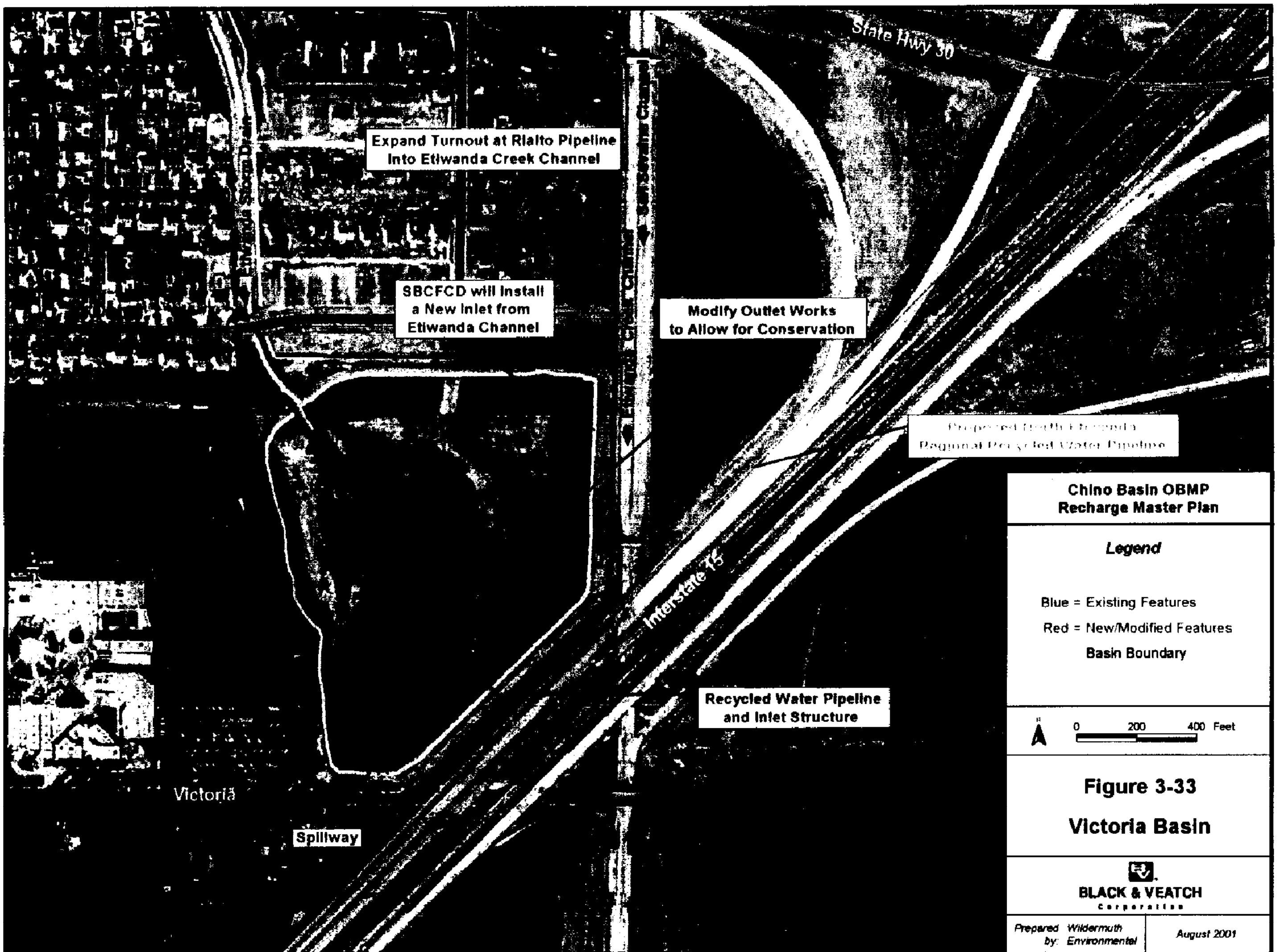

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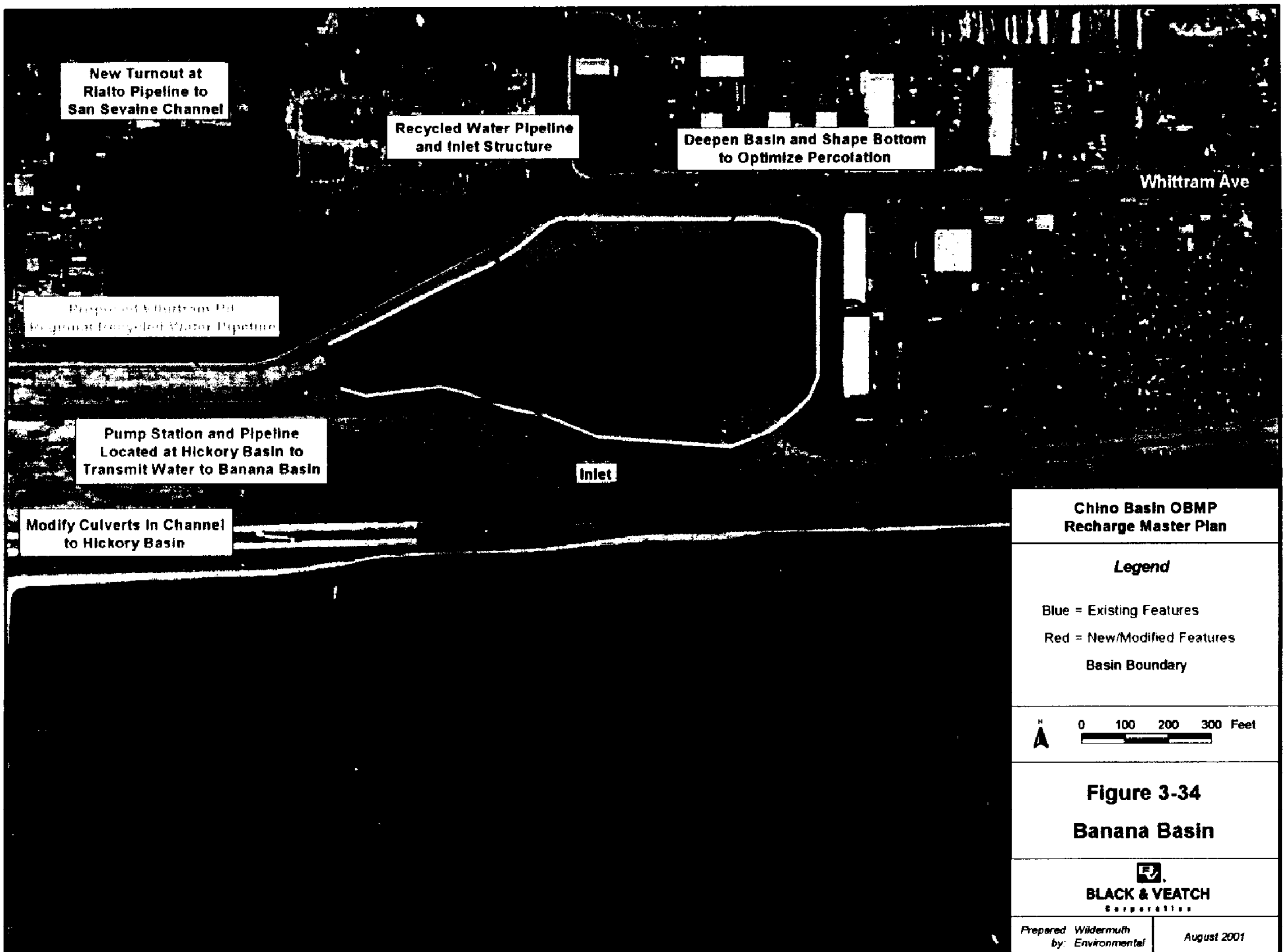

Figure 3-34
Banana Basin

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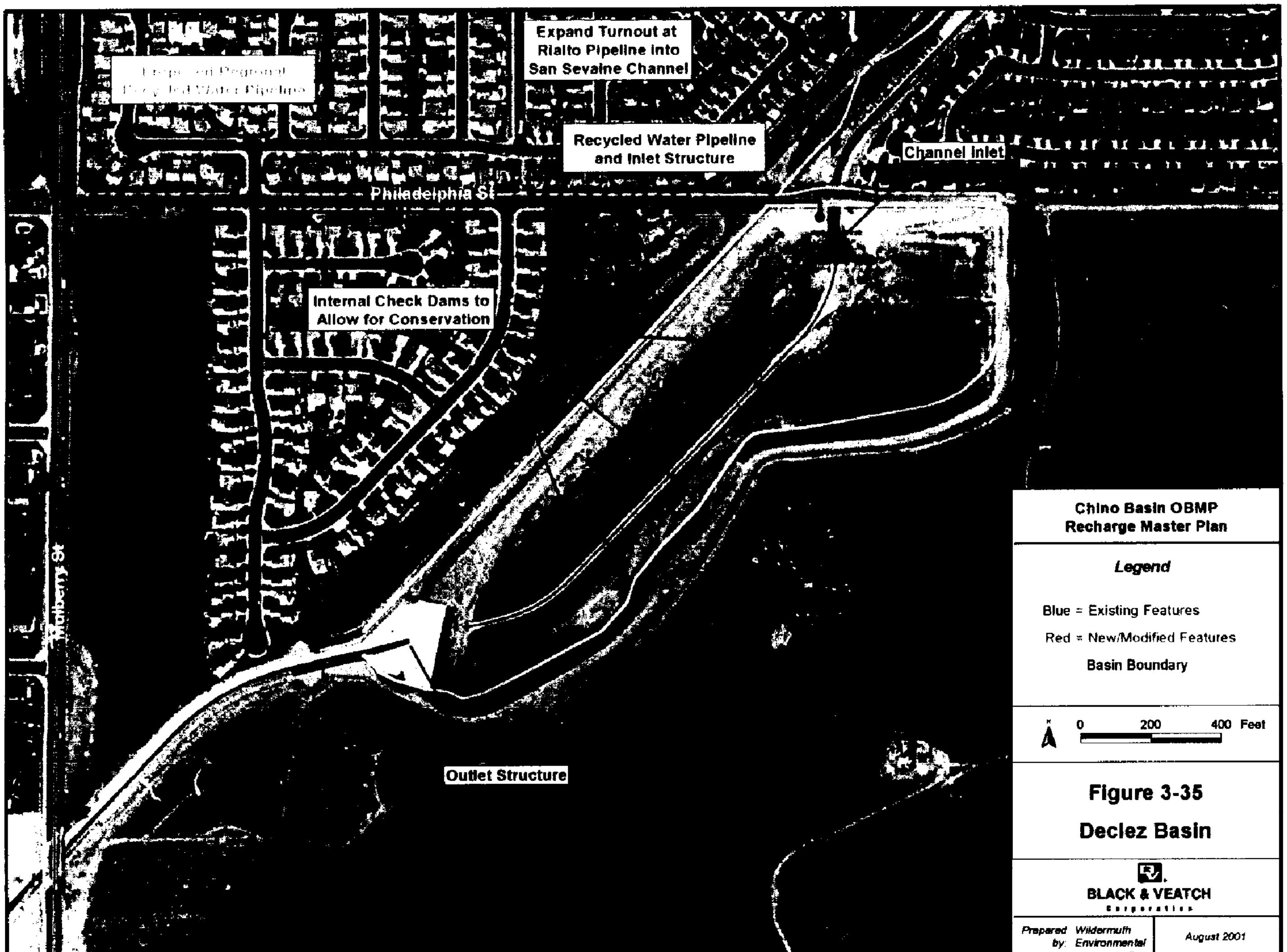

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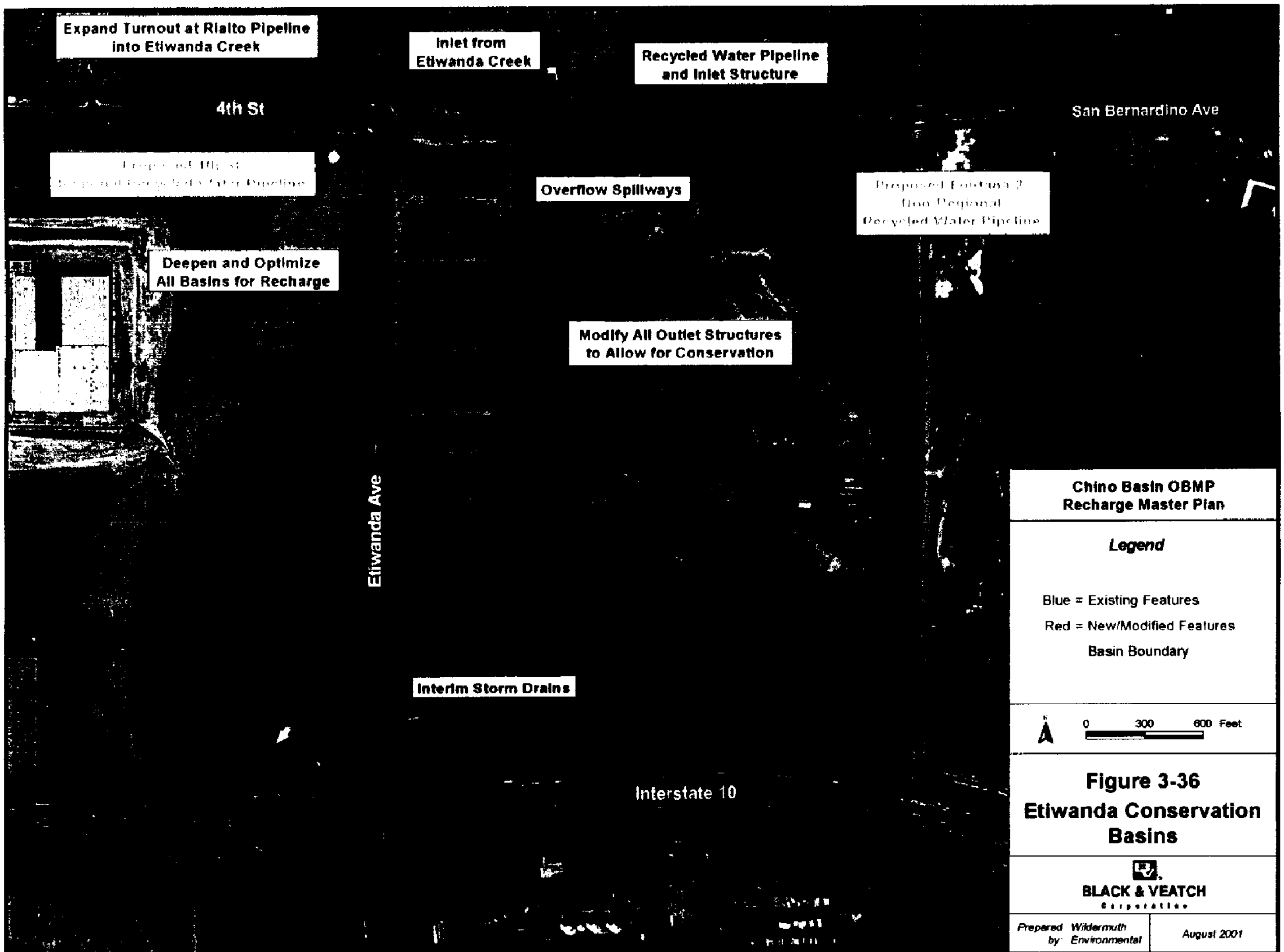

Figure 3-36
Etiwanda Conservation Basins

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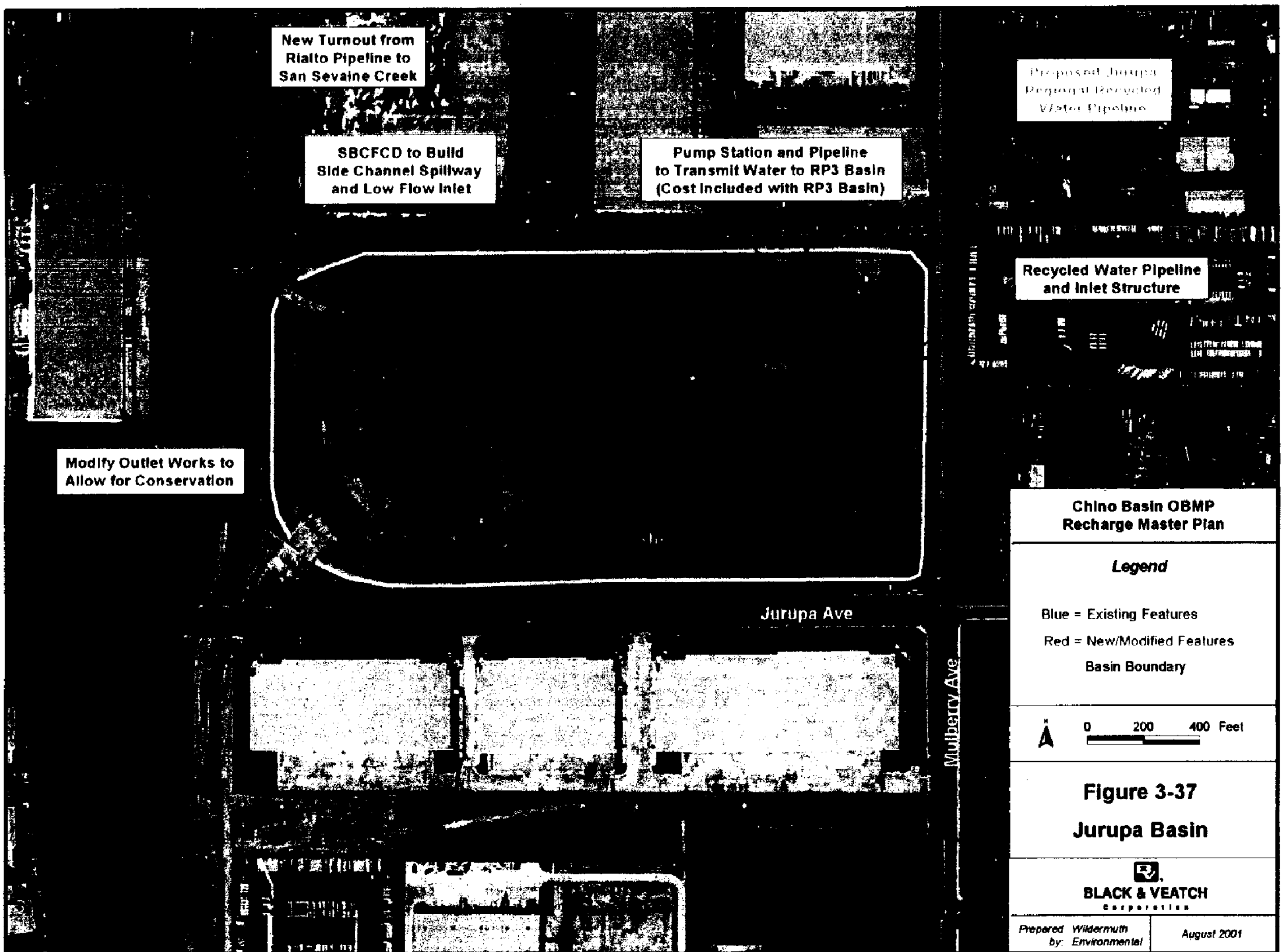
Aerial Photo Taken on March 22, 2000



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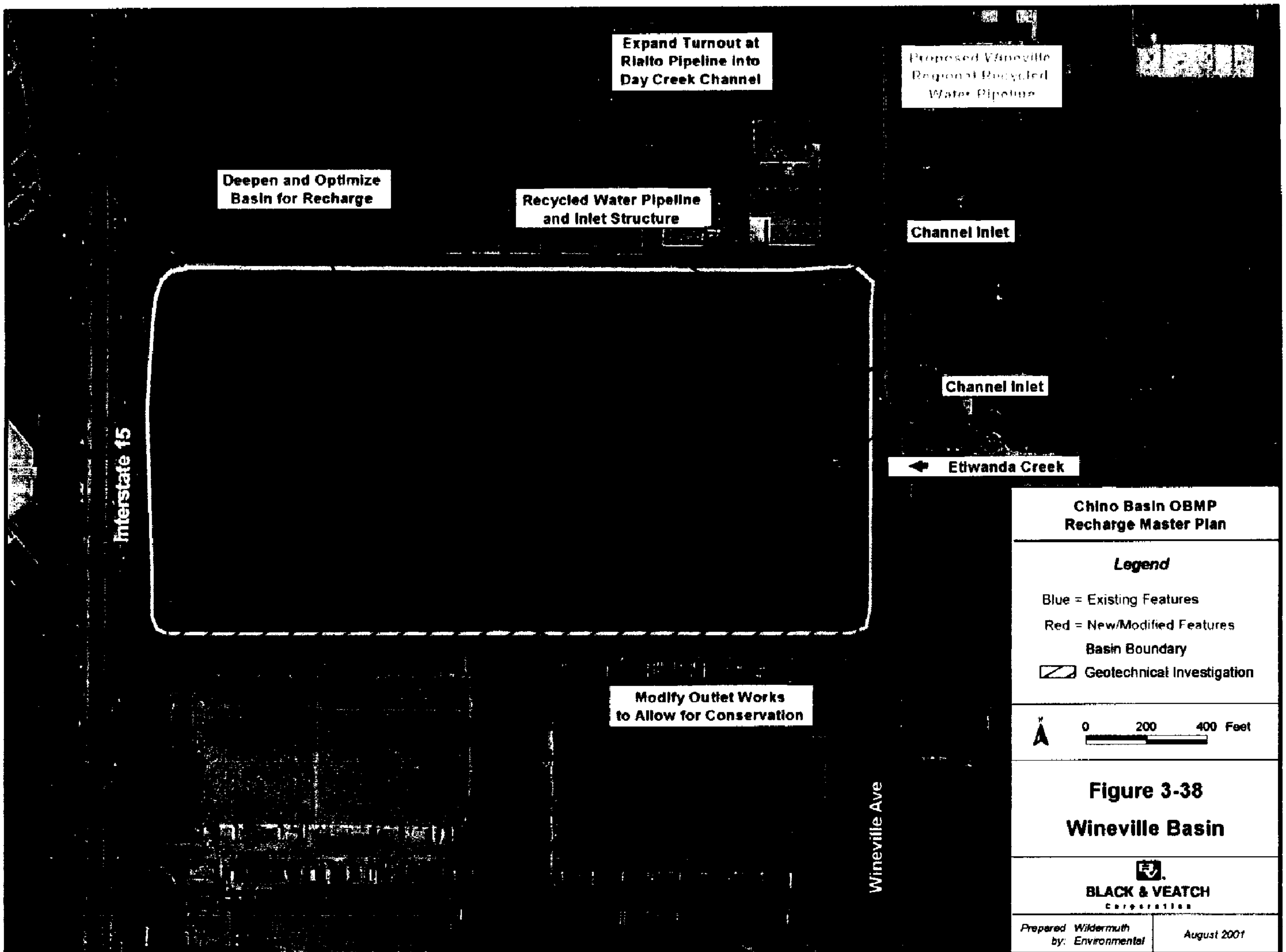

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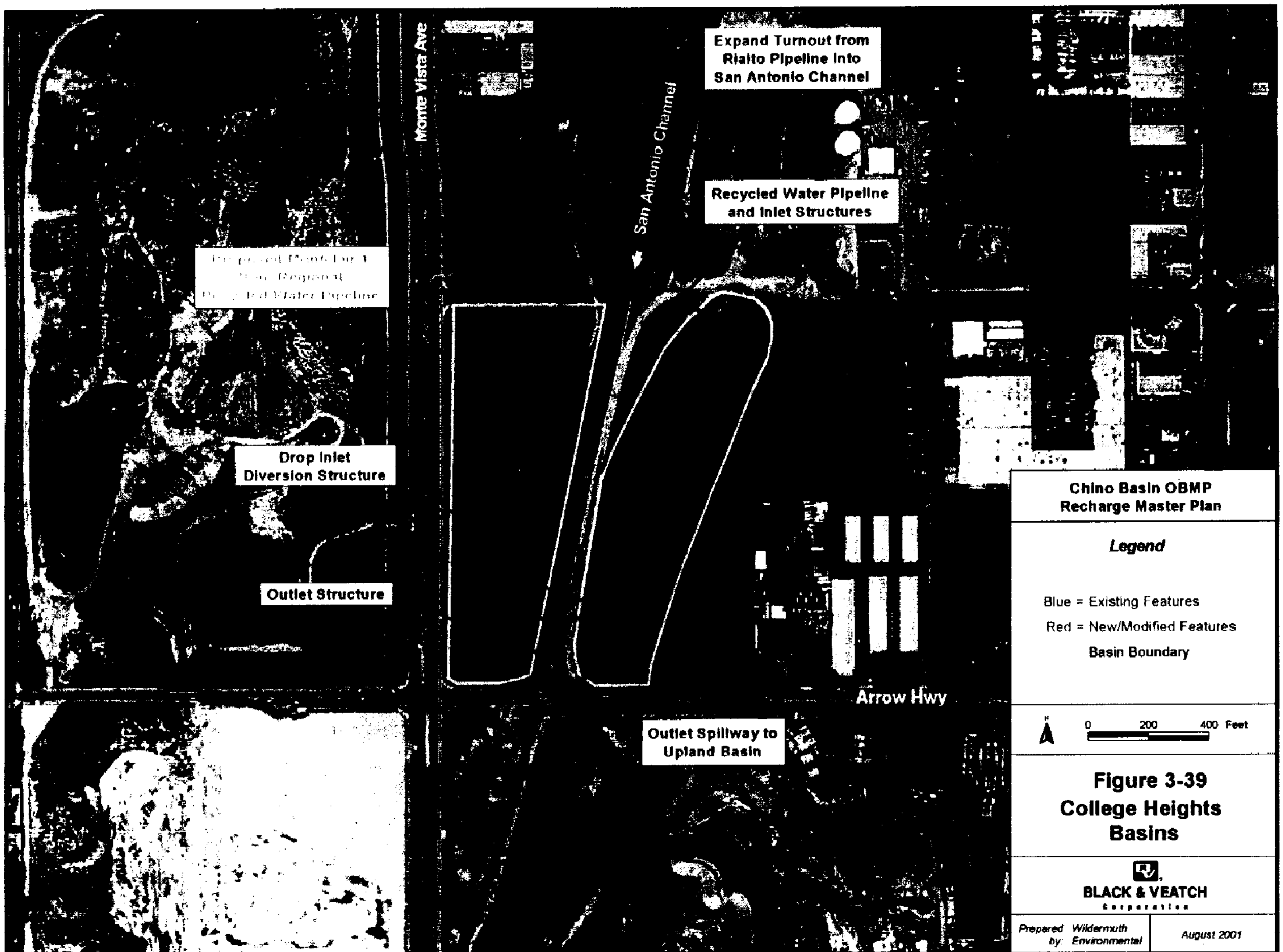

Figure 3-39
College Heights Basins

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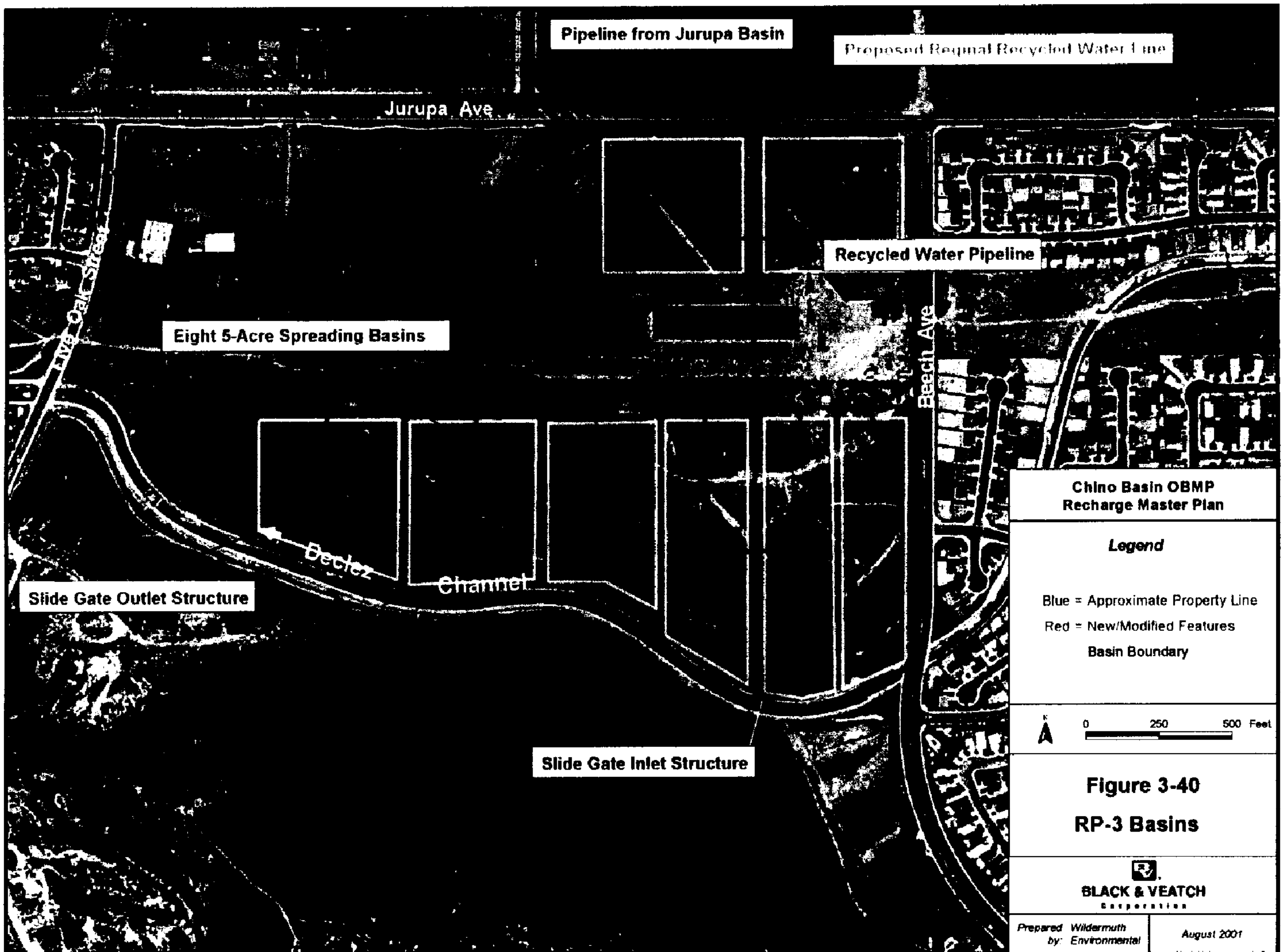

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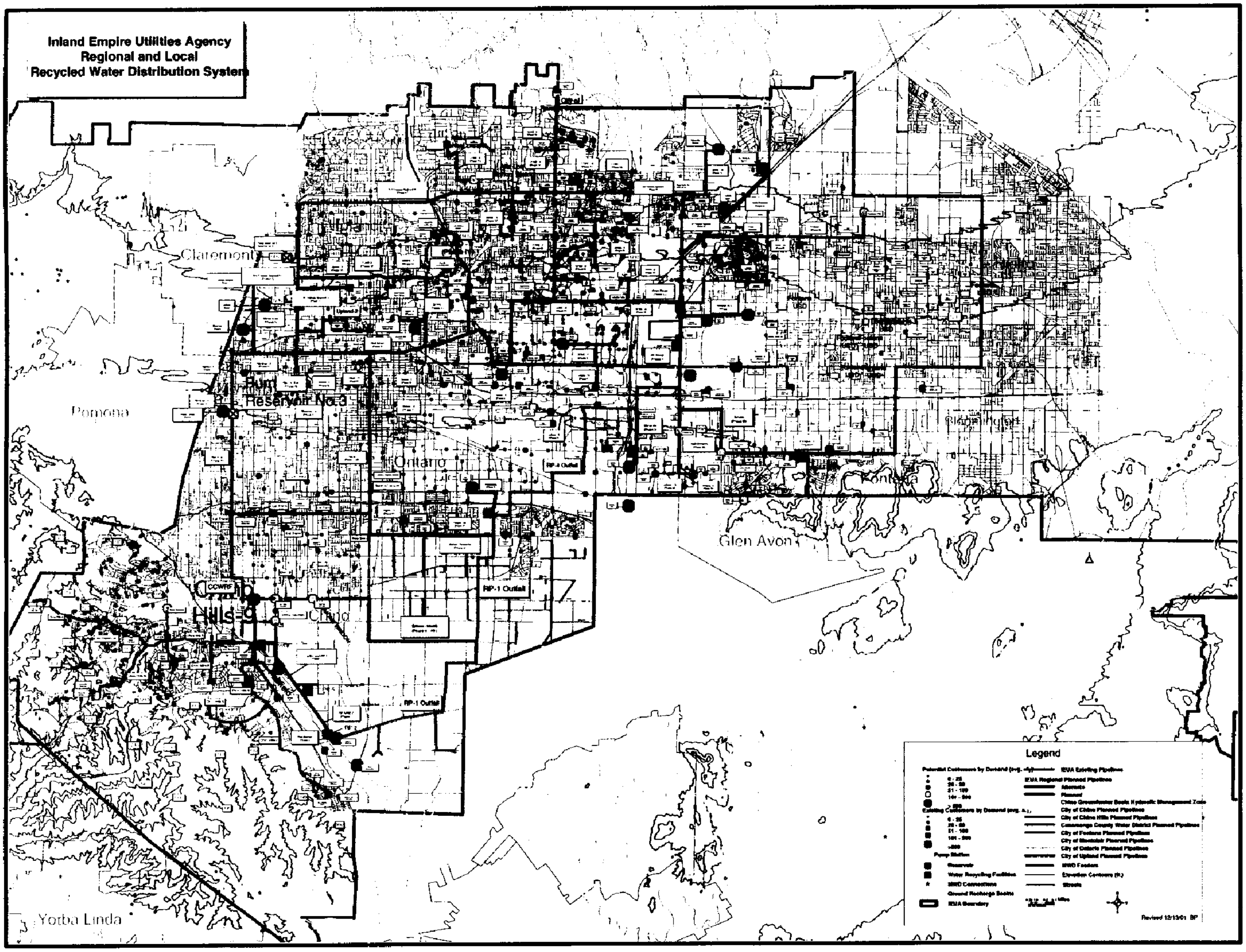

Inland Empire Utilities Agency
Regional and Local
Recycled Water Distribution System
Claremont
Pomona
Ontario
Fontana
Glen Avon
Chino
Yorba Linda
RP-1 Outfall
CCWRF
Legend
Revised 12/13/01 BP

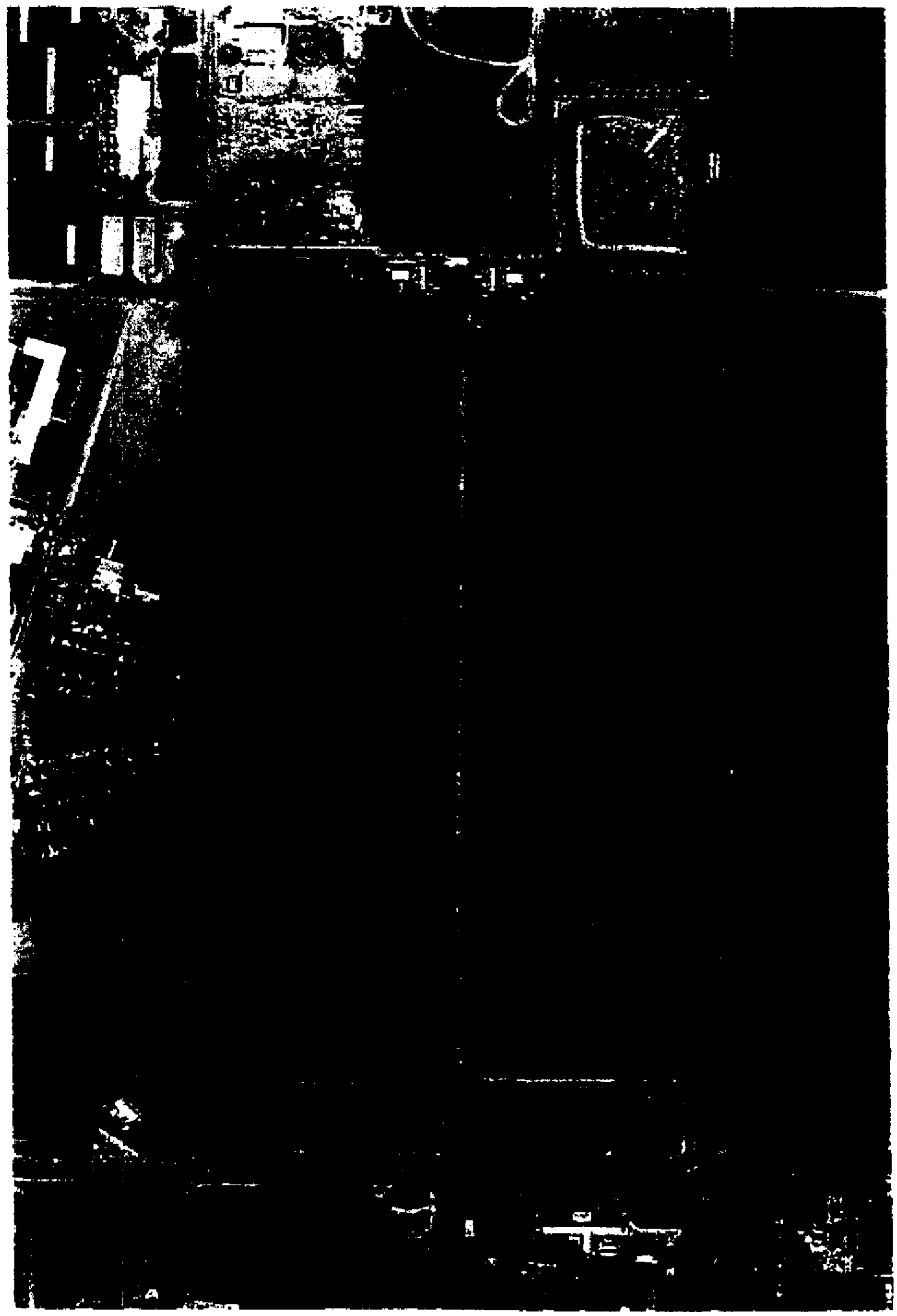


Figure 3-42

IEUA Co-Composting Facility

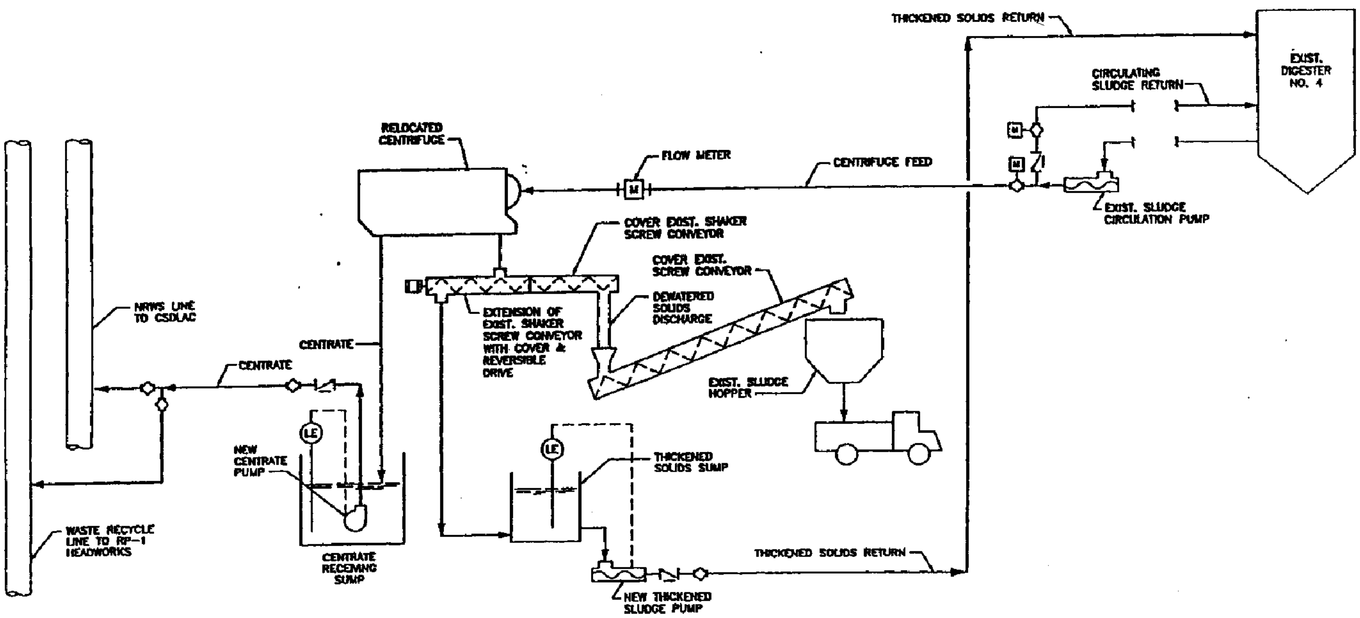


Figure 3-43

Pilot Project Plot Plan

TETRA TECH

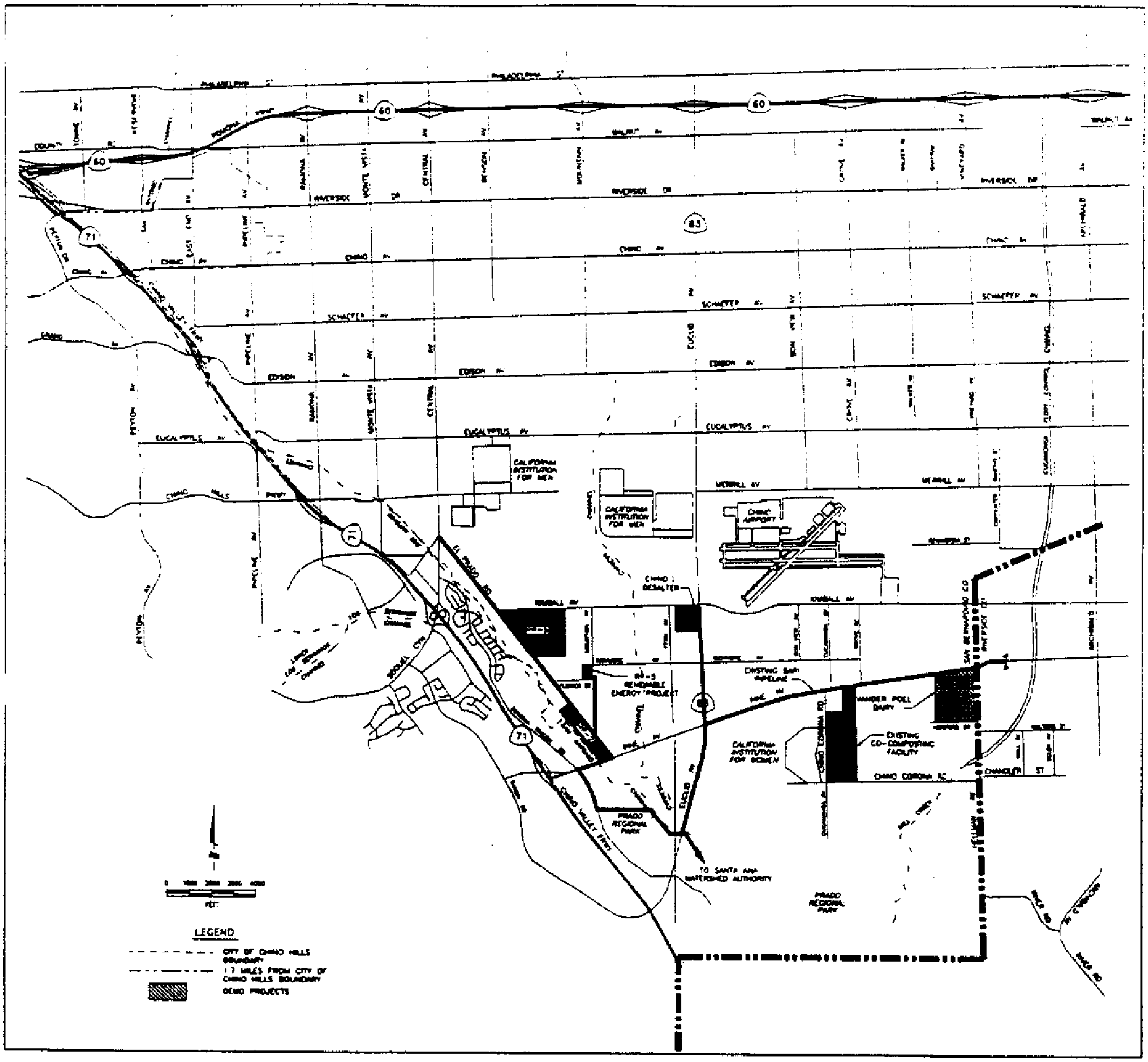
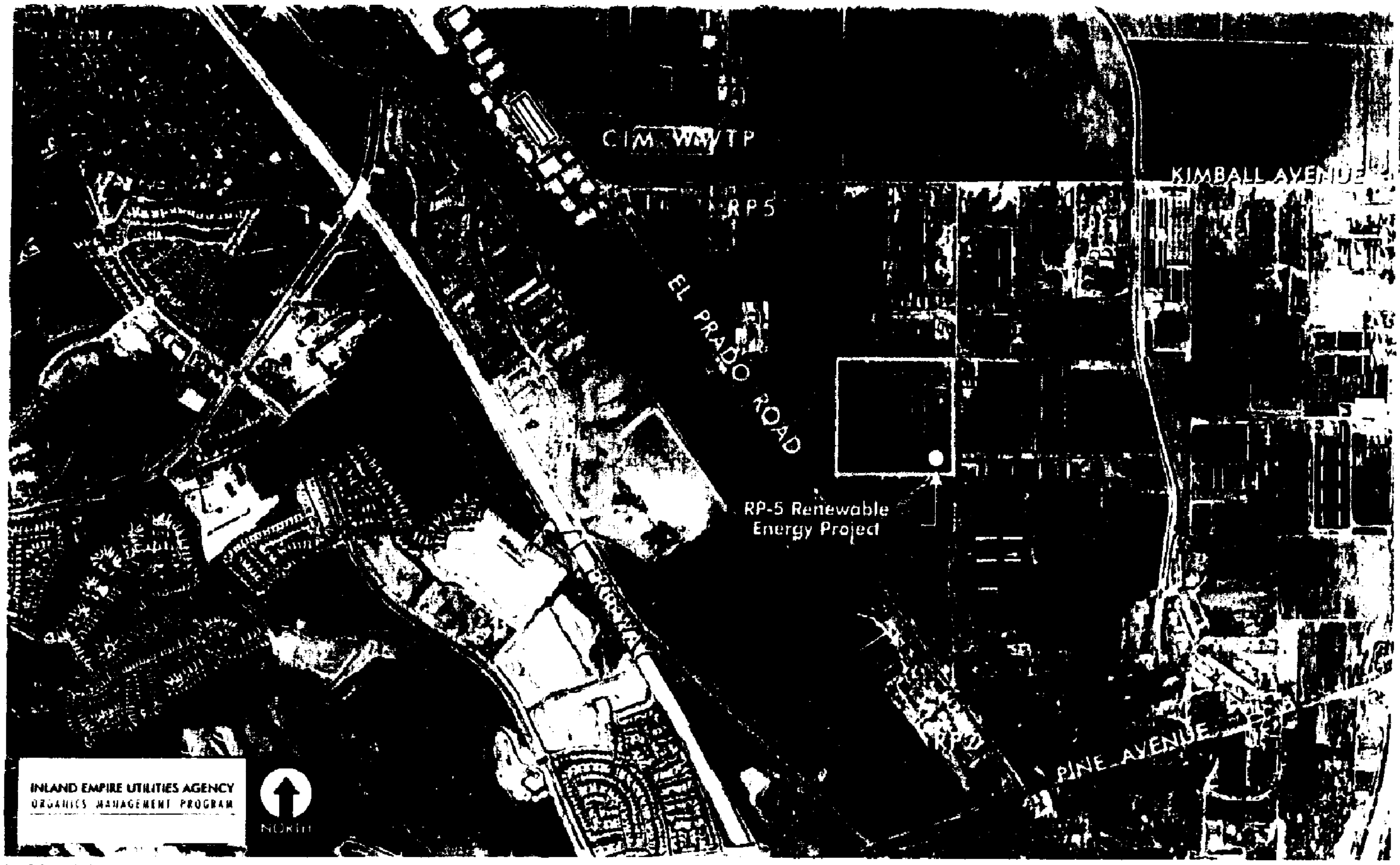


Figure 3-45

Proposed Location for Lagoon Digester



G:\SITEPLAN\ORGANICS\SYNAGRO1A.CDR 10/9/01

Figure 3-44
RP-5 Renewable Energy Project

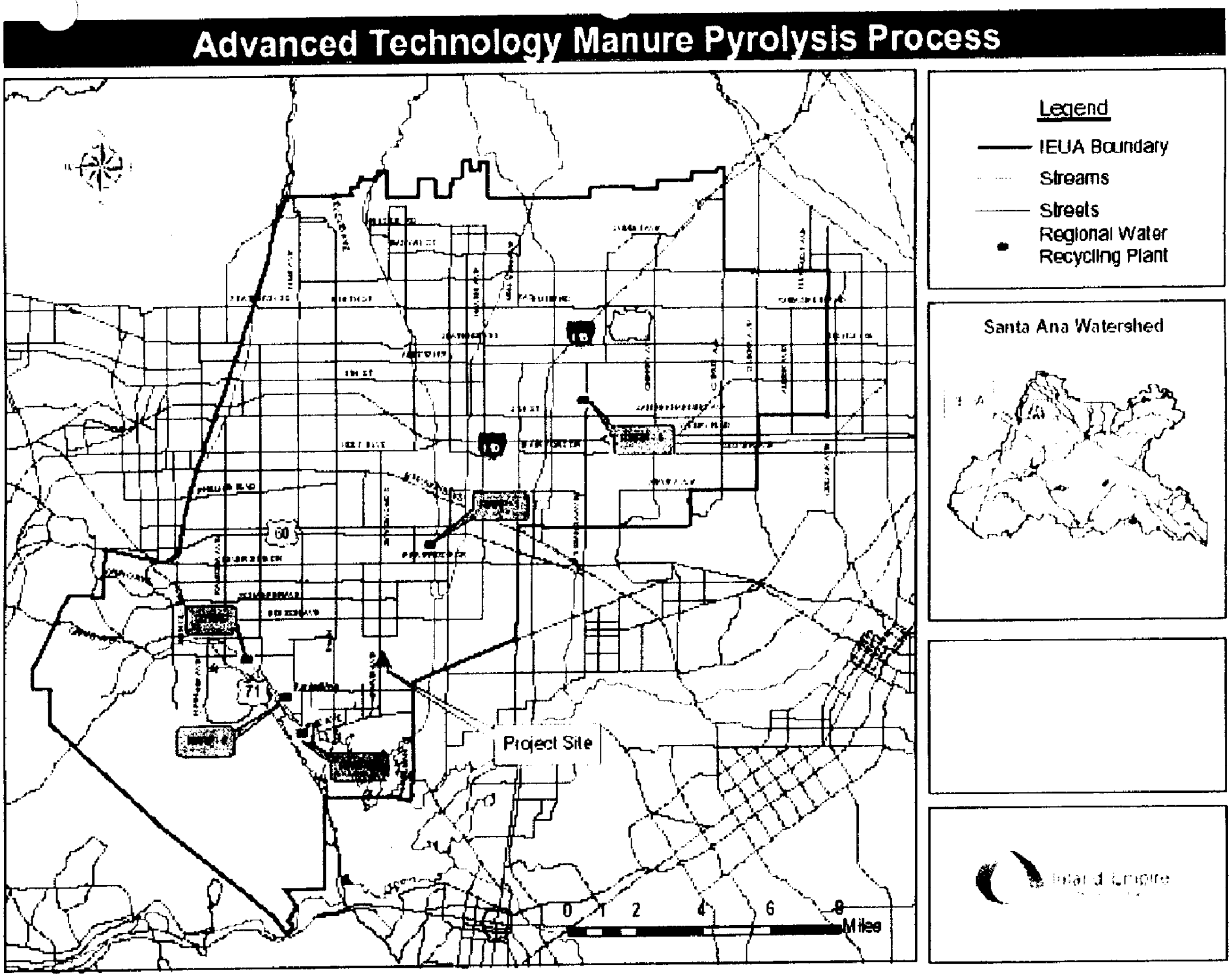


Figure 3-46

Advanced Technology Manure Pyrolysis Project Site Location

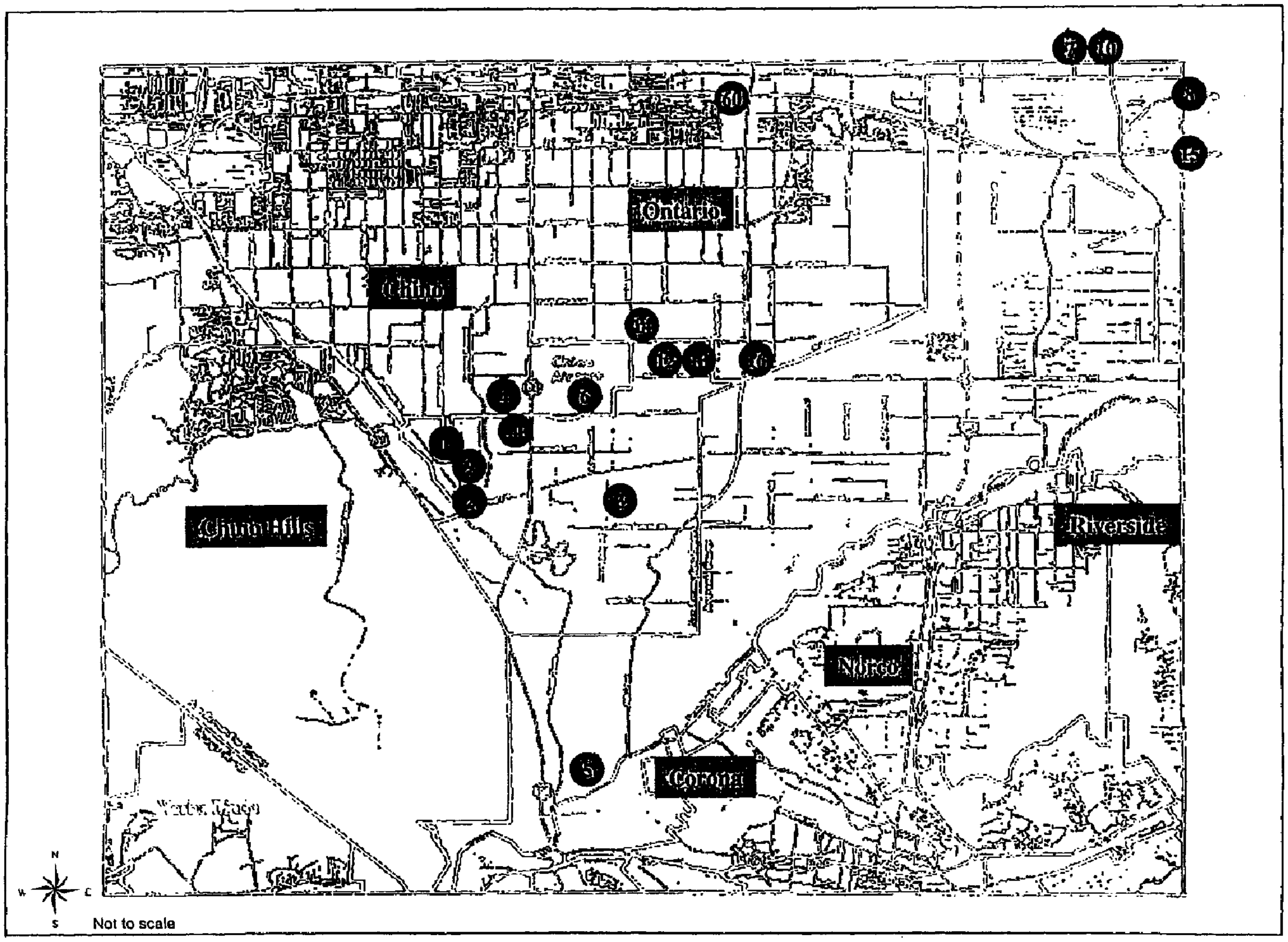


Figure 3-47

Organics Management Center
Potential Sites

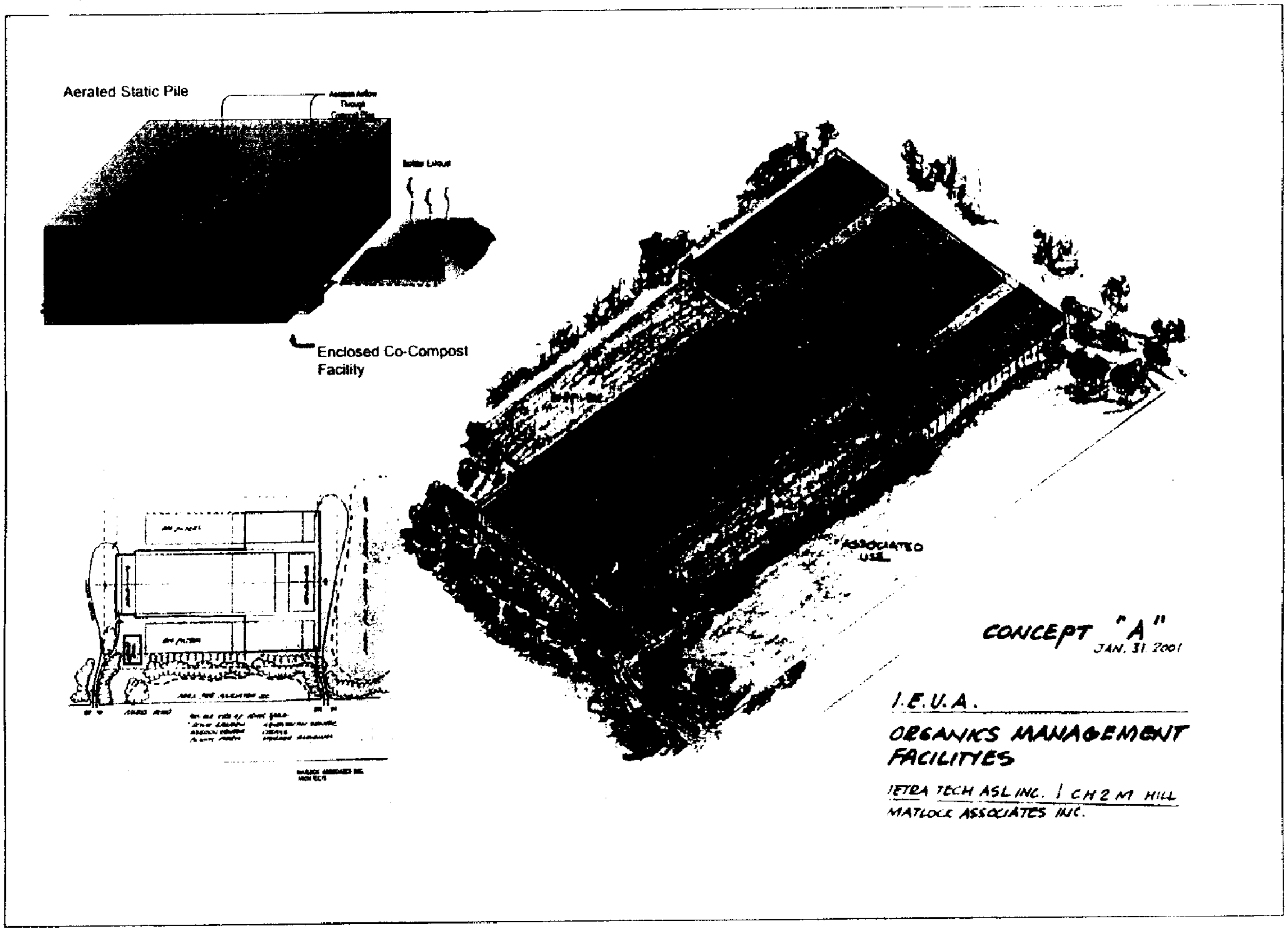


Figure 3-48

Enclosed Composting Facility

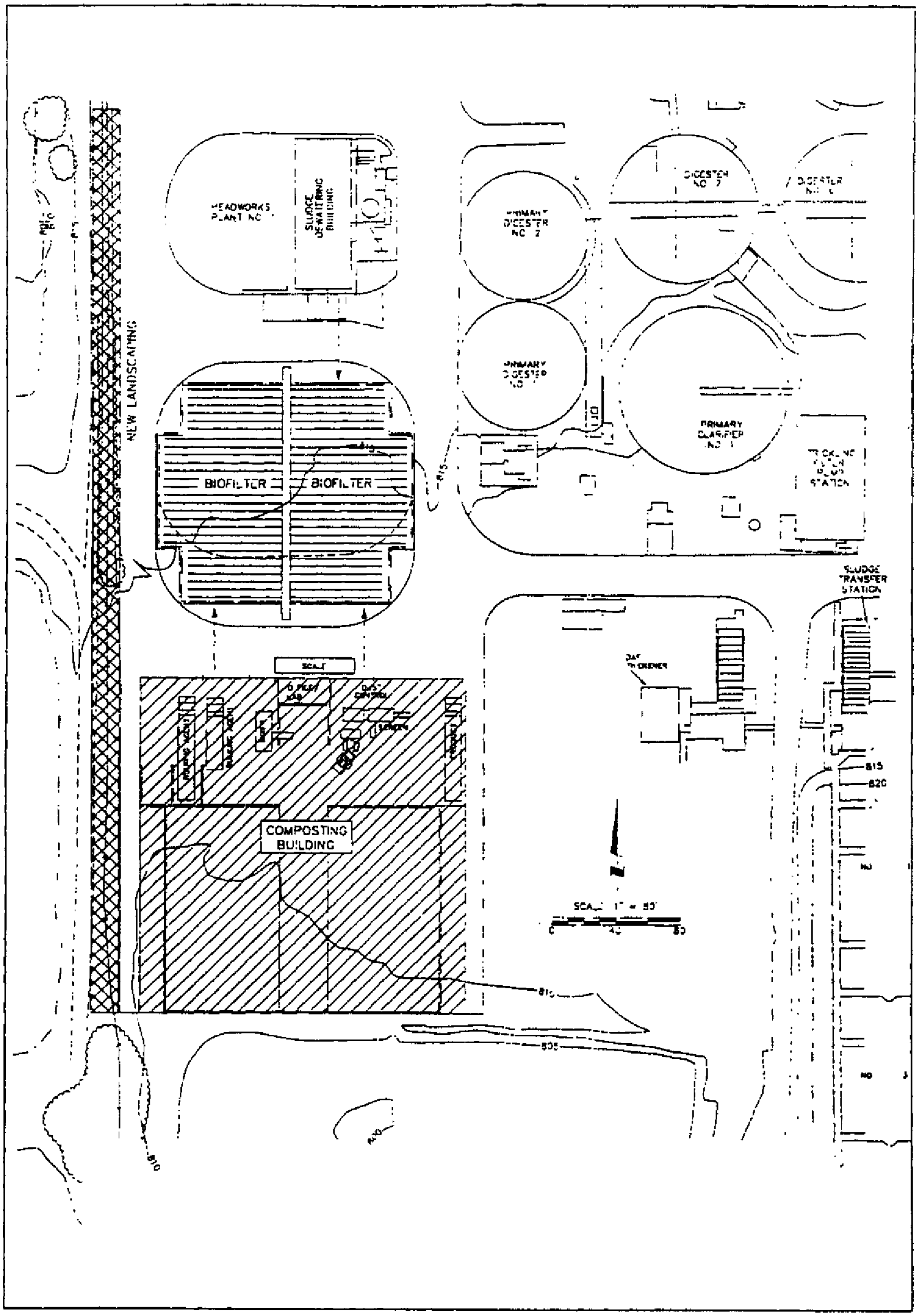


Figure 3-49

RP-1 Aerated Static Pile Concept Facility Plan

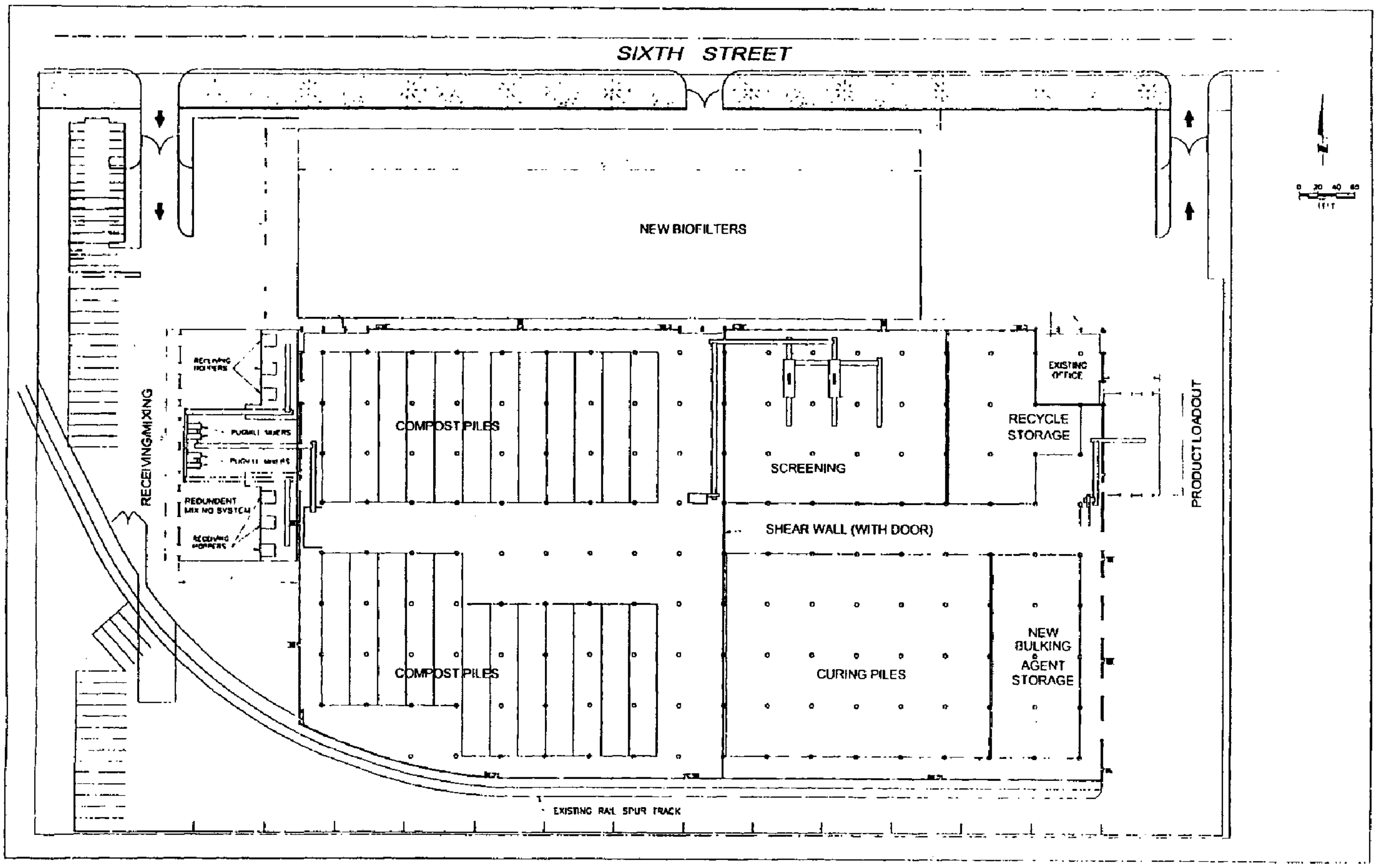


Figure 3-50

Inland Empire Regional Composting Facility

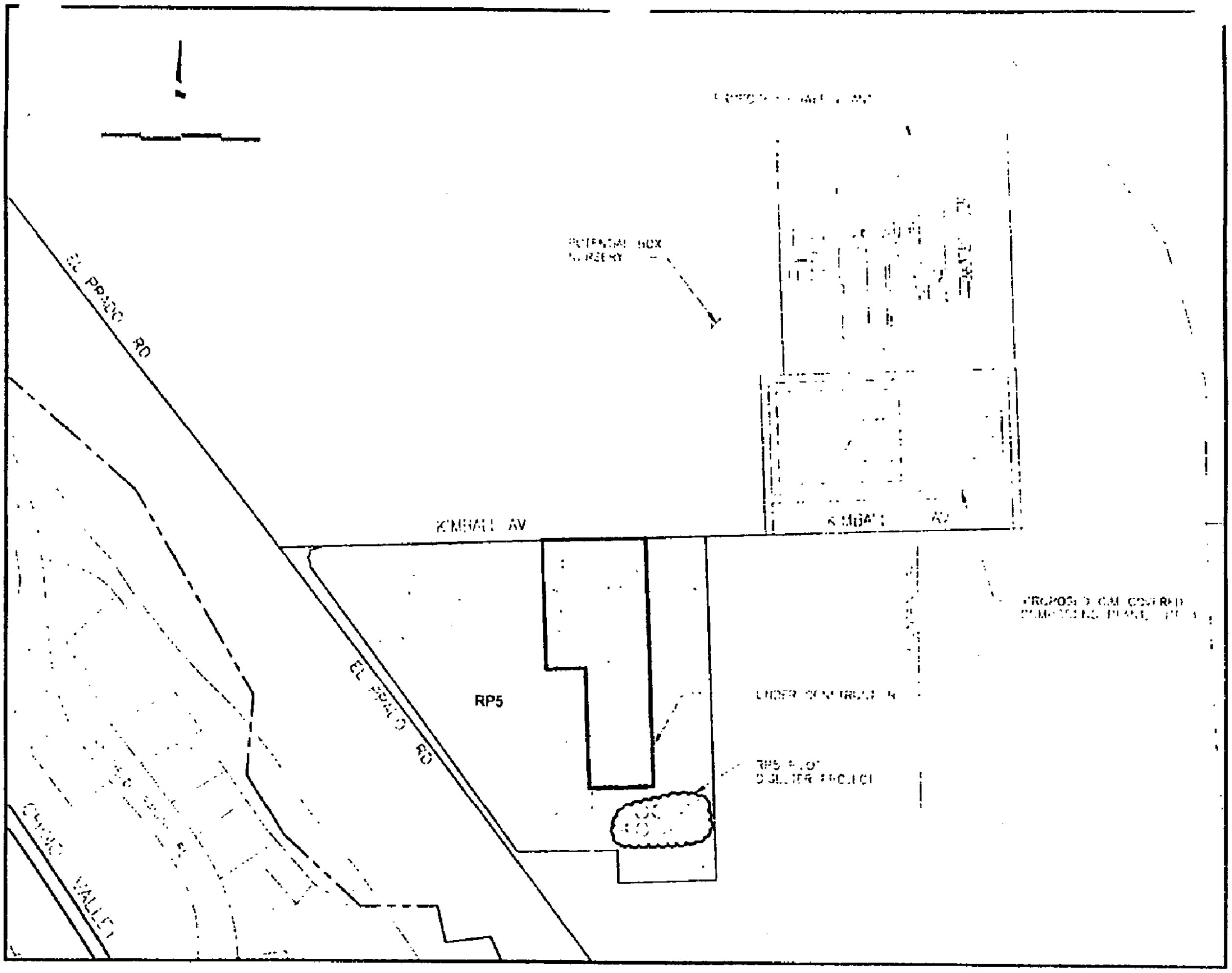
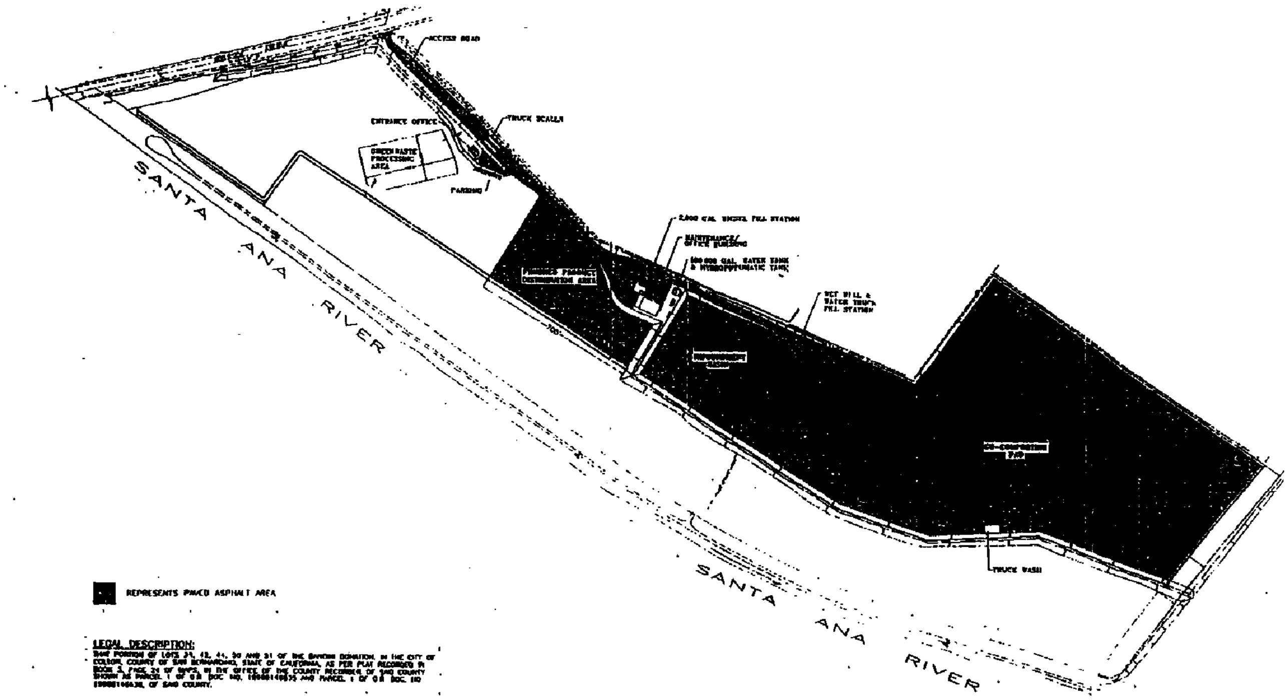


Figure 3-51

**California Institute for Men
Compost Facility**



Source: CIVILDESIGN CORP.
250 S. Lena Rd.
San Bernardino, CA. 92408
(909)885-3806

Figure 3-52
Colton Facility

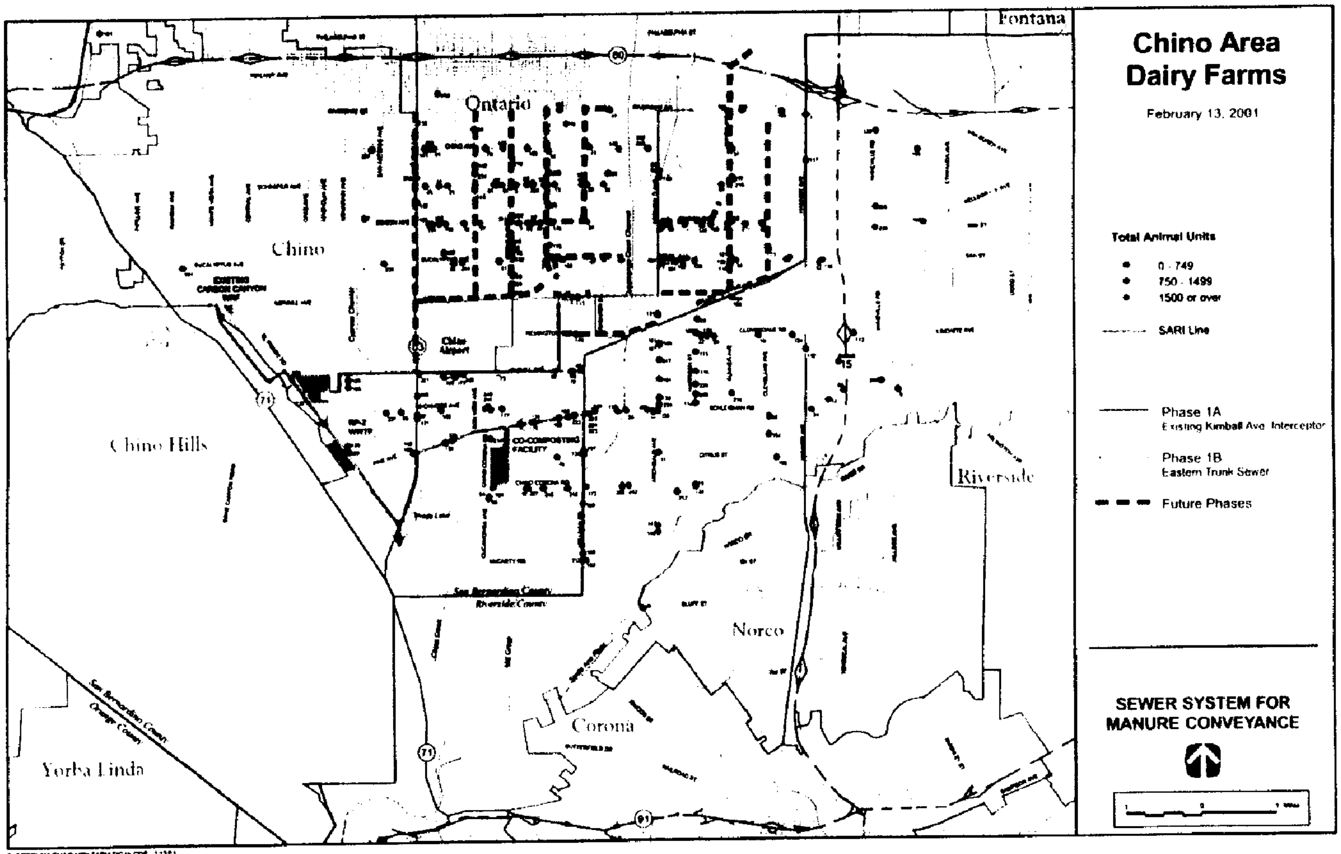


Figure 3-53

Sewers Installed That Can Serve Dairies

CHAPTER 4
ENVIRONMENTAL IMPACT EVALUATION

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

4.1 INTRODUCTION

This chapter of the Program Environmental Impact Report (PEIR) provides the detailed information used to forecast the type and significance of potential adverse environmental impacts that implementation of the Wastewater, Recycled Water and Organics Management Master Plans and subsequent specific project approvals can cause adverse environmental impacts if the Program is implemented as proposed. In the following subchapters each of the environmental topics identified in the Notice of Preparation (NOP) and scoping meeting 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 identified in the NOP and the scoping process as issues of concern for the specific environmental topic;

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

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

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

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

f. Unavoidable adverse environmental impacts, including significant unavoidable impacts, are identified, and any adverse impacts that may be caused by implementing mitigation measures are addressed.

In order to provide the reviewer with a criterion or set of criteria with which to evaluate the significance of potential adverse impact, this document provides issue specific criteria, i.e., thresholds of significance, for each topic considered in this PEIR. 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 and used specifically for this project. After comparing the forecasted physical changes in the environment that may be caused by the proposed project with the significance threshold criterion or criteria, a conclusion is reached on whether the proposed project has the potential to cause a significant adverse environmental impact for the issue being evaluated.

Measures to reduce adverse environmental impacts are identified and described in this chapter of the PEIR. Over that past several years, mitigation has evolved in scope and complexity. As society responds to environmental issues that affect whole communities, last year's mitigation

4.2 LAND USE PLANNING

4.2.1 Introduction

This subsection identifies and evaluates the land use impacts associated with the implementation of the IEUA Master Plans. This subsection addresses the land use setting and possible impacts associated three IEUA master plans as defined in the project description, Chapter 3. They are the Wastewater Facilities Master Plan (WFMP), the Recycled Water Master Plan (RWMP), and the Organics Management Master Plan (OMMP).

Methodology

Windshield field surveys were conducted throughout the project area to identify the major land uses in the designated areas. Residential neighborhoods and other sensitive uses were noted.

The land use impact area was defined as extending approximately one-quarter mile around each Regional Plant and each proposed Satellite Plant, as well as along the routes designated for the new conveyance systems.

Data from the following sources was also utilized:

- City of Fontana, General Plan, and Land Use and Zoning Maps
- City of Rancho Cucamonga, General Plan, and Land Use and Zoning Maps
- City of Ontario, General Plan, and Land Use and Zoning Maps
- City of Chino, General Plan, and Land Use and Zoning Maps
- City of Chino Hills, General Plan, and Land Use and Zoning Maps
- City of Upland, General Plan, and Land Use and Zoning Maps
- City of Montclair, General Plan, and Land Use and Zoning Maps
- County of San Bernardino, General Plan

4.2.2 Environmental Setting

The planning area encompasses the 242-square miles of the IEUA service area, and includes the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, as well as unincorporated areas of San Bernardino County, and the Cucamonga County Water District (CCWD) service area, which generally encompasses the City of Rancho Cucamonga.

Much of the service area, particularly in IEUA's Northern Service area is currently developed in urban uses, while the Southern Service Area is, in general, transitioning from a rural to an urban setting. Therefore, existing land uses include agriculture, residential, commercial, and industrial uses and supporting infrastructure corridors.

Several land use plans are applicable within the land use study area for the proposed project. A brief description of the purposes, goals, and policies for each of these planning documents follows.

The City of Fontana General Plan (the Plan) was adopted in 1990 and is intended to serve as the blueprint for the long-range physical planning of the City. Therefore, the Plan "contains stated community goals and policies designed to shape the long term development of the City, as well as protect its environmental, social, cultural and economic resources."[1]

[1] Fontana General Plan, Introduction p.1.

measures are integrated into rules and regulations, such as the Uniform Building Code or Water Quality Control Plans. Measures incorporated into rules and regulations become mandatory requirements (not discretionary) and they no longer need to be identified as project specific mitigation measures. Land use jurisdictions, such as the cities or county within the project area, similarly incorporate former mitigation measures into the agency's "standard conditions of approval" for projects under their purview.

Finally, as developers and planners become more sophisticated, they integrate sound environmental mitigation into their project design. As a result, the boundary between regulatory requirements, standard conditions, proponent design guidelines and mitigation measures identified in environmental documents, all designed to reduce significant environmental impacts, gets blurred. The discussion of mitigation measures under each environmental topic summarizes all of the various measures anticipated to be incorporated into the OBMP to reduce potential significant adverse 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 adverse 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. 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. Reviewers are encouraged to comment on the analyses, conclusions and the thresholds of significance used to make the forecasts of adverse environmental impacts in this PEIR.

The City of Rancho Cucamonga adopted its General Plan in November of 2001. The purpose of the City's General Plan is to implement its vision through a series of policies and programs related to specific issues of importance to the City.[2]

The General Plan for the City of Ontario was adopted in 1992. One of the responsibilities of the General Plan is to provide a framework for the City to deal with the changes which growth and development will bring to Ontario.[3]

The Land Use Element for the City of Chino General Plan Program was adopted on October 6, 1981. The document is "a long-range guide to the development and redevelopment of all lands, both public and private, within the City of Chino and its planning area."[4]

The City of Chino Hills General Plan was adopted on September 13, 1994. The Land Use Element of the Plan gives a general distribution and intensity of land uses for housing, commercial uses, institutional uses, public facilities, and open space.[5]

The City of Upland adopted the Land Use Element of its General Plan in 1982. It was subsequently updated in July 1992. The General Plan "depicts the desired future relationship between people and their needs for shelter, commerce, industry, education, recreation, safety and health."[6]

The City of Montclair adopted its General Plan in 1999. The General Plan is intended to provide direction for the future development of the City and its Sphere of Influence by providing the guidelines for City decision-making.[7]

The County of San Bernardino adopted its General Plan in 1989 and revised it in 1991. The County's General Plan "is a constitution for development," utilizing both text and maps to provide a guide for land use.[8]

4.2.3 Project Impacts

The IEUA Master Plans propose a variety of new facilities, including pipelines, additions to existing plants, and new satellite plants. The land use issues in this evaluation are examined as they relate to land use constraints imposed on the three master plan projects ad defined in the IEUA Master Plans PEIR:

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the

[2] City of Rancho Cucamonga General Plan, Page 1-6.
[3] Ontario General Plan, Executive Summary, p.1-1.
[4] Land Use Element, City of Chino General Plan Program, p.I-1.
[5] City of Chino Hills General Plan, Introduction, p.I-7.
[6] City of Upland General Plan, p.1.1.
[7] City of Montclair General Plan, Chapter 1, *Introduction*, p.1.
[8] San Bernardino County General Plan, Executive Summary, p.i.

Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These

liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of nine potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],
   - Church Basin [SP-3],
   - CCDW-Baseline [SP-4],
   - Foothill/I15 Corridor [SP-5],
   - Kaiser/CSI WWTP [SP-6],
   - Sierra Lakes [SP-7],
   - Fontana-Baseline [SP-8], and
   - Montclair [SP-9].
   - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.
2. Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1. Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2. Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.

2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RWRP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor, at either the CIM site or

an RP-5 alternative location site); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for land use issues in the following sections.

4.2.3.1 Significance Criteria/Thresholds of Significance

- Would the project physically divide an established community?
- Would the project conflict with any applicable land use plan, policy, or regulation or 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?
- Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

4.2.3.2 Impact Analysis

Would the project:

a. Physically divide an established community?

Wastewater Facilities Master Plan

The Wastewater Facilities Master Plan addresses future management of wastewater collection, treatment and disposal. The Plan covers expansions and upgrades at Regional Plants 1 and 4, and the Carbon Canyon Water Recycling Facility. The Plan also addresses the placement of the proposed Satellite Plants and the new conveyance systems planned throughout the service area.

Regional Plant 1 is located in the City of Ontario, south of and adjacent to State Highway 60. Immediately adjacent to the plant is a general neighborhood commercial area. A golf course is located to the south and west of the plant site. Within one-quarter mile south of the facility is a single-family residential area. In addition, an industrial park is located within one-quarter mile to the northeast of the facility. The modifications planned for RP-1 would take place entirely within the facility's existing footprint; therefore, the proposed project has no potential to physically divide the surrounding established community.

Regional Plant 4 is located in the City of Rancho Cucamonga. Open space, industrial uses and institutional uses, such as rail and truck shipping storage facilities and West Valley Detention Facility, surround the RP-4 site. As with RP-1, all modifications to RP-4 will take place on the existing facility site. Therefore, the proposed project has no potential to physically divide the surrounding community.

The Carbon Canyon Water Recycling Facility is located at Chino Hills Parkway and Telephone Avenue in the City of Chino. The Chino Institute for Men is located to the east of the plant. Land uses to the north include industrial office space. A mobile home park is located within one-quarter mile of the plant, to the west. Again, all modifications would take place entirely onsite. Therefore, the proposed project has no potential to physically divide the surrounding community.

With the exception of the Upland Hills Water Recycling Plant, Kaiser/CSI WWTP and the Church Basin sites, the specific locations of the proposed satellite plants are not yet defined.

- Upland Hills Water Recycling Plant (SP-1) is located off Campus Avenue at 17th Street in the City of Upland, at the northwest corner of the Upland Hills Country Club Golf Course. It is and operating wastewater treatment plant that is surrounded by residential uses and open space.
- San Antonio Lakes (SP-2) would be located near the intersection of 19th Street and Campus Avenue, in close proximity to the Upland Hills WRP. The site is currently vacant and adjacent to a single-family residential area. There also appears to be a quarry in the general vicinity, as well as a plant nursery. The land located to the north of the proposed site is currently vacant.
- Church Basin (SP-3) is located at 10440 Center Street, adjacent to a County Flood Control District Spreading Basin in Rancho Cucamonga. The site is currently vacant and surrounded by residential uses to the north and to the west. To the east is open space. A neighborhood commercial area lies to the south.
- CCWD – Baseline (SP-4) would extend along Baseline Road from Upland to Fontana. A number of sites along this corridor have been identified as possible locations for a satellite plant. Land uses along this stretch range from single-family residential and commercial, to agricultural and open space. There is a hazardous waste facility between Day Creek Road and Milliken Avenue. Alta Loma High School is located on Baseline at Archibald. In this same area is an animal hospital, and assisted living residence, and another school.
- Foothill/I-15 Corridor (SP-5) would extend along I-15 in Rancho Cucamonga. The general area identified is currently vacant (consisting of cleared land and some residual grape vineyards) and is zoned for general commercial uses.
- Kaiser/CSI WWTP (SP-6) is located on the California Steel property on the south side of San Bernardino Avenue between the San Sevaine Flood Control Channel and Mulberry Avenue. This is a predominantly industrial area. The plant currently treats wastewater from the California Steel and the California Speedway for reuse at the California Steel facilities.
- Sierra Lakes (SP-7) would be located near the intersection of Citrus Avenue and Highland Avenue in the City of Fontana. Currently, the area is vacant. There are single-family residential uses on southwest corner of the intersection.
- Fontana-Baseline (SP-8) extends along Baseline Road between Citrus and Cherry in the City of Fontana. No specific sites have been identified at this time. The land uses along this route include single-family residential, commercial and open space. There is also a neighborhood church and shipping facilities and warehouses. Fire station #78 and Fontana Water Company facility F-16 are also located along this stretch.
- Montclair (SP-9) is located in the lower portion of IEUA's northern service area. No specific sites have been identified at this time. The area between Holt Boulevard and Mission Boulevard west of Central Avenue appears to be a likely candidate.
- The RP-3 site was added by IEUA for consideration of a satellite plant. This site is located at the southwest corner of Jurupa and Beech Avenues and consists of a closed and abandoned wastewater treatment facility. Surrounding land uses include: the

Declez Channel and open space to the south; residential uses to the west; residential and open space uses to the north; and residential uses to the north.

The RP-4 Trunk Sewer has been planned to divert more wastewater flow to RP-4 from areas now tributary to RP-1. This trunk sewer would be located in the CCWD service area to intercept raw sewage that now flows directly to RP-1 for treatment. A total of five reaches are planned. The system would run through the cities of Fontana and Rancho Cucamonga.

The City of Fontana is planning to construct the San Bernardino Interceptor Force Main along San Bernardino Avenue between Cypress Avenue and the San Sevaine Channel to intercept wastewater generated north of San Bernardino Avenue and west of Citrus Avenue. The proposed location for the pump station is at a property east of the San Sevaine Channel on a two-acre lot. The system would run through the cities of Ontario and Chino.

The IEUA is also planning to expand the capacity of the Upland Interceptor Sewer. The recommended alternative is along Grove Avenue. The system runs through the cities of Upland and Ontario.

The RP-1 to RP-5 Bypass has been planned in conjunction with the City of Ontario's New Model Colony Sewer Master Plan. Ontario's Sewer Master Plan recommends the construction of two trunk sewer systems to convey flows to RP-5. The trunk sewer systems are identified as the Eastern Trunk Sewer and the Western Trunk Sewer. The Bypass would run through the cities of Ontario and Chino, as well as unincorporated areas of San Bernardino County.

The Western Trunk Sewer would begin at the Kimball Interceptor Trunk Sewer and extend north along Euclid Avenue to Merrill Avenue. From there it would extend east to Merrill Avenue until Walker Avenue, north on Walker Avenue to Edison Avenue, east on Edison Avenue to Vineyard Avenue, north on Vineyard Avenue to Riverside Drive, and, finally, east on Riverside Drive to the Whispering Lakes Pump Station.

The Eastern Trunk Sewer would begin at the Kimball Interceptor Trunk Sewer at Walker Avenue and extend north on Walker Avenue to Remington Avenue. Thereafter, it would continue east on Remington Avenue, cross Cucamonga Creek and extend along the County Line to Archibald Avenue. It would then turn north on Archibald Avenue to Archibald Ranch Pump Station at Schaefer Avenue. North of the pump station, it would tie into an existing 15-inch sewer that extends just south of Riverside Drive, then east on Riverside Drive to Turner Avenue.

In addition IEUA may have to extend the existing Kimball Interceptor to connect with the City of Ontario's two trunk sewers.

Construction Phase

The modifications to Regional Plants 1 and 4, and the Carbon Canyon facility would be constructed in several phases over the next fifty years. Construction would be limited to within the respective current site footprints; therefore, the project would not physically divide any established communities surrounding the plants.

The proposed satellite plants, with the exception of SP-5 and SP-6, and possibly SP-9, would be adjacent to residential areas. However, in every instance, the proposed sites would not be located immediately within nor surrounded by the residential areas. In addition, vehicle trips would be limited during each phase of construction and truck routes are not expected to travel through neighboring residential areas. Therefore, no established communities would be divided due to the construction of the new plants.

Because construction of the trunk sewer systems and the interceptor relief system would take place on various major community streets, and would involve lane closures, there could potentially be a physical division of the established communities along these routes. However, such a division would be short term and could be mitigated by limited lane closures and certain hours of construction.

Operation Phase

Again, the regional plant modifications would occur within the existing respective site footprints; therefore, the planned improvements would not physically divide the established communities in which they are located.

Operation of the proposed satellite plants would not physically divide any established communities because, again, the proposed sites would not be located immediately within nor surrounded by any residential areas.

Each proposed trunk sewer and the interceptor relief system would be buried beneath current roadways; therefore, except for future repairs and/or replacement of pipes, the entire sewer system would not physically divide any established communities.

Recycled Water Master Plan

The Recycled Water Master Plan discusses the addition and/or improvement of new pipelines, pump stations, and recharge basins to the system. Environmental analysis of the modifications to recharge basins to increase conservation storage has been completed under a prior environmental document, and will not be discussed here.

The proposed pump stations would be located throughout the project area, at RP-1, RP-4, the Jurupa Basin, Etiwanda at Highland Avenue, and at Benson and 16th. Another facility is planned for Montclair but has not yet been specifically sited; therefore, no land use analysis has been done for this facility at this time. All the proposed reservoirs are planned for these same sites.

The Regional Recycled Water Distribution System would initially be developed in the central Basin, with expansion taking place over the next 10 years to reach as far north as the foothills in the northeast corner of the Basin. The proposed pipelines would be placed beneath the street system throughout the entire IEUA service area.

Construction and Operation

RP-4 is located in the City of Rancho Cucamonga. The pump station and reservoir would be sited within the existing footprint of the wastewater facility. Therefore, their construction and operation would not divide any surrounding communities.

The proposed Jurupa Basin is located in the City of Fontana. There are no residential uses in the area; therefore, construction and operational impacts would not physically divide the surrounding community.

The facilities proposed for Etiwanda Avenue and Highland Avenue would be sited on open space in the City of Rancho Cucamonga. Interstate 210 runs immediately north of the proposed facility and there are single family residential uses located to the west. Because the new facility would be sited on open space, adjacent to, but not surrounded by, residential uses, no communities would be physically divided due to its construction.

The facility proposed to be sited at Benson Avenue and 16th Street would be at an existing sand and gravel extraction operation in the City of Upland. There are no surrounding communities that would be physically divided due to construction impacts at the site.

The Distribution System would cause short-term physical division of the surrounding communities during construction due to lane closures, and construction vehicle traffic. These impacts would be short-term and, and, thus, would not be significant. There would not be any physical division of surrounding communities during operation because the pipelines would be buried beneath the existing street system.

Organics Management Master Plan

Under the Organics Management Master Plan (OMMP), facilities are being proposed for RP-1, RP-4, the Chino Institute for Men, and the Vander Poel Dairy. The IEUA is also planning an Advanced Technology Manure Pyrolysis Process Facility adjacent to and east of the Chino Airport and a High Tech Manure Digester Project west of the RP-5 Renewable Energy Project. All of the proposed facilities would be enclosed or covered to eliminate possible odors.

Construction Phase

Construction of the proposed new composting facilities at RP-1, RP-4, the Chino Institute for Men and the Vander Poel Dairy would take place within the existing footprint of each treatment plant or parent facility; therefore, the only potential effect upon the surrounding communities would be truck movement to and from the site. Truck movements already occur throughout the area as manure and other materials, including milk are collected and transported throughout the project area. The Dairy Digester Pilot Project, located at the Vander Poel Dairy, would not have any truck trips. Vehicular movements to and from RP-4 during construction of the Inland Empire Regional Composting Facility would be limited to 10 trips per day. Construction of the RP-1 Enclosed ASP (aerated static pile) Project would not require any truck trips to and from the site. The California Institute for Men Composting Facility would require three truck trips daily during construction. Therefore, construction impacts, such as truck movements, are not forecast to significantly effect the surrounding communities.

Both the Advanced Technology Manure Pyrolysis Process Facility and the High Tech Manure Digester Project would be built on sites surrounded by land used for open space and agriculture uses. The Chino Airport is also adjacent to the Advanced Tech facility, to the west. Construction of both facilities would require up to three truck trips daily to and from their respective sites. No established communities would be physically divided due to the site placement or construction of either facility.

Operation Phase

Although taking place on the existing site, operation of the RP-4 Inland Empire Composting Facility would require 61 truck trips per day, on a route not yet determined. Therefore, there is a potential to disrupt the surrounding community. However, because the existing industrial nature of the area, such disruption would be consistent with the surrounding uses and would not constitute a significant adverse impact.

Operation of the RP-1 Enclosed ASP would take place on the existing site and would require two truck trips per day; therefore, operation of the facility would not disrupt or divide the surrounding community. Eight truck trips per day would be necessary for the operation of the California Institute for Men Composting Facility and the trips would affect the same roads since the CIM site and RP-5 site are located across the street from each other. Biosolids from RP-5 could be moved to the facility by conveyor, thereby eliminating three of these truck trips per day. In either instance, however, the limited number of truck trips would not be likely to physically divide the surrounding community.

Operation of the Vander Poel Dairy Digester would not require any truck trips per day; therefore, no physical division of the surrounding community would take place.

Both the Advanced Technology Manure Pyrolysis Process Facility and the High Tech Manure Digester Project would require up to 23 daily truck trips during operations the respective facilities. This additional amount of truck traffic is minimal when taken in the context of the surrounding communities and roadways in which the facilities are sited. Both facilities are surrounded by open space/agricultural uses, as well as very low density single family residential. The Chino Airport is adjacent to the Advanced Technology Manure Pyrolysis Process Facility. Therefore, the operation of either facility would not physically divide their respective surrounding established communities.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including by 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?

Wastewater Facilities Master Plan

Construction Phase

RP-1 is located in the City of Ontario. Immediate, as well as near- and long-term modifications and improvements to the facility are expected to take place entirely within the existing footprint of the plant. Although surrounding land uses include a general neighborhood commercial area and a single-family residential area, any construction impacts would be short-term, and, thus, would not conflict with the City's land use plan.

RP-4 is located in the City of Rancho Cucamonga. As is the case with the RP-1 expansion, improvements at RP-4 are expected to take place entirely on-site. Open space and industrial uses, such as rail and truck shipping storage facilities surround the plant. Construction of the RP-4 modification and expansion would not affect these surrounding land uses.

The Carbon Canyon Water Recycling Facility is located at Chino Hills Parkway and Telephone Avenue in the City of Chino. The Chino Institute for Men is located to the east of the plant. The prevailing land use to the north is industrial office space. A mobile home park is located within one-quarter mile of the plant, to the west. As with both the RP-1 and RP-4 facility proposed improvements, all plant modifications are planned to take place within the existing site footprint, and would be compatible with the surrounding uses.

Satellite Plant Site 1 is located in the City of Upland. The site contains an existing treatment plant that is now operated by IEUA. The surrounding land uses include a golf course, a road and residential uses. The plant currently operates without conflict with the adjacent land uses and a future plant can be designed to accomplish the same level of compatibility.

Satellite Plant Site 2 is located in the City of Upland. The plant would be in close proximity to residential areas and areas designated as open space. Sufficient area exists at this location to install a satellite plant and provide adequate buffer so no land use conflict will occur.

Satellite Plants 3, 4, and 5 would be located in the City of Rancho Cucamonga. Current land use designations surrounding the plants are industrial, commercial, and high density residential. There is also vacant land, as well as water bodies in close proximity to SP-3. Potential SP-4 sites range along areas designated as high density residential. There are also small pockets of commercial and open space uses, as well as vacant land. Open space is the predominant land use designation in the area surrounding potential SP-5 sites. Adequate area exists to provide adequate buffering and minimization of conflict with existing and future adjacent land uses,

Satellite Plants 6, 7, and 8 would be located in the City of Fontana. The City's Land Use Maps designates the area surrounding the proposed SP-6 sites as industrial and commercial. The land use designations around the possible SP-7 sites are designated as open space and vacant to the west, with increasing high and low density residential to the east. Potential SP-8 sites are surrounded by high and low density residential uses as well as vacant land. There is also a small area of commercial use and an area designated as open space. All locations either do not have conflicts or they can be developed with adequate buffer to prevent conflicts with adjacent land uses.

Satellite Plant 9 would be located in the City of Montclair. The City has designated the areas surrounding potential plant sites as open space, commercial, high density residential, and industrial uses. There are also narrow slivers of vacant land. Potential conflicts appear minimal, but would have to be determined when the specific site is selected.

The RP-3 site has adequate space to completely isolate a small satellite plant from surrounding land uses, so no potential for conflict exists at this location.

Construction of all of the proposed plants would have short-term effects upon their respective surrounding residential communities, due to noise, truck traffic, and possible dust and vibration impacts. However, because these impacts would be relatively minor and short-term, they are not considered significant

Construction of the trunk sewer systems and the interceptor relief system would take place on major community streets throughout the project area, and would involve lane closures for the duration. Therefore, there could be effects upon the surrounding communities. However, these impacts would be short-term and could be mitigated by limited lane closures and specified hours of construction.

Operation Phase

RP-1 is located in the City of Ontario. Immediate as well as near- and long-term modifications and improvements to the facility are expected to take place entirely within the exiting footprint of the plant.

One of the infrastructure goals stated in Ontario's General Plan is to provide "adequate wastewater lines and treatment facilities which serve Ontario's residents and businesses and which protect the environment." (GP, p.1-31). One of the policies specified to help implement this goal is to continue to improve significant deficiencies in the existing system rather than construct new facilities. Construction of improvements at RP-1 is consistent with this policy. In addition, it is specifically noted that the Chino Basin Municipal Water District, now called the IEUA, is responsible for the expansion or construction of the regional treatment facilities.

RP-4 is located in the City of Rancho Cucamonga. As is the case with the RP-1 expansion, improvements at RP-4 are expected to take place entirely onsite. The City's General Plan states that the existing system for handling the treatment of liquid waste is under the purview of the IEUA and that the system for wastewater conveyance is overseen by the Cucamonga County Water District (CCWD). There appears to be good coordination between the two agencies and the City plans to continue this relationship to ensure adequate wastewater conveyance capacity. The City specifically notes that it has worked closely with both the CCWD and the IEUA to insure that the city's development conditions properly support expansion of the conveyance and treatment facilities.

The Carbon Canyon Water Recycling Facility is located in the City of Chino. As with both the RP-1 and RP-4 facility proposed improvements, all plant modifications are planned to take place within the existing site footprint. Therefore, the proposed changes to the facility would be compatible with existing land use designations.

Although the Circulation Element of the City's General Plan is somewhat outdated, having been adopted in 1992, it mentions plans for the expansion of the Carbon Canyon facility to reach a processing capacity of 22 to 24 MGD. (This expansion was planned for 1995.) The IEUA's plan calls for the facility to reach an ultimate expanded capacity of 20 MGD, which is consistent with the City's General Plan vision.

The proposed Satellite Plants would be located in the cities of Upland, Rancho Cucamonga, Fontana, and Montclair. The project proposes two satellite plants that would be a compact and enclosed facilities. This would enable odors to be treated and controlled before they can be released into the surrounding environment. All of the plants have been designed to be "good neighbors."

Satellite Plant Site 1 is located in, and Satellite Plant Site 2 would be located in the City of Upland. The Upland General Plan revised its Land Use Element in 1996, and it currently does not cover the wastewater system.

Satellite Plants Sites 3, 4, and 5 would be located in the City of Rancho Cucamonga. The City's General Plan states that the City "should continue to coordinate with the IEUA and the CCWD to ensure that adequate wastewater facilities are available to serve future growth." The construction of individual new facilities is not specifically noted.

Satellite Plants Site 6, 7, and 8 would be located in the City of Fontana. The City's General Plan, Infrastructure Element, addresses the wastewater system and treatment. The City provides for the collection of wastewater generated within city limits, which it then conveys to the IEUA facilities for treatment. The City notes that the IEUA has proposed facilities to help meet area projected treatment demands, and that development of these facilities is expected to provide adequate wastewater treatment for area. No specific mention of the proposed Satellite Plants is made.

Satellite Plant 9 Site would be located in the City of Montclair. The City's General Plan states that the IEUA bears responsibility for sewage treatment and disposal within the City. The General Plan also notes that the City's Master Sewage Plan, completed in 1960, provided for the development of a sewage collection and disposal system for the City as it existed then, and to provide facilities for future expansion.

The RP-3 proposed site was previously used as a wastewater treatment plant and its continued use to support this activity would be consistent as outlined for Satellite Plants 6, 7 and 8.

The proposed trunk sewer systems and the interceptor relief system would be constructed throughout the IEUA service area. The RP-4 Trunk Sewer would run through the cities of Fontana and Rancho Cucamonga. Although expansion of the trunk sewer system is not specifically noted in Rancho Cucamonga's General Plan, the City has recognized that active coordination between the IEUA and the Cucamonga County Water District is a good means to ensure that adequate wastewater facilities are available to serve future growth. The City of Fontana has recognized that it needs new sewer trunk lines to presently undeveloped areas. The City has also noted the necessity of correcting trunk line deficiencies within the core area.

Both the San Bernardino Interceptor Force Main and the RP-1 to RP-5 Bypass would run through the cities of Ontario and Chino. One of the goals in the General Plan for the City of Ontario is to provide adequate wastewater lines to serve its residents and businesses. The City of Chino has recognized that its older line areas may need repair or rehabilitation, and that some of the planned wastewater lines throughout the city have not yet been constructed. The Bypass would also travel through part of unincorporated San Bernardino County. The County of San Bernardino General Plan states that community sewerage systems are the preferred method of wastewater collection. Increasing the capacity of the IEUA system would be compatible with this vision.

The Upland Interceptor Sewer is planned for construction in the cities of Upland and Ontario. The City of Upland does not cover liquid waste facilities in its General Plan. The City of Ontario, again, has a goal to provide adequate wastewater lines to serve its residents and businesses.

The remaining trunk sewers meet the requirements of the local general plans and will be installed within existing roads consistent with City policies.

Recycled Water Master Plan

Construction Phase

The pump station and reservoir planned for RP-4 will be sited within the existing facility footprint. Surrounding land uses are industrial and the area is zoned for heavy industrial uses. Therefore, the new facilities would not conflict with the current allowable use for the site.

The Jurupa Basin is already being utilized as a recharge basin in the City of Fontana. The proposed pump station and reservoir would not conflict with this currently allowable use.

The proposed Etiwanda facility would be sited in an area zoned for very low-density residential uses, but adjacent to the Route 30 Freeway. Water facilities, such as pump stations and reservoirs are permitted in any land use zone, and at this location adequate buffer will need to be established to minimize conflicts with adjacent residential uses to the west and south.

The City of Upland is currently using the area around the proposed Benson facility for sand and gravel extraction. The proposed pump station and reservoir would not conflict with this existing use.

The exact location is not known for the Montclair site so potential for land use conflicts will have to be determined when a site-specific location is identified in the future.

The Regional Recycled Water Distribution System would be buried beneath the existing street system throughout the IEUA service area. Therefore, the system would not conflict with any city land uses.

Operation Phase

The City of Rancho Cucamonga have stated, in its General Plans, a commitment to water recycling and reuse. One of the stated goals is to carefully manage these facilities and replenish existing supplies of groundwater to ensure future use. The City is also dedicated to pursuing additional sources of water, including the use of reclaimed water for landscape irrigation and industrial processes. Therefore, the proposed RP-4 pump station and reservoir, and the planned Etiwanda facility, are compatible with the City's vision for the management of its water resources.

In its General Plan, the City of Fontana has stated that it will cooperate with other governments and local agencies to maintain and improve the quality and quantity of local and regional groundwater resources. The Recycled Water Master Plan facility planned for the Jurupa Basin is in accord with this land use goal.

The City of Upland stated, in its General Plan, that there have been open land areas set aside for flood control purposes and that these same areas are utilized for mineral extraction. These areas extend from Benson Avenue to the County line on the west-side of the City. The City notes that these mining pits will become settling basins for groundwater recharge once the minerals have been removed. The Benson Avenue Basin appears to be one of these mining pits; therefore, its conversion from a sand and gravel extraction site to a pump station and reservoir would be harmonious with the City's land use policies.

All of the cities served by the IEUA discuss recycling and reusing water as part of their respective General Plans. Therefore, the regional distribution system for recycled water is compatible to this goal.

Organics Management Master Plan

Construction Phase

The RP-1 Enclosed ASP would be located in the City of Ontario. Immediate, as well as near- and long-term modifications and improvements to the facility would take place entirely within the existing footprint of the plant. Therefore, although surrounding land uses include general neighborhood commercial and some single-family residential, the planned modification onsite at RP-1 would not conflict with the City's land use policy.

The Vander Poel Dairy is located in the City of Ontario, in an area designated for agricultural uses. Therefore, the planned Diary Digester Project would not conflict with Ontario's planned use for this area.

The RP-4 Inland Empire Regional Composting Facility would be located in the City of Rancho Cucamonga, in an area designated for industrial uses. Commercial uses and open space are located adjacent to the site. Modifications on-site would not conflict with the City's land use policy for the area.

The Chino Institute for Men Compost Facility would be located in the City of Chino, on southern portion of the CIM site or a portion of the RP-5 site. The area is designated for open space and correctional uses or for institutional uses at the RP-5 site. The new compost facility would not conflict with these current uses.

The Advanced Tech Manure Pyrolysis Process Facility is located in the County of San Bernardino, adjacent to and east of the Chino Airport. Surrounding uses include open space, Compost Facility, and the High Tech Manure Digester Project within the City. The Chino General Plan addresses Open Space for the Preservation of Natural Resources in its General Plan. It states that the biological environment within the Chino Sphere of Influence has been modified from it aboriginal state, due to intensive agricultural use followed by urbanization. Because all the modifications planned for the CCWRF will take place within the existing facility footprint, they would not conflict with the City's General Plan open space element.

Satellite Plant Sites 1 and 2, the proposed Recycled Water Master Plan pump station and reservoir at Benson Avenue, and a portion of the wastewater conveyance system are all located in the City of Upland. The City states, in its Open Space and Conservation Element, that "there is not a sufficient resource base to initiate conservation programs for forest resources, fish, or wildlife." Therefore, the proposed plants and conveyance system would not conflict with any city habitat conservation plan or program.

Proposed Satellite Plant Sites 6, 7, and 8 and the RP-3 site are located in the City of Fontana, as is a portion of the wastewater conveyance system, and the proposed Jurupa Basin pump station and reservoir. Recognized biotic resources are all found to the far north, east or south of any of these potential sites. Although the City's Conservation Element Technical Report describes several sensitive, rare, or endangered plant and animal species within the City planning area, none of these species are located within the vicinity of these proposed facilities. Also, in its General Plan, the City states that it will make every effort possible to preserve significant mature trees, vegetation, landforms and wildlife habitat within the planning area. Again, because none of the proposed Satellite Plants have been sited in areas which would damage significant biotic resources, construction and operation of the plants would not conflict with the City's habitat conservation policies and goals.

Satellite Plant Site 9 and the Recycled Water Master Plan pump station and reservoir are proposed for the City of Montclair. The three sources of open space recognized by the City are Parks, Flood Control Facilities, and Agricultural Land. SP-9 site is not located on land zoned for any of these uses; therefore, its construction and operation would not conflict with the City's open space policy.

A portion of the wastewater conveyance system and the Advanced Tech Manure Pyrolysis Process Facility will be located in unincorporated San Bernardino County. The County has recognized that the proper and safe disposal of sewage is vital to the public health, as well as to maintain ground and surface water quality, and that it will work with local responsible wastewater authorities to assure the safe disposal of such sewage.

4.2.4 Mitigation Measures

4.2.4.1 Construction Impacts

All of the proposed facilities will have construction impacts upon the communities surrounding these sites. These impacts include dust, odors, noise, vibration and construction related traffic. They have been identified in the following sections of this document: Air Quality, Noise, Vibration, and Transportation/Traffic.

4.2.4.2 Operational Impacts

The proposed modifications and new processes planned for the regional plants would be enclosed to mitigate odors. The plants will also be landscaped to buffer the facilities from their agricultural, and transportation; therefore the new facility would not conflict with current land uses.

The High Tech Manure Digester Project, located west of the RP-5 Renewable Energy Project, would be sited in an area designated for agriculture. Therefore, the project would not conflict with the existing land use.

Operation Phase

Both the RP-1 enclosed ASP and the Vander Poel Dairy are located in the City of Ontario. The City's General Plan does not specifically address either of these facilities; however, it does note that the "expansion or construction of new regional facilities is the responsibility of the (IEUA)."

The RP-4 Inland Empire Regional Composting Facility is planned for the City of Rancho Cucamonga. In its General Plan, the City does not specifically address the construction of this facility, nor does it mention composting facilities in general; however, it states that the City will continue to work with the IEUA to ensure that adequate wastewater facilities are available to serve future growth in the area.

Both the Chino Institute for Men Compost Facility and the High Tech Manure Digester Project are located in the City of Chino. The City of Chino General Plan does not address composting in general, nor does it specifically mention either of these projects.

The IEUA plans to locate the Advanced Tech Manure Pyrolysis Process Facility in an unincorporated part of San Bernardino County. The County of San Bernardino General Plan does not address composting in general, nor does it address this facility specifically.

The RP-5 power generation expansion and manure processing operation is located at an existing facility and can therefore be carried out in conformance with the General Plan.

c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

RP-1 is located in the City of Ontario, as is part of the IEUA's wastewater conveyance system and the Vander Poel Dairy. The Open Space Element within the City's General Plan states that the City will maintain and enhance its open space resources. Because all the proposed modifications to RP-1, including the ASP facility, and to the Vander Poel Dairy are planned on-site, and the wastewater conveyance system will be buried beneath the streets, they would not conflict with the City's General Plan with regard to open space.

Both RP-4 and Satellite Plant Sites 3 is located in the City of Rancho Cucamonga. The IEUA has also planned to site Satellite Plants 4 and 5 in Rancho Cucamonga, as well as parts of the wastewater conveyance system. The Inland Empire Regional Composting Facility and one of the Recycled Water Master Plan pump stations and reservoirs are located at RP-4, as well. In its General Plan, the City addresses plant and animal resources, as well as sensitive habitat areas. All of these areas are located in the far northern reaches of the City and its Sphere of Influence, and are not within the vicinity of any of IEUA's planned facilities. The City's Open Space and Conservation Plan encompasses areas predominantly to the north. None of the proposed or existing parks are located on sites which would conflict with IEUA's proposed facilities.

The Carbon Canyon Water Recycling Facility is located in the City of Chino. In addition, the IEUA plans to site part of its wastewater conveyance system, the Chino Institute for Men respective surrounding communities. The proposed Satellite Plants have been designed to be "good neighbors," with odor control devices and landscaping. The conveyance systems would be buried beneath existing city streets throughout the service area. Therefore, operational impacts would be minimal and occur only during periods of repair and replacement of pipes. Mitigation measures would be similar to those taken during construction of the systems.

4.2.5 Cumulative Impacts

The proposed project, when considered together with other past, present, and reasonably foreseeable future projects, is not expected to have adverse land use impacts that would be cumulatively considerable. As is outlined in the Population and Housing section of this document, the project would provide facilities to accommodate projected population growth, but would not induce growth beyond planned levels. Thus, it is unlikely that substantial unplanned changes in the rate or pattern of land development in the project area would occur. As regional development continues, including implementation of the proposed project, compliance with applicable local and regional planning requirements should be sufficient to avoid or minimize cumulative land use impacts over time.

4.2.6 Unavoidable Adverse Impacts

Because adverse impacts to land use resulting from the proposed project would be reduced to a less than significant level after implementation of mitigation measures, no unavoidable adverse impacts are anticipated.

Table 4.3-5: Projected Regional and Local Population

Area	2000	2010	Absolute Change 2000-2010	Percent Change 2000-2010	2025	Absolute Change 2010-2025	Percent Change 2010-2025	2050[1]	Absolute Change 2025-2050	Percent Change 2025-2050
County of Riverside	1,545,387	2,031,524	486,137	31.5	2,831,517	799,993	39.4	4,117,647	1,286,130	45.4
County of San Bernardino	1,709,434	2,031,101	321,667	18.8	2,777,715	746,614	36.8	3,845,996	1,068,281	38.5
IEUA Service Area[2]	717,050	809,228	92,178	12.9	1,057,262	248,034	30.7	1,397,474	340,212	32.2
Service Area Cities										
City of Chino	67,168	72,070	4,902	7.3	87,676	15,606	21.7	108,184	20,508	28.5
City of Chino Hills	66,787	69,170	2,383	3.6	86,124	16,954	24.5	105,461	19,337	28.0
City of Fontana	128,929	145,544	16,615	12.9	225,607	80,063	55.0	322,285	96,678	66.4
City of Montclair	33,049	34,391	1,342	4.1	41,401	7,010	20.4	49,753	8,352	24.3
City of Ontario	158,007	158,552	545	0.3	183,291	24,739	15.6	207,000	23,709	15.0
City of Rancho Cucamonga	127,743	143,212	15,469	12.1	177,203	33,991	23.7	226,663	49,460	34.5
City of Upland	68,393	74,253	5,860	8.6	85,802	11,549	15.6	103,211	17,409	23.4
Total:	650,076	697,192	47,116	7.2	887,104	189,912	27.2	1,122,557	425,365	61.0

Source: Southern California Association of Governments, 2001 RTP Update – Population, Households, and Employment Forecasts.

Notes:

[1]Year 2050 projections were derived using U.S. Census Bureau, 2000 Census of Population and Housing, Summary File 1 (SF1) and the Southern California Association of Governments (SCAG) 2001 RTP Population and Housing projections for 2025.

[2]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

Table 4.3-6: Projected Regional and Local Households

Area	2000	2010	Absolute Change 2000-2010	Percent Change 2000-2010	2025	Absolute Change 2010-2025	Percent Change 2010-2025	2050[1]	Absolute Change 2025-2050	Percent Change 2025-2050
County of Riverside	506,218	652,983	146,765	29.0	933,874	280,891	43.0	1,361,530	427,656	45.8
County of San Bernardino	528,594	640,909	112,315	21.2	889,870	248,961	38.8	1,251,146	361,276	40.6
IEUA Service Area[2]	213,833	244,234	30,401	14.2	314,094	69,860	28.6	414,355	100,261	31.9
Service Area Cities										
City of Chino	17,304	19,326	2,022	11.7	23,705	4,379	22.7	30,106	6,401	27.0
City of Chino Hills	20,039	21,533	1,494	7.5	25,442	3,909	18.2	30,845	5,403	21.2
City of Fontana	34,014	42,873	8,859	26.0	63,371	20,498	47.8	92,728	29,357	46.3
City of Montclair	8,800	10,083	1,283	14.6	11,793	1,710	17.0	14,786	2,993	25.4
City of Ontario	43,525	45,571	2,046	4.7	50,305	4,734	10.4	57,085	6,780	13.5
City of Rancho Cucamonga	40,863	43,623	2,760	6.8	55,047	11,424	26.2	69,231	14,184	25.8
City of Upland	24,551	26,291	1,740	7.1	30,541	4,250	16.2	36,531	5,990	19.6
Total:	189,096	209,300	20,204	10.7	260,204	50,904	24.3	331,312	71,108	27.3

Source: Southern California Association of Governments, 2001 RTP Update – Population, Households, and Employment Forecasts.

Notes:

[1]Year 2050 projections were derived using U.S. Census Bureau, 2000 Census of Population and Housing, Summary File 1 (SF1) and the Southern California Association of Governments (SCAG) 2001 RTP Population and Housing projections for 2025.
[2]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

Table 4.3-1: Existing Regional and Local Population Characteristics – Race/Ethnicity

Area	Total Population	White	%	Black	%	Native American	%	Asian	%	Native Hawaiian/ Pacific Islander	%	Other Race	%	Two or More Races	%	Hispanic or Latino	%
County of Riverside	1,545,387	788,831	51.0	92,403	6.0	10,135	0.7	55,199	3.6	3,284	0.2	2,425	0.2	33,535	2.2	559,575	36.2
County of San Bernardino	1,709,434	752,222	44.0	150,201	8.8	9,804	0.6	78,154	4.6	4,387	0.3	3,039	0.2	42,240	2.5	669,387	39.2
IEUA Service Area[1]	717,050	260,610	36.3	55,650	7.8	2,468	0.3	45,347	6.3	1,657	0.2	1,272	0.2	15,885	2.2	334,161	46.6
Service Area Cities																	
City of Chino	67,168	25,267	37.6	5,100	7.6	232	0.3	3,242	4.8	106	0.2	113	0.2	1,278	1.9	31,830	47.4
City of Chino Hills	66,787	29,247	43.8	3,573	5.3	195	0.3	14,575	21.8	72	0.1	143	0.2	1,831	2.7	17,151	25.7
City of Fontana	128,929	30,865	23.9	14,629	11.3	458	0.4	5,398	4.2	351	0.3	197	0.2	2,607	2.0	74,424	57.7
City of Montclair	33,049	7,784	23.6	1,986	6.0	124	0.4	2,641	8.0	84	0.3	37	0.1	570	1.7	19,823	60.0
City of Ontario	158,007	42,048	26.6	11,317	7.2	475	0.3	5,914	3.7	519	0.3	284	0.2	2,840	1.8	94,610	59.9
City of Rancho Cucamonga	68,393	37,456	54.8	4,990	7.3	238	0.3	4,866	7.1	83	0.1	104	0.2	1,826	2.7	18,830	27.5
City of Upland	127,743	70,028	54.8	9,789	7.7	405	0.3	7,469	5.8	292	0.2	294	0.2	3,975	3.1	35,491	27.8
Total:	650,076	242,695	37.3	51,384	7.9	2,127	0.3	44,105	6.8	1,507	0.2	1,172	0.2	14,927	2.3	292,159	44.9

Source: U.S. Census Bureau. 2000 Census of Population and Housing, Summary File 1 (SF1).

Notes:

[1]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

Table 4.3-2: Existing Regional and Local Population Characteristics - Age

Area	Total Population	Age			
		Under 18	%	65 and Over	%
County of Riverside	1,545,387	468,691	30.3	195,964	12.7
County of San Bernardino	1,709,434	552,047	32.3	146,459	8.6
IEUA Service Area[1]	771,386	235,743	30.6	44,471	5.8
Service Area Cities					
City of Chino	67,168	19,128	28.5	3,933	5.9
City of Chino Hills	66,787	21,946	32.9	2,828	4.2
City of Fontana	128,929	48,794	37.8	6,113	4.7
City of Montclair	33,049	10,948	33.1	2,756	8.3
City of Ontario	158,007	54,304	34.4	9,322	5.9
City of Rancho Cucamonga	68,393	18,699	27.3	7,358	10.8
City of Upland	127,743	38,145	29.9	7,788	6.1
TOTAL	650,076	211,964	32.6	40,098	6.2

Source: U.S. Census Bureau. 2000 Census of Population and Housing, Summary File 1 (SF1).

Notes:

[1]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

Table 4.3-3: Existing Regional and Local Housing Characteristics - Occupancy

Area	Total Units	Occupied Units	%	Vacant Units	%	Persons Per Household
County of Riverside	584,674	506,218	86.6	78,456	13.4	2.98
County of San Bernardino	601,369	528,594	87.9	72,775	12.1	3.15
IEUA Service Area[1]	213,833	205,989	96.3	7,844	3.7	3.49
Service Area Cities						
City of Chino	17,898	17,304	96.7	594	3.3	3.43
City of Chino Hills	20,414	20,039	98.2	375	1.8	3.33
City of Fontana	35,908	34,014	94.7	1894	5.3	3.78
City of Montclair	9,066	8,800	97.1	266	2.9	3.69
City of Ontario	45,182	43,525	96.3	1657	3.7	3.60
City of Rancho Cucamonga	25,467	24,551	96.4	916	3.6	2.76
City of Upland	42,134	40,863	97.0	1271	3.0	3.04
TOTAL	196,069	189,096	96.4	6,973	3.6	3.38

Source: U.S. Census Bureau. 2000 Census of Population and Housing, Summary File 1 (SF1).

Notes:

[1]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

Table 4.3-4: Existing Regional and Local Housing Characteristics - Tenure

Area	Occupied Units	Owner Occupied Units	%	Renter Occupied Units	%
County of Riverside	506,218	348,532	68.9	157,686	31.1
County of San Bernardino	528,594	340,933	64.5	187,661	35.5
IEUA Service Area[1]	205,989	136,656	66.3	69,333	33.7
Service Area Cities					
City of Chino	17,304	11,888	68.7	5,416	31.3
City of Chino Hills	20,039	16,986	84.8	3,053	15.2
City of Fontana	34,014	23,162	68.1	10,852	31.9
City of Montclair	8,800	5,337	60.6	3,463	39.4
City of Ontario	43,525	25,063	57.6	18,462	42.4
City of Rancho Cucamonga	24,551	14,466	58.9	10,085	41.1
City of Upland	40,863	28,702	70.2	12,161	29.8
TOTAL	189,096	125,604	66.4	63,492	33.6

Source: U.S. Census Bureau. 2000 Census of Population and Housing, Summary File 1 (SF1).

Notes:

[1]The Inland Empire Utilities Agency (IEUA) Service Area is composed of the Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland; and unincorporated areas within service area boundary.

4.3 POPULATION AND HOUSING

4.3.1 Introduction

The purpose of this section is to describe potential environmental impacts associated with population and housing that may result from the implementation of the proposed Inland Empire Utilities Agency (IEUA) Master Plan project. A population and housing study area has been delineated for the proposed project area and facilities within the IEUA service area. The study area encompasses an area where the potential effects, if any, of construction and operation of the proposed project would be reasonably foreseeable.

To evaluate potential impacts to population and housing, information compiled by the following agencies has been utilized:

- Cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland;
- Counties of Riverside and San Bernardino;
- Inland Empire Utilities Agency;
- Southern California Association of Governments; and
- U.S. Census Bureau.

Current demographic data have been obtained from the local jurisdictions and the 2000 U.S. Census of Population and Housing (2000 Census). Future population and housing projections have been provided using the Southern California Association of Governments (SCAG) 2001 RTP projections to 2025. Data from the 2000 Census and SCAG projections have been used to extrapolate projections of long-term population and housing to 2050.

4.3.2 Environmental Setting

4.3.2.1 Regional Setting

The IEUA service area is located in the Chino Basin, in the southwestern portion of San Bernardino County. There are seven cities and several unincorporated areas of both Riverside and San Bernardino counties either wholly, partially lying within the boundary or vicinity of the IUEA service area.

Population

According to the U.S. Census, the population of Riverside County was 1,545,387 in 2000. Of the total, 51 percent of the people were White, and people of Hispanic/Latino origin were the second largest group at 36.2 percent. The percentage of persons under 18 years of age in Riverside County was 30.3 percent and 12.7 percent for persons aged 65 and over.

The population in San Bernardino County in 2000 was 1,709,434. The largest population group, at 44 percent, was White persons, while the next largest group, at 39.2 percent, was persons of Hispanic/Latino origin. The percentage of persons in San Bernardino County under 18 years of age was 32.3 percent, and the percentage of persons aged 65 and over was 8.6 percent.

The IEUA service area population in 2000 included 46.6 percent persons of Hispanic/Latino origin and 36.6 percent White persons. Compared to the County of San Bernardino, the IEUA service area had a higher percentage of people of Hispanic/Latino origin.

Tables 4.3-1 through 4.3-4 summarize the characteristics of the existing regional population and housing for the County of Riverside, County of San Bernardino, and the IEUA service area.

In accordance with Policy 3.01 of the Regional Comprehensive Plan and Guide (RCPG) (SCAG 1996), SCAG has projected future population for the Counties of Riverside and San Bernardino. SCAG population projections indicate a 39.4 percent population increase in Riverside County and 36.8 percent in San Bernardino County between 2010 and 2025. Between 2025 and 2050, a 45.4 percent population increase has been projected in Riverside County, and a 38.5 percent increase in San Bernardino County.

Tables 4.3-5 and 4.3-6 summarize the projected regional population and housing between 2000 and 2050.

Housing

The U.S. Census calculated that in 2000 there were 601,369 housing units in San Bernardino County, of which 87.9 percent were occupied. Of the 528,594 occupied housing units, 64.5 percent were owner occupied. The average household size was 3.15 persons.

In Riverside County there were 584,674 housing units in 2000. Of the total housing units, 86.6 percent were occupied. Owner occupied units constituted 68.9 percent of all occupied units. The average household size was 2.98 persons.

The IEUA service area contained 213,833 housing units, of which 96.3 percent were occupied. Owner occupied units comprised 66.3 percent of the occupied units. The average household size was 3.49 persons.

4.3.2.2 Study Area Setting

The existing population and housing characteristics of the seven cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland, and unincorporated areas of San Bernardino County in the project study area are described in Tables 4.3-1 through 4.3-4. Projected population and housing characteristics for the project study area between 2000 and 2050 are summarized in Tables 4.3-5 and 4.3-6. As these data show, the population and housing characteristics of the IEUA service area and its constituent cities are not substantially different than in the surrounding region.

4.3.3 <u>Project Impacts</u>

The IEUA Master Plans propose a variety of new facilities, including pipelines, additions to existing plants, and new satellite plants. The population and housing issues in this evaluation are examined as they relate to constraints imposed on the three master plan projects in the IEUA Master Plans PEIR. The specific projects proposed under each master plan is summarized below.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel, which traverses the site from north to south, has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint. .

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment system improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..

- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of nine potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],
   - Church Basin [SP-3],
   - CCDW-Baseline [SP-4],
   - Foothill/I15 Corridor [SP-5],
   - Kaiser/CSI WWTP [SP-6],
   - Sierra Lakes [SP-7],
   - Fontana-Baseline [SP-8], and
   - Montclair [SP-9].
   - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.
2. Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,5000 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.
2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).

- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.
- The facilities summarized above will be evaluated for exposure to geotechnical hazards in the following sections.

4.3.3.1 Significance Criteria

The project would be considered to have a significant adverse impact to population and housing if it would:

a. Induce substantial population growth in an area, either directly or (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; or

c. Displace substantial numbers of people, necessitating the construction of replacement of housing elsewhere.

4.3.3.2 Impacts Analysis

Would the project:

a. Induce substantial population growth in an area, either directly or (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The purpose of the proposed project is to accommodate and manage the wastewater conveyance, treatment, and waste management facilities within the Chino Basin. A comparison between the SCAG 2001 RTP population and housing data projections and the population and housing data used to calculate the flow projections for the IEUA Wastewater Facilities Master Plan (WFMP) indicates that the proposed project would not induce a direct or indirect increase in population growth in the study area. Wastewater flow projections prepared for the IEUA Master Plan have determined that the proposed capital facilities would accommodate about 160 million gallons per day (MGD) of wastewater in 2050. Using the projected IEUA service area population of 1,397,474 persons calculated from the 2000 Census and 2001 SCAG RTP data, and an estimated per capita flow rate of 90 gallons per capita per day (gpcd), wastewater generation would be about 126 MGD in the IEUA service area by 2050. This estimated flow is nearly the same as one of the three flow projections developed for the proposed project, which calculated a "higher" flow of 180 MGD, a "middle" flow of 155 MGD, and a "lower" flow of 130 MGD for 2050. Figure 4.8-10 shows these flow projections. Because the flow calculated using Census and SCAG data is not substantially different than that used to determine the capacity of the proposed project, it can therefore be concluded that the planned capital facilities would provide an adequate capacity to accommodate, but not induce, population growth in the service area. Some additional capacity would exist in order to account for future new industries that may be larger wastewater generators, yet there would not be an excess of capacity that would be likely to induce unplanned population growth.

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

Wastewater Facilities Master Plan

Construction Phase

The WFMP would not result in the displacement of existing housing since the project would consist of the expansion of existing Regional Plants and the Carbon Canyon Water Recycling Facility within their existing footprint. Pipelines and pump stations will be located within road rights-of-way that have no potential to adversely affect either population or housing. Finally, the proposed satellite plant sites all occupy locations that currently do not contain any housing resources. However, it is possible that land designated for residential use exists at several of the locations, particularly at sites in Rancho Cucamonga and Fontana. The potential loss of housing would be a few units (up to 20) based on site size of five acres and four units per acre. This potential loss is considered a *de minimus* amount of potential units given a housing stock in the region of about 214,000 units.

Operation Phase

Operation of Wastewater facilities would involve no activities requiring displacement of housing.

Recycled Water Master Plan

Construction Phase

The Recycled Water Master Plan would consist of construction and installation of pipelines and pump stations at Regional Plants to assist in managing recycled water flow. The installation of several pump stations would occur within existing Regional Plant footprints. Of the other pump station and reservoir locations, Benson Avenue and Jurupa Basin locations are assigned industrial or institutional land uses where no conflict with residential uses can occur. At the Etiwanda and Montclair sites, a potential for loss of three to five acres of future residential area may occur. The proposed installation of the pipelines would occur in public rights-of-way and would not require the removal or displacement of housing.

Operation Phase

Operation of recycled water facilities would involve no activities requiring the displacement of housing.

Organics Management Master Plan

Construction Phase

Implementation of the Organics Management Master Plan (OMMP) would not displace existing housing, nor require the construction of replacement housing. The Inland Empire Regional Composting Facility would be built on a new site adjacent to the existing RP-4 footprint. The RP-1 Composting Facility would not displace housing since it is adjacent to an industrial area. All other composting sites do not have any existing housing and the land use designations are for agricultural or other uses not suitable for future housing uses. No existing or future housing will be displaced by the implementation of the OMMP.

Operation Phase

Operation of organics management facilities would involve no activities requiring the displacement of housing.

c. Displace substantial numbers of people, necessitating the construction of replacement of housing elsewhere?

Please see the response to question (b) above. Since housing would not be displaced by implementation of the proposed project, no persons would be displaced.

4.3.4 Mitigation Measures

Because the proposed project would not result in any significant adverse impacts to population and housing, no mitigation measures are required.

4.3.5 Cumulative Impacts

As detailed above in the discussion of growth inducement, the proposed project is not anticipated to generate unplanned population growth. Taking into account other past, present, and reasonably foreseeable future development in the area, including additional infrastructure improvements, the same conclusion can be reached. That is, population growth that will occur in the region is more likely be influenced by a range factors (e.g., land availability, economic opportunity, immigration patterns, and birth rates), than by cumulative development projects.

4.3.6 Unavoidable Adverse Impacts

Since the proposed project would not result in any significant adverse impacts to population and housing prior to mitigation, it also would not result in any unavoidable adverse impacts.

4.4 GEOLOGICAL SETTING AND IMPACTS

4.4.1 Introduction

This subsection identifies and evaluates various geological impacts and constraints related to the implementation of the IEUA Master Plans PEIR. CEQA Guidelines (Section 15126.2, subd. (a)) require an analysis of potential safety problems that might be encountered as a result of implementing a proposed project. This analysis section contains an assessment of the geological setting and an appraisal of possible constraints or impacts related to the geological setting. In addition, where appropriate, mitigation measures to minimize the exposure of people and property to geology-related hazards, such as susceptibility to surface rupture from faulting, seismic ground shaking, seismic liquefaction, or subsidence, are discussed.

To evaluate potential geologic constraints or impacts associated with this project, data from the following sources were utilized:

- City of Fontana, General Plan and General Plan EIR
- City of Rancho Cucamonga, General Plan and General Plan EIR
- County of San Bernardino, General Plan and General Plan EIR
- County of Riverside, General Plan and General Plan EIR
- Wildermuth Environmental Optimum Basin Management Program Phase I Report (OBMP)
- City of Ontario, General Plan and General Plan EIR
- City of Rialto, General Plan and General Plan EIR
- City of Chino, General Plan and General Plan EIR
- City of Chino Hills, General Plan and General Plan EIR
- City of Pomona, General Plan
- City of Upland, General Plan
- City of Montclair, General Plan
- Final Task 5 Memorandum; Chino Basin Conceptual Model (JMM/CDM/CH2M Hill, 1992)
- Chino Subarea 1 EIR
- Chino Subarea 2 EIR
- Program Environmental Impact Report for the Proposed Regional Plant Number 5 Project

Data are abstracted from these documents in order to characterize the existing environmental setting and to make the impact forecast.

4.4.2 Environmental Setting

The OBMP Phase I Report (2-2 to 2-5) and the TIN/TDS Study Phase 2A (3-25 to 3-32) Report prepared by Wildermuth Environmental describe the underlying geology and hydrology of each management zone within the Chino Basin in detail. The IEUA service area overlies a large portion of the Chino Basin. The following description of the existing geologic environment is intended to summarize the information presented in these documents, combined with data from the General Plans of cities located within the legal boundaries of the Chino Basin. The discussion provided below is intended to communicate with the non-technical reader/reviewer; thus, it is formatted in *italic* print as a simplified explanation/summary of the geology and seismicity of the area. Readers interested in the technical details of the data and reports are referred to the two aforementioned reports, along with the safety or geologic hazards sections of the general plans mentioned in the list of resources found in Section 4.4.1 of this chapter.

4.4.2.1 Regional Geological Setting

Chino Basin is primarily located within the southwestern portion of San Bernardino County; however, small portions are also located in the northeast corner of Los Angeles County and the northwest corner of Riverside County. The San Bernardino County General Plan Final EIR describes the geologic setting as follows:

> *San Bernardino County is located in a tectonically active region near the boundary of two major crustal plates. This boundary (between the Pacific and American Plates) is generally marked by the San Andreas Fault Zone, which extends through the southwestern portion of the County. The San Andreas system exhibits predominantly right strike-slip movement (i.e., horizontal displacement to the right when viewed across the fault), whereby the Pacific Plate moves relatively northwest with respect to the continent. This active tectonic environment has strongly influenced the geologic and physiographic history of the County...The southwestern portion is within the Peninsular Ranges Physiographic Province. This area is characterized by northwest-southeast trending longitudinal mountain ranges and valleys with intervening faults. The San Andreas, San Jacinto, and Elsinore Fault zones constitute the primary structural features of the Peninsular Ranges Province, and extend through southwestern San Bernardino County in a generally northwest-southeast direction. These (and related) structures delineate a series of crustal blocks aligned in a stepped topography across the province. Elevations become progressively higher in these blocks away from the coast, culminating in the San Jacinto Peninsular Ranges Province in the Valley region includes the Chino and Puente Hills (the northernmost extensions of the Santa Ana Mountains) and adjacent valleys. These areas incorporate rugged low lying highlands and alluviated basins at elevations of approximately 500 to 1,500 feet m.s.l.. (VIII-3 to VIII-4)*

Specific geologic and hydrologic characteristics of the Chino Basin are described in the OBMP Phase I report as follows:

> *Chino Basin was formed when eroded sediments from the San Gabriel Mountains, the Chino Hills, Puente Hills, and the San Bernardino Mountains filled a structural depression...The bottom of the Basin - the effective base of the freshwater aquifer - consists of impermeable sedimentary and igneous rocks, the base of the aquifer is overlain by older alluvium of the Pleistocene period followed by younger alluvium of the Holocene period.*
>
> *The younger alluvium varies in thickness from over 100 feet near the mountains to just a few feet, south of Interstate 10 and generally covers most of the northern half of the Basin in undisturbed areas. The younger alluvium is not saturated and thus does not yield water directly to wells. Water percolates readily in the younger alluvium and most of the large spreading basins are located in the younger alluvium.*
>
> *The older alluvium varies in thickness from about 200 feet thick near the southwestern end of the Basin to over 1,100 feet thick southwest of Fontana, and averages about 500 feet thick throughout the Basin. Well capacities range between 500 and 1,500 gallons per minute (gpm). Well capacities exceeding 1,000 gpm are common, with some modern production wells test-pumped at over 4,000 gpm. In the southern part of the Basin where sediments tend to be more clayey, wells generally yield 100 to 1,000 gpm. Three main water-bearing (hydrostratigraphic) units were identified by Montgomery Watson (1993)*

during the development of a three-dimensional groundwater model of the Basin. Figure [4.4-1] shows the locations of two generalized cross-sections through the Chino Basin. These generalized cross-sections illustrate these main aquifer units and are shown in figures [4.4-2] and [4.4-3].

Faults are one of the principal agents in the development of the landscape and restriction of groundwater flow in the Chino Basin. The Basin is bounded by major fault systems along which the mountains and hills have been uplifted. The location of fault and groundwater barriers, and displacements in the effective base of the aquifer at faults are shown in Figure [4.4-1]. The faults and groundwater barriers are significant in that they define the external boundaries of the Basin and influence the magnitude and direction of groundwater flow near the boundaries. (OBMP Phase I Report, 2-2 to 2-3).

4.4.2.2 Regional Earthquake Faults

Both active and inactive earthquake faults occur in the Chino Basin. As listed in Section 3-8 of the Rancho Cucamonga General Plan, the regional faults considered to have the greatest potential to generate seismic shaking in the Basin are:

- Cucamonga Fault
- Red Hill Fault
- San Jose Fault
- San Antonio Fault
- San Jacinto Fault
- San Andreas Fault
- Chino-Elsinore Fault
- Central Avenue Fault

A major earthquake on one of these regional faults could cause significant ground shaking. Ground acceleration from a maximum credible earthquake of magnitude 8.2 on the San Andreas Fault could range as high as 1.0 g (Rancho Cucamonga General Plan, Section 3-8) in the northern project area and 0.55 g in the southern portion of IEUA's service area.

4.4.2.3 Soils

Quaternary alluvial deposits and recent soils comprise the majority of the near-surface and surficial sediment covering the basin. Older subsurface strata may include Tertiary marine and non-marine sedimentary and volcanic units; Mesozoic marine sedimentary, metasedimentary, metavolcanic, and plutonic units; Paleozoic sedimentary and metasedimentary units; and Precambrian igneous and metamorphic units (San Bernardino County General Plan FEIR, VIII-5).

In general, the soils within Chino Basin are deep well-drained sands, sandy loams, and silty loams on relatively flat valley floors, and shallow to deep, well to excessively drained sandy loams on foothills and upland areas (San Bernardino County General Plan FEIR, VIII-5). These types of soils are suitable for agricultural use. Drainage in the basin is comprised of the Santa Ana River and associated intermittent tributary streams (San Bernardino County General Plan FEIR, VIII-5). The general topography for the Chino Basin consists of slopes less than 10 percent for all areas except small regions of the Basin such as the Jurupa and Pedley Hills. The IEUA Master Plans PEIR does not propose to build structures within any areas having a slope greater than 10 percent.

The following discussion was taken from the San Bernardino and Riverside County soil surveys and data contained in a "Final Task 5 Memorandum: Chino Basin Conceptual Model" (WEI, JMM, CDM, CH2M-Hill, 1992).

The study area is overlain by 78 alluvial soil types described for their top 60 inches of thickness. The soils tend to be sand, silt and clay loams with occasionally gravelly or cobbly sandy loams. Fifteen of the 78 soil types are prime agricultural soils and 20 are rated "suitable" for cultivation. The thirteen general soil association within the study area have been grouped into three major soil groups. These soil groups are described as follows:

> *Group 1 Soils are on recent (younger) alluvial fans and plains, and consist of deep, permeable soils with no development in the profile. The soils of Group 1 were formed by the transport of unconsolidated materials. These soils represent about 75 percent of the study area...Generally, the soils in Group 1 are found on slopes that range from zero to nine percent and consist of coarse textured soils developed in granitic alluvium, gravelly or cobbly alluvium, or weakly consolidated sandstone and shale. Runoff from these soils is usually low and infiltration is moderate to high (greater than 1 inch per hour). Soil depths are greater than 60 inches.*
>
> *Group 2 soils occur on older alluvial fans and terraces and have a more developed profile than the soils of Group 1. Group 2 represents about 5 to 10 percent of the study area...These soils are developed on granitic or sedimentary alluvium and are moderately fine textured soils of silty loam or sandy loam in the surface layer with clay loam in the subsoils and substratum. These soils have a moderate to low infiltration rate (less than 1 to 2 inches per hour). The subsoils are more finely textured than the surface soils. A portion of these soils are found on zero to 2 percent slopes; these soils are moderately developed with clays in the subsoils and claypan in the lower horizon. Group 2 soils located on slopes ranging from 2 to 5 percent contain some hardpan 48 to 72 inches below the surface. Group 2 soils found on 5 to 9 percent slopes include the steep side slopes of alluvial fans and terraces.*
>
> *Group 3 soils overlie crystalline, sedimentary, or granitic bedrock. These soils are found in the Chino Hills, Puente Hills, the base of the San Gabriel and Jurupa Hills and in small areas near the San Bernardino-Riverside county line. Group 3 represents about 15 to 20 percent of the study area...These soils are found on steep slopes ranging from 15 to 20 percent. The soils are predominantly pale brown loams, fine sandy loams, or clays. The substrate of parent materials of these soil associations are shale, schist, gneiss, coarse-grained sandstone, granodiorite and moderately high infiltration rates (1 to 2 inches per hour). The depth of these soils ranges from 20 to 40 inches.*

The soils that comprise the Chino Basin have accumulated from the alluvium washed down from the San Gabriel and Santa Ana blocks during the latter part of the Quaternary epoch. The alluvium can be classified based on apparent age. Figure 4.4-1 shows the generalized location of cross sections for water-bearing sequences in the Chino Basin area. Geological cross-sections (Figures 4.4-2 and 4.4-3) show the Chino Basin divided into water-bearing and nonwater-bearing formations. "The latter are further differentiated as (a) consolidated stratified rocks, and (b) metamorphic and igneous rocks of the basement complex. Water-bearing formations overlie nonwater-bearing formations. The alluvial formations of the Chino Basin are typically younger alluvium, older alluvium, terrace deposits and residuum" (Task 5 Memorandum, 2-1 to 2-2; WEI, JMM, CDM, CH2M-Hill, 1992), which are described in the following:

Younger alluvium consists of relatively unweathered sand, gravel, and silt deposits up to 150 feet thick, and occupies streambeds, washes, and other areas of younger or recent sedimentation. Oxidized particles tend to be flushed out of the sediments during transport. Recent alluvium is commonly light yellow, brown, or gray...The primary source for the origin and generation of younger alluvium within the Chino Basin is the San Gabriel Mountains.

During transport, the largest of the fragments travel the least distance. The northern part of the Chino study area, close to the base of the San Gabriel Mountains, therefore, exhibits younger alluvium composed primarily of coarser material mixed with some clay and sand. Farther from the mountain front the slope of the land is gentler and the particles are of smaller size. The alluvium here is in layers of gravel, sand and silt. The finest particles are able to travel the greatest distances and settle out farthest from the mountains, near Prado Dam.

In most places, the highly permeable younger alluvium is above the water table. Water percolates readily through the younger alluvium

Sand dunes in the east-central part of the valley floor were formed as a result of the "Santa Ana" wind storms, carrying sand winnowed from alluvial deposits lying to the northeast of the dune area. The spread of irrigated agriculture and the planting of windbreaks in the valley, however, have probably acted to stabilize the dunes. The dune sand has been grouped with the younger alluvium because of its similar water- bearing characteristics...

A thick section of stabilized, moderately to deeply weathered alluvium of Pleistocene Age unconformably underlies the younger alluvium. Older alluvium is typically distinguishable by its red-brown or brick-red color. Beneath the older alluvium are formations that range in age from Pleistocene to Precambrian, in an unconformable sequence. Around the edge of the Chino study area, the base of the alluvial layers can be readily distinguished, but in many places in the central part of the valley, the base of the older alluvium cannot be defined...the average thickness is estimated to be not more than 500 feet.

Older alluvium is made up of boulders, gravel, sand, silt, and clay derived largely from basement rocks in the San Gabriel Mountains. The accumulation of the older alluvium began, probably in middle Pleistocene time, when the present valley first began to form south of the rising San Gabriel block.

The combined effects of sorting and weathering give the older alluvium in the central part of the area the lowest clay content and the highest well yields and transmissivity of the alluvium of this area.

The terrace deposits consist of dark red and red-brown alluvial material resting on planed-off bedrock surfaces above stream level. Because terrace deposits consist of alluvium resting on bedrock above stream level, they are mainly above the water table and do not store significant amounts of water.

In areas of low relief where there is little erosion, in-place, deep weathering of basement and consolidated sediments has resulted in extensive residual formations that locally store and yield water. Structures of the disintegrated and decomposed parent rock are preserved in the residuum and grade into those of the underlying bedrock. The residual materials are marked by oxidation colors of red and brown. Because of their relatively high clay content and generally thin and disconnected occurrence, they are inferior to transported and reworked alluvium as a source of water to wells. These soils are generally found in the Norco area and adjacent to the Santa Ana River near Pedley Hills.

The nonwater-bearing formations include continental deposits of late Pliocene to middle Pleistocene age, marine sedimentary and volcanic strata of late Cretaceous to later Tertiary age, and crystalline igneous and metamorphic rocks of the basement complex...San Timoteo beds in the easternmost part of the study area belong to the lower levels of a thick sequence of deposits in which fossils of middle to late Pliocene age have been found. These beds resemble the older alluvium of the Chino study area, but are cut by numerous faults and are sharply folded as a result of mid-Pleistocene mountain building.

In the western part of the Chino study area, consolidated sedimentary and volcanic rocks, ranging in age from late Cretaceous to Pliocene consist of well stratified marine sandstone, shale, and conglomerate and interlayered lava flows...

The basement complex consists of deformed and re-crystallized metamorphic rocks that have been invaded and displaced in places by granitic and related igneous rocks. The intrusive granitic rocks, which make up most of the basement complex, were emplaced about 110 million years ago in the late Middle Cetaceous (Larsen, 1958). These were subsequently uncovered by erosion, especially in the San Gabriel Mountains and in the uplands of the Perris block. They have been the major source of detritus to the younger sedimentary formations, in particular, to the water bearing deposits of the Chino study area. (Task 5 Memorandum, 2-2 to 2-5)

4.4.2.4 Seismic Activity

The referenced EIRs contain detailed analysis of potential seismic activity for all significant faults within the vicinity of the Chino Basin Planning Area. The following information has been extracted from the Rancho Cucamonga GP EIR. (Rancho Cucamonga GP EIR, III-8 to III-13). References to the "City" in the following quoted text refer to the City of Rancho Cucamonga.

Southern California is a very active seismic region and is part of a larger, seismically active area known as the "Ring of Fire" which encompasses both sides of the Pacific Ocean. Numerous earthquakes have occurred in this region over the past 200 years. Significant seismic activity, greater than Magnitude (M) 5 on the Richter Scale, is clearly associated with known active faults.

A map showing the location of major faults in the vicinity of Chino Basin is included as Figure 4.4-1. Maximum ground accelerations estimated for seismic events near or within the Chino Basin area are presented in Table 4.4-1. An active fault has offset within the Holocene, which would be the last 10,000 years. A potentially active fault has offset within the Pleistocene, which would be between 10,000 years and 2.5 million years ago. These faults are discussed in the following:

In order to assess the potential risk they pose to the City, it is important to estimate the size of earthquakes associated with the faults in the area. Those faults most likely affecting the [project area] are described below with their estimated earthquake potential.

<u>San Andreas Fault</u> *This fault is the boundary between two huge crustal plates (Pacific and North American) that are moving relative to each other at the rate of a few inches per year. This fault is widely recognized as the longest and most active fault in the state. It has been mapped from Cape Mendocino in northern California to an area near the Mexican border. The fault is known to be active from historic earthquakes, some of which have caused surface rupture, and from abundant evidence of displacement of recent sediments. A maximum credible earthquake for the San Andreas Fault is M 8.25.*

Table 4.4-1

Maximum Ground Accelerations Estimated For Seismic Events Near Or Within The Chino Basin Area

Fault	Estimated Maximum Credible Earthquake[1]	Estimated Maximum Accelerations[2]
Cucamonga	7.0	0.60 - 0.95
Red Hill	6.5	0.70 - 0.80
San Jose	6.5	0.50 - 0.75
San Antonio	6.5	0.50 - 0.75
San Jacinto	7.5	0.40 - 0.85
San Andreas	8.25	0.35 - 0.70
Elsinore-Chino	7.5	0.30 - 0.55

Source: Summarized from Rancho Cucamonga General Plan EIR (1981)
[1] Richter Magnitude: Estimated based on Slemmons (1977) and Greenfelder (1974)
[2] Accelerations are for bedrock as calculated by Idriss and Pong (1987)

San Jacinto Fault Like the San Andreas fault, the San Jacinto fault has been active for millions of years. Several historic earthquakes in Southern California have been associated with this fault. A maximum credible earthquake for the San Jacinto Fault is M 7.5.

Whittier-Elsinore Fault The Whittier-Elsinore fault is a potentially active fault with vertical movement, unlike the horizontal movements associated with the San Andreas and the San Jacinto. The Whittier-Elsinore fault branches into the Whittier fault and the Chino fault. The latter is buried along most of its length and is the closest part of the Whittier-Elsinore system to the City of Rancho Cucamonga. A maximum credible earthquake for the Whittier-Elsinore Fault is M 7.5.

Cucamonga Fault This fault is considered potentially active, primarily because of scarps that indicate offset in recent alluvial deposits along the northern edge of the City. Although the length of the fault is not known for certain, it has been mapped from near Lytle Creek, 2.5 miles northeast of the City, to the north of San Antonio Canyon. Mapped traces of the fault vary from a single line near Cucamonga Creek to a zone a half mile wide south of East Etiwanda Canyon. A significant offset in the mapped traces occurs across the alluvial deposits of Deer Creek. A maximum credible earthquake for the Cucamonga Fault is M 7.0.

San Jose Fault This fault trends southwest from a point near the San Antonio Canyon. The fault has displaced soil in the San Jose Hills. A maximum credible earthquake for the San Jose fault is M 6.5.

San Antonio Canyon Faults Potentially active and identified from several mapped traces in the canyon, the San Antonio Canyon fault is about 15 miles long. A maximum credible earthquake for the San Antonio fault is M 6.5.

Red Hill Fault This fault is well known as the geologic divider between the Cucamonga and Chino groundwater basins. The northeast trend of this barrier corresponds closely with a prominent scarp in the alluvial fan south of Day Canyon and with the southern edge of Red Hill. Micro-seismic monitoring has shown that a large number of small earthquakes (M l to M 3) occur beneath the [City of Rancho Cucamonga] and that a few epicenters were located *on or near the trace of the Red Hill Fault. A maximum credible earthquake for the Red Hill fault is M 6.5.*

The northeastern end of the Red Hill fault has apparently displaced recent alluvial deposits and has also been included in an Alquist-Priolo Special Studies Zone. The remainder of its trace, however, did not meet state criteria, despite substantial evidence for its continuation to the southwest. In view of this, the City of Rancho Cucamonga has established its own special study zone along the most probable trace which is shown in the General Plan as an inferred fault.

Red Hill Trace The geological study for a recent development (Rancho Cucamonga Tract 10035) discovered a possible "finger" of the Red Hill Fault to the west of the main trace near Red Hill. Additional study indicated that although it was likely not a branch, it is possible that additional extensions of the fault may exist in this area.

Other Faults Additional faults are known in the region, some of which exist within the City. However, these would not be expected to cause seismic shaking greater than those listed in Table 4.4-1. Possible local fault traces paralleling the Red Hill however, might be associated with future ground rupture or may have caused unusual distribution of near-surface sedimentary soils in the past.

Central Avenue Fault This fault is a potentially active fault that trends in a northwest-southeast alignment along the west side of El Prado Road. Because the projected surface location of the fault is not well known, a 1000-foot-wide study zone has been designated for planning purposes. The entire RP-2 site is within the fault zone...The RP-5 site frontage along El Prado Road is within the fault zone.

Because the Central Avenue Fault has not been studied in detail, little data is available regarding the maximum credible earthquake and maximum ground accelerations from an earthquake along this fault.

Table 4.4-1 (Rancho Cucamonga General Plan) summarizes the maximum credible earthquakes associated with each of the above described faults. There is little doubt that IEUA service area and the Chino Basin will experience strong seismic shaking at some time in the future. Several of the nearby faults have the potential to generate large earthquakes that would be felt throughout the Basin. The Rancho Cucamonga General Plan describes the potential ground shaking, which would apply generally to the whole Chino Basin in the following manner:

The level of shaking that might occur can be estimated by first assuming that the maximum credible earthquake for a fault could occur at its nearest approach to the City. The ground response, developed from measurements of past earthquakes, can then be used to estimate expected bedrock accelerations. Fife and others (1976) mapped isoacceleration lines for southwest San Bernardino County, which might be expected from earthquakes on the San Andreas, San Jacinto, Cucamonga, and Whittier-Elsinore faults, based on attenuation relationships derived by Schnabel and Seed (1972). The ranges of these accelerations shown for the City are listed in Table 4.4-1. Also included are the Red Hill, San Jose, and San Antonio faults and calculated maximum expected acceleration for all seven faults, based on near-field attenuation relationships developed by Idriss and Power (1978).

The highest accelerations expected beneath the Project Area according to Fife and others (1976) would be about 75 percent of gravity (0.75 g) adjacent to Cucamonga fault as a result of a maximum credible M 6.5 earthquake. Based on more recent rupture length-magnitude and attenuation relationships (Slemmons, 1977; Idriss and Power, 1978), bedrock *acceleration may be as high as 0.95 g. This assumes that a Magnitude 7.0 event could occur on a plane dipping 45 degrees to the north and the center of energy release would be 5 km deep. Accelerations north of the surface trace, which would be the upthrown block, might be even higher.*

The Red Hill fault, if the maximum credible earthquake occurs, could generate bedrock accelerations as high as 0.8 g. Bedrock beneath the eastern edge of the City of Rancho Cucamonga might be expected to experience up to 0.85 g from a large earthquake on the San Jacinto fault.

Values shown in Table 4.4-1 are for accelerations in bedrock. Seismologists consider bedrock to be material with a shear wave velocity faster than 2,000 feet per second. Seismic velocities beneath the City are not specifically known, but in general, these velocities are typically attained at a depth of about 500 feet in the valley alluvium (Fife and others, 1976). Areas with deep cohesionless soils, such as those underlain by recent fan deposits, might be expected to experience accelerations at the ground surface that are as low as 60 percent of those calculated for bedrock (after Seed and others, 1975). Areas with stiffer soils, such as older, clayey alluvium, would be expected to experience higher percentages of the calculated values. Predominant periods of shaking are expected to be shorter in bedrock than in areas covered by thick alluvial deposits.

Other faults near the Chino Basin include the Rialto-Colton Fault, the Indian Hill Fault, and the Lytle Creek Fault. According to the Geologic Map, these faults are not known to be active in the last 700,000 years. Additionally, the Chino Avenue Fault is located westerly of the City of Chino, however none of these faults are predicted to generate maximum accelerations greater than those contained in Table 4.4-1.

According to the Riverside County General Plan, the portion of the Chino Basin that is located in Riverside County does not overlie any Alquist-Priolo Special Studies Zones. A small portion of the special study zone for the Cucamonga fault appears to be within the boundaries of the Chino Basin. The State of California requires additional geologic investigations prior to construction of certain structures and facilities within this study area. This special studies zone occupies part of the area marked as high-priority for construction of new groundwater recharge facilities, and more geologic investigations are necessary for facilities sited near this area.

The Central Avenue fault is a potentially active fault within the Elsinore-Whittier fault zone. There is evidence, however, suggesting possible offset of Holocene near-surface deposits (Chino Subarea 2 Preserve Master Plan) and the City of Chino has designated the projected fault trace as a fault study zone.

4.4.2.5 Ground Rupture

Fracturing and displacement of the ground surface can occur as a direct result of movement along an active fault (primary ground rupture), or as a result of sympathetic movement from intense ground shaking on weakened, older fault traces (secondary ground rupture). Primary ground rupture commonly results in greater surface displacement; whereas secondary ground rupture is commonly more widespread. Both types of ground rupture are potentially destructive to surface improvements, and in 1972 the State of California legislated the Alquist-Priolo Special Studies Zone Act (now known as Alquist-Priolo Earthquake Fault Zones Act) to define and restrict development areas of potential fault-related ground rupture. As of 1972, the faults listed for special study zones included the San Andreas, San Jacinto and part of the Cucamonga fault zones. In 1974, however, a preliminary draft of the Proposed Seismic and Public Safety Element of the Environmental

Improvement Agency (San Bernardino Planning Department) recommended that the County consider additional faults for special studies, including (in order of priority as listed):

- The branch of the eastern portion of the Cucamonga fault;
- The Red Hill fault (a branch of the Cucamonga fault);
- The Chino-Elsinore fault (northwesterly extension of the Elsinore fault).

The fundamental purpose of requiring further study in Alquist-Priolo zones is to prevent high-occupancy structures and important or potentially hazardous facilities from being constructed on an active earthquake fault, if avoidable.

The San Bernardino County General Plan EIR states that, "Known historic ground rupture in the Valley region is limited to minor fault creep along the San Jacinto Fault Zone near the city of Colton. Regionally, the potential hazards associated with ground rupture in the Valley are considered relatively low, due to the local nature of rupture related damage (i.e., along the fault traces themselves) and the provisions of the Alquist-Priolo Act" (San Bernardino County General Plan EIR, VIII-16). The only nearby special studies zone occurs adjacent to the northeastern portion of the Chino Groundwater Basin boundary along a branch of the Cucamonga Fault.

Portions of the City of Norco and unincorporated Riverside County lie within specially designated County Hazard areas; however, these are not part of the Alquist-Priolo Special Study Zones established by the State of California.

4.4.2.6 Liquefaction Hazards

Liquefaction is a process that occurs during the shaking action of an earthquake seismic event with accelerations of about 0.5 g or greater. When saturated, cohesionless, fine granular sediment (usually silty sand or fine sand) are subjected to intense seismic shaking they transform from a solid and act as a fluid. During seismic shaking, they loose bearing capacity and extreme damage to structures that are sited on these soils can occur due to settling, tilting, or floating of the foundation. The stability of silty clay and clay, and coarse sediment (such as gravel) is generally not as affected. Liquefaction is generally restricted to saturated or near-saturated sediments at depths of less than 50 feet (San Bernardino County General Plan EIR, VIII-18).

One area of relatively high liquefaction potential occurs in an approximately 20 square-mile area located in the southwestern portion of the City of Chino and adjacent areas, such as the Prado Basin area (Figure 4.4-1). This area has a relatively shallow groundwater table (groundwater depths have varied from 100 feet to less than 30 feet) and consists of sandy alluvial soils. The areas that are most susceptible to liquefaction correspond to former artesian areas of the Basin, and other areas with high groundwater levels, which existed before extensive groundwater pumping lowered the groundwater levels.

4.4.2.7 Settlement/Subsidence

Settlement is the localized lowering of the ground surface due to a decrease in the volume of the underlying soil or sediment. Various phenomena can cause this phenomena, including consolidation, hydro-consolidation, and seismically induced settlement. A common cause of ground fissuring within alluvial basins is the removal of subsurface fluids resulting in compaction of poorly consolidated aquifer materials and land subsidence (Fife et al., 1976; Galloway et al., 1998). A number of studies have attributed this process to the ground fissuring and apparent subsidence that has occurred in Management Zone-1 (MZ-1, Fife et al, 1976, Kleinfelder, 1993, 1996, 1999; Geomatrix, 1994, see Figures 3-4 and 3-20). This section reviews the basic principles of aquifer system compaction; describes the general hydrogeology of the Chino Basin; [and] lists the evidence for groundwater withdrawal as the cause of land subsidence and fissuring in MZ-1" (Wildermuth Environmental, Task Memorandum: Program Element 4, 1999).

The Chino Basin Integrated Groundwater and Surface Water Model (CIGSM) model depicts the hydrogeologic geometry of the Chino Basin as a "layer-cake" of unconsolidated sediments within a basin of impermeable bedrock. The "layer-cake" consists of laterally extensive, sediment packages that alternate between high permeability aquifers and low permeability aquicludes. Aquifers that are located beneath an aquiclude (and are completely saturated) are considered to exist under confined conditions, where piezometric levels are higher than the bottom of the overlying aquiclude. The upper aquifer, where saturated, is considered to exist under unconfined conditions. The layer-cake model is a simplified description of the Chino Basin, and represents the essence of the hydrogeology. In reality, the stratigraphy is extremely complex, which is a reflection of a complex depositional history. The sediments accumulated in numerous terrestrial environments, including river channels, levees, floodplains, lakes, and marshes. Terrestrial environments are notoriously unstable over geologic time – river channels migrate and cannibalize floodplain deposits, lakes fill up with sediments, etc. In addition, climate, sediment sources, and rates of tectonic subsidence/uplift vary over time, which further complicates the depositional/erosional history within the basin. While the aquifers in the Chino Basin are predominantly coarse-grained and commonly yield significant volumes of water to wells, they are not laterally extensive, homogeneous units of gravel and sand. They are heterogeneous in texture (both laterally and vertically) and sometimes consist of a high percentage of fine-grained sediments. For instance, a thick gravel bed penetrated by a well hole may pinch-out laterally and be encased within fine-grained sediments. This gravel bed may yield water initially, but lose capacity over time due to low seepage rates from the surrounding fine-grained sediments. The same heterogeneity concept applies to the aquicludes. Lateral discontinuity of sediment layers and textural heterogeneity are more the rule than the exception. The southern part of MZ 1 is an example of heterogeneity within the upper aquifer. While the CIGSM model designates the upper 200-300 feet of sediments as the upper aquifer, it is known that the upper 100 feet of sediments in this area is predominantly fine-grained (discussed below).

A number of lines of evidence strongly suggest that ground fissuring within MZ-1 is related to regional land subsidence due to groundwater overdraft:

Ground fissures. *The most obvious evidence of land subsidence in MZ-1 is the appearance and propagation of land surface fissures in the area of California Institution for Men (CIM) and the City of Chino. .A general north-south trend of fissuring located directly east of the main trough of subsidence that has been mapped by ground level surveying (discussed below).*

As stated previously, ground fissuring was first observed east of Central Avenue and crossing Edison Avenue in 1973 by a United States Geological Survey geologist (Fife and others, 1976). Beginning in 1991, a number of additional fissures appeared within the northwestern portion of CIM property. During following years, fissuring occurred to the north of and parallel to the CIM fissuring in the City of Chino and southward into the CIM Minimum compound where several structures have been damaged.

Geomatrix (1994) studied the ground fissures on CIM property and also reviewed case histories of fissuring throughout the southwestern United States. Their study noted similarities between the physical structure of the CIM fissures and the fissures described in the literature that were associated with areas of subsidence due to groundwater overdraft and aquifer system compaction. They also noted that this type of fissuring typically occurs along the edges of a subsidence trough. Geomatrix hypothesized that the CIM fissuring is a manifestation of east-west directed extensional stress associated with regional subsidence to the west.

Ground level surveys: *The City of Chino and CIM have conducted a number of ground level surveys in the southern part of MZ-1 as part of their ground fissuring investigations. Conclusions drawn from these ground level surveys state that:*

- Land subsidence has occurred in this area since 1987 or earlier.
- The zone of subsidence is generally aligned north-south with the axis of maximum subsidence located about 1,500 feet west of the north-south trending zone of ground fissuring.
- Subsidence is likely due to groundwater overdraft and declining piezometric levels.

The maximum observed subsidence is approximately 2.2 feet, and occurs along Central Avenue between Eucalyptus and Schaefer Avenues. The subsidence trough approximately extends from Pipeline Avenue on the west to Benson Avenue on the east, and from Merrill Avenue on the south to the edge of the survey area on the north (Riverside Drive). The contours suggest that the subsidence trough extends further north of Riverside Drive, but the ground level surveys did not include benchmarks north of Riverside Drive.

Three significant findings of the latest Kleinfelder survey (1999) are:

- Subsidence has apparently slowed from 1995-1999.
- The axis of maximum subsidence is coincident with wells operated by the City of Chino Hills that are perforated through the deeper aquifers.
- A potential error exists in the ground level surveys. The reference benchmark may be within the subsiding area and, hence, may have affected the magnitude of the calculated subsidence values. However, Kleinfelder believe this error is small (~0.1 feet).

Geomatrix (1994) also conducted a ground level survey for CIM by comparing manhole cover elevations at the CIM Minimum and Central compounds from 1988 to 1994. The survey indicated that subsidence had occurred during the period with elevations lower by about 2.1 foot along Vernon Avenue. The survey also suggested that subsidence diminished to the east with elevations lower by about 0.25 to 0.5 feet within the CIM Minimum compound. These findings are generally consistent with the Kleinfelder ground level surveys with respect to the magnitude and spatial distribution of subsidence.

Geomatrix (1994) also noted that by comparing 1993 ground level survey data collected for the City of Chino with 1967 USGS topographic benchmark data, the area west and north of CIM experienced subsidence up 3 to 4 feet during this 26-year period. (Wildermuth Environmental, Task Memorandum: Program Element 4, 1999).

In 1999, synthetic aperture radar studies were conducted by Jet Propulsion Laboratory (JPL) under contract to City of Chino. A summary of this study follows:

This technique provides a measure of the distance between the radar antenna and the land surface, and by comparing images acquired at different time, changes in land surface elevation can be observed. From the three studies conducted from October 1993 to

December 1995, and from January 1996 to October 1997, and from October 1997 to early 1999, a number of observations can be made, some of which are:

- Land subsidence has occurred within MZ-1 during the entire period from October 1993 through 1998.
- Both ground level surveys and SAR imagery both indicate a north-south aligned trough with the axis of maximum subsidence located along Central Avenue.
- Interferograms show a zone of diminishing subsidence extending north of Riverside Drive - possibly as far north as Interstate 10.
- The interferograms degrade south of Edison Avenue, prohibiting comparison with ground level survey south of Edison Avenue.
- Where SAR imagery and ground level surveys overlap, the magnitude of subsidence correlates favorably.

These observations indicate that subsidence is occurring in MZ-1 and that such subsidence may be occurring further north than previously thought. (Wildermuth Environmental, Task Memorandum: Program Element 4, 1999) The existence of fine-grained aquicludes underlying MZ-1, coupled with historical decline in piezometric levels, are a typical combination leading to aquifer system compaction and land subsidence (Wildermuth Environmental, Task Memorandum: Program Element 4, 1999).

Several pieces of evidence suggest that MZ-1 may be underlain by a fine-grained aquiclude. This evidence includes the fact that the southern part of MZ-1 is located on the outer margins of the alluvial fan at the base of the San Gabriel Mountains. These types of deposits are typically fine-grained. Further, the nearby Chino Hills are composed of fine-grained sedimentary rocks, and geophysical logs of wells and soil borings show predominantly fine-grained materials at depths less than 100 feet. At depths around 250 feet, a thick fine-grained unit exists beneath the area of subsidence (as defined by the ground level surveys described above). "Also, analysis of water levels and drawdown-recovery characteristics at wells perforated below this thick unit show that the fine grained unit acts as a confining layer, or aquiclude. During the 1900's much of the southern part of MZ-1 was an area of flowing artesian groundwater conditions (Mendenhall, 1908) - indicating the existence of fine-grained confining layers...This artesian condition also indicates that piezometric levels were above land surface. At locations where groundwater could seep upward through the confining layers, a marshy conditions would occur...meaning the sedimentary column in this area was completely saturated at this time (Wildermuth Environmental, Task Memorandum: Program Element 4, 1999). This marshy area is also the area described under liquefaction issues as being potentially at risk for liquefaction to occur.

Groundwater levels eventually declined in these marshy areas to approximately 150 feet below ground surface from the mid-1940's to 1978.

This decline in groundwater levels coincided with (1) an extended period of below normal precipitation and (2) groundwater overdraft associated with accelerated human activities in the basin...Since 1978, groundwater levels have recovered by about 40 feet in the southern part of MZ 1. This recovery coincided with (1) wetter than normal periods from 1978 to 1983 and...(2) the adjudication of the Chino Basin in 1978 that resulted in management of groundwater production and the initiation of artificial recharge in forebay areas to the north.

As previously stated, the upper 100 feet of sediments in this shallow zone are predominantly fine-grained. Dewatering of these fine-grained sediments since the 1940's likely increased *effective stresses within the sediments (to levels greater than maximum past effective stress) and resulted in aquifer system compaction.*

Geomatrix (1994) agreed with this scenario and speculated that these long-term water level declines since the 1940s, and especially from 1960 to 1978, were responsible for the ground fissuring first observed in 1973 by the USGS.

While water levels in the shallow aquifer zone have recovered somewhat since 1978, piezometric levels in the deep aquifers (below the thick fine-grained unit) have had a separate and distinct history. In the southern part of MZ-1, little water level data exists prior to 1980 for the deep aquifers. However, in the late 1980's a number of wells were drilled in this area for municipal use - some perforated below the thick fine-grained unit. These wells are owned by the City of Chino Hills

Geomatrix (1994) and Kleinfelder (1999) have speculated that pumping of the deep aquifer is the cause of recent subsidence and ground fissuring in the area. Their reasoning is as follows:

- An accelerated occurrence of fissuring commenced in 1991, two to three years after the completion and initial operation of the deep aquifer wells.
- The axis of maximum subsidence, as delineated by ground level surveys (1987-1999), is aligned with the locations of these deep aquifer wells.

As groundwater is extracted from the deep aquifer, piezometric head (i.e. pore fluid pressure) decreased within the aquifer, and attempts to equilibrate by drawing water from the pore spaces in the surrounding sediments. In the classical situation, the deep aquifer is in hydraulic continuity with the upgradient forebay area where water is recharged to the basin. If for some reason, the continuity between the forebay and deep aquifers is interrupted, then the pumped aquifer will attempt to equilibrate by drawing water from the surrounding fine-grained sediments (e.g. the aquiclude) (Wildermuth Environmental, Task Memorandum: Program Element 4, 9-11, 1999).

This situation may result in subsidence, and two potential causes relative to the observed areas of subsidence are as follows: (1) discontinuity in the geometry of the gravel/sand strata within the aquifers, and/or (2) groundwater production from areas upgradient and tributary to subsidence zones. (Wildermuth Environmental, Task Memorandum: Program Element 4, 11, 1999)

A distinction must still be made between long-term basin-wide overdraft prior to 1978 and recent local overdraft of deep aquifers. The OBMP Monitoring Plan is currently guiding the study of subsidence. The OBMP proposes to continue periodic studies of the subsidence issue throughout the planning horizon for the program. It should also be noted that the City of Chino Hills objects to the statements above regarding the cause for subsidence in the southern part of the basin. Under the OBMP, Watermaster recognizes that subsidence and fissuring may have occurred in the past and as a result is installing plezometers and extensometers in the area. The use of recycled water will not have nay adverse impact with regard to subsidence or fissuring, and will help reduce the demand for water from other sources in the future.

4.4.2.8 Seiche

Seiche is the oscillation of the surface of a landlocked water body that varies from a few minutes to several hours. Seiche can be seismically induced or be the result of material (rocks, landslide, etc.) falling into the water body. No major surface water bodies are present in the Chino Basin.

4.4.3 Project Impacts

The IEUA Master Plans propose a variety of new facilities, including pipelines, additions to existing plants, and new satellite plants. Some of these structures would or could be occupied during working hours, whereas others would typically be occupied for only short periods of time during construction and maintenance activities. The geology issues in this evaluation are examined as they relate to constraints imposed on the three master plan projects in the IEUA Master Plans PEIR:

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1) Construction of two new satellite "skimming" plants, from a list of nine potential locations:
    - Upland Hills WRP [SP-1],
    - San Antonio Lakes [SP-2],
    - Church Basin [SP-3],
    - CCDW-Baseline [SP-4],
    - Foothill/I15 Corridor [SP-5],
    - Kaiser/CSI WWTP [SP-6],
    - Sierra Lakes [SP-7],
    - Fontana-Baseline [SP-8], and
    - Montclair [SP-9].
    - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.
2) Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term.

Conveyance Systems

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3) Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer

4) Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1) Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.
2) Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3) Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4) Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5) No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for exposure to geotechnical hazards in the following sections.

4.4.3.1 Significance Criteria/Threshold of Significance

The following criteria will be used for determining potential significant impacts related to geology issues:

- Expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving:
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
- Strong seismic ground shaking;
- Seismic-related ground failure, including liquefaction; and
- Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined on Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

4.4.3.2 Impact Analysis

a. <u>Are the IEUA Master Plans PIER projects subject to fault rupture, ground shaking, ground failure, liquefaction, or landslides?</u>

Wastewater Facilities Master Plan

Construction Phase

Fault Rupture – Except for the Central Avenue Fault, there are no known active faults or Alquist-Priolo Special Studies Zones associated with any of the proposed construction sites. The Central Avenue Fault is a potentially active fault within the Elsinore-Whittier fault zone and the City of Chino has designated the projected fault trace along Prado Road as a fault study zone. Therefore, for future improvements throughout IEUA's service area, except for the southwest portion of that area, fault rupture is not considered a potential impact on WFMP project construction. The CCWRF, RP-2 and RP-5 facilities and associated pipelines may be located within the identified fault special study zone. If such facilities must be constructed in this zone, fault rupture could have significant impact to habitable structures or support infrastructure facilities constructed at these three facilities.

Ground Shaking – Chino Basin is in a tectonically active area that may be subject to significant seismic ground shaking over the life of the proposed constructed facilities. The seismic shaking could be produced by an earthquake from one of the regional faults listed on Table 4.4-1, with potential peak horizontal ground acceleration for the Maximum Probable Earthquake as high as 0.75 to 0.95 g within the project area. This value exceeds the 0.4 g set by the Uniform Building Code Standards (ICBO, 1997) for some commercial buildings and facilities. Thus, seismic ground shaking has a high potential impact on proposed WFMP project construction. All WFMP proposed habitable structures or facilities should be constructed to ensure that they could meet current building code seismic standards and safety requirements. Any modification of existing structures with new WFMP facilities should incorporate current seismic design standards.

Ground Failure/Liquefaction – Except for the southwestern portion of IEUA's service area, none of the other IEUA proposed WFMP construction is within the identified area of high liquefaction potential (Figure 4.4-1). Thus, liquefaction would not have an impact on the proposed WFMP construction. However, the area designated as having high liquefaction potential is based on a groundwater level of 50 feet or less beneath ground surface. If changes in groundwater management should cause groundwater levels to rise, the area of high liquefaction potential could expand north of the present limit. Thus, RP-1 could be possibly be included in the high liquefaction-potential zone if groundwater levels were ever to rise to within 50 feet of the ground surface in the future. The same three facilities and support infrastructure exposed to the Central Avenue Fault are located in an area of recent alluvium with groundwater possibly 50 feet or less beneath ground surface. Site-specific evaluation with geotechnical borings will be needed to assess site-specific soil type(s) and groundwater level to evaluate liquefaction potential at CCWRF.

Landslide – None of the IEUA proposed WFMP construction is subject to landslide hazard, because the proposed construction projects are on relatively flat ground (slopes less than 9 percent).

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Recycled Water Master Plan

Construction Phase

Fault Rupture – Except for the Central Avenue Fault, there are no known active faults or Alquist-Priolo Special Studies Zones associated with any of the proposed construction sites. The Central Avenue fault is a potentially active fault within the Elsinore-Whittier fault zone and the City of Chino has designated the projected fault trace along Prado Road as a fault study zone. None of the proposed RWMP construction is within the Central Avenue Fault Study Zone. Fault rupture is not considered a potential adverse impact on planned RWMP project construction.

Ground Shaking – Chino Basin is in a tectonically active area that may be subject to significant seismic ground shaking over the life of the proposed constructed facilities. The seismic shaking could be produced by an earthquake from one of the regional faults listed on Table 4.4-1, with potential peak horizontal ground acceleration for the Maximum Probable Earthquake as high as 0.75 to 0.95 g within the project area. This value exceeds the 0.4 g set by the Uniform Building Code Standards (ICBO, 1997) for some commercial buildings and facilities. Thus, seismic ground shaking could result in adverse impacts to proposed RWMP project construction for facilities, reservoirs, and pipelines. All RWMP proposed new habitable structures or facilities (including reservoirs and pipelines) should be constructed to ensure that they could meet current building code seismic standards and safety requirements. Any modification of existing structures with new RWMP facilities should incorporate current seismic design standards.

Ground Failure/Liquefaction – None of the IEUA proposed RWMP construction is within the identified area of high liquefaction potential (Figure 4.4-1). Thus, liquefaction would not have an impact on the proposed construction. However, the area designated as having high liquefaction potential is based on a groundwater level of 50 feet or less beneath ground surface. If changes in groundwater management should cause groundwater levels to rise, the area of high liquefaction potential could encompass an area north of the present limit.

Landslide – None of the IEUA proposed RWMP construction is subject to landslide hazard, because the proposed construction projects are on relatively flat ground (slopes less than 9 percent).

Operation Phase

As stated above in the Construction Phase impacts, seismic shaking could be produced by an earthquake from one of the regional faults listed on Table 4.4-1, with a potential peak horizontal ground acceleration for the Maximum Probable Earthquake as high as 0.75 to 0.95 g. Seismic ground shaking could result in adverse impacts to RWMP facilities. There are no impacts unique to operations that have not been addressed in the preceding. However, the proposed facilities would be designed and constructed to meet current building code seismic standards and safety requirements to minimize the level of significance.

Organics Management Master Plan

Construction Phase

Fault Rupture – Except for the Central Avenue Fault, there are no known active or potentially active faults or Alquist-Priolo Special Studies Zones associated with any of the proposed construction sites. The Central Avenue fault is a potentially active fault within the Elsinore-Whittier fault zone and the City of Chino has designated the projected fault trace along Prado Road as a fault study zone. Several of the IEUA proposed OMMP construction (Dairy Digester Pilot Project, RP-5 Renewable Energy Project, CIM Compost Facility, High Tech Manure Facility and Advanced Technology Manure Pyrolysis Process) will be installed in close proximity to the Central Avenue Fault Study Zone. The proposed CIM Compost Facility (at both the proposed and RP-5 sites) is located closest to the fault study zone, but it appears to be outside of the zone (Figure 4.4-1). Therefore, fault rupture may considered a potential impact on planned OMMP project construction.

Ground Shaking – Chino Basin is in a tectonically active area that may be subject to significant seismic ground shaking over the life of the proposed constructed facilities. The seismic shaking could be produced by an earthquake from one of the regional faults listed on Table 4.4-1, with potential peak horizontal ground acceleration for the Maximum Probable Earthquake as high as 0.75 to 0.95 g within the project area. This value exceeds the 0.4 g set by the Uniform Building Code

Standards (ICBO, 1997) for some commercial buildings and facilities. Thus, seismic ground shaking has a high potential impact on proposed OMMP project construction. All OMMP proposed new habitable structures or facilities should be constructed to ensure that they could meet current building code seismic standards and safety requirements. Any modification of existing structures with new OMMP facilities should incorporate current seismic design standards.

Ground Failure/Liquefaction – The same IEUA master plans proposed OMMP construction identified in the Central Avenue Fault area are located in the general vicinity of the identified area of high liquefaction potential (Figure 4.4-1). The CIM Composting Facility is located north of the liquefaction area and is outside of the liquefaction area. However, the RP-2 and RP-5 facility components and pipelines may be within the area. Thus, liquefaction hazards may affect proposed construction for the OMMP facilities. The area designated as having high liquefaction potential is based on a groundwater level of 50 feet or less beneath ground surface. If changes in groundwater management should cause groundwater levels to rise, the area of high liquefaction potential could encompass an area north of the present limit. Thus, the RP-1, Dairy Digester Pilot Project, CIM Compost Facility, and High Technology Manure Facility could be included in the high liquefaction-potential zone if groundwater levels were ever to rise to within 50 feet of the ground surface in the future.

Landslide – None of the IEUA master plans proposed OMP construction is subject to landslide hazard, because the proposed construction projects are on relatively flat ground (slopes less than 9 percent).

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

b. Would the IEUA Master Plans PIER projects result in substantial erosion or the loss of topsoil?

Wastewater Facilities Master Plan

Construction Phase

None of the IEUA proposed WFMP project areas would be subject to significant erosion or unstable soil conditions due to grading activities, nor would any of the proposed WFMP projects cause significant changes in topography. In general, the majority of project area is topographically compatible with all of the proposed project facilities described in the Project Description and summarized above. All ground-disturbing activities, such as trenching for pipelines or foundations would affect small areas that can be designed to minimize the amount of ground disturbance. During construction, removal of vegetative cover and disturbance of existing topography by the exposure of cut slopes and grading activities could increase the potential for erosion by wind and water. During construction, appropriate watering for fugitive dust control and water erosion control measures to address non-point source water pollution would be necessary.

After the construction phase, long-term erosion control can be accomplished by keeping soils under impervious cover or vegetative cover or by designing exposed areas to prevent accumulation of surface runoff with subsequent erosion. Soil underlying newly constructed facilities and pavement would not be subject to erosion. With implementation of all measures, erosion and unstable slope impacts attributable to future IEUA WFMP projects would be reduced to a less than significant level.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Recycled Water Master Plan

Construction Phase

None of the IEUA RWMP project areas would be subject to significant erosion or unstable soil conditions due to grading activities, nor would any of the proposed RWMP projects cause significant changes in topography. In general, the majority of project area is topographically compatible with all of the proposed project facilities outlined in the Project Description. All ground-disturbing activities, such as trenching for pipelines or foundations would affect small areas that can be designed to minimize the amount of ground disturbance. During construction, removal of vegetative cover and disturbance of existing topography by the exposure of cut slopes and grading activities could increase the potential for erosion by wind and water. During construction, appropriate watering for fugitive dust control and water erosion control measures to address non-point source water pollution would be necessary.

After the construction phase, long-term erosion control can be accomplished by keeping soils under impervious cover or vegetative cover or by designing exposed areas to prevent accumulation of surface runoff with subsequent erosion. Soil underlying newly constructed facilities and pavement would not be subject to erosion. Where pipelines cross natural stream channels, IEUA will have to install such pipelines below the maximum scour depth within the channel. This is required by the County Flood Control District, and therefore no specific mitigation needs to be imposed to ensure implementation of this protective measures. With implementation of all measures, erosion and unstable slope impacts attributable to future RWMP projects would be reduced to a less than significant level.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Organics Management Master Plan

Construction Phase

None of the OMMP project areas would be subject to significant erosion or unstable soil conditions due to grading activities, nor would any of the proposed OMMP projects cause significant changes in topography. In general, the majority of project area is topographically compatible with all of the proposed project facilities described in the Project Description and summarized above. All ground-disturbing activities, such as trenching for pipelines or foundations would affect small areas that can be designed to minimize the amount of ground disturbance. During construction, removal of vegetative cover and disturbance of existing topography by the exposure of cut slopes and grading activities could increase the potential for erosion by wind and water. During construction, appropriate watering for fugitive dust control and water erosion control measures to address non-point source water pollution would be necessary.

After the construction phase, long-term erosion control can be accomplished by keeping soils under impervious cover or vegetative cover or by designing exposed areas to prevent accumulation of surface runoff with subsequent erosion. Soil underlying newly constructed facilities and pavement would not be subject to erosion. With implementation of all measures, erosion and unstable slope impacts attributable to future IEUA OMMP projects would be reduced to a less than significant level.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

c. <u>Are the IEUA Master Plans PIER projects located on a geologic unit or soil that is unstable, or would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?</u>

Wastewater Facilities Master Plan

Construction Phase

None of the proposed WFMP construction activities would cause unstable conditions. Natural geological processes, such as landslides, were discussed in Section 4.4.3.2.b and liquefaction was discussed in Section 4.4.3.2.a. Natural geological processes of lateral spreading and collapse are not identified as potential impacts to WFMP construction projects. Subsidence and ground fracture due to groundwater withdrawal have been identified as an active man-induced process in the southwest portion of the Chino Basin. Except possibly for pipelines connecting the OMMP facilities in the southwestern portion of its service area (RP-1, Dairy Digester Pilot Project, CIM Compost Facility, and High Technology Manure Facility) to other IEUA facilities, none of the other proposed WFMP construction is in the area of subsidence and ground fractures. Pipelines connecting these facilities could either be rerouted to avoid ground rupture areas or be designed to withstand predicted flexure due to ground fracture, subsidence due to groundwater withdrawal, or liquefaction due to seismic shaking if groundwater levels were ever to rise to within 50 feet of the ground surface in the future.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Recycled Water Master Plan

Construction Phase

None of the proposed RWMP construction activities would cause unstable conditions. Natural geological processes of landslide was discussed in Section 4.4.3.2.b and liquefaction was discussed in Section 4.4.3.2.a. Natural geological processes of lateral spreading and collapse are not identified as potential impacts to RWMP construction projects. Subsidence and ground fracture due to groundwater withdrawal have been identified as an active man-induced process in the southwest portion of the Chino Basin. Except possibly for pipelines connecting the OMMP facilities in the southwestern portion of its service area (RP-1, Dairy Digester Pilot Project, CIM Compost Facility, and High Technology Manure Facility), none of the other proposed RWMP construction is in the area of subsidence and ground fractures. Pipelines connecting the above facilities either could be rerouted to avoid ground rupture areas or designed to withstand predicted flexure due to ground fracture and/or subsidence.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section. The proposed recharge of storm water, imported water and recycled water to 20 basins within the Chino Basin is a part of the operation phase. As much as 75,000 acre-feet per year may be recharged over the long term and this recharge may reduce potential subsidence.

Organics Management Master Plan

Construction Phase

None of the proposed OMMP construction activities would cause unstable conditions. Natural geological processes of landslide was discussed in Section 4.4.3.2.b and liquefaction was discussed in Section 4.4.3.2.a. Natural geological processes of lateral spreading and collapse are not identified as potential impacts to OMMP construction projects. Subsidence and ground fracture due to groundwater withdrawal have been identified as an active man-induced process in the southwest portion of the Chino Basin. Construction of several OMMP facilities (RP-1, Dairy Digester Pilot Project, CIM Compost Facility, and High Technology Manure Facility) are located in the vicinity of known ground fractures mapped in 1994 (Wildermuth, 1999) and may be exposed to subsidence hazards. None of the other proposed OMMP construction is in the area of subsidence and ground fractures. Ground fractures could result in damage to new facilities at the OMMP facilities outlined above. Facilities to be constructed at these proposed facilities would be designed to withstand predicted flexure due to ground fracture and/or subsidence.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

d. Are the IEUA Master Plans PIER projects located on expansive soil, as defined on Table 18 1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Wastewater Facilities Master Plan

Construction Phase

The soil associations present within the project area do not have any significant expansive soil characteristics. The relative shrink-swell potential for the soils in the project area is very low, and thus, does not pose a significant hazard or major constraint related to IEUA WFMP project construction. Potential impacts associated with expansive soils are not forecast to pose any significant constraint in developing future facilities and mitigation is not required.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Recycled Water Master Plan

Construction Phase

The soil associations present within the project area do not have any significant expansive soil characteristics. The relative shrink-swell potential for the soils in the project area is very low, and thus, does not pose a significant hazard or major constraint related to IEUA RWMP project construction. Potential impacts associated with expansive soils are not forecast to pose any significant constraint in developing future facilities and mitigation is not required.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

Organics Management Master Plan

Construction Phase

The soil associations present within the project area do not have any significant expansive soil characteristics. The relative shrink-swell potential for the soils in the project area is very low, and thus, does not pose a significant hazard or major constraint related to IEUA OMMP project construction. Potential impacts associated with expansive soils are not forecast to pose any significant constraint in developing future facilities and mitigation is not required.

Operation Phase

There are no impacts unique to operations that have not been addressed in the preceding Construction Phase section.

4.4.4 Mitigation Measures

The following mitigation measures would be implemented from the IEUA PEIR projects. Implementation of these measures can reduce all potential geotechnical impacts to a level that is considered to be less than significant with respect to the proposed thresholds.

4.4.4.1 Construction Impacts

Risks from geological hazards shall be mitigated through a combination of engineering construction, land use, and development standards. All projects shall include a detailed geological, geotechnical, and soils engineering study that will address potential hazards associated with the geological processes discussed in the following sections. All construction shall conform to appropriate city and county building codes, standards, and requirements.

Fault Rupture, Ground shaking, Ground Failure, Liquefaction, Landslides

Several of the proposed construction projects are in locations with identified or potential geological hazards. Specifically, this includes fault rupture at CCWRF, RP-5, RP-2 and several OMMP facilities, seismic ground shaking at all construction projects, seismic liquefaction at these same facilities, and subsidence at these facilities and any pipelines that cross the area. Before design of proposed construction projects, the following mitigation measures shall be implemented.

4.4-1 **A site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Special Publication 117, *Guidelines for Evaluation and Mitigating Seismic Hazards in California*.**

4.4-2 **If evidence of faulting is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, then a site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Note 49, *Guidelines for Evaluating the Hazard of Surface Fault Rupture*. Facility location and design will be adjusted as necessary to provide structural setbacks. Additional measures may include strengthened foundations, other engineering design, and flexible utility connections.**

4.4-3 **If evidence of faulting is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, then a site-specific evaluation shall be conducted in conformance with the California Department of Conservation, Division of Mines and Geology Note 49, *Guidelines for Evaluating the Hazard of Surface Fault Rupture*. Facility location and design will be adjusted as necessary to provide structural setbacks. Additional measures may include strengthened foundations, other engineering design, and flexible utility connections.**

4.4-5 **Apply appropriate design and construction criteria to all structures subject to significant seismic ground shaking.**

4.4-6 **If evidence of liquefaction is identified at CCWRF, RP-5, RP-2 and several OMMP facilities, project design mitigation may include:**

- In-situ densification of susceptible soil.
- Ground improvements such as removal and replacement of susceptible soils or dewatering.
- Deep foundations designed to accommodate liquefaction.
- Shallow foundation design to accommodate vertical and lateral ground displacement.

4.4-7 **Comprehensive geotechnical investigations 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 that 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.

  <u>Acceptable Damage</u>: 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.

4.4-8 **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.**

4.4-9 **The direct impacts of faults upon proposed projects shall be considered during preliminary planning processes, and the engineering design phases.**

4.4-10 **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.**

4.4-11 **Local grading and building codes should reflect measures to minimize possible seismic damage.**

4.4-12 **If a conjunctive use program is 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.**

Implementation of the above mitigation measures will lower the impact of seismic safety to that of less than significant. Impacts, however, must be considered significant and not mitigated until such time when these measures are implemented through a final Mitigation Monitoring and Reporting Program.

Soil Erosion

Mitigation measures are available to minimize erosion problems associated with wind and water, especially during the construction phase when the ground surface is exposed. During construction, the following measures may be used individually or in conjunction to control potential erosion at locations where construction activities expose the ground surface to wind and water erosive forces:

4.4-13 **Add protective covering of mulch, straw or synthetic material (erosion control blankets, tacking will be required).**

4.4-14 **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.**

4.4-15 **Construct diversion dikes and interceptor ditches to divert water away from construction areas.**

4.4-16 **Install slope drains (conduits) and/or water-velocity-control devices to reduce concentrated high-velocity streams from developing.**

4.4-17 **Construction of facilities and structures areas 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.**

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 windbreaks. The type of vegetation used as windbreaks must comply with SCAQMD's standards. After construction, soils underlying facilities and pavements will not be subject to erosion.

Unstable Geologic Unit or Soil Resulting in Landslide, Lateral Spreading, Subsidence, Liquefaction, Collapse

None of the proposed WFMP, RWMP, or OMMP construction activities would in cause unstable conditions. Natural geological processes of landslide and liquefaction were discussed above. Natural geological processes of lateral spreading and collapse are not identified as potential impacts to WFMP construction projects. Subsidence and ground fracture due to groundwater withdrawal have been identified as an active man-induced process in the southwest portion of the Chino Basin.

4.4-18 **Any pipelines crossing the western portion of the Prado Basin and facilities at the CCWRF, RP-5, RP-2 and several OMMP facilities could be subject to subsidence and ground rupture associated with the subsidence. Any construction of facilities in or pipelines crossing this zone is required to have detailed geotechnical and structural engineering studies to ensure designs that can safely accommodate, per building code requirements, the described ground movement(s).**

4.4-19 **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 IEUA master plans facilities shall *not* in any way contribute to subsidence conditions in pre-existing subsidence zones. Implementation of the IEUA master plans 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 six inches in new areas are considered to be less than significant.**

Expansive Soil

Expansive soils are not an impact to any of the proposed IEUA Master Plans PEIR constructions projects: therefore, mitigation measures are not warranted or necessary.

4.4.4.2 Operation Impacts

There are no impact-mitigation measures unique to operations that have not been addressed in the preceding construction Impacts section. However, older facilities should be inspected and improvements made to them with appropriate earthquake design features when possible and all facilities should maintain a disaster preparedness plan.

4.4.5 Cumulative Impact

Future development in accordance with the IEUA master plans will not cause any significant adverse cumulative geologic or soil impacts. With implementation of the mitigation measures outlined above, the proposed project would not contribute to cumulative exposure of humans in occupied structures to seismic, liquefaction, or subsidence hazards. Therefore, no additional mitigation measures are required to ensure that cumulative geologic and soil impacts remain below a significant impact threshold.

4.4.6 Unavoidable Adverse Impact

This geologic and soil resource impact evaluation indicates that the proposed implementation of the IEUA master plans construction projects has a potential to be exposed to significant geotechnical impacts or constraints, but with proposed mitigation, implementing the IEUA master plans will not cause any significant unavoidable adverse geologic and soil resource impacts or be exposed to significant geotechnical constrains. Therefore, no significant unavoidable adverse geologic or soil impacts are forecast to occur if the proposed project is implemented.

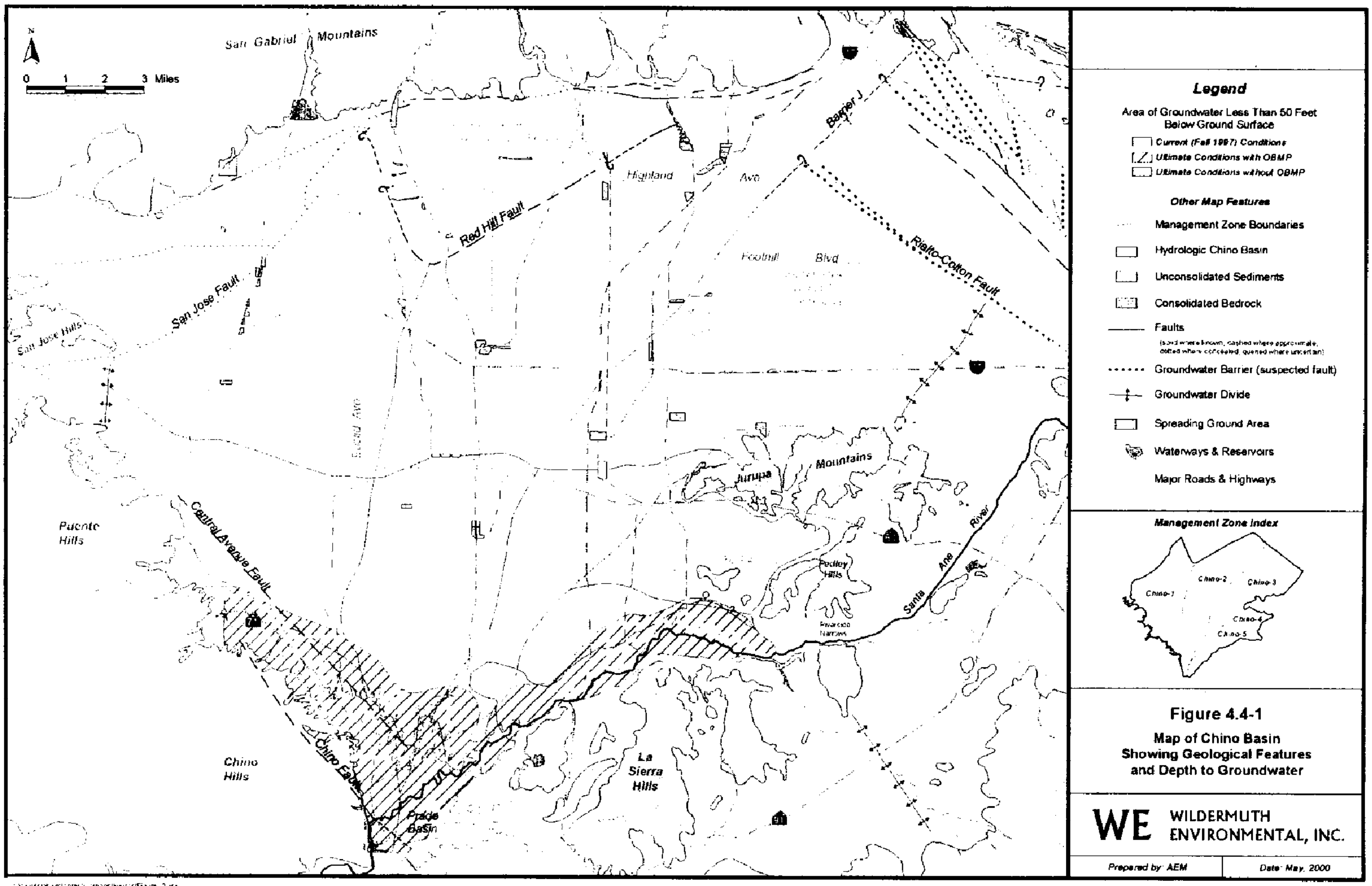
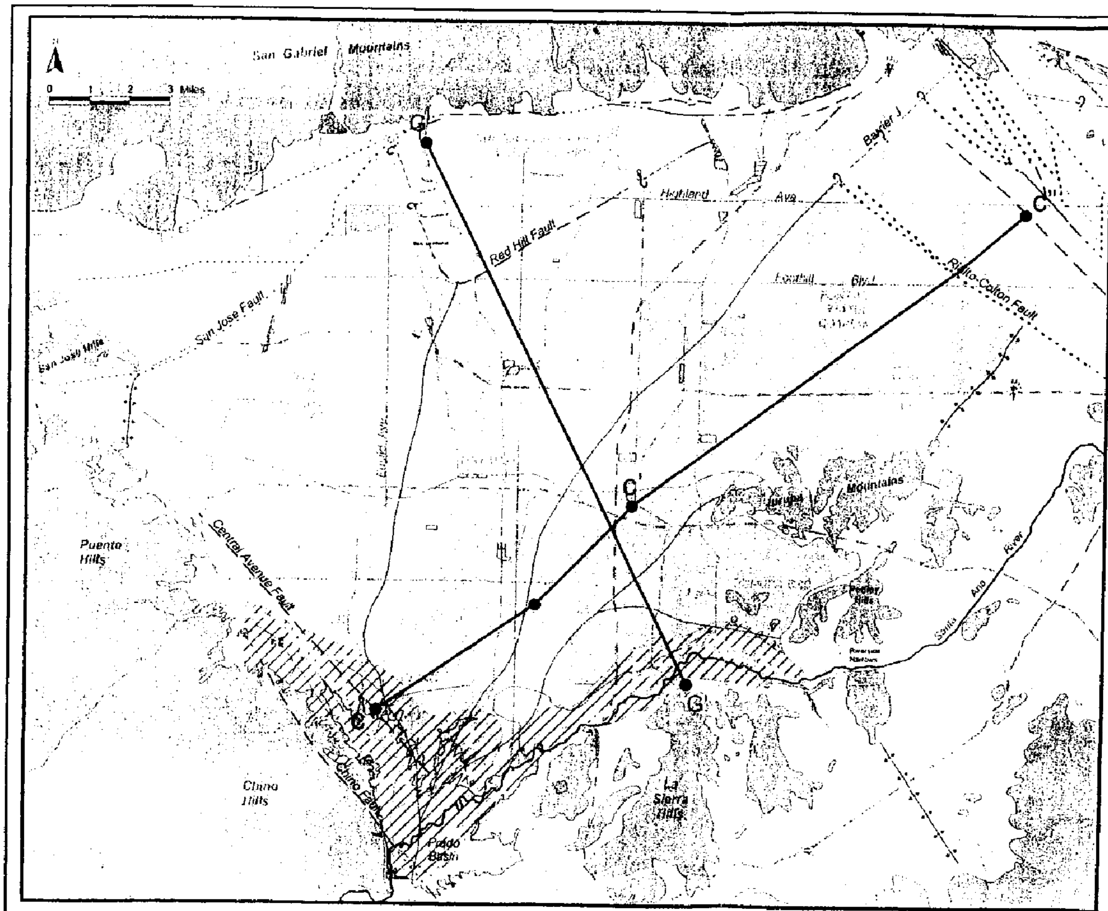


Figure 4.4-1
Map of Chino Basin Showing Geological Features and Depth to Groundwater



From: Wildermuth Environmental, Inc., May 2000

Legend

Area of Groundwater Less Than 50 Feet Below Ground Surface

- Current (Fall 1997) Conditions
- Ultimate Conditions with OBMP
- Ultimate Conditions without OBMP

Other Map Features

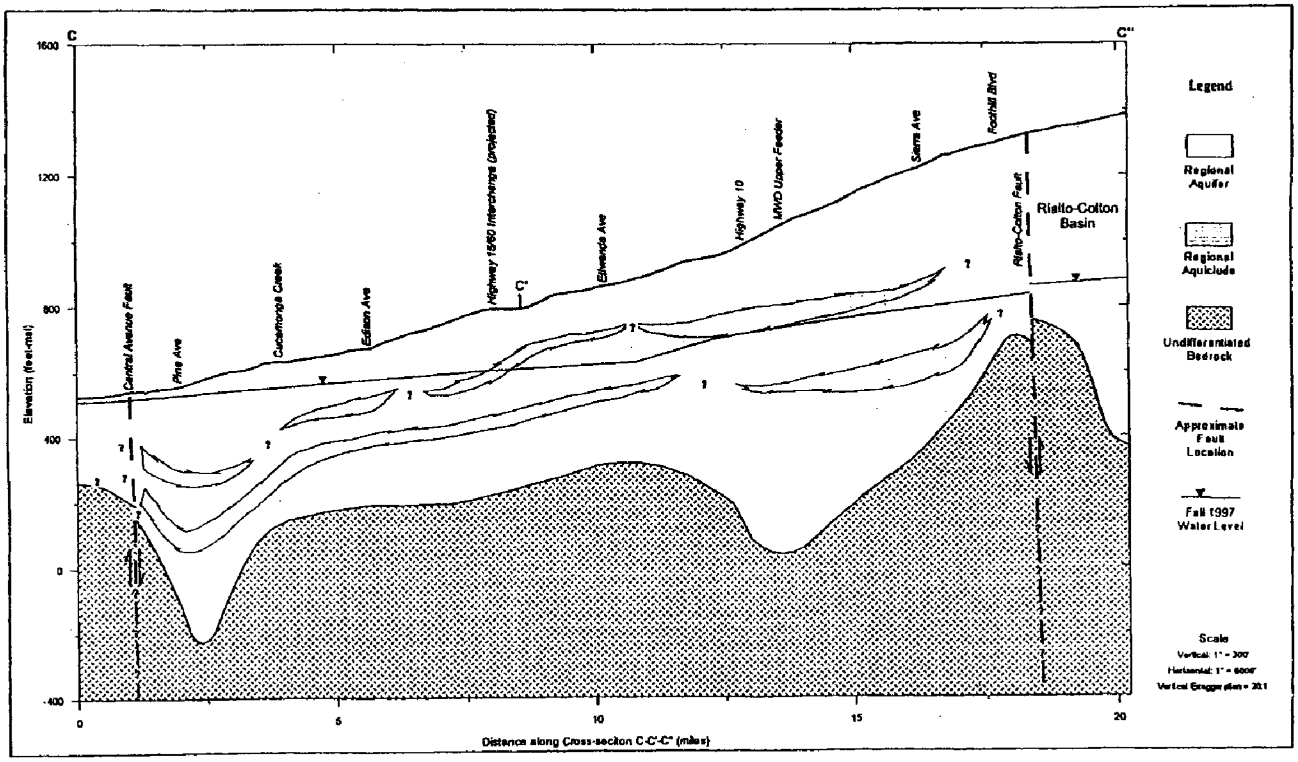
- Management Zone Boundaries
- Hydrologic Chino Basin
- Unconsolidated Sediments
- Consolidated Bedrock
- Faults
- Groundwater Barrier (suspected fault)
- Groundwater Divide
- Spreading Ground Area
- Waterways & Reservoirs
- Major Roads & Highways
- C-C'-C" Generalized Cross Section
- G-G'-G" Generalized Cross Section

Figure 4.4-1

Map of Chino Basin Showing Geological Features and Depth to Groundwater

PARSONS

Pasadena, California



From: Wildermuth Environmental, Inc., May 2000

Figure 4.4-2

Generalized Cross-section C-C'-C"

PARSONS

Pasadena, California

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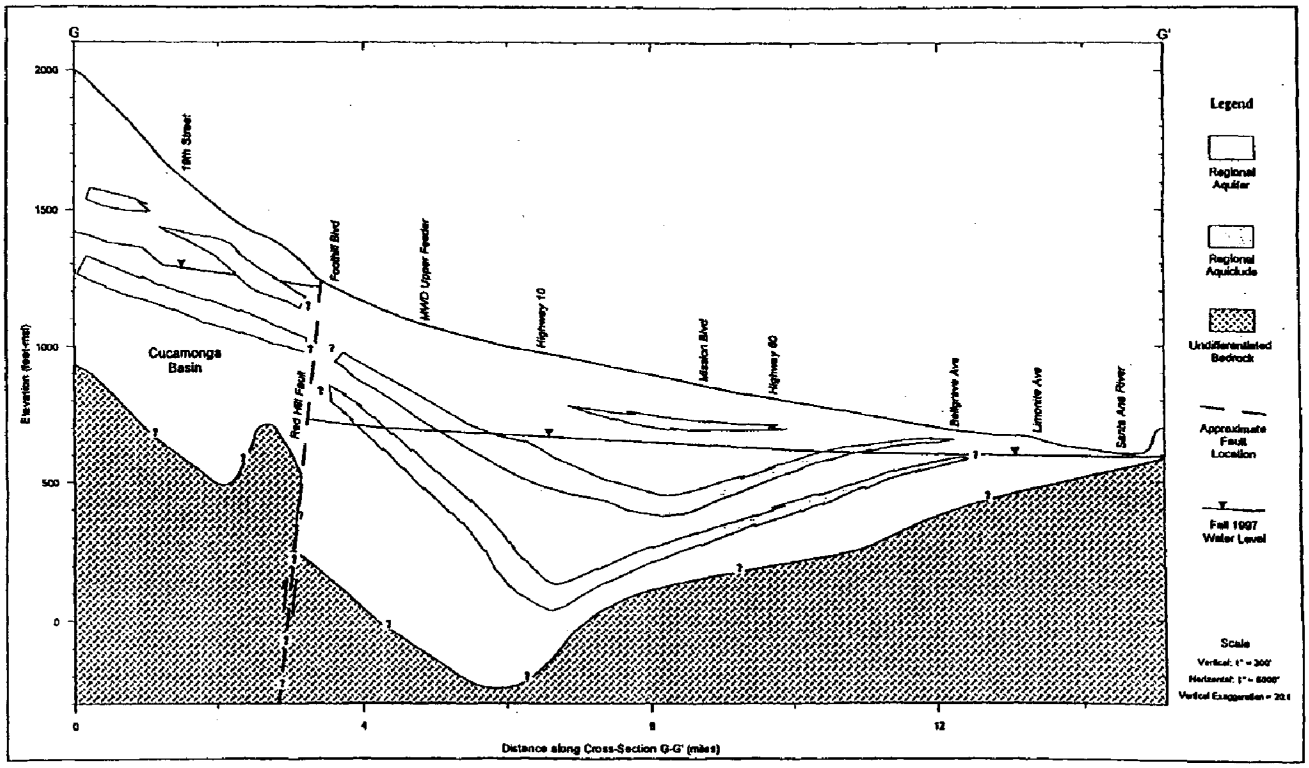

From: Wildermuth Environmental, Inc., May 2000

Figure 4.4-3

Generalized Cross-section G-G'

PARSONS

Pasadena, California

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4.5 WATER RESOURCES/WATER QUALITY

4.5.1 Introduction

The purposes of the three master plans (Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan) are to develop a strategy to meet the wastewater treatment demands in a rapidly growing area, reuse recycled water produced by the wastewater facilities to the greatest extent possible to lessen the need of imported water, and to treat biosolids and manure to improve groundwater quality by removing salts from percolating into the lower portion of the Chino Basin.

Data provided in this section of the PEIR was obtained from the following resources:

- Optimum Basin Management Program Program Environmental Impact Report (OBMP PEIR)
- Regional Water Quality Control Board, Santa Ana Region, Water Quality Control Plan (Basin Plan), RWQCB, 1995
- National Pollutant Discharge Elimination Permit No. CA0105279, for RP-1 and RP-4 (2001)
- National Pollutant Discharge Elimination Permit No. CA8000073, for CCWRF (1999)

4.5.2 Environmental Setting

4.5.2.1 Description of the Basin

The Chino Basin consists of about 235 square miles of the upper Santa Ana River watershed. Figure 3-3 illustrates the boundary of the Chino Basin. The 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 with about 5,000,000 acre-ft of water in the Basin and an unused storage capacity of about 1,000,000 acre-ft. 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).

The Chino Basin underlies the majority of the IEUA service area, which encompasses an area of approximately 242 square miles. Other basins that underlie portions of the IEUA service area include: Pomona Basin and Claremont Basin to the west, the Cucamonga Basin to the north, and the Rialto-Colton Basin to the northeast (Figure 3.3).

4.5.2.2 Surface Water Resources

The principal drainage course of 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 to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam. Chino Basin is traversed by a series of ephemeral and perennial streams that include: Chino Creek, San Antonio Creek, West Cucamonga Creek, Cucamonga Creek (Mill Creek), Deer Creek, Day Creek, Etiwanda Creek and San Sevaine Creek. Figure 3-4 illustrates the stream system in the Chino Basin. San Antonio Creek joins Chino Creek and along with Cucamonga Creek, discharges directly into the Prado Reservoir. Cucamonga Creek has its name changed to Mill Creek just north of the Prado Reservoir. Deer Creek was realigned, and now discharges into Cucamonga Creek. Currently, Etiwanda Creek discharges into Day Creek at Wineville Basin. In the near future, Etiwanda Creek will be joined with San Sevaine Creek. Day Creek and San Sevaine Creek flow south and enter the Santa Ana River upstream of the Prado Reservoir.

These creeks carry significant flows only during, and for a short time after, passing frontal storms that typically enter southern California from November through March. 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 recycling plants that discharge in the 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 other locations on the Santa Ana River depending on climate and season. The rising groundwater in Chino Creek and the Santa Ana River contains high concentrations of total dissolved solids (TDS). Year-round discharges are sustained in Cucamonga Creek and the Chino Creek due to discharges of effluent flows from RP1, RP2, RP-4, and CCWRF.

Beneficial Uses

The Regional Water Quality Control Board, Santa Ana Region (RWQCB) has designated beneficial uses for the waters in their jurisdiction, which includes the IEUA service area. These beneficial uses are described in the Water Quality Control Plan (Basin Plan) (RWQCB, 1995). In addition, the RWQCB has set water quality objectives for the reasonable protection of beneficial uses. Water quality objectives are further described in the Basin Plan. The Basin Plan is currently undergoing an update process by the RWQCB that is expected to implement new TDS and total inorganic nitrogen (TIN) quality objectives for Basin management. It is anticipated that the TIN limit would be reduced to around 8 to 10 mg/L and the ammonia-nitrogen would be reduced to 4.0 mg/L. Designated beneficial uses and water quality objectives for the surface waters identified above are shown in Tables 4.5-1 and 4.5-2.

Surface Water Discharges

RP-1 discharges treated effluent to two locations, which are permitted under National Pollutant Discharge Elimination System (NPDES) Permit No. CA0105279 and are designated as Discharge Serial Numbers 001 and 002. Discharge Serial No. 001 discharges to Prado Park Lake, which discharges to an unnamed creek tributary to Chino Creek and thence the Santa Ana River, Reach 3. Discharge Serial No. 002 discharges to Cucamonga Creek, Reach 1, a lined flood control channel that discharges to Mill Creek and thence to Chino Creek, which is

Table 4.5-1
Beneficial Uses for Surface Waters

Inland Surface Streams	Beneficial Uses												
	MUN	AGR	IND	PROC	GWR	PWR	REC1	REC2	COLD	WARM	LWRM	WILD	RARE
Santa Ana River, Reach 3		X			X		X	X		X		X	X
Cucamonga Creek, Reach 1					X		X3	X			X	X	
Mill Creek (Prado Area)							X	X		X		X	X
Chino Creek, Reach 1							X	X		X		X	X
Chino Creek, Reach 2							X3	X		X		X	X
San Antonio Creek	X	X	X	X	X	X		X	X			X	
Day Creek	X			X	X		X	X	X			X	
East Etiwanda Creek	X			X	X		X	X	X			X	X
San Sevaine Creek	I				I		I	I	I			I	
Deer Creek	I				I		I	I	I			I	

Source: RWQCB, 1995

MUN: Municipal and Domestic Supply
AGR: Agricultural Supply
IND: Industrial Service Supply
PROC: Industrial Process Supply
GWR: Groundwater Recharge
PWR: Hydropower generation
REC1: Water Contact Recreation
REC2: Non-contact Water Recreation
COLD: Cold Freshwater Habitat
WARM: Warm Freshwater Habitat
LWRM: Limited Warm Freshwater Habitat
WILD: Wildlife Habitat
RARE: Rare, Threatened, or Endangered Species
X: Present or Potential Beneficial Use
X3: Access prohibited in some portions by San Bernardino County Flood Control
I: Intermittent Beneficial Use

tributary to the Santa Ana River, Reach 3. RP-4 discharges to RP-1's Cucamonga Creek discharge point and is included in the same NPDES permit. Treated effluent from RP-1 and RP-4 is commingled at the outfall structure before final discharge to Discharge Serial No. 002. In 1998-1999, the total volume of effluent discharged from RP-1/RP-4 was 43,354 acre-feet. Of this amount, approximately 2,444 acre-feet were diverted to recycled water uses. In 1999-2000, 47,269 acre-feet or effluent was discharged from RP-1/RP-4. Approximately 3,089 acre-feet were diverted to recycled uses.

The NPDES permit specifies water quality discharge limits for RP-1 and RP-4 to ensure that designated beneficial uses and water quality of Cucamonga Creek and Prado Park Lake are not degraded. Annual water quality data collected at both outfalls for 1999 and 2000 along with water quality discharge limits are shown in Table 4.5-3. The water quality data presented is for the annual average of the monthly results. Effluent discharges for this period were in compliance with NPDES permit discharge requirements. Designated beneficial uses and water quality objectives for these waters are shown in Tables 4.5-1 and 4.5-2. Cucamonga Creek and the Santa Ana River, Reach 3 are not used for municipal and domestic water supplies.

Table 4.5-2
Water Quality Standards

Watershed	Water Quality Standards (mg/L)						
	TDS	Hard.	Na	Cl	TIN	SO4	COD
Inland Surface Streams							
Santa Ana River, Reach 3	700	350	110	140	10 (3)	150	30
Cucamonga Creek, Reach 1	--	--	--	--	--	--	--
Mill Creek (Prado Area)	--	--	--	--	--	--	--
Chino Creek, Reach 1	550	240	75	75	8	60	15
Chino Creek, Reach 2	--	--	--	--	--	--	--
San Antonio Creek	225	150	20	6	4	25	5
Day Creek	200	100	15	4	4	25	5
East Etiwanda Creek	200	100	15	4	4	25	5
San Sevaine Creek	200	--	--	--	--	--	--
Deer Creek	200	--	--	--	--	--	--

Source: RWQCB, 1995

TDS: Total Dissolved Solids
Hard.: Hardness (as CaCO3)
Na: Sodium
Cl: Chloride
TIN: Total Inorganic Nitrogen
SO4: Sulfate
COD: Chemical Oxygen Demand
--: no numerical limit

Not all of the treated effluent is discharged to these two outfalls. A portion of the treated effluent is recycled by Whispering Lake Golf Course and Westwind Park for landscape irrigation, by El Prado Golf Course for landscape irrigation and fire suppression, and by Caltrans for Highway 60 landscape irrigation. Recycled water is used at the RP-1 Co-Composting Facility for dust control and for recharging the Ely recharge basins.

CCWRF discharges treated effluent to Chino Creek, Reach 2 under NPDES Permit No. CA8000073. Chino Creek, Reach 2 is a tributary to Chino Creek, Reach 1 and the Santa Ana River, Reach 3. The NPDES permit specifies water quality discharge limits for effluent discharged from the CCWRF. Table 4.5-4 presents water quality data and discharge limits for CCRWF effluent on a 12-month running average. Designated beneficial uses and water quality objectives for these waters are shown in Tables 4.5-1 and 4.5-2.

Surface Water Quality

Surface water quality monitoring has been and is currently being conducted for creeks running through the Chino Basin. The water quality data cited in this section is from the southern portion of the IEUA service area, below the Pomona Freeway, State Highway 60. Water quality

Table 4.5-3
RP-1 and RP-4 Effluent Discharges
Annual Water Quality Data at Discharge Serial Nos. 001 and 002
(1999 and 2000)

Constituent	NPDES Discharge Limit (units)	Discharge Serial No. 001		Discharge Serial No. 002	
		1999 Average	2000 Average	1999 Average	2000 Average
Flow	MGD	18.7	17.1	21.1	28.3
pH	6.5-8.5 pH units	7.1	7.6	7.3	7.6
Biological Oxygen Demand (5 days)	20 mg/L	<4	<4	<4	<4
Total Dissolved Solids	515 mg/L	411	461	416	438
Total Inorganic Nitrogen	12.3 mg/L	9.5	8.9	8.7	8.3
Ammonia-Nitrogen	4.5 mg/L	0.1	0.2	0.2	0.5
Total Suspended Solids	20 mg/L	<1	1	1	2
Dissolved Oxygen	>5.0 mg/L	nd	nd	8.8	7.9
Boron	0.75 mg/L	0.31	0.33	0.33	.035
Chloride	140 mg/L	85	93	87	96
Total Chlorine Residual	0.1 mg/L	<0.05	<0.05	<0.05	<0.05
Fluoride	1.00 mg/L	0.2	0.2	0.2	0.2
Iron	0.3 mg/L	0.06	0.06	0.07	0.06
Total Hardness	185 mg/L	137	138	136	136
Manganese	0.05 mg/L	<0.005	<0.005	<0.005	<0.005
Sodium	110 mg/L	80	89	83	89
Sulfate	150 mg/L	63	64	64	63
Hexachorocyclohexane-gamma (Lindane)	0.063 μg/L	<0.03	<0.03	<0.03	<0.03
Total Coliform Bacteria	2.2 MPN/100 ml	<2	<2	<2	<2

Source: IEUA, 1999 and 2000

Note: Bold numbers exceed discharge limit
mg/L: milligrams per liter
μg/L: micrograms per liter
MPN: Most Probable Number
nd: no data

data obtained from the RWQCB is from a study to evaluate water quality in surface waters associated with dairy operations in southern Chino Basin. The study was conducted during the wet season between December 1997 and February 1998. The major creeks sampled included Cucamonga Creek and Chino Creek. Three sites were sampled along Cucamonga Creek: (2) immediately downstream of RP-1/RP-4 Discharge Serial No. 002 at Riverside Drive; (8) at Merrill Avenue; and (15) at Chino-Corona Road where Cucamonga Creek becomes Mill Creek (Figure 4.5-1). There were two sites on Chino Creek that were sampled: (5) at Schaefer Avenue and (12) at Pine Avenue south of RP-2 (Figure 4.5-1). Some of the constituents analyzed included coliform bacteria, TDS, suspended solids, ammonia nitrogen, nitrate nitrogen, phosphorous, copper, lead, and zinc. The RWQCB did not draw any formal conclusions from this study. The average and maximum results for the above monitoring locations are shown in Table 4.5-5.

Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not

Table 4.5-4
CCWRF Effluent Discharge
12-Month Running Average Compliance Monitoring
(1999 through 2001)

Constituent	NPDES Discharge Limit	1999	2000	2001*
pH	6.5-8.5 pH units	7.2	7.1	7.1
Biological Oxygen Demand (5 days)	20 mg/L	<4	<4	<4
Total Dissolved Solids	555 mg/L	426	447	472
Total Inorganic Nitrogen	10 mg/L	5.5	5.8	6.4
Ammonia-Nitrogen	4.5 mg/L	0.1	<0.1	<0.1
Total Suspended Solids	20 mg/L	<1	<1	<1
Dissolved Oxygen***	>5.0 mg/L	10.2	11.0	12.3
Boron	0.75 mg/L	0.38	0.39	0.36
Chloride	140 mg/L	92	104	109
Total Chlorine Residual	0.1 mg/L	<0.05	<0.05	<0.05
Fluoride	1.00 mg/L	0.2	0.2	0.2
Iron	0.3 mg/L	0.07	0.04	0.04
Total Hardness	220 mg/L	150	152	145
Manganese	0.05 mg/L	<0.004	<0.005	<0.002
Sodium	110 mg/L	86	89	89
Sulfate	150 mg/L	69	70	69
Coliform Bacteria	<2.2 MPN/100 ml**	<2	<2	<2

Source: IEUA, 1999a, 2000b, and 2001
* 12-month running average through November 2001
** Seven-day median limit
*** Downstream DO measurement

meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water on the lists and develop action plans, called as Total Maximum Daily Loads (TMDL), to improve water quality. A 303(d) list for affected waters throughout California has been prepared. The affected waters that run through the IEUA service area are shown in Table 4.5-6.

4.5.2.3 Groundwater

The Chino Basin can be hydrologically subdivided into at least five flow systems that act as separate and distinct basins. Figure 4.5-2 shows the location of the five groundwater flow systems (Management Zones) developed during the *TDS and Nitrogen Study* (Wildermuth, 1999) of which the CBWM, the Chino Basin Water Conservation District (CBWCD), and the IEUA are study participants. Each flow system has a unique hydrology, and water resource management activities that occur in each flow system have little or no impact on the other systems. The proposed water quality objectives of the TIN/TDS study are shown on this figure.

Major Flow Systems

Each flow system can be considered a management zone. These management zones can be subdivided further if necessary to define and manage flow systems at a finer scale. These management zones are used to characterize the groundwater level, storage, production, and water quality conditions. Additionally, in the 1995 Regional Water Quality Control Plan (Basin

Table 4.5-5
RWQCB Surface Water Quality Monitoring
(December 1997 to February 1998)

Constituent	Cucamonga Creek						Chino Creek			
	Sampling Location 2		Sampling Location 8		Sampling Location 15		Sampling Location 5		Sampling Location 12	
	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.	Ave.	Max.
Fecal Coliform Bacteria (MPN/100ml)	29,000	90,000	11,000	16,000	11,000	30,000	18,000	30,000	32,000	80,000
Total Dissolved Solids (mg/L)	118	395	197	368	330	600	401	772	375	754
Total Suspended Solids (mg/L)	126	420	87	340	226	1140	119	244	201	570
Ammonia-Nitrogen (mg/L)	0.29	0.40	0.37	0.73	3.65	13.9	0.58	1.1	0.56	1.06
Nitrate-Nitrogen (mg/L)	1.67	7.96	4.34	7.93	4.26	8.92	2.30	4.03	5.37	7.68
Ortho Phosphate (P) (mg/L)	0.59	0.86	0.93	1.27	3.92	10.6	0.31	0.35	1.03	1.84

Source: RWQCB, 1998
See Figure 4.5-1 for sampling locations

Table 4.5-6
303(d) List and TMDL Priority Schedule

Name	Pollutant/Stressor	Source	Priority	Start Date	End Date
Prado Park Lake	• Nutrients	Nonpoint Source	Low	2008	2011
	• Pathogens	Nonpoint Source	Low	2008	2011
Chino Creek, Reach 1	• Nutrients	Agriculture/Dairies	Medium	2000	2005
	• Pathogens	Dairies/Urban runoff/ Storm Sewers	High	2000	2005
Chino Creek, Reach 2	• High Coliform Count	Unknown Nonpoint source	High	2000	2005
Cucamonga Creek, Valley Reach	• High Coliform Count	Unknown Nonpoint source	High	2000	2005
Mill Creek (Prado Area)	• Nutrients	Agriculture/Dairies	Medium	2000	2005
	• Pathogens	Dairies	High	2000	2005
	• Suspended Solids	Dairies	Medium	2000	2005

Source: SWRCB, 2001

Plan) for the Santa Ana Watershed, the Chino Basin was divided into three subbasins for management purposes (shown on Figure 4.5-3). The Regional Water Quality Control Board, Santa Ana Region (RWQCB) has established water quality objectives for these subbasins and writes waste discharge requirements for waste dischargers based in part on these objectives. Presently, the Basin Plan subbasin boundaries and objectives are being rigorously reviewed. New boundaries similar to the management zone boundaries have been proposed (Figure 4.5-2). Revised boundaries and water quality objectives should be adopted sometime in the near future.

Management Zone 1. Management Zone 1 is bounded: on the southwest by the Chino and Puente Hills; on the northwest by the San Jose fault that separates Chino Basin from the Pomona and Claremont Heights Basins; on the north by an unnamed non-echelon fault system associated with the Cucamonga and Red Hill faults and separates the Chino Basin from the Cucamonga Basin; and on the east by a line that stretches from the southern most edge of the Red Hill fault to Prado Dam.

Groundwater in Management Zone 1 flows generally 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.

Management Zone 2. Management Zone 2 is bounded: on the west by Management Zone 1; on the north by the Red Hill fault that separates the Chino Basin from the Cucamonga Basin; on the northeast by a segment of the Rialto-Colton fault; and on the east by a segment of Barrier J and a line extending from Barrier J in a southwesterly direction to a point of convergence with other management zone boundaries near Prado Dam.

Groundwater in Management Zone 2 flows generally in a southwesterly direction in the northern half of the management zone and then 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 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.

Management Zone 3. Management Zone 3 is bounded: on the west by Management Zone 2; on the northeast by the Rialto-Colton fault that separates the Chino Basin from the Rialto Basin; and on the southeast by the Bloomington divide, Jurupa Hills and a line projecting from the most western extension of the Jurupa Hills to a point of convergence with other management zone boundaries near Prado Dam.

Groundwater in Management Zone 3 flows generally in a southwesterly direction. Sources of water to Management Zone 3 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.

Management Zone 4. Management Zone 4 is bounded: on the west by Management Zone 3; on the north by the Jurupa Hills; on the southeast by the Pedley Hills; and on the south by Management Zone 5.

Groundwater in Management Zone 4 flows west. Sources of water to Management Zone 4 include direct percolation of precipitation, and returns from irrigation. Discharge is through groundwater production.

Management Zone 5. Management Zone 5 is bounded: on the north and west by the Management Zones 3 and 4, and Prado Dam; on the east by the Riverside Narrows; and on the south by the La Sierra area and Temescal Basin.

Sources of water to Management Zone 5 include streambed percolation in 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 other locations on the Santa Ana depending on climate and season.

Historical and Current Groundwater Quality

Historical Groundwater Quality Monitoring

Various entities have collected groundwater quality data in the past. Municipal and agricultural water supply entities have collected groundwater quality data to comply with Department of Health Services requirements under 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 order from the RWQCB, and by the County of San Bernardino. The DWR and the SBCFCD were very active in collecting groundwater quality data in the Chino Basin prior to the settlement of the Chino Basin adjudication. After the Judgment was entered in 1978, monitoring south of State Route 60 stopped almost completely except for the cities of Chino, Chino Hills, and Norco, and the Jurupa Community Services District (JCSD). Most of the pre-1978 measurements were digitized by the DWR. In 1986, Metropolitan Water District of Southern California (MWD) conducted the first comprehensive survey of groundwater quality covering all constituents regulated in California Code of Regulations Title 22.

In 1989, the Chino Basin Watermaster (CBWM) initiated a regular monitoring program for the Basin with groundwater quality data obtained in 1990 and periodically thereafter to the present. CBWM's program relies on municipal producers and other government agencies supplying their groundwater quality data on a cooperative basis. CBWM staff supplements this data with data obtained through a CBWM sampling and analysis program in the area south of State Route 60. Water quality data are also obtained from special studies and monitoring that takes place under orders of the RWQCB. CBWM has combined previously digitized groundwater quality data from all known sources into a database structure that is maintained at CBWM's office.

CBWM has initiated the development of a new, more comprehensive water quality monitoring program to support the OBMP starting in July 1999. The program consists of two phases. The initial phase consists of collecting and analyzing groundwater quality samples at all producing wells in the over a three year period starting in July 1999. These data will be mapped and reviewed. Based on this review and CBWM management goals in the OBMP, a long-term monitoring program will be developed The second phase consists of implementing the long term monitoring program and will start in July 2002.

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 1995 Water Quality Control Plan for the Santa Ana River Basin (Basin Plan).

Total Dissolved Solids (TDS). The current Basin Plan TDS objectives for Subbasins Chino I and Chino II are 220 mg/L and 330 mg/L, respectively (Figure 4.5-3). TDS is regulated as a secondary contaminant in Title 22. The recommended drinking water maximum contaminant level (MCL) for TDS is 500 mg/l, however the upper limit is 1,000 mg/l. For irrigation uses, TDS should generally be less than 700 mg/l. The RWQCB has established TDS limitations for all municipal wastewater plants that discharge recycled water to the Santa Ana River. A problem arises in that TDS concentrations in water increase through municipal use – typically by about 150 to 250 mg/l. The TDS limitations for water recycling plants that discharge to the Santa Ana River in the Chino Basin are listed below:

Plant	TDS Limit (mg/l)

IEUA RP1	540
IEUA RP2	610
IEUA Carbon Canyon	555
IEUA RP4	505
Western Riverside Regional	625
City of Riverside	650
Jurupa Indian Hills	650

The TDS in source (drinking) water generally must be kept well below 500 mg/l (preferably less than 300 mg/l) to ensure that recycled water discharged to the Santa Ana River and its tributaries meets RWQCB limitations.

Table 4.5-7 provides the average TDS concentrations by well for five-year periods from 1961 to 1995. These wells are grouped by management zones.

TDS concentrations in the northeast part of the Basin range from about 170 to about 300 mg/l for the period 1960 through 1990, with typical concentrations in the mid- to low-200s. TDS concentrations in excess of 200 mg/l indicate degradation from overlying land use. With few exceptions, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated TDS concentrations. The exceptions are areas where point sources have contributed to TDS degradation, such as the former Kaiser Steel site in Fontana and the former wastewater disposal ponds near IEUA Regional Plant No. 1 (RP1) in South Ontario.

The impacts of agriculture on TDS in groundwater primarily are caused by fertilizer use on crops, consumptive use, and dairy waste disposal. The intensity of the TDS loading from dairy waste to the Basin is illustrated in Table 4.5-8 (Table 2-1 from Final Task 6 Memorandum, Development of a Three-Dimensional Groundwater Model, Montgomery Watson, 1994). This table shows the steady buildup of the dairy cattle population in the southern Chino Basin between 1949 and 1989. The total amount of TDS from manure discharged to the southern half of the Basin that will reach groundwater is estimated to be about 1,200,000 tons through 1989 and averages about 29,000 tons per year. The dairy loading numbers in Table 4.5-8 assume that half of the manure was hauled out of the Basin after 1973, which was a requirement of the Santa Ana watershed Water Quality Control Plan enacted in 1973. The amount of manure exported out of the Basin was never verified until the late 1990's. The TDS loading to groundwater from dairy waste disposal activities could be far greater than estimated in Table 4.5-8.

TDS concentrations in groundwater have increased slightly or remained relatively constant in the northern parts of Management Zones 1, 2, and 3. TDS concentrations are significantly higher in the southern parts of Management Zones 1, 2, and 3, and all of Management Zone 5 where they typically exceed the 500 mg/l recommended MCL and frequently exceed the upper limit of 1,000 mg/l.

The Basin Plan declares that there is no assimilative capacity for TDS in Chino II Sub-Basin. The assimilative capacity available in Chino I Sub-Basin is limited. The RWQCB has complete discretion in allowing discharges that will cause degradation and reduce assimilative capacity. The RWQCB has authority to limit or prohibit recharge of recycled water to Chino I Sub-Basin that could encroach on the assimilative capacity of this Sub-Basin.

The RWQCB is currently developing a significant update to the Basin Plan that should be adopted late in 2002 or early 2003. As presently envisioned in this update, the Chino Basin is divided into five management zones (Figure 4.5-2) along with the recharge facilities. The recharge facilities of interest are in Management Zones 1, 2 and 3. The TDS objectives for these management zones are 290 mg/L, 255 mg/L, and 262 mg/L, respectively.

Table 4.5-7
Average TDS Values for Selected Wells within Each Management Area

Well	Average TDS (mg/l) Per Period						
	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995
Management Zone 1A							
01S08W15J01	276	247	N/A	208	294	301	304
01S08W25Q02	N/A	181	233	209	213	219	206
01S08W15R00	N/A	N/A	N/A	213	216	200	219
01S08W34A01	N/A	N/A	250	219	331	376	N/A
01S07W08N01	209	227	199	226	239	214	224
01S08W11R01	N/A	312	383	345	394	333	371
01S08W14A03	374	292	295	388	358	N/A	N/A
01S08W27H01	N/A	N/A	483	434	443	678	607
01S08W31J01	N/A	N/A	N/A	N/A	N/A	411	408
Management Zone 1B							
02S08W23C01	390	N/A	N/A	205	N/A	259	208
02S08W11L04	N/A	236	222	206	208	N/A	228
02S08W15C03	N/A	N/A	284	295	291	353	349
02S08W22J01	N/A	261	N/A	645	N/A	N/A	781
Management Zone 2A							
01S06W31D01	160	134	N/A	164	N/A	250	193
01S07W14G01	N/A	N/A	189	193	186	224	172
01S07W27D01	N/A	183	250	220	232	247	N/A
02S07W04B01	236	218	215	N/A	N/A	N/A	N/A
01S07W13R01	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Management Zone 2B							
02S07W22K01	617	215	250	315	N/A	N/A	223
Management Zone 3A							
01S06W11B01	210	204	206	220	N/A	244	218
01S06W23D01	230	N/A	N/A	241	N/A	264	275
02S06W05A01	196	184	198	N/A	N/A	227	248
01S05W21B01	268	256	291	N/A	344	354	N/A
Management Zone 3B							
02S07W34K02	1305	1778	1977	735	N/A	N/A	N/A
03S07W03N01	399	574	592	N/A	N/A	N/A	N/A
Management Zone 4							
02S06W16B04	N/A	N/A	316	310	735	696	N/A
02S06W16B03	N/A	N/A	348	370	765	658	788
Management Zone 5							
03S07W11L03	600	578	633	645	771	660	841
02S06W26D02	497	580	650	685	N/A	720	N/A
02S07W36H02	N/A	1065	1477	1257	1156	1100	1047

Source: OBMP, 1999

Table 4.5-8
Estimated Dairy Waste Generation and Mineral Loading in the Chino Basin

Year	Total Acreage (acres)	Area in Feedlots (acres)	Number of Milking Cows	Number of Non-Milking Cows (Equ. Milking Cows)	Total Mass of Manure Disposed In Basin (tons)	Mass of TDS from Manure to Groundwater (tons)	Mass of Nitrate from Manure Entering Soil (tons)	Theoretical Manure Disposal Area (acres)	Theoretical Manure Application Rate (tons/acre)
1949	55	47	1,079	324	4,217	329	53	86,988	0.05
1950	457	389	8,969	2,697	35,071	2,736	440	85,187	0.4
1951	860	731	16,860	5,071	65,925	5,142	828	83,386	1
1952	1,262	1,073	24,751	7,444	96,779	7,549	1,215	81,585	1
1953	1,665	1,415	32,642	9,817	127,632	9,955	1,603	79,784	2
1954	2,067	1,757	40,533	12,190	158,486	12,362	1,990	77,982	2
1955	2,469	2,099	48,424	14,563	189,340	14,769	2,377	76,181	2
1956	2,872	2,441	56,315	16,936	220,194	17,175	2,765	74,380	3
1957	3,274	2,783	64,205	19,309	251,048	19,582	3,152	72,579	3
1958	3,511	2,984	68,856	20,708	269,233	21,000	3,381	71,210	4
1959	3,748	3,186	73,507	22,107	287,419	22,419	3,609	69,840	4
1960	3,986	3,388	78,158	23,505	305,605	23,837	3,837	68,471	4
1961	4,223	3,589	82,809	24,904	323,790	25,256	4,066	67,102	5
1962	4,460	3,791	87,460	26,303	341,976	26,674	4,294	65,733	5
1963	4,697	3,992	92,111	27,702	360,162	28,093	4,522	64,364	6
1964	4,918	4,181	96,450	29,007	377,127	29,416	4,735	62,848	6
1965	5,140	4,369	100,789	30,311	394,092	30,739	4,948	61,331	6
1966	5,361	4,557	105,128	31,616	411,058	32,063	5,161	59,815	7
1967	5,582	4,745	109,467	32,921	428,023	33,386	5,374	58,299	7
1968	5,803	4,933	113,806	34,226	444,988	34,709	5,587	56,783	8
1969	6,025	5,121	118,145	35,531	461,953	36,032	5,800	55,267	8
1970	6,246	5,309	122,483	36,836	478,919	37,356	6,014	53,750	9
1971	6,467	5,497	126,822	38,141	495,884	38,679	6,227	52,234	9
1972	6,688	5,685	131,161	39,445	512,849	40,002	6,440	50,718	10
1973	6,910	5,873	135,500	40,750	529,815	41,326	6,653	49,202	11
1974	7,131	6,061	143,657	42,793	370,912	28,931	4,657	47,685	8
1975	7,352	6,249	152,052	44,859	391,155	30,510	4,912	46,169	8
1976	7,464	6,344	158,358	46,267	405,888	31,659	5,097	44,635	9
1977	7,575	6,439	164,784	47,673	420,808	32,823	5,284	43,100	10
1978	7,687	6,534	171,330	49,077	435,911	34,001	5,473	41,566	10
1979	7,799	6,629	177,995	50,478	451,194	35,193	5,665	40,031	11
1980	7,910	6,724	184,780	51,874	466,654	36,399	5,860	38,497	12
1981	8,022	6,819	191,684	53,264	482,287	37,618	6,056	36,962	13
1982	8,134	6,914	198,708	54,648	498,090	38,851	6,254	35,427	14
1983	8,245	7,009	205,852	56,024	514,059	40,097	6,455	33,893	15
1984	8,357	7,103	213,115	57,392	530,192	41,355	6,657	32,358	16
1985	8,469	7,198	220,498	58,750	546,484	42,626	6,862	31,091	18
1986	8,580	7,293	228,000	60,097	562,932	43,909	7,068	29,823	19
1987	8,692	7,388	200,070	54,019	498,200	38,860	6,256	28,556	17
1988	8,804	7,483	171,347	47,608	431,100	33,626	5,413	27,288	16
1989	8,915	7,578	173,520	48,212	436,568	34,052	5,482	26,020	17
1990	8,915	7,578	175,414	48,738	441,332	34,424	5,542	24,753	18
1991	8,915	7,578	177,308	49,264	446,097	34,796	5,601	23,485	19
1992	8,915	7,578	179,201	49,790	450,861	35,167	5,661	22,218	20
1993	8,915	7,578	181,095	50,316	455,626	35,539	5,721	20,950	22
1994	8,915	7,578	182,989	50,842	460,391	35,910	5,781	20,950	22
1995	8,915	7,578	184,883	51,369	465,155	36,282	5,841	20,950	22
1996	8,915	7,578	186,776	51,895	469,920	36,654	5,901	20,950	22
1997	8,915	7,578	188,670	52,421	474,684	37,025	5,960	20,950	23
Totals					18,678,084	1,456,891	234,530	na	na
Average	6,106	5,190	129,562	36,939	381,185	29,732	4,786	49,864	10

Source: OBMP, 1999

TOM

There is little to no assimilative capacity in any of the new management zones for TDS. These proposed management zones and objectives are more restrictive than the existing objectives.

Nitrate. The current Basin Plan nitrate objectives for Sub-Basins Chino I and Chino II are 5 mg/L and 6 mg/L, respectively (Figure 4.5-3). Nitrate is regulated in drinking water in Title 22 with an MCL of 10 mg/l (as nitrogen). Table 4.5-9 provides the average nitrate concentrations by well for 5-year periods from 1961 to 1995. These wells are grouped by management zones. Nitrate measurements in the surface water flows in the San Gabriel Mountains and in groundwater near the foot of these mountains are generally less than 0.5 mg/l (Montgomery Watson, 1993). Nitrate concentrations in excess of 0.5 mg/l indicate degradation from overlying land use. Similar to TDS, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated nitrate concentrations. The primary areas of nitrate degradation are the areas formerly or currently overlain by:

- Citrus in the northern parts of Management Zones 1, 2 and 3; and
- Dairy areas in the southern parts of Management Zones 1, 2 and 3 and all of Management Zone 5.

Nitrate concentrations in groundwater have increased slightly or remained relatively constant in northern parts of Management Zones 1, 2 and 3 over the period 1960 to the present. These are areas formerly occupied by citrus and vineyard land uses, and nitrate concentrations underlying these areas rarely exceed 20 mg/l (as nitrogen). Over the same period, nitrate concentrations have increased significantly in the southern parts of Management Zones 1, 2 and 3, and all of Management Zone 5. These are areas where land use has progressively converted from irrigated/non-irrigated agriculture to dairy uses, and nitrate concentrations typically exceed the 10 mg/l MCL and frequently exceed 20 mg/l by 1991-1995.

The Basin Plan declares that there is no assimilative capacity for nitrate in Chino II Sub-Basin. The assimilative capacity available in Chino I Sub-Basin is limited. The RWQCB has complete discretion in allowing discharges that will cause degradation and reduce the assimilative capacity. The RWQCB has authority to limit or prohibit recharge of recycled water to Chino I Sub-Basin that will encroach on the assimilative capacity of this Sub-Basin.

The RWQCB is currently developing a significant update to the Basin Plan that should be adopted late in 2002 or early 2003. As currently envisioned in this update, the Chino Basin is divided into five management zones (Figure 4.5-2) along with the recharge facilities. The recharge facilities of interest are in Management Zones 1, 2 and 3. The nitrate objectives for these management zones are 4.9 mg/L, 2.9 mg/L, and 3.5 mg/L, respectively.

Other Constituents of Potential Concern. Tables 4.5-10a through 4.5-10c summarize inorganic and organic constituents that have been analyzed for and detected in groundwater samples from wells in the Chino Basin through July 1998. This is a synoptic analysis and includes all available data, including data from several monitoring programs and studies. The water quality data reviewed in this synoptic analysis are derived from production wells and monitoring wells. Hence, the data do not represent a programmatic investigation of potential sources nor do they represent a randomized study designed to ascertain the water quality status of the Chino Basin. The data do represent the most comprehensive information available to date. A table summarizing the federal and state maxiumum concentration limits is provided for reference purposes as Table 4.5-11d.

Table 4.5-9
Average Nitrate Values for Selected Wells within Each Management Area

Well	Average Nitrate-N (mg/l) Per Period						
	1961-1965	1966-1970	1971-1975	1976-1980	1981-1985	1986-1990	1991-1995
Management Zone 1A							
01S07W08N01	2.7	4.9	3.3	4.2	4.4	4.6	5.4
01S08W11R01	N/A	22.4	21.0	19.4	21.8	17.9	18.8
01S08W14A03	21.2	12.9	22.6	15.4	17.0	N/A	18.4
01S08W15J01	8.3	7.0	N/A	7.4	6.5	5.1	6.7
01S08W15R00	N/A	N/A	N/A	3.2	2.4	4.8	3.1
01S08W25Q02	N/A	2.7	3.8	4.3	3.4	4.0	5.2
01S08W27H01	N/A	N/A	1.5	13.8	20.4	4.9	4.0
01S08W31J01	N/A	N/A	N/A	N/A	N/A	6.4	6.8
01S08W34A01	N/A	N/A	5.2	4.0	11.7	17.7	N/A
Management Zone 1B							
02S08W11L04	N/A	2.6	1.8	1.7	1.9	N/A	4.8
02S08W15C03	N/A	N/A	3.0	2.2	3.4	4.8	5.6
02S08W22J01	N/A	1.8	N/A	12.3	N/A	17.9	19.5
02S08W23C01	5.0	N/A	N/A	3.2	N/A	5.6	5.2
Management Zone 2A							
01S06W31D01	0.4	0.5	N/A	1.3	1.9	2.5	1.9
01S07W13R01	0.8	N/A	N/A	N/A	N/A	N/A	N/A
01S07W14G01	N/A	N/A	2.9	0.4	0.4	0.5	0.7
01S07W27D01	2.7	2.9	3.0	5.0	5.0	4.6	0.0
02S07W04B01	1.8	2.3	2.4	N/A	N/A	N/A	N/A
Management Zone 2B							
02S07W22K01	9.5	1.6	1.7	5.9	N/A	N/A	3.5
Management Zone 3A							
01S05W21B01	6.5	8.6	8.9	N/A	15.2	15.2	N/A
01S06W11B01	1.9	1.1	1.8	2.5	2.5	4.3	5.5
01S06W23D01	4.0	N/A	N/A	5.8	3.3	7.2	12.2
02S06W05A01	1.4	1.3	1.5	N/A	N/A	2.9	5.2
Management Zone 3B							
02S07W34K02	4.8	8.3	16.5	0.5	N/A	N/A	N/A
03S07W03N01	3.1	5.7	8.0	N/A	N/A	N/A	N/A
Management Zone 4							
02S06W16B03	N/A	N/A	4.4	7.8	19.4	22.6	23.3
02S06W16B04	N/A	N/A	6.5	7.5	19.9	24.3	22.6
Management Zone 5							
02S06W26D02	3.6	3.4	5.4	8.1	N/A	8.6	N/A
02S07W36H02	N/A	3.8	6.7	4.3	6.9	2.7	6.5
03S07W11L03	0.5	0.8	0.7	3.6	3.2	6.1	14.9

Source: OBMP, 1999

Table 4.5-10a
Inorganic Constituents, THMs, Radioactivity with Primary MCLs

Constituent	Observations At or Above 1/2*MCL	Wells w/ Observations At or Above 1/2*MCL	Observations At or Above MCL	Wells w/ Observations At or Above MCL	MCL
Inorganic Chemicals					
Aluminum	2	2	0	0	1 mg/L
Antimony	0	0	0	0	0.006 mg/L
Arsenic	8	1	0	0	0.05 mg/L
Asbestos	0	0	0	0	0.05 mg/L
Barium	0	0	0	0	1 mg/L
Beryllium	7	5	2	1	0.004 mg/L
Cadmium	17	8	5	4	0.005 mg/L
Chromium	16	10	7	5	0.05 mg/L
Cyanide	0	0	0	0	0.2 mg/L
Fluoride	302	51	160	30	2 mg/L
Mercury	4	3	2	2	0.002 mg/L
Nickel	2	2	0	0	0.1 mg/L
Nitrate (as N)	4165	513	2053	322	10 mg/L
Selenium	3	1	3	1	0.05 mg/L
Thallium	0	0	0	0	0.002 mg/L
Total Trihalomethanes					
Total Trihalomethanes[a]	0	0	0	0	0.1 mg/L
Bromodichloromethane (THM)	0	0	0	0	see THM
Bromoform (THM)	0	0	0	0	see THM
Chloroform (THM)	0	0	0	0	see THM
Dibromochloromethane (THM)	0	0	0	0	see THM
Radioactivity					
Gross Alpha Particle Activity	39	16	11	7	15 pCi/L
Gross Beta Particle Activity	0	0	0	0	50 pCi/L
Radium-226 and 228[b]	0	0	0	0	pCi/L
Strontium-90	0	0	0	0	8 pCi/L
Tritium	0	0	0	0	20,000 pCi/L
Uranium	5	3	0	0	20 pCi/L

(a) Includes individual THM constituents analyzed separately
(b) Radium-226 MCL is 3 pCi/L; Radium-228 MCL is 2 pCi/L

Source: OBMP, 1999

Table 4.5-10b
Organic Chemicals with Primary MCLs

Constituent	Observations At or Above 1/2*MCL	Wells w/ Observations At or Above 1/2*MCL	Observations At or Above MCL	Wells w/ Observations At or Above MCL	MCL
Organic Chemicals					
1,1,1-Trichloroethane (1,1,2-TCA)	0	0	0	0	0.2 mg/L
1,1,2,2-Tetrachloroethane	0	0	0	0	0.001 mg/L
1,1,2-Trichloro-1,2,2-Trifluoroethane	0	0	0	0	1.2 mg/L
1,1,2-Trichloroethane (1,1,2-TCA)	0	0	0	0	0.005 mg/L
1,1-Dichloroethane	34	7	22	7	0.005 mg/L
1,1-Dichloroethylene	497	18	355	13	0.006 mg/L
1,2,4-Trichlorobenzene	0	0	0	0	0.07 mg/L
1,2-Dichlorobenzene	0	0	0	0	0.6 mg/L
1,2-Dichloroethane	134	77	122	76a	0.0005 mg/L
1,2-Dichloropropane	1	1	0	0	0.005 mg/L
1,3-Dichloropropane	0	0	0	0	0.0005 mg/L
1,4-Dichlorobenzene	3	2	2	1	0.005 mg/L
2,3,7,8-TCDD (Dioxin)	0	0	0	0	0.00000003 mg/L
2,4,5,-TP (Silvex)	0	0	0	0	0.05 mg/L
2,4-D	0	0	0	0	0.07 mg/L
Alachlor	0	0	0	0	0.002 mg/L
Atrazine	0	0	0	0	0.003 mg/L
Bentazon	0	0	0	0	0.018 mg/L
Benzene	155	89	43	23	0.001 mg/L
Benzo(a)Pyrene	0	0	0	0	0.0002 mg/L
Carbofuran	0	0	0	0	0.018 mg/L
Carbon Tetrachloride	1	1	1	1	0.0005 mg/L
Chlordane	0	0	0	0	0.0001 mg/L
cis-1,2-Dichloroethylene	9	3	4	1	0.006 mg/L
Di (2-ethylhexyl) Adipate	0	0	0	0	0.4 mg/L
Di(2-Ethlhexyl)Phthalate	25	10	25	10	0.004 mg/L
Dibromochloropropane (DBCP)	1068	45	758	41	0.0002 mg/L
Dinosep	0	0	0	0	0.007 mg/L
Diquat	0	0	0	0	0.02 mg/L
Endothal	0	0	0	0	0.1 mg/L
Endrin	0	0	0	0	0.002 mg/L
Ethylbenzene	0	0	0	0	0.7 mg/L
Ethylene Dibromide (EDB)	3	3	1	1	0.00005 mg/L
Glyphosate	0	0	0	0	0.7 mg/L
Heptachlor	0	0	0	0	0.00001 mg/L
Heptachlor Epoxide	0	0	0	0	0.00001 mg/L
Hexachlorobenzene	0	0	0	0	0.001 mg/L
Hexachlorocyclopentadiene	0	0	0	0	0.05 mg/L
Lindane (gamma-BHC)	61	46	20	15	0.0002 mg/L
Methoxychlor	0	0	0	0	0.04 mg/L
Molinate	0	0	0	0	0.02 mg/L
Monochlorobenzene	0	0	0	0	0.07 mg/L
Oxamyl	0	0	0	0	0.2 mg/L
Pentachlorophenol	0	0	0	0	0.001 mg/L
Picloram	0	0	0	0	0.5 mg/L
Polychlorinated Biphenyls (PCB's)	0	0	0	0	0.0005 mg/L
Simazine	0	0	0	0	0.004 mg/L
Styrene	0	0	0	0	0.1 mg/L
Tetrachloroethene (PCE)	521	59	198	54	0.005 mg/L
Thiobencarb	0	0	0	0	0.07 mg/L
Toluene	0	0	0	0	0.15 mg/L
Toxaphene	0	0	0	0	0.003 mg/L
trans-1,2-Dichloroethylene	0	0	0	0	0.01 mg/L
Trichloroethene (TCE)	1022	85	699	74	0.005 mg/L
Trichlorofluoromethane	0	0	0	0	0.15 mg/L
Vinyl chloride	154	81	136	79	0.0005 mg/L
Xylene	0	0	0	0	1.75 mg/L

(a) 67 wells at MCL only 2 wells have elevated results

Source: OBMP, 1999

Table 4.5-10c
Inorganic Constituents, Organic Chemicals with Secondary MCLs; Lead and Copper Rule; and Constituents with DHS Action Levels

Constituent	Observations At or Above 1/2*MCL	Wells w/ Observations At or Above 1/2*MCL	Observations At or Above MCL	Wells w/ Observations At or Above MCL	MCL
Secondary MCL					
Foaming Agents (MBAS)	41	22	37	19	0.5 mg/L
Iron	104	48	54	28	0.3 mg/L
Manganese	317	45	285	24	0.05 mg/L
Silver	1	1	1	1	0.1 mg/L
Total Dissolved Solids (TDS)[b]	2978	522	1077	219	500 mg/L
Total Dissolved Solids (TDS)[c]	1077	219	119	44	1,000 mg/L
Zinc	1	1	0	0	5 mg/L
Lead and Copper Rule					
Copper	1	1	0	0	1 mg/L
Lead	62	25	24	14	0.015 mg/L
DHS Action Levels					
	Inorganics				
Boron	122	47	48	19	1 mg/L
Perchlorate	7	4	1	1	0.018 mg/L
	Organics				
1,3-Dichlorobenzene	0	0	0	0	0.13 mg/L
2,4-Dimethylphenol	0	0	0	0	0.4 mg/L
2-Chlorotoluene	0	0	0	0	0.045 mg/L
4-Chlorotoluene	0	0	0	0	0.045 mg/L
a-Benzene Hexachloride	0	0	0	0	0.0007 mg/L
Aldicarb	0	0	0	0	0.01 mg/L
Aldrin	0	0	0	0	0.00005 mg/L
Baygon	0	0	0	0	0.09 mg/L
b-Benzene Hexachloride	0	0	0	0	0.0003 mg/L
Captan	0	0	0	0	0.35 mg/L
Carbaryl	0	0	0	0	0.06 mg/L
Diazinon	0	0	0	0	0.014 mg/L
Dichlorodifluoromethane	0	0	0	0	1 mg/L
Dieldrin	0	0	0	0	0.00005 mg/L
Dimethoate	0	0	0	0	0.14 mg/L
Diphenamide	0	0	0	0	0.04 mg/L
Ethion	0	0	0	0	0.035 mg/L
Formaldehyde	0	0	0	0	0.03 mg/L
Heptachlor	0	0	0	0	0.05 mg/L
Isopropyl N Carbamate	0	0	0	0	0.035 mg/L
Malathion	0	0	0	0	0.16 mg/L
Methyl Isobutyl Ketone	0	0	0	0	0.04 mg/L
Methyl Parathion	0	0	0	0	0.03 mg/L
Methyl-Tert-Butyl Ether	0	0	0	0	0.035 mg/L
n-Butylbenzene	0	0	0	0	0.045 mg/L
Parathion	0	0	0	0	0.03 mg/L
Pentachloronitrobenzene	0	0	0	0	0.0009 mg/L
Phenol	6	2	5	2	0.005 mg/L
Trithion	0	0	0	0	0.007 mg/L

(a) Not including constituents contained in Primary MCL standards
(b) Recommended Secondary MCL Range of 500 mg/l
(c) Upper Secondary MCL Range of 1,000 mg/l

Source: OBMP, 1999

the numberA

Table 4.5-11d
Summary Table of State, Federal and Aesthetic Drinking Water Standards

PRIMARY STANDARDS B Mandatory Health-Related Standards

Parameter	Federal MCL	State MCL
Source Water		
CLARITY		
Turbidity (NTU) (Surface Water)	1.0	0.5
(Ground Water)	5.0	5.0
MICOBIOLOGICAL		
Coliform Bacteria (% Tests Positive)	10	10
ORGANIC CHEMICALS (mg/l)		
Atrazine	**0.003	0.003
Bentazon	NS	0.018
Benzene	0.005	0.001
Carbofuran	*0.04	*0.018
Carbon Tetrachloride	0.005	0.0005
Chlordane	*0.002	*0.0001
2,4-D	0.1 (*0.07)	0.100
Dibromochloropropane (DBCP)	*0.0002	0.0002
para-Dichlorobenzene (P-DCP)	0.075	0.005
1,1-Dichloroethane	NS	*0.005
1,2-Dichloroethane	0.005	0.0005
1,1-Dichloroethylene	0.007	0.006
cis-1,2-Dichloroethylene	*0.07	*0.006
Trans-1,2-Dichloroethylene	*0.1	*0.01
1,2-Dichloropropane	*0.005	*0.005
1,3-Dichloropropane	NS	0.0005
Di (2-ethylehexyl) Phthalate (DEPH)	NS	*0.0004
Endrin	0.0002	0.0002
Ethylbenzene	*0.7	0.680
Ethylene Dibromide (EDB)	*0.0005	0.00002
Glyphosate	NS	*0.7
Heptachlor	*0.0004	*0.00001
Heptachlor Epoxide	*0.0002	*0.00001
Lindane	0.004 (*0.0002)	0.004
Methoxychlor	0.1 (*0.4)	0.100
Molinate	NS	0.020
Monochlorobenzene	*0.1	0.030
Simazine	NS	0.010
1,1,2,2-Tetrachlorethane	NS	0.001
Tetrachloroethylene (PCE)	*0.005	0.005
Thiobencarb	NS	0.070
Total Trihalomethanes	0.100	0.100
Toxophene	0.005	0.005
2,4,5-TP (Silvex)	0.01 (*0.05)	0.010
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.200
1,1,2-Trichloroethane (1,1,2-TCA)	NS	0.032
Trichloroethylene (TCE)	0.005	0.005
Trichlorofluoromethane (Freon 11)	NS	*0.15
1,1,2-Trichloro-1,2,2-trifluroethane (Freon 113)	NS	*1.2
Vinyle Chloride	0.002	0.0005
Xylenes	*10	1.750

ABBREVIATIONS & FOOTNOTES

MCL	Maximum Contaminant Level
NA	Not Analyzed
NTU	Nephelometric Turbidity (suspended material) Units
unho/cm	micromhos per centimeter
NAR	No Analysis Required, System Not Vulnerable for Contaminant
<	less than
ND	Monitored for but Not Detected B detection limits are available upon request
mg/L	milligrams per liter (parts per million)
pCi/L	Picocuries per liter
NS	No Standard
*	proposed standard
**	recommended maximum level

PRIMARY STANDARDS B Mandatory Health-Related Standards (continued)

Parameter Source Water	Federal MCL	State MCL
INORGANIC CHEMICALS (mg/L)		
Aluminum	NS	1.000
Arsenic	0.050	0.050
Barium	1 (*5.0)	1.000
Cadmium	0.01 (*0.005)	0.010
Chromium	0.05 (*0.1)	0.050
Fluoride	4.0 (*2.0)	1.4-2.4
Lead	0.05 (*0.005)	0.050
Mercury	0.002	0.002
Nitrate (as NO_3)	45.0	45.0
Selenium	0.01 (*0.05)	0.01
Silver	0.05 (*NS)	0.050
RADIONUCLIDES (pCi/L)		
Gross Alpha	15	15
Gross Beta	NS	50
Radium 226	5	5
Radium 228	5	5
Strontium-90	8	8
Tritum	20,000	20,000
Uranium	NS	20

SECONDARY STANDARDS B Aesthetic Standards

Parameter Source Water	Federal MCL	State MCL
CHEMICAL PARAMETERS (mg/L)		
Chloride (mg/L)	250	**250
Color (units)	15	15
Copper (mg/L)	1.0 (*1.3)	1.00
Foaming Agents (MBAS) (mg/L)	0.50	0.50
Iron (mg/L)	0.30	0.30
Manganese (mg/L)	0.05	0.05
Odor-Threshold (units)	3	3
pH (units)	6.5-8.5	NS
Specific Conductance (umho/cm)	NS	**900
Sulfate (mg/L)	250	**250
Total Dissolved Solids (mg/L)	500	**500
Zinc (mg/L)	5	5
ADDITIONAL PARAMETERS		
Calcium (mg/L)	NS	NS
Hardness (mg/L as $CaCO_3$)	NS	NS
Magnesium (mg/L)	NS	NS
Potassium (mg/L)	NS	NS
Sodium (mg/L)	NS	NS

ABBREVIATIONS & FOOTNOTES (continued)

MCL	Maximum Contaminant Level
NA	Not Analyzed
NTU	Nephelometric Turbidity (suspended material) Units
unho/cm	micromhos per centimeter
NAR	No Analysis Required, System Not Vulnerable for Contaminant
<	less than
ND	Monitored for but Not Detected B detection limits are available upon request
mg/L	milligrams per liter (parts per million)
pCi/L	Picocuries per liter
NS	No Standard
*	proposed standard
**	recommended maximum level

Source: City of San Bernardino Municipal Water Department, Water Quality Report 1991

A large subset of this data was extracted from the California Department of Health Services (DHS) database (current through July 1998). For each constituent, the tables list measurements at or above one-half the applicable MCL;

- the number of wells with measurements at or above one-half the applicable MCL;
- the number of measurements at or above the applicable MCL;
- the number of wells with measurements at or above the applicable MCL; and
- the applicable MCL.

The tables are organized as follows:

- Table 4.5-10a: Inorganic constituents, total trihalomethanes (THMs) and radioactivity with primary MCLs;
- Table 4.5-10b: Organic chemicals with primary MCLs;
- Table 4.5-10c: Inorganic constituents and organic chemicals with secondary MCLs, lead and copper rule, and California DHS Action Levels.
- Table 4.5-10d: Summary of Federal, State and Aesthetic Drinking Water Standards

Monitoring wells targeted at a potential source will likely have a greater concentration than a municipal or agricultural production well. Wells with constituent concentrations greater than one-half the MCL represent areas that warrant concern and inclusion in a long-term monitoring program. Groundwater in the vicinity of wells with samples greater than the MCL may be impaired from a beneficial use standpoint.

Inorganic Constituents. Five inorganic constituents were detected at or above their MCL in more than 20 wells: TDS; nitrate; fluoride; iron; and manganese.

TDS and nitrate have been discussed in previous subsections. Fluoride, iron, and manganese naturally exist in groundwater. Their 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. Fluoride occurs naturally in groundwater in concentrations ranging from less than 0.1 mg/l to 10-20 mg/l (Freeze and Cherry, 1979). Based on the available data, none of these constituents shows a spatial pattern throughout Chino Basin. However, site-specific monitoring wells may reveal point sources (e.g., wells near landfills have shown relatively high concentrations of manganese).

Role of the Vadose Zone in Future Water Quality

The vadose zone is the unsaturated part of the aquifer that lies between the water table surface and the land surface. The vadose zone has become larger and thicker over time as the groundwater levels in the Basin have declined due to overdraft. Some of the contaminants discharged to the land surface or into ponds remain in the vadose zone. The mechanisms for retention of contaminants within the vadose zone are complex, but are generally caused by sorption and precipitation. Some contaminants move down towards the saturated zone at much lower rates (a few feet per year) than they can move once they get to the saturated zone (a few feet per day). MWD completed a study of the TDS and nitrate impacts in the Chino Basin from a proposed 700,000 acre-ft storage program California (MWD, 1988). The outcome of this study suggested that the raising of groundwater levels associated with the increase in storage would mobilize TDS and nitrates in the vadose zone and cause serious water quality problems throughout the Basin. The proposed storage program did not add contaminants – it flushed contaminants already in the vadose zone into the saturated zone. This potential effect could not be verified with more advanced modeling in the CBWRMS due to problems with the model. Real-world experiments to verify the TDS and nitrate contamination are not practical for a basin as large as the Chino Basin.

As the agricultural land uses in the Chino Basin convert to other uses, primarily residential use, the loading of contaminants to the vadose zone will be significantly reduced, as will percolation at the land surface that drives the contaminants down towards the saturated zone. This will have the effect of reducing the rate of vadose zone loading to the saturated zone in the future.

4.5.2.4 Wastewater

Wastewater flow projections are made using a combination of methods similar to water demand projections. Depending on the planning data available, wastewater flow projections are made using per capita-based, equivalent dwelling units (EDU) based, area-based, and water consumption-based methods. The per capita method uses projected populations and average unit wastewater flows per person (90-110 gallons per day per person). EDU-based projections use unit flows per equivalent dwelling unit (EDU), where an EDU is the average amount of sewage generated by a single-family residential household (about 270 gallons per day). EDUs are estimated for commercial and industrial land uses using fixture unit counts or estimated wastewater flows. Flow projections are computed by projecting future EDUs and multiplying by the unit flow per EDU. Area-based methods typically use unit flow factors for each land use type. Flows are computed by multiplying the unit factor for each land use type by the corresponding acreage and totaling the individual flows for each land use type.

Water consumption-based methods compute wastewater flows based on the difference between water demand and water consumption. Water consumption is the amount of water that does not return to the sewer system and is a function of the particular land use type and water use group. Currently, most wastewater flow projections in the study area are based on either per capita or EDU methods.

IEUA Service Area. IEUA developed wastewater forecasts for its service area in the WFMP. The wastewater flow projections were calculated in 10-year increments up to 2050 and for ultimate buildout for the IEUA service area (Table 3-1). These projections indicate wastewater flows will increase from 56 MGD in 2000 to 155 MGD in 2050. This represents an increase of 177 percent.

4.5.2.5 Storm Water Runoff

The mountain drainage areas tributary to the Chino Basin are relatively small compared to the size of Chino Basin (235 square miles) and the amount of water in storage (~5,000,000 acre-ft). The mountain drainage areas tributary to the Chino Basin areas are:

San Antonio Creek	17.7 sq mi
Cucamonga Creek	13.6
Deer Creek	6.4
Day Creek	7.7

Etiwanda Creek	6.7
San Sevaine Creek	9.7
TOTAL:	61.7 sq mi

Some of the storm water runoff from the San Gabriel Mountains and urban areas is diverted for recharge in flood retention and spreading basins. San Antonio Creek is mostly diverted for direct use and recharge in the Claremont Heights and Cucamonga Basins. Cucamonga, Deer, and Day Creeks are diverted for direct use and recharge in the Cucamonga Basin. Large storm flows from these creeks can make it into the Chino Basin, however these channels are concrete-lined and consequently large amounts of storm flow are not recharged once the flows are in the channels.

This completes the description of the existing environmental setting in which the three master plans are proposed to be implemented.

4.5.3 Project Impacts

The IEUA Master Plans propose a variety of new facilities, including pipelines, additions to existing plants, and new satellite plants. The water resource/water quality issues in this evaluation are examined as they relate to constraints imposed on the three master plan projects in the IEUA Master Plans PEIR:

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of nine potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],

- Church Basin [SP-3],
- CCDW-Baseline [SP-4],
- Foothill/I15 Corridor [SP-5],
- Kaiser/CSI WWTP [SP-6],
- Sierra Lakes [SP-7],
- Fontana-Baseline [SP-8], and
- Montclair [SP-9].
- IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.

2. Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.

2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension

3. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer

4. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.

2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).

3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram

Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).

4. Up to 40 groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for impacts to water resources/water quality in the following sections.

4.5.3.1 Significance Criteria/Threshold of Significance

The IEUA has not established any specific CEQA significance thresholds for water resource and water quality impacts. However, using the Santa Ana RWQCB's Basin Plan, primary drinking water standards and other documentation, the following thresholds are proposed for assessing and determining significant drainage or water quality impacts from implementing the proposed project.

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge
- Substantially alter the existing drainage pattern of the area in a manner which would result in substantial erosion or sedimentation within or downstream of the proposed Project Area
- Substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner which would result in flooding within or downstream of the Master Plans facilities
- Create or contribute runoff which would exceed the capacity of existing or planned storm water drainage systems
- Substantially degrade water quality
- Place structures within a 100-year flood hazard area, which would expose people or structures to significant risk of loss, injury or death
- Inundation by seiche, tsunami, or mudflow

Each of the above criteria will be applied to the potential water resource and water quality impacts forecast to occur from implementing the three master plans, and a decision regarding the significance of potential hydrology impacts will be clearly presented in the following analysis.

4.5.3.2 Impacts Analysis

a. <u>Violate any water quality standards or waste discharge requirements?</u>

Wastewater Facilities Master Plan

Construction Phase

Impacts associated with construction activities are usually temporary, lasting only as long as the construction phase. The potential impacts associated with the construction for the WFMP projects are discussed below.

Construction of the new facilities at RP-1, RP-2, RP-4, RP-5 and CCWRF would involve excavation, grading, paving, structure construction, and landscaping. The movement of soil, and the exposure of soil to wind and storm runoff increases the erosion potential. Construction site wastes, such as accidental spills of construction materials, fuels, solvents, and concrete wash water can be picked up by storm runoff and transported offsite. Construction of the new facilities would cause an overall decrease in ground surface available for absorption of rainfall, increasing the volume of storm runoff. The introduction of polluted storm runoff to surrounding waters could cause degradation of water resources/water quality and designated beneficial uses.

Since the overall construction area for the projects under the WFMP is greater than five acres, a NPDES General Permit (General Permit) for storm water discharges associated with construction activities is required. The General Permit program is administered and enforced by the RWQCB. The objectives of the General Permit are: (1) to identify pollutant sources that may affect the quality of discharges of storm water associated with construction activity from the construction site; and (2) to identify, construct, and implement storm water pollution prevention measures (best management practices (BMPs)) to reduce pollutants in storm water discharges from the construction site both during construction and after construction is completed.

IEUA is required to ensure that a Storm Water Pollution Prevention Plan (SWPPP) and Monitoring Plan is prepared and implemented prior to construction activities. For a SWPPP to be effective it must include the following: erosion and sediment control; non-storm water management; post-construction storm water management; waste management and disposal; maintenance, inspection and repair of BMPs; employee training to perform inspections of the BMPS at the construction site; sampling and analysis plan for contaminated storm runoff. The SWPPP shall describe both structural and non-structural BMPs to minimize or eliminate the potential for spills and leakage of construction materials and erosion of disturbed areas by water and wind. To facilitate the storm water permitting process, the General Permit should be a project-wide permit to cover all activities associated with the WFMP. Site-specific SWPPPs will be prepared for each project site to address site-specific conditions. With the implementation of the SWPPP, potential impacts to water resources/water quality can be reduced to a less than significant level.

Operation Phase

Treatment operations at RP-1, RP-4, RP-5, and CCWRF will be designed to produce an effluent that is expected to meet more stringent total inorganic nitrogen requirements, which are anticipated to be between 8 to 10 mg/L and the ammonia-nitrogen discharge requirement, which is expected to be lowered to around 4.0 mg/L. These revised limits are anticipated for groundwater recharge. The upgraded treatment processes at each plant would allow each facility to continue to meet the discharge limits set forth in their respective NPDES permits.

Ninety-nine percent of storm water runoff is currently retained onsite at RP-1, RP-4, and CCWRF. The sites are graded to route storm water runoff to onsite catch basins that then divert the storm water into the headworks for treatment. There are no offsite discharge points at any plant. However, the treatment plants are required to prepare and implement a SWPPP at each site to minimize impacts related to discharges of storm runoff associated with industrial activities. Capture and treatment of onsite storm runoff is one manner of ensuring no degradation of water resources/quality will result from managing storm flows on the treatment facilities in the future.

Operation of the satellite recycling plants would produce an effluent adequate for irrigation, groundwater recharge, or other uses. It is not the intent for a satellite wastewater recycling plant to discharge to surface waters. However, a surface water discharge may be required when processed water cannot be used for recycling purposes, or if there is no longer any remaining capacity in the interceptor from which the raw wastewater is diverted. The treatment facilities at the satellite recycling plants would provide effluent that would meet discharge requirements for Title 22 uses and groundwater recharge. It is expected that storm water that falls on the satellite plants would be treated the same as for the other plants. It would be captured to the extent practicable and routed through the treatment process prior to discharge.

IEUA has demonstrated that it can consistently operate its treatment facilities in compliance with discharge requirements. By meeting future effluent discharge requirements through implementation of the WFMP, the operation discharges from the upgraded plants and satellite recycling plants are not forecast to result in any significant adverse impacts to water resources/water quality.

The wastewater conveyance systems would be located underground. Therefore, no impacts to water resources/water quality would occur with the operations of the wastewater conveyance systems, except under accident or upset conditions. IEUA has standing procedures as part of its Risk Management Plan to address such accidental releases of raw wastewater from either its sewers or its treatment facilities.

Recycled Water Master Plan

Construction

The RWMP would require construction of facilities necessary to interconnect and serve recycled water through the north and south recycled water distribution systems. All of the proposed facilities identified in the RWMP are proposed to be constructed in the near term (by 2010). These facilities include pipelines, inlet structures, pump stations, reservoirs, and minor modifications to existing or proposed recharge basins. Major construction activities are anticipated to include grading, excavation, installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation.

Construction of the new facilities would involve trenching, excavation, grading, paving, and structure construction. The movement of soil and the exposure of soil to wind, direct precipitation and storm runoff increases the erosion potential at areas of disturbance. Construction site wastes, such as accidental spills of construction materials, fuels, solvents, and concrete wash water can be picked up by storm runoff and transported offsite. The introduction of polluted storm runoff to surrounding waters both (surface and groundwater) could cause an adverse impact to water resources/water quality and designated beneficial uses.

Since the overall construction area for the projects under the RWMP is greater than five acres, a NPDES General Permit for storm water discharges associated with construction activities is required. A SWPPP would be prepared for each project site to ensure that no contaminated storm runoff exits the construction site. Appropriate BMPs would be identified at each site to prevent spills of construction materials. With the implementation of the SWPPP, impacts to water resources/water quality can be reduced to less than significant.

Operation

Operation of the RWMP is intended to reuse, to the extent practicable, recycled water produced at IEUA's Regional Water Recycling Plants, except for the 17,000 acre-ft/yr required to be released to the Santa Ana River (SAR) under the 1969 Santa Ana Judgment for Orange County's use. Operation of the RWMP would be developed in phases through the near term, up to 2010. The RWMP would implement a regional recycled water distribution system including:

Operation of the recycled water distribution system would deliver recycled water to IEUA contract agencies, other retail water utilities, direct industrial customers and to recharge basins where it will be blended with storm water and imported water to recharge the Chino Basin groundwater aquifers. By 2020 IEUA estimates that up to 70,000 to 75,000 AFY of recycled water can be reused in the Chino Basin.

Future operations at the RP-1, RP-4, RP-5, and CCWRF would produce an effluent that is expected to meet the more stringent total inorganic nitrogen requirement, which is anticipated to be between 8 to 10 mg/L and the ammonia-nitrogen discharge requirement, which is expected to be lowered to around 4.0 mg/L. These revised limits are anticipated for groundwater recharge. The upgraded treatment processes at each plant would allow them to continue to meet the discharge limits set forth in their respective NPDES permits.

Operation of the satellite recycling plants would produce an effluent adequate for irrigation, groundwater recharge, or other direct consumptive uses. It is not the intent for a satellite recycling plant to discharge to surface waters. However, a surface water discharge may be required when processed water cannot be used for recycling purposes, or if there is no longer any remaining capacity in the interceptor from which the raw wastewater is diverted. The treatment facilities at the satellite recycling plants would provide effluent that would meet discharge requirements for Title 22 uses and groundwater recharge.

IEUA plans to recharge 20,000 to 30,000 AFY of recycled water at nineteen recharge facilities in the Chino I and Chino II subbasins. As stated previously, there is no assimilative capacity in Management Zones 1, 2 and 3 for TDS or TIN. These proposed management zones and objectives are more restrictive than the existing objectives. For planning purposes, the compliance strategy described in the following text is designed to comply with the proposed new management zones and objectives.

Chino Basin Watermaster's Optimum Basin Management program (OBMP). The CBWM developed a management program for the Chino Basin and described this plan in the Phase 1 Report Chino Basin Optimum Basin Management Program (WE, 1999). Subsequently, the Peace Agreement was consummated by the Parties to the Chino Basin Judgment in June 2000, and a program environmental impact report was prepared and certified in July 2000. Two key elements of the OBMP are:

- the construction of 40 MGD of new desalting facilities in the lower Chino Basin;
- the construction of recharge improvements that will increase storm water recharge by about 19,000 AFY and supplemental water recharge capacity by about 80,000 AFY.

Supplemental water consists of imported water and recycled water. The OBMP envisioned recycled water recharge ranging from 20,000 to 30,000 AFY. The recycled water recharge plans proposed by IEUA (RWMP) were included in the OBMP.

TDS and TIN Compliance with the Basin Plan. The TDS and TIN of IEUA tertiary treated effluent exceeds the proposed TDS and TIN objectives in groundwater Management Zones 1, 2 and 3. Therefore, the TDS and TIN in the recycled water must be reduced to a concentration less than or equal to their respective objectives or an offset program must be implemented. In the OBMP development and the certified OBMP PEIR it was assumed that an offset program would be used to mitigate the recharge of recycled water with TDS and TIN above the objectives.

The offsets created in the OBMP for the recharge of recycled water consists of the dilution of the recycled water with new storm water recharge and TDS and TIN removal from groundwater prior to use by the new desalter facilities (production and treatment of high TDS and TIN groundwater down gradient of the recycled water recharge). Tables 4.5-11a and 4.5-11b illustrate the TDS and TIN mitigation capacity for the new storm water recharge and desalter facilities for various levels of recycled water recharge. The TDS and TIN offsets created by the recharge of new storm water and the new 40 MGD desalter facilities will more than offset the TDS and TIN mitigation obligation created by recycled water recharge. In fact if for whatever reason only half the new storm water recharge were to occur or half the desalter capacity were constructed, there would still be sufficient mitigation capacity available to offset the TDS and TIN mitigation obligation created by recycled water recharge.

In summary, there is no assimilative capacity available in the Chino Basin that would allow the recharge of recycled water without mitigation for TDS and TIN. The CBWM developed a groundwater management program for the Chino Basin and has certified a PEIR for the OBMP, and is currently designing new recharge and desalter facilities that implement the OBMP. The funding for the new recharge and desalter facilities has been secured and construction of these facilities will be completed by the end of 2005. The recycled water recharge being proposed by IEUA was included as supplemental water replenishment source in the OBMP water supply plan. The OBMP allocated some of the TDS and TIN benefits created by the new storm water recharge and desalter facilities to completely offset the TDS and TIN mitigation obligation created by the recharge of recycled water.

It should also be noted that there are other Basin Plan compliance strategies being investigated by the CBWM and IEUA that would have the same effect as the offset described above. IEUA has compiled a salinity mitigation action plan that consists of the following program elements.

Table 4.5-11a
Comparison of TDS Mass Loads to Groundwater in Excess of TDS Objectives and TDS Offset Credits Created by Other OBMP Projects

Recycled Water Recharge		TDS Offset Capacity		
Volume (acre-ft/yr)	Mass of TDS[1] (tons)	Stormwater Recharge[2] (tons)	Desalter[3] (tons)	TDS Mitigation Credits (tons)
5,000	1,259	- 4,218	-19,534	-22,493
10,000	2,517	- 4,218	-19,534	-21,235
15,000	3,776	-4,218	-19,534	-19,976
20,000	5,034	-4,218	-19,534	-18,718
25,000	6,293	-4,218	-19,534	-17,459
30,000	7,551	-4,218	-19,534	-16,201

Notes: 1 Mass based on recycled water recharge times difference of TDS concentration in recycled water and the TDS objective.

2 Mass credits based on 20,000 acre-ft/yr of new stormwater recharge at 100 mg/L.

3 Mass credits based on 40 MGD desalter facility producing about 53,000 acre-ft/yr of groundwater with TDS of 800 mg/L.

Table 4.5-11b
Comparison of TIN Mass Loads to Groundwater in Excess of TIN Objectives and TIN Offset Credits Created by Other OBMP Projects

Recycled Water Recharge		TIN Offset Capacity		
Volume (acre-ft/yr)	Mass of TIN[1] (tons)	Stormwater Recharge[2] (tons)	Desalter[3] (tons)	TIN Mitigation Credits (tons)
5,000	48	-54	-609	-616
10,000	95	-54	-609	-569
15,000	143	-54	-609	-521
20,000	190	-54	-609	-473
25,000	238	-54	-609	-426
30,000	286	-54	-609	-378

Notes: 1 Mass based on recycled water recharge times difference of TIN concentration in recycled water and the TIN objective.

2 Mass credits based on 20,000 acre-ft/yr of new stormwater recharge at 1 mg/L-N.

3 Mass credits based on 40 MGD desalter facility producing about 53,000 acre-ft/yr of groundwater with TDS of 20 mg/L-N.

Source: OBMP 1999.

IEUA staff is evaluating strategies to reduce the salinity of the effluent from the Regional Wastewater Reclamation Plants. As part of the WFMP, the wastewater collection and treatment facilities have been reconfigures to preserve high quality recycled source waters in areas sensitive to the salinity impacts of water reuse. This has resulted in a system configuration that ultimately increases the size of RP-4 to emphasize the capture of low salinity waters for recycling. The IEUA is also investing in programs to improve water supply quality, such as responsible management of organic residuals within the Chino Basin. The IEUA is the lead agency for a co-composting facility that has resulted in the diversion of 83,000 tons of salt away from the groundwater basin since it began operation in June 1995. In furtherance of the salt diversion goal, IEUA has completed construction of its first two manure energy projects that, in addition to generating power, result in annual salt diversions of 1,600 tons.

Other strategies include:

1. Identify and implement opportunities to reduce water softener salt loadings, including voluntary conversion of self-regenerating water softeners through a water/energy conservation incentive program.
2. Identify opportunities to divert industrial discharges (TDS in excess of 500 mg/L) to the NRWS (SARI and CSDLAC).
3. Identify and implement opportunities in IEUA treatment plant operations to reduce salinity contributions.
4. Support water conservation measures that minimize impacts on salinity at water reclamation plants.
5. Participate in external efforts to evaluate salinity contributions in wastewater and develop salinity management strategies.
6. Support implementation of the Salinity Management Study Recommendations
7. Implement the MWD Conjunctive Use (dry year) Storage Program, which may include six or more ion exchange plants in the Chino Basin to treat high nitrate groundwater.

The above programs can substantially reduce salt loading within the Chino Basin and further serve to mitigate the salt additions through recharge of recycled water. For example, assuming a 100,000 AFY MWD Program, up to 15,000 tons of nitrate can be removed from the Basin, which is greater than the nitrate load from recharge 25,000 AFY of recycled water.

To support recharge of recycled water, groundwater-monitoring wells will be installed in the vicinity (upstream and downstream) of the recharge basins that will receive recycled water for recharge. A total of 40 or more monitoring wells will be installed over the next ten years. By meeting the effluent discharge requirements and monitoring groundwater on a regular basis, uses of recycled water are not expected to result in adverse impacts to water resources/water quality. Monitoring could be used to measure the impacts on water quality and recharge operations could be modified based on the monitoring to ensure that there are no unmitigated adverse impacts downstream.

Perhaps most importantly, the data in Tables 4.5-3 and 4.5-4 demonstrate that recharge of effluent from IEUA reclamation plants will not cause any violation of the primary drinking water standards, the most fundamental criteria for evaluating water quality impacts of the proposed RWMP.

Organics Management Master Plan

Construction

Major construction activities for the OMMP facilities would include: demolition, excavation, grading, pipeline installation, landscaping, mechanical equipment installation, and electrical installation. The movement of soil, and the exposure of soil to wind and storm runoff increases the erosion potential. Construction site wastes, such as accidental spills of construction materials, fuels, solvents, and concrete wash water can be picked up by storm runoff and transported offsite. The introduction of polluted storm runoff to surrounding waters both (surface and groundwater) could cause a significant adverse impact to water resources/water quality and designated beneficial uses.

Since the overall construction area for the projects under the RWMP is greater than five acres, a NPDES General Permit for storm water discharges associated with construction activities is required. A SWPPP would be prepared for each project site to ensure that no contaminated storm runoff exits the construction site. Appropriate BMPs would be identified at each site to prevent spills of construction materials and contaminated runoff leaving the site. With the implementation of the SWPPP, impacts to water resources/water quality can be reduced to less than significant.

Operation

The OMMP is intended to make IEUA more self-sufficient in managing biosolids due to a reduction in available sites for land application, reduced landfill capacity, and an opportunity to develop an alternative energy source through the combination and conversion of waste streams through anaerobic digestion into power. The OMMP would result in beneficial impacts to water resources/water quality in that it is removing biosolids, manure, and green waste from various locations that could be transported off site or leach into the ground. This material would be treated at facilities that are enclosed and designed to keep storm runoff away from storage areas.

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)?

Wastewater Facilities Master Plan

Construction Phase

Construction of the new reclamation plant facilities would be within the existing property boundaries of the various treatment plants. The satellite recycling plants would be constructed on vacant lots or at an existing treatment facility in the City of Upland. New sewer lines will be installed within existing road rights-of-way. Water use during construction is expected to be minimal, and much of the construction water can be recycled water. Given the RWMP proposal to increase direct use and recharge of recycled water, the proposed consumption of water during construction will be more than fully offset. Therefore, no adverse impact to groundwater supplies would occur.

Operation Phase

The increase in water usage at the new facilities is expected to be minimal. Recycled water is used for Title 22 irrigation and other uses at the facilities, thus reducing the need for potable water at water reclamation plants. There would be an increase in impervious ground surface as a result of the new facilities. However, this increase would be very small in relation to the existing open areas in the Chino Basin where recharge occurs, and would be directed to the treatment plants. Further, the proposed recharge program (which includes an estimated 70,000-80,000 AFY of storm water, imported water and recycled water recharge) by CBWM, IEUA and others will be responsible for substantially increasing future recharge in the Chino Basin. Therefore, no adverse impact to groundwater supplies would occur, and the actual impact from future plant operations is forecast to be beneficial.

Recycled Water Master Plan

Construction Phase

Water use during construction activities of the new RWMP facilities is expected to be minimal. Water use during construction would be primarily for dust suppression as necessary. Please refer to the discussion above regarding WFMP impacts. Therefore, no adverse impact to groundwater supplies would occur.

Operation Phase

As noted above, the recharge program has the potential to substantially increase the quantity of water available for production in the Basin, which is a beneficial impact. Operation of the projects in the RWMP would augment groundwater supplies by recharging recycled water, imported water and storm water through the 20 recharge basins described in Chapter 3 which are already being improved as part of the project already approved by IEUA. The safe yield prior to new recharge for the Basin is assumed to be 140,000 AFY. The recharge program analyzed in the OBMP proposed to recharge a range of 63,000 to 88,000 AFY (Memorandum from Mark Wildermuth to Traci Stewart, April 22, 1999).

It is anticipated that this quantity is necessary in order to meet replenishment obligations, given the ability to recharge State Project Water (SPW) and storm water every 7 out of 10 years. In a one-year period, the quantity of groundwater recharged into the Basin may increase the quantity of water in the Basin by a maximum of 88,000 AFY. This recharge plan assumes that most of the recharge will occur above the Interstate-10 Freeway and that this water will be recaptured (i.e. pumped) before it has the ability to flow out the southern portion of the basin as rising groundwater into the Santa Ana River as part of the RFIP. Desalters are a part of the OBMP and will act as a hydraulic control mechanism to prevent the outflows of this recharged water from the basin. The 88,000 AFY is the ultimate goal stated in the OBMP for recharge, however, pumping will also have increased by the time this goal is reached, so there will be no additional outflows from the basin resulting from the recharge program. The general effect that is forecast to occur will be an increase in local water available for use and a decrease in the use of imported water – a statewide benefit.

The term *hydraulic control* refers to a condition where groundwater production in Chino Basin is used to maximize streambed recharge in the Santa Ana River, and to minimize or eliminate rising groundwater losses to the Santa Ana River. CBWM recently completed an analysis of hydraulic control in the lower Chino Basin. The results were published in draft form in January

2002. The final report is expected to be available in June 2002. The conclusion of the hydraulic control investigation was that hydraulic control, under existing conditions and with the desalter capacity increased to 20 MGD, appears to occur. The report recommends specific surface water and groundwater monitoring be done to verify that hydraulic control is occurring and to provide data to improve CBWM's ability to model groundwater conditions and surface water/groundwater interactions in the lower Chino Basin.

Hydraulic control is an important management tool in the Chino Basin because it maximizes the yield of the basin by maximizing streambed recharge in the Santa Ana River upstream of Prado Flood Control Basin and minimizes or eliminates rising groundwater losses in the Santa Ana River. Hydraulic control is necessary to ensure that groundwater, heavily contaminated with nitrate and TDS, does not discharge to the river and impact water users in Orange County. Both of these goals are stated in the OBMP, and the OBMP has specific facilities and operating elements to cause and maintain hydraulic control. CBWM proposes to maintain hydraulic control by:

- 50 MGD of desalting facilities in the lower Chino Basin designed and operated to maximize hydraulic control
- Controlled recharge of supplemental water for replenishment purposes to reduce north-south hydraulic gradients north of the desalters
- Managing future storage and recovery programs so that hydraulic control is maintained

CBWM and IEUA will conduct monitoring programs to determine the state of hydraulic control, use these data to modify OBMP operations to maintain hydraulic control, and use these data to update CBWM's modeling tools.

Organics Management Master Plan

Construction Phase

Water use during construction activities of the new OMMP facilities is expected to be minimal. Water use would be primarily for dust suppression. Please refer to the discussion under the WFMP above. Therefore, no adverse impact to groundwater supplies would occur.

Operation Phase

The OMMP facilities are expected to use water during operations. The use of water at the facilities is expected to be minimal and would therefore, not result in impacts to groundwater supplies, which will be fully offset by the recharge program described above.

c. <u>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 onsite or offsite?</u>

Wastewater Facilities Master Plan

Construction Phase

Construction activities at the various sites would result in movement of soil and disturbance of ground surfaces. The movement of soil, and the exposure of soil to wind, direct precipitation and storm runoff increases the erosion potential on site and potential for siltation of streams offsite. Currently, the majority of storm water and non-storm water flows at existing facilities drain to collection points within the facilities boundaries and this water is discharged into the headworks for treatment. Very little runoff leaves the plant sites. However, existing plant drainages may be temporarily affected during construction, which could result in potential impacts caused by erosion and siltation. Site-specific SWPPPs will be prepared and implemented for each construction project. BMPs will be implemented to reduce and/or eliminate erosion of disturbed ground surfaces from the site by wind or rain. With implementation of the SWPPP, no erosion or siltation impacts would occur.

It is possible that construction of some of the trunk sewers could cross existing stream channels. In almost all cases, crossings of stream channels will be made within existing road rights-of-way and no disturbance of the channel or drainage pattern will be required. Any disturbance of a stream channel, where the drainage pattern may be temporarily altered, will be required to maintain adequate capacity within the channel to handle flows without causing erosion or siltation. This will be accomplished through inclusion of sufficient BMPs and provision to maintain flows within the SWPPP for the specific trunk sewer.

Operation Phase

Storm water and non-stormwater flows at existing facilities currently drain to collection points within the facilities boundaries and this water is discharged into the headworks for treatment. Drainage patterns during operations are expected to remain the same as existing, with the majority of runoff being captured and treated at the plants. Bare ground surfaces would be landscaped to prevent erosion onsite. No impacts to existing drainage would occur, nor would erosion or siltation impacts occur during operations of the WFMP facilities. Sewer pipeline alignment will either be paved or compacted and graded along road right-of-way shoulders. Since these facilities are placed below the ground surface, no alteration in drainage patterns will result in these areas and no adverse impact will occur.

Recycled Water Master Plan

Construction Phase

Construction activities in the recharge basins would consist of deepening and regrading of the basins to optimize recharge capabilities. Typically, there is no drainage from the basins, with the exception of overflows. Construction of reservoirs and pump stations would not require large sites and would not be expected to impact existing drainage patterns based on a review of all the site locations for these facilities. Construction activities would result in movement of soil and disturbance of ground surfaces. The movement of soil, and the exposure of soil to wind and storm runoff increases the erosion potential on site and potential for siltation of streams offsite.

Pipeline alignments that cross any blue line streams may require temporary alteration of those streams during construction. Construction methods for pipeline installation have not been determined at this time. Alterations to streams could result in an impact to existing drainage patterns of those streams. Construction activities for pipelines would require trenching and temporary storage of sediment near the trench. The movement of soil, and the exposure of soil to wind and storm runoff increases the erosion potential on site and the potential for siltation of streams offsite.

Site-specific SWPPP would be implemented at the various project sites prior to construction. No impacts to drainage patterns of the basins or facilities would occur, nor would erosion or siltation impacts occur.

Operation Phase

Operations of the RWMP projects would not have an impact to existing drainage patterns at the project sites.

Organics Management Master Plan

Construction Phase

Construction activities at the various OMMP project sites would not effectively change the drainage patterns of the sites. However, there would be movement of soil and disturbance of ground surfaces at the sites. The movement of soil, and the exposure of soil to wind, direct precipitation and storm runoff increases the erosion potential on site and potential for siltation of streams offsite, which could result in potential impacts caused by erosion and siltation. Site-specific SWPPPs will be prepared and implemented for each construction project. BMPs will be implemented to reduce and/or eliminate erosion of disturbed ground surfaces from the site by wind or rain. With implementation of the SWPPP, no erosion or siltation impacts would occur.

Operation Phase

Operations of the OMMP projects would not have an impact to existing drainage patterns at the project sites.

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 of amount of surface runoff in a manner which would result in flooding onsite or offsite?

Wastewater Facilities Master Plan

Construction Phase

Most of the WFMP facilities would be constructed within the boundaries of existing facilities and would not alter existing drainage patterns nor result in flooding onsite or offsite. For those offsite pipelines the potential to for short-term alteration in drainage patterns is evaluated above and determined to be nonsignificant. Therefore, no adverse impact would occur.

Operation Phase

The WFMP facilities would operate within the boundaries of existing facilities or would be located below ground level and would not alter existing drainage patterns nor result in flooding onsite or offsite. Therefore, no impacts would occur.

Recycled Water Master Plan

Construction Phase

Construction activities in the recharge basins would consist of deepening and regrading of the basins to optimize recharge capabilities. Typically, there is no drainage from the basins, with the exception of overflows. Construction of reservoirs and pump stations would not require large sites and would not be expected to impact existing drainage patterns. Construction activities of the RWMP facilities would not result in flooding onsite or offsite. Note that recharge basin modification will allow the storage of more storm runoff which will reduce the potential for onsite or downstream flooding. It should be noted that the modifications of the flood control and recharge basins have already been approved and are being implemented under the Watermaster recharge plan. The environmental evaluation for that document has already been completed and the project was approved.

Pipeline alignments that cross any blue line streams may require temporary alteration of those streams during construction. Construction methods for pipeline installation have not been determined at this time. Alterations to streams could result in an impact to existing drainage patterns of those streams. Since, construction activities for pipelines are temporary and continually move along the alignment, no impacts to onsite or offsite flooding would occur.

Operation Phase

Currently, the CBWM, the San Bernardino County Flood Control District (SBDFCD), the Chino Basin Water Conservation District (CBWCD) and the IEUA are improving the groundwater recharge basins within the Chino Basin for increased capture and recharge of storm water. This effort is being funded, in part by Proposition 13 funds, and in part by local funds on a 50/50 basis. This project (the Chino Basin Recharge Facilities Improvement Project) began with identification of the need to improve the recharge capability in the Chino Basin when the Optimum Basin Management Plan (OBMP) and its associated Program Environmental Impact Report were completed in July 2000 and was further developed with the completion of the OBMP Recharge Master Plan and its associated environmental documentation in August 2001.

Under the Chino Basin Judgment, and as part of the OBMP and Recharge Master Plan, recycled water has always been considered as a potential high quality, reliable, economic source of new water for the Chino Basin. Projected quantities and qualities were considered during development of the OBMP and Recharge Master Plan. However, at what specific times and how much recycled water would be recharged was not addressed, primarily because the basin improvements to increase the capture of storm water and recharge of imported water were planned irrespective of whether recycled water would someday be a source of water for recharge at a particular basin.

As part of the Facilities Improvement Project, the flow-through basins in specific channels and the flow-by basins will be enlarged. This will increase the ability to control flood waters and will in turn enhance the groundwater storage in the Chino Basin This best quality water and the most economical source of water in the Chino Basin is generally storm water. Capture of additional storm water and improve ability to recharge to the aquifer in the Basin is a major goal of he Chino Basin OBMP, Program Elements 2, 3 and 8. Under the OBMP and the Recharge Master Plan, it was anticipated that storm water recharge would be used to mitigate or offset the higher total dissolved solids in the recharge of recycled water.

Several groundwater recharge basins have been developed within the streams or channels for flood control, these flow-through facilities include: the San Sevaine basins – 1 through 5, Etiwanda Spreading Basins, Hickory and Banana basins, the 8th Street basins (formerly known as the 7th & 8th Street basins), Jurupa, and Wineville basins. Additionally, 13 flow-by basins have been developed too. All of the 20 recharge locations with 47+ basins will be used to capture, store and recharge storm water, with surplus water released to the flood control channels on a controlled basis. These same basins will be used to recharge imported and recycled water during lull periods when storms are not forecast mainly between October and April.

Through proper management, the quantity of imported or recycled water in the basins will be highly controlled when a storm event is forecast, thereby assuring flood control as top priority. Proper management will also avoid the need to release and lose water from the basins; this will be accomplished by limiting deliveries to quantities that can be recharged in two to three days based on established criteria agreed upon by the entities involved. A System Control and Data Acquisition system (SCADA) will be installed at each basin to monitor the amount of water in the basin and the rate of percolation. When a storm is forecast for the Inland Empire area, delivery of imported and/or recycled water to the respective basins will be discontinued. The remaining water will be allowed to percolate in anticipation of the storm.

Under the CBWM OBMP, operation and maintenance of each site's respective basins will receive greater attention than in past years. The 20 groundwater recharge locations with the 47 or more recharge basins are being redeveloped to capture and store greater quantities of storm water. Capability to dewater the respective basins in the event of a major storm will be improved by installing larger discharge pipes to speed up the dewatering process. In some cases, pump stations will be installed to dewater stored water at elevations lower than the basins outlets. Table 3-14 lists the proposed new diversion flow rates for nine flow-by basins. These basins have not been fully utilized in the past for easement of flood hazards.

The 11 flow-through basins are planned to be enlarged and SCADA control equipment will be installed to instantaneously monitor each basin (Table 3-14). These same activities are planned for the flow-by basins. The benefits are two-fold: (1) the ability to control greater quantities of flood water – the capture, storage and release under improved controlled conditions; and (2) the benefit to recharging greater quantities of storm water, thereby improving the quality of groundwater and the resultant savings from reduced quantities of imported SPW needed to meet the growth needs of the residents, industries and farmers of the Chino Basin. Jurupa and Wineville basins have very low percolation rates, thus, these two basins will only be used for retention basins to control flood hazards. The Jurupa Basin will be utilized as a storage basin for storm water, imported water and recycled water that will be pumped to the RP-3 location for groundwater recharge. The three sources of water will be delivered to the Declez Basin by releasing the delivered water from the RP-3 facility to the Declez channel and then recharged in the Declez Basin.

Therefore, the redevelopment of both the flow-through and flow-by groundwater recharge basins would result in the potential to decrease downstream flood hazard. There will be no net increase in downstream flood hazards.

A concern was expressed that an increase in discharge of recycled water to Cucamonga and Chino Creek will have a significant impact on the dry-weather pool levels behind Prado dam. The impact will be negligible as described in the Biology section of this PEIR. While it is true that the future discharge to Cucamonga and Chino Creek may increase in the future the pool level behind Prado will not significantly increase. Prado Dam has operable outlet works that can be adjusted to control pool levels and accommodate potential increases in recycled water discharge.

Organics Management Master Plan

Construction Phase

Construction of the OMMP facilities at the various project sites would not alter existing drainage patterns and would not result in flooding onsite or offsite. Therefore, no adverse impact would occur.

Operation Phase

The operation of the OMMP facilities would not alter existing drainage patterns nor result in flooding onsite or offsite. Therefore, no adverse impact would occur.

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?

Wastewater Facilities Master Plan

Construction Phase

Ninety-nine percent of storm water runoff is currently retained onsite at RP-1, RP-4, and CCWRF. The sites are graded to route storm water runoff to onsite catch basins that then transport the storm water into the headworks for treatment. There are no offsite discharge points at any plant. During construction of the facilities proposed under the WFMP, drainage patterns at the proposed construction sites would be temporarily disrupted due to excavation and grading activities. The quantity of runoff leaving the sites may be somewhat reduced during project construction compared to existing conditions, due to the exposure of bare ground surface (allowing water to infiltrate the ground) and because some water will pool in excavated areas rather than drain into catch basins. These temporary changes in drainage conditions at the site are not considered significant. After construction is complete, drainage conditions on site would be restored similar to existing conditions, with storm runoff transported to catch basins and then into plant headworks for treatment. There would be no significant impacts to storm drainage systems.

Operation Phase

Increases in impervious surface area that would result from development of the facilities proposed in the WFMP are not expected to create runoff volumes that would exceed the capacity of existing onsite storm water drainage facilities.

Landscaping and plant screening of RP-1 in the near term would not increase impervious surface area at the site. Development of long-term projects on-site is assumed to result in an approximate 20 percent increase in impervious surface area at RP-1. Currently storm runoff on the east side of TP-1 is directed to a waste wash water basin, and then to a settling basin. Effluent from the settling basin is then directed to the filter back wash and into the headworks at RP-1 for treatment. On the west side of the site, runoff flow would be directed to dissolved air floatation tank (DAFT No. 3). All storm runoff is retained and treated onsite. The existing, onsite storm water drainage system would accommodate increased runoff volumes that would result form the estimated increase in impervious surface area resulting from immediate and long-term projects at RP-1 (Arjunan, 2002). There would be no adverse impacts to existing storm drainage capacity.

Minimal construction activities would take place in the near-term at CCWRF to increase treatment capacity to 12 MGD. These activities are not expected to significantly increase impervious surface area at the site. Long-term projects at the CCWRF are assumed to result in an approximate 15 percent increase in impervious surface area. Currently, onsite storm runoff is directed to an emergency storage pond, which has a capacity of 10 MGD. From the pond, storm water is transported to the headworks at CCWRF for treatment onsite. All storm water is retained and treated onsite. The increases in storm runoff that would result from increases in impervious surface area at CCWRF are not anticipated to adversely impact existing stormwater drainage capacity at the site.

Immediate term expansion plans at RP-4 would expand treatment capacity to 14 MGD at the 28-acre site. This is anticipated to result in an approximate 10 percent increase in impervious surface area onsite. Long-term projects at the RP-4 include expansion of liquid treatment facilities to 35 MGD, and expansion of biosolids treatment facilities to 40 MGD, and are expected to result in an approximate 50 percent increase in impervious surface area onsite. Currently, all onsite storm runoff is directed to a storage pond, from where it is transported back into the headworks at RP-4 for treatment. The existing, onsite storm water drainage system would accommodate increased runoff volumes that would result from the estimated increase in impervious surface area resulting from immediate and long-term projects at RP-4 (Arjunan, 2002). There would be no adverse impacts to existing storm drainage capacity.

Development of the proposed two satellite plants would occur in the near and long term, on two separate sites that would each occupy approximately two to four-acres. Development of the satellite plants is anticipated to result in up to 75 percent increases in impervious surface area at each site. Due to the relatively small size of the satellite plants, this is not expected to create runoff volumes that would exceed the capacity of existing storm drainage facilities.

Installation of new sewer trunk lines will not substantially increase runoff because the pipeline alignment are already highly disturbed and compacted and the pipelines would be placed below ground surface.

Implementation of the WFMP would not require substantial alterations to existing stormwater drainage facilities at RP-1, RP-4, and CCWRF. Although the sites for the satellite plants have not yet been identified, impacts to storm drainage that could result from development of these plants are not expected to be significant due to the relatively small area required from these facilities. Therefore, impacts to existing storm drainage systems are not expected to occur with implementation of the WFMP.

Recycled Water Master Plan

Construction Phase

Construction activities would involve modifications to the recharge basins (e.g. deepening and reshaping the bottom to maximize percolation, spill ways, and berms), new pipelines, pump stations, and reservoirs, however these improvements have already been evaluated and approved as part of Watermaster's recharge program and RFIP. It is assumed that construction activities within the recharge basins would be conducted during the dry season to avoid storm events. No storm runoff is expected from the recharge basins. Storm runoff could be expected from the pump stations and reservoir locations. However, the amount of runoff from these facilities would be minimal due to the anticipated areas required for these facilities. No impacts to existing storm sewers are anticipated during construction of these facilities.

Operation Phase

Increases of impervious ground surface created by the projects identified under the RWMP are expected to be minimal. The projects that would generate impervious ground surface would be the pump stations and reservoirs. No impacts to storm drains would occur with the operation of these facilities.

Organics Management Master Plan

Construction Phase

During construction of the facilities proposed under the OMMP, drainage patterns at the proposed construction sites would be temporarily disrupted due to excavation and grading activities. The quantity of runoff may be somewhat reduced during project construction compared to existing conditions because some water will pool in excavated areas rather than run off the construction areas. Construction of the proposed projects are not expected to impact existing storm drainage systems.

Operation Phase

Increases in impervious surface area that would result from the projects proposed in the OMMP would result in increased storm runoff volumes. All facilities proposed under the OMMP would be designed to retain storm runoff onsite, with the exception of the CIM Composting Facility. If located at the RP-5 site, the CIM Composting Facility runoff would be managed internally in the same manner as the remainder of the site.

The ASP composting facility at RP-1 would occupy a 0.9-acre site in the southwest portion of RP-1. The facility would be designed to direct storm water to the pervious biofilter, which would act as a catch basin. Storm runoff would undergo preliminary treatment that would include removal of solids, and would then drain back to the headworks of RP-1 for treatment (Robinson, 2002). No off-site discharge points would be required. Offsite local storm drains would not be adversely impacted, and no significant impacts would occur.

The Dairy Digester Lagoon Pilot Project located at the Vander Poel Dairy would occupy a 10.8-acre site, and is expected to result in an approximate 90 percent increase in impervious surface area at the site. Development of this facility would occur in the immediate term. Storm runoff would be directed to one of five small ponds located onsite, where it would undergo preliminary treatment involving removal of solids, before it would percolate into the ground through the semi-permeable lining of the ponds (Robinson, 2002). No offsite discharge points would be required, and all storm water would be retained onsite. No adverse impacts to storm drainage are anticipated.

The IEUA Regional Composting Facility would occupy a 9.4-acre site adjacent to RP-4, and is expected to result in an approximate 80 percent increase in impervious surface area at the site. All storm runoff at the site would be routed to the pervious biofilter, which would act as a catch basin. Storm runoff would undergo preliminary treatment that would include removal of solids, and would then drain back to the headworks of RP-4 for treatment (Robinson, 2002). No off-site discharge points would be required. Storm water drainage at RP-4 and offsite local storm drains would not be adversely impacted.

The CIM Composting Facility would occupy a 25-acre site, resulting in an approximate 80 percent increase in impervious surface area at the site. It is anticipated that the pervious surface area onsite would primarily include the biofilter and landscaped areas. Storm runoff would not be retained and treated onsite. Existing storm runoff west of Mountain Avenue is currently directed to a natural flow line that runs along the western boundary of RP-5. The City of Chino has plans to improve this flow line in the near-term. Storm runoff east of Mountain Avenue is directed to the Cypress Channel, which is jointly maintained by the San Bernardino County Flood Control, and the City of Chino. It is expected that storm runoff on the western portion of the project site would drain to the natural flow line along the western border of RP-5, and that storm runoff from the eastern portion of the project site would be directed to the Cypress Channel. Following near-term improvement to the natural flow line along RP-5, the increased storm runoff resulting from the proposed project is not expected to result in adverse impacts to storm water drainage (Indrawan, 2002).

The site for the proposed High Tech Manure Facility is unknown at this time, however the facility is expected to occupy seven acres, and result in an approximate 80 percent increase in impervious surface area at the site. All storm runoff would be directed to onsite berms that would transport runoff into the sewer system and then to a local wastewater treatment plant for treatment (Robinson, 2002). Based on the potential locations for this facility, storm water runoff from the site may be discharged to the Kimbal Interceptor for treatment at RP-5. The proposed project would not require any offsite storm water discharge points, and would not result in adverse impacts to storm drainage.

The ASP Composting Facility at RP-1, the Dairy Lagoon Digester Project, IEUA Regional Composting Facility, and High Tech Manure Facility would all be designed to retain all storm water onsite and are not expected to impact local storm drains. Implementation of the CIM Composting Facility would not retain storm water onsite, and runoff would flow offsite. Runoff from the CIM Composting Facility is not expected to adversely impact offsite storm water drainage systems. No adverse impacts to storm drainage would result from implementation of the OMMP.

f. <u>Otherwise substantially degrade water quality?</u>

Wastewater Facilities Master Plan

Construction Phase

Please see the discussion under 4.5.3.2.a Wastewater Facilities Master Plan – Construction Phase above.

Operation Phase

Please see the discussion under 4.5.3.2.a Wastewater Facilities Master Plan – Operation Phase above.

Recycled Water Master Plan

Construction Phase

Please see the discussion under 4.5.3.2.a Recycled Water Master Plan – Construction Phase above.

Operation Phase

The following is a list of proposed DHS regulations (as of 4/23/2001) that pertain to the planned recharge of groundwater with recycled water at surface spreading facilities (Figure 4.5-4) that IEUA requested WEI to analyze in this effort (per 2/17/2002 contract):

- Recycled water shall be retained underground for a minimum of 6 months prior to extraction for use as a drinking water supply, and shall not be extracted within 500 ft of a point of the recharge (i.e. the surface spreading facility).
- At a minimum, monitoring wells shall be constructed at each surface spreading facility or group of spreading facilities, as appropriate, at locations ¼-distance (+/-10%) and ½-distance (+/-10%) from the facility to the nearest down gradient domestic water supply well.

To evaluate these proposed regulations as they pertain to each potential surface spreading facility in Chino Basin that may be used for recycled water recharge, a series of figures were constructed that depict (i) a 500-ft horizontal buffer zone surrounding each spreading facility, (ii) the nearest down gradient domestic water supply well(s), and (iii) potential locations of monitoring well sites between the facility and the nearest down gradient domestic water supply well(s). These requirements for recycled water recharge to the individual basins are shown on Figures 4.5-5 through 4.5-27.

In most areas of the Chino Basin, groundwater seepage velocities within the saturated zone of the regional aquifers are about 1-2 ft per day. These seepage velocities are estimated based on modeling studies conducted for the OBMP PEIR and have been verified by studies on the flow rate of a groundwater waste discharge plume created by Kaiser Steel. At a seepage velocity of 2 ft per day, recycled water that was recharged at a spreading facility would not have traveled outside of the mapped 500-ft buffer zone surrounding the facility within a six-month period.

Given the availability of data during the preparation of the RWMP and this EIR, it is not possible to delineate the zone necessary to ensure six-month retention time. Pursuant to the proposed DHS regulations, an engineering report must be submitted for each planned recycled water recharge project. The engineering report will include, among other items, a hydrogeologic study that will evaluate and describe, in detail, the vertical and horizontal extent of the underground zone that defines six months of underground retention of the applied recycled water and the 500-ft horizontal buffer zone surrounding the facility. Detailed information regarding California Department of Health Service requirements for managing recharge of recycled water is provided in Appendix 8.7.

This proposed RWMP recharge projects do not change the results of the analysis of contaminated groundwater plume movement conducted in the OBMP PEIR with the implementation of the OBMP. Therefore, a new analysis of the direction and rate of transport of existing plumes within the Chino Basin is not required. Confirmation that recharge will not cause significant impact to contaminated groundwater plumes is provided in the OBMP PEIR, Section 4.5, and in a more recent detailed analysis of the contamination at the RP-3 site. A copy of this analysis is provided in Appendix 8.7.

Organics Management Master Plan

Construction Phase

Wastewater Facilities Master Plan

Construction Phase

None of the proposed projects to be constructed at RP-1, RP-4, CCWRF, and the satellite plants would be placed within a 100-year flood area. Therefore, no impacts to flood flows would occur.

Operation Phase

Operation of the WFMP facilities would not be within a 100-year flood hazard zone. Therefore, no impacts would occur.

Recycled Water Master Plan

Construction Phase

The RWMP facilities would not be constructed within a 100-year flood hazard zone. Therefore, no impacts would occur.

Operation Phase

Operation of the RWMP facilities would not be within a 100-year flood hazard zone. Therefore, no impacts would occur.

Organics Management Master Plan

Construction Phase

The digesters at RP-5 could be located within the United States Army Corps of Engineer's (COE) proposed Prado Dam Flood Elevation 566 Take Line. Facilities constructed below the 566 inundation elevation will require flood protection dikes and "foot to foot" earthwork compensation in the flood basin to meet the COE requirements. If construction occurs during the wet season, diversion structures would be required to keep flood flows away from the construction sites. Construction activities of the digesters could result in impeding or redirecting flood flows.

Operation Phase

Operation of the digesters at RP-5 is not expected to impede or redirect flood flows in the Prado Dam Flood Elevation 566 Take Line. However, IEUA will provide for off setting volumes in the channel and provide for fill.

i. <u>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?</u>

Wastewater Facilities Master Plan

Construction Phase

None of the proposed projects to be constructed at RP-1, RP-4, CCWRF, and the satellite plants would be placed within a 100-year flood area. Therefore, no adverse impacts to flooding would occur.

Please see the discussion under 4.5.3.2.a Organics Management Master Plan – Construction Phase above.

Operation Phase

Please see the discussion under 4.5.3.2.a Organics Management Master Plan – Operation Phase above.

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?

Wastewater Facilities Master Plan

Construction Phase

The WFMP does not include the construction of any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

Operation Phase

The WFMP does not include any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

Recycled Water Master Plan

Construction Phase

The RWMP does not include the construction of any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

Operation Phase

The RWMP does not include any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

Organics Management Master Plan

Construction Phase

The OMMP does not include the construction of any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

Operation Phase

The OMMP does not include any housing in the proposed projects and therefore would not place housing within a 100-year flood hazard area.

h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

The digesters at RP-5 could be located within the United States Army Corps of Engineer's (COE) proposed Prado Dam Flood Elevation 566 Take Line. Facilities constructed below the 566 inundation elevation will require flood protection dikes and "foot to foot" earthwork compensation in the flood basin to meet the COE requirements. If construction occurs during the wet season, diversion structures would be required to keep flood flows away from the construction sites. Construction activities of the digesters could result in an adverse impact by exposing people to flooding.

Operation Phase

Operation of the digesters at RP-5 would not expose people to flooding. Damage to the digesters due to flooding is not expected to occur. The digesters would be constructed to withstand flooding events.

Recycled Water Master Plan

Construction Phase

Please see the discussion under Organics Management Master Plan - Construction above. 4.5.3.2.d.

Operation Phase

Please see the discussion under Organics Management Master Plan - Operation above. 4.5.3.2.d.

Organics Management Master Plan

Construction Phase

Construction activities of the OMMP facilities would not expose people or structures to flooding hazards. Therefore, no impacts would occur.

Operation Phase

Operation of the OMMP facilities would not expose people or structures to flooding hazards. Therefore, no impacts would occur.

j. <u>Inundation by seiche, tsunami, or mudflow?</u>

Wastewater Facilities Master Plan

Construction Phase

There are no enclosed bodies of water located in the vicinity of the IEUA service area. Flooding associated with seiches (wave-like oscillations of water in an enclosed basin caused by earthquakes, high winds or other atmospheric conditions) is not anticipated at the WFMP project sites during construction.

Operation Phase

There are no enclosed bodies of water located in the vicinity of the IEUA service area. Flooding associated with seiches (wave-like oscillations of water in an enclosed basin caused by earthquakes, high winds or other atmospheric conditions) is not anticipated at the WFMP project sites during operations.

Recycled Water Master Plan

Construction Phase

Please see the discussion under Wastewater Facilities Master Plan - Construction Phase above.

Operation Phase

Please see the discussion under Wastewater Facilities Master Plan - Operation Phase above.

Organics Management Master Plan

Construction Phase

Please see the discussion under Wastewater Facilities Master Plan – Construction Phase above.

Operation Phase

Please see the discussion under Wastewater Facilities Master Plan - Operation Phase above.

4.5.4 Mitigation Measures

4.5.4.1 Construction

4.5-1 **For each Master Plans project construction site, regardless of size, a SWPPP will be prepared and implemented. Each plan shall identify the BMPs that will be used for that site to minimize the potential for accidental releases of any chemicals or materials on the site that could degrade water quality, including solid waste and require that any spills be cleaned up, contaminated material properly disposed of and the site returned to pre-discharge condition, or in full compliance with regulatory limits for the discharged material. At a minimum, BMPs shall achieve a 60 percent removal of sediment and other pollutants**

4.5-2 **Prior to authorizing contracts for drilling monitoring wells under the RWMP, IEUA will require the well driller to identify all chemicals that will be used at the drilling site and require the submittal of a SWPPP for review and approval before allowing the drilling to commence. A performance bond shall be provided by the driller to ensure that any residual contamination from will drilling can be corrected.**

4.5-3 **If the facilities are constructed in a flood-zone, the facility will be brought to a level above flood hazards, or hardened against flood related impacts. Additionally, if facilities must be located within flood plains or hazard areas, a flood management program to minimize impacts to people and surrounding property shall be created and implemented for each facility that may occur within these hazards areas.**

4.5.4.2 Operation

4.5-4 **The IEUA shall confer with the San Bernardino County Department of Transportation and Flood Control and for each flood control basin that is proposed to be utilized for recharging water to the Chino Basin, to define that amount of water that can be set aside as a conservation pool within existing flood control basins and specific operational parameters (such as time and 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.

4.5-5 **When recharge of recycled water with TDS greater than the water quality objective for TDS at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TDS to be exceeded. In addition, the amount of additional salt added to the Basin above the water quality objective shall be calculated and this amount shall be offset by blending with better quality TDS water (storm water) or other measures that remove salts from the Basin. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.**

4.5-6 **When recharge of recycled water with TIN greater than the water quality objective for TIN at a recharge site is utilized, IEUA will conduct modeling to identify the volume and rate of recharge that can be conducted without causing the Basin Plan water quality objective for TIN to be exceeded. Under no circumstance shall discharge of recycled water cause or contribute to a cumulative violation of Basin Plan water quality objectives or interfere with designated beneficial use for a water or groundwater body.**

4.5-7 **Pursuant to the proposed DHS regulations, an engineering report must be submitted for each planned recycled water recharge project. The engineering report will include, among other items, a hydrogeologic study that will evaluate and describe, in detail, the vertical and horizontal extent of the underground zone that defines six months of underground retention of the applied recycled water and the 500-ft horizontal buffer zone surrounding the facility.**

4.5-8 **When recharge of water is proposed within the vicinity of an existing or know groundwater quality anomaly (contaminated groundwater plume), modeling shall be conducted to determine whether recharge of the recycled water will increase the local hydraulic gradient and cause more rapid spread of the existing plume. If existing domestic water production wells will be impacted by the plume a minimum of one year earlier that under pre-existing conditions, or if significant qualities of additional groundwater (more that 5,000 acre-feet) will become contaminated within a five year period due to the recharge of water, an alternative location for recharge will be selected to avoid not only the loss of the recharged water due to contamination, but also additional high quality groundwater due to more rapid expansion of the contaminated plume.**

4.5-9 **Prior to implementation of any recharge projects to 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 storms events will be carefully monitored and in the event of a significant forecasted storm-event, recharge deliveries to the basins will be ceased until further notice is received form 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 basin at a time if such basin is also used for flood control activities. Additionally, each SBCFCB 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.**

4.5.5 Cumulative Impacts

For the three Master Plans' program elements at this stage of review, there is no potential for cumulative significant adverse impacts to water resources and water quality. Regarding water quality and compliance with water quality standards, the implementation of the proposed three master plans in conjunction with other water management programs (OBMP and MWD conjunctive use programs) will result in the gradual cleansing of the Chino Basin, particularly through the cumulative removal of salts within the Basin. Similarly, the proposed master plans, particularly the RWMP, will substantially increase the volume of groundwater supplies over the long-term. The project will not contribute to cumulative substantial depletion of groundwater, the creation of a net deficit in aquifer volume or the lowering of the regional or local groundwater table. The implementation of the master plans, in conjunction with other water management plans, is forecast to be beneficial to water resources within the Chino Basin.

Minor modifications in drainage patterns may occur and a potential for erosion and siltation on- and offsite may also occur, but mitigation required for these master plans can ensure that implementation of the proposed project does not contribute to cumulative significant degradation of surface water or groundwater quality.

Minor increases in runoff may occur over the short-term construction of the proposed facilities, but control of runoff in accordance with SWPPPs for proposed facilities will ensure that any short-term increase in runoff will not contribute to cumulative significant downstream flood hazards. Further, during operations the increased storage in the recharge basins (being implemented in support of OBMP storm water and imported water recharge programs) should reduce downstream flows in the future, which is a beneficial, not an adverse impact.

The recharge of recycled water, when combined with storm water and imported water recharge and when combined with salt removal programs, is not forecast to degrade water quality within the Chino Basin. The cumulative programs for water quality improvement, being implemented under the OBMP, will result in overall improvement of water quality within the Chino Basin. Regarding the effect of recharge of recycled water on local groundwater supplies, the cumulative effect of the recharge basins will be to remove certain areas from domestic water production. Measures to offset this impact have been provided to ensure that the cumulative loss of domestic water well production area is offset by increased capacity to produce potable water to meet municipal water supply needs.

After mitigation the proposed project will increase the cumulative exposure of occupied structures to significant flood hazards.

No significant cumulative effects have been identified for land use, population, geotechnical, air quality, transportation/circulation system, biological resources, noise, public services, utilities, or cultural resource issues.

Based on the analysis contained in this document and supporting documents, such as the OBMP PEIR, the proposed project is not forecast to cause or contribute to cumulative significant adverse environmental impacts of any kind.

4.5.6 Unavoidable Adverse Impacts

For the three Master Plans' program elements at this stage of review, there is no potential for unavoidable significant adverse impacts to water resources and water quality, let alone significant unavoidable adverse impacts. The three Master Plans would result in beneficial impacts to water resources by providing recycled water for groundwater recharge to reduce the IEUA's dependency for imported water. In addition, the OMMP project components would result in beneficial impacts to water quality by reducing pollutants such as TDS and nitrates from leaching into the Basin by removing and treating manure.

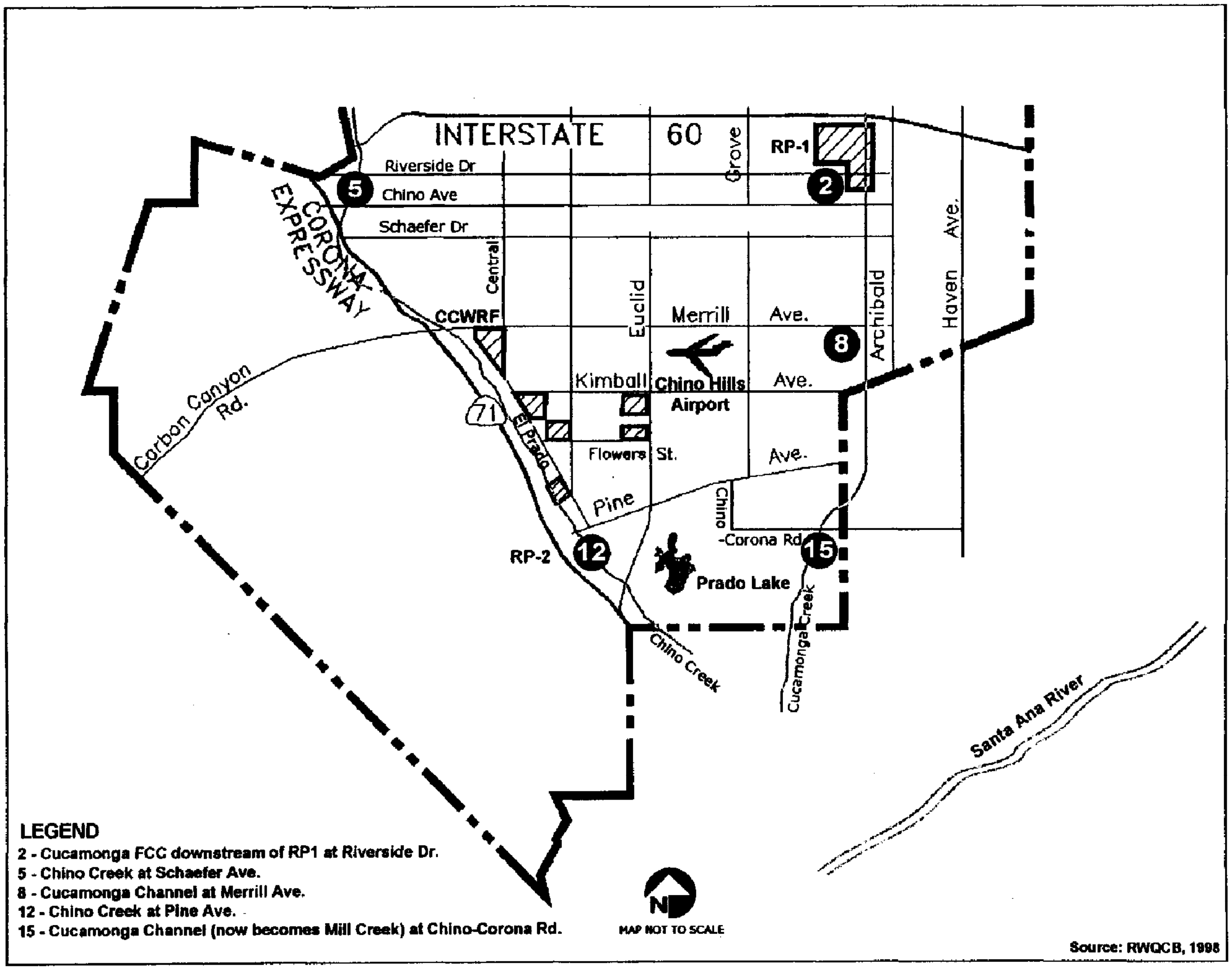


Figure 4.5-1

Water Quality Monitoring Locations

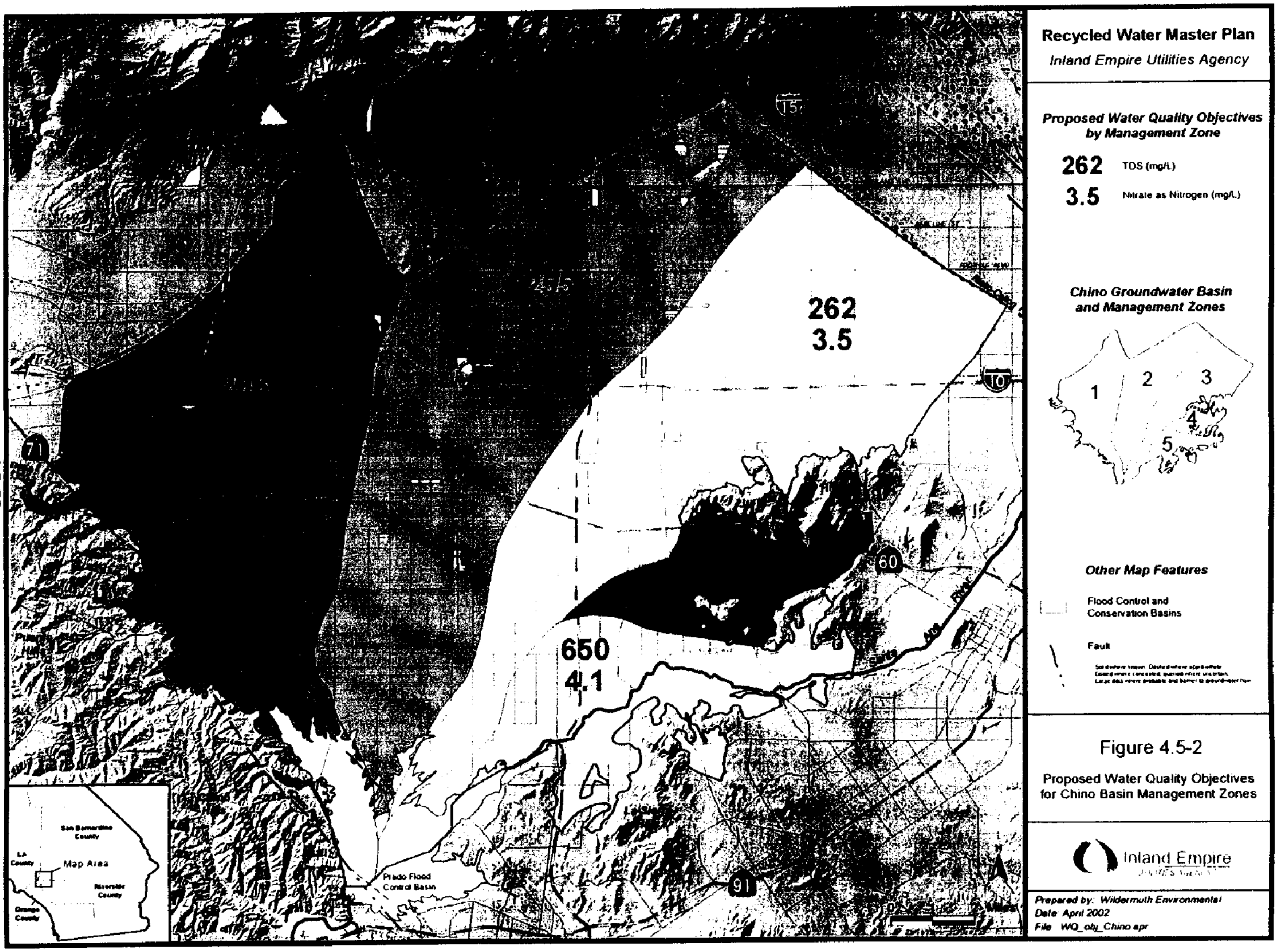


Figure 4.5-2

Proposed Water Quality Objectives for Chino Basin Management Zones

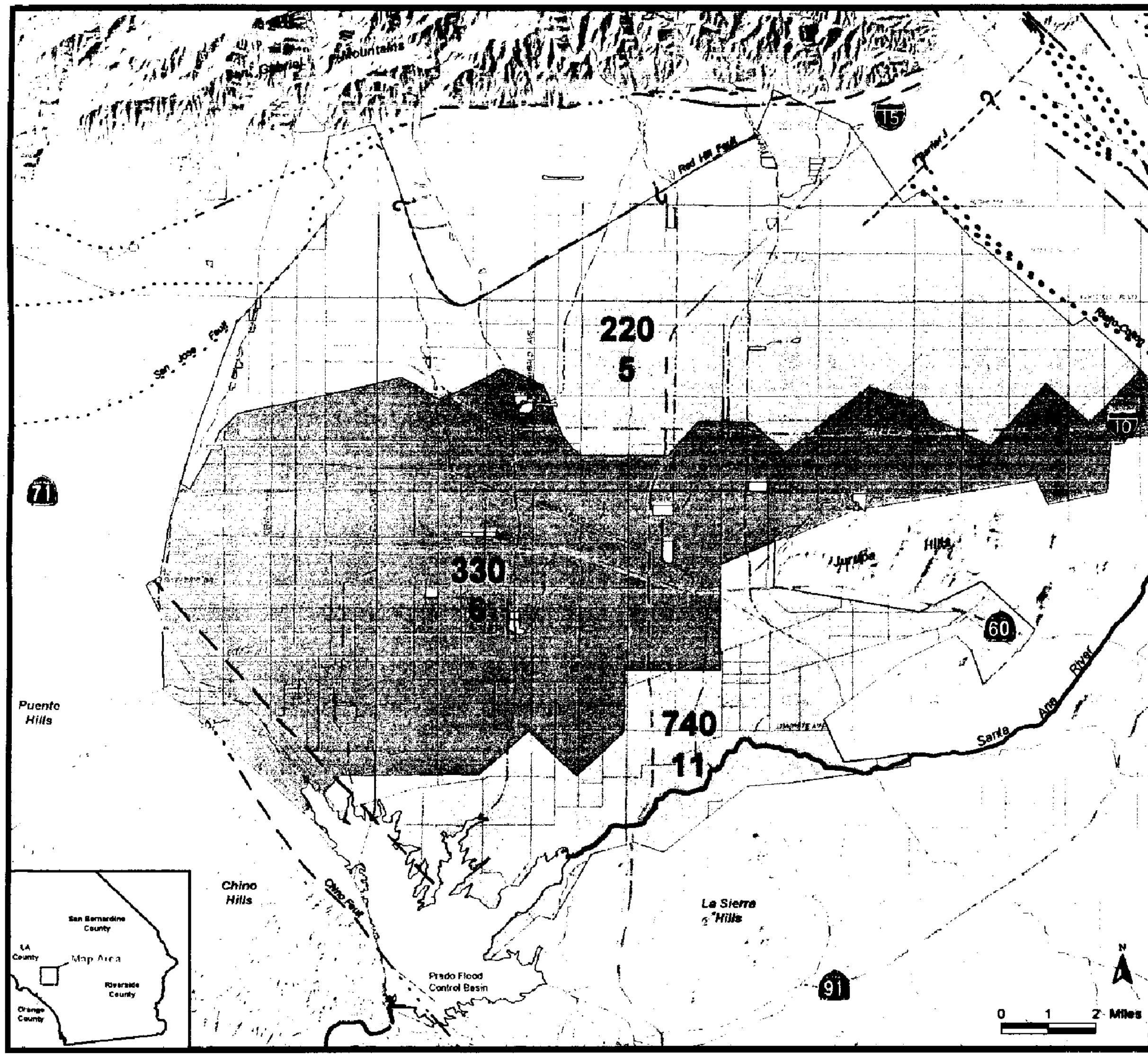
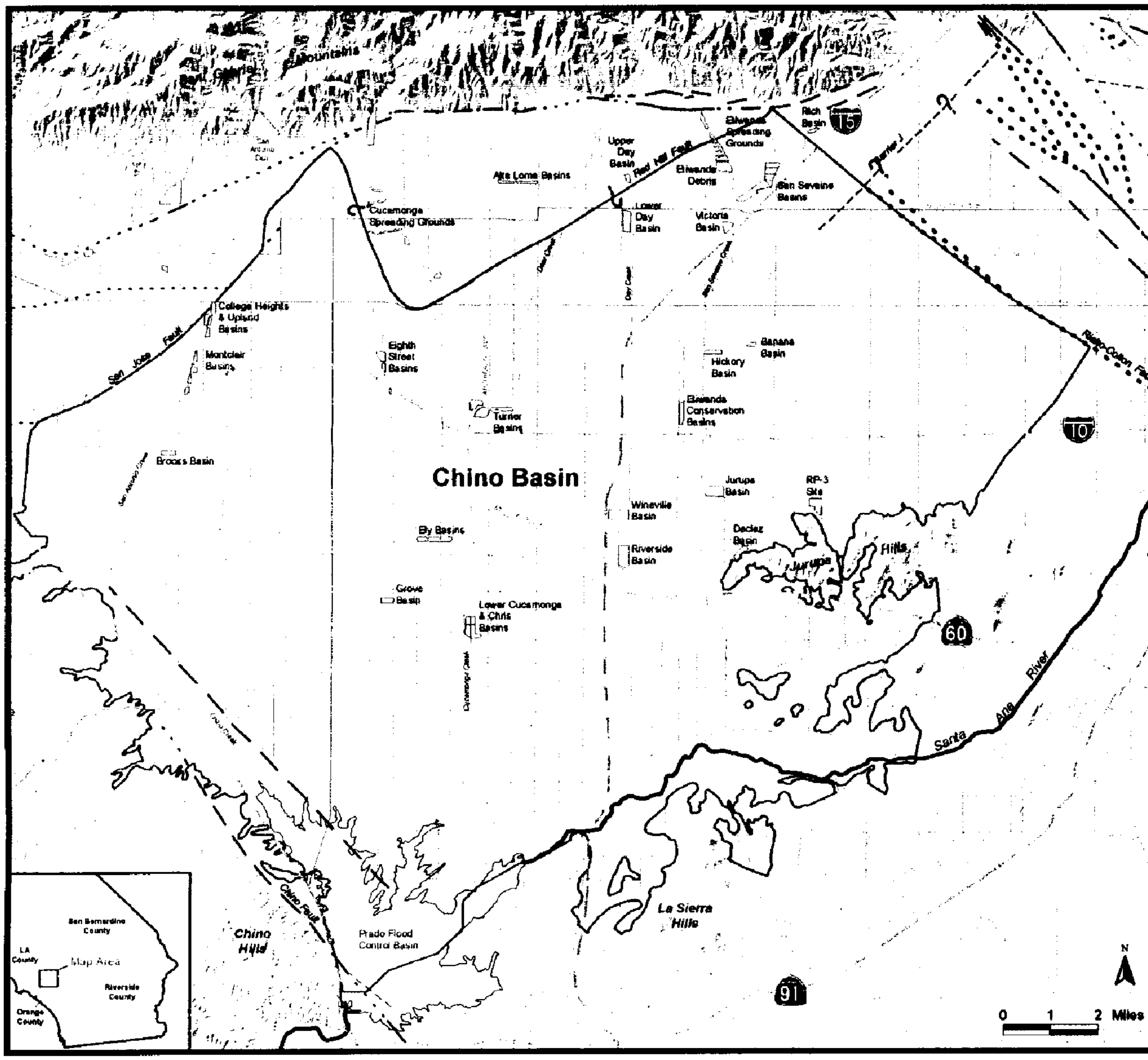


Figure 4.5-3
Current Water Quality Objectives for Chino Basin Sub-Basins

Prepared by: Wildermuth Environmental
Date: April 2002
File: WQ_obj_Chino.apr

Recycled Water Master Plan

Inland Empire Utilities Agency



Main Map Features

Flood Control and Conservation Basins

Chino Groundwater Basin

Other Map Features

Fault

Figure 4.5-4

Potential Recycled Water Recharge Basins in Chino Basin

Inland Empire

Prepared by: Wildermuth Environmental
Date: April 2002
File: Overview_basins.apr

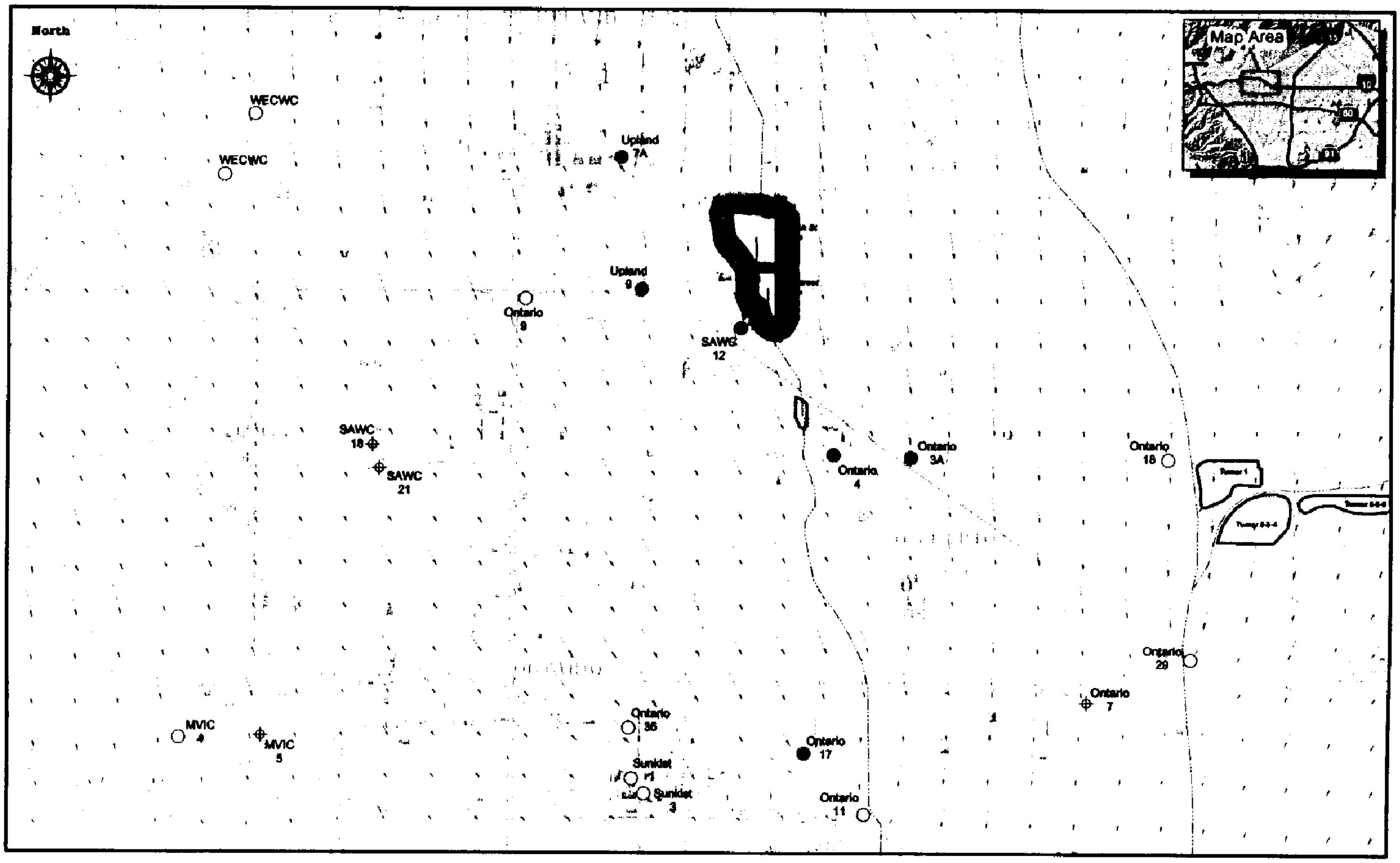


Figure 4.5-5
Title 22 Requirements for Recycled Water Recharge
7th & 8th Street Basins

Inland Empire

Area of Required Downgradient Monitoring Wells	Active Production Well
500-foot Buffer around Recharge Basin	Inactive Well
Potential Groundwater Flow Path	Nearest Downgradient Domestic Well
Modeled Groundwater Flow Direction and Relative Flow Velocity	Potential Downgradient Monitoring Well
	Potential Upgradient Monitoring Well

Date: March 2002
File: 7th_8th_Street.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 250 500 Meters

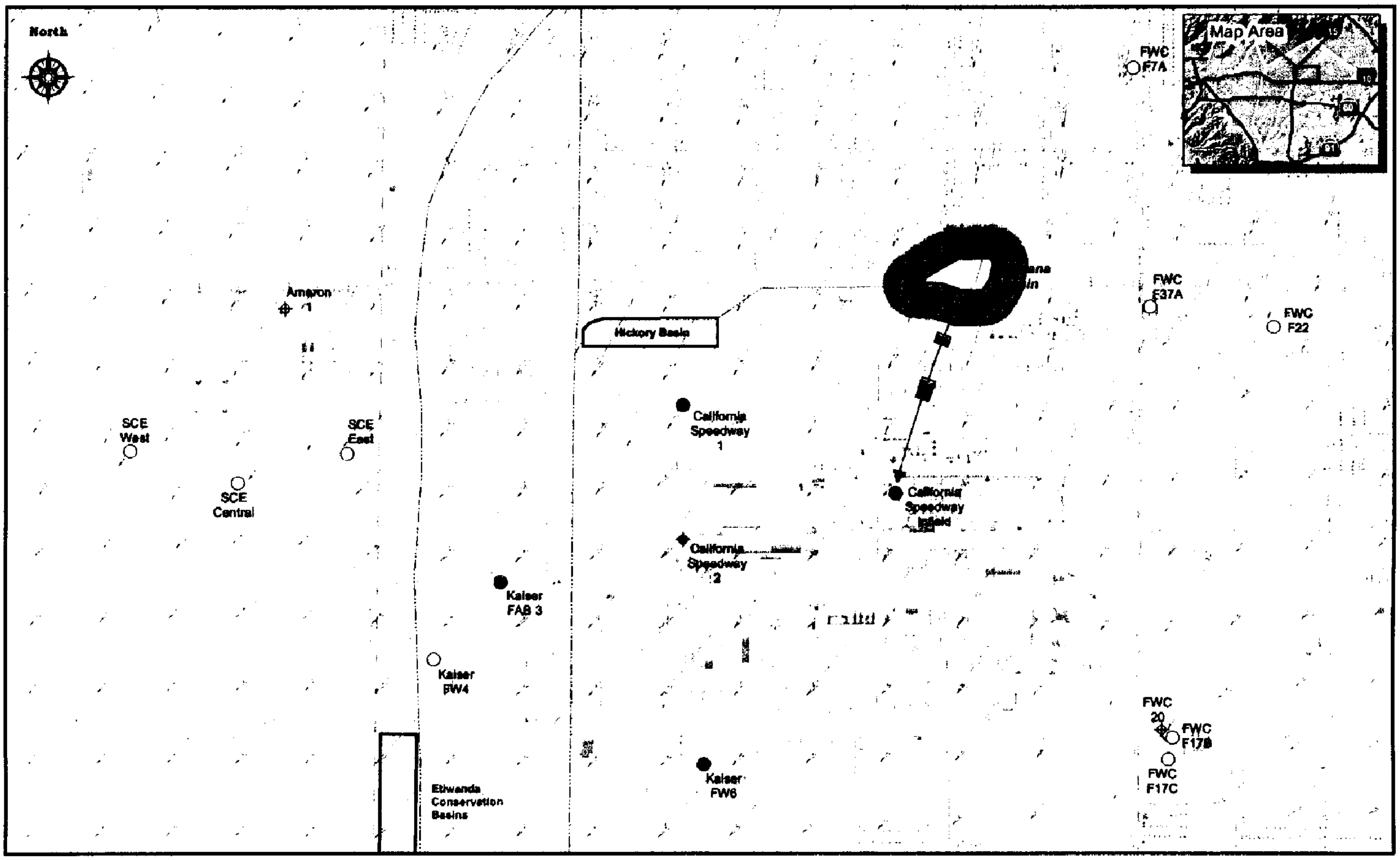


Figure 4.5-6
Title 22 Requirements for Recycled Water Recharge
Banana Basin

Inland Empire

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity
Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Banana.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

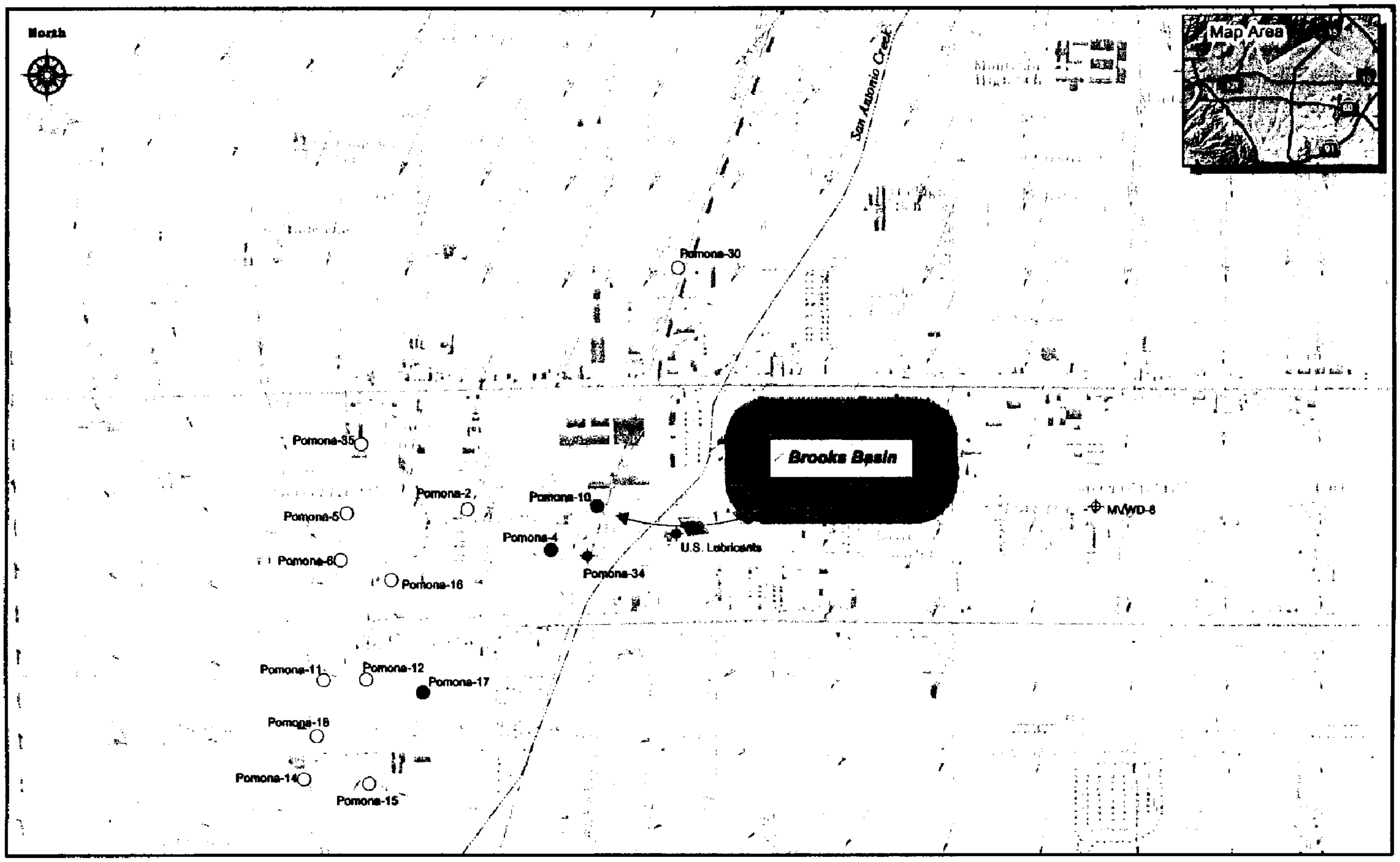


Figure 4.5-7
Title 22 Requirements for Recycled Water Recharge
Brooks Street Basin

Inland Empire

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity
Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Brooks.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 100 200 300 Meters

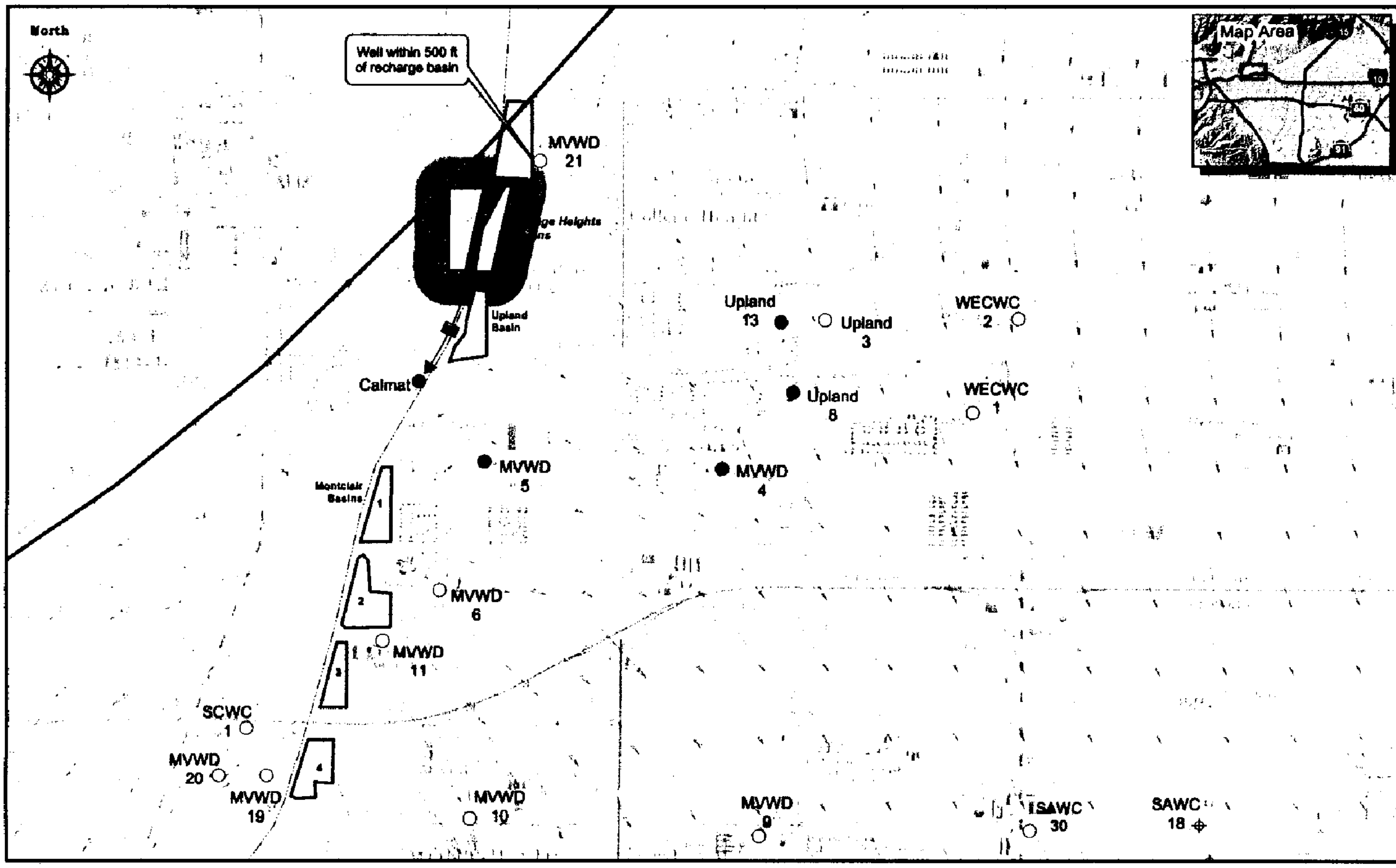


Figure 4.5-8
Title 22 Requirements for Recycled Water Recharge
College Heights Basins

Inland Empire

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002
File: Montclair_3.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

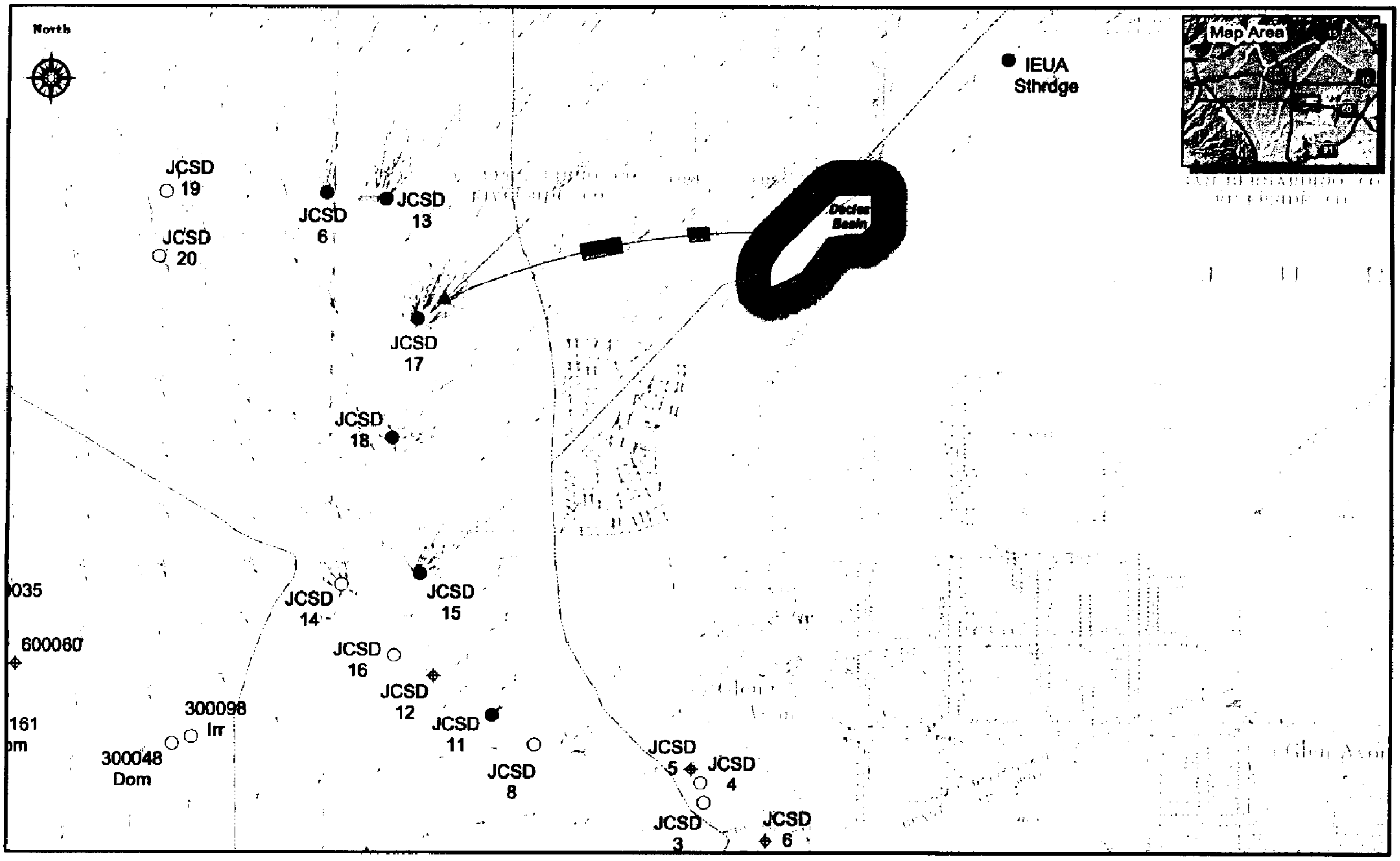


Figure 4.5-9
Title 22 Requirements for Recycled Water Recharge
Declez Basin

Inland Empire

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity
Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Declez.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

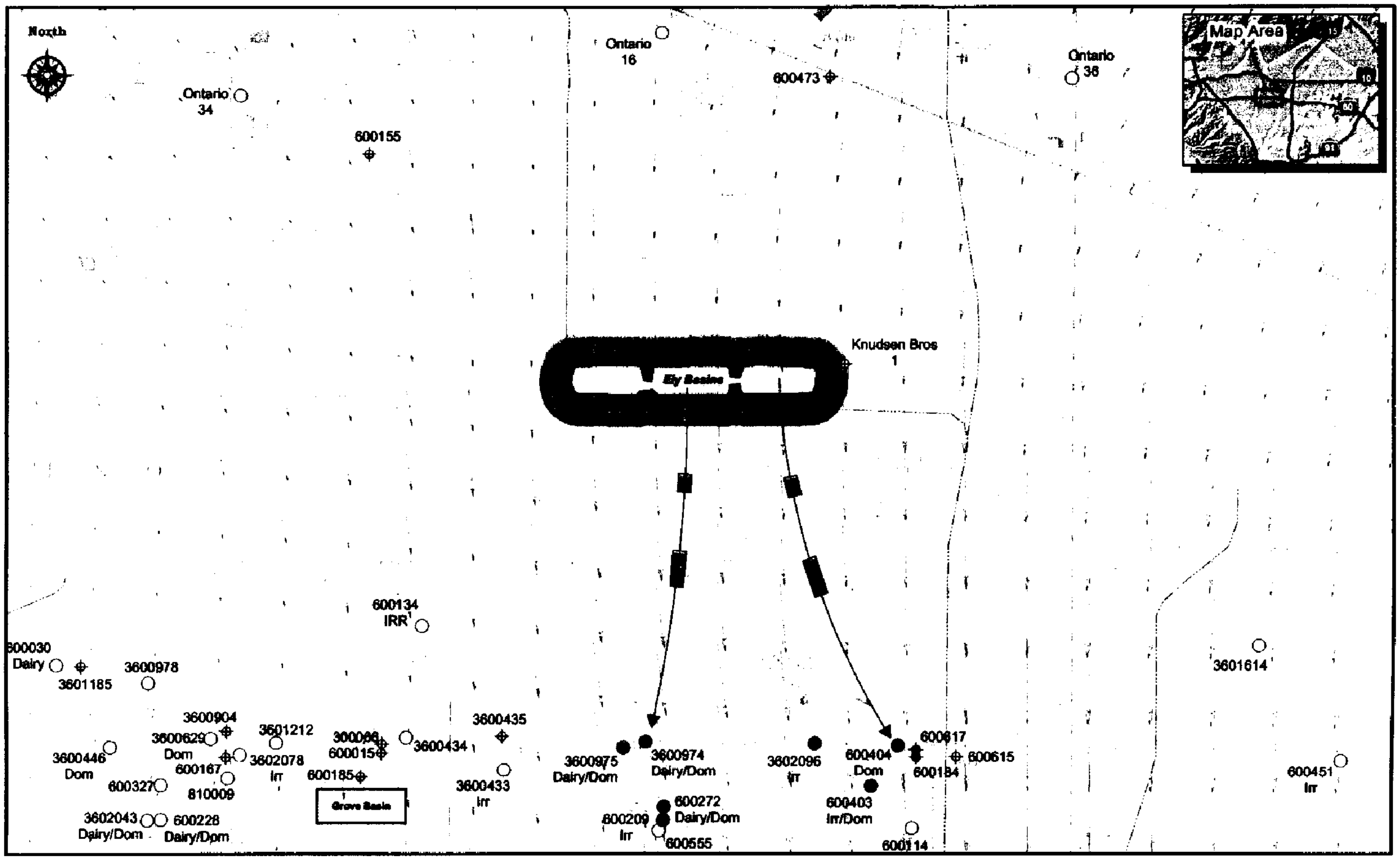


Figure 4.5-10
Title 22 Requirements for Recycled Water Recharge
Ely Basins

Inland Empire

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002
File: Ely.mxd
Map prepared by: Wildermuth Environmental

Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

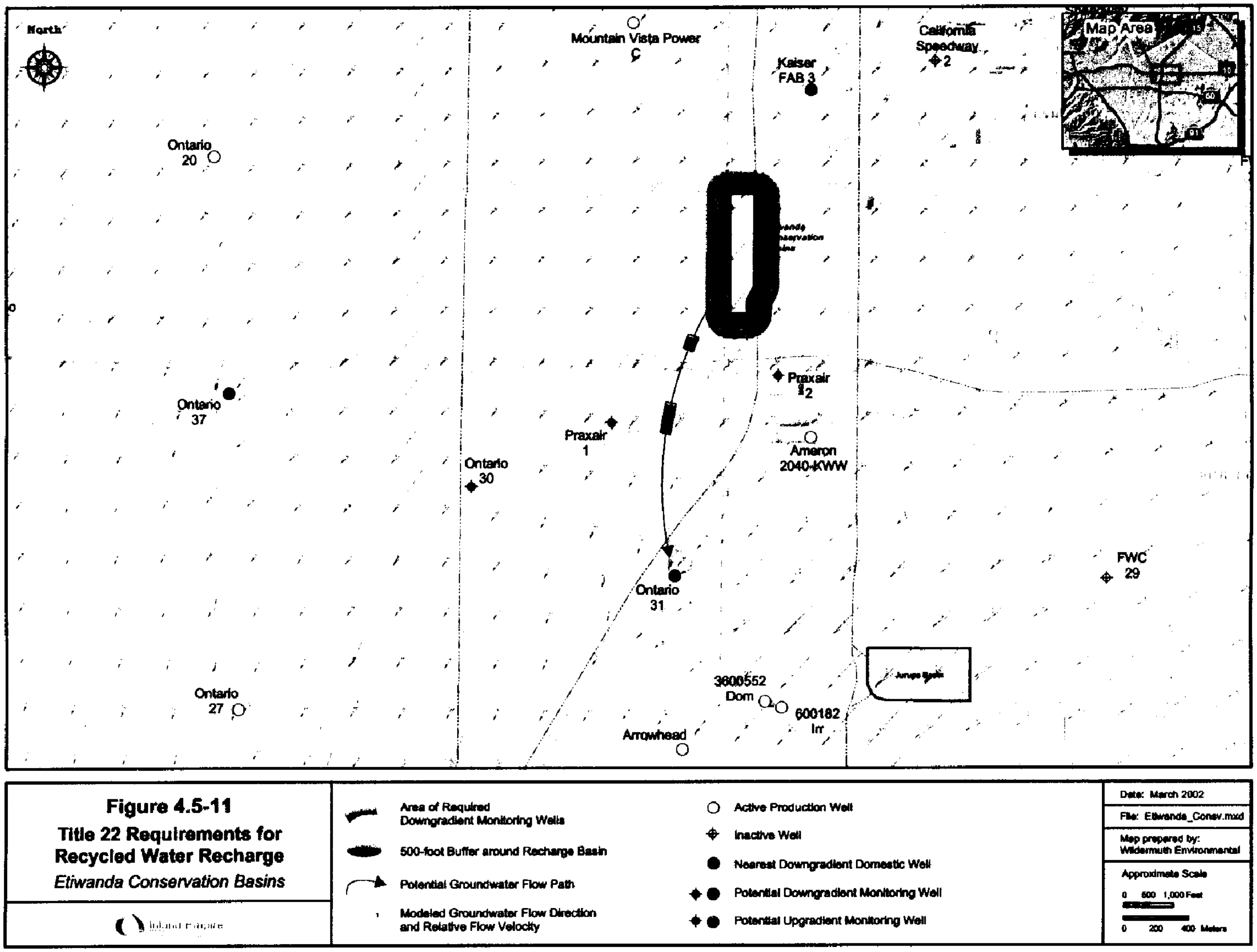


Figure 4.5-11

Title 22 Requirements for Recycled Water Recharge

Etiwanda Conservation Basins

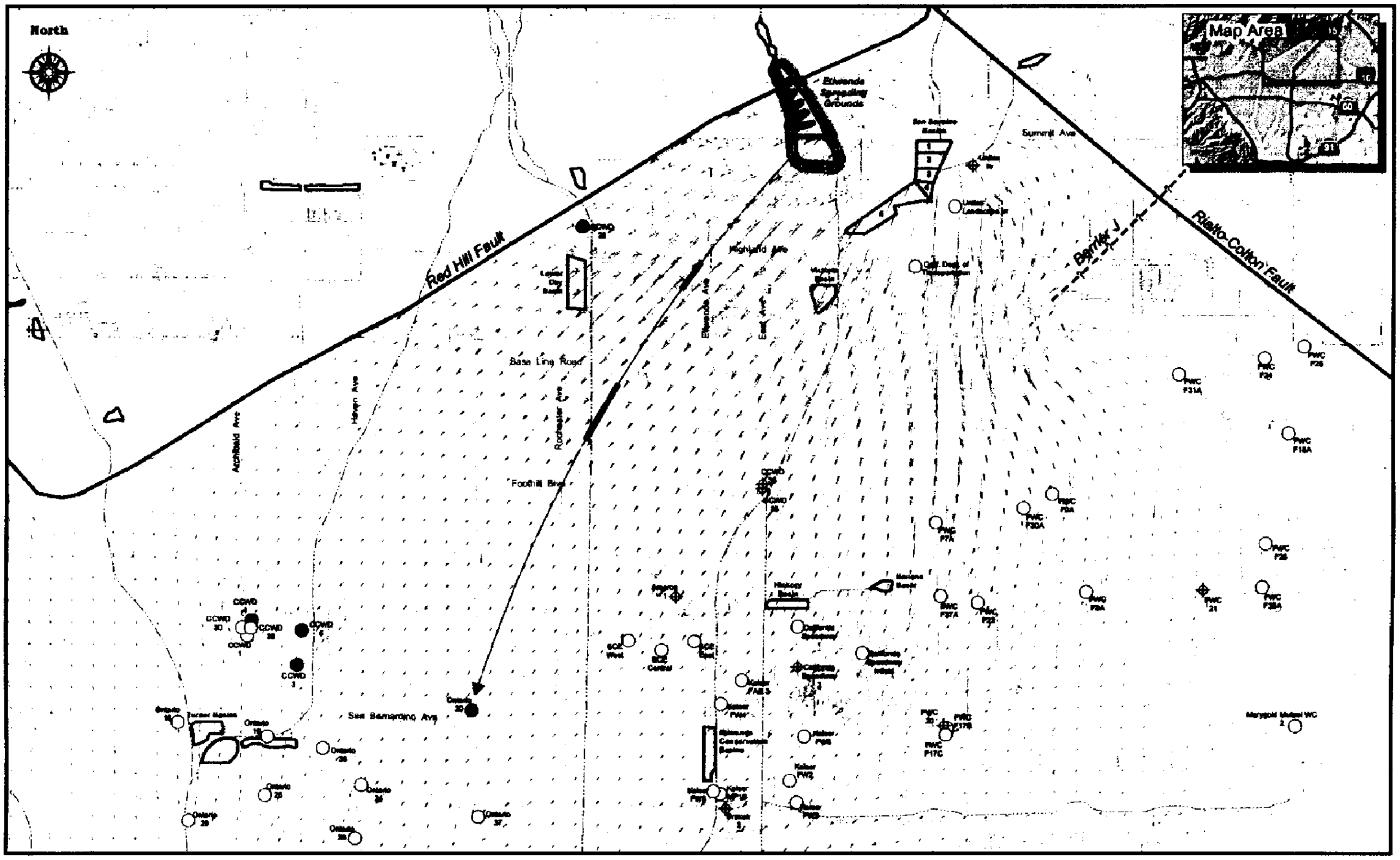


Figure 4.5-12
Title 22 Requirements for Recycled Water Recharge
Etiwanda Spreading Grounds

Inland Empire

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Etiwanda_Spread.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 1,500 3,000 Feet
0 500 1,000 Meters

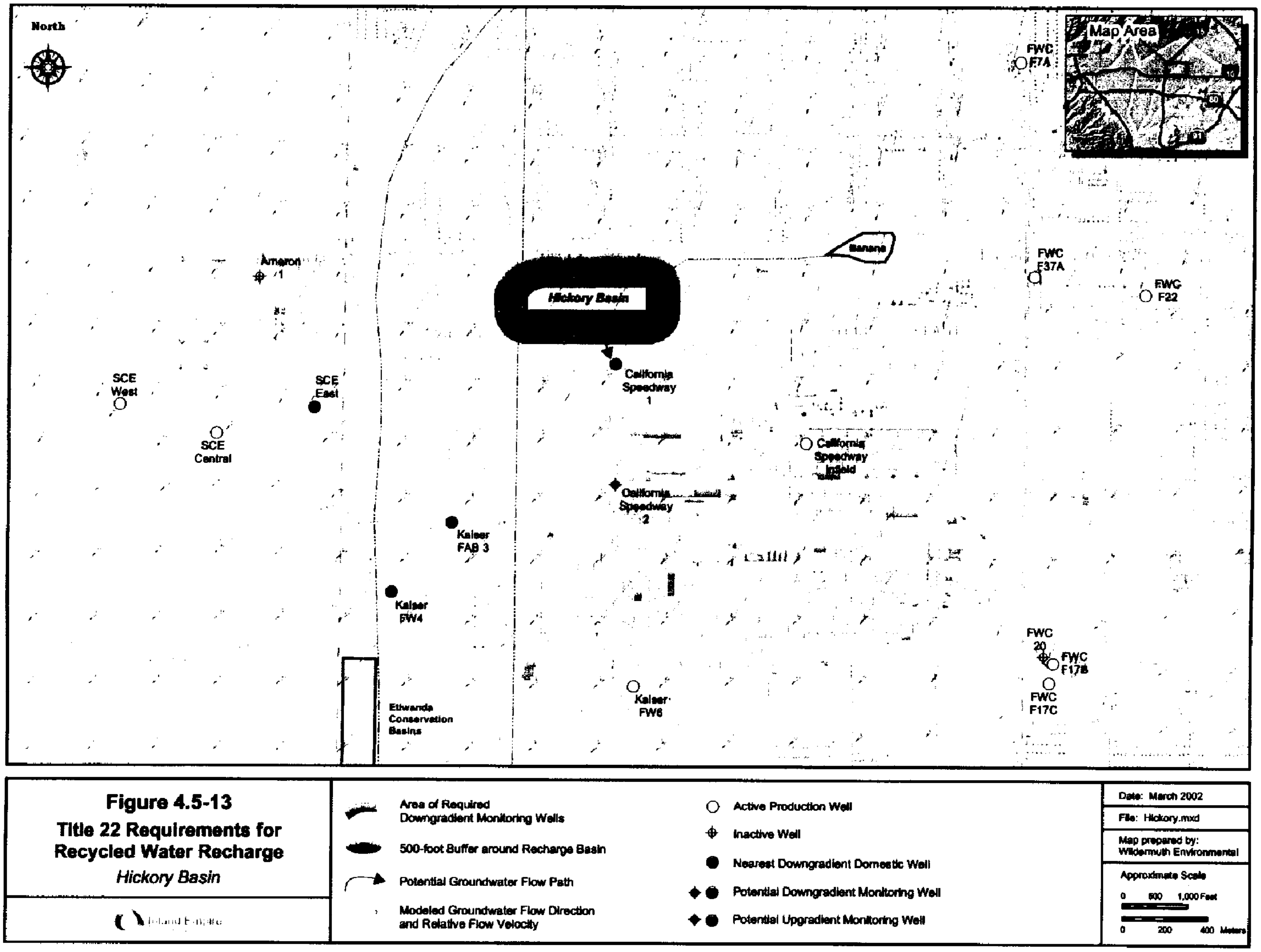


Figure 4.5-13
Title 22 Requirements for Recycled Water Recharge
Hickory Basin

Inland Empire

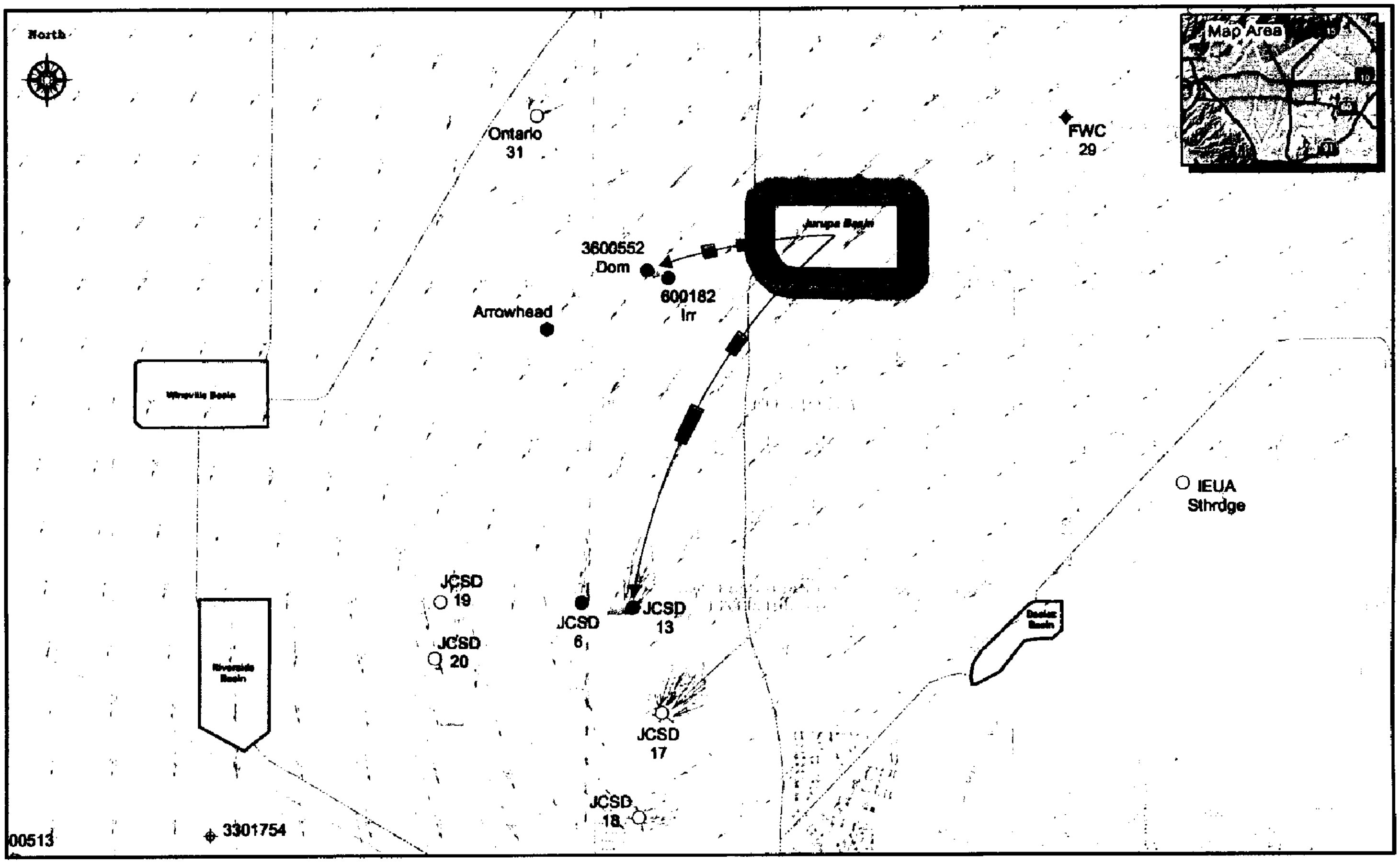


Figure 4.5-14

Title 22 Requirements for Recycled Water Recharge

Jurupa Basin

Inland Empire

Area of Required Downgradient Monitoring Wells	Active Production Well
500-foot Buffer around Recharge Basin	Inactive Well
Potential Groundwater Flow Path	Nearest Downgradient Domestic Well
Modeled Groundwater Flow Direction and Relative Flow Velocity	Potential Downgradient Monitoring Well
	Potential Upgradient Monitoring Well

Date: March 2002

File: Jurupa.mxd

Map prepared by: Wildermuth Environmental

Approximate Scale

0 500 1,000 Feet

0 200 400 Meters

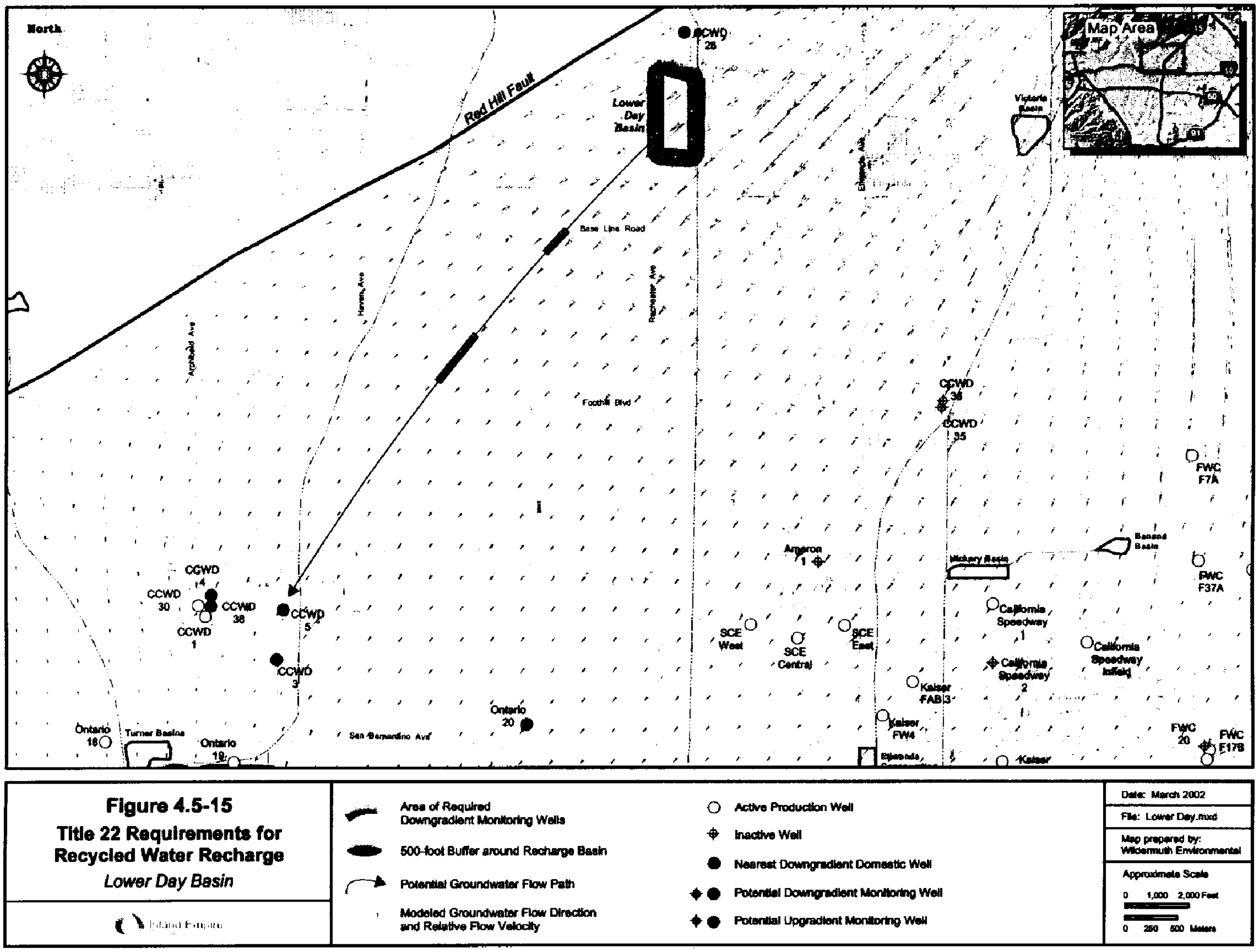


Figure 4.5-15
Title 22 Requirements for Recycled Water Recharge
Lower Day Basin

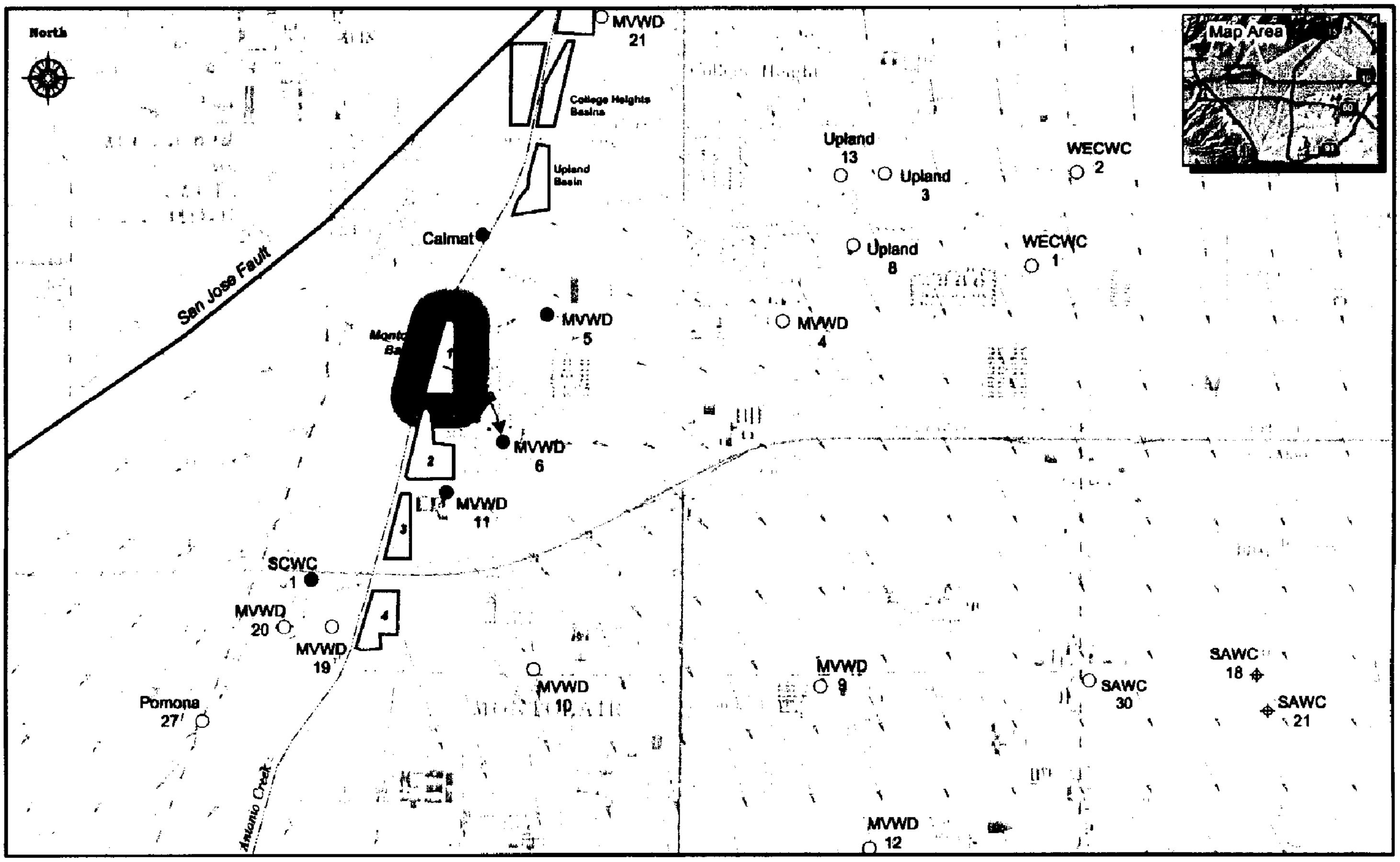


Figure 4.5-16

Title 22 Requirements for Recycled Water Recharge

Monclair-1 Basin

Inland Empire

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002

File: Montclair_1.mxd

Map prepared by: Wildermuth Environmental

Approximate Scale

0 500 1,000 Feet

0 200 400 Meters

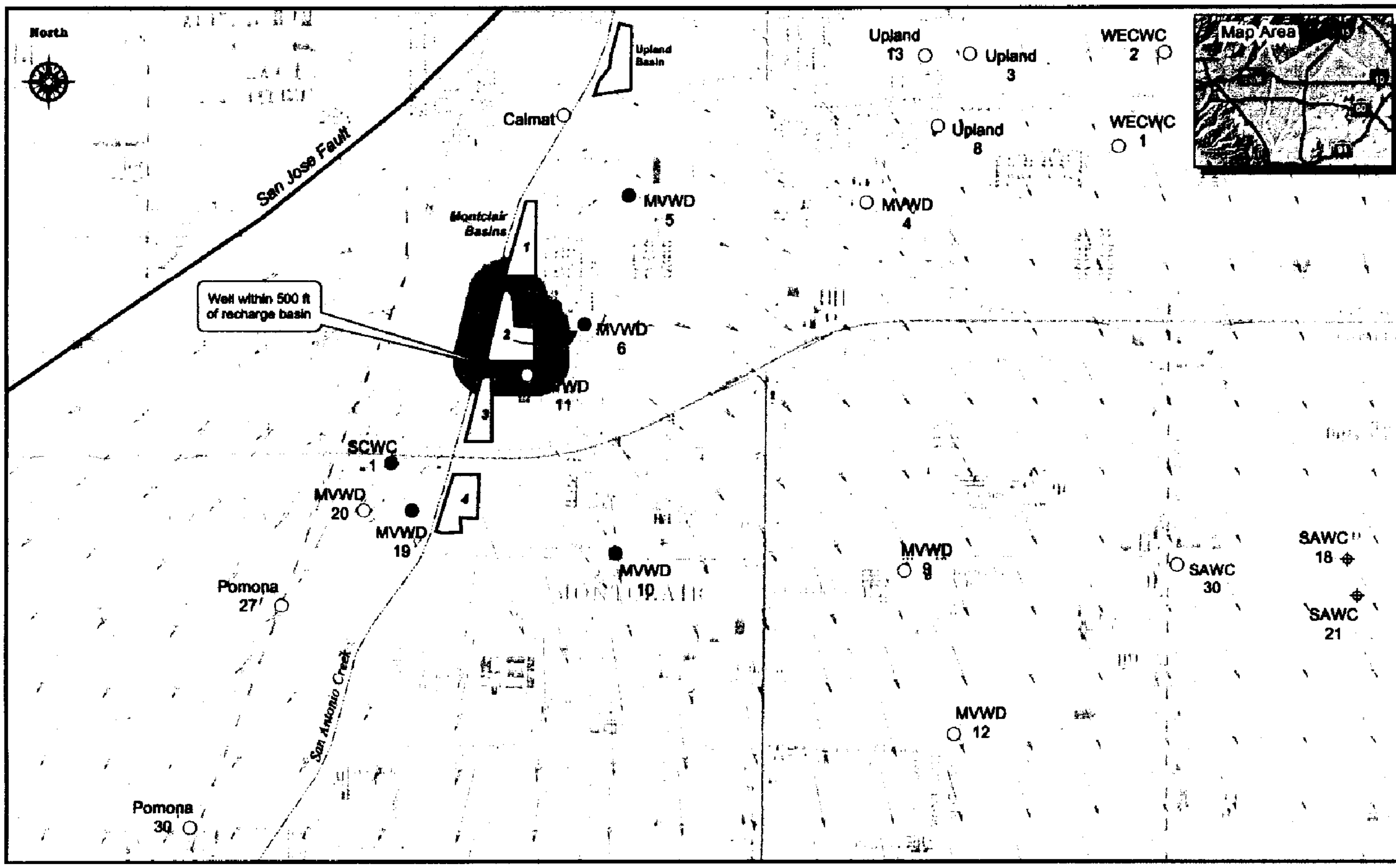


Figure 4.5-17
Title 22 Requirements for Recycled Water Recharge
Monclair-2 Basin

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity
Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Montclair_2.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

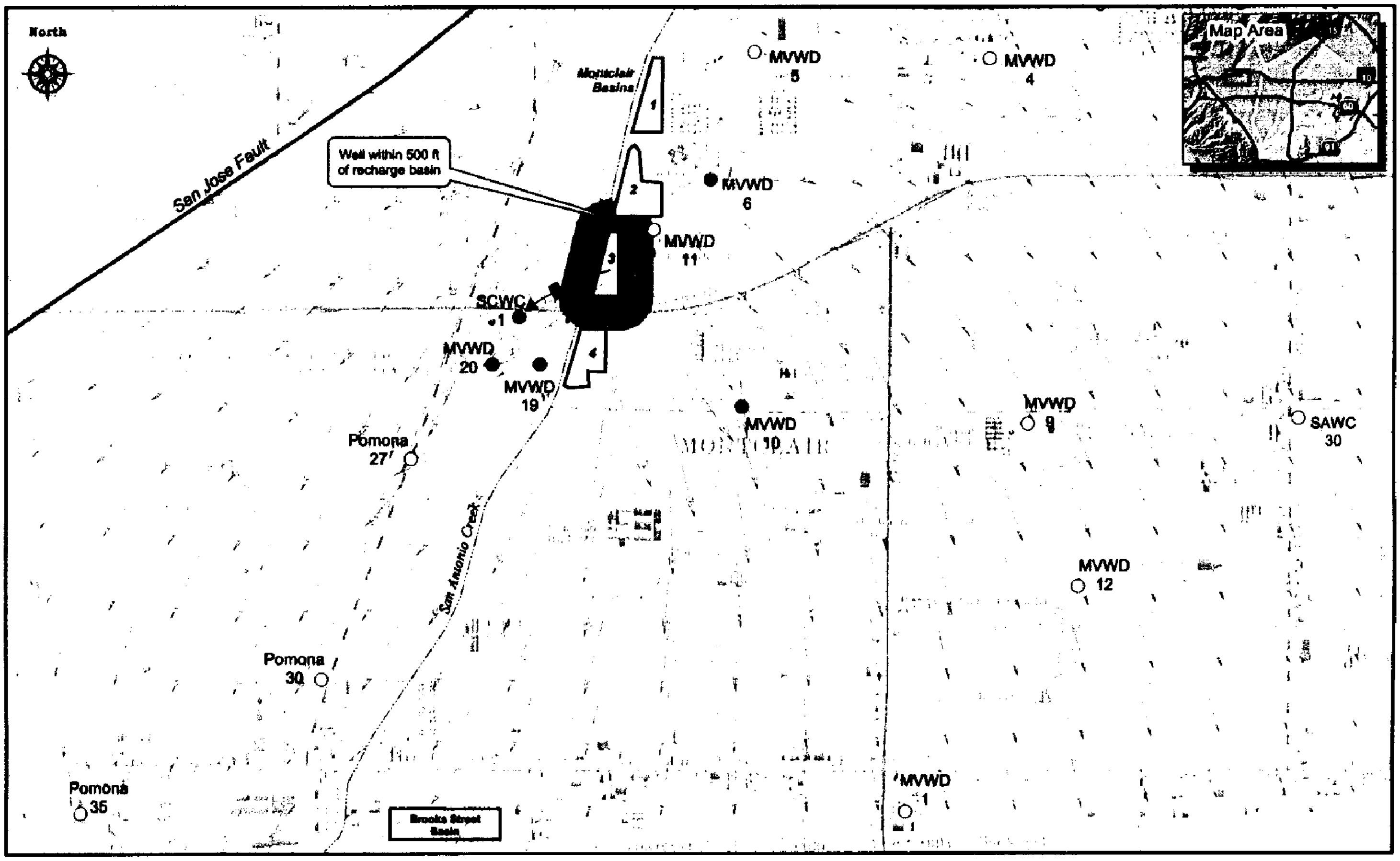


Figure 4.5-18

Title 22 Requirements for Recycled Water Recharge

Monclair-3 Basin

Area of Required Downgradient Monitoring Wells

500-foot Buffer around Recharge Basin

Potential Groundwater Flow Path

Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well

Inactive Well

Nearest Downgradient Domestic Well

Potential Downgradient Monitoring Well

Potential Upgradient Monitoring Well

Date: March 2002

File: Montclair_3.mxd

Map prepared by: Wildermuth Environmental

Approximate Scale

0 500 1,000 Feet

0 200 400 Meters

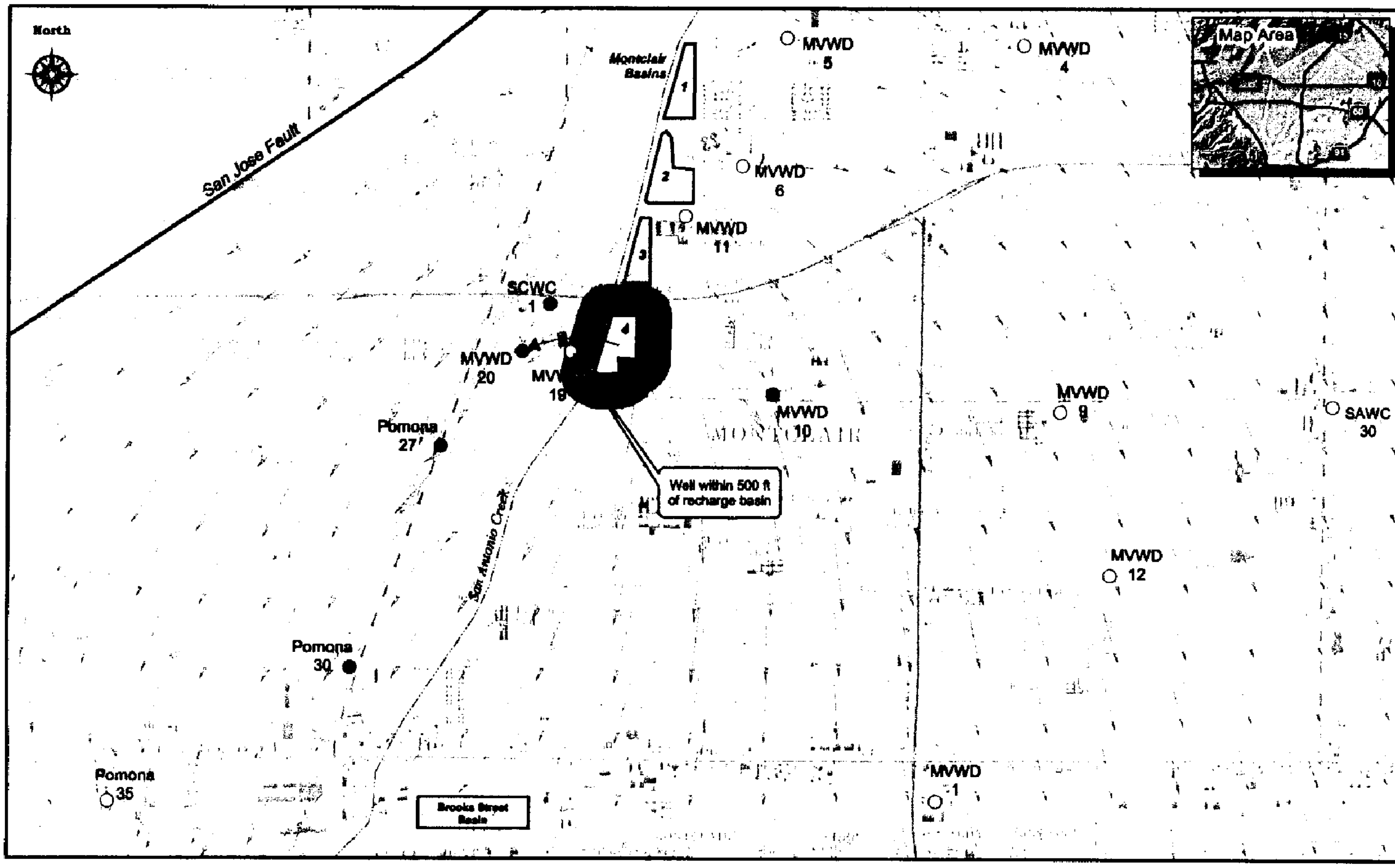


Figure 4.5-19
Title 22 Requirements for Recycled Water Recharge
Monclair-4 Basin

Inland Empire

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002
File: Montclair_4.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

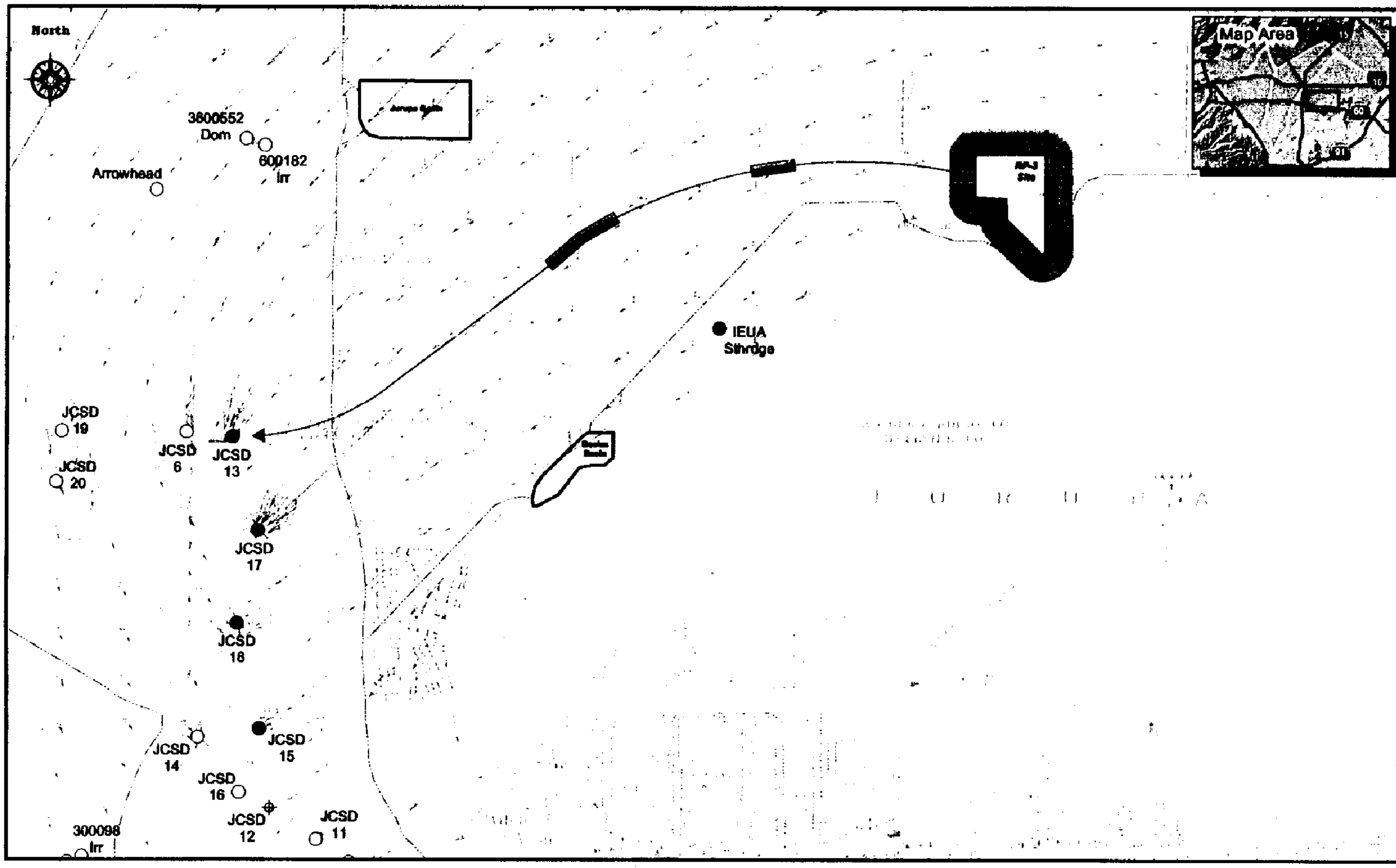


Figure 4.5-20
Title 22 Requirements for Recycled Water Recharge
RP-3 Site

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: RP-3_Site.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

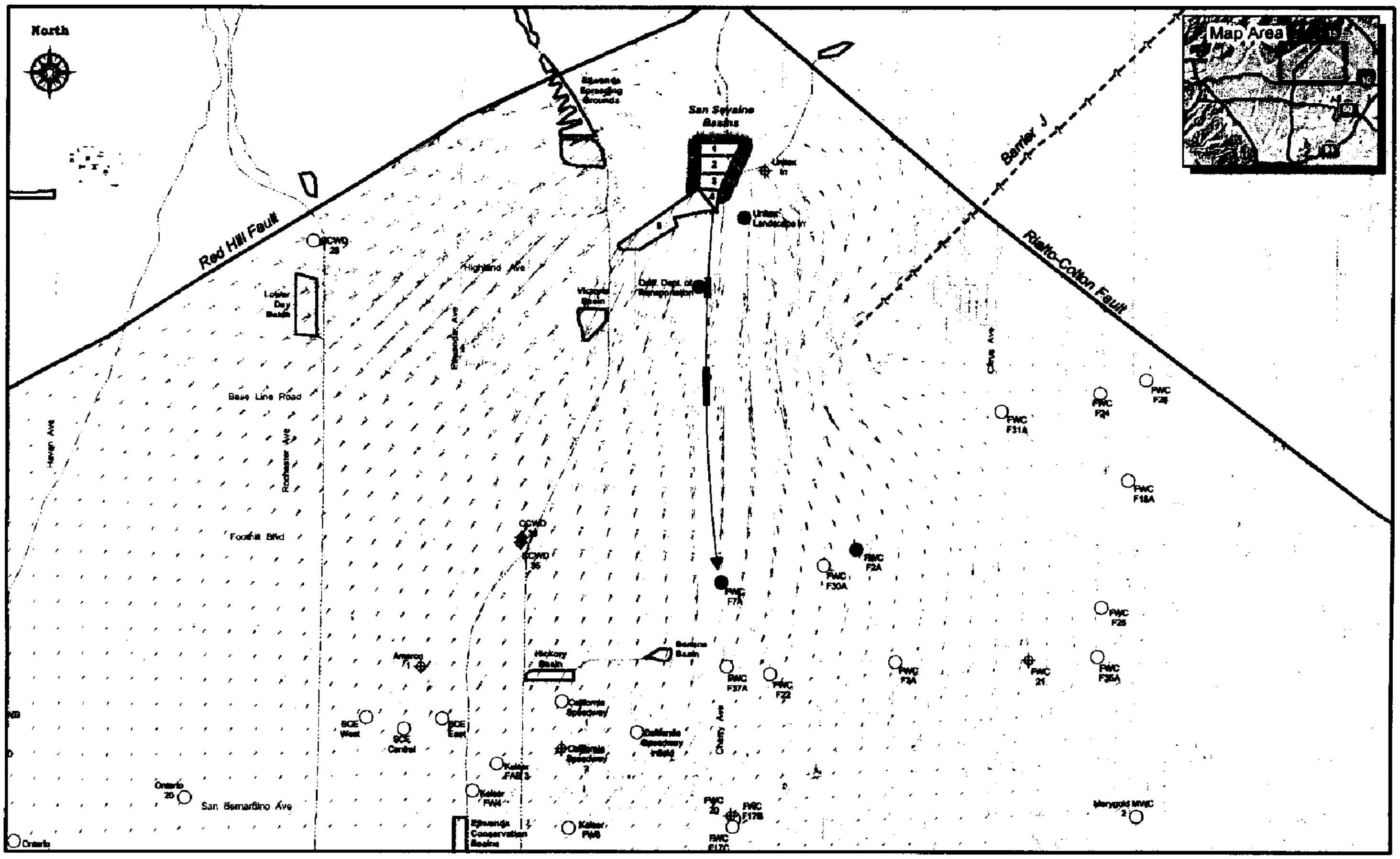


Figure 4.5-21
Title 22 Requirements for Recycled Water Recharge
San Sevaine Basins 1-2-3

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity
Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: San_Sevaine123.mxd
Map prepared by: Wildermuth Environmental

Approximate Scale
0 1,500 3,000 Feet
0 500 1,000 Meters

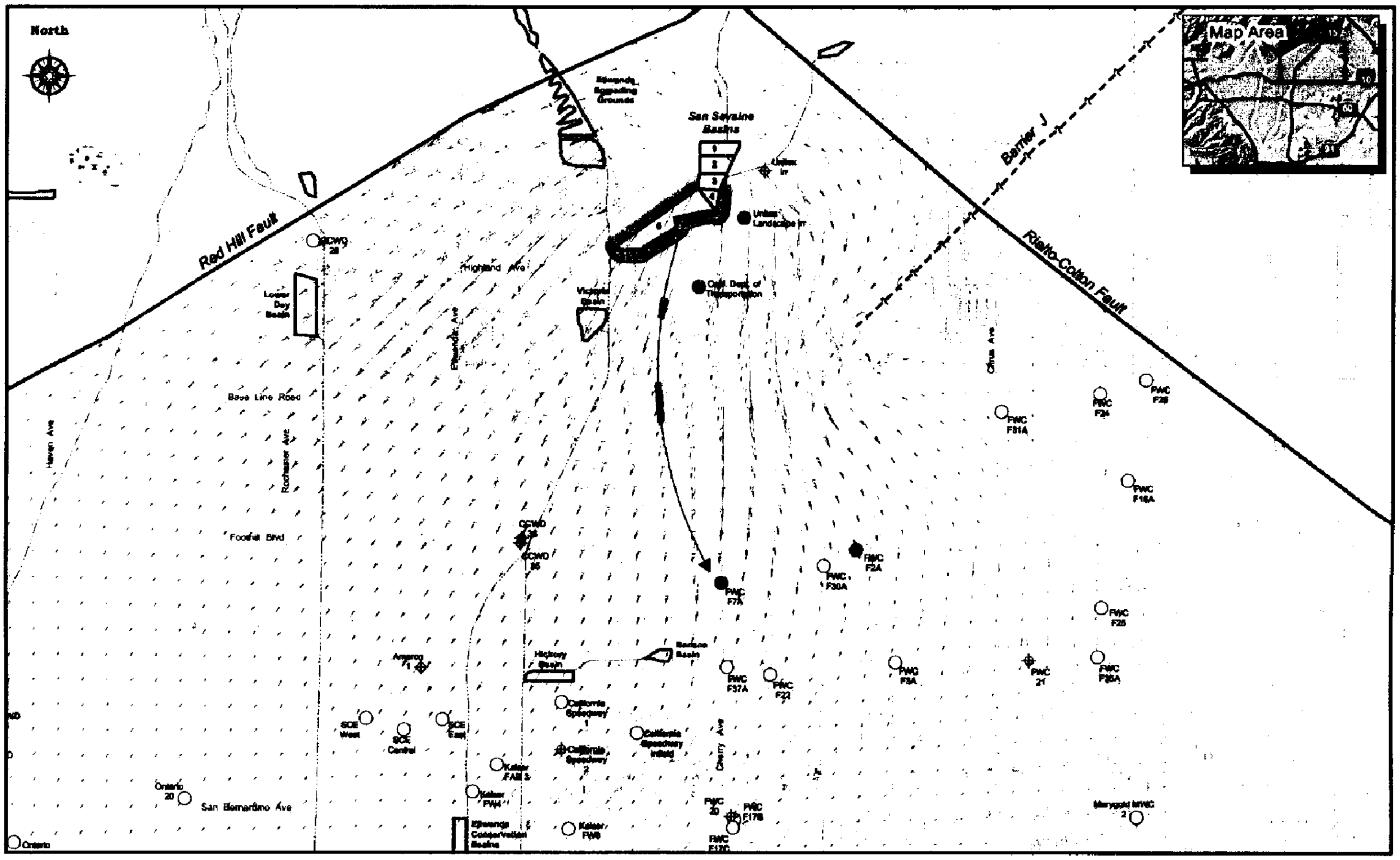


Figure 4.5-22

Title 22 Requirements for Recycled Water Recharge

San Sevaine Basins 4-5

Area of Required Downgradient Monitoring Wells

500-foot Buffer around Recharge Basin

Potential Groundwater Flow Path

Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well

Inactive Well

Nearest Downgradient Domestic Well

Potential Downgradient Monitoring Well

Potential Upgradient Monitoring Well

Date: March 2002

File: San_Sevaine45.mxd

Map prepared by: Wildermuth Environmental

Approximate Scale

0 1,500 3,000 Feet

0 500 1,000 Meters

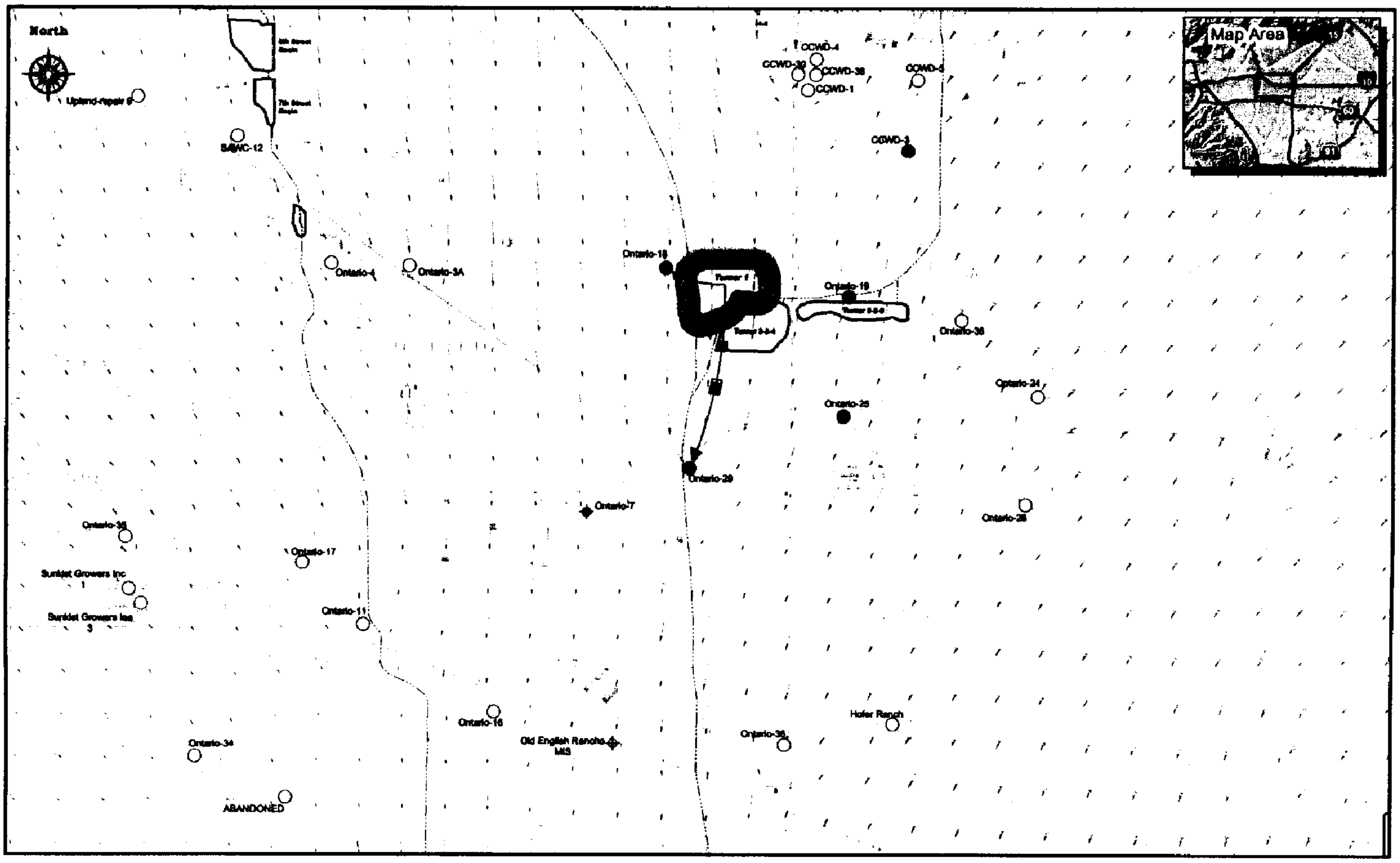


Figure 4.5-23
Title 22 Requirements for Recycled Water Recharge
Turner 1 Basin

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002
File: Turner1.mxd
Map prepared by: Wildermuth Environmental

Approximate Scale
0 500 1,000 Feet
0 250 500 Meters

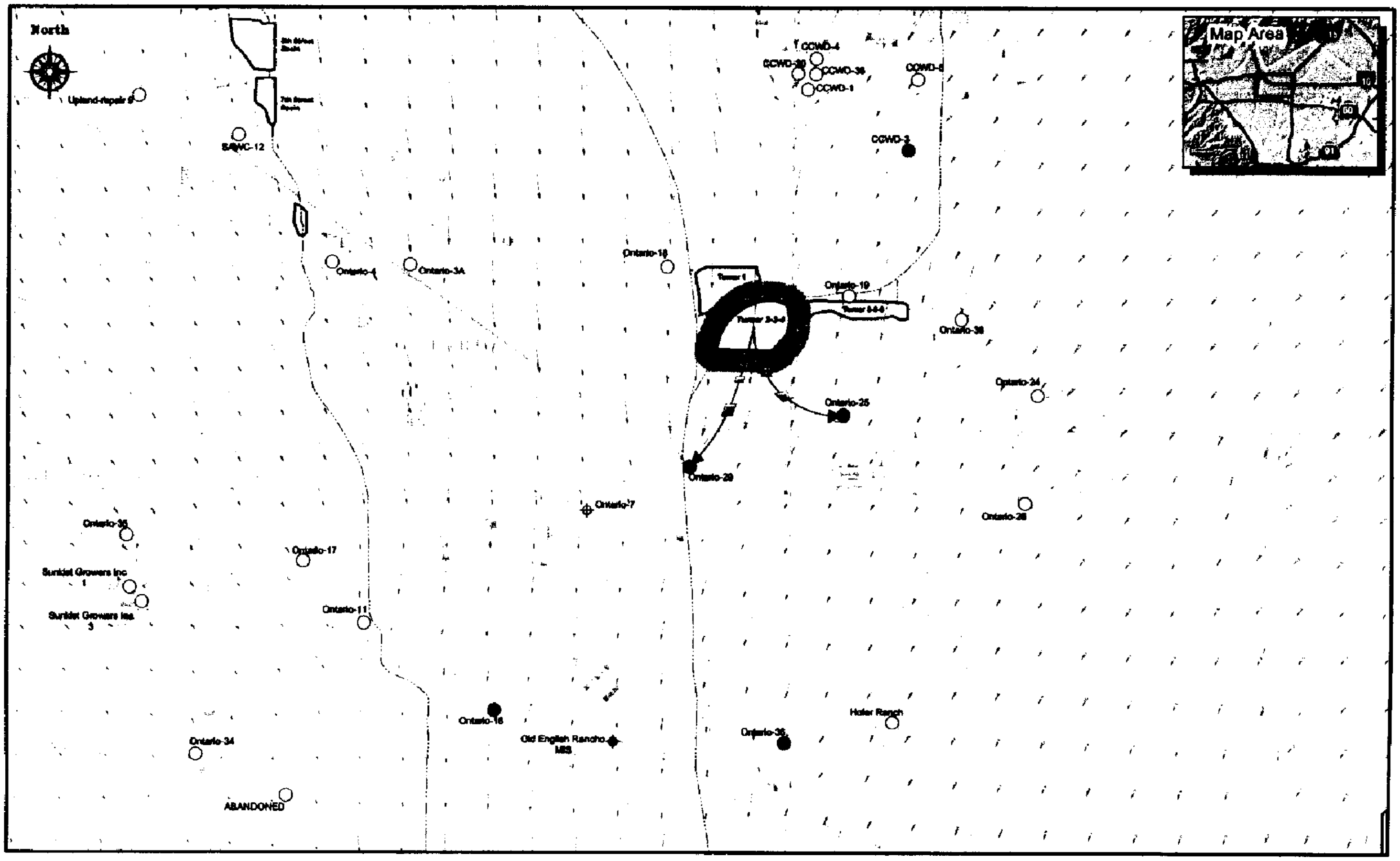


Figure 4.5-24
Title 22 Requirements for Recycled Water Recharge
Turner 2-3-4 Basins

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Turner234.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 250 500 Meters

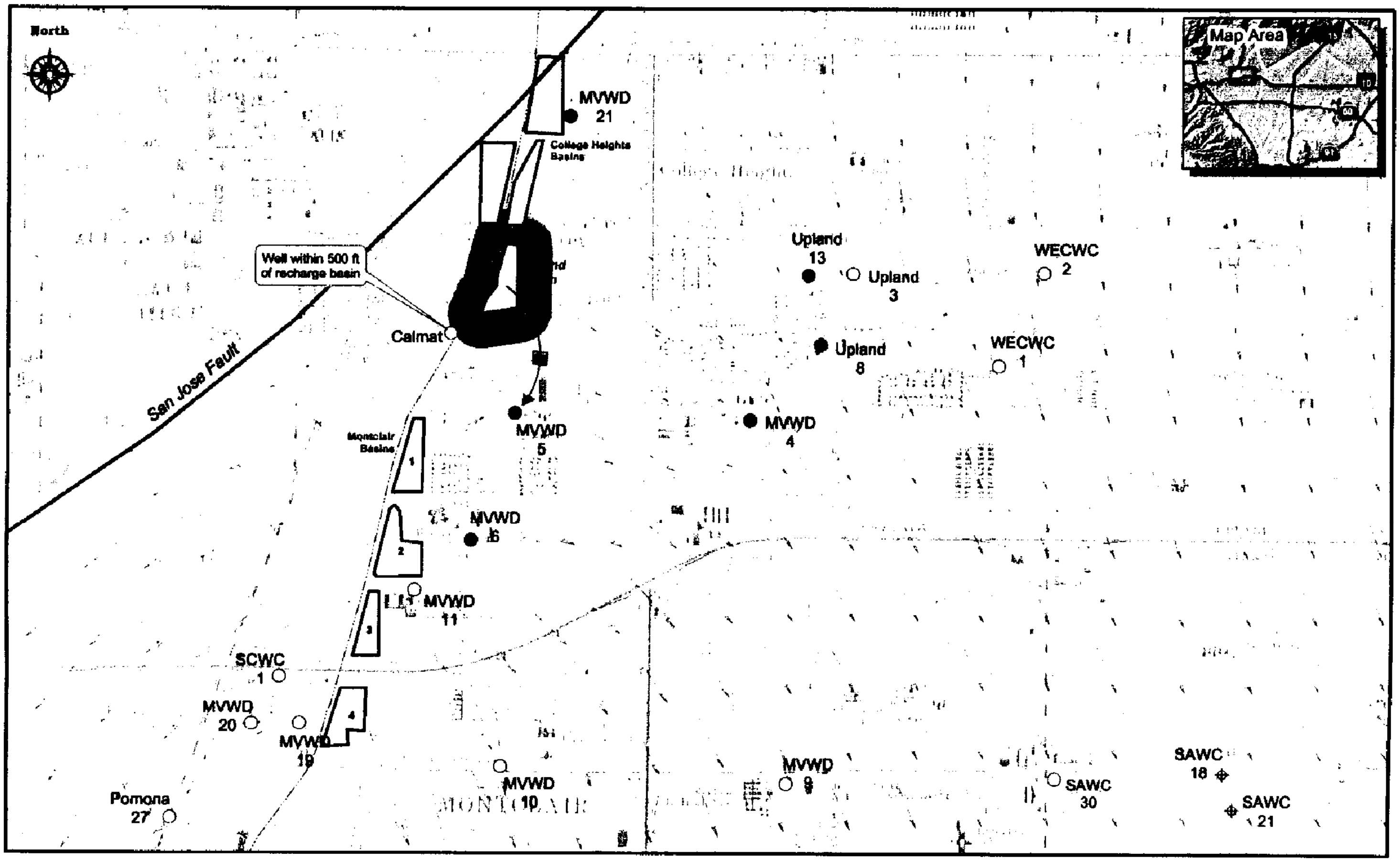


Figure 4.5-25
Title 22 Requirements for Recycled Water Recharge
Upland Basin

Area of Required Downgradient Monitoring Wells
500-foot Buffer around Recharge Basin
Potential Groundwater Flow Path
Modeled Groundwater Flow Direction and Relative Flow Velocity

Active Production Well
Inactive Well
Nearest Downgradient Domestic Well
Potential Downgradient Monitoring Well
Potential Upgradient Monitoring Well

Date: March 2002
File: Upland.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

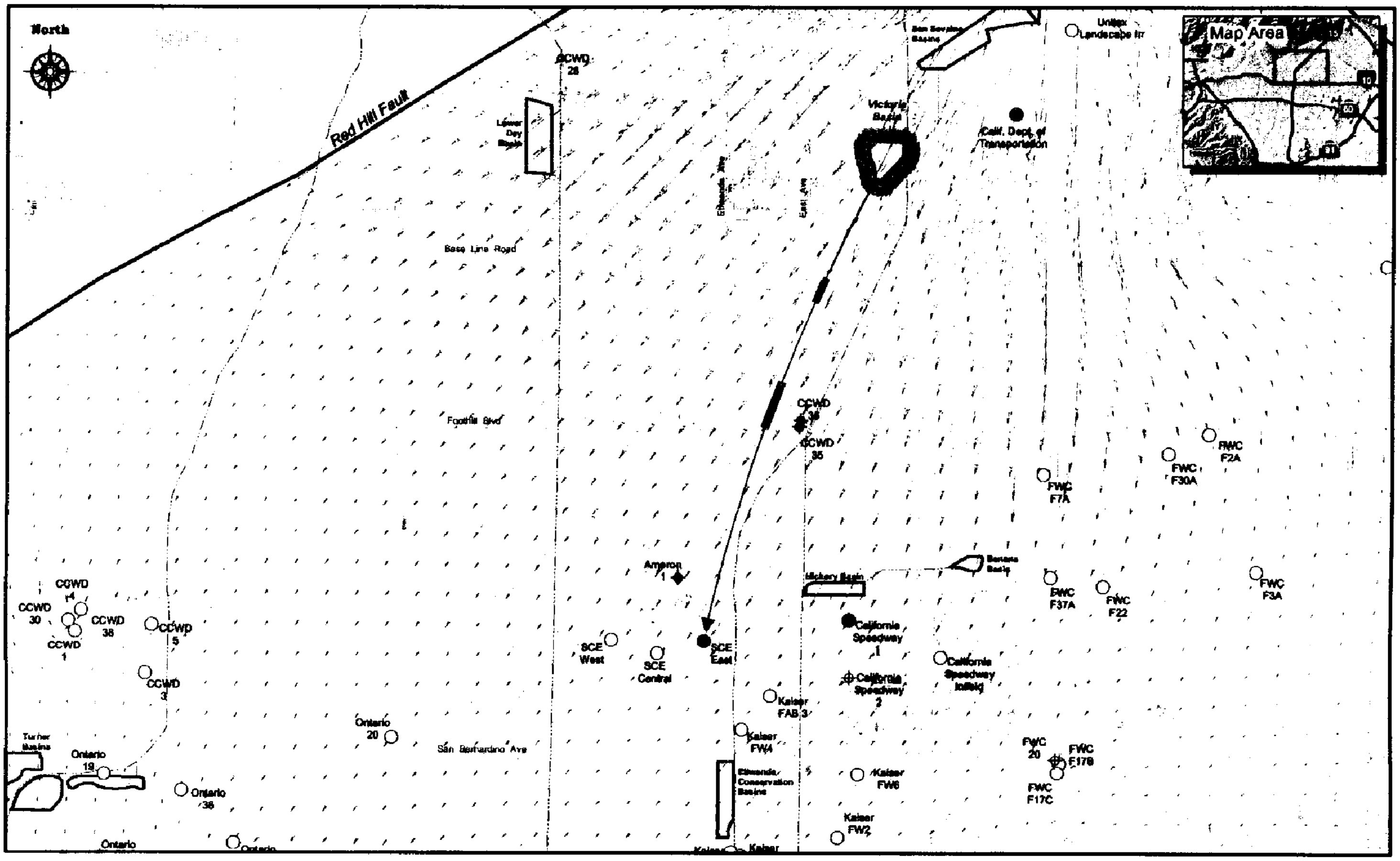


Figure 4.5-26
Title 22 Requirements for Recycled Water Recharge
Victoria Basin

Inland Empire

- Area of Required Downgradient Monitoring Wells
- 500-foot Buffer around Recharge Basin
- Potential Groundwater Flow Path
- Modeled Groundwater Flow Direction and Relative Flow Velocity
- Active Production Well
- Inactive Well
- Nearest Downgradient Domestic Well
- Potential Downgradient Monitoring Well
- Potential Upgradient Monitoring Well

Date: March 2002
File: Victoria.mxd
Map prepared by: Wildermuth Environmental

Approximate Scale
0 1,000 2,000 Feet
0 250 500 Meters

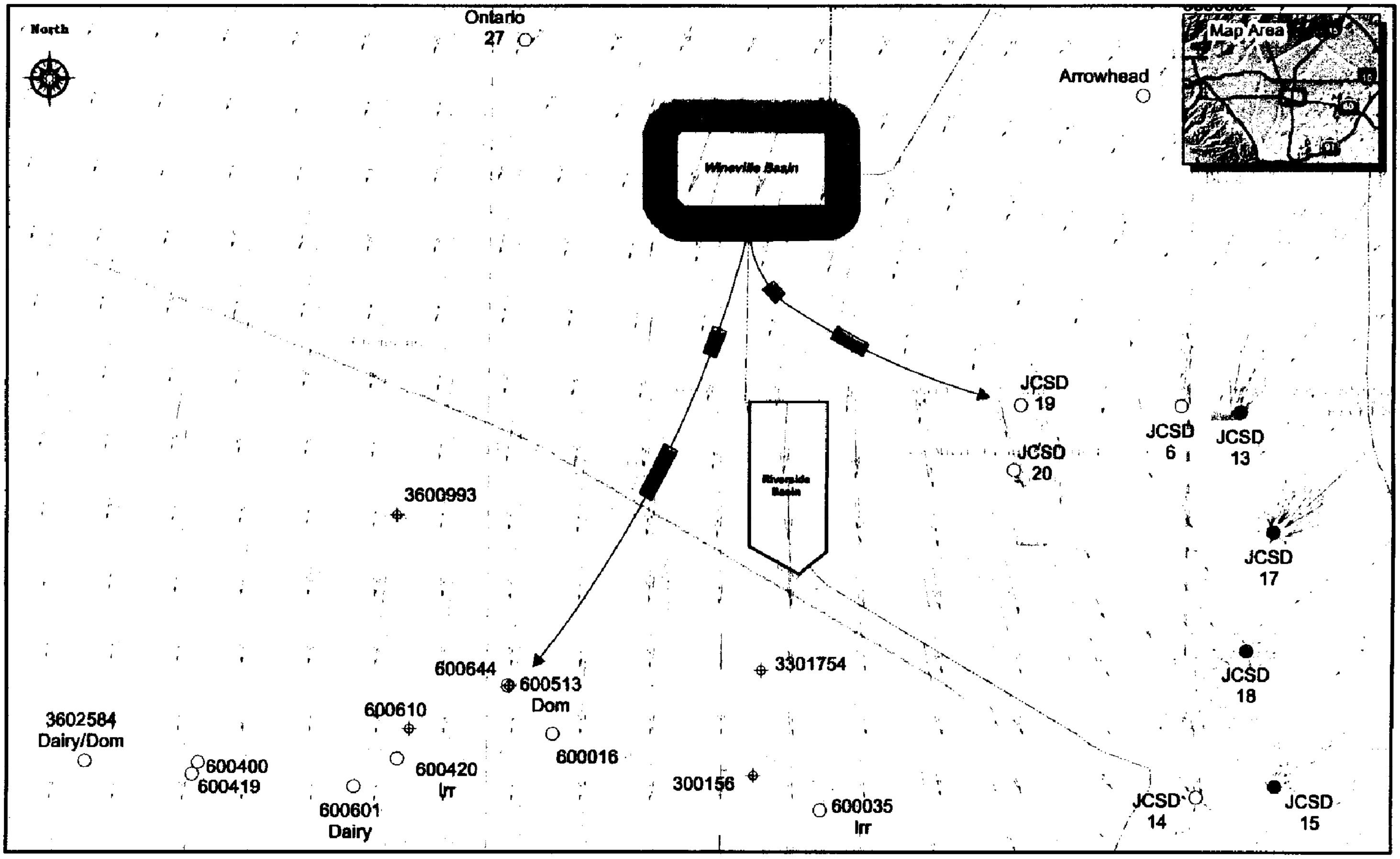


Figure 4.5-27
Title 22 Requirements for Recycled Water Recharge
Wineville Basin

Legend	
Area of Required Downgradient Monitoring Wells	Active Production Well
500-foot Buffer around Recharge Basin	Inactive Well
Potential Groundwater Flow Path	Nearest Downgradient Domestic Well
Modeled Groundwater Flow Direction and Relative Flow Velocity	Potential Downgradient Monitoring Well
	Potential Upgradient Monitoring Well

Date: March 2002
File: Wineville.mxd
Map prepared by: Wildermuth Environmental
Approximate Scale
0 500 1,000 Feet
0 200 400 Meters

4.6 AIR QUALITY

4.6.1 Introduction

Air Quality was identified as a topic for evaluation in this PEIR because construction and operation of the proposed facilities have the potential to generate substantial air emissions. The emissions will be associated with operation of construction equipment, the disturbance of soil and energy consumed by power equipment. This section of the PEIR quantifies emissions based on information contained in the Wastewater Facilities, Recycled Water, and Organics Management Master Plans. Air quality impacts will be forecast and evaluated in as much detail as possible based on the levels of detail contained in the plans.

4.6.2 Environmental Setting

The planning area encompasses the IEUA service area, which overlies the majority of the Chino Basin. The Chino Basin is located within the South Coast Air Basin (SCAB). The South Coast Air Quality Management District (SCAQMD) has jurisdiction over air quality issues within the SCAB.

The project area is comprised of highly urbanized areas, natural open space, and agricultural areas that are primarily associated with the dairy industry. The applicable general plans (cities and counties) envision additional urban development with a reduction in the agricultural uses.

While the SCAB has some of the most unhealthful air in the nation, air quality within the SCAB continues to show improvement. However at this time, the SCAB is classified non-attainment for ozone (O_3), small particulate matter (PM_{10}), and carbon monoxide (CO).

4.6.2.1 Climate/Meteorology[1]

Warm, dry summers, low precipitation, and mild winters characterize climate in the planning area. Average daily winter temperature is 51°F and average daily summer temperature is 75°F. During the year, temperatures range from a low near 20°F during the winter to a high of over 100°F during the summer. More than two-thirds of annual rainfall occurs from December through March with approximately 90 percent occurring between November and April. Little rain falls between May and November, due to the semipermanent Pacific high pressure system that prevents storms from entering the Master Plan area. In the planning area, mean annual precipitation ranges from 13 inches near Prado Dam to 25 inches at the base of the San Gabriel Mountains. In these mountains, average annual rainfall has reached as high as 40 inches with extremes ranging between 40 and 200 percent of normal. In nearly all months out of the year, evaporation exceeds precipitation. Relative humidity averages 45 percent year-round; 40 to 70 percent in winter, and 10 to 20 percent in summer.

Topography is a major factor influencing wind direction over the project area. Prevailing winds are generally light, and westerly or southwesterly. Night and early morning winds are usually northeasterly. Some afternoon sea breezes blow into the Chino Basin from the Los Angeles

[1] Metropolitan Water District of Southern California, Chino Basin Groundwater Storage Program, Draft Environmental Impact Report.

area. Summer daytime wind speed averages 10 to 15 miles per hour (mph) whereas the winter daytime wind speed averages five to eight mph. There is little seasonal variability in this pattern. Occasionally during autumn and winter, "Santa Ana" conditions develop from a high pressure zone to the east and bring dry, high velocity winds from the deserts to the east and northeast over Cajon Pass. These winds, gusting to over 80 mph, can reduce relative humidity to below 10 percent.

The SCAB experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific high. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning.

The SCAQMD maintains monitoring stations throughout the SCAB and the Coachella Valley to monitor concentrations of criteria pollutants in the air. The nearest SCAQMD monitoring stations to the Chino Basin that measure all criteria pollutants are the East San Gabriel Valley V1 station and the Central San Bernardino V2 station. Monitored ambient air quality data from these stations for the latest three years available (1998-2000) are provided in Tables 4.6-1 and 4.6-2.

These stations are located generally upwind and downwind of the Chino Basin. The data on Tables 4.6-1 and 4.6-2 indicate that air quality is essentially the same for carbon monoxide and nitrogen dioxide both upwind while ozone and PM_{10} levels are generally higher downwind or easterly of the planning area.

4.6.2.2 Air Quality Regulations

Federal Regulations/Standards

Pursuant to the federal Clean Air Act (CAA) of 1970, the U.S. Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS). The NAAQS were established for several major pollutants, termed "criteria" pollutants because the choices of NAAQS are supported by specific medical evidence. The NAAQS are two-tiered: primary standards to protect public health; and secondary standards to prevent degradation to the environment (e.g., impairment of visibility, damage to vegetation and property, etc.).

The six criteria pollutants are ozone (O_3), carbon monoxide (CO), particulates less than ten microns (PM_{10}) in diameter, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead (Pb). The primary standards for these pollutants are shown in Table 4.6-3; the health effects resultant from exposure to these pollutants are shown in Table 4.6-4. In July 1997, the EPA adopted a new NAAQS for particulates less than 2.5 microns ($PM_{2.5}$).

Data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" if the primary NAAQS have been achieved, or "non-attainment" if the NAAQS are not achieved. The Basin is currently classified as a non-attainment area for three criteria pollutants: O_3, PM_{10} and CO. Concentrations of NO_2, SO_2 and Pb are classified as "attainment." The Basin attainment status for $PM_{2.5}$ has not been determined.

Table 4.6-1
Air Pollutant Data Summary From
East San Gabriel Valley V1 Monitoring Station
(1998-2000)

Pollutant	SCAQMD Station Data		
	1998	1999	2000
Ozone			
Highest 1 hour, ppm	0.15	0.14[3]	0.17
Days > 0.12 ppm[1]	19	2[3]	7
Days > 0.09 ppm[2]	43	24[3]	36
Carbon Monoxide			
Highest 1 hour, ppm	6	5	NM
Days > 35.0 ppm[1]	0	0	NM
Days > 20.0 ppm[2]	0	0	NM
Highest 8 hour, ppm	3.9	3.9	NM
Days > 9.0 ppm[1,2]	0	0	NM
Nitrogen Dioxide			
Highest 1 hour, ppm	0.14	0.16[3]	0.12
Days > 0.25 ppm[2]	0	0[3]	0
Annual Average	0.364	0.390[3]	0.0364
Days > 0.053 ppm[1]	No	No[3]	No
Sulfur Dioxide			
Highest 24 hour, ppm	NM	NM	0.02[3]
Days > 0.05 ppm[2]	NM	NM	0[3]
Particulates (PM_{10})			
Highest 24 hour	87	103	108
Days > 150 $\mu g/m^3$ [1]	0	0	0
Days > 50 $\mu g/m^3$ [2]	16	35	31
AAM[1]	40.6	56.3	52.6
Year > 50 $\mu g/m^3$	No	Yes	Yes
AGM[2]	35.7	51.5	47.1
Year > 30 $\mu g/m^3$	Yes	Yes	Yes

Source: SCAQMD Annual Monitoring Reports, 1998-2000

ppm - parts per million
$\mu G/m^3$ - micrograms per cubic meter
NM - Not measured at this station
AAM - Annual Arithmetic Mean
AGM - Annual Geometric Mean
1 Federal Standard
2 State Standard
3 Less than 12 full months of data. May not be representative

Table 4.6-2
Air Pollutant Data Summary From Central San Bernardino V2 Monitoring Station
(1998-2000)

Pollutant	SCAQMD Station Data 1998	1999	2000
Ozone			
Highest 1 hour, ppm	0.21	0.16	0.15
Days > 0.12 ppm[1]	39	14	27
Days > 0.09 ppm[2]	65	45	48
Carbon Monoxide			
Highest 1 hour, ppm	6	5	5[3]
Days > 35.0 ppm[1]	0	0	0[3]
Days > 20.0 ppm[2]	0	0	0[3]
Highest 8 hour, ppm	4.6	4.0	4.3[3]
Days > 9.0 ppm[1,2]	0	0	0[3]
Nitrogen Dioxide			
Highest 1 hour, ppm	0.11	0.14	0.10
Days > 0.25 ppm[2]	0	0	0
Annual Average	0.034	0.036	0.033
Days > 0.053 ppm[1]	No	No	No
Sulfur Dioxide			
Highest 24 hour, ppm	NM	NM	NM
Days > 0.05 ppm[2]	NM	NM	NM
Particulates (PM_{10})			
Highest 24 hour	114	134	108
Days > 150 $\mu g/m^3$ [1]	0	0	0
Days > 50 $\mu g/m^3$ [2]	22	33	32
AAM[1]	46.3	56.5	50.1
Year > 50 $\mu g/m^3$	No	Yes	Yes
AGM[2]	39.3	50.6	44.5
Year > 30 $\mu g/m^3$	Yes	Yes	Yes

Source: SCAQMD Annual Monitoring Reports, 1998-2000

ppm - parts per million
$\mu G/m^3$ - micrograms per cubic meter
NM - Not measured at this station
AAM - Annual Arithmetic Mean
AGM - Annual Geometric Mean
1 Federal Standard
2 State Standard
3 Less than 12 full months of data. May not be representative

A five-year deadline for NAAQS attainment was originally set by the CAA; however, the attainment date was subsequently revised by the CAA Amendments, which also required the states to identify non-attainment subareas within their borders and to develop an EPA approved State Implementation Plan (SIP), demonstrating attainment of all NAAQS by 1982. In a later EPA mandate, that attainment deadline was extended to 1987. The 1990 CAA Amendments specify new strategies for attaining NAAQS nationwide over the next 20 years, including mandatory 3 percent annual reductions of air pollutant emissions for both existing and new stationary sources, the scheduled introduction of low emitting cars and trucks into the nation's motor vehicle fleet, and the development of mass transit or higher occupancy vehicle alternatives to the single passenger automobile. The 1990 CAA Amendments designated the SCAB as: "extreme" for ozone, requiring attainment with the federal ozone standard by 2010; "serious" for CO, requiring attainment of federal CO standards by 2000; and "serious" for PM_{10} requiring attainment with federal standards by 2001.

In response to the CAA requirements, the SCAQMD and Southern California Association of Governments (SCAG - which has been designated by the EPA as the Metropolitan Planning Organization responsible for ensuring compliance with the requirements of the CAA) prepare air quality management plans (AQMP) for the attainment of the ambient air quality standards. Air quality planning is described in a following section.

State Regulations/Standards

The State of California began to set California ambient air quality standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The CAAQS are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility reducing particles. These standards are listed in Table 4.6-3.

Originally, there were no attainment deadlines for the CAAQS. However, the California Clean Air Act (CCAA) of 1988 provided a timeframe and a planning structure to promote their attainment. The CCAA required non-attainment areas in the State to prepare attainment plans, and proposed to classify each such areas on the basis of the submitted plan, as follows: moderate, if CAAQS attainment could not occur before December 31, 1994; serious, if CAAQS attainment could not occur before December 31, 1997; and severe, if CAAQS attainment could not be conclusively demonstrated at all. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of non-attainment pollutants, unless all feasible measures have been implemented. The Basin is classified as a "severe" non-attainment area for ozone, carbon monoxide, and nitrogen dioxide.

Regional Air Quality Planning Framework

The California Air Resources Board (CARB) coordinates and oversees both State and federal air pollution control programs in California. The CARB has divided the State into 15 air basins. Significantly authority for air quality control within them has been given to local Air Pollution Control Districts (APCD) or Air Quality Management District (AQMD), which regulate stationary source emissions and develop local non-attainment plans. CARB has designated all of Los Angeles County south of the San Gabriel Mountains, Orange County, and the non-desert portions of Riverside and San Bernardino counties as the Basin under the jurisdiction of the SCAQMD. SCAQMD is responsible for regulatory stationary source emissions, and has been given the authority to regulate mobile emissions as an indirect source. The SCAQMD and

Table 4.6-3
Ambient Air Quality Standards

Pollutant	Average Time	State Concentration	Federal Primary	Federal Secondary
Ozone	1 Hour	0.09 ppm (180 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)	Same as Primary Std.
Nitrogen Dioxide	Annual Average	–	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Std.
	1 Hour	0.25 ppm (470 $\mu g/m^3$)	–	
Carbon Monoxide	8 Hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	
	1 Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
PM_{10}	Annual Geometric Mean	30 $\mu g/m^3$	–	
	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	Same as Primary Std.
	Annual Arithmetic Mean	–	50 $\mu g/m^3$	
Sulfur Dioxide	Annual Average	–	80 $\mu g/m^3$ (0.03 ppm)	–
	24 Hour	0.04 ppm (105 $\mu g/m^3$)	365 $\mu g/m^3$ (0.14 ppm)	–
	3 Hour	–	–	1300 $\mu g/m^3$ (0.5 ppm)
	1 Hour	0.25 ppm (655 $\mu g/m^3$)	–	–
Lead	30-Day Average	1.5 $\mu g/m^3$	–	–
	Calendar Quarter	–	1.5 $\mu g/m^3$	Same as Primary Std.
Sulfates	24 Hour	24 $\mu g/m^3$	–	–
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	–	–
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 $\mu g/m^3$)	–	–
Visibility Reducing Particles	8 Hour (10 am to 6 pm, PST)	**	–	–

Source: CARB, 2002

** In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with CARB Method V.

SCAG jointly conduct air quality planning in the Basin. The CARB regulates motor vehicles and fuels.

Regional Air Quality Management Plan

Compliance with the provisions of the federal CAA and CCAA is the primary focus of the latest AQMP developed by SCAQMD and SCAG. The Plan is revised every three years, with the latest version adopted by the SCAQMD in November 1996 and titled the 1997 AQMP. The latest AQMP was adopted by the CARB in February 1997, and was included in the SIP and send to the EPA for its review and approval.

Table 4.6-4
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 source 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. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart disease (angina).
PM_{10}	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions. Fugitive dust.	Reduced lung function. Aggravation of the effects of gaseous pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Soiling. Reduced visibility.
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 function and nerve construction. Behavioral and hearing problems in children.

Source: CARB, 2002.

According to the 1997 AQMP, attainment for all federal health standards is to occur no later than year 2000 for carbon monoxide, the year 2006 for PM_{10} and the year 2010 for ozone. State standards would be attained no later than the year 2000 for carbon monoxide. State standards for ozone and PM_{10} would not be achieved until after the year 2010.

The 1997 AQMP includes short-term, intermediate, and long-term control measures, and market based incentive strategies to meet targets for emission reduction. The short-term measures identify specific control measures under existing technology. The control measures consist mainly of stationary source controls that will be the subject of the SCAQMD rule making. CARB adopted motor vehicle emissions standards and fuel specifications, and federally adopted programs to reduce emissions from sources under federal jurisdiction. Intermediate term measures are composed primarily of the extension, or more stringent application, of short-term control measures. Long-term measures depend on substantial technological advancements and breakthroughs that are expected to occur throughout the next two decades.

In response to legal challenges to the 1997 AQMP, and EPA's rejection of the ozone portion of the SIP, the ozone portion of the AQMP was amended in 1999 to add new stationary source control measures to further strengthen the plan. The 1999 amended ozone plan is currently being reviewed by federal authorities.

AQMP control measures focus on adoption of new regulations or enhancement of existing regulations for stationary sources, implementation/facilitation of advanced transportation technologies (i.e., telecommunications, zero emission and alternative fuel vehicles and infrastructure and both capital- and non-capital based transportation improvements). Capital-based improvements consist of high occupancy vehicle (HOV) lanes, transit improvements, traffic flow improvements, park and ride and intermodal facilities, and urban freeway, bicycle and pedestrian facilities. Non-capital based improvements consist of rideshare matching and Congestion Management Plan (CMP) based transportation demand management activities.

Air Toxics

Toxic air contaminants (TACs) are airborne substances that are capable of causing short-term or long-term adverse human health effects. TACs include both organic and inorganic chemical substances. TACs may be emitted from a variety of common sources, including gasoline stations, automobiles, dry cleaners, industrial operations, and painting operations. Research and teaching facilities where a variety of chemicals are used for various experiments may also be a source of TACs.

The 1990 federal CAA Amendments expanded the regulation of hazardous air pollutants (HAPs; the federal government terminology for TACs), establishing a list of 172 individual compounds and 17 compounds categories to be regulated as HAPs. The federal CAA required the EPA to establish a stringent, technology based emissions standard for stationary sources of emissions of these listed substances. The Act also required the EPA to list "major" and "area" source categories that the EPA finds sufficiently threatening to human health or the environment by November 1993, to establish emissions standards for at least 40 stationary source categories by November 1994, and to establish standards for all regulated sources by November 2002.

"Major sources" are defined as any stationary source that emits at least 10 tons per year (tpy) of any single HAP or 25 tons per year of any combination of HAPs. "Area sources" are stationary sources encompassing small diverse facilities that routinely release small amounts of HAPs. By November 1997, the EPA must list sufficient categories and subcategories of area sources to ensure that 90 percent of the emissions of the 30 HAPs presenting the greatest threat to the public health in the largest number of urban areas are subject to regulation.

In the state of California, the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB2588) requires specified facilities to submit to the local air pollution control agency, in this case, the SCAQMD, a comprehensive plan to inventory air toxics emissions for all substances listed pursuant to the Act. After the inventory preparation plan is approved, the facility must implement the plan and submit the resulting air toxics emission inventory to the District. After the District receives the completed emission inventories subject to the Act, it is then required to identify high priority facilities for which health risk assessments must be prepared to estimate the potential health risk associated with TAC emissions.

Assembly Bill 1807 (Tanner Bill) set up a statewide process to determine the need for methods to set standards for toxic air contaminants. The process includes identification of toxic air contaminants, determination of emissions and ambient levels of the identified compounds, preparation of regulatory needs documents, and establishment of minimum statewide emission control standards by the Air Resources Board (ARB).

The ARB has identified several chemicals as TACs under the Tanner Bill, including asbestos, benzene, cadmium, carbon tetrachloride, chlorinated dioxins and dibenzofurans (15 species), chromium (VI), ethylene dibromide, ethylene oxide and methylene chloride as toxic air contaminants. The ARB has not developed statewide ambient air quality standards for any of these toxic chemicals.

Table 10-2 of the CEQA Handbook identifies air toxics and representative uses/sources that are subject to federal and state regulations. The uses/sources identified in the table that emit air toxics do not include water treatment or production facilities as potential air toxics sources. It should be noted however, that the SCAQMD Air Auality Handbook identifies POTW's as an emission source of chloroform.

The SCAQMD regulates levels of air toxics through a permitting process. Both new and existing industries routinely use materials classified as air toxics. For new and modified sources, the SCAQMD has adopted Rule 1401, with which the project proponent must comply before the project can be constructed and put into operation. A permit, when issued, will allow the facility to operate and will specify the conditions, if any, that might limit its operation.

Rule 1401 pertains to new source review of toxic air contaminants. Rule 1401 specifies the following requirements for maximum individual cancer risk (MICR) and cancer burden:

- A maximum individual excess cancer risk less than one in one million ($1x10^{-6}$), if the unit is constructed without T-BACT;
- A maximum individual excess cancer risk less than ten in one million ($1x10^{-5}$), if the unit is constructed with T-BACT; or
- Less than 0.5 excess cancers in the population subject to a risk greater than one in one million.

For noncarcinogenic compounds, Rule 1401 requires that the nonchronic acute and chronic hazard index (HI) not exceed 1.0.

In addition to the air toxics, the SCAQMD controls the emissions of reactive organic gases (ROGs), and odors through regulations and the permitting process.

SCAQMD Rules and Regulations

Regulation II

Identifies the information required of applicants seeking a Permit to Construct for air pollution sources and requires submission of information before an application can be considered. Specific rules that maybe applicable to the management plans include: (1) Rule 201 - Permit to Construct, (2) Rule 204 - Permit Conditions, (3) Rule 212 - Standard for Approving Permits, and (4) Rule 217 - Provisions for Sampling and Testing Facilities.

Regulation II also contains a "List of Criteria Identifying Information Required of Applicants Seeking a Permit to Construct." Include in this list are a concentration impact analysis, a health risk assessment, a Best Available Control Technology (BACT) evaluation, and source test data. The type of information and level of detail required will vary depending on the scope of the project, predicted emissions, and potential health effects.

Regulation IV

Operation of existing equipment is governed by Regulation IV. All visible emissions are regulated by rules in Regulation IV. Odors are regulated by Rule 402, "Public Nuisance."

Regulation IX

This regulation specifies standards of performance for new stationary sources (NSPS). Subpart GG of the regulation provides the NSPS for Stationary Gas Turbines.

Regulation X

Regulation X addresses the National Emission Standards for Hazardous Air Pollutants (NESHAPS). Fugitive HAP emissions from equipment leaks may be subject to this regulation.

Regulation XI

This regulation addresses source-specific standards. Specific rules that may be applicable to Master Plan facilities under this regulations include: (1) Rule 1110.2 - Emissions from Stationary Internal Combustion Engines, and (2) Rule 1146.1 - Emission of Oxides of Nitrogen from Small Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters, and (3) Proposed Rule 1133.

Regulation XIII

This regulation addresses new source review. The regulation sets forth preconstruction review requirements to ensure that operation of new or modified facilities does not interfere with progress toward attainment of the national ambient air quality standards, and that future economic growth within the SCAQMD is not unnecessarily restricted.

A key impact of Regulation XIII is the required application of BACT and use of emission offsets. BACT must be employed for any permit which results in a net emission increase of any non-attainment air contaminant, any halogenated hydrocarbon or ammonia. Air contaminants of concern include carbon monoxide, sulfur dioxide, nitrogen oxides, particulate matter, lead compounds, and ROGs. BACT is determined by SCAQMD based either on published guidelines or on a case-by-case basis. To determine compliance with Regulation XIII may require dispersion modeling analyses to show no impact on air qualities and plume visibility to Cucamonga and other federal class I areas nearby.

The SCAQMD, which has jurisdiction over air quality issues in the SCAB, has determined that compliance with the terms and conditions of its applicable permits and regulations is adequate mitigation for potential project-related impacts to air quality. No further mitigation is required.

4.6.3 <u>Project Impacts</u>

This section assesses potentially significant environmental impacts to air quality resulting from the three proposed management plans. Section 4.6.3.1 sets forth the threshold criteria used to determine the significance of air quality impacts under CEQA. Section 4.6.3.2 assesses project impacts to air quality from construction and operational emission sources for each of the three management plans, based on data contained in those plans. These sections include comparisons to significance criteria outlined in Section 4.6.3.1. Air Quality Tables and supporting data for the impact analysis and conclusions presented below are present in Appendix 8.3 of this document.

4.6.3.1 Significance Criteria/Thresholds of Significance

<u>Thresholds for Construction Emissions</u>

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD's CEQA Air Quality Handbook. The criteria include emission thresholds, compliance with State and federal air quality standards, and conformity with the existing SIP or consistency with the current AQMP.

The following CEQA significance thresholds for construction emissions have been established by the SCAQMD:

- 24.75 tons per quarter or 550 pounds per day of CO
- 2.5 tons per quarter or 75 pounds per day of ROC
- 2.5 tons per quarter or 100 pounds per day of NO_X
- 6.75 tons per quarter or 150 pounds per day of SO_X
- 6.75 tons per quarter or 150 pounds per day of PM_{10}

Thresholds for Operational Emissions

The daily operational emissions "significance" thresholds are as follows:

Regional Emissions Thresholds

- 550 pounds per day of CO
- 55 pounds per day of ROC
- 55 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}

Projects in the SCAB with operation-related emissions that exceed any of the emission thresholds are considered significant by the SCAQMD.

Location-Specific Emission Standards

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

The significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have significant impacts if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase one hour CO concentrations by 1.0 ppm or more, or eight hour CO concentrations by 0.45 ppm or more.

Facilities with emissions of TACs are considered significant if a health risk assessment shows an increased risk of greater than 10 in one million.

The potential air quality impacts of the proposed project were assessed using guidelines and data developed by the SCAQMD CEQA Air Quality Handbook.

4.6.3.2 Impacts Analysis

The following discussion is based on responses to the questions posed in the Air Quality section of the Initial Study. The impacts of each management plan are examined for the construction and operational phases of plan implementation, and conclusions are drawn concerning the significance of those impacts. The projects identified in the three master plans are summarized below.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

I. Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
II. Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
III. Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

I. Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
II. Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

I. Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
II. Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional

tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

III. Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of ten potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],
   - Church Basin [SP-3],
   - CCDW-Baseline [SP-4],
   - Foothill/I15 Corridor [SP-5],
   - Kaiser/CSI WWTP [SP-6],
   - Sierra Lakes [SP-7],
   - Fontana-Baseline [SP-8], and
   - Montclair [SP-9].
   - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration
2. Construct two 5 mgd plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.
2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RWRP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare

for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

Several of the facilities summarized above will be evaluated for their potential to generate air pollutants both during construction and operation. The questions and analytical results are presented in the following sections.

Would the project:

a. Conflict with or obstruct implementation of the applicable air quality plan?

Wastewater Facilities Master Plan

Construction Phase

Construction of WFMP infrastructure would result in the emission of air contaminants. These emissions would be temporary and cease at the end of the construction period. Therefore, construction emissions would not add to the long-term emissions burden of the region, and would thus not conflict with or obstruct implementation of the AQMP.

Operation Phase

The issue of air quality conformity or consistency with the regional air quality planning process is determined by comparing the proposed project with the regional growth forecasts contained in these documents. The SCAQMD AQMP has concluded that regional air quality for the SCAB can meet NAAQS by 2010 with reasonable growth if all of the measures identified in the AQMP to reduce pollutant emissions are implemented. Part of the overall air quality planning effort has been the compilation of the Regional Comprehensive Planning Guide (RCPG) in 1996 by SCAG. For planning purposes, the AQMP assumes that if future growth in the region is consistent with the growth forecasts contained in the RCPG. The measures identified in the AQMP will be sufficient to reduce emissions in the SCAB to the point that ambient air pollutant concentrations will not exceed the federal NAAQS by 2010 while accommodating planned growth. The AQMP indicates that there still may be violations of the California AAQS for ozone in the year 2010, but the region will be near compliance for these standards.

Given this assumption, the key to determining consistency with the AQMP and RCPG is to evaluate the proposed project's contribution to growth projections by ascertaining whether the project is being implemented consistent with applicable General Plans in the area and whether growth forecasts for the region are meeting or exceeding the forecast contained within the RCPG.

This project does not propose to alter existing land use designations, increase development densities allowed by applicable general plans, or serve future growth in excess of that contained in the existing General Plan, RCPG, or AQMP forecasts. The purpose of the facilities is to serve planned regional growth consistent with the AQMP.

As discussed in the document Population and Land Use, Technical Memorandum No.2 (IEUA, 2002), the available SCAG population projections extend only to the year 2025, and only include projections for incorporated cities within the IEUA service area. No projections are available for the unincorporated "county" areas within the IEUA service area - areas that make up a significant portion of the service area at this time. Therefore, IEUA separately prepared population projections to the year 2050 for its entire service area. Those projections are provided in Technical Memorandum No. 2. To validate the projections, the ratio of year 2025 SCAG and IEUA incorporated city projections to year 2000 population data was compared. The ratio of year 2025 SCAG city projections to the year 2000 population is 1.36. The corresponding ratio for the IEUA's WFMP projections for the entire service area is 1.34. Based on this, it appears that the WFMP populations are reasonable and consistent with the SCAG projections, and consequently the applicable air quality plan, for a 25-year time frame. Since SCAG projections are not available for years after 2025, comparing growth after the year 2025 is not possible.

Based on the IEUA and SCAG population projections, the proposed WFMP has identified a non-growth inducing expansion program that is fully consistent with, i.e., not in conflict with, the regional air planning framework. Therefore, no adverse conflicts or impact is forecast to occur to the region from implementing the proposed WFMP.

Recycled Water Master Plan

Construction Phase

Please see the discussion under Wastewater Facilities Master Plan above. The RWMP is a component of the proposed project, and the same discussion of construction phase impacts applies.

Operation Phase

Please see the discussion under Wastewater Facilities Master Plan above. The Recycled Water Management Program is a component of the proposed project, and the same discussion of operation phase impacts applies.

Organics Management Master Plan

Construction Phase

Please see the discussion under WFMP above. The OMMP is a component of the proposed project, and the same discussion of construction phase impacts applies.

Operation Phase

Please see the discussion under WFMP above. The OMMP is a component of the proposed project, and the same discussion of operation phase impacts applies.

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Wastewater Facilities Master Plan

Construction Phase

Implementation of the WFMP would result in the construction of three subprojects in the immediate period (0-6 months from plan approval). Additional subprojects would be programmed in the Near Term (within 10 years) and Long Term (10-50 years). The projects are summarized above. Given the indeterminate nature of the Long Term projects, only the construction impacts of the Immediate and Near Term projects are examined in this document. Estimation of emissions impacts from the Long Term Projects, beyond 2010, would be unduly speculative at this time, and would be the subject of additional analysis at a later date, when project details and background conditions can be more clearly defined.

Immediate Projects

There are three immediate projects programmed in the WFMP. These are:

1. Modernization of RP1 - installation of odor control facilities, expansion of chlorine contact basins and provision of side stream treatment for the belt presses
2. CCWRF capacity enhancement to 12 mgd: includes divert recycled flows to SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination
3. Construct three upgraded conveyance systems, including;

- Upland Interceptor Relief System
- RP4 Trunk Sewer (Reaches 1, 2 & 3)
- RP1/RP5 Bypass

Short-term construction phase impacts would include fugitive dust and other particulate matter, as well as exhaust emissions generated by earth moving activities and operation of construction during site preparation (clearing and grading) and construction. Construction phase emissions were calculated for each project as described in the following sections. It was assumed for all phases that construction would take place during 10-hour workdays and a six day workweek. Not all equipment would be operating continuously over the 10-hour daily work period. Therefore, several daily equipment-operating scenarios were assumed depending on the type of equipment and task. 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. Assumed construction equipment utilization data are provided in the detailed emissions estimate tables in Appendix 8.3. The number of construction workers would vary according to the type and phase of construction project. Assumed numbers of construction workers are also provided in the tables in Appendix 8.3. It is further assumed that each worker would commute using his own vehicle and the average commute would be approximately 20 miles one way. Emissions from the planting of landscape materials and screening wall construction at RP1 are expected to be minimal and have not been calculated.

RP-1 Plant Modernization

This proposed project consists of installing odor control facilities, expanding chlorine contact basins and side stream treatment for belt presses. Very little facility construction is anticipated. Therefore, emissions were not calculated for this project since they would likely be very short term and fall well below significance thresholds. Emission during this phase will be substantially less than the emissions forecast for the Phase I and II RP-1 facility improvements, which are presented below.

CCWRF Expansion

This project would only involve diversion of recycled flows to the SARI line and replacement of gaseous chlorine with sodium hypochlorite. Very little facility construction is anticipated. Therefore, emissions were not calculated for this project since they would likely be very short term and fall well below significance thresholds.

Wastewater Conveyance Systems

Immediate term wastewater conveyance system construction activities would include the construction of three systems as subprojects. These include:

1. Upland Interceptor Relief System
2. RP4 Trunk Sewer (Reaches 1, 2, and 3)
3. RP1/RP5 Bypass

Details concerning construction phase emissions for the conveyance systems are shown in Appendix 8.3-2. Construction phase emissions for each of these systems are summarized in Table 4.6-5. Note that the emissions are the same for each conveyance system because the assumed construction scenarios are the same for each in terms of both equipment use and an installation rate of 1,000 linear feet per day. Furthermore, it is assumed that the construction periods for the systems would not overlap.

Table 4.6-5
Summary of Conveyance System Construction Emissions

Conveyance System Name:	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
Upland Interceptor	50.70	7.30	53.10	3.30	4.10
San Bernardino Interceptor	50.70	7.30	53.10	3.30	4.10
RP4 Trunk Sewer	50.70	7.30	53.10	3.30	4.10
RP1/RP5 Bypass	50.70	7.30	53.10	3.30	4.10

Source: Parsons
Note the San Bernardino Interceptor is included in this emission forecast because it was originally scheduled for construction immediately, but has now been deferred to the Near Term period.

Near Term WFMP Projects

There are four WFMP projects planned for implementation in the Near Term. These projects include:

1. RP1 modifications Phases I and II
2. RP-4 expansion to 21 mgd capacity
3. Satellite plants - two to be constructed, nine potential sites identified
4. Construct two upgraded conveyance systems, including;
    - San Bernardino Interceptor Pump Station and Force Main
    - Freeway Trunk Sewer

Emissions for these planned projects are estimated in the following discussion. Construction phase parameters are the same as those utilized for the Immediate projects analysis.

RP1 Modifications Phases I and II

This project would be divided into two phases and involve the construction of additional facilities to modernize the plant. The majority of the construction activity would take place in Phase I, for which worst-case day emissions estimates were prepared. Phase I emissions for the three construction phases (site preparation, piping and forming concrete, and site finishing) are shown in Table 4.6-6. Detailed calculations are.provided in Appendix 8.3-3.

Table 4.6-6
Summary of RP1 Modification Construction Emissions by Phase

Construction Phase:	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
Site Preparation	23.80	4.70	28.10	2.30	9.70
Piping and Forming	93.10	23.50	62.70	4.10	38.00
Site Finishing	21.10	54.90*	28.20	5.70	3.80

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

RP4 - Expansion

This subproject would be constructed in three phases that would not overlap each other. The construction phases would include: (1) Site Preparation/Earthwork; (2) Piping and Forming Concrete; and (3) Site Finishing. RP4 expansion construction emissions by phase are summarized in Table 4.6-7. Detailed emissions calculations are provided in Appendix 8.3-1.

Table 4.6-7
Summary of RP4 Expansion Construction Emissions by Phase

Construction Phase:	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
Site Preparation	23.80	4.70	28.10	2.30	9.70
Piping and Forming	93.10	23.50	62.70	4.10	38.00
Site Finishing	21.10	54.90*	28.20	5.70	3.80

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

Satellite Plants

It is assumed that one satellite plant would be constructed during the Near Term period. Calculated construction activity emissions by phase are shown in Table 4.6-8. Detailed calculations are provided in Appendix 8.3-4.

Table 4.6-8
Summary of Satellite Plant Construction Emissions by Phase

Construction Phase:	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
Site Preparation	23.80	4.70	28.10	2.30	9.70
Piping and Forming	93.10	23.50	62.70	4.10	38.00
Site Finishing	21.10	54.90*	28.20	5.70	3.80

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

Wastewater Conveyance Systems

Near term wastewater conveyance system construction activities would include the construction of two systems as subprojects. These include:

- San Bernardino Interceptor Pump Station and Force Main
- Freeway Trunk Sewer

Details concerning construction phase emissions for the conveyance systems are shown in Appendix 8.3-5. Construction phase emissions for each of these systems are summarized in Table 4.6-5, above. Note that the emissions are the same for each conveyance system because the assumed construction scenarios are the same for each in terms of both equipment use and an installation rate of 1,000 linear feet per day. Furthermore, it is assumed that the construction periods for the systems would not overlap.

Recycled Water Management Plan

Implementation of the RWMP would result in construction emissions during the same three master plan phases (Immediate, Near Term, and Long Term) described above. The following emissions estimates were prepared using the same assumed construction personnel and equipment utilization as was done for the WFMP.

Immediate Projects

The Immediate projects have been incorporated with the near term projects to facilitate analysis of RWMP implementation.

Near Term Projects

There are two Near Term projects proposed in the RWMP. These projects are:

1. RWMP Phase 1 through 5 projects (as outlined above)
2. Philadelphia Regional Pipeline construction

Estimated emissions from construction of these facilities are provided in the following discussion.

RWMP Phase 1 through 5 Projects

These five subprojects involve the construction of various combinations of pipeline, pump station, and reservoir facilities, as presented in the Project Description and summarized above. For air quality analytical purposes, the worst case day was assumed to include the simultaneous construction of one inlet, one pump station, five pipelines (at installation rate of 300 linear feet per day each) and one reservoir. The emission estimates for this case are shown in Table 4.6-9. Detailed calculations are provided in Appendix 8.3-5.

Table 4.6-9
Summary of RWMP Phases 1-5 Case Day Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
336.50	89.20*	198.90	32.20	24.30

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

Philadelphia Regional Pipeline

This new pipeline would run from RP-1 to Ontario Soccer Fields. Estimated construction emissions are shown in Table 4.6-10. Detailed calculations are provided in Appendix 8.3-6.

Organics Management Master Plan

Immediate Projects

Construction of the immediate project OMMP facilities includes three new facilities:

1. RP1 Enclosed ASP

Table 4.6-10
Summary of Philadelphia Regional Pipeline Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
50.40	7.30	53.10	3.30	4.10

Source: Parsons

2. Dairy Digester Pilot Project
3. Inland Empire Regional Composting Facility

Construction phase emissions are presented in the following discussion. Details concerning construction phase emissions are provided in Appendix 8.3. For emissions estimation purposes, it was assumed that construction of the OMMP facilities would not overlap.

RP1 Enclosed ASP

This project would involve construction of an enclosed composting facility and emissions control equipment. Estimated construction emissions are summarized in Table 4.6-11. Detailed emission calculations are shown in Appendix 8.3-7.

Table 4.6-11
Summary of RP1 Enclosed ASP Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
57.00	59.20*	68.20	8.60	16.30

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

Dairy Digester Pilot Project

Construction of this project would include construction of enclosed lagoon digesters and cogeneration facilities. Estimated construction emissions are summarized in Table 4.6-12. Detailed emission calculations are shown in Appendix 8.3-8.

Table 4.6-12
Dairy Digester Pilot Project Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
3.40	1.90	11.60	1.10	2.90

Source: Parsons

Inland Empire Regional Composting Facility

Construction of this project includes construction of an enclosed ASP and emission control equipment. Estimated construction emissions are summarized in Table 4.6-13. Detailed emission calculations are shown in Appendix 8.3-9.

Table 4.6-13
Summary of Inland Empire Regional Composting Facility Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
70.10	61.80*	69.80	10.00	13.60

Source: Parsons
* Includes coating application emissions of 51.60 lbs/day

Near Term Projects

There are five Near Term OMMP projects in the Master Plan. Those projects are:

1. California Institute for Men (CIM) Compost Facility construction
2. High Tech Manure Facility construction
3. Convey Dairy Manure by Sewer project
4. Advanced Technology Manure Pyrolysis Process
5. RP-5 Renewable Energy Project

Construction phase emissions estimates for three projects are provided in the following sections as an illustration of the level of emissions associated with installation of these new OMMP facilities.

California Institute for Men Compost Facility

This proposed project would be a new facility built to compost biosolids conveyed to the site by conveyor. Construction emission estimates for the composting facility and emission control equipment are shown in Table 4.6-14, regardless of which site the facility is constructed. Detailed emission calculations are shown in Appendix 8.3-10.

Table 4.6-14
Summary of CIM Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
58.00	60.50*	67.10	9.80	13.50

Source: Parsons
* Includes coatings application emissions of 51.60 lbs/day

High Tech Manure Facility

This proposed project would involve installation of lagoon digester, emissions control system, and microturbines to utilize digester gas to generate electricity. A flare would also be installed to dispose off-spec gas. Construction emissions are presented in Table 4.6-15. Detailed construction emissions calculations are presented in Appendix 8.3-11

Table 4.6-15
Summary of High Tech Manure Facility Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
68.70	62.50*	90.40	12.60	16.00

Source: Parsons
* Includes coatings application emissions of 51.60 lbs/day

Advanced Technology Manure Pyrolysis Process

The specifics of the construction activity required to install this facility are not known with certainty at this time. Therefore, for EIR analytical purposes it is assumed that construction on a worst case day would be similar as that for the High Tech Manure Facility. These emissions are presented in Table 4.6-16. Detailed calculations are provided in Appendix 8.3-12.

Table 4.6-16
Summary of Advanced Technology Manure Pyrolysis Facility Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
68.70	62.50	90.40	12.60	16.00

Source: Parsons
* Includes coatings application emissions of 51.60 lbs/day

Convey Dairy Manure by Sewer

This project would eliminate truck hauling of manure for part of the region by transporting manure by sewer for treatment at RP5: Estimated construction emissions ar shown in Table 4.6-17. Detailed construction emissions calculations are presented in Appendix 8.3-13.

Table 4.6-17
Summary of Dairy Manure Sewer Construction Emissions

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
50.70	7.30	53.10	3.30	4.10

Source: Parsons

RP-5 Renewable Energy Project

This project would entail installing one or more additional generators at the existing renewable energy facility. No actual construction of new facilities would be required. The new generators would be installed on the existing concrete pad, which holds the existing power generation units. Emissions from this installation effort will be *de minimus* because it involves truck delivery of the unit and bolting it to the pad. No detailed construction estimate has been prepared because of the minimal emissions associated with installation of the new power units. The additional wet manure for composting would be delivered by the sewers described in the preceding section.

Summary of Immediate Projects Worst Case Day

To summarize a worst case emissions day for comparison to emissions significance thresholds, it is necessary to determine which of the above construction activities would reasonably be expected take place simultaneously on a given day. For purposes of this analysis, it is assumed that the worst case day would consist of simultaneous construction of: (1) the RP1 Enclosed ASP, and; (2) the Inland Interceptor Relief System.

Table 4.6-18 presents the worst-case day emissions case for the immediate projects. This table indicates that emissions of NOx would be significant during the immediate projects worst-case day. Emissions of other air contaminants would be below their significance thresholds.

Table 4.6-18
Immediate Projects Worst Case Day Emissions Summary

Source	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
RP-1 Enclosed ASP	57.00	59.20	68.20	8.60	16.30
Inland Interceptor	50.70	7.30	53.10	3.30	4.10
Total Worst Case Emissions	107.50	66.50	121.30	11.90	32.30
Significance Thresholds	550	75	100	150	150
Threshold Exceeded?	No	No	Yes	No	No

Source: Parsons

Summary of Near Term Projects Worst Case Day

At this time it is not possible to provide an estimated worst-case day for the Near Term projects because their construction periods could range from the completion of the immediate projects through 2010. Attempting to establish a worst case day consisting of simultaneous construction of projects is thus unduly speculative. Therefore, for purposes of this EIR, the worst case day for Near Term projects is assumed to be the same as the worst case day (highest estimated emissions) of a single Near Term project. Therefore, construction of the RWMP Phases 1 through 5 Projects represents the worst case day. Table 4.6-19 summarizes the worst case day emissions for the Near Term projects and compares it to the significance thresholds.

Table 4.6-20 shows that for the assumed worst case day the air quality significance thresholds for NO_x and VOC would be exceeded.

Table 4.6-19
Near Term Projects Worst Case Day
Construction Emissions Summary

Worst Case Day Project:	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
RWMP Phases 1-5	336.50	89.20	198.90	32.20	24.30
Emissions Threshold	550	75	100	150	150
Threshold Exceeded?	No	Yes	Yes	No	No

Source: Parsons

Operation Phase

Operation of the proposed facilities contained in the three Master Plans would result in long-term emissions. The sources of these emissions would be truck traffic, employee commuting, volatilization in the wastewater treatment process, on-site internal combustion, and increased electrical demand at the new facilities. The likely emissions resulting from the operation of both the Immediate and Near Term projects considered together are presented in the following sections. Detailed operation phase emission calculation worksheets for employee commuting and truck traffic emissions for all of the following tables are provided in Appendix 8.3-14. Operation phase process unit VOC emissions were calculated using Joint Emission Inventory Program flow-related emission factors (JEIP, 1993), as shown in Appendix 8.3-15.

Wastewater Facilities Master Plan

As stated in the construction phase emissions analysis, the projects to be implemented in the WFMP Immediate and Near Term phases include:

1. RP1 Projects
    - Modernization of Plant (tree planting and screening wall)
    - Phase I and II improvements
2. RP4 Liquid Treatment capacity expansion to 14 mgd
3. CCWRF expansion of capacity to 12 mgd
4. Satellite Plant - operation of one five new mgd facility
5. Conveyance Systems - operation of four new pipelines plus a new pump station

RP1 Projects

The landscaping and screening wall improvements will not cause emissions. The Phase I and Phase II improvements will maintain the facility's current 44 mgd capacity, will add additional odor control facilities, expand aeration basins, add secondary clarifiers, expand chlorine contact basins, and replace existing primary flow equalization basins with tanks. Future operations at RP1 after implementation of Phases I and II will create emissions from the new aeration and secondary clarifier facilities, and from additional employee commuting trips and truck deliveries. Emissions resulting from the increase in stationary equipment operations and automobile and truck miles driven in 2010 are shown in Table 4.6-20.

Table 4.6-20
Summary of Year 2010 Emissions, RP1 Projects (lbs/day)

Pollutant	Employee Commuting	Truck Deliveries	Stationary Equipment	Total
NO_x	0.38	2.72	-	3.10
CO	1.90	3.28	-	5.18
VOC	0.21	0.80	4.70	6.72
PM_{10}	0.02	0.56	-	0.58

Source: Parsons

RP4 Liquid Treatment Expansion

This project would expand RP4 capacity from 7 mgd to 21 mgd. Emissions sources would include additional wastewater treatment equipment, in addition to increased employee commuting and delivery truck miles travelled. Forecast 2010 emissions from stationary and mobile sources are shown in Table 4.6-21.

Table 4.6-21
Summary of Year 2010 Emissions RP4
Liquid Treatment Expansion (lbs/day)

Pollutant	Employee Commuting	Truck Deliveries	Stationary Equipment	Total
NO_x	0.85	2.04	-	2.89
CO	4.21	2.46	-	6.67
VOC	0.46	0.60	3.24	4.30
PM_{10}	0.05	0.42	-	0.47

Source: Parsons

CCWRF Expansion

Planned CCWRF expansion improvements to 2010 include expanding capacity to 12 mgd by diverting recycled flows to the SARI line, and replacing gaseous chlorine with sodium hypochlorite for disinfection. No new stationary emissions sources will be installed. The number of employees at the facility will be less than are currently working there. Therefore, CCWRF expansion will result in an emissions reduction in 2010 from the current case.

Satellite Plant

A proposed new five mgd satellite plant would be constructed as part of WFMP implementation. This plant would operate primary and secondary clarification systems, multi-stage aeration, and filtration and disinfection systems. New staff totaling 19 persons would also be added by 2010. Estimated emissions for the new satellite plant are shown in Table 4.6-22.

Conveyance Systems

Operation of the four planned Immediate Project phase conveyance systems will result in emissions only from electricity used in operation of the pump station planned for the San Bernardino Interceptor. The other planned conveyance facilities do not produce air pollutant

Table 4.6-22
Summary of Year 2010 Emissions Satellite Plant (lbs/day)

Pollutant	Employee Commuting	Truck Deliveries	Stationary Equipment	Total
NO_x	1.76	2.04	-	3.80
CO	8.69	2.46	-	11.15
VOC	0.94	0.60	2.32	3.86
PM_{10}	0.10	0.42	-	0.52

Source: Parsons

emissions or require on-site employees. Electric power generation emissions for the pump station are included in the overall electricity generation emissions estimate provided later in this section.

Recycled Water Master Plan

RWMP projects are implemented only in the Near Term - there are no planned immediate projects. The Near Term projects include:

1. RWMP Phase 1 through 5, to include operation of pipelines, pump stations and reservoirs
2. Operation of Philadelphia Regional Pipeline

<u>RWMP Phase 1 through 5 Projects</u>

These five projects include the additions of pipelines, pump stations, and reservoirs at various locations. These facilities would not emit air contaminants and require no additional employee or delivery trips. Therefore, no future emissions increases are anticipated from those sources. Electric energy generation emissions are provided elsewhere in this section.

<u>Philadelphia Regional Pipeline</u>

Operation of this new pipeline would not emit air contaminants and require no additional employee or delivery trips. Therefore, no future emissions increases are anticipated from those sources. Electric energy generation emissions are provided elsewhere in this section.

Organics Management Master Plan

OMMP projects include:

1. RP1 Enclosed ASP - operation of the pilot demonstration project
2. Dairy Digester Pilot Project (Lagoon Digester) - operation of the lagoon and electric generation using microturbine generators.
3. RP4 Inland Empire Regional Composting Facility operation
4. CIM Compost Facility operation
5. High Tech Manure Facility operation and generation of electricity using microturbine generators
6. Convey Dairy Manure by Sewer operation

<u>RP1 Enclosed ASP</u>

Operation of this project would involve two truck delivery/removal trips per day. Since the ASP will be fully enclosed and vented to a biofilter, no significant air pollution emissions are anticipated from that source. Emissions from electricity generation to serve the facility are discussed elsewhere in this report. Truck emissions are shown in Table 4.6-23

Table 4.6-23
RP1 ASP Emissions, Year 2010

Pollutant Emissions (lbs/day, trucks only)				
CO	VOC	NO_x	SO_x	PM_{10}
3.28	0.80	2.72	0.00	0.56

Source: Parsons

Dairy Digester Pilot Project (Lagoon Digester)

Operation of this project would involve one truck removal trip per week. In addition, three Capstone microturbines would generate 2,200 kilowatt-hours per day of electricity from digester gas. Total emissions from the three planned microturbines are a function of the emissions rates and the operational characteristics (flow rate) of the equipment. While the operational parameters of the planned equipment are not known at this time, emissions of similar equipment at the Puente Hills Landfill in Los Angeles County were tested as part of a required SCAQMD quarterly emissions report, and the emissions characteristics of the microturbines were deemed excellent. The tested emissions rates (adjusted for 15 percent O_2 in the exhaust gas) were as follows (LADWP, 2001):

- NOx 1.3 ppm
- CO 36.0 ppm
- CH4 5.0 ppm
- NMOC 2.2 ppm
- NMOC destruction 98.6 percent

The microturbines would be subject to SCAQMD permitting requirements, to include source testing and the setting of conditions to reduce emissions to meet the agency's regulatory requirements. Therefore, emissions from this source are not expected to be significant.

Forecast emissions are shown in Table 4.6-24.

. Table 4.6-24
Dairy Digester Pilot Project Emissions, Year 2010 (lbs/day)

Pollutant	Employee Commuting	Truck Deliveries	Stationary Equipment
NO_x	NA	0.68	NA
CO	NA	0.82	NA
VOC	NA	0.20	NA
PM_{10}	NA	0.14	NA

Source: Parsons
NA - Not Available

Advanced Technology Manure Pyrolysis Process

This plan component involves the generation of syngas from manure under conditions of heat and pressure, followed conditioning of the gas, then using it in a turbine generator to generate electricity. This is an emerging process that has not been fully demonstrated. The most recent large-scale pyrolysis demonstration project was begun in 1993 in Hawaii, conducted by the Pacific International Center for High Technology Research (PICHTR) and the U.S. Department of Energy. The project was to gasify sugarcane bagasse and other wastes, operating at an initial rate of 50 tons per day. However, this demonstration project was discontinued. As with the microturbines discussed above, emission rates depend upon the initial feedstock and operational parameters. Emissions estimates developed for the PICHTR project cannot be directly extrapolated to the proposed manure pyrolysis process. Since the necessary design information will not be available until some time during the Near Term projects implementation period, emissions forecasts cannot be quantified. As a stationary emissions source, the planned equipment will be subject to SCAQMD permit regulations, with detailed air quality analysis to be done during the permit process. A supplemental CEQA document will be prepared at that time, if necessary.

Inland Empire Regional Composting Facility

Operation of this project would involve 61 truck delivery/removal trips per day. Since the ASP will be fully enclosed and vented to a biofilter, no significant air pollution emissions are anticipated from that source. Emissions from electricity generation to serve the facility are discussed elsewhere in this report. Truck emissions are shown in Table 4.6-25.

Table 4.6-25
Inland Empire Regional Composting Facility Emissions, Year 2010

Pollutant Emissions (lbs/day, trucks only)				
CO	VOC	NO_x	SO_x	PM_{10}
50.02	12.20	41.48	0.00	8.52

Source: Parsons

California Institute for Men

Operation of this project would involve 8 truck delivery/removal trips per day. Since the compost facility will be fully enclosed, no significant air pollution emissions are anticipated from that source, regardless of location. Emissions from electricity generation to serve the facility are discussed elsewhere in this report. Truck emissions are shown in Table 4.6-26.

High Tech Manure Facility

Equipment to be operated at this new facility would include an emergency flare, four 30kW microturbines, and a biofilter for emissions control from the digester. The flare would only be used for emergency burn-off of digester gas, which would occur only under emergency upset conditions. The infrequent and temporary use represents a negligible component of the operations emissions inventory. In addition, a total of 23 trucks per day would deliver manure and remove waste, and a total of five employees would work at the site.

Table 4.6-26
CIM Composting Facility Emissions, Year 2010

Pollutant Emissions (lbs/day, trucks only)				
CO	**VOC**	**NO_x**	**SO_x**	**PM_{10}**
4.92	1.20	4.08	0.00	0.84

Source: Parsons

Total emissions from the four planned microturbines, as stated under the Dairy Digester Pilot Project analysis above, cannot be quantified at this time pending detailed design of the equipment and definition of the operating characteristics. Therefore, quantification of microturbine emissions must await further design and completion of the SCAQMD permitting process. The SCAQMD will establish conditions as part of its Permit to Operate that will minimize emissions from this source. Emissions from this source are thus not expected to be significant.

Emissions estimates for this facility are provided in Table 4.6-27.

Table 4.6-27
High Tech Manure Facility Emissions, Year 2010

	Pollutant Emissions (lbs/day)				
Source	**CO**	**VOC**	**NO_x**	**SO_x**	**PM_{10}**
Flare	negligible	negligible	Negligible	negligible	negligible
Electricity Generation	NA	NA	NA	NA	NA
Employee Commuting	1.87	0.20	0.38	-	0.02
Truck Trips	18.86	4.60	15.64	-	3.21

Source: Parsons
NA - Not Available

Convey Dairy Manure by Sewer

This operation would not have any stationary or mobile emissions sources. It would eliminate truck trips currently taking place, thus creating an air quality benefit.

RP-5 Renewable Energy Project

The expansion of this facility's energy generation from .75 MW to 2 MW will result in the following emissions based on comparable equipment currently used by IEUA. The SCAQMD tested and permitted the existing IEUA equipment in connection with granting a Permit to Operate for an electrical generator in 1998 (Permit No. R-D96156). The tested emissions rates using digester gas fuel (adjusted for 15 percent O_2 in the exhaust gas) were as follows (SCAQMD, 1998):

- NOx 27.23 ppm
- CO 29.92 ppm

- NMOC 36.51 ppm
- PM 0.005 gr/DSCF

Based on the above emission rates and the requirements specified in Permit No. R-D96156 the estimated operational phase emissions for this equipment are shown in Table 4.6-28:

Table 4.6-28
RP-5 Renewable Energy Project Operational Phase Emissions

Pollutant	Lbs/hr	Lbs/day (Estimate)	Lbs/day (Permit Limit)
NO_x	1.72	43.2	62.3
CO	11.16	241	283
VOC	0.80	29.28	99
PM_{10}	0.25	4.32	8.3

Source: Parsons

Master Plan Electricity Emissions Summary

Operation of the facilities to be constructed to 2010 under the three Master Plans will result in new electric energy demands to operate stationary equipment used for wastewater treatment and pumping. Electric power demand estimates are presented in Section 4.11, Utilities and Service Systems. Using SCAQMD emissions factors, emissions in the SCAB in 2010 from generation of electricity to operate the facilities are shown in Table 4.6-29. Detailed calculations are contained in Appendix 8.3-16.

Table 4.6-29
Electricity Generation Emissions in the SCAB, Year 2010

Pollutant Emissions (lbs/day)				
CO	VOC	NO_x	SO_x	PM_{10}
37.80	1.89	217.34	22.68	7.56

Source: Parsons

It should be noted that the very high NO_x emissions estimate for electricity generation might not actually occur during project operation. The SCAQMD NO_x emission factor used in the calculation appears to greatly overstate the actual emissions characteristics of in-Basin power plants. New and retrofitted power plants that incorporate selective catalytic reduction (SCR) to control NOx emissions have emission rates of about 10 percent of that used in the calculation.

Operational Phase Emissions Summary

Operational phase emissions are summarized in Table 4.6-30. This summary includes both mobile and stationary sources, as well as emissions from electricity generation needed to power facility equipment.

Table 4.6-30 shows that NO_x is the only air pollutant for which operational phase thresholds are exceeded. As stated above, this estimate does not include emissions from the seven proposed microturbines or the manure pyrolysis process, which must be calculated at a later date when additional operational phase data are detailed. Also as stated above, the NOx emissions estimate from power plants is probably overstated.

Table 4.6-30
Operational Phase Worst Case Day Emissions Summary

	Pollutant Emissions (lbs/day)				
	CO	VOC	NO_x	SO_x	PM_{10}
Worst Case Day Emissions Total	140.57	35.97	292.11	22.68	22.42
Emissions Threshold	550	55	55	150	150
Threshold Exceeded?	No	No	Yes	No	No

Source: Parsons

c. <u>Expose sensitive receptors to substantial pollutant concentrations?</u>

"Sensitive receptors" are considered to include schools, daycare centers, hospitals, convalescent homes, or other facilities serving individuals who are especially sensitive to air pollution. Thus, the clean air needs of children and those persons with impaired lung function or are chronically or acutely ill (such as hospital patients, senior citizens, and others with impaired lung function) require special attention in evaluating air quality impacts.

To evaluate the potential impacts to sensitive receptors, the potential project sites were investigated to determine their presence in the immediate project site vicinity, ranging from a 1/4 to one-mile radius. No sensitive receptors were identified near the proposed project sites. Potential impacts to future sensitive receptors are discussed below.

Wastewater Facilities Master Plan

Construction Phase

As stated above, no sensitive receptors were identified. Thus, no Immediate project construction phase significant impacts to sensitive receptors are anticipated. Near Term projects may impact future sensitive receptors that may locate near project sites. However, these impacts will be short-term, temporary and thus will not be significant after the implementation of the construction activity air quality mitigation measures proposed in this section.

Operation Phase

The SCAQMD has designated a large number of compounds as toxic air contaminants (TACs). Although there are no ambient air quality standards for these compounds, their toxicity subjects them to federal and state regulations, which require qualification and may require control for specific industries or processes. Assembly Bill 2588, the California Air Toxics "Hot Spots" Information Assessment Act of 1987 requires an Air Toxics Emissions Inventory for potential sources of TACs.

Table 10-2 of the SCAQMD CEQA Handbook identifies the type of facilities that are representative of users that could generate toxic contaminants. Water treatment and supply facilities are not listed. Water facilities do utilize chlorine, which is identified as a contaminant of concern for acute exposure. State and local rules and regulations regulate the use and storage of chlorine. Compliance with these rules and regulation are deemed by regulatory agencies to be adequate to mitigate the potential risk of exposure to acceptable levels.

An Air Toxics Emissions Inventory was prepared for the IEUA's RP-2 in 1992 to test for over 20 volatile and hazardous compounds in the plant's liquid phase. This information is reported in the Final Program EIR for Regional Plant Number 5 (IEUA, 1999). No pollutants were found to be above the method detection limits according to this testing. This information is consistent with the results from other treatment plants in the SCAB and is assumed to be representative for the planned new and modified wastewater treatment facilities described in the proposed plans. Therefore, liquid treatment trains are not considered to present a source of toxic emissions.

Air toxics emissions were calculated for the RP-2 boiler in 1992 and used in the RP-5 impact analysis (IEUA, 1999). IEUA also conducted air toxic emissions calculations for a cogeneration unit at RP-1 which was used in the RP-5 EIR.

The evaluation of the RP-2 boiler identified two potential toxic air contaminants, acetaldehyde (less than 0.01 lbs/day) and formaldehyde (0.22 lbs/day). Evaluation of the RP-1 cogeneration unit identified potential emissions of benzene (0.07 lbs/day), toluene (0.04 lbs/day), and xylenes (less than 0.01 lbs/day). Any boilers or cogeneration units installed under the master plans must meet the provisions of SCAQMD Rule 1401, which requires preparation of risk assessments before permits can be issued.

A risk assessment evaluates potential toxic emissions for the proposed uses and also evaluates the nature and location of sensitive receptors, resulting in theoretical probabilities of various health risks as a result of exposure to the potential emissions. Criteria for issuance of permits require that emissions are to be determined to result in risks below identified thresholds prior to approval. Considering the limited mass and nature of air toxics as typified by existing Agency plan operations, it is expected that the future risk assessment evaluations prepared for specific master plan facilities as they designed and submitted to the SCAQMD permit process can be successfully completed and that either no special requirements for air toxics will be required as part of the SCAQMD permits, or that permit conditions will be imposed by the SCAQMD to reduce the impacts to insignificance. On this basis the potential impact is deemed insignificant.

Recycled Water Management Program

Construction Phase

Please see the discussion under Wastewater Facilities Master Plan - Construction Phase above.

Operation Phase

Please see the discussion under Wastewater Facilities Master Plan - Operation Phase above.

Organics Management Master Plan

Construction Phase

Please see the discussion under Wastewater Facilities Master Plan - Construction Phase above.

Operation Phase

Please see the discussion under Wastewater Facilities Master Plan - Operation Phase above.

d. Create objectionable odors affecting a substantial number of people?

Wastewater Facilities Master Plan

Construction Phase

Construction phase emissions consist primarily of construction equipment and motor vehicle exhaust, and particulate emissions from earth moving activities. These are not ordinarily sources of objectionable odors off of the construction site. Therefore, no significant construction phase odor impacts are anticipated.

Operation Phase

Several components of the plan present the potential for generation of objectionable odors. The specific treatment technologies, enclosed process units, composting controls, and odor control features, including biofilters, incorporated into the plans to be made part of subsequent facility designs, are intended to control odors to a point that they typically cannot be detected off-site. Odor dispersion modeling conducted for a planned biofilter system at a proposed composting facility at RP1, prepared in 2001, concluded that there would be no significant odor impacts from the operation of the facility (IEUA, 2001). A copy of this study is provided in Appendix 8.3 for additional information.

The potential for significant odors would be limited to periods of upset conditions that require the temporary storage of partially treated wastewater in emergency storage basin(s). For the near term, background odors from the many dairies in the project area would likely mask odors during these upset conditions. For the long term, the infrequent, temporary nature of upset conditions and the planned industrial land uses near most of the project sites present limited potential for significant odor impacts. No mitigation is necessary

Recycled Water Management Program

Construction Phase

Please see discussion under WFMP - Construction Phase above.

Operation Phase

Please see discussion under WFMP - Operation Phase above.

Organics Management Master Plan

Please see discussion under WFMP - Construction Phase above.

Operation Phase

Please see discussion under WFMP - Operation Phase above.

4.6.4 Mitigation Measures

4.6.4.1 Construction Impacts

As indicated in Table 4.6-18 above, NOx and VOC emissions are anticipated to be above their respective significance thresholds. Therefore, the following mitigation measures are recommended to reduce NOx and VOC emissions from construction equipment.

4.6-1 **Limit construction equipment use to a mix of equipment that is substantially the same as that used for the estimation of pollutant emissions.**

4.6-2 **All equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.**

4.6-3 **General contractors shall maintain and operate construction equipment so as to minimize exhaust emissions.**

4.6-4 **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.**

4.6-5 **Construction activities should be phased and scheduled to avoid emissions peaks and discontinued during second-stage smog alerts.**

Fugitive dust control is required by SCAQMD Rule 403 to prevent local nuisance impacts. The following mitigation measures are therefore recommended to reduce fugitive dust emissions.

4.6-6 **Water active grading sites at least twice daily and when dust is observed migrating from the site.**

4.6-7 **Suspend all grading and excavation operations when wind speeds exceed 25 mph.**

4.6-8 **Apply non-toxic chemical soil stabilizers according to manufacturers specifications to inactive construction areas (previously graded areas inactive for 10 days or more).**

4.6-9 **Replace ground cover or pave disturbed areas immediately after construction is completed in the affected area.**

4.6-10 **Sweep streets once per day and when soil material is observed on traveled roadways.**

4.6.4.2 Operation Impacts

NO_x emissions are expected to exceed the threshold of significance (Table 4.6-29). Other than compliance with SCAQMD rules, regulations and permit conditions, no further mitigation can be identified. Subsequent analyses of the microturbines and pyrolysis emissions may indicate additional significant impacts that would be assessed and mitigated in subsequent CEQA environmental documents as necessary.

4.6.5 Cumulative Impact

Implementation of the three master plans will contribute pollutants to the SCAB from construction and operation of the facilities for a period of fifty years or more. These facilities are essential infrastructure systems designed to provide an adequate wastewater treatment capacity for the existing and future population within the IEUA service area: reuse of recycled water to enhance water supply for the intensity of land uses identified in applicable general plans; and management of biosolids (generated by wastewater treatment operations), in conjunction with dairy manure and green waste generated within the same general area. The regional air planning agencies, SCAG and SCAQMD, assume in their air planning documents (the RCPG and AQMP) that if growth occurs that is consistent with applicable, adopted general plans then, ambient air quality standards can be met. Because this project does not propose amendments to existing general plan land uses and because it will reduce air pollution emissions associated with existing waste management procedures in the project area, it is concluded to be in conformity with the adopted regional air basin planning documents. Therefore, implementation of the three master plans is not forecast to cause or contribute to significant air quality impacts.

4.6.6 Unavoidable Significant Impacts

Construction Impacts

Implementation of the construction phase mitigation measures will reduce all emissions, including NO_x. Since these emissions reductions cannot be quantified, there may be a residual significant impact. However, this impact will be relatively short term, and will cease at the completion of construction.

Operational Impacts

Emissions of NO_x will exceed the threshold criterion. No additional mitigation can be offered, therefore this will be a significant unavoidable air quality impact.

4.7 TRAFFIC/CIRCULATION

4.7.1 Introduction

Potential impacts to the transportation and circulation system were included as a topic of evaluation in this PEIR based on the ultimate (build-out) development conditions anticipated by affected jurisdictions within the IEUA's service area. The NOP and scoping processes did not identify specific transportation concerns relating to potential impacts that might result from the installation of wastewater, recycled water, and organics management facilities throughout the IEUA service area.

This subchapter focuses on the transportation and circulation system in the IEUA service area and the potential impacts to this system from implementing the three master plans. Four types of circulation systems are evaluated: air transport, non-motorized transport, rail and roads. The evaluations are based upon information contained within general plans and other pertinent transportation planning resources for the project area. General Plans from the following entities were utilized: cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Rialto, and Upland; and the county of San Bernardino. In addition, SCAG and Western Riverside Council of Governments (WRCOG) publications, such as the Regional Comprehensive Plan and Guide (RCPG), Risk Management Plan (RMP), the Regional Transportation Plan (RTP) and Non-motorized Transportation Plan were consulted. Traffic volume data was provided from the California Department of Transportation relating to California State Highways and San Bernardino Associated Governments (SANBAG) relating to projected traffic volumes.

For the IEUA service area vicinity map refer to Figure 4.7-1. A composite of project elements for the three master plans is shown in Figure 4.7-2.

4.7.2 Environmental Setting

4.7.2.1 Air Transport System

The IEUA service area is well served by a number of airport facilities providing service to the cities within the Inland Empire, communities in the High Desert region, Los Angeles County and Orange County. The air transport system is comprised of a commercial air carrier facility, general aviation airports and private airfields. The following is a description of the main airport facilities in the IEUA service area:

Ontario International Airport serves the growing international air transportation needs of the Inland Empire area. It functions as a major satellite airport to Los Angeles International Airport, providing both passenger and air cargo service.

The Chino Airport is located four miles southeast of downtown Chino, at the southeast corner of Euclid Avenue and Merrill Avenue. The facility provides general aviation services for approximately 950 aircraft based there.

Rialto Municipal Airport, located west of Cedar Avenue between Baseline Road and Highland Avenue (SR 30) is also a general aviation airport. It is also designated by the Federal Aviation Administration (FAA) as a reliever airport for Ontario International Airport, relieving the larger facility of some of the general aviation activities that would otherwise locate there.

Cable Airport, located in the northwest portion of the City of Upland, serves the general aviation needs of the Upland community and adjacent cities. It is a privately owned, public use airport, serving customers with light personal and business airplanes.

4.7.2.2 Non-Motorized Transport System

Non-motorized transport encompasses bicycle, equestrian and pedestrian circulation. Within the various affected jurisdictions, bicycle trails are noted as an energy efficient alternative to the automobile to help link the commercial, residential and open space uses within a community. The IEUA service area has various sites, areas and paths that the bicyclist may access. The City of Upland has designated State Routes 83 and 66 as routes for bicycles. The City of Chino has identified numerous trails within their General Plan including: Euclid and Chino Avenues, the Cypress Channel, the Southern California Edison (SCE) easement along Edison Avenue, adjacent to the San Antonio Channel. Other jurisdictions have identified potential trails long the Santa Ana River, Philadelphia, Walnut, Riverside and San Antonio Avenues in the western portion of the Basin Area. Regional connections to specific attractions are encouraged with the general plans. As an example, within the City of Chino, the Chino Fairgrounds and Ruben Ayala Community Park attract recreational cyclists.

Equestrian and pedestrian circulation primarily consists of multi-purpose trails and sidewalks. The equestrian trails generally share rights-of-way with secondary arterials, utility lines, and flood control channels. The City of Upland's General Plan has identified pedestrian enhancements for a number of primary roadways and facilities including the Cucamonga Wash and the San Antonio Wash. The City of Chino and Chino Hills provide a series of local trails that also provide access to a larger regional system of trails. Numerous local trails serve as equestrian attractions, such as the Chino Fairgrounds, Chino Hills State Park, the Prado Dam area, and the Santa Ana River.

4.7.2.3 Rail System

Extensive rail service is provided within the IEUA service area serving both passenger and freight services. The Burlington Northern Santa Fe (BNSF) and the Southern Pacific main lines run in an east-west direction north and south of Interstate 10, respectively. The BNSF line carries both freight and passenger traffic, including Metrolink and Amtrak services. The Southern Pacific main line runs south of, and parallel to, the I-10 Freeway through the cities of Chino, Fontana, Ontario, Pomona, and Rialto. This line provides freight rail service. The two main line railroads maintain major facilities in the Chino Basin region including a major classification yard in West Colton and rail-truck trainloads and warehousing facilities in Fontana and Pomona. These railroads connect southern California with other U.S. regions, Mexico and Canada via their connections with other railroads.

4.7.2.4 Road System

The IEUA service area is served by a number of regional roadways that provide access to Los Angeles, Orange, Riverside and San Bernardino County areas. The primary regional roadway network is comprised of two interstate freeways, the San Bernardino Freeway (I-10), which passes on an east-west alignment through the central portion of the Chino Basin area, and the Ontario Freeway (I-15) oriented north-south through the middle of the Chino Basin. In addition, there are five State Routes (SR) running through the IEUA service area. The Pomona Freeway (SR 60) passes through the southern portion of the IEUA service area also in an east-west direction and provides access to Riverside County via Los Angeles and San Bernardino

Counties. The Corona Expressway (SR 71) connects Riverside County with Orange County through a reach of San Bernardino County and the cities of Chino Hills and Pomona. Highland Avenue (SR 30) and Foothill Boulevard (SR 66) provide circulation within the northern IEUA service area in an east-west direction through the cities of Fontana, Rancho Cucamonga, Rialto and Upland. Euclid Avenue (SR 83) provides north-south access through the cities of Chino, Ontario and Upland. The State Route 30 freeway (Foothill Freeway) is currently under construction and will provide a new route at the north end of the IEUA service area.

The following is a description of the main regional roadways in the IEUA service area: Refer to Figure 4.7-3 and Figure 4.7-4.

<u>San Bernardino Freeway (I-10)</u> is an eight-lane interstate freeway that currently traverses the IEUA service area in an east-west direction. The projected year 2010 average daily traffic (ADT) volumes on I-10 range from 173,000 vehicles per day to 232,000 vehicles per day through the Project Area.

<u>Ontario Freeway (I-15)</u> is a six to eight lane interstate freeway in the eastern portion of the IEUA service area connecting Riverside County to San Bernardino County. The projected year 2010 ADT volumes on I-15 range from 105,000 vehicles per day to 175,000 vehicles per day through the IEUA service area.

<u>Highland Avenue (SR 30)</u> provides circulation within the northern IEUA service area in an east-west direction through the cities of Fontana, Rancho Cucamonga, Rialto and Upland. It varies in configuration and ultimate right-of-way through the each of the affected cities. The City of Fontana identifies the roadway as a primary highway intended to accommodate four travel lanes with a median. The City of Rancho Cucamonga designates the roadway as a collector. The City of Rialto's General Plan defines SR 30 as a freeway and in its current condition is a two-lane road west of Riverside Avenue and a four-lane divided highway east of Riverside Avenue. The City of Upland categorizes the roadway as a collector and identifies it as Nineteenth Street form Mountain Avenue to east City limits. The projected ADT volume on Highland Avenue ranges from 68,200 vehicles per day near Alder Avenue in the City of Fontana to 80,200 vehicles per day west of Carnelian Street in the City of Rancho Cucamonga in the year 2010.

<u>Pomona Freeway (SR 60)</u> is a six-lane facility that traverses the IEUA service area in an east-west direction, providing access to Riverside County via Los Angeles and San Bernardino Counties. The projected year 2010 ADT volumes on SR 60 range from 85,000 vehicles per day (east of Pedley Road) to 201,000 vehicles per day (west of the I-15).

<u>Foothill Boulevard (SR 66)</u> provides an additional circulation route within the northern IEUA service area in an east-west direction through the cities of Fontana, Rancho Cucamonga, Rialto and Upland. It varies in configuration and ultimate right-of-way through the each of the affected cities. The City of Fontana identifies the roadway as a Major Highway that can accommodate six travel lanes and may have raised medians. Within the City of Rancho Cucamonga, SR 66 is categorized as a major divided arterial. Rialto designates SR 66 as a major arterial consisting of a four-lane facility. The City of Upland categorizes the roadway as a major arterial comprised of four traffic lanes and a frontage road. The projected ADT volume on Foothill Boulevard ranges from 16,300 vehicles per day east of the City of Rialto to 47,000 vehicles per day west of Miliken Avenue in the City of Rancho Cucamonga in the year 2010.

<u>Corona Expressway (SR 71)</u> is a six-lane divided freeway located in the western portion of the IEUA service area. The project 2010 ADT volumes on SR 71 range from 13,400 vehicles per

day near Pine Avenue in south Chino to 32,300 vehicles per day at the confluence of State Route 60.

Euclid Avenue (SR 83) is a roadway which traverses the IEUA service area in a north-south direction from the southern portion of the City of Chino through the City of Ontario and up into the northern portion of the City of Upland. Euclid Avenue varies in configuration and ultimate right-of-way through the each of the affected cities. In the City of Chino, Euclid Avenue is designated as an expressway with eight travel lanes under the proposed Master Plan of Arterials. The City of Ontario identifies the roadway as a divided arterial accommodating four to six lanes of traffic with a median. The City of Upland categorizes the roadway as a major arterial and includes a wide landscaped median with six lanes south of Foothill Boulevard and four traffic lanes north of Foothill Boulevard. The projected ADT volume on Euclid Avenue ranges from 12,500 vehicles per day in the City of Chino to 34,500 vehicles per day north of I-10 in the City of Upland in the year 2010.

Based upon information provided by SANBAG through the Comprehensive Transportation Plan (CTP) funded 2020 Model (Hybrid Model) for the West Valley, the projected volumes for year 2020 are estimated to be 1,751,800 Annual ADT. This is an overall reduction of 22 percent from the 1998 Annual ADT which was 2,243,200 ADT which is attributable to a combination of construction of new roads, greater use of alternative means of transportation including rail and transit and establishing job centers closer to housing centers.

Figure 4.7-3, *2000 Traffic Volumes on the California State Hwy System* depicts the ADT for Interstates and State Routes within the IEUA service area. The state highway volumes shown are directional according to the key given on the map. Figure 4.7-4, *Existing Traffic Volumes on Local Roads* depicts the ADT for select local roads within the IEUA service area. The local road volumes shown represent the total counts for the given roadway, i.e., volume is not directional.

The forecasting of traffic volumes is necessary for presenting a global picture of traffic flow, evaluating traffic trends, and planning and designing highways. A more localized method to determining traffic flow is based on a Level of Service (LOS) approach. Traffic flow is measured by the number of vehicles that can pass over a given section of road in a given time period, particularly through constrictions, such as intersections with stop signs or traffic signals. The LOS on a roadway varies between LOS "A", unrestricted traffic flow, to forced flow conditions with high approach delays. The definitions of LOS for uninterrupted flow (flow unrestrained by the existence of traffic control devices) are:

- LOS "A," representing free flow where individual users are virtually unaffected by the presence of others in the traffic stream.
- LOS "B," in the range of stable flow, but where the presence of other users in the traffic stream begins to be noticeable. Here the freedom to select desired speeds is relatively unaffected but there is a slight decline in the freedom to maneuver.
- LOS "C," in the range of stable flow, but where the operation of individual users becomes significantly affected by intersections with others in the traffic stream.
- LOS "D," representing high-density but stable flow where speed and freedom to maneuver are severely restricted and the driver experiences a generally poor level of comfort and convenience.

- LOS "E," representing operating conditions at or near the capacity level where all speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.
- LOS "F," which defines forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount that can traverse the point. Queues form behind such locations.

4.7.3 Project Impacts

4.7.3.1 Significance Criteria/Thresholds of Significance

The following criteria will be used as the thresholds of significance in this evaluation of traffic and circulation for the three facilities management plans.

- Substantially increase the traffic flow or reduce the capacity of the street system within the IEUA service area above that identified in regional traffic forecasts and planned for in the local jurisdiction general plans.
- Result in the violation of existing standards or policies.
- Cause a substantial change in the functioning of an existing or future alternative transportation system.

4.7.3.2 Impacts Analysis

Transportation impacts of a project are defined in the CEQA Guidelines as causing "an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system." An impact is also considered significant if it results in the violation of existing standards or policies, such as the goal of LOS "C" or "D" contained in the general plans throughout San Bernardino County. The proposed facilities to be addressed in this traffic evaluation include the following.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area. The liquid treatment capacity at RP-1 is expected to increase to 60 MGD by 2050 and would be conducted in five phases. An immediate project that would occur shortly after certification of this document would be construction of odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press. Modernization would include an architectural uplift, upgrading of old and inefficient unit processes and facilities, implementation of an odor control program, and landscaping and tree planting to improve the aesthetics of the facility, and screen views of the plant. Landscaping to screen the views of the plant would consist of planting trees along the border of the facility along the western, southern, and eastern boundaries. Plant improvements would occur in the near term (by 2010) to upgrade the treatment processes and add odor control for the existing capacity of 44 MGD. Increases to treatment capacity would occur in the long term (by 2050).

By 2050, RP-4 liquid treatment capacity is expected to expand to 35 MGD and the solids treatment capacity would be constructed for 40 MGD. The liquid treatment expansion would occur in 7 MGD increments, with the expansion to an estimated 21 MGD expected to commence in the during the near term period. This expansion would require construction of new facilities including: headworks, primary clarifiers, chlorination systems and basins, oxygen basins, and secondary and tertiary filters. Construction activities would be phased. It is assumed that construction of the new facilities would not impact current operating conditions at RP-4.

The liquid treatment capacity at CCWRF would be increased to approximately 12 MGD in the near term (by 2010) and to 20 MGD in the long term (by 2050). Minimal construction activities would be required for the near term expansion to divert recycled flows to the SARI line and replace the existing gaseous chlorine with sodium hypochlorite. The long-term expansion to 20 MGD would require construction of new facilities on the plant site.

Two new satellite plants would be constructed in the IEUA's NSA to help provide sufficient treatment capacity and higher quality water for recycled water reuse where it is needed. One satellite plant is expected to be constructed in the near term (by 2010) and the other would be constructed in the long-term (by 2050). Construction of new facilities would include primary and secondary treatment processes, filtration, and disinfection.

New conveyance systems would be required for transporting wastewater to the treatment facilities. Four new conveyance systems are planned. These include the Upland Interceptor Relief System, San Bernardino Interceptor Pump Station and Force Main, RP-4 Trunk Sewer, and RP-1/RP-5 Bypass.

Major construction activities proposed under the WFMP would include grading, excavation, pipeline installation, concrete forming, landscaping, mechanical equipment installation, and electrical installation.

Refer to Figure 4.7-5 for WFMP project element locations.

Recycled Water Master Plan

The RWMP would require construction of facilities necessary to interconnect and serve recycled water through the north and south recycled water distribution systems. All of the proposed facilities identified in the RWMP would be constructed in the near term (by 2010). These facilities include pipelines, inlet structures, pump stations, reservoirs, and recharge basins. Major construction activities are anticipated to include grading, excavation, and installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation.

Refer to Figure 4.7-6 for RFMP project element locations.

Organics Management Master Plan

As part of the OMMP, three organics management facilities (RP-1 Aerated Static Pile (ASP), Inland Empire Regional Composting Facility, and Dairy Digester Pilot Project) are expected to be constructed shortly after certification of this document to handle biosolids, manure, and green wastes. The facilities would be enclosed to control odors and dust. Construction activities would take place at RP-1, adjacent to RP-4, and at the Van der Pool Dairy site. Other facilities identified in the OMMP that would be constructed in the near term (by 2010) include: California Institute for Men Compost Facility, the High Tech Manure Facility, the Advanced Technology Manure Pyrolysis Process, and conveying dairy manure by sewer to treatment facilities. An additional feature at some of the organics management facilities would be the capture of methane gas, which would be used to generate electricity to run the IEUA facilities and also provide excess electricity for domestic use.

The ASP pilot demonstration project would be constructed at RP-1 to treat biosolids and digested manure. This facility would be approximately 40,000 sq ft and will be constructed next to the western boundary of the RP-1 site. Major construction activities would include grading, excavation, concrete forming, and pipeline installation.

The Inland Empire Regional Composting Facility would be located on the property immediately north of RP-4. Major construction activities for this facility would include: demolition, excavation, pipeline installation, landscaping, mechanical equipment installation, and electrical installation.

The Dairy Digester Pilot Project would be located at the Van der Pool Dairy and would consist of an enclosed lagoon digester. Construction activities would include some excavation.

Refer to Figure 4.7-7 for program element locations.

For this analysis, construction scheduling is determined as follows:

The Dairy Digester Pilot Project will start in Fall 2002 and is schedule for completion Winter 2002. The major construction steps include: lagoon liner and cover installation, pipeline(s) installation, landscaping, mechanical equipment installation, and electrical installation.

- Estimated Quantities: None
- Estimated Truck Trips: No truck trips before or after facility is completed
- Estimated Construction Crew and Shifts: 3-person crew on a one-shift operation with a 1-month construction schedule
- Estimated Construction Equipment: One front end loader, 10% usage.

The construction scenario for the Inland Empire Regional Composting Facility is scheduled as follows:

- Start construction Winter 2002 and complete early Spring 2003
- Major Construction Steps: Demolition, excavation, two new buildings, biofilter installation, pipeline(s) installation, landscaping modifications, mechanical equipment installation, and electrical installation
- Estimated Quantities: Minimal excavation (less than 1,000 cubic yards of cut)
- Estimated Truck Trips: 10 truck trips per day. After the facility is complete: See above write-up under Inland Empire Regional Composting Facility.
- Estimated Construction Crew and Shifts: 30-person crew on a one-shift operation with a 4-month construction schedule
- Estimated Construction Equipment: Unknown at this time

The construction scenario for the California Institute for Men organics management facility is scheduled as follows:

- Start Spring 2005 and complete Fall 2005

- Major Construction Steps: Demolition, excavation, composting building installation, truck scales, foul air treatment installation, pipeline(s) installation, landscaping, mechanical equipment installation, and electrical installation
- Estimated Quantities: Unknown at this time, but will be defined as part of the EIR
- Estimated Truck Trips: After the facility is completed, 10 trucks at 20 tons per truck into the facility. 5 trucks at 10 tons per truck out of the facility with compost
- Estimated Construction Crew and Shifts: 15-person crew on a one-shift operation with a 3-month construction schedule
- Estimated Construction Equipment: Unknown at this time, but will be defined as part of the EIR

The Colton project is proceeding under a separate environmental document.

The construction scenario for the RP-1 Enclosed ASP construction scenario is scheduled as follows:

- On-site grading in support of each facility is expected to last between 2 to 4 weeks in duration and will begin in late-Summer 2002. The maximum amount of grading at the site is estimated to be approximately 4,743 cubic yards. All material excavated will be replaced on the site and properly compacted to support the operations outlined above.
- Anticipated equipment to be used during the grading operations are as follows: Two scrapers, one dozer, one grader, one backhoe and assorted support vehicles.
- Construction is anticipated to occur over a 6-month period.
- Biosolid compost operations are anticipated to commence late-2003.
- Estimated Truck Trips: Unknown at this time
- Estimated Construction Crew and Shifts: Unknown at this time
- Estimated Construction Equipment: Unknown at this time
- The construction scenario for the manure sewers is scheduled as follows: Currently in the process of being defined. Estimated start of construction in Fall 2003 and complete first phase by Spring 2004.
- Major Construction Steps: Pipeline(s) installation, on-site dairy retrofits

The above construction scenarios are preliminary and represent best estimates at this time. They are considered representative of traffic that will be generated by typical facility operations proposed in the master plans.

The following discussion is based on responses to the questions posed in the Traffic/Transportation section of the Initial Study. The impacts of each management plan are examined for the construction and operational phases of plan implementation, and conclusions are drawn concerning the significance of those impacts. The questions and analytical results are presented in the following sections.

Would the project:

a. Cause an increase in traffic that 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)?

General Disposition

The IEUA service area is extensively developed with residential, commercial, and industrial uses that already utilize an established circulation pattern. In addition, the existing circulation system experiences certain levels of utilization based on the existing levels of development and the role which certain roads (I-10, I-15 and SR-60) play in regional and interstate travel and commerce.

The General Plans identify a circulation system designed to meet the build-out traffic generation of their respective jurisdictions. Fundamentally, the ultimate road sections throughout the circulation system are designed to provide adequate capacity for the projected trip generation within the IEUA service 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. The cities and the counties under their capital improvement programs are constantly implementing road improvements, and when an individual 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. 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.

Data has been tabulated in Tables 4.7-1 through 4.7-4, showing current and projected staffing and truck trips to be expected for the WFMP. Referring to Figure 4.7-8, the daily passenger car equivalents are presented at each node of origination and/or destination. These volumes (in trips) can be compared to the volumes (in thousands of trips) on the roadway links. The analysis is facilitated by the comparison of generated trip volume to the roads in the vicinity of the nodes. Rather than dispersing the traffic trips to the adjacent arterials, all trips at a particular node can be placed on the lowest volume street for analysis. The result is that in the worst case, such as that which might occur on Kimball Avenue in the city of Chino, the impact to local roadways amount to less than 0.5 percent of existing traffic volumes. For the majority of roadways, the impact would be far less. Therefore, further treatment of raw traffic volumes will not be necessary. The impacts that do need to be addressed within the individual project areas are those where traffic plans will need to be implemented to alleviate congestion, safety hazards, and emergency access services.

Wastewater Facilities Master Plan

Construction Phase

New pipeline corridors will generate the majority of impacts to local streets. Along the RP-1/RP-5 bypass pipeline, travel along the southern edge of the Chino Airport along Kimball Avenue may be disrupted. The Chino Airport however, is not a major aviation facility that generates significant volumes of traffic. Redirection of flow should be adequate to bypass construction. A traffic plan should enable the continuation of acceptable levels of service. No impact to freeway traffic is expected.

The eastern trunk sewer along Archibald Avenue, south of the Ontario airport, should not require traffic engineering to prevent disruption of passenger ingress and egress during airport operation hours. Construction of the Eastern Trunk Sewer should create minimal, if any, disruption of traffic to and from Ontario International Airport.

The RP-4 trunk sewer that will run along SR 66, across the I-15, and south along Etiwanda Avenue, presents some traffic engineering requirements. Traffic volumes on SR 66 between Vineyard Avenue and Haven Avenue are moderately high, reaching 47,000 ADT. Access to the I-15 and I-10 at Etiwanda Avenue will require a coordinated traffic plan.

A single satellite plant will be constructed among 9 potential sites. The majority of sites being considered are located in the northwestern part of the IEUA service area. Local streets will bear the majority of construction impacts that will require traffic plans and detours. Until a specific location is selected, it would be speculative to make assumptions and conclusions regarding effects on a give roadway in the project area.

Operation Phase

The satellite plants will be designed to minimize the need for full time operation. Operations will be monitored from a central facility, e.g., RP-1, RP-4, or RP-5.

Under normal operating conditions, no potential exists for adverse traffic impacts.

Recycled Water Master Plan

Construction Phase

Pipelines will cause local street disruption, but an adequate traffic plan will be able to redirect traffic away from the impediments and restore the current level of service once construction is completed. Locations of pump stations, reservoirs, and recharge basins will also require a defined traffic plan for localized construction interference. Major streets affected will be along the I-10 and I-15 in the NSA.

Operation Phase

No impact to traffic is anticipated commencing with regular operational conditions.

Organics Management Master Plan

Katz, Okitsu & Associates (KOA) was retained to study the traffic and transportation impacts of increased truck traffic to these project sites. The KOA study identifies the potential traffic impacts associated with the construction of two or more organics processing sites. Reference to this analysis and its data is acknowledged and incorporated herein. The Katz, Okitsu & Associates traffic study is included in Appendix 8.4 of this document.

Construction Phase

Based on the projected traffic volumes, no adverse traffic impact is anticipated in terms of traffic operations. Roadways providing access to composting sites will need to be evaluated in terms of intersection turning radii and pavement strength to ensure that project-generated truck traffic does not cause damage to the surface and to the curbs.

Operation Phase

Based on the study conducted by KOA, the highest operational truck volumes occur on Riverside Avenue and the 60 Freeway. The passenger car equivalents for these roadways are 189 and 180 respectively. The maximum percentage increase from project traffic is on Kimball Avenue, where 2.4% of the future traffic results from the project. None of these volumes is expected to produce an adverse traffic impact.

b. <u>Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?</u>

Wastewater Facilities Master Plan

Construction Phase

There may be brief and sporadic interruption of current levels of service on local roads during normal construction staging. A traffic plan shall be implemented to minimize impacts to local roads and highways.

Operation Phase

The WFMP projects will not deteriorate the present levels of service for local roads or highways based on assumed traffic generated by new WFMP facilities in the future.

Recycled Water Master Plan

Construction Phase

There may be brief and sporadic interruption of current levels of service on local roads during normal construction staging. A traffic plan shall be implemented to minimize impacts to local roads and highways.

Operation Phase

The RWMP projects will not deteriorate the present levels of service for local roads or highways based on assumed traffic generated by new RWMP facilities in the future.

Organics Management Master Plan

Construction Phase

There may be brief and sporadic interruption of current levels of service on local roads during normal construction staging. A traffic plan shall be implemented to minimize impacts to local roads and highways.

Operation Phase

The OMMP projects will not deteriorate the present levels of service for local roads or highways based on assumed traffic generated by new OMMP facilities in the future.

c. <u>Result in a change in rail, waterborne or air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</u>

<u>General Disposition</u>

The proposed project has no potential to adversely impact waterborne traffic since such a transportation system does not occur within the IEUA service area. The facilities management plans are not anticipated to conflict with rail or air service to the existing facilities within the project area. There may be short-term detours related to construction that may affect rail service. These detours will be coordinated with the railroad companies prior to construction activities. No other potential impacts to the rail transportation system have been identified from implementing the proposed project.

Wastewater Facilities Master Plan

Construction Phase

Trunk sewer construction will require a traffic plan to alleviate access to Chino airport and the Ontario International Airport.

Operation Phase

The WFMP projects will not increase traffic levels nor present any substantial safety risk to rail, waterborne, or air traffic patterns.

Recycled Water Master Plan

Construction Phase

Pipeline, reservoir, and recharge basin construction will require a traffic plan. No impact is expected for the Chino airport, the Ontario International Airport, or Cable Airport located north of Highway 66 and Central Avenue in the city of Upland.

Operation Phase

The RWMP projects will not increase traffic levels nor present any substantial safety risk to rail, waterborne, or air traffic patterns. The Cable Airport is located in the vicinity of existing pipelines and a recharge basin; however, no traffic impacts to daily operations is noted.

Organics Management Master Plan

Construction Phase

No adverse traffic impacts are noted.

Operation Phase

The OMMP projects will not increase substantially traffic levels nor present any substantial safety risk to rail, waterborne, or air traffic patterns.

d. Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

General Disposition

During short-term construction projects to install pipelines and construct facilities, the project has a potential to create traffic hazards for pedestrians or bicyclists. However, after completing the proposed pipeline installations, the project impacts to hazards should be positive because existing hazards can be eliminated. Mitigation is proposed below that can reduce potential hazards to a non-significant level of impact. Without implementing these measures, potentially significant hazards could result from project implementation.

Wastewater Facilities Master Plan

Construction Phase

Potential hazards such as open pits for pipeline construction may exist. Facilities will be constructed either adjacent to existing plants or on property with limited public access. A traffic plan shall include appropriate remedies to redirect pedestrians and bicyclists and protect vehicles traversing these areas.

Operation Phase

No hazards or incompatible uses will be present. New plants will be designed to be "good neighbors."

Recycled Water Master Plan

Construction Phase

Potential hazards such as open pits for pipeline construction may exist. A traffic plan shall include appropriate remedies to redirect pedestrians and bicyclists and protect vehicles traversing these areas.

Operation Phase

No hazards or incompatible uses will be present.

Organics Management Master Plan

Construction Phase

Potential hazards such as open pits for pipeline construction may exist. Facilities will be constructed either adjacent to existing plants or on property with limited public access. A traffic plan shall include appropriate remedies to redirect pedestrians and bicyclists and protect vehicles traversing these areas.

Operation Phase

No hazards or incompatible uses will be present.

e. <u>Result in inadequate emergency access?</u>

<u>General Disposition</u>

The proposed project may create short-term detours related to construction activities of proposed facilities and pipelines. To limit reductions in emergency access, all affected public safety providers shall be notified prior to the construction of the proposed facilities and pipelines or the closure of a public street.

Wastewater Facilities Master Plan

Construction Phase

A traffic plan shall be required to provide detours around related construction activities. Primary access routes that will be affected are in the areas of pipeline construction. These locations include the RP-1/RP-5 bypass south of the Chino airport on Kimball Avenue, the Eastern Trunk Sewer along Archibald Avenue and the RP-4 Trunk Sewer along State Route 66 and east to Etiwanda Avenue. See Figure 5.

Operation Phase

No instances of inadequate emergency access will be present.

Recycled Water Master Plan

Construction Phase

No instances of inadequate emergency access are noted.

Operation Phase

No instances of inadequate emergency access will be present.

Organics Management Master Plan

Construction Phase

A traffic plan shall be required to provide detours around related construction activities. Construction on facilities shall require a traffic plan where public access is affected. It is anticipated that little or no disruption in access will occur.

Operation Phase

No instances of inadequate emergency access will be present.

f. Result in inadequate parking capacity?

General Disposition

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. The master plans 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 onsite will meet the needs of the facilities

Wastewater Facilities Master Plan

Construction Phase

No instances of inadequate parking capacity are noted.

Operation Phase

No instances of inadequate parking capacity will be present.

Recycled Water Master Plan

Construction Phase

No instances of inadequate parking capacity are noted.

Operation Phase

No instances of inadequate parking capacity will be present.

Organics Management Master Plan

Construction Phase

No instances of inadequate parking capacity are noted.

Operation Phase

No instances of inadequate parking capacity will be present.

g. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

General Disposition

Implementation of the facilities management plans is not envisioned to create conflicts with adopted policies supporting alternative transportation. An estimated 170 people (total) may be required to operate all of the proposed facilities and implement the facilities management plans on 2050. Approximately 47 additional people would be required to operate proposed facilities by 2010. These employees will be encouraged to utilize alternative transportation modes as are deemed appropriate for their work conditions. No mitigation is required.

Wastewater Facilities Master Plan

Construction Phase

No conflicts with adopted policies are noted.

Operation Phase

No conflicts with adopted policies will be present.

Recycled Water Master Plan

Construction Phase

No conflicts with adopted policies are noted.

Operation Phase

No conflicts with adopted policies will be present.

Organics Management Master Plan

Construction Phase

No conflicts with adopted policies are noted.

Operation Phase

No conflicts with adopted policies will be present.

4.7.4 Mitigation Measures

The proposed project consists of implementation of three master plans with facilities proposed at a number of locations throughout the IEUA service area. Most of the facility sites are within existing urban areas that are served by an existing well-developed circulation system. Some of the proposed sites are not specifically defined, but instead are represented as a corridor. For example, proposals for two future satellite wastewater reclamation plants may be located within a corridor a few hundred feet wide and a mile or more long. These corridors are typically located along major thoroughfares, such as Baseline Street, Highland Avenue or Foothill

Avenue. Each of these roads is a major arterial in the communities (Rancho Cucamonga or Fontana) where the proposed facilities may be developed in the future.

Thus, mitigation at this stage of review will first require additional site-specific surveys of the circulation system before they can be developed. This situation creates a potential disparity between mitigation within an environmental document, such as this one, and mitigation ultimately agreed upon with the cities or county where the projects are implemented. To resolve this potential conflict, IEUA has identified the following mitigation measures for implementation in conjunction with this proposed project. It is IEUA's finding that the mitigation outlined below is adequate to reduce potential significant adverse circulation system impacts to a level of nonsignificance.

4.7.4.1 Construction Impacts

4.7-1 **For each development project that will increase trip generation by more than 50 vehicles during peak hour, IEUA shall prepare a traffic study that evaluates the impacts of this traffic on the local circulation system and identify project specific or fair share mitigation to maintain peak hour level of service at LOS "E" or better. A traffic study shall be prepared for each IEUA development project having the potential to generate sufficient passenger equivalent trips to impact local circulation systems to a level that degrades the level of service to worse than desired in the local agency circulation element of their general plan.**

4.7-2 **The IEUA shall require the construction contractor to provide adequate traffic management resources during construction (signing, protective devices, flag persons, etc.) to maintain the safe flow of traffic, particularly emergency access, on local streets at all times.**

4.7-3 **During construction, IEUA shall require traffic hazards for vehicles, bicycles, and pedestrians to be adequately identified and such traffic controlled to minimize hazards.**

4.7-4 **The IEUA shall require the construction contractor to ensure that no open trenches or traffic safety hazards be left in roadways during periods of time when construction personnel are not present (nighttime, weekends, etc.), without appropriate signing and protection to minimize hazards.**

4.7-5 **The IEUA shall require all roads to be repaired adequately after construction activities to ensure that traffic can move in the same manner as before construction without damage to vehicles.**

4.7-6 **The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.**

4.7.4.2 Operation Impacts

4.7-7 **IEUA shall emphasize transportation demand management or non-motorized transportation alternatives for project related employees, where feasible, to reduce demand for roadway.**

4.7-8 **Future facility ingress/egress shall be revised with the local agency having land use jurisdiction or jurisdiction over the roadway providing access. Roadway improvements required to eliminate any circulation system impacts or traffic hazards associated with access to a facility shall be mitigated in accordance with standard agency requirements or prudent circulation system planning requirements . Strategies that can be considered for application include the following:**

- **signalization, signing and striping improvements**
- **additional through or turn lanes as dictated by volume**
- **additional storage area for vehicle queuing (i.e., right- and left-turn bays)**
- **increasing curb radii to accommodate higher turning radius trucks**
- **pavement/roadbed improvements**
- **widening to provide sufficient lane widths for trucks, and**
- **improvements to enhance sight distances.**

4.7-9 **The IEUA shall conduct a detailed operational analysis for the final site locations and, as necessary, develop conceptual design plans to accommodate project traffic.**

4.7-10 **The concept improvements should be specifically oriented toward facilitating the movement of large trucks at facility driveways and nearby intersections.**

4.7-11 **Conduct additional analysis on the availability of right-of-way, adjacent land uses and locations of driveways, existing improvement plans, roadway cross-sections and unique characteristics such as difficulty in making turns, truck queues from adjacent intersections to driveways and pavement conditions.**

4.7-12 **Maintain access to the Chino Airport, Ontario Airport, and Cable Airport.**

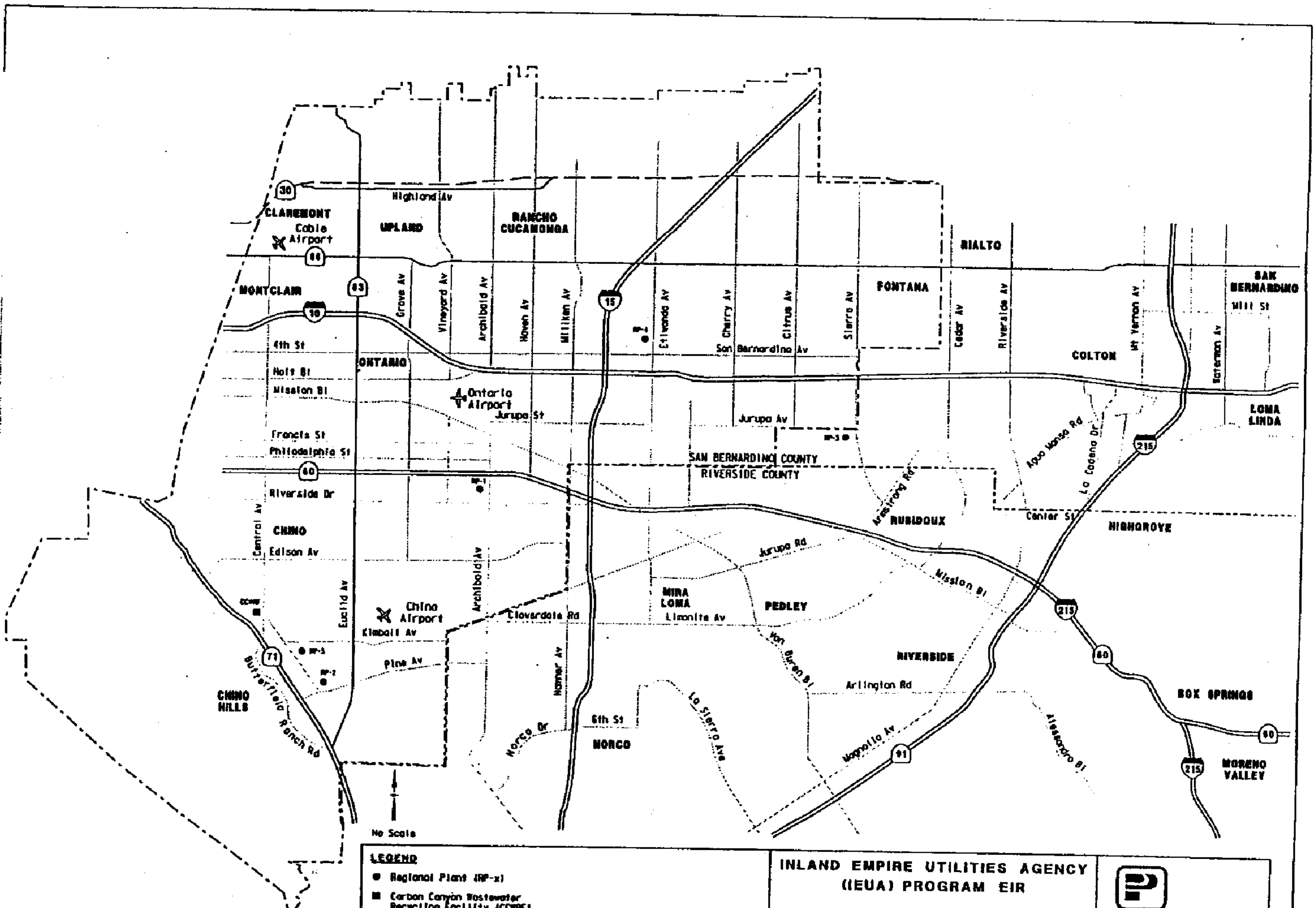
Since all of the above mitigation measures will be implemented on existing roads and adjacent disturbed areas, no adverse impacts will associated with implementing these measures other than the additional construction activities associated with them.

4.7.5 Cumulative Impact

The Chino Basin project area circulation systems have been evaluated as generating trips from existing residences and businesses, as well as serving as a destination for commercial and industrial traffic. Implementation of the master plans will not cause traffic generation that will be substantially different from that which is forecast to occur within the general plans for the affected jurisdictions. The addition of up to 150 permanent jobs in support of master plans activities result in a *de minimus* contribution to an area that is forecast to generate approximately 1,751,800 average daily trips (ADT) in the future, compared to an estimated 2,243,200 ADT at present. Many of the trips, including truck trips for transport of organic material, are trips that already exist on the regional circulation system, but will be redirected to new organics management facilities, including the new regional facility on 6th Street in Rancho Cucamonga. By facilitating implementation of the general plans through the development activities identified in the Project Description (Chapter 3) and outlined above, implementation of the master plans is not forecast to cause a significant contribution to cumulative traffic growth.

4.7.6 Unavoidable Significant Impact

The traffic and circulation impact discussion presented above indicates that implementation of the projects identified in the three master plans in the IEUA service area will not cause any significant adverse circulation system impacts. The master plans will support more efficient and effective water supplies and is, therefore, not forecast to cause any change in the build-out circulation system for the local agency general plans. Therefore, no significant adverse and unavoidable traffic impacts are forecast to occur if the proposed project is implemented.



LEGEND

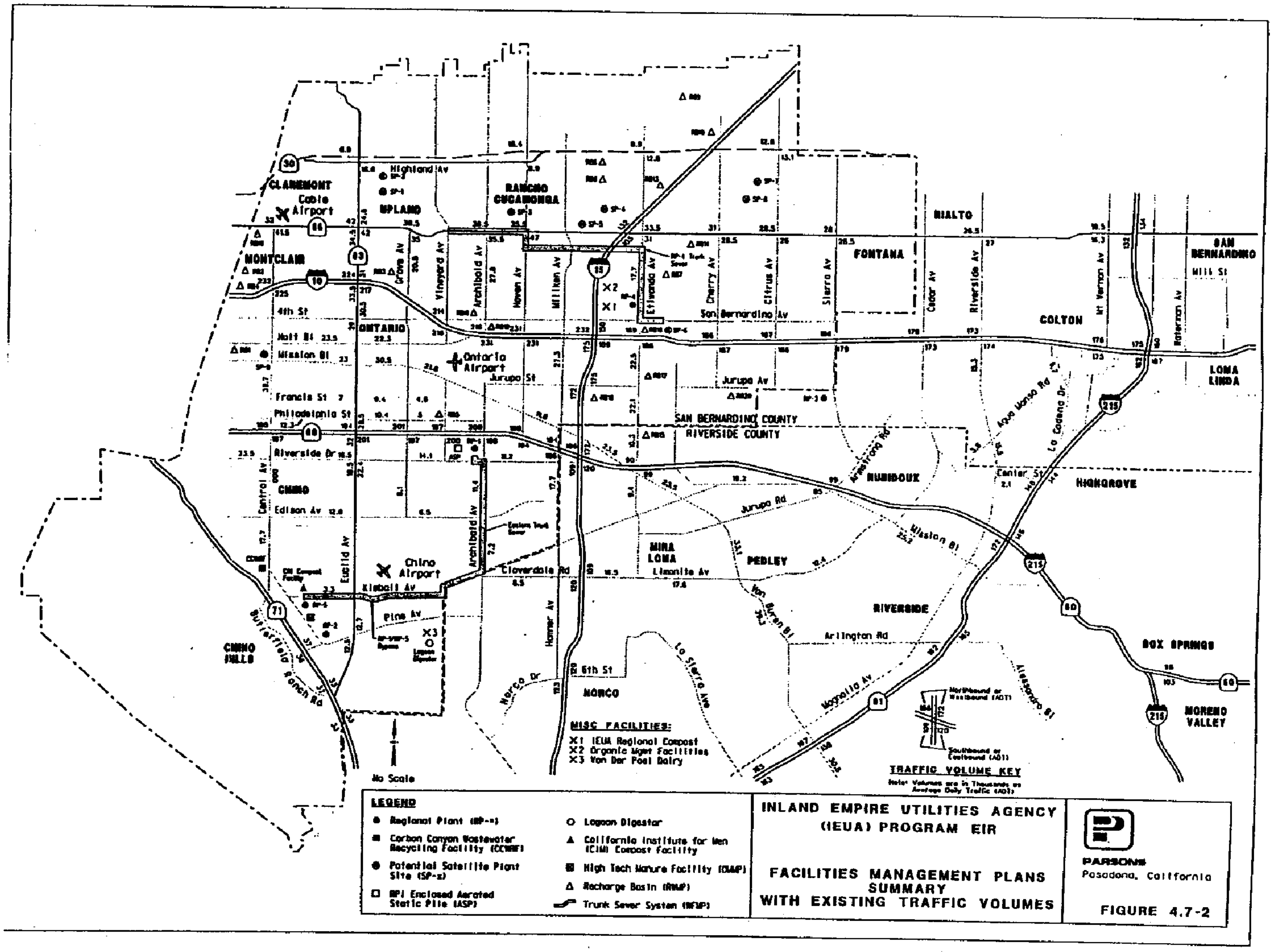
- ● Regional Plant (RP-x)
- ■ Carbon Canyon Wastewater Recycling Facility (CCWRF)
- IEUA Service Area Boundary
- County Boundary
- Highway Proposed/Under Construction

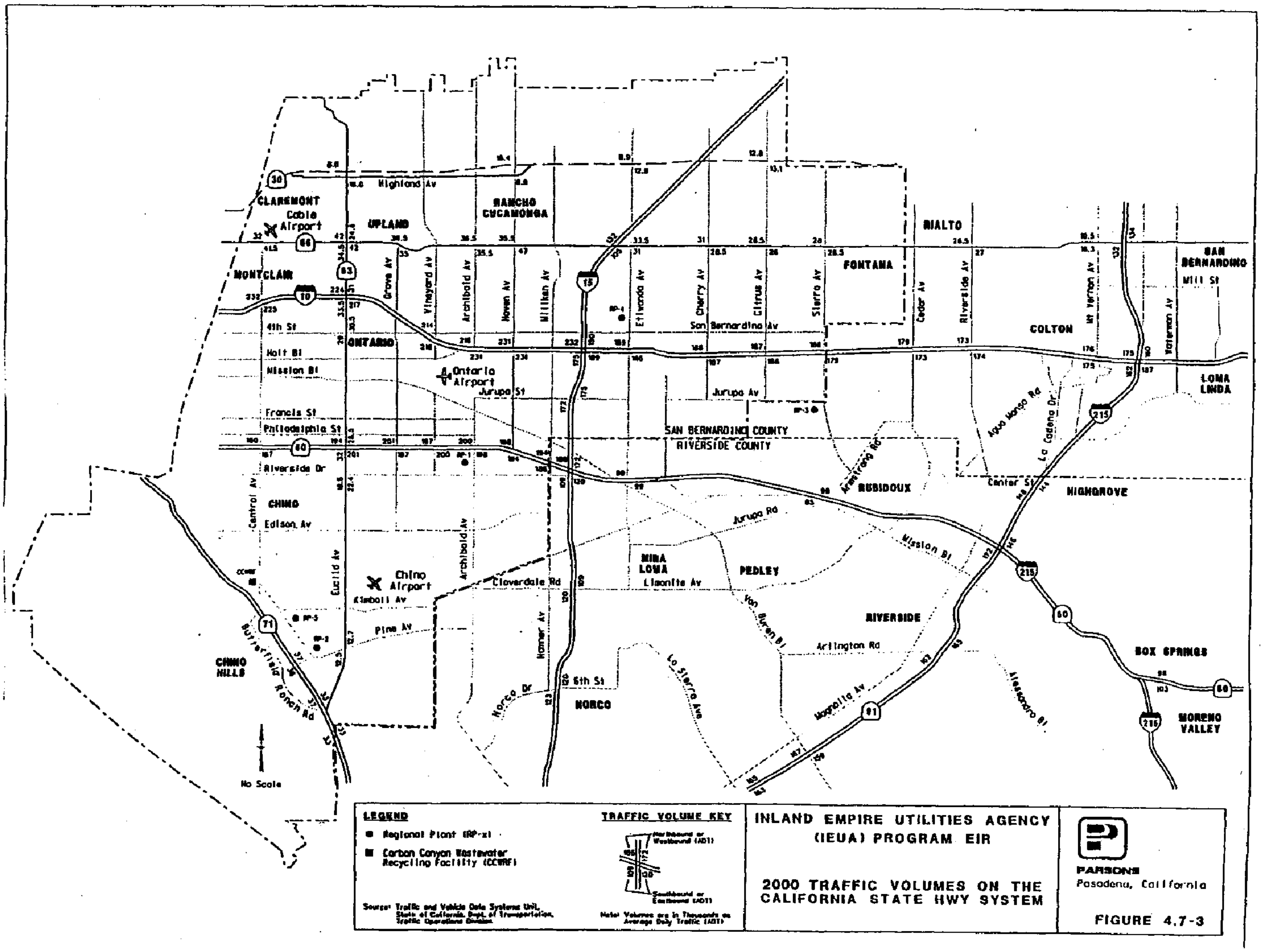
INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

SERVICE AREA AND VICINITY MAP

PARSONS
Pasadena, California

FIGURE 4.7-1

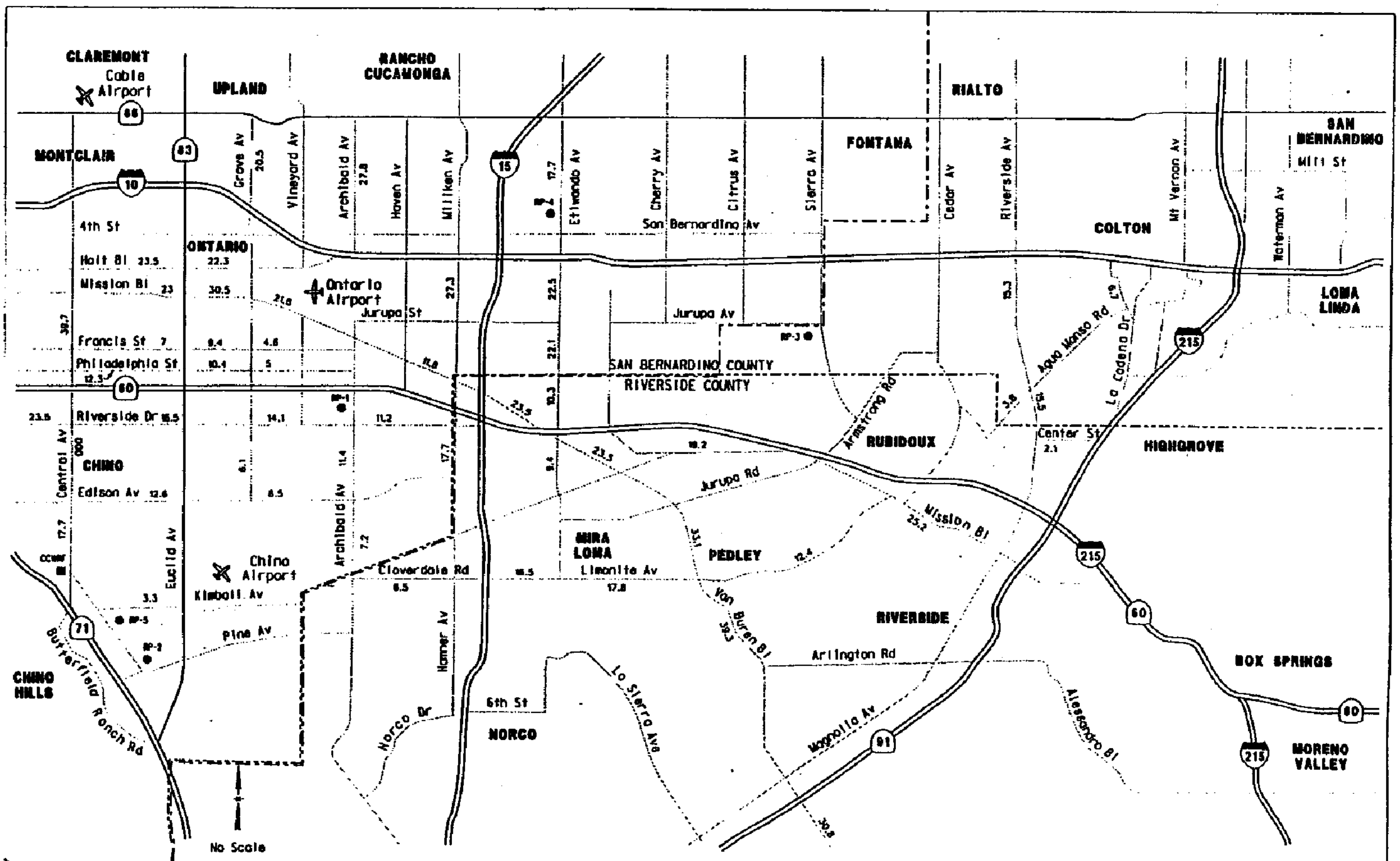

CLAREMONT
UPLAND
RANCHO CUCAMONGA
RIALTO
SAN BERNARDINO
MONTCLAIR
FONTANA
ONTARIO
COLTON
LOMA LINDA
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY
RUBIDOUX
HIGHGROVE
CHINO
MIRA LOMA
PEDLEY
RIVERSIDE
BOX SPRINGS
CHINO HILLS
NORCO
MORENO VALLEY
Cable Airport
Ontario Airport
Chino Airport
No Scale
MISC FACILITIES:
X1 IEUA Regional Compost
X2 Organic Mgmt Facilities
X3 Van Der Poel Dairy
TRAFFIC VOLUME KEY
LEGEND
Regional Plant (RP-x)
Carbon Canyon Wastewater Recycling Facility (CCWRF)
Potential Satellite Plant Site (SP-x)
RPI Enclosed Aerated Static Pile (ASP)
Lagoon Digestor
California Institute for Men (CIM) Compost Facility
High Tech Manure Facility (HTMF)
Recharge Basin (RMP)
Trunk Sewer System (RTMP)
INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR
FACILITIES MANAGEMENT PLANS SUMMARY WITH EXISTING TRAFFIC VOLUMES
PARSONS
Pasadena, California
FIGURE 4.7-2



INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

2000 TRAFFIC VOLUMES ON THE CALIFORNIA STATE HWY SYSTEM

FIGURE 4.7-3



LEGEND

- ● Regional Plant (RP-x)
- ■ Carbon Canyon Wastewater Recycling Facility (CCWRF)

Source: Katz, Okitsu & Associates, "Technical Memorandum No. 6, Traffic Impact and Issues - Tasks 1.8/4.6"

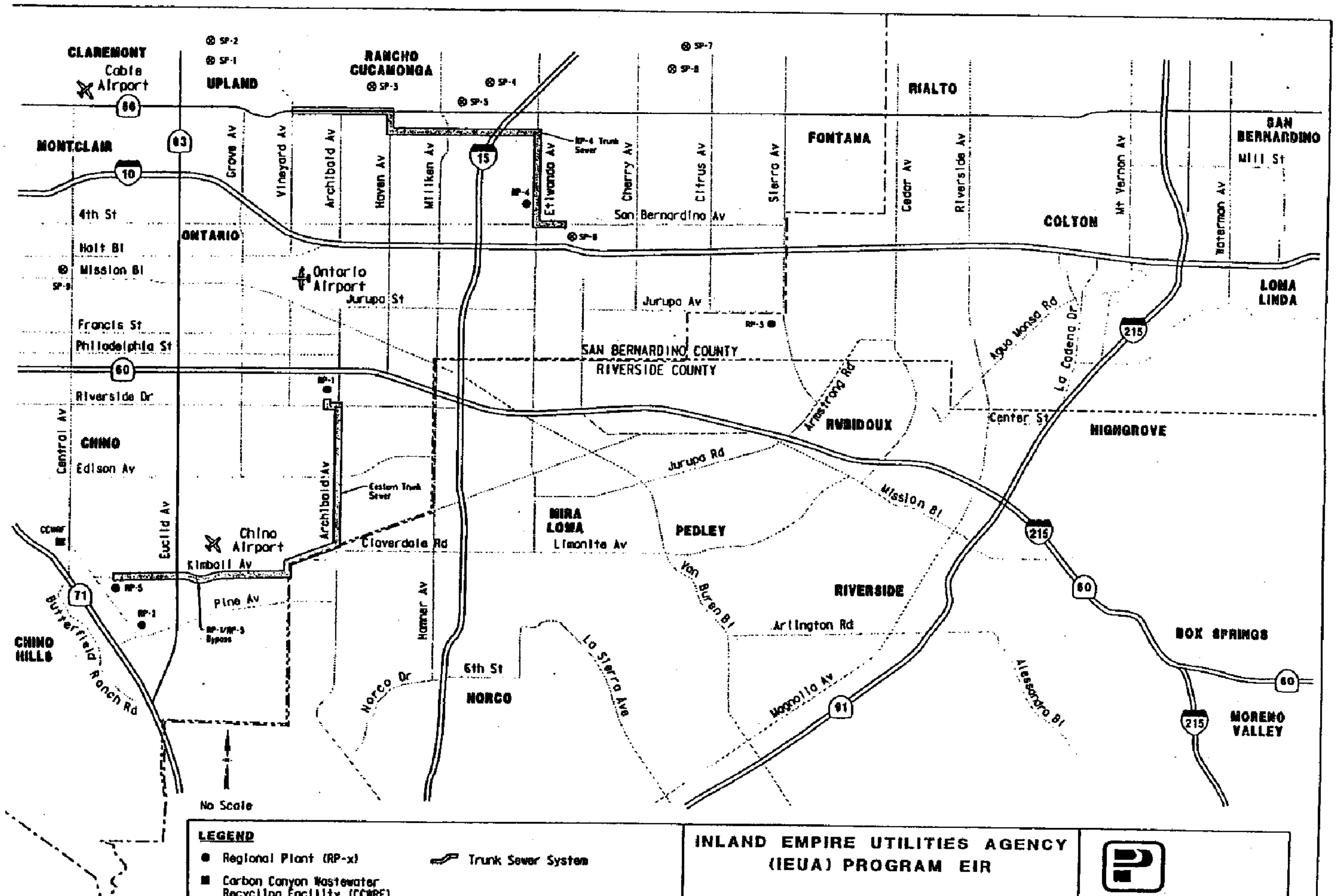
Note: Volumes are in Thousands as Average Daily Traffic (ADT)

INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

EXISTING TRAFFIC VOLUMES ON LOCAL ROADS

PARSONS
Pasadena, California

FIGURE 4.7-4



LEGEND

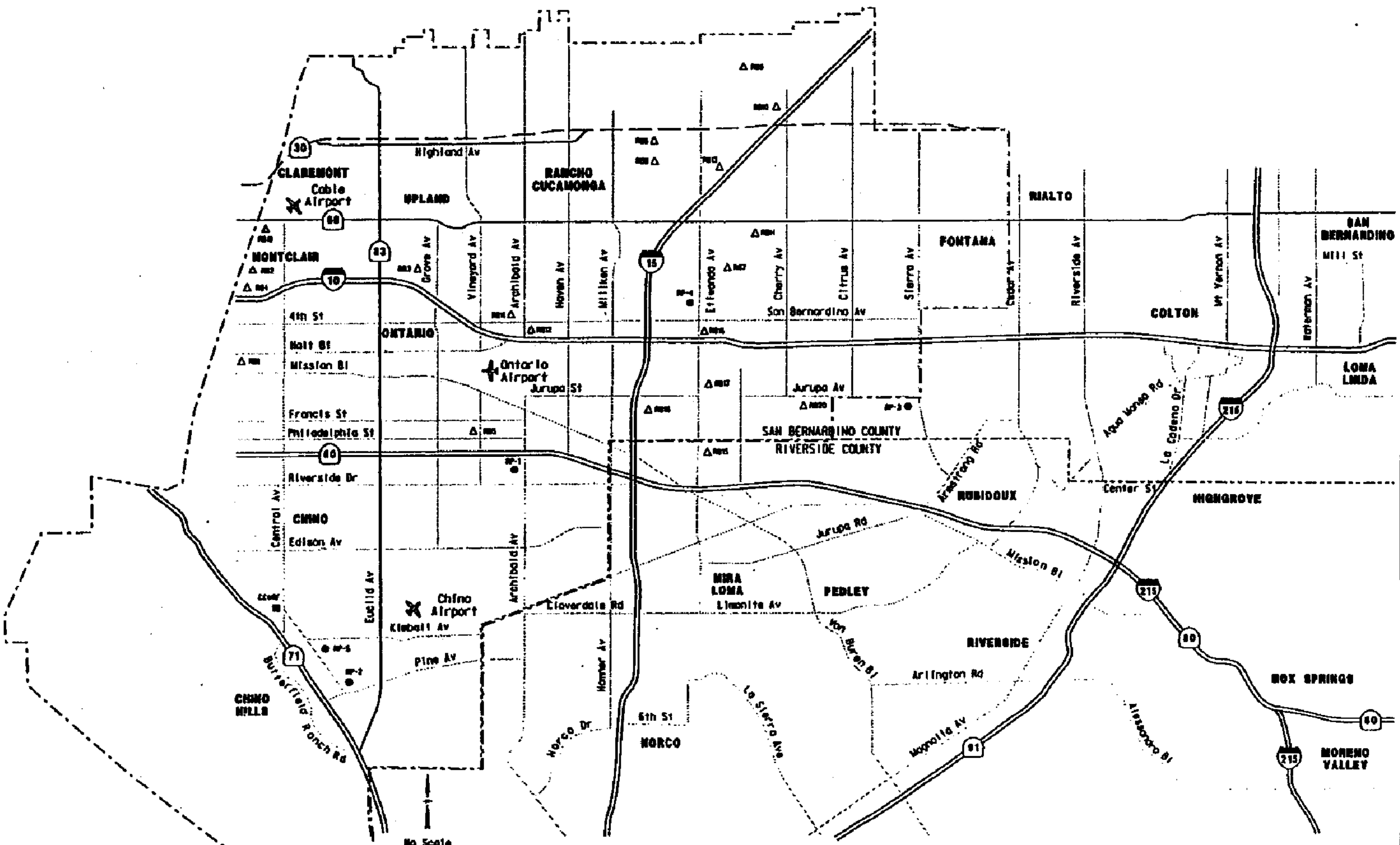
- ● Regional Plant (RP-x)
- ■ Carbon Canyon Wastewater Recycling Facility (CCWRF)
- ⊗ Potential Satellite Plant Site (SP-x)
- Trunk Sewer System

INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

WASTEWATER FACILITIES MASTER PLAN (WFMP)

PARSONS
Pasadena, California

FIGURE 4.7-5



LEGEND

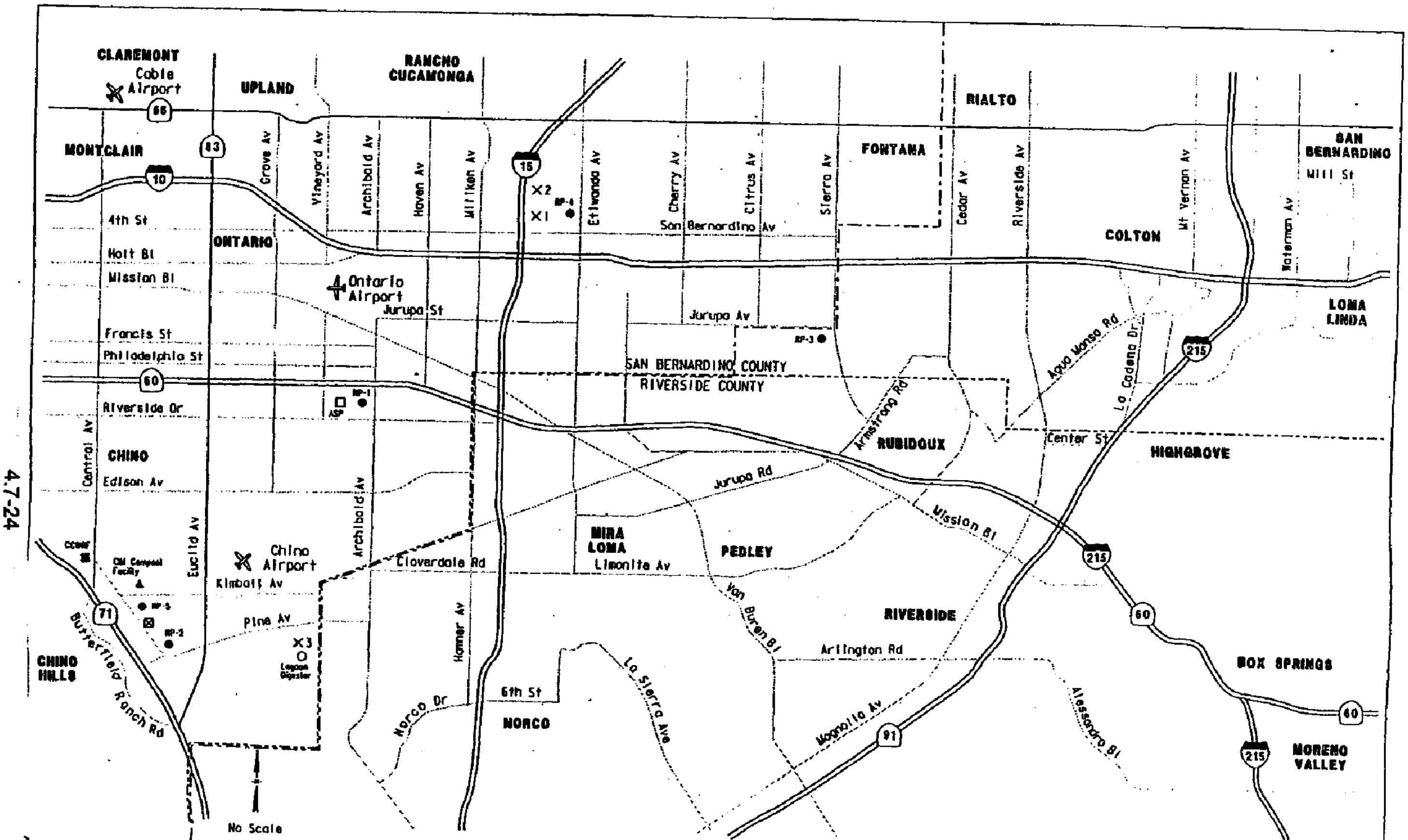
- ● Regional Plant (RP-x)
- ■ Carbon Canyon Wastewater Recycling Facility (CCWRF)
- △ Recharge Basin

INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

RECYCLED WATER MASTER PLAN (RWMP)

PARSONS
Pasadena, California

FIGURE 4.7-6



LEGEND

- ● Regional Plant (RP-x)
- ▲ California Institute for Men (CIM) Compost Facility
- □ RPI Enclosed Aerated Static Pile (ASP)
- O Lagoon Digestor
- ⊠ High Tech Manure Facility

MISC FACILITIES:

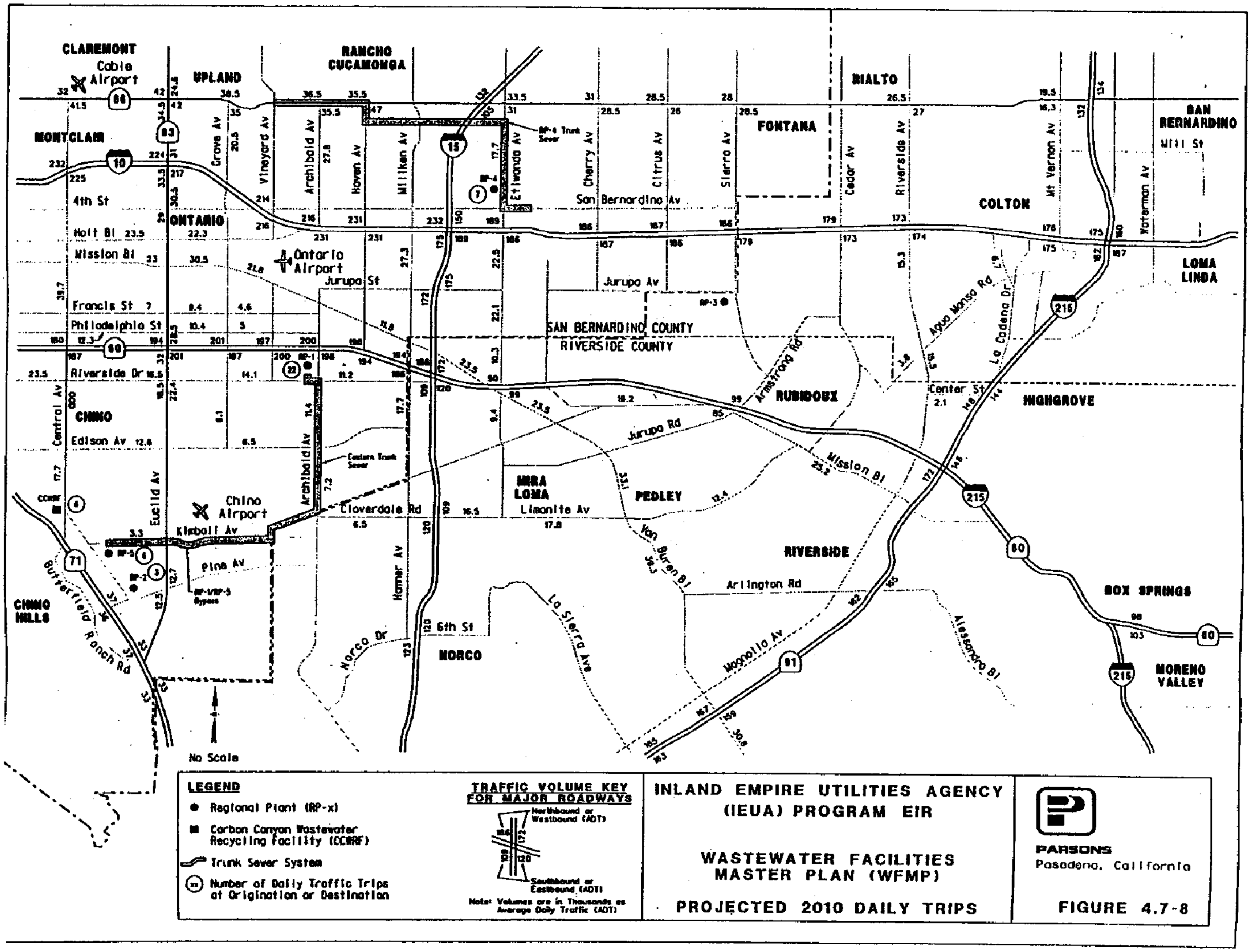
X1 IEUA Regional Compost
X2 Organic Mgmt Facilities
X3 Van Der Poel Dairy

INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

ORGANICS MANAGEMENT MASTER PLAN (OMMP)

PARSONS
Pasadena, California

FIGURE 4.7-7



INLAND EMPIRE UTILITIES AGENCY (IEUA) PROGRAM EIR

WASTEWATER FACILITIES MASTER PLAN (WFMP)

PROJECTED 2010 DAILY TRIPS

FIGURE 4.7-8

4.8 BIOLOGICAL RESOURCES

4.8.1 Introduction

This section is intended to serve as a broad overview of biological resources in the West San Bernardino Valley that are included within, or occur adjacent to the project area, which consists of the IEUA service area and areas immediately adjacent to the service area. This section will include a general inventory and description of the communities, sensitive habitats, and species of special concern that may occur in the vicinity of the project area. A majority of the project area has already been developed. Within the northern service area, there are very few undisturbed areas that remain with significant biological resources. Only at the northern edge of the service area does there remain coastal sage and alluvial fan sage scrub habitat with high biological resource values. Additionally, the Santa Ana River corridor, Mill Creek (lower Cucamonga Creek), Chino Creek and the Prado Basin contain many sensitive plant and animal species. Riparian/wetland resources are found throughout the southern portion of the project area, and along some of the existing drainage courses throughout the project area

Data provided in this section of the PEIR was obtained from the following biological resources:

- Kirtland Biological Services – Trapping Studies for the San Bernardino Kangaroo Rat, Etiwanda Basin Expansion Project, December 13, 1999 (KBS Report).
- Tierra Madre Consultants, Inc. – Southern California Edison Properties Focused Surveys for the Delhi Sand Flower-loving Fly, December 29, 1999 (TMC Report).
- Tom Dodson & Associates – Biological Assessment for the Inland Empire Utilities Agency Recycled Water Groundwater Recharge Project, January 1999 (TDA Report).
- Kendall H. Osborne – Focused Survey for Delhi Sands Giant Flower-loving Fly on a 40-acre Site in Etiwanda, October 1999 (Osborne Report).
- LSA Associates, Inc., Ventura Freeway Corridor Areawide Plan DEIR, March 1999.
- San Bernardino County General Plan EIR Biological Background Report, March 1989.
- Riverside County General Plan, 1984.
- California Natural Diversity Database, California Department of Fish and Game, 2000.
- Hickman, James ed., *The Jepson Manual: Higher Plants of California*, 1993.
- Munz, Philip, *A Flora of Southern California,* 1974.
- Ventura Freeway Corridor Areawide Plan EIR, 1999.
- Chino Basin Groundwater Storage Program DEIR, MWDSC, 1988.
- Optimum Basin Management Program Program Environmental Impact Report (OBMP PEIR).

Data contained in these reports, where applicable, are summarized herein with editing to conform to the PEIR format. Because the biological data base compiled for the Chino Basin in the OBMP PEIR covers the project area and is current, the following information has been primarily abstracted from this document.

The principal biological resource management actions that may need to be implemented by IEUA as a part of this project over the years are:

1. Compliance with NEPA and CEQA guidelines regarding sensitive biological resources
2. U.S. Army Corps of Engineers (COE) Clean Water Act Section 404 Permit and U.S. Environmental Protection Agency (EPA) 404 (b)1 Alternatives Analysis
3. Section 7 and/or 10 of U.S. Endangered Species Act of 1973, as amended
4. U.S. Migratory Bird Treaty Act
5. U.S. Bald Eagle Act
6. California Endangered Species Act
7. California Department of Fish and Game (CDFG) Streambed Alteration Agreement (Section 1600 of the Fish and Game Code)
8. State of California Native Plant Protection Act
9. Plant Protection and Management Ordinances (County Code Title 8, Div. 11)

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 is determined to be present, a proposed project may be constrained to avoid or minimize effects to the species. Species-specific mitigation measures would thus 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), CDFG, and/or COE.

4.8.2 Environmental Setting

The project area is comprised of a primarily urban setting, as indicated on Figure 4.8-1 which illustrates the general plant communities found in the project region. The vast majority of the approximately 225,000 acres that comprises the project area 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 within the Chino Basin that have the largest areas of extant 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 woodland areas 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 MWDSC, a total of 311 species of vascular plants, belonging to 65 families, were identified in the Basin area.

Three major vegetation communities occur in this area. The first community is riparian habitat which occurs in low lying sections of the Chino Basin and along the Santa Ana River and streams running through the project area, for example Mill Creek and Chino Creek. The riparian habitat is dominated by extensive stands of black willow, and smaller stands of arroyo willow. Several stands of tall cottonwoods and a single stand of sycamore have been identified.

The second habitat type is upland habitat characteristic of coastal sage scrub, plus grasses and exotic weeds. This upland area has been heavily impacted by agriculture and grazing activities. Very little of this habitat remains below Highland Avenue within the project area.

The third major vegetation type is the aquatic and semi-aquatic communities occurring in permanent streams and artificial duck ponds, and intermittently filled reservoirs and streams within the project area. The wildlife in the riparian area includes a variety of amphibians, mammals, and birds. For an additional discussion of the biological resources identified in the area, please refer to MWDSC Chino Basin Groundwater Storage EIR's biological resource section, which is included as Appendix 8.5 to this document.

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 neotropical migrant species as well as provide 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 13,000 acres of wild land situated in the hills north of Santa Ana Canyon. Although Chino Hill State Park containing large blocks of non-native grasslands, it is 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 to and movement between the park boundary and the project area.

A final habitat type of significance is dependent on the underlying soil and sediment rather than on the overlying plant community. Delhi sand soils have evolved on former sand dune complexes in the central and eastern portions of the project area. These sand dune complexes, and some adjacent sandy soils (such as the Tujunga soil series), can support the Delhi sands giant flower-loving fly (*Rhaphiomidas terminatus abdominalis*) which is listed as a federal endangered species. Surface vegetation can include native coastal sage scrub, residual agricultural areas, particularly vineyards, and ruderal vegetation.

4.8.2.1 Plant Communities

The inventory of generalized plant communities that follows was obtained from San Bernardino County's Vegetation Map by Holland Classification. This Map is included for reference purposes as Figure 4.8-1.

- Mule Fat Scrub
- Southern Cottonwood-Willow Riparian Forest
- Coastal Sage Scrub
- Hoaryleaf Ceanothus Chaparral
- Non-Native Grassland

Additionally, a review of San Bernardino and Riverside County general plan documents listed the plant communities shown below as being present in the project area. The general characteristics of these communities are described in the following discussion extracted from San Bernardino County's Biological Resources Report.

Chaparral

Several different chaparral subtypes occur in San Bernardino County. The most common subtypes in the valley region are southern mixed chaparral, chamise chaparral and scrub oak chaparral. These associations are located predominantly along the lower slopes of the mountains and in the interface zone between valley and mountain regions.

Southern mixed chaparral is composed of broad-leaved sclerophyllous shrubs that grow to about 8-12 feet tall and form dense, often nearly impenetrable stands. The plants of this association are typically deep-rooted. There is usually little or not understory, except in openings; however, considerable leaf litter accumulates. This habitat occurs on dry, rocky often steep north-facing slopes with little soil. It may grade into Riversidean coastal sage scrub at lower elevations, but generally grown on moister and rockier sites. Characteristic shrub species include chamise, toyon and lemonadeberry.

Chamise chaparral is dominated by chamise, almost to the exclusion of all other plants. This habitat occurs on shallower, drier soils or at somewhat lover elevations than mixed chaparral. Chamise has adapted to the characteristic fire cycles of this habitat by stump sprouting. In mature stands, the shrubs are densely interwoven and there is very little herbaceous understory or leaf litter.

Scrub oak chaparral is a dense evergreen association that grown to twenty feet tall and is dominated by scrub oak. This habitat occurs on wetter sites than other chaparral associations, often at slightly higher elevations. These more favorable sites recover from fire more quickly than other chaparral subtypes and substantial leaf litter accumulates. Additional shrub species found in scrub oak chaparral include eastwood manzanita, toyon and mountain mahogany, poison oak and narrow leaf bedstraw. Other chaparral associations may occur in the Valley region but are more predominant at higher elevations. Such associations include buck brush chaparral, bigpod ceanothus chaparral and interior live oak chaparral.

Chaparral habitats are suitable for burrows and soil nests of many mammal species. Another important feature of this habitat are rock outcrops, which are important for reptiles and as raptor perch sites. No sensitive species of San Bernardino County are directly dependent upon chaparral habitat. However, sensitive faunal species from adjacent coastal sage scrub habitat may utilize chaparral as a corridor or for foraging. These species may include San Bernardino kangaroo rat, Los Angeles pocket mouse, and San Diego horned lizard.

According to the California Native Plant Society (CNPS) database, subseries of this habitat type that may occur within the project area are the scalebroom series and the hoaryleaf ceanothus series. These series are described below as they appear in the CNPS database.

The scalebroom series occurs on upland areas that are rarely flooded and low gradient deposits along streams. Species composition differs greatly among stands. Some stands in this habitat may have sufficient emergent trees to be placed in tree-dominated series. The federal and state listed Slender-horned spineflower (CNPS list 1B plant) *and Santa Ana River woollystar (CNPS list 1B plant) grow in some stands of this series. This series may occur in western Riverside County and adjacent to certain stream channels where they exist the San Gabriel Mountains.*

The hoaryleaf ceanothus series occurs on upland slopes that are south-facing at high elevations. Soils range from deep or to shallow and are usually coarse textured. Hoaryleaf ceanothus occurs as scattered shrubs or as the sole or dominant shrub in chaparral. Stands where hoaryleaf ceanothus and chamise are equally important are members of the chamise-hoaryleaf series. Series height is less than 3.5 meters, and occurs from 100 to 1,350 meters in elevation.

Coastal sage scrub

Coastal sage scrub in the valley region is classified as Riversidean sage scrub, the most xeric expression of coastal sage scrub south of Point Concepcion (Holland 1986). This habitat grows on steep slopes with severely drained soil and dominant species are relatively shallow-rooted shrubs, seldom over four feet tall.

Riversidean Alluvial Sage Scrub is a variation of Riversidean sage scrub which also exists in the valley region. This vegetation type is the dominant habitat of the Upper Santa Ana River floodplain and also occurs in the Cajon and Lytle washes (CNDDB, 2000).

Coastal sage scrub habitat in Southern California is decreasing rapidly as a result of urbanization. Evidence of its decline is the growing number of declining plants often associated with it. In the valley region of San Bernardino county, three state and/or federally listed endangered species are known to occur in association with the coastal sage scrub: slender-horned spineflower (Centrostegia lepoceras), Santa Ana River woolly star (Eriastrum densifolium spp. sanctorum), and Nevin's barberry (Berberis nevinii). Additionally, Pringles monardella is federally listed as a Category I species, while Payson's jewelflower and California bedstraw are category 2 species.

San Bernardino kangaroo rat (SBKR) a federally listed endangered species; and Stephens' kangaroo rat, a state-listed threatened species and federally listed endangered species are also known to occupy this habitat in the Valley area. Critical habitat has been proposed for the SBKR, but the final decision on the critical habitat boundaries have not yet been approved by the U. S. Fish and Wildlife Service. SBKR proposed critical habitat does occur within northern portion of the project area.

Los Angeles pocket mouse is both a state and a federally listed species of special concern. The Los Angeles pocket mouse has been found in San Bernardino County near the Cajon Wash, north of Etiwanda and San Bernardino and in Reche Canyon...The Valley region of San Bernardino County represents the northern limit of the range of the whiptail and coastal California gnatcatcher, a federally listed threatened species. Currently, the U.S. Fish and Wildlife Service has adopted critical habitat for this species, with substantial areas located within the project area. However, recent court decisions have placed the gnatcatcher critical habitat designation in question. Regardless, the established critical habitat boundaries can be used for planning and survey purposes. This area is further discussed and depicted in the Project Impacts subsection to follow.

Deciduous woodlands

California walnut woodland is a rather specialized woodland habitat restricted to the Chino Hills and Etiwanda area within the Valley region. This woodland, which occurs among rocky outcrops integrating with scrub habitat or on more mesic sites integrating with canyon live oak woodland, is dominated by California walnut; associated species include canyon live oak, Engelman oak, sugar bush, and squaw bush. California walnut woodland is considered a sensitive habitat due to its small acreage and limited distribution in the County; no sensitive floral species are solely dependent on this woodland habitat for their life cycle, however. No federal or state sensitivity listing exists for the live oak walnut or for any other species associated with California walnut woodland. Animals associates with California walnut woodland are similar to the species that would utilize oak woodland. These include Anna's hummingbird, acorn woodpecker, Nuttall's woodpecker, deer mouse, California ground squirrel, striped skunk, and coyote. No sensitive animals as listed by the USFWS or CDFG are dependent on California walnut woodland within the valley region of San Bernardino County.

Grasslands

The disturbed grasslands of the valley region of San Bernardino County are a heterogeneous complex that may be associated with shrubs or trees on land that has been disturbed or altered by development or fire. Non-native weedy vegetation is common in this habitat and includes slender wild oats, foxtail fescue, ripgutgrass, short-pod mustard, red-stem filaree, and pin-clover. One sensitive plant species may occur in the grassland areas of the northern Valley area of San Bernardino County, Orcutt's brodiaea. This species, which is seriously threatened by development, may be found in valley/foothill grasslands, cismontane woodlands and vernal pool habitats. Birds or prey utilize grassland areas for foraging. Locally breeding raptor species include black-shouldered kite, red-tailed hawk, red-shouldered hawk, great horned owl, and barn owl, Other faunal associates include house mouse, southern grasshopper mouse, and gopher snake. No sensitive animal species are expected to utilize the grassland areas of the valley region of San Bernardino County, although non-native grassland adjacent to coastal sage scrub may serve as habitat for the SBKR.

Wetland

Wetland communities are areas of land which are either permanently or seasonally wet and support vegetation that is specifically adapted for saturated soil conditions. These areas include riparian areas and marshes, where moisture is at or near the surface, and often include intermittent drainages. In southern California, wetland habitats are declining and are considered sensitive. Wetlands are further subject to state and federal regulations that include the federal Clean water Act (Section 404) and the CDFG Streambed Alteration Agreement (Section 1600 of the Fish and Game Code).

A number of stream channels flow through the project area, including Day, Etiwanda, and San Sevaine Creeks in the northern portion of the project area and Cucamonga Creek (Mill Creek), San Antonio (Chino Creek) and the Santa Ana River. Where water is present near the surface in stream channels, a riparian woodland community can be maintained. In stream channels with intermittent surface or groundwater availability, a *riparian scrub community may also develop. Both of these communities exist in the valley region. Dominant woodland tree species include Fremont cottonwood, arroyo willow and black willow with western sycamore on the upper terraces. Common shrubs include mulefat, California mugwort, poison oak and the coyote bush. A well-developed stand of riparian woodland occurs in the Prado Basin of San Bernardino County and extends into Riverside County. Remnant riparian woodlands also occur in less frequently flooded areas such as the Santa Ana Wash area.*

A freshwater marsh is located north of Etiwanda in the Day Canyon wash area. Freshwater marsh also occurs in the Prado Basin and may occur in the other drainages of the valley region, wherever moisture is at or near the surface for a long duration during the growing season. This habitat is usually dominated by perennial emergent species 4 to 7 feet tall. Stands of bulrushes or cattails often characterize this habitat. Also, large stands of the non-native pest plant giant reed grass (Arundo) occur along much of the basin's riparian areas. This giant reed grass not only takes over native riparian communities, but it also uses a tremendous amount of water.

These Riparian resources serve as important habitat, as water sources, and as movement corridors for wildlife. This habitat type also supports numerous sensitive animal species including: least Bell's vireo, a state and federally listed endangered species; southwestern willow flycatcher, a state and federally listed endangered species; bald eagle, a state endangered and federally threatened species; western yellow-billed cuckoo, a state listed threatened species; long eared owl, a state listed species of special concern; the California black rail, a state listed threatened species; and potentially the Arroyo toad, a federally listed endangered amphibian species. The cuckoo and vireo occur in the dense riparian habitat of the Prado Basin and along the undeveloped portions of stream channels along Chino Creek and Mill Creek (Cucamonga Creek) within the project area. The black rail, dependent on marshes, was recorded long ago at Chino but is not known to occur currently in San Bernardino County. (San Bernardino County Plan Biological Background Report, 1987)

Figure 4.8-2 illustrates those areas in southern California where the Arroyo toad may occur, which includes portions of the project area. Figure 4.8-3 shows the present known range for the least Bell's vireo. Although not found within San Bernardino County in many years, the potential range for the Quino checkerspot butterfly does include the northern portion of the project area, as shown on Figure 4.8-4. Sensitive areas for the San Bernardino kangaroo rat encompass the project area and are shown on Figure 4.8-5. Sensitive areas within the project area for the coastal California gnatcatcher are shown on Figure 4.8-6. Finally, Figure 4.8-7 illustrates habitat locations for four species, including those areas underlain by Delhi sands, which may support the Delhi Sands Giant Flower-loving Fly.

Other riparian and wetlands vegetation series that may occur within the project area are the Arroyo willow series, the California sycamore series, and types of riparian woodland forests. The California Native Plant Society database describes these series as follows:

California Sycamore Series

This vegetation series occurs on upper terraces and canyon slopes that are commonly rocky. This series occurs along the Santa Ana River, and possibly in other areas of San Bernardino County. Series height is less than 35 meters.

Arroyo Willow Series

These riparian willow stands may or may not be dominated by a single species. If no dominant willow is present at low elevations, then the stand can be characterized as a mixed willow series. Montane and subalpine willow stands are placed in separate classes since different willow species are restricted to those elevations. Stands of the Arroyo willow series have environmental conditions similar to alder, cottonwood and other willow series. Tree density and cover occurs along the Santa Ana River, and a possible candidate site occurs in San Bernardino County. Series height is typically less than 10 meters.

San Bernardino County has prepared a Sensitive Biological Areas Map for the Western Valley Planning Area which outlines several habitat types that have been particularly sensitive for certain sensitive species. This map is part of the multi species habitat conservation plan that is currently under development by the county. The four habitat or area types that are identified on this map are described below.

Coastal Sage Scrub

Please refer to the habitat description previously provided in this subchapter for information regarding this community type. The coastal scrub series is better thought of as a collection of several vegetative series. One such series is the California buckwheat series. This series occurs on upland slopes that are rarely flooded, low-gradient deposits along streams. Soils are shallow and rocky. This series is comparable to coast bluff scrub but differs in plant height and cover from coastal sage, but contrasts little in species composition. Three varieties of *Eriogonum fasciculatum* grow in the range of coastal scrub. There is some geographic separation between them. Stands dominated by *E. gigateum* are included in this series; stands of this series differ from the California sagebrush-California buckwheat series in that California buckwheat dominates here. This series occurs in Cajon creek, Cucamonga Canyon, Lytle Creek, San Sevaine Canyon and the Upper Santa Ana River.

Delhi Sands

While this is not a definitive community type, *per se*, it is typified as a blow sand community species, which is associated with a suite of blow sand endemic invertebrates. These blow sand areas, including the Delhi soil series, are highly important habitat requirements for the federally listed endangered Delhi Sands Giant Flower-loving Fly. Soil surveys for southwestern San Bernardino County (USDA Soil Conservation Service 1980) and western Riverside County (USDA Soils Conservation Service 1979) were consulted to identify the soil types occurring throughout the site. There are several areas with Delhi Sands soil associations within the project area, and they are outlined on the Multiple Species Habitat Conservation Planning Area Map for Sensitive Biological Areas within the San Bernardino County portion of the Valley Planning Area. This map is available through San Bernardino County's Geographical

Information Systems Office and a map of sensitive areas for Delhi Sands Giant Flower-loving Fly (DSF) is also provided in the Project Impacts section of this subchapter.

Riparian/Wetland Areas

Of the habitat and community types occurring within the boundaries of the project area, wetlands are typically considered to be one of the most sensitive types. This vegetation heading includes riparian woodland, riparian scrub, vernal pools, and freshwater marsh. The Prado Basin is one of the best representative examples of riparian woodlands (described previously) in the valley region. Additional wetland resources may also occur along the Santa Ana and Lytle creek washes in alluvial sage scrub habitat that has adapted to frequent flooding and therefore supports a unique diversity of plant species. Further, the Chino Hills support a vide variety of habitat types including Riversidean sage scrub, riparian woodland and California walnut woodland.

California walnut woodland occurs on upland north-facing slopes that are rarely flooded, terraced and relatively flat. Soils are shale-derived and deep. Understories to the walnut tree are composed of coastal scrub, chaparral, and non-native grass species. California walnut is rare (a CNPS Class 4 species). The series height is usually less than 10 meters. (CNPS database).

4.8.2.2 Flora and Faunal Resources

No biological surveys were conducted as part of this biological evaluation. The area has already been evaluated in many different environmental reports, especially those conducted for the counties of San Bernardino and Riverside. Sensitive species that have any potential of occurring within the project area boundaries that have been designated as species of concern, rare, threatened or endangered by either the USFWS or the CDFG or listed as sensitive species by the California Native Plant society are included in Tables 4.8-1 and 4.8-2 for reference purposes, located at the end of this section with the figures.

Table 4.8-1 lists animals and Table 4.8-2 describes plants. This list was compiled from all occurrences identified using the CNDDB 2001, and a list of all sensitive species obtained from the USFWS for all of San Bernardino and Riverside County areas. Only when there is absolute certainty that the project area is outside of the normal habitat range for a species included on the USFWS list have species been removed from further discussion in Table 4.8-1. In some cases, it was not possible to determine if the project area was truly outside of possible habitat range, so as to err on the side of caution, these species were included in the list, even though the probability of occurrence for such species is so low as to be almost no probability.

4.8.2.3 Habitat Linkages and Biological Preserves

A biological issue of special concern is the preservation of habitat connectivity and linkages. The U. S. Fish and Wildlife Service and the CDFG (see Appendix 8.1) have both expressed concerns about the negative impacts to biological resources due to increasing urbanization and fragmentation of habitat areas.

In general terms, habitat connectivity and linkages are important for three main reasons. First, they allow wildlife movement through all habitat areas suitable for use by a species, even those areas that are not currently being used. Second, increased connectivity allows for recolonization of areas that were historically occupied, but from which the species has been extirpated. Third, connectivity promotes the exchange of genetic material to occur between populations, which is important in preserving genetic diversity within and between populations. Fourth, connectivity is critical for large ranging mammals...which require thousands of acres of habitat to survive.

Critical wildlife movement areas within and adjacent to the project area consist of the Santa Ana River and its tributary streams within the Chino Basin; the foothills, canyons and washes of the San Gabriel mountains to the north; the Prado Basin Reservoir Area; and Chino Hills State Park.

4.8.3 Project Impacts

Implementation of the three master plans as proposed actually has limited potential to impact biological resources. The primary reason for this conclusion is that the vast majority of facilities that are proposed to be implemented under the proposed master plans have already been disturbed. The type and the severity of the direct biological resource impacts are dependent on the site(s) selected for facility improvements in support of the master plans, and the amount of site disturbance required to install the infrastructure, wells and facilities outlined in the project description (Chapter 3 of this document).

The impact evaluation discussion below has been conducted on the sites that are currently identified in the master plans for implementation of the proposed facilities. In a few instances where the identified sites do have potential biological resources or in the circumstance where facilities are relocated in the future in response to future facility requirements, site specific biological surveys will need to be performed to address biological resources as projects become better defined. A suite of mitigation measures is provided to ensure that all necessary environmental review is conducted for specific projects so as to minimize or remove impacts to sensitive biological resources.

4.8.3.1 Thresholds of Significance

The Initial Study Environmental Checklist Form (Appendix G of the State's CEQA Guidelines) provides recommendations for determining the significance of project-related impacts. The Checklist Form (Issue #IV, Biological Resources identifies the following criteria for determining whether a project may cause a significant adverse biological resource impact:

a. have a substantial adverse direct or indirect effect on any species identified as a candidate, sensitive, or special status species;

b. have a substantial adverse effect on riparian habitat or other sensitive natural community;

c. have a substantial adverse effect on federally protected wetlands;

d. substantially interfere with the movement of native fish or wildlife species, migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e. conflict with local policies or ordinances protecting biological resources; or

f. conflict with provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved habitat conservation plan.

These thresholds of significance will be utilized in this PEIR to evaluate the potential impacts associated with implementation of this project.

The 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 may receive recognition under CEQA: that is, impacts to CNPS listed species may be considered to be significant. The CNPS plant list is attached as Appendix 8.5 of Chapter 8 to this document.

a. <u>Will the project have a substantial adverse direct or indirect effect on any species identified as a candidate, sensitive, or special status species?</u>

Each of the proposed facility locations was examined in the field by Tom Dodson & Associates to identify the existing biological resource setting and assess the potential for adverse impacts to biological resources. The existing setting at each facility location is summarized below and potential for adverse direct or indirect effect on candidate, sensitive, or special status species is evaluated.

Water Facilities Master Plan Facilities

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel, which traverses the site from north to south, has been concrete lined. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press to better integrate facilities into the surrounding urban community. No candidate, sensitive or special status species can occur within the project area; therefore, the implementation of the referenced RP-1 immediate improvements have no potential to adversely impact sensitive biological resources. No mitigation is required.
- Near term improvements at RP-1 include Phase I improvements (expand aeration basins, add secondary clarifiers, install odor control facilities, landscaping to screen RP-1 facilities with trees and walls, expand the chlorine contact basins, and provide side stream treatment for belt presses) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint. Due to the disturbed character of the whole RP-1 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the RP-1 near term projects has no potential to adversely impact sensitive biological resources. No mitigation is required.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin); and Phase V improvements (maintain 60 MGD capacity, expand aeration basins and add secondary clarifiers). These three phases of improvements will all take place within the existing RP-1 treatment plant footprint. Due to the disturbed character of the whole RP-1 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the RP-1 long term projects has no potential to adversely impact sensitive biological resources. No mitigation is required.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 44 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. Future improvements include:

- Immediate projects at RP-4 include: Expand liquid treatment to 14 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint. Due to the disturbed character of the whole RP-4 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the RP-4 immediate project has no potential to adversely impact sensitive biological resources. No mitigation is required.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property. Due to the disturbed character of the whole RP-4 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the RP-4 long term projects has no potential to adversely impact sensitive biological resources. No mitigation is required.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint. Due to the disturbed character of the whole CCWRF treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the CCWRF near term project has no potential to adversely impact sensitive biological resources. No mitigation is required.
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact chamber). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint, or adjacent industrial property. Due to the disturbed character of the whole CCWRF treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of the CCWRF long term project has no potential to adversely impact sensitive biological resources. No mitigation is required.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint. Due to the disturbed character of the RP-2 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of this RP-2 project has no potential to adversely impact sensitive biological resources. No mitigation is required.

As outlined in the project description, IEUA envisions constructing one or more satellite wastewater reclamation plants (*satellite plants*) in the northern portion of its service area over the life of the master plans. These satellite plants are proposed to treat a maximum of 10 MGD of wastewater at one or two of ten general locations identified in the project description (see Figure 3-6). IEUA has requested that a tenth site, the abandoned RP-3 treatment plant site in south Fontana be considered as a possible satellite treatment plant location. Each of the potential satellite plant site locations was visited by Tom Dodson & Associates field biologists and an evaluation of the site's biological resources was performed. Figure 4.8-8 shows the potential locations currently being considered for the satellite plants in some more detail. In the near term, IEUA proposes to construct one 5 MGD satellite plant with the following facilities: primary clarification, multi-stage aeration, secondary clarification, filtration, and disinfection system. Sometime during the long-term, between 2003 and 2050, a second 5 MGD plant is proposed to be installed at a second of the nine locations identified on Figure 4.8-8. To accommodate the facilities outlined above, a satellite plant site requires between one and five acres. The following is a discussion of the biological resources, which may occur at these nine locations.

SP-1, Upland Hills WRP Site: This is an existing treatment facility located on approximately one acre at the northwest corner of the Upland Hills Country Club. The site is covered with the building housing the treatment facility and has no remaining habitat on the existing property. Expansion of the site, if implemented, would have to occur on the landscaped golf course, which also does not contain any native habitat. Due to the disturbed character of the whole SP-1 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of a satellite plant at the SP-1 site location has no potential to adversely impact sensitive biological resources. No mitigation is required.

SP-2, San Antonio Lakes Site: The area at 19th and Campus Avenue in Upland consists of suburban developed areas on both southern corners of this site. The northwest corner of the SP-2 site is a highly disturbed site that is used for truck staging activity. Limited residual areas of chamise chaparral habitat can be found on this site. Sufficient area exists at this location to install a satellite plant and to avoid any native habitat. However, a low potential exists for SBKR to occur at this highly disturbed location. Therefore, if the SP-2 location is selected for a treatment plant in the future, an SBKR survey would need to be conducted to determine the presence/absence of this species. The northeast corner at the SP-2 site is comprised of moderately disturbed chamise chaparral. Mining activities immediately north of this site have created some disturbance, including clearing and grubbing of portions of this site. This site does have suitable native vegetation to potentially support SBKR. If a treatment plant is proposed for this site in the future, an SBKR survey would need to be conducted to determine the presence/absence of this species. If SBKR is trapped at either SP-2 location, IEUA will selection an alternative location (avoid the site) or appropriate incidental take permits would have to be obtained from the U. S. Fish and Wildlife Service (Service) before a satellite plant could be installed at either of these SP-2 sites.

SP-3, Church Basin: This site is part of an existing flood control basin which is surrounded by urban development. The SP-3 site could be constructed on a portion of the property that would not interfere with the basin itself. This site consists of a constructed (engineered fill) pad that has no trees or native vegetation. The County Flood Control District maintains it in this condition. Non-native ruderal vegetation consists of weeds and non-native grasses that typically invade engineered fill locations having no man-made landscaping. Due to the disturbed character of the whole SP-3 treatment plant site, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of a satellite plant at the SP-3 site location has no potential to adversely impact sensitive biological resources. No mitigation is required.

SP-4, Baseline Road (west of Interstate 15): The SP-4 site is in reality a linear corridor along Baseline Road. The whole of this corridor is in urbanized portions of the Cities of Upland and Rancho Cucamonga. All of the property along this corridor is either currently covered with structures or contains residual vineyards that are no longer being actively maintained. Some relict areas of coastal sage scrub also occur along this corridor, which are isolated from any connections to larger areas of native coastal sage scrub habitat. The potential is very low for sensitive species to occur within these isolated plots of habitat in SP-4 corridor. However, if IEUA selects a satellite plant location within the SP-4 corridor that contains this habitat, it will conduct both SBKR and coastal California gnatcatcher protocol presence/absence surveys prior to installing a satellite plant. If either species is found on a specific site with this habitat, such a site will either be avoided (another site selected) or IEUA will acquire an incidental take permit from the Service. A review of the potential DSF habitat requirements indicates that no Delhi sands occur within the SP-4 corridor, so no potential to adversely impact this sensitive species is forecast to occur if a satellite plant is constructed within the SP-4 corridor.

SP-5, Foothill/I-15 Corridor: The property at this major interchange is a mix of commercial development and highly disturbed land. The property on the west side of I-15 consists of ploughed agricultural land or graded, but not compacted property. No native plant communities exist on these properties or on the northeast corner of this interchange. Ruderal vegetation, with some residual grape plants, occurs on the west side of the freeway. Due to the disturbed character of the whole SP-5 treatment plant area, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, implementation of a satellite plant at the SP-5 site location has minimal potential to adversely impact sensitive biological resources. No mitigation is required.

SP-6, Kaiser/CSI WWTP: Like the other wastewater reclamation plant sites, the SP-6 location has been totally converted to man-made uses and no vegetation community occurs on this property. Due to the disturbed character of the whole SP-6 treatment plant area, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of a satellite plant at the SP-6 site location has no potential to adversely impact sensitive biological resources. No mitigation is required.

SP-7, Sierra Lakes: The SP-7 site is identified as a corridor along Highland Avenue between Sierra Avenue and I-15. This corridor is either adjacent to or within existing suburban development, best characterized by the new homes being constructed within the Sierra Lakes Specific Plan area in the City of Fontana. The whole corridor has been historically graded and used for low density residential development. No native vegetation occurs in this corridor along both sides of Highland Avenue, as it is currently dominated by ruderal vegetation associated with historic low density residential uses. Disturbed, non-native annual grasses dominate the vegetation found in this corridor. Although totally isolated from natural habitat areas, a very low potential exists for SBKR to be found in this corridor where structures and paved areas are absent. If IEUA selects a satellite plant location within the SP-7 corridor that contains disturbed annual grasslands, it will conduct a SBKR protocol presence/absence survey prior to installing a satellite plant. If this species is found on a specific site, such a site will either be avoided (another site selected) or IEUA will acquire an incidental take permit from the Service. A review of the potential DSF habitat requirements indicates that no Delhi sands occur within the SP-7 corridor, so no potential to adversely impact this sensitive species is forecast to occur if a satellite plant is constructed within the SP-7 corridor.

SP-8, Fontana-Baseline: The SP-8 site is identified as a corridor along Baseline Road between Citrus and Cherry Avenues. This corridor consists of a combination of residential and commercial development with interspersed areas of disturbed, non-native annual grassland. The whole corridor has been historically graded and used for mixed-use development. No native vegetation occurs in this corridor along both sides of Baseline Road, as it is currently dominated by new commercial uses and ruderal vegetation associated with historic low density commercial and residential uses. Disturbed, non-native annual grasses dominate the vegetation found in this corridor. Although totally isolated from natural habitat areas, a very low potential exists for SBKR to be found in this corridor where structures and paved areas are absent. If IEUA selects a satellite plant location within the SP-8 corridor that contains disturbed annual grasslands, it will conduct a SBKR protocol presence/absence survey prior to installing a satellite plant. If this species is found on a specific site, such a site will either be avoided (another site selected) or IEUA will acquire an incidental take permit from the Service. A review of the potential DSF habitat requirements indicates that no Delhi sands occur within the SP-8 corridor, so no potential to adversely impact this sensitive species is forecast to occur if a satellite plant is constructed within the SP-8 corridor.

SP-9, Montclair: Although a specific site has not been identified, the area encompassed by Holt Boulevard, Mission Boulevard and Central Avenue was examined in the field. This area is fully developed with a mix of urban land uses, with occasional interspersed agricultural operations, such as strawberry fields. There are no areas with native vegetation within this corridor. Due to the disturbed character of the whole SP-9 treatment plant area, no candidate, sensitive or special status species can occur within this project area. Therefore, implementation of a satellite plant at the SP-5 site location has no potential to adversely impact sensitive biological resources. No mitigation is required.

RP-3: Like the other wastewater reclamation plant sites, the RP-3 location has been totally disturbed and no natural or native vegetation community occurs on this property. Due to the disturbed character of the whole RP-3 site the potential for candidate, sensitive or special status species is considered very low. Regardless, the U. S. Fish and Wildlife Service requested that a Delhi Sands Giant Flower-Loving Fly (DSF) protocol survey be conducted because this property is near known DSF habitat. This protocol survey was conducted by LSA Associates in 2000 and 2001 and determined that the site is not occupied by DSF. Therefore, implementation of a satellite plant at the RP-3 site location has no potential to adversely impact sensitive biological resources. No mitigation is required.

Due to historic disturbance, very few areas proposed for satellite plant development in the future have biological resources that can support sensitive species. The only site with any sizable native vegetation community occurs at the northeast corner of Campus and 19th Street where a residual chamise chaparral habitat occurs. All remaining locations where satellite plants may be sited are highly disturbed and unlikely to contain sensitive species. Regardless, sites SP-2, SP-7 and SP-8 encompass large corridor areas that contain sufficient undeveloped areas (although highly disturbed by historic activities) to justify performance of protocol surveys and, if found occupied by sensitive species, mitigation by either avoidance or acquisition of an incidental take permit. Mitigation is proposed below to address the potential significant biological resource impact that may result from satellite plant construction at the SP-2, SP-7 and SP-8 locations.

A total of 11 immediate, near and long term trunk sewer projects will be installed as part of the WFMP. These six trunk sewer projects include the following proposed pipelines that will be installed: RP-4 Trunk Sewer (Reaches 4 and 5 are proposed for installation after 2010); San Bernardino Interceptor Pump Station and Force Main; Upland Interceptor Relief System; RP-1/RP-5 Bypass; Kimball Interceptor Extension and Etiwanda Interceptor Parallel. Figure 4.8-9 illustrates the proposed locations of some of these new pipelines that will be constructed in support of the WFMP. These *conveyance systems* are summarized on Table 3-17 and described in more detail in Chapter 3.

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3) Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4) Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

All of the proposed pipelines will be installed within existing road rights-of-way as shown on typical roadways in Figure 4.8-9. A field survey of each road right-of-way for all eleven proposed facilities and the two pump stations indicates that no native biological resources occur within the proposed alignments which have been historically compacted and either graded as road shoulders or paved. Due to the disturbed character of the whole alignment for the proposed pipelines and pump station, no candidate, sensitive or special status species can occur within these project areas. Therefore, installation and operation of these pipelines have no potential to adversely impact sensitive biological resources. No mitigation is required.

This concludes the evaluation of WFMP facilities that are proposed to be installed in support IEUA's wastewater management responsibilities over the life of the WFMP. Due to the location of the proposed WFMP facilities, the potential to cause significant adverse impacts to any biological resources is considered low.. For those few locations where WFMP facilities may adversely impact sensitive, candidate or special status species, mitigation is proposed below which can eliminate or reduce such impacts to a level of nonsignificance.

One indirect impact from implementing the WFMP has been identified. This issue is the amount of discharged recycled water that enters into the Prado Basin in the future and that flows down the creek channels downstream of the treatment plants, specifically Cucamonga/Mill Creek and Chino Creek. In a comment letter from the Service in 1999, the issue of increased discharges to Prado Basin was raised. Specifically, the Service's February 1999 contained the following related comments: "given the existing water conservation program in the Prado Basin, wastewater flows have the potential to contribute to the inundation of habitats occupied by the vireo and flycatcher and concomitantly disturb or destroy listed critical habitat for the two species.....Until and unless the Corps modifies the current water control manual for the Prado Dam or otherwise commits to bypassing such flows, we conclude that the project will indirectly adversely affect designated critical habitat in addition to the vireos and flycatchers therein and on adjacent to Chino Creek."

IEUA provided a response to the above comment in its May 1999 "Final Program Environmental Impact Report for the Proposed Regional Plan Number 5 Project." In this response, IEUA demonstrated that mitigation implemented by the Orange County Water District (OCWD) provided full mitigation for water conservation management activities up to an inundation level of 505 feet above sea level. Further, IEUA provided data to substantiate the conclusion that inundation levels, termed the inundation pool elevation, is controlled by the Corps regulating outflow through Prado Dam. The Corps' April 1995 Cooperative Agreement stipulates that inundation levels will be kept below 505 feet in elevation during the water conservation period.

Given this background contextual information, the implementation of the WFMP forecasts substantial increases in generation of recycled water over the project life of the Plan, i.e. through 2050. The ultimate rate of recycled water generation is estimated to be 191,000 acre-feet per year. In 2050, it is estimated that daily-recycled water generation from IEUA's wastewater reclamation facilities will be approximately 140,000 acre-feet. Figure 4.8-10 graphically represents the gradual increase in recycled water generation and, equally important, it illustrates the gradual increase in demand for consumption of recycled water.

Figure 4.8-10 reveals important information regarding the issue of habitat inundation behind Prado Dam. The present rate of recycled water generation is approximately 50,000 acre-feet per year. The current rate of recycled water consumption is about 5,000 acre-feet per year, which leaves a net discharge of recycled water of approximately 45,000 acre-feet per year as the existing environmental condition. As a result of implementing the Recycled Water Master Plan (RWMP), a substantial portion of recycled water demand will be fulfilled in the early years of the planning period. For example, by 2005 IEUA envisions consuming approximately 35,000 acre-feet of recycled water generated by its wastewater reclamation facilities. Given the assumed increase in recycled water generation to about 57,000 acre-feet in 2005, the net effect will be a reduction in discharge to Prado Basin to about 22,000 acre-feet. This will be adequate to meet evapotranspiration needs of the Mill and Chino Creek channels while delivering the requisite 17,000 acre-feet of recycled water to Prado Basin as required under the existing judgment.

By 2010 recycled water discharges are forecast to be about 70,000 acre-feet per year with about 57,000 acre-feet of recycled water being reused in the Chino Basin. Again, the volume of water reaching Prado Basin from IEUA operations is forecast to be substantially below its current discharges. About 13,000 acre-feet per year of recycled water will continue to flow into Prado Basin, and based on the above assumptions and obligations, IEUA may have to adjust its recycled water use to ensure its discharges meet that required by the judgment. Note that this decrease in flows is lowest in the 2010 time frame, and it is possible that IEUA may be able to rely upon historically established credits to bridge this potential shortage. Otherwise, reducing utilization of recycled water during the period from about 2008-2013 may be required as part of the Agency's management strategy for implementing both the WFMP and RWMP.

By the year 2020, the volume of recycled water discharge relative to estimated consumption begins to increase relative to the low volumes in around 2010. By 2020 the RWMP envisions diversion and use of approximately 72,000 acre-feet of recycled water each year. Wastewater generation is forecast to be just below 100,000 acre-feet in 2020. Thus, the recycled water discharge to Prado Basin will be about 30,000 acre-feet, or two-thirds of the volume currently being discharged without any adverse impacts due to inundation levels. It is not until after 2030 (about 2033) that the volume of recycled water discharge to Prado Basin equals the current estimate of discharge, 45,000 acre-feet. Although IEUA envisions efforts to increase use of recycled water in the Chino Basin will continue, the maximum volume of recycled water forecast for use at the present time is about 85,000 acre-feet per year. After about 2033 the volume of recycled water discharged to Prado Basin is forecast to increase until the year 2050 when up to 61,000 acre-feet of recycled water may be discharged (146,000 acre-feet of recycled water generated minus 85,000 acre-feet of recycled water consumed in the Chino Basin.

Thus, sometime in about 30-35 years, give or take a few years depending upon how growth actually occurs in the IEUA service area and upon how effective IEUA is at reusing recycled water in the Chino Basin, the rate of discharge into the Prado Basin may increase relative to the current physical circumstances. IEUA contends that even given the current Corps management of inundation levels behind Prado Dam, no significant adverse impact will result from the increased generation of recycled water.

However, the period of time between the present and the year 2030 will be a period of unprecedented changes in water management within the State of California. The issue within California is not one of too much water (refer to the California Water Management Plan Update, 1998); it is an issue of too little water to meet demand in California and how to deliver critical water resources to future users. IEUA contends that in the future it will be able to market excess recycled water (beyond that required to meet any downstream obligations and public trust values from its discharge locations to Prado Dam) and thus eliminate contributions to any potential inundation impacts within the Prado Basin above the 505-foot elevation. However, as a fail-safe mechanism, IEUA has provided a mitigation measure to ensure that when its future recycled water discharges exceed current levels, management actions will be in place to ensure that it does not contribute to adverse inundation above the 505-foot elevation. With implementation of this measure, no potential for indirect adverse inundation impacts to biological resources in Prado Basin will result from implementing the proposed master plans.

Recycled Water Master Plan Facilities

Each of the proposed RWMP facilities were examined in the field by Tom Dodson & Associates to identify the existing biological resource setting and to assess the potential for adverse impacts to biological resources. The existing setting at each facility location is summarized below and potential for adverse direct or indirect effect on candidate, sensitive, or special status species is evaluated.

Pump Stations

During next 12 months, IEUA plans to install up to four booster pumps at the following locations: RP-1, two booster pumps (refer to Figure 3-8); one booster pump will be installed at RP-4 (refer to Figure 3-14); one booster pump will be installed at RP-5 (refer to Figure 3-44); and potentially a booster pump at Jurupa Basin (refer to Figure 3-37), which is also part of the storm water and imported water recharge program. A visit to each site indicates that these locations have been totally altered by human activities, including grading, engineered fill and compaction. No candidate, sensitive or special status species can occur with these project areas. Therefore, the installation and operation of these proposed pump stations over the next 12 months has no potential to adversely impact sensitive biological resources. No mitigation is required.

In the near term, through the year 2010, an additional four pump stations are proposed to support the RWMP. These pump stations are proposed to be located as follows: RP-4, a second recycled water pump station is proposed to be installed (refer to Figure 3-14); a large pump station is proposed to be installed to the Etiwanda area of the IEUA service area at the intersection of Etiwanda Avenue and the Route 30 freeway (refer to Figure 3-41); a pump station is proposed to be installed in the northwest portion of IEUA's service area near the intersection of Benson Avenue and 15th Street (refer to Figure 3-41); and a final pump station to be located in Montclair at a location not yet identified.

For the RP-4 pump station, the existing site does not have any biological resources. Therefore, the installation and operation of this pump station has no potential to adversely impact sensitive biological resources. No mitigation is required.

For Etiwanda pump station location, two of the corners (southwest and northeast) are developed with residential uses. The northwest corner is currently being graded for development, which leaves the southeast corner available for a pump station. This location appears to have been part of a past agricultural operation and disturbed non-native annual grasses currently occupy it with some windbreak eucalyptus trees on the periphery of the property. Although this site is isolated from native habitats (surrounded by suburban development), there is a small potential of finding SBKR at this location. If IEUA installs a pump station (and reservoir as noted below) at this location, it will conduct a SBKR protocol presence/absence survey prior to installing a satellite any facilities at this location. If this species is found on the site, IEUA will either avoid it (selected another site without such resources) or IEUA will acquire an incidental take permit from the Service. A review of the potential DSF habitat requirements indicates that no Delhi sands occur within the Etiwanda pump station site, so no potential to adversely impact this sensitive species is forecast to occur if the proposed recycled water facilities are constructed at this location.

The Benson Avenue site is located just north of Cable Airport and it is probable that it will be located near an adjacent, potable water storage reservoir. Along Benson is an extended area that has been graded without any vegetation. However, a portion of this very large site (adjacent to an existing sand and gravel mining operation) does contain coastal sage scrub elements. If the site selected encroaches on the coastal sage scrub element the following steps will be taken to ensure that installation of this pump station (and related reservoir) will not cause significant biological resource impacts. IEUA will conduct both SBKR and coastal California gnatcatcher protocol presence/absence surveys prior to installing any recycled water facilities. If either species is found on a specific site with this habitat, such a site will either be avoided (another site selected) or IEUA will acquire an incidental take permit from the Service.

The Montclair pump station location has not been identified. The City of Montclair is almost 100% built out with a mix of urban uses. Prior to final site selection for the Montclair pump station, a biological survey will be conducted and if the selected site contains significant biological resources, another site without such resources will be selected or, alternatively, an incidental take permit or mitigation plan will be set forth to adequately compensate for the loss of such resources. It is obvious that the subsequent biological resources evaluation must be conducted in conjunction with a second tier environmental document prepared by IEUA in support of site selection and implementation of a Montclair pump station as part of the RWMP.

Reservoirs

During next 12 months, IEUA and the Chino Basin Watermaster (Watermaster) plan to install up to one reservoir (2.5 MG) the Jurupa Basin (refer to Figure 3-37). A visit to this site indicates that this location has been totally altered by human activities, including grading, engineered fill and compaction. No candidate, sensitive or special status species can occur with the Jurupa Basin site. Therefore, the installation and operation of this reservoir over the next 12 months has no potential to adversely impact sensitive biological resources. No mitigation is required.

In the near term, through the year 2010, an additional four recycled water storage reservoirs are proposed to support the RWMP. These reservoirs are proposed to be located as follows: RP-4, a new 2.5 MG reservoir is proposed to be installed (refer to Figure 3-14); a 9.25 MG reservoir is proposed to be installed in the Etiwanda area of the IEUA service area at the intersection of Etiwanda Avenue and the Route 30 freeway (refer to Figure 3-41); a 4.25 MG reservoir is proposed to be installed in the northwest portion of IEUA's service area near the intersection of Benson Avenue and 15th Street (refer to Figure 3-41); and a final 4.25 MG reservoir is proposed to be located in Montclair at a location not yet identified, but in the vicinity of Holt Avenue and Ramona Avenue.

For the RP-4 reservoir, the existing site does not have any biological resources. Therefore, the installation and operation of this pump station has no potential to adversely impact sensitive biological resources. No mitigation is required.

For the Etiwanda reservoir location, the findings outlined for the pump station also applies to the reservoir site, which will be co-located with the pump station. The potential for this site to contain significant biological resources is considered low, but appropriate surveys will be conducted and mitigation implemented, if required, as outlined for the pump station.

The Benson Avenue reservoir location, the findings outlined for the pump station also apply to the reservoir site, which will be co-located with the pump station. The potential for this site to contain significant biological resources is considered low, but appropriate surveys will be conducted and mitigation implemented, if required, as outlined for the pump station.

The Montclair reservoir location has not been identified. The findings presented above for the Montclair pump station also apply to the reservoir site, which will be co-located with the pump station.

Groundwater Monitoring Wells

To support recharge of recycled water, groundwater monitoring wells will be installed in the vicinity (upstream and downstream) of the recharge basins that will receive recycled water for recharge. Table 3-12 identifies the amount of recycled water proposed to be recharged at each of the 20 recharge basins being utilized in support of the RWMP. Thus, a total of 40 or more monitoring wells will be installed over the next ten years. Monitoring wells are typically small diameter and require an area of less than 10,000 square feet to install and maintain (100' x 100'). They require ongoing maintenance and each well will be periodically sampled for appropriate water quality parameters at each location.

None of the monitoring well locations have been firmly established at this point, but all of the recharge sites are located in urbanized locations as shown on Figures 3-19. The future monitoring well locations will be handled in the same manner as the Montclair pump station and reservoir. Prior to final site selection for each monitoring well, a biological survey will be conducted and if the selected site contains significant biological resources, another site without such resources will be selected or, alternatively, an incidental take permit or mitigation plan will be set forth to adequately compensate for the loss of such resources. It is obvious that the subsequent biological resources evaluation must be conducted in conjunction with a second tier environmental document prepared by IEUA in support of site selection and implementation of these monitoring wells as part of future RWMP management actions.

Regional Recycled Water Distribution System Pipelines

The RWMP identifies a total of 31 regional recycled water distribution system pipelines. Ten of these are proposed to be implemented during the first 12 months following adoption of the Plan. These ten pipelines include:

- Fourth Street Regional Pipeline
- Wineville Regional Pipeline
- Philadelphia Regional Pipeline
- CCWRF/RP-5 Pipeline
- RP-5/RP-2 Pipeline
- Pine Avenue Pipeline
- North Etiwanda Pipeline, Segment I
- Etiwanda Conservation Basins Pipeline
- Whittram Regional Pipeline
- Jurupa Regional Pipeline

Each of these pipelines is described in the project description and shown on Figure 3-41. All of the proposed pipelines will be installed within existing road rights-of-way as shown on Figure 3-41, except the CCWD Pipeline (an extension of the Fourth Street Regional Pipeline system) which extends into old vineyards along Sixth Street and north, just west of Interstate 15. A field survey of each road right-of-way indicates that no native biological resources occur within the proposed pipeline alignments, which have been historically compacted and either graded as road shoulders or paved. Due to the disturbed character of the whole alignment for these ten proposed pipelines, no candidate, sensitive or special status species can occur within these project areas, except for the CCWD Pipeline. Additional surveys and possible mitigation may be required along this alignment, or along any other alignment where shifts in the pipeline alignment occur that move it from existing disturbed rights-of-way. Therefore, installation and operation of these pipelines have no potential to adversely impact sensitive biological resources. Mitigation is required for the Sixth Street alignment, and any others where pipelines are extended across areas outside of existing utility, roadway or other man-made corridors.

A second set of regional recycled water distribution system pipelines will be installed over the next ten years. This list of pipelines includes some alternatives; so all 21 pipelines listed below may not be constructed. These 21 pipelines include:

- Fourth Street Regional Pipeline (Segment 2)
- Grove Avenue Regional Pipeline
- Monte Vista Regional Pipeline
- CCWRF/RP-5 Pipeline
- RP-5/RP-2 Pipeline
- Pine Avenue
- North Etiwanda Pipeline, Segment 2
- Etiwanda Conservation Basins Pipeline
- Whittram Regional Pipeline
- Etiwanda South Regional Pipeline
- Arrow Route Regional Pipeline
- 210 Freeway Distribution Pipeline, Segment I
- 210 Freeway Distribution Pipeline, Segment II
- 210 Freeway Distribution Pipeline, Segment III
- 210 Freeway Distribution Pipeline, Segment IV
- Benson Avenue Distribution Pipeline
- Foothill Avenue Distribution Pipeline
- Walnut/Riverside Regional Pipeline
- Edison/Merrill Regional Pipeline
- Euclid Avenue Regional Pipeline (alternative 1)
- Conversion of the Ramona Feeder (alternative 2)

Each of these pipelines is described in the project description and shown on Figure 3-41. All of the proposed pipelines will be installed within existing road rights-of-way as shown on Figure 3-41. A field survey of each road right-of-way indicates that no native biological resources occur within the proposed pipeline alignments, which have been historically compacted and either graded as road shoulders or paved. Due to the disturbed character of the whole alignment for these ten proposed pipelines, no candidate, sensitive or special status species can occur within these project areas. Therefore, installation and operation of these pipelines have no potential to adversely impact sensitive biological resources. No mitigation is required. As noted above, where pipeline alignments shift in the future outside of existing man-made corridors, additional biological resource surveys will be required and mitigation may also be required as a result of such surveys.

Recharge Basin Modifications

The RWMP identifies a total of 20 recharge basins where modifications will be installed to deliver recycled water to each basin. Ten (10) of these recharge basin or basin complex modifications are proposed to be implemented during the first 12 months following adoption of the Plan. The nine affected basins include:

- Turner Basins 1
- Turner Basins 2,3 and 4
- Hickory Basin
- Banana Basin
- Declez Basin
- Ely Basins
- Etiwanda Conservation Basins
- Jurupa Basin
- RWRP-3 Basins
- Wineville Basin

The Turner Basins are shown on Figures 3-31 (Turner Basin #1) and 3-32 (Turner Basins #2, #3 and #4). The proposed modifications at the Turner Basins include a recycled water pipeline from 4th Street, two inlet structures from the pipeline and a fourth inlet from Deer Creek. These modifications will all be installed within basin access roads and basin levees. There are no native biological resources located within the Turner Basins, which are maintained by the Chino Basin Water Conservation District. Due to the disturbed character of the whole area for these Turner Basins modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Turner Basins have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Hickory Basin is shown on Figure 3-27. The proposed modifications at Hickory Basin includes a pump station and pipeline to Banana Basin and a recycled water pipeline from Whittram Road, and one inlet structure from the pipeline. These modifications will all be installed within basin access roads, the basin floor and basin levee. There are no native biological resources located within the Hickory Basin, which is maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Hickory Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Hickory Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Banana Basin is shown on Figure 3-34. The proposed modifications at Banana Basin includes a short pipeline from Whittram Avenue to the basin and two inlet structures, one from the Whittram pipeline and one from Hickory Basin. These modifications will all be installed within basin access roads, the basin floor and basin levee. There are no native biological resources located within the Hickory Basin which is maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Banana Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Banana Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Declez Basin is shown on Figure 3-35. The proposed modifications at Declez Basin include a recycled water pipeline from Philadelphia Street and one inlet structure from the pipeline. These modifications will all be installed within the Philadelphia Street right-of-way, basin access roads and the basin levee. There are no native biological resources located within the Declez Basin, which is maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Declez Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Declez Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The Ely Basins are shown on Figure 3-25. Recycled water is already delivered to the Ely Basins from RP-1. The proposed modifications at the Ely Basins include a recycled inlet structure from the existing pipeline at the Ely #1 Basin. These modifications will all be installed within basin access roads and basin levees. There are no native biological resources located within the Ely Basins, which are maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Ely Basins modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Ely Basins have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The Etiwanda Conservation Basins are shown on Figures 3-36. The proposed modifications at the Etiwanda Conservation Basins for recycled water include a short water pipeline from San Bernardino Avenue and an inlet structure from the pipeline. These modifications will all be installed within basin access roads and basin levees. There are minimal biological resources located within the Etiwanda Conservation Basins, which are maintained by the San Bernardino County Flood Control District. Previous surveys have been conducted at these basins for the presence of DSF and none were identified over two years of surveys. Due to the disturbed character of the whole area for these Etiwanda Conservation Basins modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Etiwanda Conservation Basins have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Jurupa Basin is shown on Figure 3-37. The proposed modifications at Jurupa Basin include a recycled water pipeline from Mulberry Avenue and one inlet structure from the pipeline. In addition a pump station and pipeline will be installed to transmit water stored in Jurupa Basin to the RP3 Basins. These modifications will all be installed within the Mulberry Avenue right-of-way, basin access roads, basin floor and the basin levee. There are no native biological resources located within the Jurupa Basin, which is maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Jurupa Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Jurupa Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The RWRP-3 Basins site is shown on Figure 3-40. The proposed modifications at the RWRP-3 Basins for recycled water include inlet structures from both the recycled water pipeline and the pipeline from Jurupa Basin which will be located within Jurupa Avenue. As part of the overall recharge program, the RWRP-3 Basins will be dug out of upland areas adjacent to the Declez

Channel, a concrete lined channel at the south boundary of the RWRP-3 Basins. These improvements are being carried out in support of storm water and imported water recharge programs under separate authorization. The recycled water modifications will all be installed within basin access roads and basin levees. Because the RWRP-3 site is located near occupied DSF habitat, two years of protocol surveys were conducted to determine presence/absence of this species on the RWRP-3 site. DSF was not found on the property, which is consistent with the lack of Delhi sands soils on the property. There are minimal biological resources located within the RWRP-3 Basins site which is owned and maintained by IEUA. Due to the disturbed character of the whole area for these RWRP-3 Basins recycled water modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the RWRP-3 Basins site have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Wineville Basin is shown on Figure 3-38. The proposed modifications at Wineville Basin includes a recycled water pipeline from the Day Creek Channel Flood Control Channel access road and one inlet structure from the short pipeline. These modifications will all be installed within the flood control channel access road right-of-way and the basin levee. There are no native biological resources located within the Wineville Basin, which is maintained by the San Bernardino County Flood District. Due to the disturbed character of the whole area for these Wineville Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Wineville Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

A second set of regional recycled water system facilities will be installed over the next ten years at ten (10) additional basins or sets of basins. These ten recycled water recharge facilities include:

- College Heights Basins
- Brooks Street Basin
- 7th & 8th Street Basins
- Upland Basin
- Montclair Basins 1,2,3 & 4
- Etiwanda Spreading Basins
- Lower Day Creek Basin
- Victoria Basin
- San Sevaine No's 4 and 5
- San Sevaine No's 1, 2 & 3

The College Heights Basins site is shown on Figure 3-39. The proposed modifications at the College Heights Basins for recycled water include two inlet structures from the recycled water pipeline located within Monte Vista Avenue. As part of the overall recharge program, the College Heights Basins will be mined prior to utilization as recharge basins. The mining activity is being carried out in support of storm water and imported water recharge programs under separate authorization. The recycled water modifications will all be installed within basin access roads and basin slopes. There are coastal sage scrub elements located within the College Heights Basins site, which is owned and maintained by the Chino Basin Water Conservation District. Due to the presence of potential habitat for the coastal California gnatcatcher, protocol surveys will be conducted prior to installing the recycled water structures, if any of the coastal sage scrub habitat remains after mining extraction operations are completed. Therefore, installation and operation of these modifications at the College Heights Basins site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

Brooks Street Basin is shown on Figure 3-21. The proposed modifications at the Brooks Street Basin include a recycled water pipeline from Ramona Street along Brooks Street and the site access road and one inlet structure from the short pipeline. There are no native biological resources located within the Brooks Street Basin, which is maintained by the Chino Basin Water Conservation District. Due to the disturbed character of the whole area for these Brooks Street Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Brooks Street Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The 7th and 8th Street Basins site is shown on Figure 3-23. The proposed modifications at the 7th and 8th Street Basins for recycled water include a pipeline along 8th Street and one inlet structure from the recycled water pipeline located within North Grove Avenue. The recycled water modifications will all be installed within basin access roads and basin slopes. There are no native biological resources located within the 7th and 8th Street Basins, which are maintained and operated by the San Bernardino County Flood Control District. Due to the disturbed character of the whole area for these 7th and 8th Street Basins modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the 7th and 8th Street Basins have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

Upland Basin is shown on Figure 3-24. The proposed modifications at the Upland Basin include a recycled water pipeline from Monte Vista Street with one inlet structure from the short pipeline. There are no native biological resources located within the Upland Basin, which is maintained by the City of Upland. Implementation of these improvements is contingent upon future agreements between the Watermaster and the City of Upland. Due to the disturbed character of the whole area for these Upland Basin modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Upland Basin have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The Montclair Basins site is shown on Figure 3-22. The proposed modifications at the Montclair Basins for recycled water include two pipelines along Moreno Avenue and San Jose Street and one inlet structure in the northern and southern basins from the recycled water pipeline located within Monte Vista Avenue. The recycled water modifications will all be installed within basin access roads and basin slopes. There are no native biological resources located within the Montclair Basins, which are maintained and operated by the Chino Basin Water Conservation District. Due to the disturbed character of the whole area for these Montclair Basins modifications, no candidate, sensitive or special status species are expected to occur within this project area. Therefore, installation and operation of these modifications at the Montclair Basins have minimal potential to adversely impact sensitive biological resources. No mitigation is required.

The Etiwanda Spreading Basins site is shown on Figure 3-36. The proposed modifications at the Etiwanda Spreading Basins for recycled water include a single inlet structure from the recycled water pipeline located within Summit Avenue. The recycled water modifications will all be installed within basin access roads and basin slopes. There are coastal sage-alluvial fan sage scrub elements located within the Etiwanda Spreading Basins site, which is owned and maintained by the San Bernardino County Flood Control District. Due to the presence of potential habitat for the coastal California gnatcatcher and SBKR, protocol surveys will be conducted prior to installing the recycled water structures, if any of the coastal sage scrub habitat will be disturbed as part of installing the pipeline and inlet structure within the basin just south of Summit Avenue. Therefore, installation and operation of these modifications at the Etiwanda Spreading Basins site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

Lower Day Creek Basin is shown on Figure 3-28. The proposed modifications at the Lower Day Creek Basin include a recycled water pipeline from Rochester Avenue with one inlet structure from the short pipeline. There are coastal sage scrub elements located within the Lower Day Creek Basin site, which is owned and maintained by the San Bernardino County Flood Control District. Due to the presence of potential habitat for the coastal California gnatcatcher and SBKR, protocol surveys will be conducted prior to installing the recycled water structures, if any of the coastal sage scrub habitat will be disturbed as part of installing the pipeline and inlet structure within the basin just south of Highland Avenue. Therefore, installation and operation of these modifications at the Upper Day Creek Basin site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

Victoria Basin is shown on Figure 3-33. The proposed modifications at the Victoria Basin include a recycled water pipeline from the I-15 Freeway alignment with one inlet structure from the short pipeline. There are coastal sage scrub elements located within the Lower Day Creek Basin site, which is owned and maintained by the San Bernardino County Flood Control District. Due to the presence of potential habitat for the coastal California gnatcatcher and SBKR, protocol surveys will be conducted prior to installing the recycled water structures, if any of the coastal sage scrub habitat will be disturbed as part of installing the pipeline and inlet structure within the basin just north of Victoria Avenue. Therefore, installation and operation of these modifications at the Victoria Basin site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

The San Sevaine Basins #4 and #5 site is shown on Figure 3-30. The proposed modifications at the San Sevaine Basins #4 and #5 for recycled water include a single inlet structure from the recycled water pipeline located within the I-15 Freeway alignment. The recycled water modifications will all be installed within basin access roads and basin slopes. There is alluvial fan sage scrub elements located within the San Sevaine Basins #4 and #5 site, which is owned and maintained by the San Bernardino County Flood Control District. Due to the presence of potential habitat for the SBKR, a protocol survey will be conducted prior to installing the recycled water structures, if any of the alluvial fan sage scrub habitat will be disturbed as part of installing the pipeline and inlet structure within the basin located south of Summit Avenue. Therefore, installation and operation of these modifications at the San Sevaine Basins #4 and #5 site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

The San Sevaine Basins #1, #2 and #3 site is shown on Figure 3-29. The proposed modifications at the San Sevaine Basins #1, #2 and #3 for recycled water include a single inlet structure from the recycled water pipeline located within the I-15 Freeway alignment. The recycled water modifications will all be installed within basin access roads and basin slopes. There are alluvial fan sage scrub elements located within the San Sevaine Basins #1, #2 and #3 site which is owned and maintained by the San Bernardino County Flood Control District. Due to the presence of potential habitat for the SBKR, a protocol survey will be conducted prior to installing the recycled water structures, if any of the alluvial fan sage scrub habitat will be disturbed as part of installing the pipeline and inlet structure within the basin located just south of Summit Avenue. Therefore, installation and operation of these modifications at the San Sevaine Basins #1, #2 and #3 site have a potential to adversely impact sensitive biological resources. Mitigation is required if sensitive biological resources are discovered in the future. This mitigation will consist of providing compensation for loss of habitat and individuals of the species as outlined below.

All of the recharge basins have been substantially altered over many years by the various management agencies that operate and maintain the basins. All have been graded and engineered to perform storm water management or recharge functions, except the RWRP-3 site (which is in the process of being created out of upland area) and College Heights (which exists as a basin but will require additional substantial modification before it can be used for recharge. For the recycled water delivery system improvements to the 20 recharge basins, the majority of the basins do not contain any sensitive biological resources and will not require any future biological resource surveys. Several of the basins contain habitat elements that may support sensitive species that will require sensitive species surveys prior to development in the future. Contingent mitigation is identified below that can reduce potential biological resource impacts to such species to a level of nonsignificance.

Long Term Recycled Water Recharge Program

As illustrated on Table 3-12 up to 23,700 acre-feet per year of recycled water is proposed to be recharged in the 20 recharge basins contained in the list. Recycled water recharge volumes per basin range from about 100 acre-feet per year (College Heights Basins) to 2,800 acre-feet per year in the Ely Basins. This 23,700 acre-feet of recycled water per year represents about 14% of the maximum of 169,500 acre-feet of storm water, imported water and recycled water that could be recharged under maximum conditions in a given year. Once the recycled water delivery infrastructure is installed, the only effect on the environment will be discharge and retention of recycled water along with imported water and storm water, which will comprise up to 86% of the water being recharged basin-wide.

The net effect of implementing the proposed RWMP will be for existing recharge basins to hold water for percolation for a slightly longer time than would occur if only imported water and storm water were delivered to the basins for recharge. Since the basins are designed to serve flood control and groundwater recharge functions, the retention of water in the basins, including recycled water, for a slightly longer period of time is not forecast to have any adverse impact on sensitive species. In fact, additional surface water availability at the recharge basins may provide a locally important water source for migratory waterfowl and other special status species in the vicinity of

the basins. No adverse impact is forecast to affect sensitive species based on the increment of basin-wide recycled water that is proposed to be recharged. Keep in mind that if sensitive species occur within a given recharge basin, mitigation outlined below will be implemented during the construction phase of the project to compensate for any impacts to them. In this sense, the ongoing use of the basins for their primary functions, flood control and water conservation through groundwater recharge, is not considered to pose a significant change in use of the basins. This is because the cumulative recharge activities are not forecast to cause a significant impact to sensitive resources, which either do not exist in such basins or for which compensation will have been provided before the basins are modified for recharge.

Organics Management Master Plan Facilities

Each of the proposed OMMP facilities were examined in the field by Tom Dodson & Associates to identify the existing biological resource setting and to assess the potential for adverse impacts to biological resources. The existing setting at each facility location is summarized below and potential for adverse direct or indirect effect on candidate, sensitive, or special status species is evaluated.

RP-1

A pilot scale digester facility (aerated static pile, ASP) is proposed to be installed at RP-1. Biosolids generated at the facility, plus delivered dairy manure and green waste, will be composted in facilities located on the RP-1 facility site. This digester project would focus on processing about 60 tons per day of wet manure in the immediate future. The goal is to have this facility operating by January 2003. Figure 3-43 illustrates the plot plan for this facility. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel, which traverses the site from north to south, has been concrete lined. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. No adverse impact to sensitive species can occur from implementing this pilot scale digester facility project at RP-1. No mitigation is required.

RP-4 Microturbine Project

This project proposes to install natural gas-fired microturbines at RP-4 to using natural gas or biogas generated from processing biosolids on the project site. The RP-4 project site has been engineered to support wastewater treatment facilities and operations. See Figure 3-14. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. No adverse impact to sensitive species can occur from implementing the microturbine project at RP-4. No mitigation is required.

Dairy Digester Pilot Project

This project proposes the installation of a complete mix anaerobic dairy digester or a pyrolysis unit located near the Chino Airport in the immediate period. A specific location has not yet been identified, but the area surrounding the Airport consists of all agricultural uses and it is anticipated that land at a dairy or in an agricultural field will be utilized for this facility. Loss of field crop areas can have adverse impacts on raptor foraging areas and the agricultural areas in the vicinity of the Chino Airport are known to provide nesting areas for burrowing owls. The loss of four to five acres of agricultural land in support of manure management is not considered to be a significant loss of raptor foraging habitat. Potential impacts to burrowing owls can only be determined by conducting field surveys prior developing this facility. If burrowing owls are not present then no adverse impact can occur; however, if they are present, then mitigation must be implemented to reduce direct impacts on nesting habitat of this bird species. Mitigation is provided below to address this potential impact and reduce potential impacts to burrowing owls at the Dairy Digester Pilot Project to a nonsignificant level.

Inland Empire Regional Composting Facility

This project will be implemented at an existing warehouse/distribution building located on 6th Street, just west of RP-4, in the immediate period. The proposed project site encompasses 24 acres, which is presently covered with pavement and structure (refer to Figure 3-50). The whole regional composting facility site has been engineered to support warehousing facilities and operations. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. No adverse impact to sensitive species can occur from implementing this regional composting facility operation at the 6th Street site. No mitigation is required.

CIM Compost Facility

The CIM Compost Facility is proposed to be constructed on CIM property directly north of the RP-5 wastewater reclamation site (refer to Figure 3-44 and 3-45) in the near term. This facility will be designed to treat an estimated 30,000 tons of biosolids per year from RP-5 with odor control facilities. The proposed site is part of the existing agricultural operation area at the CIM facility. Loss of field crop areas can have adverse impacts on raptor foraging areas and the agricultural areas in the vicinity of the CIM are known to provide nesting areas for burrowing owls. The loss of four to five acres of agricultural land in support of biosolids management is not considered to be a significant loss of raptor foraging habitat within this region. Potential impacts to burrowing owls can only be determined by conducting field surveys prior developing this facility. If burrowing owls are not present then no adverse impact can occur; however, if they are present, then mitigation must be implemented to reduce direct impacts on nesting habitat of this bird species. Mitigation is provided below to address this potential impact and reduce potential impacts to burrowing owls at the Dairy Digester Pilot Project to a nonsignificant level. If the CIM facility is located at RP-5, the impacts to biological resources will be comparable to that outlined below for the Renewable Energy Project.

RP-5 Renewable Energy Project

RP-5 Renewable Energy Project is proposed to increase power production from 0.75 MW to 2.0 MW at the Koopal dairy adjacent to the RP-5 facility and treat an additional 100,000 wet tons of manure delivered in sewers to the facility. The project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. No adverse impact to sensitive species can occur from implementing this project because the footprint has already been disturbed in support of the facilities. No mitigation is required.

High Tech Manure Facility

The High Tech Manure Facility consists of four 30kW microturbines and a flare to combust off-spec gas. The specific location selected for this site is on dairy farms owned by IEUA located in the vicinity of RP-5. The area surrounding RP-5 where this facility will be installed consists of all agricultural uses and it is anticipated that land at a dairy or in an agricultural field will be utilized for this facility. Loss of field crop areas can have adverse impacts on raptor foraging areas and the agricultural areas in the vicinity of the Chino Airport are known to provide nesting areas for burrowing owls. The loss of four to five acres of agricultural land in support of manure management at a High Tech Manure Facility is not considered to be a significant loss of raptor foraging habitat. Potential impacts to burrowing owls can only be determined by conducting field surveys prior developing this facility. If burrowing owls are not present then no adverse impact can occur; however, if they are present, then mitigation must be implemented to reduce direct impacts on nesting habitat of this bird species. Mitigation is provided below to address this potential impact and reduce potential impacts to burrowing owls at the High Tech Manure Project to a nonsignificant level.

Advanced Technology Manure Pyrolysis Process

The Advanced Technology Manure Pyrolysis Process consists of facilities required to treat up to 100,000 tons per year of corral-dried manure. At this facility organics will be heated to high temperatures under pressure. A blade-less turbine will be installed to generate about 7 MW of electricity to support IEUA operations. The Advanced Technology Manure Pyrolysis Process facility is proposed to be located on County land east of Chino Airport. Alternatively, this facility could be located on dairy land adjacent to the RP-5 Renewable Energy Project. The proposed site consists of all agricultural uses and it is anticipated that land at a dairy or in an agricultural field will be utilized for this facility. Loss of field crop areas can have adverse impacts on raptor foraging areas and the agricultural areas in the vicinity of the Chino Airport are known to provide nesting areas for burrowing owls. The loss of four to five acres of agricultural land in support of manure management is not considered to be a significant loss of raptor foraging habitat. Potential impacts to burrowing owls can only be determined by conducting field surveys prior developing this facility. If burrowing owls are not present then no adverse impact can occur; however, if they are present, then mitigation must be implemented to reduce direct impacts on nesting habitat of this bird species. Mitigation is provided below to address this potential impact and reduce potential impacts to burrowing owls at the Advanced Technology Manure Pyrolysis Process to a nonsignificant level.

Sewers shown on Figure 3-53 are proposed to be installed as part of the OMMP to transport manure to the organics management facilities. All of these sewer lines are proposed to be installed within existing road rights-of-way, which are either paved or have compacted, graded shoulders. No native biological resources occur within these rights-of-way. Thus, the project site has no native plant communities or vegetation that can serve as habitat for sensitive native plant or animal species. No adverse impact to sensitive species can occur from installing these sewers and transporting dairy manure to processing facilities. No mitigation is required.

The net effect of implementing the proposed OMMP will be the potential loss of up to 10 acres of agricultural fields with no native vegetation resources. All of the other sites are totally disturbed by human paving, structures or compacted, graded pads (such as road shoulders). Implementation of the OMMP has no potential to directly impact any native plant communities or areas that traditionally support sensitive species. Raptors, including burrowing owls, have adapted to use of agricultural areas so the minor loss of raptor foraging area and potential burrowing owl nesting area may be adversely impacted by implementing the CIM and Dairy Digester Pilot project near Chino Airport. Due to the small area of impact, estimated to be less than 10 acres, the project specific adverse impact on raptors is not concluded to be significant and adverse. The majority of the OMMP facilities can be implemented without any potential to adversely impact sensitive species.

b. Will the project have a substantial adverse effect on riparian habitat or other sensitive natural community?

A review of all the project sites that will be affected by implementing the three master plans (WFMP, RWMP and OMMP) indicates that none of the proposed facility locations contain any riparian habitat or other sensitive natural community resources. The proposed facilities and activities have been designed and restricted to existing disturbed areas within IEUA's service area. No native plant communities or habitat will be directly impacted by the proposed project, and the evaluation of future discharges (Question a above) indicates that no significant impact is likely to impact riparian habitat or sensitive natural communities downstream of the project area. This conclusion is based on the assumed volume of discharges identified in the previous section and, if necessary, marketing of recycled water resources after about 2033 when recycled water discharges are forecast to exceed that volume of discharges at present. By 2033 IEUA will have programs in place to ensure that the 505-foot elevation inundation level will not be exceeded through ongoing management of the Prado Basin under Corps of Engineer oversight.

Data for some of the recharge basins indicate that although native plant communities do not occupy these maintain basins, sufficient elements can occur that may support sensitive faunal species, including coastal California gnatcatcher and SBKR. With rare exceptions, none of the recharge basins contain riparian habitat because the basins are maintained to minimize vegetation and maximize storm water storage or water conservation. Thus, the ongoing management of the basins, not new activities, minimizes the growth of riparian vegetation, which would conflict, with their basic functions of storage of storm water runoff and recharge to groundwater as part of ongoing water conservation management. Based on the lack of riparian vegetation and sensitive natural communities within the master plans' area of potential effect, no significant adverse impact to such communities is forecast to occur from their implementation. No mitigation is required.

c. Will the project have a substantial adverse effect on federally protected wetlands?

As described in the previous two sections, no riparian habitat or federally or state protected wetlands are located within the proposed master plans' area of potential effect. The pipeline may occasionally cross existing channels, but most of these channels will be crossed in existing roads, over concrete channels. For example, east-west pipelines may cross Cucamonga Creek channel which is concrete until it outlets into Mill Creek in the southern portion of the IEUA service area. In most cases pipelines will be either hung on existing bridges or will be jack and bored beneath the concrete channel. Therefore, such channels are not expected to be disturbed by pipeline installation.

For the RWMP, the proposed project sites consist of existing recharge basins, roads or road rights-of-way, or abandoned quarries that are highly disturbed. The 18 basins are utilized for storage of storm runoff to reduce flood hazards and for groundwater recharge and this use has been in place for more than 30 years for most of the basins. These facilities are all man-made water basins. The water flow into the basin is regulated by the basin owners, which primarily consist of the Chino Basin Water Conservation District and San Bernardino County Flood Control. The existing basin management systems are in place to ensure that recharge basins do not overfill in the event of a significant flood event (both the inlet and the outlet systems are available to manage flows into the system and prevent exposure to large flood events, including the 100-year storm, at all of the basins presently being used for flood control purposes). Note, some basins, such as Upland Basin, are not used for flood control purposes. Almost all of these recharge basins are totally isolated from ordinary flows (typically the two-year storm event). As noted above, the recharge basins are maintained free of vegetation. Therefore, under normal circumstances, the recharge basins do not contain hydrophytic vegetation typically associated with wetlands.

The U. S. Army Corps of Engineers, 33 CFR Part 328 Section 328.3 'generally do not consider the following waters to be "Waters of the United States" ':

- Non-tidal drainage and irrigation ditches excavated on dry land;
- Artificial lakes or ponds created by excavating or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation settling basins, or rice growing; (Emphasis added)
- Artificial reflecting or swimming pools or other small ornamental bodies of water....primarily aesthetic; and
- Water depressions created in dry land incidental to construction activity.

More recently, in the federal Supreme Court Decision, Solid Waste Associates of Northern Cook Counties *v.* United States Corps of Engineers (SWANCC) issued on January 9, 2001, the Supreme Court held that the Corps could not extend its jurisdiction to isolated waters or wetlands based solely upon the use of such waters by migratory waterfowl. Because these project basins do not have any ordinary hydrological connection with another "Water of the United States" (thereby being isolated), the proposed recharge basins are not considered to be subject to Corps jurisdiction under Section 404 of the Clean Water Act.

Relative to the California Department of Fish and Game (CDFG), it takes jurisdiction over water flow areas, i.e., streams. These water flow areas are identified in the California Code as follows:

"...natural flow or bed, channel or bank of any river, stream or lake designated by the Department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit or will use material from the streambeds..."

Although river is never defined in the Fish and Game Code, Webster as defines a river: "A natural stream of water larger than a creek and emptying into an ocean, lake or another river." Further, Webster defines a stream as a small river. Based on these definitions, the 18 recharge basins are not a natural feature and due to the maintenance regime, the wildlife resources of the recharge basin are negligible.

Based on the information presented above, the proposed modifications to the 18 basins are not expected to fall within the jurisdiction of either the Corps or CDFG. The Department of Fish and Game in separate communications with IEUA has indicated that some recharge basins may fall within their jurisdiction, which will have to be determined on a case-by-case basis when specific basin modifications are proposed for implementation. The proposed RWMP project is not forecast to have a substantial adverse effect on federally protected wetlands or Waters of the United States. On a case-by-case basis the CDFG will be consulted regarding jurisdiction over the recharge basins and, if determined necessary, streambed alteration agreements will be obtained prior to the discharge of any fill within these basins. Until the specific discharges in a basin under CDFG's jurisdiction are identified, the type and amount of any mitigation cannot be determined. Given the type of facilities envisioned, pipelines and inlet structures to deliver recycled water to a basin, the amount of area impact is expected to be less than .5 acre per basin. Since there will be no loss of riparian habitat at the recharge basins, appropriate mitigation for installation of the RWMP will probably consist of contributions to removal of arundo in downstream areas or other improvements in areas which already contain riparian habitat. This mitigation is outlined below.

d. <u>Will the project substantially interfere with the movement of native fish or wildlife species, migratory wildlife corridors, or impede the use of native wildlife nursery sites?</u>

With the exception of the recharge basins, none of the master plans' facilities or area of potential effect occurs in areas that have been identified as serving as migratory wildlife corridors, wildlife movement corridors or in native wildlife nursery sites. All other facilities are proposed to be located within disturbed areas that are presently dominated by human uses, ranging from roads and buildings to agricultural activities.

The recharge basins occur within or adjacent to stream channels (which is essential since their function is to support flood control and water conservation activities), and some of these stream channels may serve as movement corridors for portions of their length, such as the Etiwanda Creek channel above Summit Avenue. The basins themselves may or may not play a role in wildlife movement in the project area. Regardless, the recharge basins will have only minor modifications made as part of the RWMP, primarily undergound pipelines and inlet structures to deliver recycled water. However, the recharge basins themselves will remain in place and continue to serve the same functions that they currently have. To the extent that the proposed RWMP enhances the continued operation of the recharge basins over the long-term, the proposed RWMP will ensure that the basins continue to serve whatever role they currently play in the movement of wildlife through the Chino Basin. No potential for significant adverse effect to wildlife movement or wildlife nursery values is forecast to occur from implementing the RWMP and no mitigation is required.

e. <u>Will the project conflict with local policies or ordinances protecting biological resources?</u>

Since all of the areas of potential impact from implementation of the master plans have already been disturbed, the potential to conflict with local policies or ordinances designed to protect biological resources is considered to be very low. For example, most of the area land use jurisdictions (cities and counties) have ordinances designed to minimize loss of trees. With the exception of two to the satellite plant sites and two pump station/reservoir sites, no trees occur on any of the proposed project locations. The trees that occur on these sites are non-native trees, such as eucalyptus, that were grown as part of site landscaping or wind breaks. If any mature trees need to be removed in support of facilities at the four referenced locations, the IEUA will follow local guidelines and requirements for replacing any mature trees that must be removed.

Regarding policies in local general plans that protect sensitive or listed species, mitigation has been identified for those few locations where such resources may exist to ensure that such resources are adequately identified prior to site selection and disturbance and to ensure that adequate compensation is provided as outlined in mitigation measures identified below. Therefore, no significant conflict with local policies and ordinances is forecast to result from implementing the three master plans encompassed by this project.

f. Will the project conflict with provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved habitat conservation plan?

There are no adopted habitat conservation plans and community conservation plans within the IEUA service area and the proposed master plans' area of potential effect. Therefore, no significant conflict with such plans can occur if the proposed project is implemented. No mitigation is required.

4.8.4 Mitigation Measures

The proposed project consists of implementation of three master plans with facilities proposed at a number of locations throughout the IEUA service area. Most of the facility sites are within existing disturbed areas, where no natural biological resources occur. Some of the proposed sites are not specifically defined, but instead are represented as a corridor. For example, proposals for two future satellite wastewater reclamation plants may be located within a corridor a few hundred feet wide and a mile or more long. In most of these instances, sites within the corridor are available that do not contain any potential for sensitive biological resources because of historic uses. However, some portions of the corridors contain sufficient residual habitat to support sensitive faunal species, such as DSF, SBKR and coastal California gnatcatcher.

Thus, mitigation at this stage of review will first require additional site-specific surveys in areas with habitat that may support sensitive species. If species of concern occur within selected development areas, then further mitigation will be required. The Service and CDFG have gradually moved towards a requirement that mitigation in environmental documents be specific, even though they may adopt alternative mitigation when actual permits, such as incidental take permits or Streambed Alteration Agreements, are issued in the future. This situation creates a potential disparity between mitigation within an environmental document, such as this one, and mitigation ultimately agreed upon with these agencies when they issue future permits. To resolve this potential conflict, IEUA has identified the following mitigation measures for implementation in conjunction with this proposed project. It is IEUA's finding that the mitigation outlined below is adequate, from its perspective, to reduce potential significant adverse impacts to sensitive biological resources to a level of nonsignificance. To address the contingency that future mitigation adopted by the regulatory agencies may differ from that outlined below, IEUA includes a contingency statement to all future permit conditions to supercede the mitigation outlined below. This contingency finding is based on the fact that the regulatory agencies are the final arbiters of what mitigation/compensation is actually acceptable in the permitting process, just as IEUA must determine what biological resource mitigation it will accept at this stage of the review process for these master plans.

4.8-1 Prior to increasing future recycled water discharges by more than 5,000 acre feet per year, IEUA shall consult with the Corps of Engineers and verify that the Corps' 1995 Cooperative Agreement will be implemented in a manner to keep inundation levels during the water conservation period to 505 feet in elevation under routine operation conditions and excluding periods when storm flows make this commitment infeasible.

4.8-2 Within those areas identified as potentially containing sensitive biological resources (several of the satellite plant corridors/sites and several recharge basins), proposed facilities will not be installed until future protocol surveys have been 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. IEUA shall provide compensation for acreage lost by acquiring and protecting in perpetuity (through property or mitigation bank credit acquisition) habitat for the sensitive species at a ratio of 3:1 for habitat lost. The property acquisition shall include the presence of at least animal per animal 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 IEUA 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 IEUA and FWS and CDFG for any incidental take permits. IEUA 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.

4.8-3 If burrowing owls are present within the construction right-of-way, the following measures will be implemented.

a. Owls should be excluded from burrows in the immediate impact zone and within 50 feet of construction by installing one-way doors at the burrow entrances. One-way doors should be left in place 48 hours prior to excavating the burrow.

b. One alternate natural or artificial burrow shall be provided for each burrow that will be excavated.

c. The impact zone shall be monitored daily for one week to confirm owl use of alternate burrows before excavating the burrows.

d. Burrows shall be excavated using hand tools and filled to insure the owls cannot reoccupy the burrows.

e. Flexible plastic pipe should be placed in burrows while excavating to allow any animals inside the burrows to escape.

Implementation of these measures will ensure that no significant biological resource impacts result from implementing the three master plans in the future.

4.8.5 Cumulative Impacts

Based on the evaluation in this subchapter, no project specific significant biological resource impacts are forecast to occur due to OBMP implementation. If all potential biological impacts are fully mitigated according to the required mitigation ratio identified above and in accordance with agency requirements in place at the time a second tier project is implemented, then the net cumulative impacts to these resources will be less than significant. The one potential cumulative significant impact of the proposed project will be the loss of agricultural acreage (two of the organics management facilities may utilize up to ten acres of land currently devoted to agricultural uses). Recently completed environmental document for the agricultural preserve area by the Cities of Chino and Ontario indicate that most of the agricultural land south of Riverside Avenue will be converted to urban uses. The cumulative loss of this agricultural area will substantially eliminate much of the raptor foraging areas within the Chino Basin. Although substantial open areas will remain in Prado Basin and Chino Hills State Park, the cumulative loss of this foraging habitat, to which the proposed project will contribute, is considered a significant and adverse impact to the regions biological resources.

4.8.6 Unavoidable Adverse Impact

The biological resource evaluation presented above indicates that since project specific biological impacts can be fully mitigated to a level of non-significance, no unavoidable significant adverse impacts to biological resources are forecast to occur as a result of project implementation. The project will contribute to the significant loss of raptor foraging habitat and regional raptor populations. This impact is considered to by a cumulative, unavoidable adverse impact of the proposed project and proposed urban development projects within the southern Chino Basin.

Table 4.8-1
Sensitive Faunal Resources

Common Name *Scientific Name*	*Federal / State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Aleutian Canada Goose *Branta candensis leucopareia*	Threatened	Central Valley is main wintering ground	nests on islands or marshes, feeds on shoots and seeds of grains and wild grasses	N,C,S
American Peregrine Falcon *Falco peregrinus anatum*	Endangered / Protected	western Riverside and San Bernardino Counties	breeds near wetlands, lakes, rivers or other water on high cliffs, banks and dunes, will also use human-made structures for nesting, feeds on other birds	N,C,S
Arroyo Chub *Gila orcutti*		generally prefer slowest moving sections of streams, where bottoms are sand or mud, creek and river systems of SW California, coastal streams of Los Angeles and Orange Counties	chunky minnows with small mouths and moderately large eyes, gray-green back, white bellow, body length usually less than 4", eats aquatic vegetation and invertebrates associated with such plants; well adapted for surviving summer; breed in March-April	
Arroyo Toad *Bufo microscaphus californicus*	Endangered	found in intermediate sized drainages, 3rd or 4th order streams in decomposed granite, waterways with no silt, pools < 1' deep, tadpoles in open bars and flats along stream edge	where shallow pools persist until at last July, breed in pools were stream current is minimal	N,C,S
Bald Eagle *Haliaeetus leucocephalus*	Delisted as Threatened	Alaska, Canada to southern United States	coasts, rivers in open and forested areas, large lakes	N

Common Name *Scientific Name*	***Federal / State Status***	***Habitat / Distribution***	***Discussion***	***Basin Section****
Black Swift *Cypseloides niger* (nesting)		nest in small colonies in steep, rocky, often moist cliffs behind or near waterfalls in deep canyons, nest made of mud mixed with plant material, feeds of flying insects, breeds in San Bernardino, San Gabriel and San Jacinto Mountains	migrates south for winter, most absent from this area between October-April, breeds from June-August, lays only one egg per year	N
Bonytail Chub *Gila elegans*	.Endangered	found in freshwater streams and rivers	threatened by development	N,C,S
Brown Pelican *Pelecanus occidentalis*	Endangered	common along California coast from June-October, may be on Salton Sea from July-September	breeds on offshore islands	C,S
Burrowing Owl *Athene cunicularia* (burrow sites)		hunts from perch, hovers, or hops after prey on the ground; uses rodent or other burrow for roosting and nesting cover, usually found in open grasslands and shrublands	eats mostly insects; also small mammals, reptiles, birds and carrion; breeding from March-August, average 5-6 eggs, somewhat colonial; numbers declining due to loss of grassland to agriculture; development, and poisoning of ground squirrels; predators include hawks, coyotes, domestic dogs and cats	N,C,S

Common Name *Scientific Name*	Federal / State Status	Habitat / Distribution	Discussion	Basin Section*
California Mastiff Bat *Eumops perotis californicus*	.	occurs in many open, semi-arid to arid habitats, including conifers and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oasis, chaparral, desert scrub and urban; catches and feeds on insects in flight, roost in crevices in cliff faces, high buildings, trees and tunnels, requires extensive open areas with abundant roost locations, SW San Bernardino, west Riverside Counties	largest native bat in the United States, has long, narrow wings, chocolate brown with free tail nocturnal, foraging 6-7 hours per night, roosts in small colonies of 100 or fewer, may range 15 miles in search of food, give birth from April-August, one young produced per year, may roost with other species of bat	N,C,S
California Red-legged Frog *Rana aurora draytoni*	Threatened	found in slow streams and rivers, ponds, marshes, lakes, reservoirs, canals with slow or still water, need deep pools and cool water	require dense riparian vegetation in contact with or close to deep water, may go to upland forests during non-breeding season	N,C,S
Coachella Valley Fringe-toed Lizard *Uma inornata*	Threatened	sand dunes in Coachella Valley, central Riverside County	burrow in sand to escape from enemies, hunt a variety of insects, require fine, loose, windblown sand	N,C,S
Coastal California Gnatcatcher *Polioptila californica californica*	Threatened	glean insects and spiders from foliage of shrubs, roost and nest in shrubs, found in California sagebrush, patches of prickly pear, arid washes, on mesas and slopes below 2500' from east Orange and SW Riverside Counties, possibly along lower, coastal slopes of San Gabriel and San Bernardino Mountains, Los Angeles and San Bernardino Counties	nesting season April-June, both parents caring for young, threatened due to loss of habitat for human development	N,C,S

Common Name *Scientific Name*	***Federal / State Status***	***Habitat / Distribution***	***Discussion***	***Basin Section****
Delhi Sands Flower-loving Fly *Rhaphiomidas terminatus abdominalis*	Endangered / None	found in highly specialized habitat, on sand dunes, 155-acre distribution among 8 sites in Riverside and San Bernardino Counties	feeds on nectar of native plants, hovers like hummingbird	N,C
Golden Eagle *Aquila chrysaetos* (nesting and wintering)	None / None	typically in rolling foothills, mountain areas, sage-juniper flats, desert, found over southern California from sea level to over 11,000', needs open areas for hunting, hunts from air or perch, may hunt in pairs, requires secluded cliffs with overhanging ledges and large trees for cover and nesting	eats rabbits, hares and rodents, occasionally preys on domestic calves and lambs; territory size approximately 36 sq mi, breeds from late January-August, average 2 young per year, nest is a platform of sticks, twigs and greenery 10' across and 3' high, will reuse old nest sites	N,C,S
Least Bell's Vireo *Vireo bellii pusillus* (nesting)	Endangered / Endangered	in thickets of willows and other low, dense valley foothills riparian habitat, found from coast inland to western edge of desert in desert riparian habitat	active during the day, gleans insects from foliage and branches usually within 8' of ground, builds an open-cup nest of bark, grasses, nests from May-July with an average of 4 eggs, threatened by cowbird nest parasitism, may be nearing extinction in California	N,C,S
Long-eared Owl *Asio otus* (nesting)	None / None	requires riparian bottomlands grown to tall willows and cottonwoods, or live oak thickets and other dense stands of trees for roosting and nesting, hunts in open areas, occasionally in woodland and forested habitats	nocturnal; uses old crow, hawk, heron or squirrel nests, breeds from March-July averaging 4-5 eggs per nest; eats mostly voles and other rodents, occasionally birds, including smaller owls; threatened by loss of live oak groves	N,C,S

Common Name *Scientific Name*	Federal / State Status	Habitat / Distribution	Discussion	Basin Section*
Los Angeles Pocket Mouse *Perognathus longimembris brevinasus*	Species of Concern / None	preferred habitat valleys and slopes, sandy soil with pebbles, sagebrush, creosote brush and cactus; occupies arid coastal basins of southern California in grassland and coastal sage scrub; Los Angeles, San	small-bodies nocturnal rodent with long tail, buff upper parts, white belly, well adapted to desert life; eats green vegetation of grasses in spring, seeds the remainder of the year; search for seeds under shrubs and collect seeds in cheek pouches, obtain water from food alone; nest made of green leaves and dry roots, usually beneath shrubs; breeds January-August with 2-8 young per litter; predator include snakes, owls, predatory mammals; threatened by severe loss of habitat	N,C,S
Mountain Plover *Charadrius montanus*	Proposed Threatened	western Riverside County	does not nest in California, requires high-elevation grassland for nesting, feeds on large insects on ground, especially grasshoppers	C,S
Mountain Yellow-legged Frog *Rana mucosa*	Proposed Endangered	streams, lakes and ponds in western San Bernardino and Riverside Counties, elevation above 5940', always found near water	eats aquatic and terrestrial insects, breed June-August	N
Nelson's Bighorn Sheep Desert Bighorn Sheep *Ovis canadensis nelsoni*	None / None	feed in rocky barrens, meadows and low sparse brushlands, use rocky, steep terrain for escape and bedding, presence of water is critical, San Bernardino and San Gabriel Mountains	brown to grayish brown with creamy white rump and massive coiled horns in males; polygamous, rutting in November-December and lambing in steep rugged slopes and canyons from April-June; graze and browse on a wide variety of plant species, preferring green succulent grasses and forbs; threatened by disease transmitted from livestock	N

Common Name *Scientific Name*	*Federal / State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Northwestern San Diego Pocket Mouse *Chaetodips (=Perognathus) fallax fallax*	Species of Concern / None	favors rocky/gravelly areas with yucca overstory, desert scrub near or in pine-juniper belt; basins and slopes on Pacific side of southern California Mountains, San Bernardino Mountains, Los Angeles southward	upper parts of body rick brown flecked with deep tawny color, spine-like hairs on rump, belly white, tail crested; nocturnal, forages on seeds of forbs, grasses and shrubs, collects seeds in check pouches and stores in underground burrow, obtains water from food alone; breeding March-May, average 4 young; predator include foxes, coyotes, badgers, owls and snakes	N,C,S
Orange-Throated Whiptail *Cnemidophorus hyperythrus*	Species of Concern / None	areas with summer morning fog, low elevation coastal scrub, chaparral, and valley foothill hardwood habitats, prefers washes and other sandy areas with patches of brush and rocks, coastal in extremes, Los Angeles, SW San Bernardino, Orange, and Riverside Counties	active during the day, forages actively on surface and scratches through surface debris, eats many small arthropods, especially termites, takes cover under surface objects such as rocks, logs, or in rock crevices; breeds April-September, with 2-3 eggs per clutch laid in loose soil; predators include snakes and nocturnal mammals	N,C,S
Peninsular Bighorn Sheep *Ovis canadensis cremnobates*	Proposed Endangered	Peninsular Ranges from the San Jacinto and Santa Rosa Ranges south into Mexico	graze and browse on a wide variety of plant species, use rocky, steep terrain for escape and bedding, require steep rocky slopes and canyons for lambing	S
Quino Checkerspot Butterfly *Euphydryas editha quino*	Endangered	coastal sage scrub, Riverside and San Bernardino Counties	requires young host plants for *Plantago erecta*, associated species	N,C,S
Razorback Sucker *Xyrauchen texanus*	Endangered	limited to freshwater habitats, Santa Ana River	threatened by flood control projects	N,C,S

Common Name *Scientific Name*	***Federal / State Status***	***Habitat / Distribution***	***Discussion***	***Basin Section****
Riverside Fairy Shrimp *Streptocephalus woottoni*	Endangered	vernal pool habitats, Riverside and San Bernardino Counties	present for only a few weeks following Spring rains, dormant majority of the year	N,C,S
San Bernardino Kangaroo Rat *Ripodomys merriami parvus*	Endangered / None	prefers light sandy soils across much of southern half of the state except in the Coast Ranges, alluvial scrub habitats, desert scrub, sagebrush, Joshua tree, pinon-juniper habitats, San Bernardino and Riverside counties	forage under shrubs, feeding on seeds of many plants, leafy vegetation in spring, some insects; active in bright twilight, aggressively solitary; breeding may be several times in a year, from December-summer, litters average 4 young; predator include kit foxes, badgers, snakes, owls, gray foxes and coyotes	N,C,S
San Diego Desert Woodrat *Neotoma lepida intermedia*	Species of Concern/ None	favor rocky areas with Joshua trees, pinon-juniper, chaparral, sagebrush and desert habitats throughout southern California, San Bernardino Mountains	moderate-sized rodents, pale to dark gray body washed with tawny, belly grayish to tawny, bases of hairs slate color; eat buds, fruits, seeds, bark, leaves and young shoots of many plants; build houses with twigs, sticks, cactus parts, usually against a rock crevice, or at the base of a large scrub, lined with grasses or shredded steams; aggressively solitary, breeds from October-May, averaging 2-3 young, may have 4 litters in a year	N

Common Name *Scientific Name*	*Federal / State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
San Diego Horned Lizard *Phrynosoma coronatum blainvillei*	Species of Concern / None	valley foothill hardwood, conifer, annual grass and riparian habitats, mountain of Southern California exclusively of desert region, open country, especially sandy areas, washes, floodplains, and wind-blown deposits, below 3000'	body armored with spines and aggressively defensive toward potentially predators, relies on camouflage for protection, bask on ground or low rocks burrow into loose soil to avoid intense heat or predators; active during the day, foraging on the ground in open areas, usually between shrubs near ant nests, eat ants, beetles, other insects; reproductive season from May-June, averaging 13 eggs; predators include leopard lizards, snakes, loggerhead shrikes and hawks	N,C,S
Santa Ana Speckled Dace *Rhinichthys osculus* ssp.	Species of Concern / None	inhabitants of cool, flowing, rocky bottomed permanent streams and rivers, habitat among rocks and riffles	body color highly variable with speckles or blotches, pointed snout, mouth set slightly under jaw, slender body with small scales to 3" long; food small bottom-dwelling invertebrates; semi-nocturnal, hides among bottom rocks during daylight hours, forages in small groups; spawn throughout summer months, eggs are laid and fertilized among bottom rock and gravel, base of fins of both sexes turns orange to red during the breeding season	N,C,S

Common Name *Scientific Name*	*Federal / State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Santa Ana Sucker *Catostomus santaanae*	Threatened / None	prefers cool, unpolluted, small, rocky bottomed shallow streams with currents ranging from swift (in canyons) to sluggish (in bottomlands), Los Angeles, San Gabriel and Santa Ana River drainages; Los Angeles, Orange, San Bernardino and Riverside Counties	body length to 6", dark back with irregular dorsal blotches, silvery belly; feeds primarily on algae; spawn from April-July, producing thousands of eggs; only native fish species still occurring in this portion of Santa Ana River, threatened by flood control projects, urbanization, non-native fish species	N,C,S
Southern Rubber Boa *Charina bottae umbratica*	Species of Concern / Threatened	red fir, ponderosa pine, hardwood, meadow, chaparral and riparian habitats, San Bernardino and San Jacinto Mountains	feeds on aquatic plants, beetles, invertebrates, fishes, frogs, and carrion; active at dawn and dusk, feeds on small mammals and lizards; very secretive seeking cover in rotting logs, rocks, burrows through loose soil or decaying vegetation, may climb; breeds from April-June, young born alive in loose, well-aerated soil, under surface objects or within rotting logs; predators include hawks, owls, predatory mammals; threatened by development and recreational uses of forest habitat	N,C,S
Southwestern Pond Turtle *Clemmys marmorata pallida*	Species of Concern / None	permanent ponds, lakes, streams, irrigation ditches or permanent pools, found in suitable aquatic habitat west of Sierra's, along Mojave River and its tributaries from sea levels to 6000'	require basking sites such as logs, rocks, mats of floating vegetation, breeds from March-August, laying 3-11 eggs, young may desiccate rapidly if conditions are hot and dry; hibernate in bottom mud during colder season; predators include fish, bullfrogs, garter snakes, wading birds and some mammals	N,C,S

Common Name *Scientific Name*	*Federal / State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Southwestern Willow Flycatcher *Empidonax traillii extimus*	Endangered	prefer extensive thickets of low, dense willows edging on wet meadows, ponds or backwaters, lowland California, records sparse	feeds on flying insects, occasionally on berries and seeds; winters in South and Central America, arrives locally in May-June; breeds June-July, builds nest 1.5-10' high in willow, averaging 3-4 eggs; threatened by cowbird nest parasitism and habitat destruction	
Stephen's Kangaroo Rat *Dipodomys stephensi*	Endangered / Threatened	prefer sparse perennial plant cover, annual and perennial grassland, coastal sage scrub, sagebrush habitats, found only in San Jacinto Valley, west Riverside, and south San Bernardino Counties	moderate-sized rodent with 5 toes; excavate burrows in firm soil (neither hard nor sandy) or occupy abandoned pocket gopher burrows; breed from April-June, lining nest with dried plants, 2-3 young produced; predator include snakes, owls, predatory mammals; threatened by habitat loss due to urbanization and cultivation	N,C,S
Unarmored Threespine Stickleback *Gasterosteus aculeatus williamsoni*	Endangered	Mojave River low elevation sites in Central Valley	coastal streams and rivers, lower and middle elevation reservoirs	
Vernal Pool Fairy Shrimp *Branchinecta lynchii*	Endangered	found only in vernal pool habitats, Riverside and San Bernardino Counties	active and breeding for brief period following spring rains, dormant for majority of the year	N,C,S

Common Name *Scientific Name*	***Federal / State Status***	***Habitat / Distribution***	***Discussion***	***Basin Section****
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis*	None / Endangered	requires densely foliated, deciduous trees and shrubs, especially willows for roosting, breeds only in river bottoms and other habitats with high humidity in or near slow-moving watercourses, backwaters or seeps; valley foothill and desert riparian habitats, along Santa Ana River, Riverside and San Bernardino Counties	feeds of grasshoppers, cicadas, caterpillars, occasionally frogs, lizards or fruit; winters in South America, breeds from June-July, averaging 3-4 eggs per clutch, nest built 2-25' above ground as flimsy open cup of twigs in tree or shrub; threatened by loss of riparian habitats	N,C,S
White-eared Pocket Mouse *Perognathus alticola alticola*	Species of Concern / None	ponderosa and Jeffrey pine habitats where bracken fern grows, occasionally in mixed chaparral and sagebrush habitats, San Bernardino Mountains	small rodent with olive-buff upper parts, white ears and underparts, burrows in loose soils, little known of reproduction, probably March-June with an average of 5 young in nest of dried grass in an underground burrow; predators include foxes, coyotes, weasels, owls and snakes	N
Yellow-breasted Chat Icteria virens (nesting)	None / None	dense, brushy thickets and tangles near water, thick understory in riparian woodland, southern California coast and locally inland	eats insects and spiders, berries and other fruit; breeds May-August, producing 3-6 eggs in nests 2-8' above the ground in dense shrubs along a stream or river; predators include falcons, small mammals and snakes; threatened by cowbird nest parasitism	N,C,S
Yuma Clapper Rail *Rallus longirostris yumanensis*	Endangered	April-September in freshwater and brackish emergent wetlands along Colorado River and around Salton Sea	nests in wetlands, forages in marshes and long rivers for crayfish, clams and insects	

* Basin Section – North (N), Central (C), South (S)

Table 4.8-2
Sensitive Floral Resources

Common Name Scientific Name	Federal Status	CNPS List / Code	State Status	Habitat / Distribution	Discussion	Basin Section*
Bristly sedge *Carex comosa*		2/331		swampy places, San Bernardino Valley	narrow leafed perennial herb, growing close to ground	N,C
California muhly *Muhlenbergia californica*		1B/223		wet places up to 7000', coastal sage scrub, chaparral, yellow pine forest, San Bernardino Valley to edge of desert	grasslike perennial herb 1-2' high, highly branched upper portion of plant, blooms July-September	N,C.S
California Orcutt grass *Orcuttia californica*	Endangered	1B/332		drying mud flats, vernal pools, valley grassland, Murrieta Hot Springs, western Riverside Co.	flattened grass, sometimes forming mats	S
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*		1B/232		salt marshes, vernal pools and damp alkaline spots, alkali sink, coastal salt marsh, Riverside & San Bernardino Co.	annual herb, blooms April-May	N,C,S
Coulter's saltbrush *Atriplex coulteri*		1B/222		somewhat alkaline low places, valley grassland, coastal sage scrub, Riverside & San Bernardino Co.	perennial herb with scaly gray leaves, favors shade, blooms March-October	N,C,S
Gambel's watercress *Rorippa gambelii*	Endangered	1B/332	Threatened	marshes, streambanks, lake margins, below 3750', Riverside & San Bernardino Co.	white-flowered, perennial herb, rhizomatous, seriously threatened by loss of habitat	N,C,S
Hall's monardella *Monardella macrantha* ssp. *hallii*		1B/213		chaparral, woodland, forest, 1800-6000', Riverside Co., San Bernardino Mtns.	perennial herb with heavy steam, triangular leaf, yellowish flower	N,C,S
Hot springs fimbristylis *Fimbristylis thermalis*		2/221		freshwater march above 1500', Arrowhead Hot Springs, San Bernardino Co.	perennial herb, leaves spiraled with linear blades, slate colored flower	N

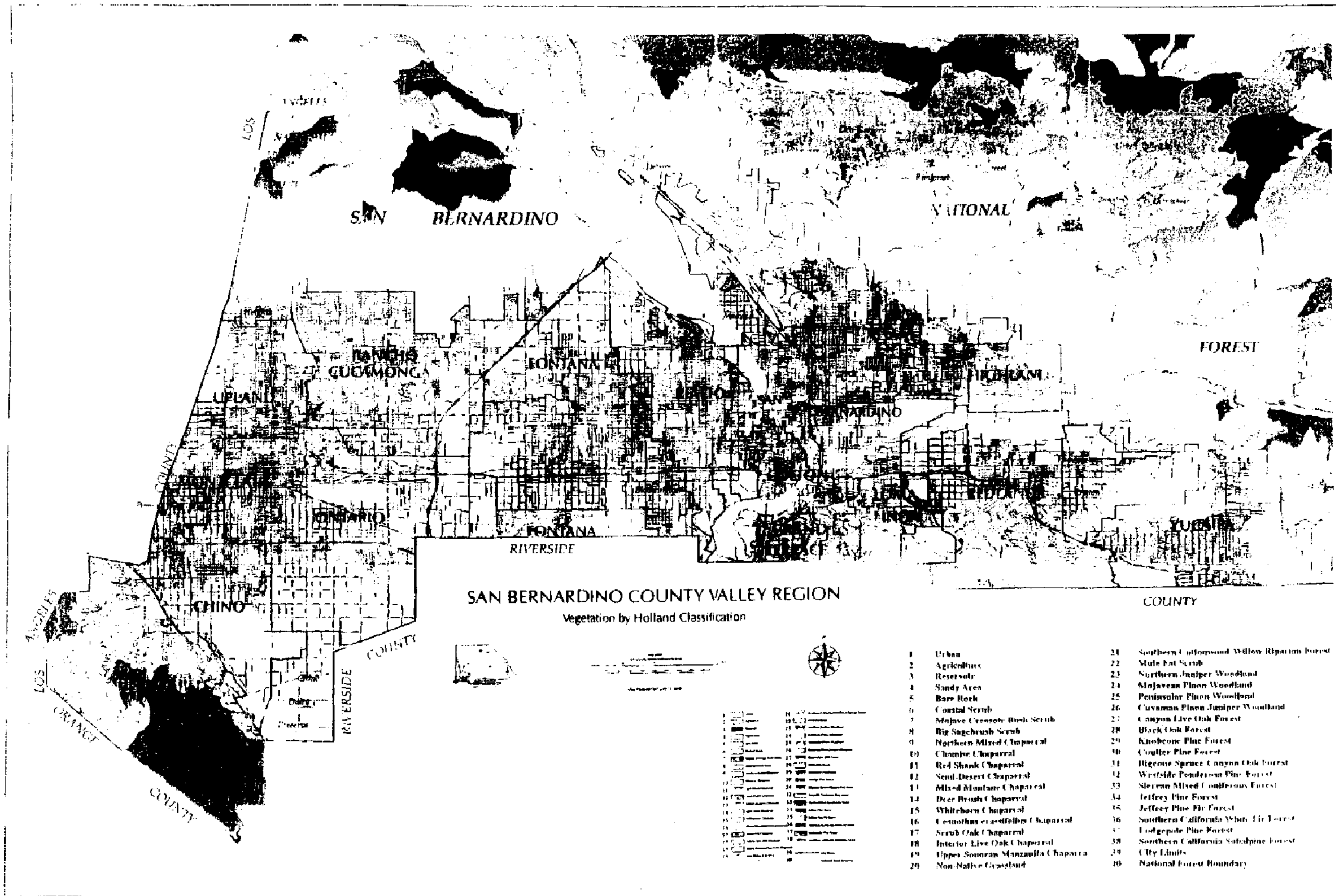
Common Name *Scientific Name*	*Federal Status*	*CNPS List / Code*	*State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Intermediate Mariposa lily *Calochortus weedii* var. *intermedius*	Species of Concern	1B/223		dry rocky open slopes, hills below 2000', coastal sage scrub, valley grassland, Orange Co.	perennial herb, purplish flowers, dark or yellow-hairy with basal leaves, blooms June-July	C,S
Many-stemmed dudleya *Dudleya multicaulis*	Species of Concern	1B/123		dry stony places below 2000', coastal sage scrub, chaparral, western Riverside & San Bernardino Co.	perennial herb with narrow fleshy leaves arranged along stem with flowers toward the top, threatened by development	N,C,S
Marsh sandwort *Arenaria paludicola*	Endangered	1B/332	Endangered	swamps, freshwater marsh, below 900', San Bernardino Co.	perennial herb, grows close to ground, narrow leaves, blooms May-June	N,C
Munz's onion *Allium munzii*	Proposed Endangered	1B/333		grassy openings in coastal sage scrub, 900-2700', western Riverside Co.	white flowered lily	C,S
Nevin's Barberry *Berberis nevinii*	Federally-Proposed Endangered	1B/333	Endangered	coastal sage scrub, chaparral, riparian scrub, San Timoteo Canyon near Redlands, Dripping Springs near Aguanga, San Gabriel Mtns., San Bernardino Co.	large rounded shrub, 3-12' tall, toothed leaf margins, reddish fruit, blooms March-May	N,C
Parish's desert-thorn *Lycium parishii*		2/211		dry places below 2000', coastal sage scrub, creosote bush scrub, San Bernardino Valley	spiny, highly branched shrub with bell-shaped purple flowers, blooms March-April	N,C
Parish's gooseberry *Ribes divaricatum* var. *parishii*	Species of Concern	1B/333		willow thickets, swamps, coastal sage scrub, San Bernardino region	shrub to 10' tall, spiny arched stem with toothed leaf, pink or red flowers, blooms March-April	N,C
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Species of Concern	3/323		sandy places, dry slopes and flats in coastal and desert scrubs from 1000-3600', chaparral, coastal sage scrub, Riverside & San Bernardino Co.	white-flowered annual blooming April-May	N,C,S

Common Name *Scientific Name*	Federal Status	CNPS List / Code	State Status	Habitat / Distribution	Discussion	Basin Section*
Pious daisy, Brewer's erigeron *Erigeron breweri* var. *bisanctus*		1B/223		open dry slopes and washes, 900-4800', San Gabriel Mtns., San Bernardino Mtns.	perennial herb 1-3' high	N
Plummer's Mariposa lily *Calochortus plummerae*	Species of Concern	1B/223		dry rocky places, often in brush, below 5000', coastal sage scrub to yellow pine forest, Santa Monica Mtns. to San Jacinto Mtns.	perennial herb, pale pink bell shaped flowers with long yellow hairs, blooms May-July	N,C
Pringle's monardella, Pringle's mountainbalm *Monardella pringlei*	Species of Concern	1A		sandy places, coastal sage scrub, San Bernardino Co., Riverside Co.	annual herb branched near base with heavy ash-gray stems and hairy leaves, rose or purple flower, last seen in 1921, presumed extinct	N,C
Prostrate navarretia Navarretia fossalis	Proposed Threatened	1B/232		vernal pools, ditches, 90-3900'	spreading plant with white flowers	N,C,S
Robinson's peppergrass *Lepidium virginicum* var. *robinsonii*		1B/322		shrublands with clay soils, below 1500', chaparral, coastal sage scrub, Riverside & San Bernardino Co.	annual herb with leaves a part of the stem, booms January-April	N,C,S
Salt spring checkerbloom *Saidalcea neomexicana*		2/221		alkaline springs and marshes below 4500', San Gabriel Mtns., Riverside & San Bernardino Co.	fleshy-leafed perennial, rose-colored flowers	N,C,S
San Diego button-celery *Eryngium aristulatum* var. *parishii*	Endangered	1B/232		vernal pools, chaparral, west of Murrieta, Riverside Co.	small, slender annual	C,S

Common Name *Scientific Name*	**Federal Status**	**CNPS List / Code**	**State Status**	**Habitat / Distribution**	**Discussion**	**Basin Section***
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	Endangered	1B/333	Endangered	below 1500', coastal sage scrub, along Santa Ana River	perennial herb blooms, June-August	N,C,S
Slender-horned spineflower *Dodecahema leptoceras*	Endangered	1B/333	Endangered	alluvial-fan habitats in chaparral, coastal sage scrub, Riverside and San Bernardino Co.	annual herb with basal leaves and very small white-pink flowers, blooms April-June	N,C,S
Slender Mariposa lily, Clubhair Mariposa lily *Calochortus clavatus* var. *gracilis*	Species of Concern	1B/323		canyons below 2500', chaparral, base of San Gabriels Mtns.	perennial herb, with slender stem, basal leaves and cup/bell shaped yellow flowers, blooms April-June	N
Smooth tarplant, Spikewed *Hemizonia pungens* ssp. *laevis*	Species of Concern	1B/233		grassland below 1200'	annual herb with spiky leaves and yellow flowers	N,C,S
Southern mountain wild buckwheat *Eriogonum kennedyi* var. *austromontanum*	Threatened	1B/223		dry gravel in yellow pine forest, 1900-2100', San Bernardino Mtns.	perennial with white to rose-colored flowers	N
Thread-leafed brodiaea *Brodiaea filifolia*	Threatened	1B/333	Endangered	heavy clay soil below 2000', in vernally flooded conditions, coastal sage scrub, chaparral, valley grassland, Riverside & San Bernardino Co.	perennial herb, blooms May-June	N,C,S

Common Name *Scientific Name*	*Federal Status*	*CNPS List / Code*	*State Status*	*Habitat / Distribution*	*Discussion*	*Basin Section**
Triple-ribbed milk-vetch *Astragalus tricarinatus*	Endangered	1B/313		gravelly places 1400-4000', creosote bush scrub, Joshua tree woodland	bushy perennial, blooms February-May	N,C,S
Vail Lake ceanothus *Ceanothus ophiochilus*	Proposed Threatened	1B/333		rocky, north-facing slopes, ridges, chaparral around 1800', near Vail Lake, Riverside Co.	flowers pale blue or pink	C,S

* Basin Section – North (N), Central (C), South (S)

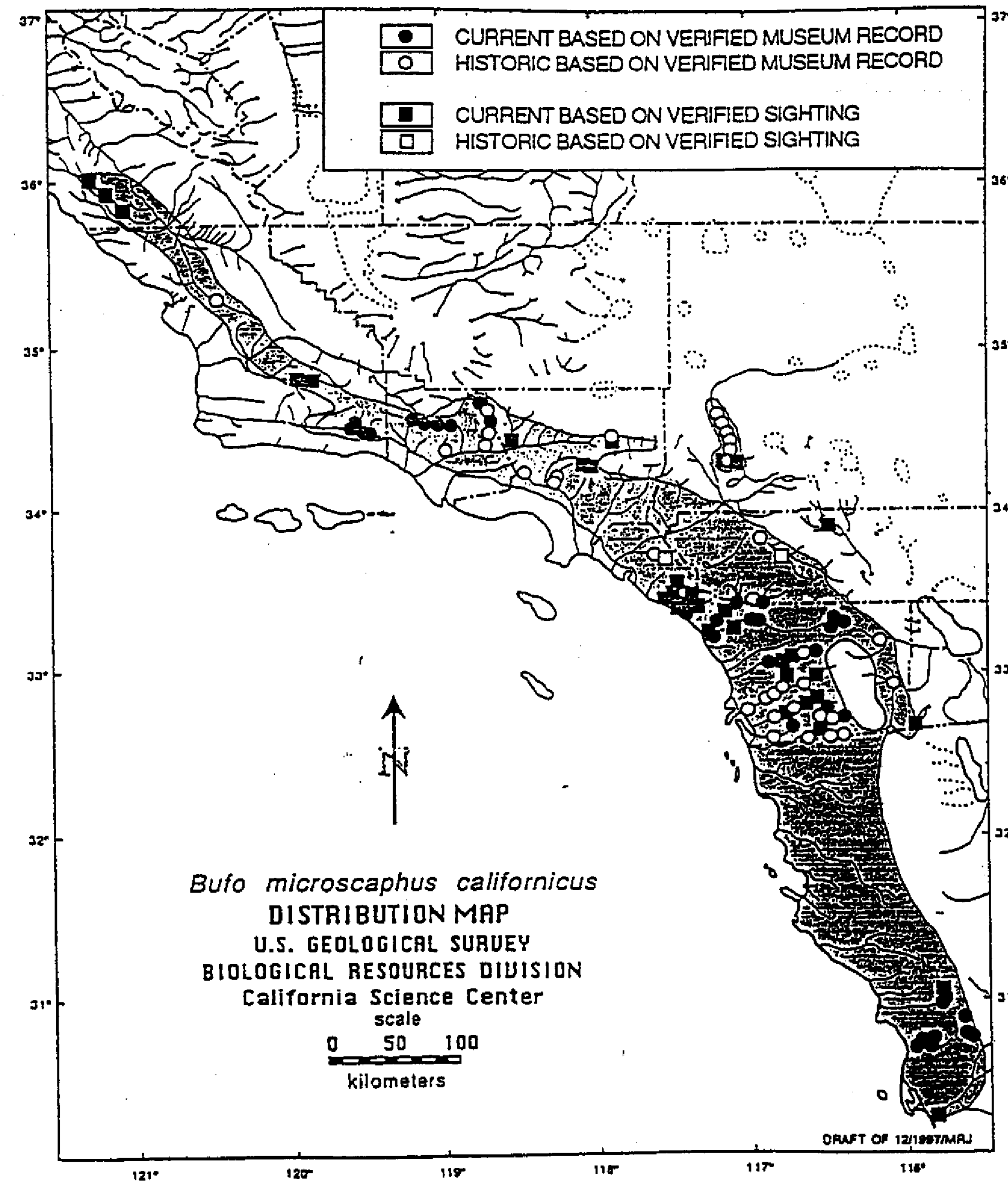


SAN BERNARDINO COUNTY VALLEY REGION
VEGETATION BY HOLLAND CLASSIFICATION

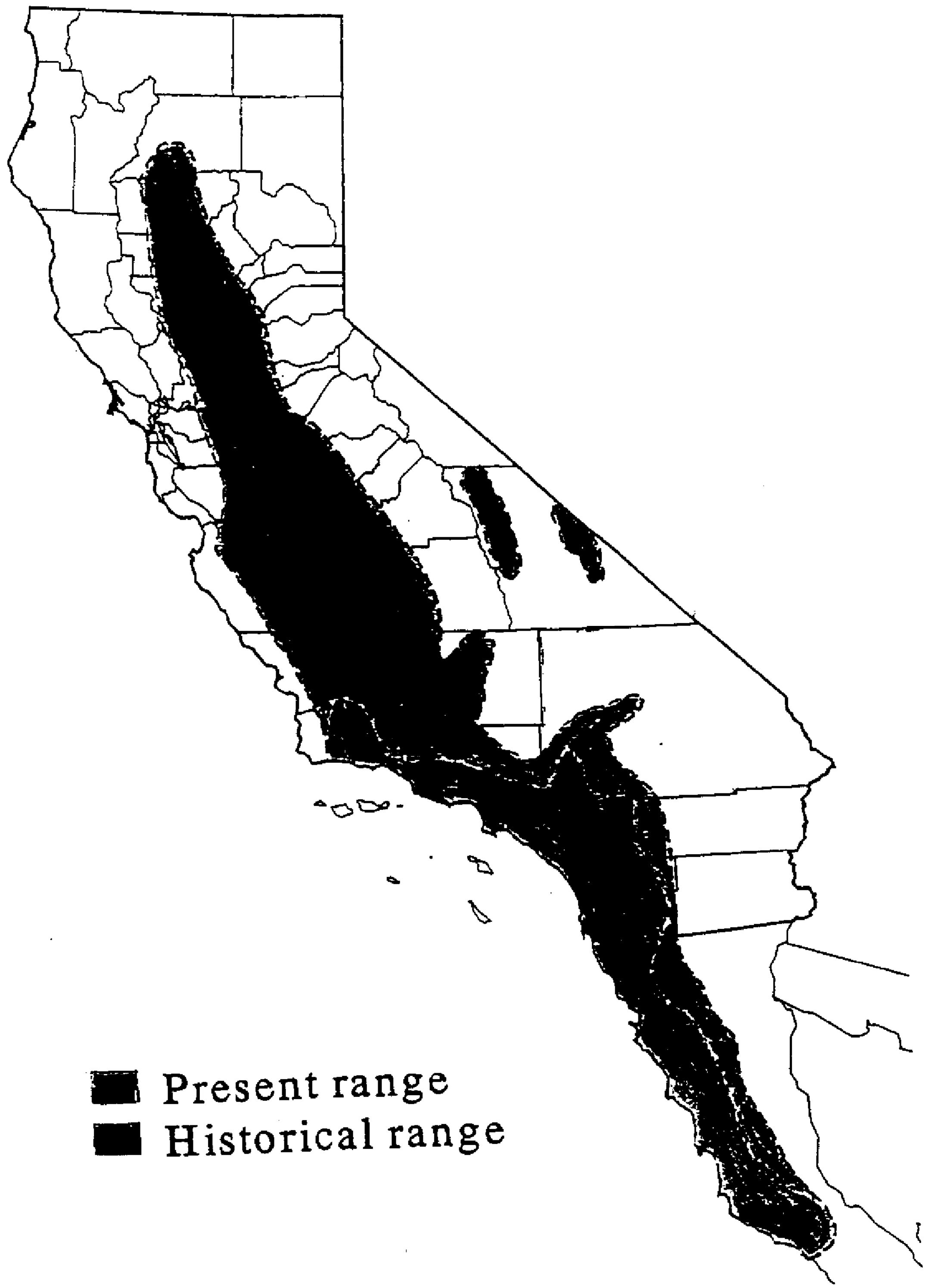
Source: GIMS San Bernardino County, March 2002

TOM DODSON & ASSOCIATES
Environmental Consultants

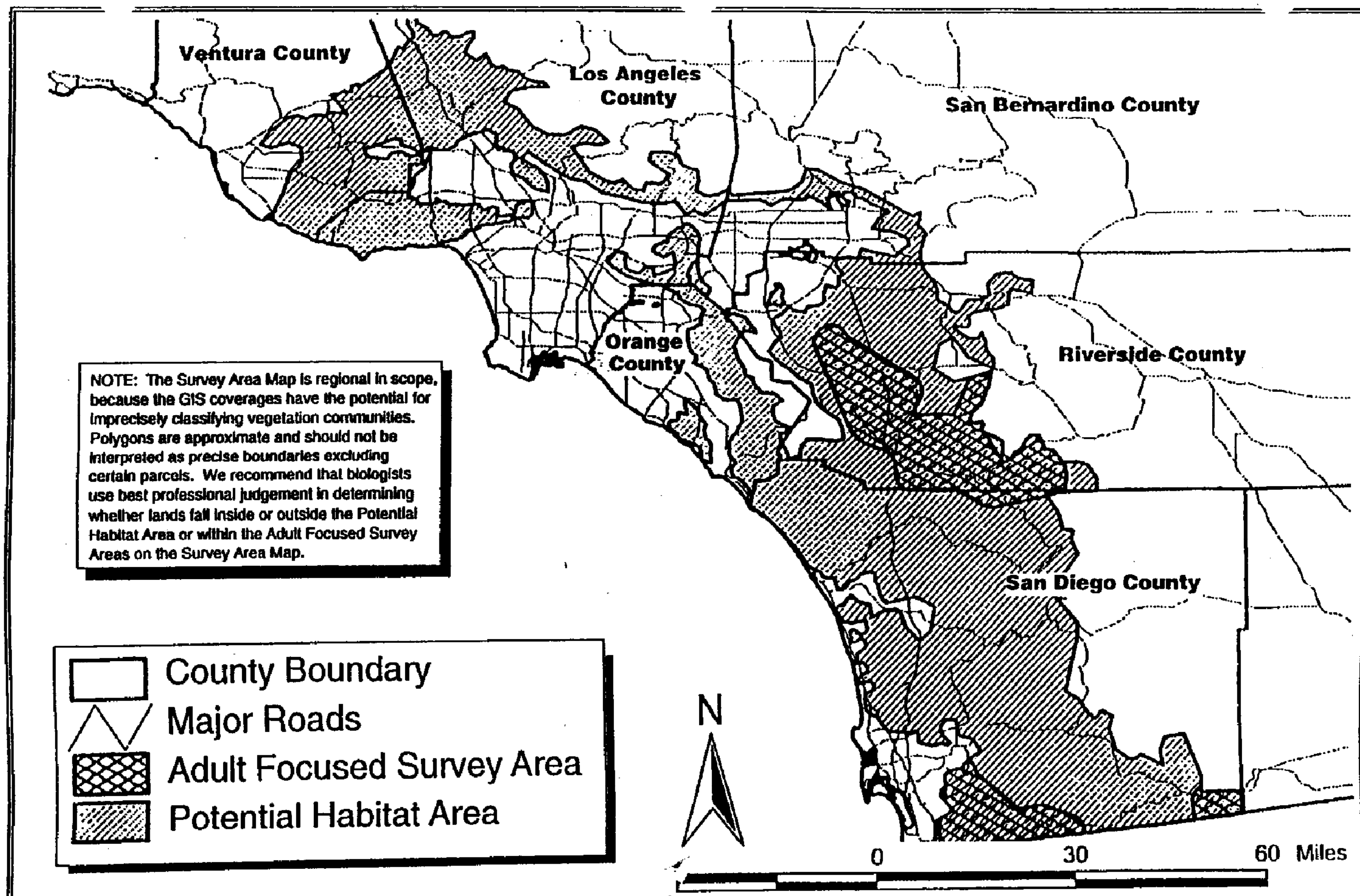
FIGURE 4.8-1



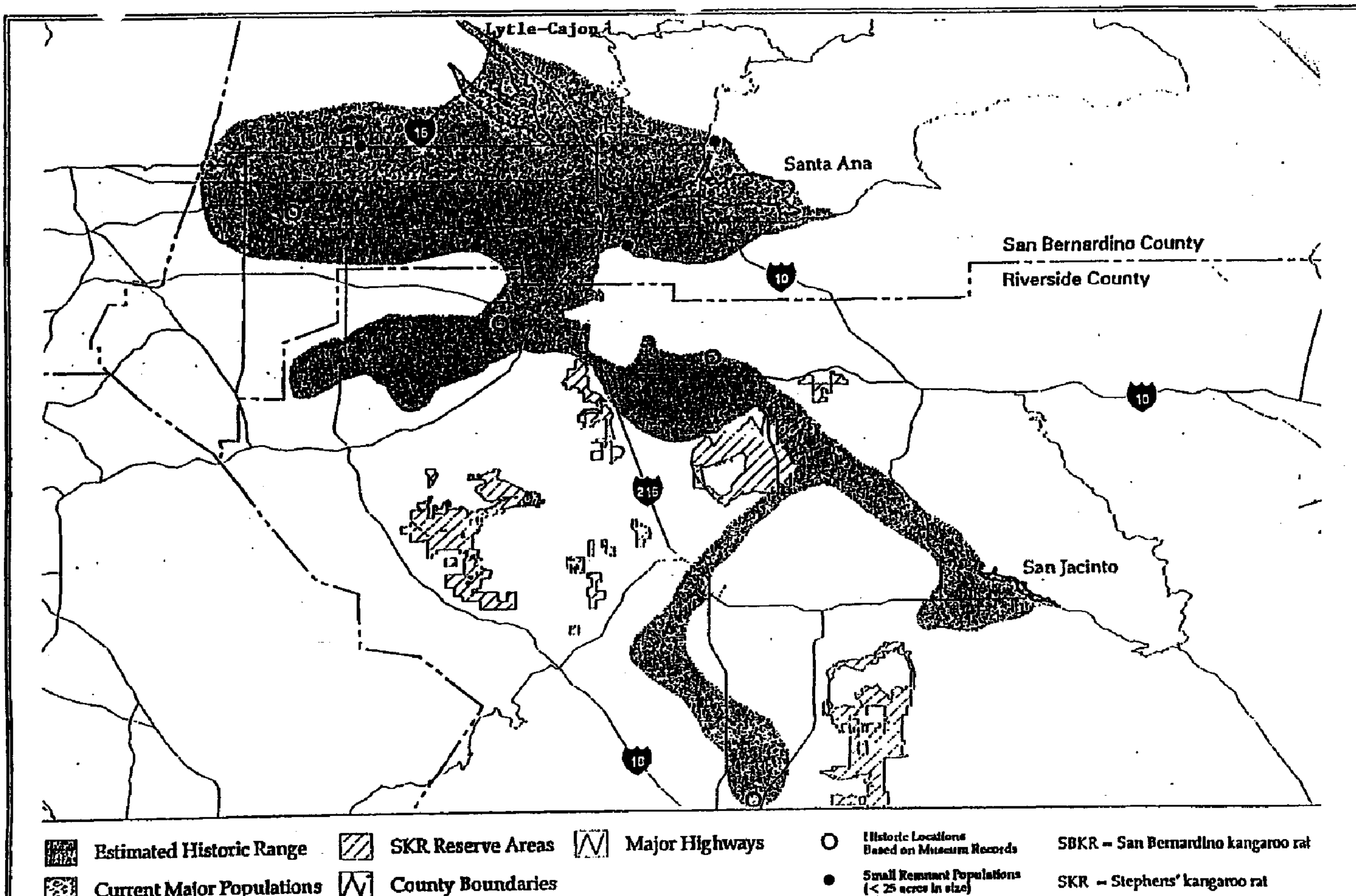
SENSITIVE AREAS FOR ARROYO TOAD Source: San Bernardino County Planning Department and U.S. Fish and Wildlife Service	TOM DODSON & ASSOCIATES Environmental Consultants	FIGURE 4.8-2



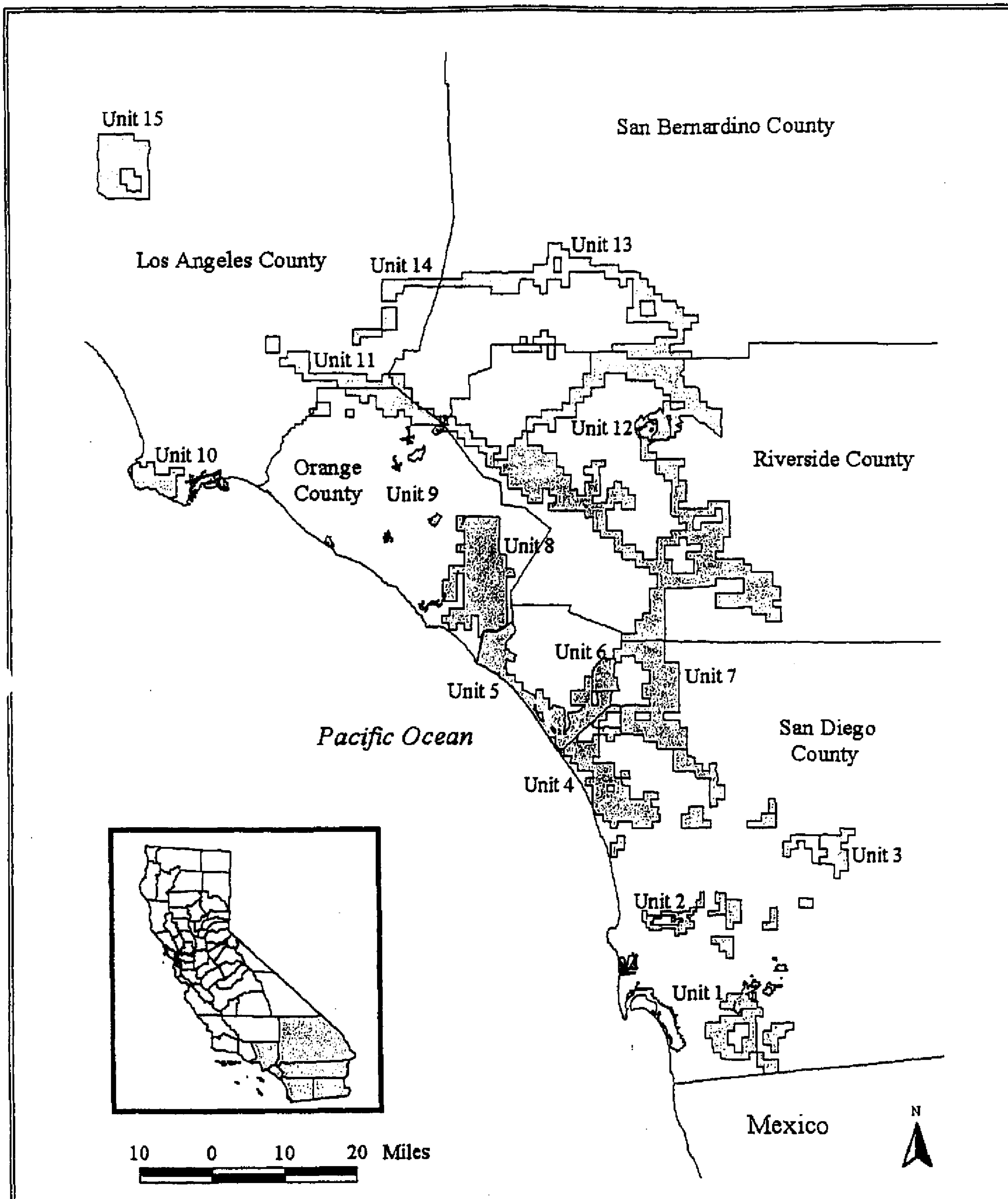
SENSITIVE AREAS FOR LEAST BELL'S VIREO Source: San Bernardino County Planning Department	**TOM DODSON & ASSOCIATES** Environmental Consultants	**FIGURE 4.8-3**



SENSITIVE AREAS FOR QUINO CHECKERSPOT BUTTERFLY Source: U.S. Fish and Wildlife Service	TOM DODSON & ASSOCIATES Environmental Consultants	FIGURE 4.8-4



SENSITIVE AREAS FOR SAN BERNARDINO KANGAROO RAT Source: U.S. Fish and Wildlife Service	TOM DODSON & ASSOCIATES Environmental Consultants	**FIGURE 4.8-5**



SENSITIVE AREAS FOR COASTAL CALIFORNIA GNATCATCHER Source: U.S. Fish and Wildlife Service Federal Register Notice	TOM DODSON & ASSOCIATES Environmental Consultants	FIGURE 4.8-6

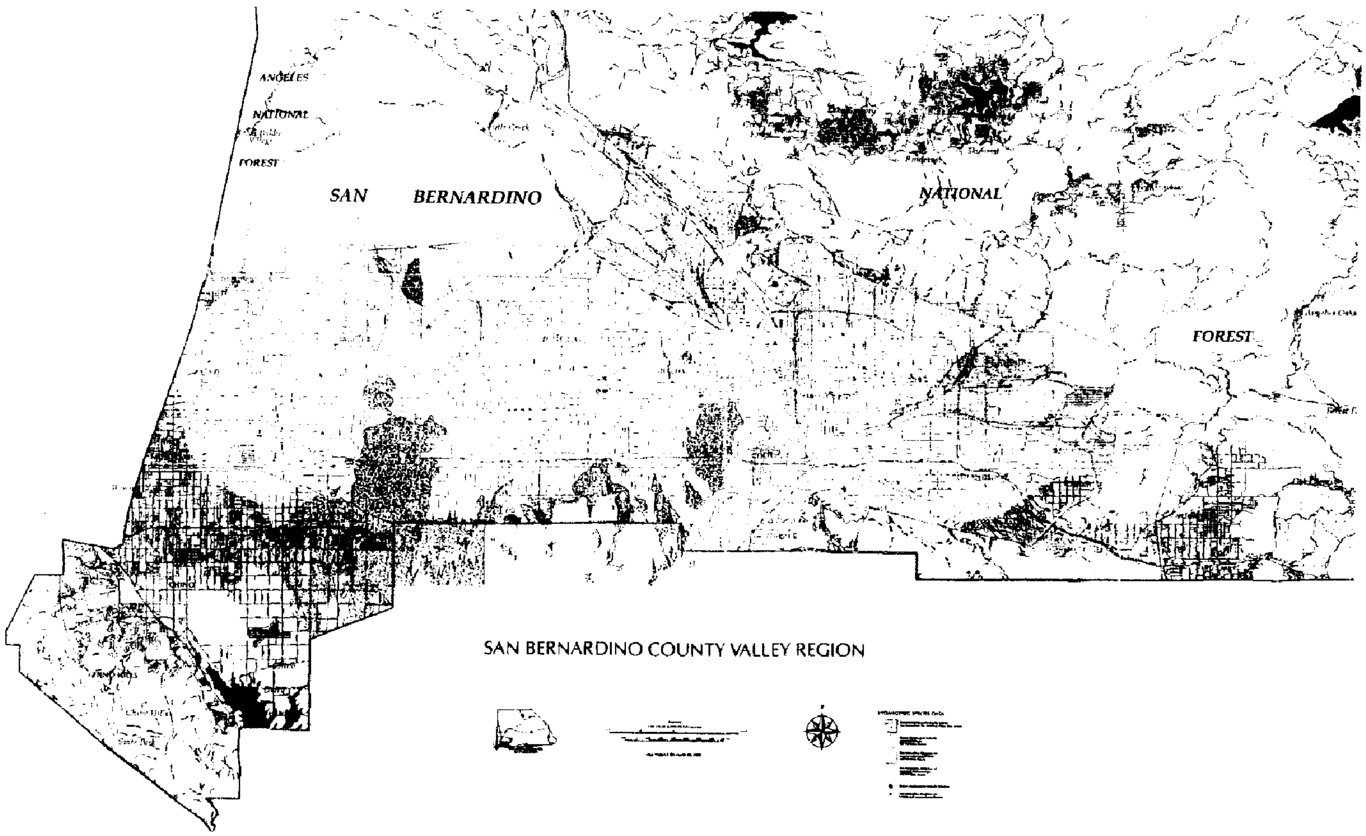


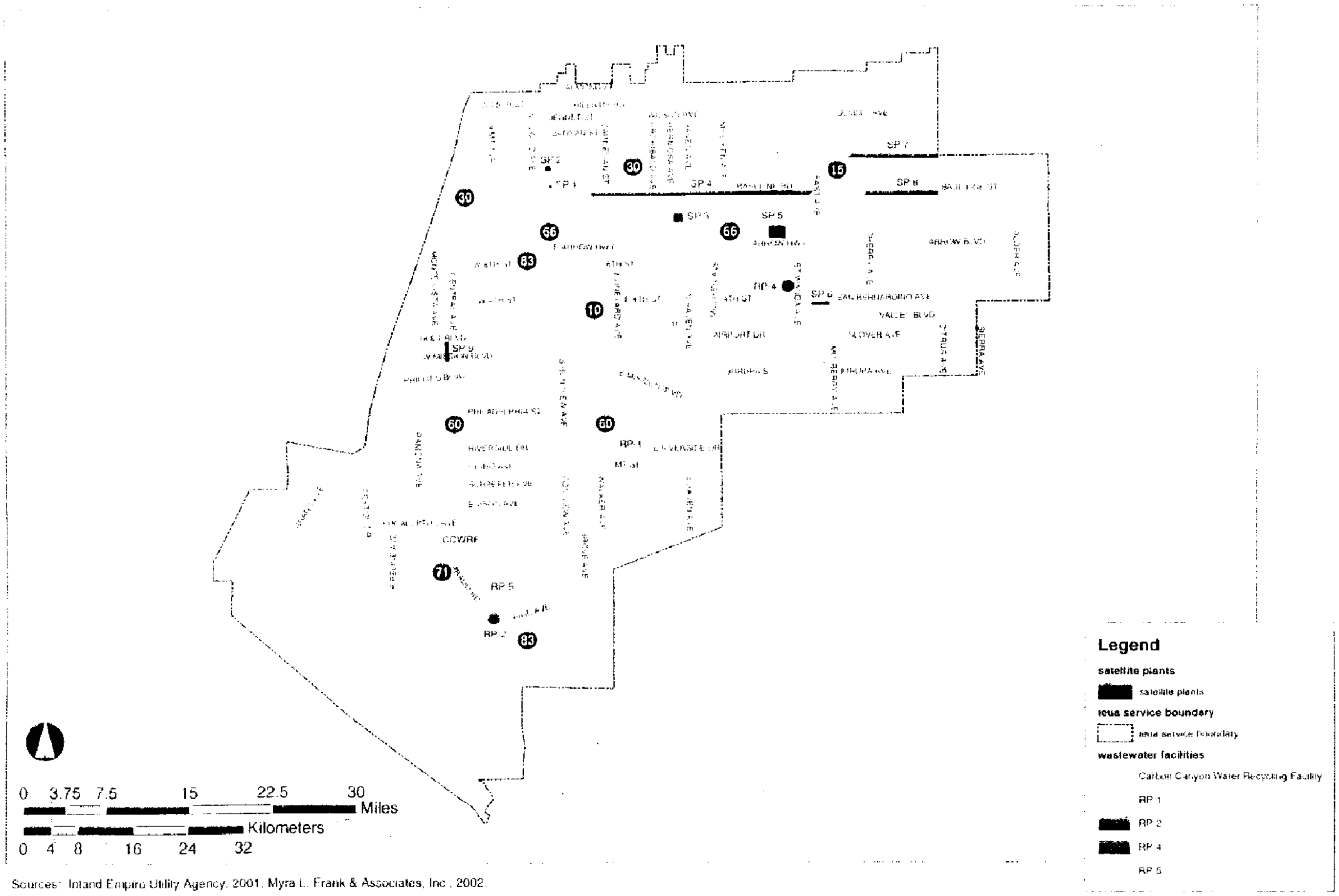
FIGURE 4.8-7

TOM DODSON & ASSOCIATES
Environmental Consultants

SENSITIVE AREAS FOR ENDANGERED SPECIES IN THE VALLEY AREA

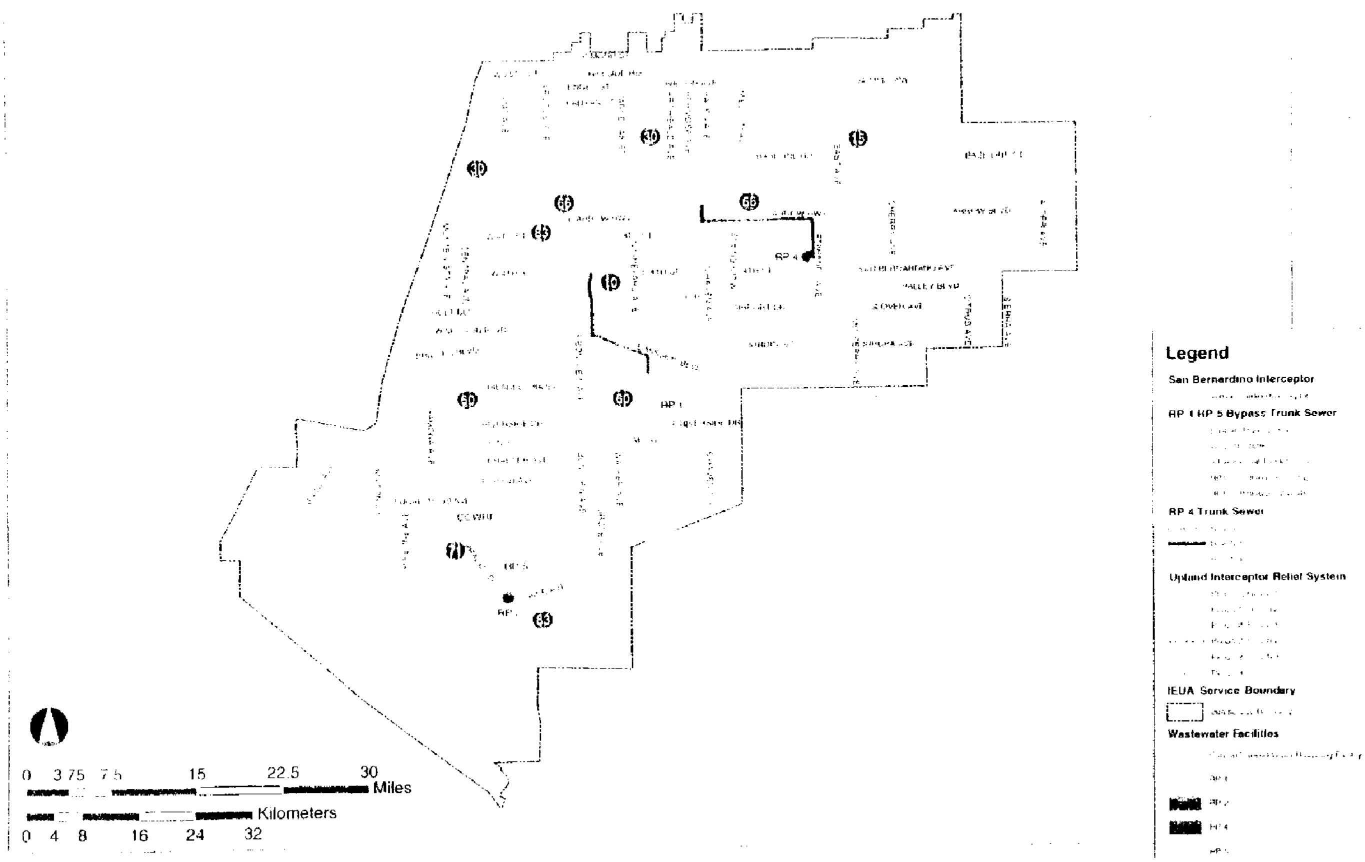
Source: GIMS San Bernardino County, March 2000

Figure 4.8-8
IEUA Satellite Plant Locations



Sources: Inland Empire Utility Agency, 2001; Myra L. Frank & Associates, Inc., 2002.

Figure 4.8-9
IEUA Conveyance System



Sources: Inland Empire Utility Agency, 2001; Myra L. Frank & Associates, Inc., 2002

4.9 NOISE

4.9.1 Introduction

The purposes of the three master plans (Wastewater Facilities Master Plan, Recycled Water Master Plan, and Organics Management Master Plan) are to establish a strategy to meet the wastewater treatment demands in a rapidly growing area, reuse recycled water produced by the wastewater facilities to the greatest extent possible to lessen the need of imported water, and to treat biosolids and manure to improve groundwater quality by removing salts from percolating into the lower portion of the Chino Basin. This section of the PEIR is to focus on the assessment of potential noise impacts on the environment resulting from the implementation of the immediate and near-term projects addressed in the master plans. Implementation of the proposed projects could result in increased noise levels over both the short and long term. Short-term noise increases will be caused by construction activities and the long-term noise increases could be associated with facilities and activities operated in support of the master plans.

4.9.2 Environmental Setting

4.9.2.1 Noise Terminology

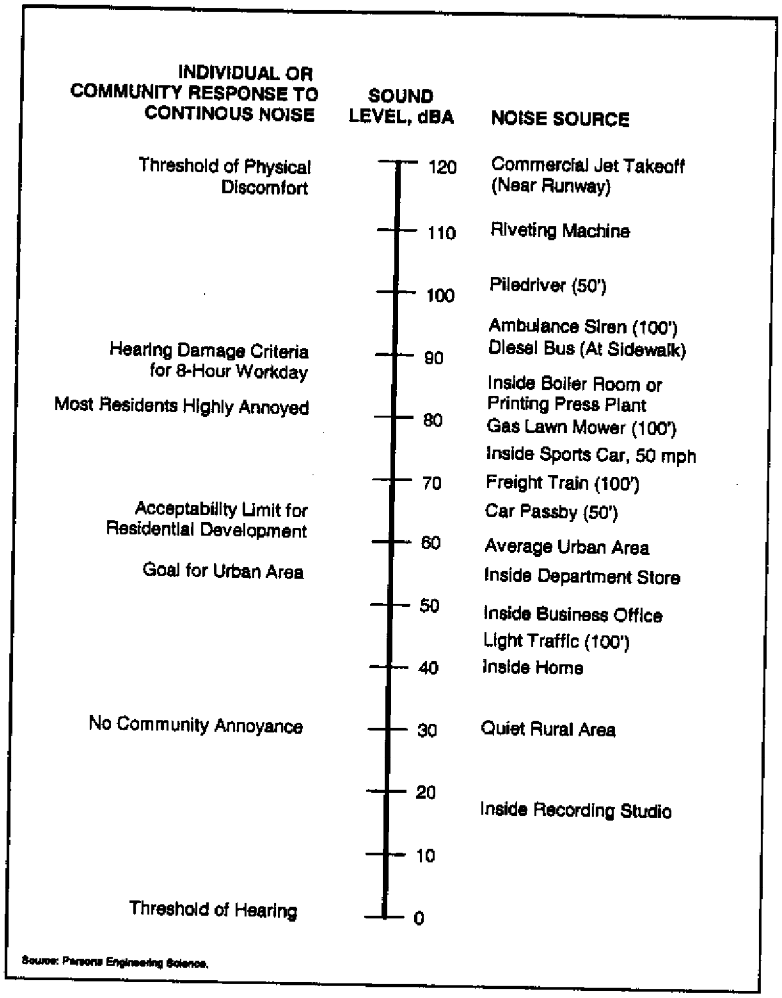
Noise is often defined as unwanted sound. Sound is easily measured with instruments, but the human variability in subjective and physical responses to sound complicates the understanding of its impact on people. People judge the relative magnitude of sound by subjective terms such as "loudness" or "noisiness."

Physically, sound-pressure magnitude is measured and quantified in terms of a logarithmic scale in decibels (dB). Research on human hearing sensitivity has shown that a 3 dB increase in the sound is barely noticeable and a 10 dB increase would be perceived as twice as loud. The human hearing system, however, is not equally sensitive to sound at all frequencies. Therefore, a frequency-dependent adjustment called "A-weighting" has been devised so that sound may be measured similar to the way the human hearing system responds. The A-weighted sound level is often abbreviated "dBA" or "dB(A)." Figure 4.9-1 provides typical A-weighted sound levels of various noise sources and the responses people usually have to such sound levels.

A number of noise rating scales using A-weighted decibels are used in California for land use compatibility assessment and are described as follows:

- The Equivalent Noise Level (L_{eq}) scale represents the energy average noise level over a sample period of time. It represents the average decibel sound level that would contain the same amount of energy as a fluctuating sound level over the sample time period.
- The Day-Night Noise Level (L_{dn}) scale represents a time weighted 24-hour average noise level based on the A-weighted decibel scale. Time weighted refers to the fact that noise which occurs during certain sensitive time periods (such a the night) is penalized for occurring at these times. For the L_{dn} scale, the nighttime period (10 p.m. and 7 a.m.) noises are penalized by 10 dBA.
- The Community Noise Equivalent Level (CNEL) scale is similar to the L_{dn} scale except that it includes an additional 5 dBA penalty for the evening time period (7 p.m. to 10 p.m.). Both noise rating scales are used by the local jurisdictions and the State in evaluating transportation noise, including airports and roadways.

Figure 4.9-1
Typical Sound Levels From Indoor and Outdoor Noise Sources



4.9.2.2 Noise Standards and Criteria

Noise rating scales, noise standards, community noise assessment criteria and noise mitigation measures are discussed below to provide a brief overview of how noise is evaluated and to explain the noise standards used in the Noise Elements of the land use jurisdiction General Plans within the Project Area. This information is needed in order to understand the existing background noise conditions in the project area.

The CNEL scale is used as the criterion for assessing the compatibility of residential land uses with community noise sources by utilizing an interior and exterior noise standard. Typical noise standards within the local jurisdiction's general plans in the Chino Basin encourage interior noise standards of 45 dBA CNEL and an exterior standard of 60-65 dBA CNEL. The local jurisdictions use land use planning decisions relative to chronic noise exposure. An annual average noise level in excess of 60-65 dB CNEL is considered an excessive exterior exposure for most residential or other noise sensitive uses, unless mitigation is implemented to achieve this level where feasible. CNEL can be expressed as a daily average or as an annual average exposure to smooth out any day to day variations in noise generation.

Although CNEL is considered when using an annual average noise exposure such as along roadways or adjacent to airports, it is also calculated over a 24-hour period. Levels above 60-65 dB CNEL are considered intrusive for outdoor recreation, relaxation or normal conversation. Such intrusion could be considered an environmentally adverse impact even if no long-term noise incompatibility is created by the noise source. Environmental studies often use a change in the noise level by some given increment as a criterion for potential impact significance. A change of 3 dBA in noise from a semi-continuous source, such as a roadway, is often defined as a perceptible, but non-significant increase. Changes of 5 dBA are commonly designated as "clearly noticeable" and may be considered a significant change in the background noise level.

Sources of noise can be divided into transportation sources and non-transportation sources. The existing noise environment within the Chino Basin is dominated primarily by transportation-related noise sources. These noise sources include traffic noise from nearby roadways, from adjacent railroad lines and the several airports within the project area, including Cable Airport, Chino Airport, and Ontario Airport. Secondary non-transportation noise sources include industrial activity, mining, music, amplified sound and activities on private property.

4.9.2.3 Existing Noise Environment

Short-term noise measurements were conducted at selected locations throughout the project areas to assess the noise environment at specific sites and potential sites within the project areas. Results of the noise measurements are reported on Table 4.9-1 below. Data log sheets with sketches of measurement locations are included in Appendix 8.6.

Table 4.9-1
Summary of Measurement Results

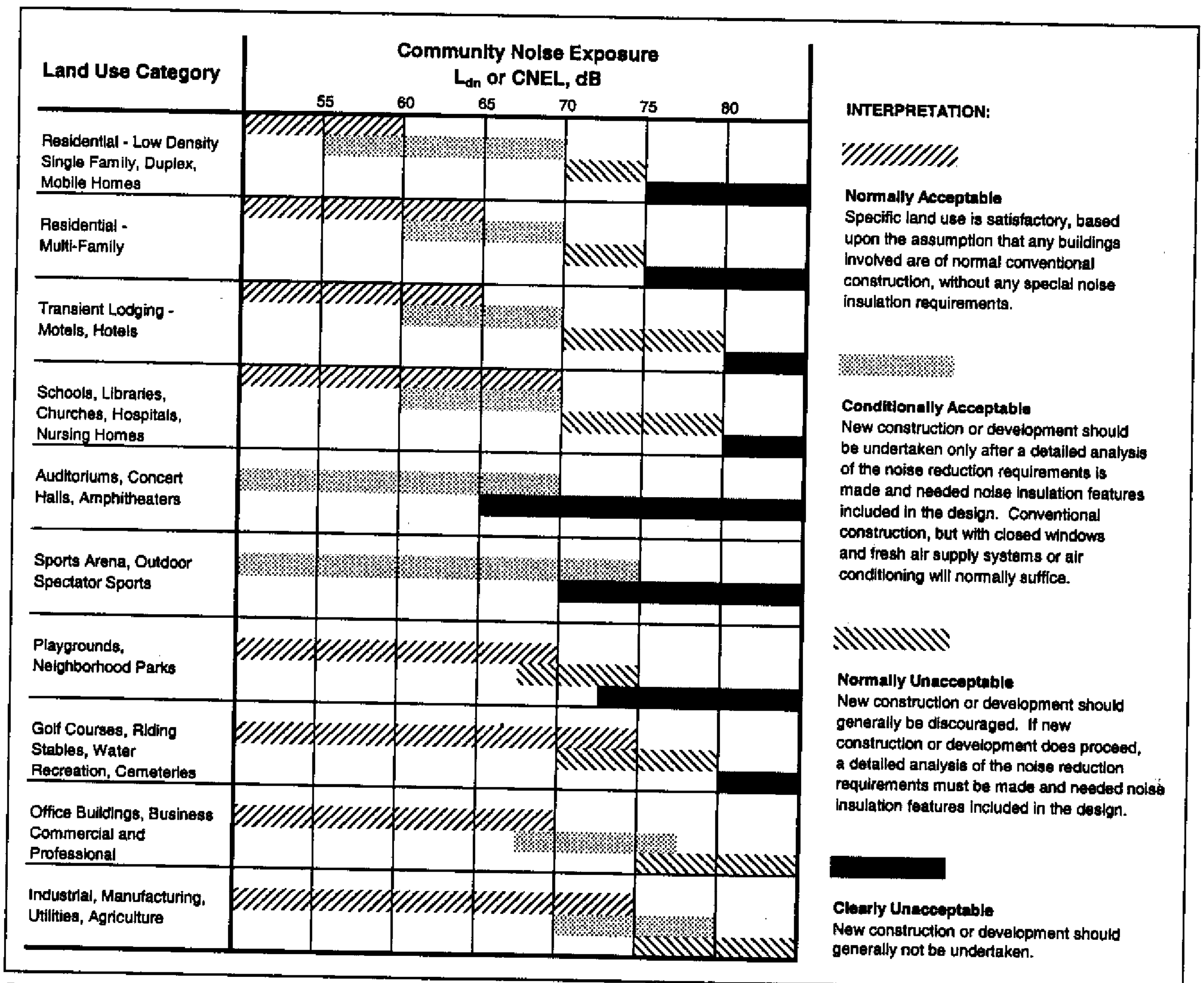
Location	Date	Time	L_{eq}, dBA
RP-1 – Southeast Corner	03/05/2002	10:09 – 10:25	48
Potential SP-1 Site – Campus Avenue at 17th Street-	03/08/2002	16:40 – 16:50	71
Potential SP-2 Site – 19th Street at Campus	03/38/2002	16:14 – 16:29	68
Potential SP-3 Site – Church Road, west of Haven Avenue	03/08/2002	15:30 – 15:45	69
Potential SP-4 Site – Baseline at Victoria Park Lane	03/08/2002	14:40 – 14:50	66
Potential SP-8 Site – Baseline at Village Parkway	03/08/2008	14:10 – 14:25	59

Source: Parsons

Each city and county within the IEUA service area has adopted a general plan, which by law must incorporate a Noise Element to define acceptable noise levels for specific types of land uses. A summary of existing noise (as depicted in each city's general plan), typical noise thresholds, and future noise levels is provided in the following text. These summaries will be compared relative to a single community's noise element in order to reduce the volume of text and supporting material that is needed to establish background noise levels throughout the project area.

Table 4.9-2 provides an overview of different sound levels that could be encountered throughout the Chino Basin. Figure 4.9-2 provides a summary of the California Land Use/Noise Guidelines for exposure of specific land uses to community noise exposure. These exhibits provide background information on noise that can be used to evaluate noise impacts from future development.

Figure 4.9-2
Land Use Compatibility Guidelines



Source: *State of California General Plan Guidelines.* Governor's Office of Planning and Research, 1998.

Table 4.9-2
Typical A-Weighted Sound Levels
Sound Levels and Loudness of Illustrative Noises in Indoor and Outdoor Environments
(A-Scale Weighted Sound Levels)

db(A)	Overall Level (Sound Pressure Level ~0.0002 Microbar)	Community (Outdoor)	Home or Industry	Loudness (Human Judgment of Different Sound Levels)
130	Uncomfortably	Military jet aircraft takeoff with after-burner from aircraft carrier @ 50 ft. (130)	Oxygen torch (121)	120 dbA, 32 times as loud
120 110	Loud	Turbo-fan aircraft @ takeoff power @ 200 ft. (90)	Riveling machine (110) Rock-n-Roll band (108-114)	110 dbA, 16 times as loud
100	Very	Jet flyover @ 1,000 ft. (103) Boeing 707, DC-8 @ 6,080 ft. before landing (106) Bell J-2A helicopter @ 100 ft. (100)		100 dbA, 8 times as loud
90	Loud	Power mower (96) Boeing 737, DC-9 @ 6,080 ft. before landing (97) Motorcycle @ 25 ft. (90)	Newspaper press (97)	90 dbA, 4 times as loud
80		Car wash @ 20 ft. (89) Prop. airplane flyover @ 1,000 ft. (88) Diesel truck, 40 mph @ 50 ft. (84) Diesel train, 45 mph @ 100 ft. (83)	Food blender (88) Milling machine (85) Garbage disposal (80)	80 dbA, 2 times as loud
70	Moderately Loud	High urban ambient sound (80) Passenger car, 65 mph @ 25 ft. (77) Freeway @ 50 ft. from pavement edge, 10:00 a.m. (76 + or -6)	Living room music (76) TV-audio, vacuum cleaner	70 dbA
60		Air conditioning unit @ 100 ft. (60)	Cash register @ 10 ft. (65-70) Electric typewriter @ 10 ft. (64) Dishwasher (rinse) @ 10 ft. (60) Conversation (60)	60 dbA, 1/2 as loud
50	Quiet	Large transformers @ 100 ft. (50)		50 dbA, 1/4 as loud
40		Bird calls (44) Lower limit urban ambient sound (40)		40 dbA, 1/8 as loud
	Just Audible	db(A) scale interrupted		
10	Threshold of Hearing			

Source: City of Rialto General Plan Update Draft MEIR, November 1991

The picture that is portrayed by the data is that as transportation related noises increase with buildout of a community, the amount of sensitive land uses exposed to unacceptable noise levels will significantly increase. Note that stationary sources of noise, such as industrial operations, can generally be controlled to meet local noise standards because they are located within areas of similar use, where the noise does not pose an adverse impact, or where noise attenuation is mandatory and the impacts on any adjacent sensitive noise receptors is reduced to an acceptable level. 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 4.9-1. 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 4.9-1. 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. Rancho Cucamonga 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 4.9-1. 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 and there are no quantitative noise guidelines contained in the 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 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 4.9-1. 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) 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 4.9-1. 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 contained in Figure 4.9-1. 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 (Pacific Electric) 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: San Bernardino County noise levels are evaluated as part of the Cities of Ontario and Chino which assumed responsibility for planning in these areas in 1994 as a result of expanding each City's sphere into the Chino Agricultural Preserve. The City of Ontario has annexed the whole 8,200 acres of its sphere, and the City of Chino has annexed approximately 1,500 acres to date. Noise impacts and policies are as outlined above for these cities.

Riverside County and Norco: The Riverside County (including Norco and surrounding area) General Plan has not been updated since 1984 and there is no current noise data for these areas. Quantitative noise guidelines are contained on Figure VI-11 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.

4.9.3 Project Impacts

The project's potential to generate noise was included in this PEIR based on the potential for specific project to cause short-term and long-term changes in the noise environment surrounding these facilities. Short-term noise increases could result from construction activities and the long-term noise increases could be associated with the operation of the projects.

4.9.3.1 Significance Criteria

Noise impact criteria are described in detail in section 4.9.2.2 above. The following criteria will be used to determine whether noise levels have been significantly increased:

For residential areas, an exterior noise level of up to 65 dBA CNEL is permitted, if the exterior areas are substantially mitigated and the interior noise exposures do not exceed 45 dBA CNEL with windows and doors closed. If windows and doors are required to be closed to achieve an acceptable interior noise level, then the use of air conditioning or mechanical ventilation will be required.

In community noise assessments, a long-term change in noise levels greater than 3 dBA is often identified as significant, while changes less than one dBA will not be discernible to the human ear. In the range of one dBA to 3 dBA, people who are very sensitive to noise may perceive a slight change in noise level. No scientific evidence is available to support the use of 3 dBA as the significance threshold. In laboratory testing situations, humans are able to detect noise level changes of slightly less than one dBA. However, in a community situation the noise exposure is extended over a long time period, and changes in noise levels occur over years, rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become intrusive, rather than discernible, is some value greater than one dBA, and 3 dBA is generally accepted as the appropriate threshold for most community noise situations.

For purposes of this evaluation, noise impacts are considered significant if the project is forecast to increase noise levels by 3 dBA (CNEL) where: (1) the existing noise levels already exceed the 65 dBA (CNEL) residential standard or (2) the project increases noise levels from below the 65 dBA (CNEL) standard to above 65 dBA (CNEL).

4.9.3.2 Potential Project Specific Noise Impacts

The following facilities are proposed for implementation if the master plans are approved by IEUA.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long-term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digester to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1) Construction of two new satellite "skimming" plants, from a list of nine potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],
   - Church Basin [SP-3],
   - CCDW-Baseline [SP-4],
   - Foothill/I15 Corridor [SP-5],
   - Kaiser/CSI WWTP [SP-6],
   - Sierra Lakes [SP-7],
   - Fontana-Baseline [SP-8], and
   - Montclair [SP-9].
   - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.
2) Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1) Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2) Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3) Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4) Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer

Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.
2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for noise impacts in the following sections.

a. <u>Will the project increase noise exposure for sensitive receptors from new noise sources?</u>

Wastewater Facilities Master Plan

Short-term Construction Noise Sources

Under the WFMP, construction noise levels would be associated with the activities related to improvements and expansions that would occur at RP-1, RP-4, and CCWRF the construction of two new satellite plants, and the construction of four new conveyance systems.

The construction of the proposed projects associated with the WFMP projects would require the use of construction equipment. Therefore, ambient noise levels would temporarily increase when the construction equipment is operating. Table X1 to X3 in Appendix 8.6 present the construction phases, the mix of construction equipment involved in each phase, and the estimated construction noise levels expected for each of the phases for the various construction activities anticipated for under WFMP.

Table X-1 of Appendix 8.6 summarizes results expected for each of the phases for RP-1 and RP4 plant modifications. As presented in the table, noise levels would range between 73 and 74 dBA at 200 feet from the center of construction activities. At 400 feet, the noise levels would range from 67 to 69 dBA due to simple distance attenuation.

Sensitive receptors in the immediate vicinity of RP-1 include single-family residences, a park and a golf course. At RP-4, there is no sensitive receptor in the close vicinity.

Table X-2 in Appendix 8.6 shows the estimated construction noise levels for the satellite plant construction. Noise levels are expected to range from 72 to 74 dBA, and from 66 to 68 dBA at 200-foot and 400-foot distances, respectively. There are currently ten potential sites selected for the 2 proposed satellite plants. Of the ten potential sites (SP-1 through SP-9 and RP-3), SP-6 and RP-3 are the only one that would be isolated from any sensitive receptors. All other remaining sites, depending on the exact location of the plants, could be located close to sensitive receptors such as single or multi-family residences.

Table X-3 in Appendix 8.6 presents the estimated construction noise levels for the conveyance system construction. Depending on the distance to the center of construction activity, noise levels would be approximately 68, 74, and 86 dBA at distances of 400, 200, and 50 feet, respectively. There are scattered residences along various segments of the conveyance system.

During the period of construction, noise levels would be increased over that of the ambience 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 the 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. Mitigation measures are identified below 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.

Long-term Operation Noise Sources

Under the WFMP, no significant increase in noise levels is expected in the operation of the existing RP-1 and RP-4 as well as the conveyance systems. Increase in existing noise levels due to the operation of the two new satellite plants would be dependent on the specific site selected and their proximity to the closest sensitive receptors. Detailed analyses would be required to determine the operation impact once the specific sites are selected and plot plans become available.

Recycled Water Management Plan

Short-term Construction Noise Sources

The RWMP would require construction of facilities necessary to interconnect and serve recycled water through the north and south recycled water distribution systems. All of the proposed facilities identified in the RFMP would be constructed in the near term (by 2010). These facilities include pipelines, inlet structures, pump stations, reservoirs, and recharge basins. Major construction activities are anticipated to include grading, excavation, installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation. These improvements would be completed in 5 phases in additional to the construction of the Philadelphia Regional Pipeline, which runs from RP1 to the Ontario Soccer fields. Along areas where sensitive receptors are located, construction activities in support of the improvements would increase the noise exposure of the receptors and have an intermittent short-term impact on ambient noise levels. Tables X-4 and X-5 in Appendix 8.6 present the estimated noise levels generated by construction equipment anticipated for the construction activities associated with Phases 1 through 5 of the project as well as the construction of the Philadelphia Regional Pipeline. At distances of 50, 200, and 400 feet, construction noise levels from and 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 ambience 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. Mitigation measures are identified below 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.

Long-term Operation Noise Sources

Under normal operating conditions the noise levels generated by the facilities outlined in the RWMP are not expected to significant increase the ambient noise levels to a level of significance to impact sensitive receptors. However, a more detailed analysis should be conducted once design drawings become available and specific locations are selected.

For recharge basins, once operation begins the activity of discharging water and allowing it to percolate into the ground does not generate any noise that if forecast to exceed background noise levels. No adverse impact is forecast to occur from implementing recharge. Note that occasional maintenance activities associated with operating recharge basins will be similar in volume to construction activities. Such activities will be restricted to daylight hours and the level of noise generation will be comparable to that described under the discussion of short-term noise impacts above.

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.

Recycled Water Management Plan

Short-term Construction Noise Sources

As part of the OMMP, Three organics management facilities (RP-1 Aerated Static Pile (ASP), Inland Empire Regional Composting Facility, and Dairy Digester Pilot Project (Lagoon Digester) are expected to be constructed shortly after certification of this document to handle biosolids, manure, and green wastes. The facilities would be enclosed to control odors and dust. Construction activities would take place at RP-1, adjacent to RP-4, and at the Van der Poel Dairy site.

The ASP pilot demonstration project would be constructed at RP-1 to treat biosolids and digested manure. This facility would be approximately 40,000 sq ft and would be constructed next to the western boundary of the RP-1 site. Table X-6 of Appendix 8.6 presents the estimated noise levels for the construction of the facilities. For the construction activities that would take place at RP-1, noise levels would be between 69 and 75 dBA at distances of between 200 to 400 feet from the center of construction activities. These noise levels may temporarily increase the noise exposure of nearby sensitive receptors

The Inland Empire Regional Composting Facility would be located on the property immediately north of RP-4. Table X-7 of Appendix 8.7 provides the estimated noise levels that would be expected for the facility construction activities; they would range between 70 and 76 for distances between 200 and 400 feet from the center of construction activities. There are no sensitive receptors in the close proximity of the proposed facility; therefore, no increase in construction noise exposure to sensitive receptors is expected.

The Dairy Digester Pilot Project would be located at the Van der Poel Dairy and would consist of an enclosed lagoon digester. Construction activities would include some excavation. Table X-6 of Appendix 8.6 also presents the estimated noise levels for the construction of the facilities. For the construction activities that would take place at the proposed digester lagoon, noise levels would be between 63 and 69 dBA at distances of between 200 to 400 feet from the center of construction activities. These noise levels may temporarily increase the noise exposure of a few scattered nearby residences across the street, on the east side of Hellman Avenue.

Other facilities identified in the OMMP that would be constructed in the near term (by 2010) include: California Institute for Men Compost Facility, the High Tech Manure Facility, and Conveying Dairy Manure by Sewer to treatment facilities.

Table X-8 of Appendix 8.6 provides the estimated noise levels that would be expected for the CIM composting facility construction activities; they would range between 70 and 76 for distances between 200 and 400 feet from the center of construction activities. There are no sensitive receptors in the close proximity of the proposed facility; therefore, no increase in construction noise exposure to sensitive receptors is expected.

At the proposed High Tech Manure Facility, the estimated construction noise levels would range between approximately 70 and 76 dBA for distances of between 200 and 400 feet from the center of construction activities, as shown in Table X-9 in Appendix 8.6. These noise levels may temporarily increase the noise exposure of a few scattered nearby residences across the street, on the two-lane Archibald Avenue.

Table X-10 of Appendix 8.6 presents the estimated construction noise levels for the construction activities associated with the construction of the Conveying Dairy Manure by Sewer system. The noise levels would range between 68 and 74 for distances between 200 and 400 feet from the center of construction activities. If the system goes through areas with nearby sensitive receptors, noise levels may temporarily increase the noise exposure of these receptors.

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. Mitigation measures are identified below 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.

Permanent Operation Noise Sources

Since the facilities associated with the OMMP would be enclosed to control dust and odor, their operation noise would also be minimized; therefore, no significant increase in noise exposure is expected for any sensitive receptors that might be located close to these facility during their operation.

b. Will the project expose people to severe noise levels?

None of the permanent operation activities associated with implementing the proposed projects are forecast to generate any severe noise levels that could adversely impact the sensitive residential population within the Chino Basin.

4.9.4 Mitigation Measures

The evaluation of potential noise impacts presented above identified potentially significant noise impacts. The potential noise impacts from implementing the proposed project range from non-significant without mitigation to potentially significant unless mitigation or other measures are implemented. During construction, grading, site clearance and building construction activities generate the most noise. During operations/occupancy the noise analysis concluded that offsite noise impacts do have a potential to cause significant adverse impact to adjacent sensitive land uses. The following mitigation measures will be implemented to reduce noise impacts to the minimum level achievable.

4.9-1 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.

4.9-2 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.

4.9-3 All construction vehicles and fixed or mobile equipment shall be equipped with properly operating and maintained mufflers.

4.9-4 Schedule the construction such that the absolute minimum number of equipment would be operating at the same time.

4.9-5 Maintain good relations with the school and community 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.

4.9-6 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.

4.9-7 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.

4.9-8 All production wells or booster pumps shall have their noise levels attenuated to 50 dBA CNEL at 50 feet from the well head.

4.9-9 Project facilities 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 relatively noisy operations a sufficient distance from sensitive noise receptors; by incorporating attenuation features in the facility or designing attenuation features at the boundary of the property.

These measures ensure that implementation of the IEUA master plans will not cause significant noise impacts during construction or cause hearing damage to employees or nearby receptors from severe noise levels. Potentially significant noise impacts where residential uses or other sensitive uses abut major facilities will have noise impacts reduced to a non-significant level by implementing the above measures.

4.9.5 Cumulative Impact

The noise forecast data contained in the local agency general plans demonstrates that future traffic noise levels from general growth (cumulative traffic increases) within the Chino Basin will result in significant noise impacts. However, the IEUA Facilities Management Plans are not forecast to cause or contribute to such cumulative noise impacts which can be attributed to the land use mix contained in the local agency general plans and the inability to reduce potential traffic noise impacts to a non-significant level. Any traffic generated by the master plan operations is considered an insignificant contribution to this traffic related noise impact (refer to the traffic section of this document). Because implementation of the master plans will not constitute a significant contribution to the cumulative increases in traffic, the proposed project is not forecast to cause any cumulatively significant noise impacts.

4.9.6 Unavoidable Adverse Impact

The noise evaluation presented above indicates that the proposed project has a potential to cause potentially significant and unavoidable adverse noise impact from implementing certain facilities and activities. As noted above, mitigation measures have been identified that can reduce both short-term and permanent noise impacts below a significant level.

4.10 PUBLIC SERVICES

4.10.1 Introduction

Public services are an important element in the safe operation of cities and counties. Projects that involve closing streets, street modification, or traffic diversion to complete construction have the potential to impede the access to or delivery of public services. Additionally, the project could have an adverse environmental effect if the project creates the need for alteration or construction/expansion of new public services.

4.10.2 Environmental Setting

The IEUA service area is undergoing rapid land use changes. Historically, this area has been predominately open space or agricultural land. Urban sprawl and the demand for lower priced housing has contributed to population growth in the Inland Empire cities of Montclair, Chino Hills, Chino, Ontario, Upland, Rancho Cucamonga, and Fontana. This growth trend is anticipated to continue and the IEUA is responding to the future needs of the area by planning for future infrastructure improvements. To accommodate this population growth, public services in the growing areas will need to increase as the number of residents increase. The cities and unincorporated county areas have established response times and service ratios within their general plans that address the standards for public services based on the city/county population.

This analysis is specifically focused on addressing environmental effects from the construction and operation of the IEUA system improvements. It is understood that the expansion of wastewater and recycled water infrastructure *accommodates* population growth, but it is not the cause. San Bernardino County and the cities that lie within the IEUA service area are responsible for planning and managing their population growth, which makes them responsible for expansion of services as required to meet their established standards and service ratios for public services.

4.10.3 Project Impacts

4.10.3.1 Significance Criteria/Thresholds of Significance

The CEQA Initial Study checklist establishes a base for significance criteria and thresholds for determining an environmental effect. Public services are addressed in the *CEQA Guidelines*, 2002, Appendix G, Section XIII. Public services in the cities served by IEUA that would be affected by construction or operational impacts from the proposed project are addressed in the following section. Project components to be evaluated include the following.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the

Cucamonga Creek channel which traverses the site from north to south has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system); and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-14) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add Biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint..
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment

capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digesters to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of nine potential locations:
   - Upland Hills WRP [SP-1],
   - San Antonio Lakes [SP-2],
   - Church Basin [SP-3],
   - CCDW-Baseline [SP-4],
   - Foothill/I15 Corridor [SP-5],
   - Kaiser/CSI WWTP [SP-6],
   - Sierra Lakes [SP-7],
   - Fontana-Baseline [SP-8], and
   - Montclair [SP-9].
   - IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.
2. Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1. Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2. Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
2. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
3. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.

2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline, 210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).
4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four

30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for public service impacts in the following sections.

4.10.3.2 Impact Analysis

The following discussion is based on responses to the questions posed in the Public Services section of the Initial Study Checklist. The environmental effects of each management plan are examined for the construction and operational phases of plan implementation and conclusions are drawn concerning the significance of those effects. The questions and analytical results are presented in the following sections.

Would the project:

a. require the provision of new facilities or substantially alter existing government facilities, the construction of which could cause significant environmental effects, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

- Fire Protection?
- Police Protection?
- Schools?
- Parks?
- Other public facilities?

Wastewater Facilities Master Plan

Construction Phase

The construction phase of the WFMP includes the addition of conveyance system infrastructure, the construction of two new satellite plants, and expanded capacity through on-site installation of processing equipment and buildings to the existing wastewater facilities. Wastewater improvements would take place over a large geographic area confined by the IEUA service boundary. Each facility was spatially analyzed to address any public services within a quarter-mile radius of each potential construction area. A complete list of these services is in Table 4-10.1. There are multiple components to the WFMP, and therefore, each of these is discussed separately below.

RP-1: Regional Plant 1 (RP-1) currently has a processing capacity of 44 million gallons per day (mgd). Over the next eight years (2002 to 2010) two phases of construction are scheduled that would consist of on-site expansion, while maintaining the current 44 mgd. During the next 20 years (2010 to 2030) the plant is scheduled to expand up to 52 mgd and reach its ultimate capacity of 60 mgd during the last construction phase (2030 to 2050). All construction activities would occur within the existing boundary of the plant.

Construction on-site would have no direct effect on public services, though indirect effects could occur. Truck traffic could increase temporarily for transportation of building materials, export of fill (if excavation is needed), and movement of large pieces of equipment or materials. This could create a potential significant adverse effect on Emergency Services (fire, police, and emergency medical services (EMS)). Increased traffic and/or delays could impede emergency services from meeting their established response times, which are critical for saving property and lives. Mitigation would be required to reduce these adverse effects to below significant levels. Please refer to Mitigation Measures Section 4.10.4.

Whispering Lakes Golf Course and Westwind Park are both adjacent to RP-1. Construction activities on the premises of RP-1 would have no direct effect on either public recreation areas, though construction noise could create a temporary indirect effect on the citizens using these facilities. Because the effect is considered a temporary nuisance, and would not restrict use, it is not a significant adverse effect.

Mountain View and Ranch View elementary schools are both located within a quarter mile of RP-1. School children could be subject to noise, decreased air quality, safety issues, and traffic congestion as a result of construction activities. The potential adverse effects are as follows: Movement of large trucks and equipment could present a safety issue for children walking or being driven to school; street demolition, earth moving, and construction vehicle exhaust could significantly decrease air quality; and construction noise could disrupt the learning environment. These issues would constitute a potentially significant adverse effect on students and faculty. Mitigation measures would be necessary to bring these effects to below significant levels.

No other public service facilities are located near RP-1.

RP-4: Regional Plant 4 (RP-4) has an existing wastewater treatment capacity of 7 mgd and would expand to 14 mgd by the end of 2003. Beginning in 2010, the plant would expand again to reach an ultimate capacity of 48 mgd. Biosolids are also processed on the RP-4 premises and this treatment process would increase to an ultimate capacity of 40 mgd.

Indirect effects resulting from construction that were discussed under RP-1 would also be anticipated for RP-4. Potentially significant adverse effects from increase traffic and/or delays would need to be mitigated by implementing measures outlined in Section 4.10.4.

No other public service facilities are located near RP-4.

CCWRF: Carbon Canyon Wastewater Recycling Facility (CCWRF) has an existing capacity of 10 mgd and would expand to 12 mgd within the next eight years (2002 to 2010). It would expand to its ultimate capacity between 2030 and 2040.

Indirect effects resulting from construction that were discussed under RP-1 would also be anticipated for CCWRF. Potentially significant adverse effects from increase traffic and/or delays would need to be mitigated by implementing measures outlined in Section 4.10.4.

Traffic congestion and delays from construction at CCWRF could also adversely affect the California Institution for Men (CIM) that is located immediately east of the treatment plant. The main gate of CIM is located at Chino Hills Parkway and Central Avenue. Should Chino Parkway be heavily utilized during any of the construction for CCWRF, the prison may experience a significant adverse effect as a result of disruption to ingress and egress from CIM. Mitigation measures (Section 4.10.4) would be necessary to reduce effects to below significant levels.

Satellite Plants: Two satellite plants (SP) are proposed for construction to divert up to 10 MGD of treatment capacity away from the regional plants. The satellite plants are intended to "skim" good quality wastewater, provide treatment, and deliver recycled water for irrigation and/or groundwater recharge. This EIR presents ten alternative locations (see Figure 4-8.8, which does not include the recently added RP-3 site). Satellite plant construction would generate truck traffic and potential traffic delays at the chosen locations and could create potentially significant adverse effects on emergency services response times. The potential effects would be similar between all ten alternatives. Mitigation for emergency services would be required to reduce effects to below significant levels. Those measures are outlined in Section 4.10.4. Additionally, the proposed satellite plant locations could potentially affect other public services and these are discussed below.

SP-1, 2, 6, & 8: No public facilities exist within a quarter mile of these proposed satellite plants.

SP-3: Church Street Park and Dona Merced Elementary are north of the proposed site. Construction, truck traffic, and noise could adversely affect the park and the elementary school. The potential adverse effects are as follows: Movement of large trucks and equipment could present a safety issue for children walking or being driven to school; street demolition, earth moving, and construction vehicle exhaust could significantly decrease air quality; and construction noise could disrupt the learning environment. Mitigation measures would need to be implemented to minimize these potentially significant adverse effects to these public services to below significant levels.

SP-4: Due to the extensive, undefined location of SP-4, a large number of public services are identified in the quarter-mile radius. There are five elementary schools, one junior high, one high school, four parks, and two community centers in this area. All of these services could experience significant adverse effects from traffic congestion, decreased air quality, and noise from construction related activities. To substantially decrease any adverse effects on these public services to below significant levels, mitigation measures (Section 4.10.4) would need to be administered.

SP-5: An elementary school is present in the area of the proposed site. Similar construction related adverse effects, as mentioned under SP-3, could occur at this site. To substantially decrease any adverse effects on these public services to below significant levels, mitigation measures (Section 4.10.4) would need to be administered

SP-7: A high school is present in the area of the proposed site. Similar construction related adverse effects, as mentioned under SP-3, could occur at this site. Mitigation measures (Section 4.10.4) would be required to substantially decrease any adverse effects on these public services to below significant levels,

SP-9: Satellite plant 9 construction could potentially affect two local parks. Though construction noise could create a temporary indirect effect on the citizens using these facilities, noise is considered a temporary nuisance, and therefore, no significant adverse effects are expected.

RP-3: No public facilities exist within one-quarter mile of the RP-3 site.

Conveyance Systems: To facilitate increased capacity at the regional plants, an increase in the amount of wastewater conveyed would need to occur. The addition of trunk sewers and force mains (four locations are specifically shown on Figure 4-8.9) within the service area would be constructed by 2003. Potential adverse effects to public services from the first phase of the conveyance system construction are discussed below.

Upland Interceptor Relief System: The Upland system construction would potentially affect three public services: Whispering Lakes Golf Course, D Street Park and John Galvin Park. Construction activities would be confined to the streets shown on Figure 4-8.9. Phase 1, Reach 1 of the Upland Interceptor would begin north of Philadelphia Street, along Hellman Avenue. Access to the golf course is off of Riverside Drive, and therefore, construction along Philadelphia would have no adverse effect on the golf course. Phase 1, Reach 2 would place construction on Grove Avenue, which passes through both parks. Although Grove Street is a major street for accessing the parks, numerous local streets could be used should construction warrant closure, detour, or limited access along Grove Avenue. The other two phases of the Upland System would have no effect on public services.

San Bernardino Interceptor Pump Station & Force Main: The West Valley Detention Center is located adjacent to RP-4. The San Bernardino Interceptor would require street work to lay the pipes down under San Bernardino Avenue to connect to RP-4. IEUA would establish communications with the prison to ensure that transportation routes to and from the prison are maintained. No adverse effects are likely to occur.

RP4 Trunk Sewer (Reaches 1, 2, & 3): Construction of this utility would pass along the south boundary of Adults Sports Park on Arrow Highway. There are three access roads into the park, two from Rochester Avenue and one from Arrow Highway. Although closure of the access street from Arrow Highway is not anticipated, traffic delays and/or lane closures may occur. This would be a temporary effect at this one entrance while the other two would remain uninhibited by any construction activities. The Rancho Cucamonga Civic Center, Court House, and City Hall are located along Haven Avenue. Construction in this area has the potential to create significant adverse effect on these public services. Large truck movements could impeded ingress and egress to these facilities. Closure or restriction of access to these facilities as a result of construction activities would be a significant adverse effect. Mitigation measures discussed under Section 4.10.4 would be required to reduce this effect to below significant levels. Noise produced by construction activities is unavoidable, but noise is temporary and not considered a significant effect.

RP1/RP5 Bypass: Mountain View and Ranch View elementary schools and Whispering Lakes Golf Course are within the quarter-mile construction area of the proposed RP1/RP-5 Bypass. Potential adverse effects to these public services has been discussed under the RP-1 analysis, please refer to this section.

The second phase of construction for the conveyance system would include the completion of the RP-4 Trunk Sewer with Reaches 4 & 5. It would also include several trunk sewers that also occur within proximity to schools and parks. This construction would be carried out sometime between 2010 and 2050.

The construction of the aforementioned systems would all have similar effects on emergency services. Therefore, to avoid redundancy, all four systems are analyzed as a collective group. Construction of these new systems would require the placement of the pipes within the street sections, as shown on Figure 4-8.9 for four of these trunk sewer lines. Increased traffic and/or lane closures could create a significant adverse effect on emergency services meeting standard response times. Mitigation measures discussed under Section 4.10.4 would be required to reduce this effect to below significant levels.

Operation Phase

The increased processing capacity of the regional plants and the two new satellite plants would require an increase in the amount of chemicals used for treatment. The federal government has identified certain chemicals as being hazardous to humans and/or the environment and requires agencies and business to document what chemicals are used, what quantities are present, and what safety measures are present in the case of an accidental release. The IEUA already operates Risk Management Plans (RMP) and must submit a RMP to address these requirements and discuss, in detail, the accident prevention systems installed on-site and what emergency plans and services would be used for a worst-case and alternative-case scenario. IEUA has identified the San Bernardino County Hazardous Materials Response Team as the emergency service that would be responsible for a true accident involving a chemical release from one of the plants. This does not present an adverse effect on this public service, but an increase in responsibility. The IEUA would need to update their RMP to reflect the increase in chemical used at the various plants in addition to revising the emergency plan with the county hazardous materials team to reflect any changes in training or response drills.

The completion of the WFMP, operating at an increased capacity, would have no adverse effect on all other public services (i.e., parks, schools) within the service boundary. The operational phase of the plan neither affects any city or county service from maintaining acceptable service ratios or response times nor does it create a need for new public services.

Recycled Water Master Plan

Construction Phase

The Recycled Water Master Plan (RWMP) proposes construction of pump stations, reservoirs, pipeline improvements and recharge basin modifications. Known public services that exist within a quarter-mile radius of these proposed sites and construction areas are listed on Table 4-10.1. The exact alignments for the pipelines are discussed in detail under Section 3.3.2.3 (d). It is anticipated that pipeline installation would create similar construction effects as those described under the WFMP conveyance system section and potential effects from construction of pump stations and reservoirs is similar to the discussion under the WFMP regional plant section. Therefore, to avoid redundancy in describing the potential effects to public services, a generalized analysis for each similarly affected service is discussed below.

The pump stations and reservoirs are to be constructed within the boundaries of RP-1, RP-4 and Jurupa Basin or as new stand-alone facilities. The new facilities are generally located (the Montclair site has not been designated) on Etiwanda Avenue and Benson Avenue. These two locations are not near a school or other service facility, where the anticipated construction affects (noise, decreased air quality, and safety) could be potentially significant. Please see the discussion concerning schools under the WFMP/RP-1 section. For emergency services (fire, police and EMS), lane closure and traffic delays can impede their ability to meet established response times. This could also be a potentially significant adverse effect. Section 4.10.4 outlines what mitigation measures would be needed to reduce the adverse effect to below significant levels.

Pipeline construction would require the placement of new utilities within the streets between the IEUA facilities. The schools located within a quarter mile of the construction areas could experience potentially significant adverse effects from construction activities. These effects are discussed in detail under the WFMP/Conveyance System Section. To reduce these effects to below significant levels, mitigation measures would be required. Please refer to section 4.10.4.

Other public services, such as parks, government buildings, and libraries could be effected by the same construction activities as schools, please see the discussion above. Construction along roadways could restrict or close access to public facility parking, which could create a potentially significant adverse effect on their ability to serve their citizens. Mitigation, discussed under Section 4.10.4, would be required to reduce any adverse effect from reduced access to below significant levels. Additionally, the construction schedule for the pipeline is expected to take a total of approximately 80 days, occurring over a ten-year period. This translates to an extremely short construction phase, and therefore, minimal street flow disruptions are anticipated. Please refer to Section 3.3.2.3 (f) for an in-depth discussion of the proposed construction scenario for the RWMP.

Operation Phase

The operation of the RWMP would not create a need for new public services and it would not impede response times or adversely affect service ratios. The plan could have a beneficial effect on public services through an increase in capacity to provide recycled water. This recycled water would be used for irrigation of parks, recreational facilities, highway/roadside landscaping and groundwater basin recharge. By providing more abundant, cheaper water resources, the RWMP improvements could potentially decrease operational costs for these facilities. Additionally, the IEUA would be internally water sufficient, which would allow the agency to end its dependence on State Water Project resources. This would meet one part of the agency's goal to increase efficiency.

Organics Management Master Plan

Construction Phase

The second goal of the agency is to be energy independent and energy efficient. Expansion of the organics processing within the IEUA system would assist the agency in meeting this goal. Increasing the processing of organic material and biosolids would allow for the production of additional energy to be used throughout the IEUA system. To increase organics processing, new and/or expanded facilities would need to be constructed. These facilities are outlined above. Construction related effects on public services at RP-1, RP-4, and Chino Institute for Men have been analyzed under the WFMP and the RWMP sections. An analysis of the proposed OMMP facilities reveals two correctional facilities in their quarter-mile radius: California Institute for Women and Stark Youth Training School. All other organic management facilities, except the regional facility are located in the southern portion of the Basin near the Chino Airport and other state facilities. Increased truck traffic and possible lane closures generated by construction activities could create potentially significant affects on the correctional facilities. Transportation routes used to move the interned youths or prisoners from or to the facilities could be disrupted. Construction activities could also create commuting and access restrictions for the employees of the facilities. Mitigation would be required to decrease these effects to below significant levels. The regional facility is located in an industrial area where the nearest public service facility is the West Valley Detention Facility. Although about one-quarter mile away, mitigation may be required to decrease conflicts with this facility.

Emergency services could experience delays that impede their standard response times as a result of construction related traffic. This would create a potentially significant adverse effect that would need to be mitigation to decrease these effects to below significant levels. Please refer to Section 4.10.4 for mitigation measures.

Operation Phase

Operation of the OMMP would enable the processing facilities to increase the amount of methane gases produced on-site to be utilized for energy production. The federal government has identified certain gases as being hazardous to humans and/or the environment and requires agencies and business to document what gases are used, what quantities are present, and what safety measures are installed on-site in the case of an accidental release. The IEUA must submit a Risk Management Plan (RMP) to address these requirements and discuss, in detail, the facility accident prevention systems and what emergency plans and services would be used for a worst-case and alternative-case scenario. IEUA has identified the San Bernardino County Hazardous Materials Response Team as the emergency service that would be responsible for a true accident involving a gas release from one of the plants. This does not present an adverse effect on this public service, but an increase in responsibility for the county hazardous materials team. The IEUA would need to update their RMP to reflect the increase in methane gases at the various plants in addition to revising the emergency plan with the county hazardous materials team to reflect any changes in training or response drills. Revision of the RMP is required by the federal government and is not considered mitigation.

No other public services would be adversely affected by the operation of the Organics Management Master Plan.

4.10.4 Mitigation Measures

4.10.4.1 Construction Impacts

Mitigation measures would be required to reduce potentially significant adverse effects related to construction activities for all three master plans. Some or all of the following mitigation measures would need to be implemented to reduce adverse effects to below significant levels.

Schools

4.10-1 **To the extent possible, construction vehicles should use routes that do not conflict with school walksheds or streets routes heavily used by buses;**

4.10-2 **A schedule would need to be established to offset large truck movements from peak student pedestrian activity;**

4.10-3 **Potential air quality issues would be countered by application of Best Management Practices (BMPs) and specific mitigation measures that are discussed in detail in the Air Quality Section 4-6.**

4.10-4 **Large truck movements (i.e., fill hauling) should be done during off-peak student pedestrian hours, and**

4.10-5 **Schedule all intense noise activities to be performed during non-school hours.**

Parks, Community Centers & Government Facilities

4.10-6 **Large truck movements that could impede ingress and egress should, to the extent possible, be done during non-peak employee commuting hours;**

4.10-7 **Street access to public facilities must be maintained for employees and the local citizens, and**

4.10-8 **Most public facilities have more than one entrance/exit; should construction interrupt access points to these facilities at least one entrance/exit would need to remain accessible at all times. In the event that a facility has only one entrance/exit, an off-hours construction schedule may be required to avoid creating a significant effect on access to the facility.**

Emergency Services & Correctional Facilities

4.10-9 **Communication should be established prior to any construction and maintained throughout the construction process to ensure that all local emergency and correctional facilities are updated with construction schedules, and**

4.10-10 **Development of Traffic Management Plans for police, fire, EMS, and correctional services.**

4.10.4.2 Operation Impacts

The operational phase of the expanded IEUA system would have no adverse effects on public services. No mitigation measures are necessary.

4.10.5 Cumulative Impact

The completion of the proposed projects would have a *beneficial* cumulative effect on public services. The potential short-term effects outlined above will not contribute to long-term, cumulative degradation of public services. Increasing the systems capacity to generate recycled water would provide a source of cheaper water for irrigation of public facilities such as parks, public golf courses and school athletic fields. Reducing the maintenance cost for these facilities allows for the redistribution of those expenditures into new and/or improved facilities for the local citizens.

4.10.6 Unavoidable Significant Impact

No significant effects are anticipated for public services, and therefore, none of the potential effects are unavoidable.

TABLE 4.10-1

Public Facilities With Service Areas or Locations Within a Quarter Mile of Proposed Construction Areas

Airports	Gov't Buildings	City & Town Halls	Colleges & Universities	Hospitals	Libraries	Police & Fire
Cable 1749 W 13th St, Upland	Calif Inst For Men 14901 Central Av, Chino	Chino 13220 Central Av, Chino	Chaffey Comm College 5885 Haven Av, Rancho Cucamonga	Chino Valley Med Ctr 5451 Walnut Av, Chino	Chino Branch 13180 Central Av, Chino	Fire Station, Ramona Ave & 60 Fwy Chino
Chino 7000 Merrill Av, Chino	Calif Inst For Women 16756 Chino Corona Rd, San Bernardino County	Chino Hills 2001 Grand Av, Chino Hills	Claremont Colleges 747 N Dartmouth Av, Claremont	San Antonio Comm. Hosp 999 San Bernardino Rd, Upland	Chino Hills Branch 2003 Grand Av, Chino Hills	Fire Station at Chino Airport 7000 Merrill Av, Chino
Ontario Intl 2900 E Airport Dr, Ontario	Courthouse Mountain Av & 6th St, Ontario	Montclair 5111 Benito St, Montclair		Us Family Care Med Ctr 5000 San Bernardino St, Montclair	Kaiser Branch 11155 Almond Av, Fontana	Fire Station 544 W. Francis Street Ontario
	San Bernardino Courthouse 8303 Haven Av, Rancho Cucamonga	Ontario 303 E B St, Ontario		Vencor Hosp 550 N Monterey Av, Ontario	Montclair Branch 9955 Fremont Av, Montclair	Fire Station 425 E. "B" Street Ontario
	Stark Youth Correctional Facility 15180 Euclid Av, Chino	Rancho Cucamonga 10500 Civic Center Dr, Rancho Cucamonga			Ontario 215 E C St, Ontario	Fire Station 1530 E. Fourth Street Ontario
	West Valley Detention Ctr 9500 Etiwanda Av, Rancho Cucamonga	Upland 460 N Euclid Av, Upland			Rancho Cucamonga 7368 Archibald Av, Rancho Cucamonga	Fire Station Monte Vista & Arrow Hwy Montclair
					Upland 450 N Euclid Av, Upland	Fire Station Amethyst St Rancho Cucamonga
						Fire Station Banyan St Rancho Cucamonga
						Fire Station Milliken St & Jersey Rancho Cucamonga
						Fire Station Etiwanda Ave Rancho Cucamonga
						Fire Station Benson Ave at Cable Airport Upland

Airports	Gov't Buildings	City & Town Halls	Colleges & Universities	Hospitals	Libraries	Police & Fire
						Fire Station San Antonio Ave Upland
						Police Station 200 N. Cherry St Ontario
						Police Station Stoneridge & Vine Sts Ontario
						Police Station 5111 Benito Street Montclair
						Police Station Benson & Foothill Upland

Parks & Recreation	Parks & Recreation (cont'd)	Points of Interest	Schools	Schools (cont'd)
10th Street Pk 10th St & B St, Chino	Milliken Pk Milliken Av, Rancho Cucamonga	Prado Conservation Camp 14467 Central Av, Chino	Alta Loma Christian 9974 19th St, Rancho Cucamonga	Los Serranos 15650 Pipeline Av, Chino Hills
13th Street Reservoir Pk E 13th St & N Campus Av, Upland	Monte Vista Pk Monte Vista Av & D St, Chino	Casa De Rancho Cucamonga 8810 Hemlock St, Rancho Cucamonga	Calvary Christian 1430 N Grove Av, Ontario	Mariposa 1605 E D St, Ontario
7th Street Pk 7th St & Lincoln Av, Chino	Moreno Vista Pk Moreno St & Helena Av, Montclair		Mountain Avenue Christian 1951 S Mountain Av, Ontario	Monte Vista 4900 Orchard St, Montclair
Adults Sports Pk Rochester Av & Arrow Route, Rancho Cucamonga	Morningfield Pk Morningfield Dr & Peyton Dr, Chino Hills		New Hope Christian 13333 Ramona Av, Chino	Moreno 4825 Moreno St, Montclair
Autumn Hill Pk Autumn Hill Ln & Wild Flower, Chino Hills	Morningside Pk Frost Av & Morningside Dr, Chino Hills		Ontario Chistian 1907 S Euclid Av, Ontario	Newman 4150 Walnut Av, Chino
Ayala, Ruben S Pk Edison Av & Central Av, Chino	Munoz, Anthony Pk W 4th St & N Camellia Av, Ontario		Our Lady Of Lourdes 5303 Orchard St, Montclair	Oak Ridge 15452 Valle Vista Dr, Chino Hills
Baldy View Pk W 11th St & N Birch Av, Upland	Mystic Canyon Pk Mystic Canyon Dr, Chino Hills		Redeemer Lutheran 920 W 6th St, Ontario	Ontario Ctr 835 N Center Av, Ontario
Bear Gulch Pk Arrow Route & Bear Gulch Pl, Rancho Cucamonga	North Heritage Pk Baseline Av & N Heritage Cir, Fontana		Sacred Heart 12676 Foothill Blvd, Rancho Cucamonga	Pepper Tree 1045 W 18th St, Upland

Parks & Recreation	Parks & Recreation (cont'd)	Points of Interest	Schools	Schools (cont'd)
Beryl Pk East Beryl St & Highland Av, Rancho Cucamonga	Oak Ridge Pk Valle Vista Dr, Chino Hills		Saint George 322 W D St, Ontario	Pueblo 1460 E Holt Av, Pomona
Beryl Pk West Carnelian St & Highland Av, Rancho Cucamonga	Old Town Pk Feron Blvd & Hermosa Av, Rancho Cucamonga		Saint Joseph 905 N Campus Av, Upland	Ramona 4225 Howard St, Montclair
Blaisdell Pk E Oak Park Dr & S College Av, Claremont	Olivedale Pk 400 E 8th St, Upland		Saint Margaret Mary 12664 Central Av, Chino	Ranch View 3300 Old Archibald Rd, Ontario
Butterfield Pk Butterfield Rch Rd & Mystic Cy, Chino Hills	Ontario Motor Speedway Pk N Center Av & E Concours Av, Ontario		Saint Marks Episcopal 330 E 16th St, Upland	Shadow Hills 14300 Shadow Dr, Fontana
Cabrillo Pk W 11th St & N Brentwood Wy, Upland	Oranco Bowmen Archery Range Pomona Rincon Rd & Euclid Av, Chino		Saint Peters Episcopal Day 1648 W 9th St, Upland	Stork 5646 Jasper St, Rancho Cucamonga
Centennial Pk E Merion St & S Campus Av, Ontario	Pioneer Pk W 18th St, Upland		Upland Christian 100 W 9th St, Upland	Sultana 1845 S Sultana Av, Ontario
Chaparral Pk Rancherias Dr & Chaparral Av, Fontana	Prado Parks Stables 16629 Johnson Av, San Bernardino County		Ontario Christian 931 W Philadelphia St, Ontario	Sycamore 1075 W 13th St, Upland
Chino Hills Comm Pk Grand Av & Peyton Dr, Chino Hills	Prado Rec Dog Training Fac 17505 Euclid Av, San Bernardino County		Upland Christian 100 W 9th St, Upland	Terra Vista 7497 Mountain View Dr, Rancho Cucamonga
Chino Hills State Pk Telegraph Canyon Tr, Chino Hills	Prado Tiro Shooting Range Rec Area 17501 Pomona Rincon Rd, Chino		Alta Loma 7085 Amethyst St, Rancho Cucamonga	Upland 601 N 5th Av, Upland
Church Street Church St, Rancho Cucamonga	Red Hill Pk Baseline Rd & Vineyard Av, Rancho Cucamonga		Arroyo 1700 E 7th St, Ontario	Valle Vista 7727 Valle Vista Dr, Rancho Cucamonga
Cinnamon Pk Willow Ln & Linden Ln, Chino Hills	Rincon Pk Pinehurst Dr & Sawgrass Ct, Chino Hills		Baldy View 979 W 11th St, Upland	Victoria Groves 10950 Emerson St, Rancho Cucamonga
Circle Pk Caryn Cir & Franklin St, Fontana	Riverside Pk Riverside Dr & Telephone Av, Chino		Banyan 10900 Mirador Dr, Rancho Cucamonga	Vineyard 1500 E 6th St, Ontario
Citrus Pk W 8th St & S Comet Av, Upland	Sam Alba Mem Pk E Sunkist St & S Cherry Av, Ontario		Barfield 2181 N San Antonio Av, Pomona	Walnut Avenue 5550 Walnut Av, Chino

Parks & Recreation	Parks & Recreation (cont'd)	Points of Interest	Schools	Schools (cont'd)
College Pk S College Av & E Green St, Claremont	San Antonio Pk N San Antonio Av & W D St, Ontario		Bear Gulch 8355 Bear Gulch Pl, Rancho Cucamonga	West Heritage 13690 W Constitution Wy, Fontana
Confluence Pk Trail Rest Indigo Av & Peridot Av, Rancho Cucamonga	Saratoga Pk Kingsley St & Saratoga Av, Montclair		Berlyn 1320 N Berlyn Av, Ontario	Windrows 6855 Victoria Park Ln, Rancho Cucamonga
Covington Pk Monterey Av & Brookview Ct, Chino Hills	Sebring Pk Sycamore Av & Fillmore St, Chino		Borba, Anna Fundamental 12970 3rd St, Chino	Etiwanda 6925 Etiwanda Av, Rancho Cucamonga
Coyote Canyon Pk Terra Vista Pkwy W, Rancho Cucamonga	Shadow Pk Shadow Dr & Springoak Ln, Fontana		Buena Vista Arts-Integrated 5685 San Bernardino St, Montclair	Summit 5959 East Av, Rancho Cucamonga
Crossroads Pk Chino Hills Pkwy & Carbon Cany, Chino Hills	Sierra Vista Pk E 15th St & N 2nd Av, Upland		Cabrillo 1562 W 11th St, Upland	Alta Loma 9000 Lemon Av, Rancho Cucamonga
Cucamonga-Guasti Regl Pk 800 N Archibald Av, Ontario	Spruce Avenue Pk Spruce Av & Elm Av, Rancho Cucamonga		Carnelian 7105 Carnelian St, Rancho Cucamonga	Pioneer 245 W 18th St, Upland
Cultural Ctr Pk W 18th St, Upland	Strickling Pk Duke Av, Chino Hills		Caryn 6290 Sierra Crest View Lp, Rancho Cucamonga	Ramona 4575 Walnut Av, Chino
Cypress Trails Pk Schaefer Av & Cypress Av, Chino	Sunrise Pk N Benson Av & W Harvard Pl, Montclair		Central 415 E G St, Ontario	Townsend 15359 Ilex Dr, Chino Hills
D Street Pk E D St, Ontario	Sunset Pk Kingsley St & Amherst Av, Montclair		Citrus 925 W 7th St, Upland	Upland 444 E 11th St, Upland
De Anza Pk S Euclid Av & W Phillips St, Ontario	Sycamore Glen Pk Sycamore Glen & Applegate Ln, Chino Hills		Corona 1140 N Corona Av, Ontario	Vineyard 6440 Mayberry Av, Rancho Cucamonga
El Barrio Pk Claremont Blvd & Blanchard Pl, Claremont	Terrace Pk Morning Ter Dr & Ashbury Ln, Chino Hills		Cortez, Alice E. 12750 Carissa Av, Chino	Woodcrest 2725 S Campus Av, Ontario
English Creek Pk Village Center Dr, Chino Hills	Torrey Pines Pk Torrey Pines Dr, Chino Hills		Country Springs 14145 Village Center Dr, Chino Hills	Cucamonga 7611 Hellman Av, Rancho Cucamonga
English Springs Grand Av & Chino Hills Pkwy, Chino Hills	Upland Mem Pk 900 E Foothill Blvd, Upland		Coyote Canyon 7889 Elm Av, Rancho Cucamonga	De Anza 1450 S Sultana Av, Ontario
Essex Pk Howard St & Essex Av, Montclair	Victoria Groves Pk Fairmont Wy & Victoria Park Ln, Rancho Cucamonga		Cucamonga 8677 Archibald Av, Rancho Cucamonga	Musser, Ruth 10789 Terra Vista Pkwy, Rancho Cucamonga

Parks & Recreation	Parks & Recreation (cont'd)	Points of Interest	Schools	Schools (cont'd)
Etiwanda Creek Pk 23rd St & East Av, Rancho Cucamonga	Villa Pk 3rd St & H St, Chino		Deer Canyon 10225 Hamilton St, Rancho Cucamonga	Rancho Cucamonga 10022 Feron Blvd, Rancho Cucamonga
Eucalyptus Pk Valle Vista Rd, Chino Hills	Village Pk Village Dr & Poplar Av, Fontana		Del Norte 850 N Del Norte Av, Ontario	Sequoia 9452 Hemlock Av, San Bernardino County
Fern Reservoir Pk W 8th St & S Fern Av, Upland	Vineyard Pk N Baker Av & E 6th St, Ontario		Dickey, Levi H 2840 Parco Av, Ontario	Serrano 4725 San Jose St, Montclair
Galanis, James Pk E D St, Ontario	Walnut Creek Nature Pk Walnut Creek Dr, Chino Hills		Dickson 3930 Pamela Dr, San Bernardino County	Southridge 14500 Live Oak Av, Fontana
Galvin, John Pk N Grove Av & E 4th St, Ontario	Walnut Pk Walnut Av & Yorba Av, Chino		Dona Merced 10333 Palo Alto St, Rancho Cucamonga	Vernon 9775 Vernon Av, Montclair
Gibbs Pk W 5th St & N Helen Av, Ontario	Warders Field Pk E 8th St & S Campus Av, Upland		East Heritage 14250 E Constitution Wy, Fontana	Vina Danks 1020 N Vine St, Ontario
Glenmead Pk Glenwood Wy & Oakwood Ln, Chino Hills	West Greenway Pk Milliken Av, Rancho Cucamonga		Edison 515 E 6th St, Ontario	Wiltsey, Ray 1450 E G St, Ontario
Golden Oak Pk 6th St & Golden Oak Rd, Rancho Cucamonga	Westwind Pk E Riverside Dr, Ontario		El Camino 1525 W 5th St, Ontario	Yokley, Grace 2947 S Turner Av, Ontario
Grand Avenue Grand Av & Pleasant Hill Dr, Chino Hills	Wilderness Pk San Bernardino St & Helena Av, Montclair		Elderberry 950 N Elderberry Av, Ontario	Alta Loma HS 8880 Baseline Rd, Rancho Cucamonga
Greenbelt Pk W 15th St, Upland	Windrows Pk Victoria Pk Ln & N Vic Win Lp, Rancho Cucamonga		Foothill Knolls 1245 Veterans Ct, Upland	Ayala, Ruben S HS 14255 Peyton Av, Chino Hills
Heritage Pk Chino Av & Norton Av, Chino			Gird 4980 Riverside Dr, Chino	Boys Repub HS 3493 Grand Av, Chino Hills
Hermosa Pk Hermosa Av & Hamilton St, Rancho Cucamonga			Glenmeade 15000 Whirlaway Ln, Chino Hills	Buena Vista HS 13509 Ramona Av, Chino
Hickory Creek Pk Rolling Ridge Dr & Hickory Ln, Chino Hills			Hawthorne 705 W Hawthorne St, Ontario	Chaffey HS 1245 N Euclid Av, Ontario
Hidden Hills Pk Rancho Hills Dr & Avd Hacienda, Chino Hills			Hemlock 15080 Miller Av, Fontana	Chino HS 5472 Park Pl, Chino

Parks & Recreation	Parks & Recreation (cont'd)	Points of Interest	Schools	Schools (cont'd)
Hilltop Pk Pine Ln, Chino Hills			Hermosa 10133 Wilson Av, Rancho Cucamonga	Chino Hills HS Butterfield Ranch & St Gaudens, Chino Hills
Hoffman, Alma Pk Benito St & Poulsen Av, Montclair			Hidden Trails 2550 Ridgeview Dr, Chino Hills	Etiwanda HS 13500 Victoria St, Rancho Cucamonga
Hollow Run Pk Bayberry Dr & Peyton Dr, Chino Hills			Howard 4650 Howard St, Montclair	Hillside HS 1558 W 9th St, Upland
Hunters Hill Pk Hunter Hill Dr & Natalie Rd, Chino Hills			Jasper 6881 Jasper St, Rancho Cucamonga	Kaiser HS 11155 Almond Av, Fontana
Kenyon Pk Kenyon Wy & Woodruff Pl, Rancho Cucamonga			Jurupa Vista 15920 Village Dr E, Fontana	Miller HS 6821 Oleander Av, Fontana
Kimball Pk E Walnut St & S Campus Av, Ontario			Kingsley 1170 Washington Av, Pomona	Montclair HS 4725 Benito St, Montclair
Kingsley Pk Kingsley St & Santa Anita Av, Montclair			Kingsley 5625 Kingsley St, Montclair	Rancho Cucamonga HS 11801 Lark Dr, Rancho Cucamonga
Lions Pk Baseline Rd & Lion St, Rancho Cucamonga			Lehigh 10200 Lehigh Av, Montclair	Upland HS 565 W 11th St, Upland
Macarthur Pk Deodar St & Columbine Av, Montclair			Lightfoot, Carleton P 6989 Kenyon Wy, Rancho Cucamonga	Valley View HS 1801 E 6th St, Ontario
Mcdermott Pk S Heritage Cir & Baseline Av, Fontana			Litel, Gerald F 3425 Eucalyptus Av, Chino Hills	
Mcleod Pk Carissa Av & Truman Ct, Chino			Loma Vista 1556 S Sultana Av, Ontario	
Memorial Grove N Grove Av & E G St, Ontario			Los Amigos 8498 9th St, Rancho Cucamonga	

4.11 UTILITIES AND SERVICE SYSTEMS

4.11.1 Introduction

For each of the utilities and service systems included in this section, existing infrastructure and levels of service are described, as well as any improvements required to accommodate the project-induced demand for additional utilities and services. This section identifies current levels of service or capacity, as appropriate, and assesses the quantities of services necessary for construction and operation of the proposed IEUA master plans. Cumulative impacts are determined with consideration of projected development in the study area. Where impacts on service systems are determined to be significant, mitigation measures are recommended to ensure adequate delivery of public services to the project area.

The analysis in this subchapter of the PEIR is based on information obtained from various public service providers, including, the County of San Bernardino, and the providers of utilities to the various project site. Utility providers of the project site include the Southern California Edison Company (SCE), The Southern California Gas Company (SCG), and the Metropolitan Water District of Southern California (MWDSC).

Data contained in other planning documents including the County of San Bernardino's General Plan, IEUA's most recent Ten Year Capital Improvement Plan (CIP), RP-5 EIR, RP-1 Modernization Strategy, and Optimum Basin Management Program and Program EIR have also been used in evaluating impacts to utilities. This evaluation focuses on the utility supplies to be utilized by the proposed IEUA master plans and the potential impacts to these utility systems from implementation of the proposed IEUA master plans.

4.11.2 Environmental Setting

4.11.2.1 Wastewater Collection and Treatment Facilities

IEUA operates a regional wastewater collection system throughout the Chino Basin for the delivery of sewage from member cities or water districts to treatment plants. IEUA's regional wastewater system is designed to serve as a backbone collection system, accepting flows from local collection systems, operated by member agencies, and transmitting such waste to appropriate regional treatment plants. IEUA provides wastewater collection and treatment services for the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Upland, and the Cucamonga County Water District (City of Cucamonga). IEUA owns and operates several interceptor and trunk sewers and five wastewater reclamation plants. In addition to the five wastewater reclamation plants, IEUA also operates the Upland Treatment Plant. Projected increases in plan area population and commercial and industrial uses are expected to increase future wastewater treatment capacity demands upon IEUA treatment facilities.

4.11.2.2 IEUA System

IEUA's wastewater collection system is divided into two major service areas: the Northern Service Area and the Southern Service Area. IEUA's wastewater treatment plants include: Regional Plant No. 1 (RP-1), Regional Plant No. 2 (RP-2) Regional Plant No. 4 (RP-4), and Carbon Canyon Water Reclamation Facility (CCWRF). A fifth regional plant, known as Regional Plant No. 3 (RP-3), is no longer in service. One new treatment plant, Regional Plant No. 5 (RP-5) is currently under construction and is expected to be operational in 2003. All of these plants are or will be capable of producing effluent that meets Title 22 requirements for water reclamation. Table 4.11-1 illustrates the projected flows and capacity staging of these plants. Each plant is described below.

Table 4.11-1
Wastewater Flow Projections and Treatment Facility Capacity Requirements

	2000	2010	2020	2030	2050	Ultimate
Wastewater Flow, MGD						
NSA	44	70	92	113	136	151
SSA	12	19	27	36	44	51
Total Flow	56	89	119	149	180	202
Wastewater Treatment Capacity Requirements						
RP-1	44	44	52	60	60	60
RP-2	5					
RP-4	3.7	14	21	28	42	48
RP-5		15	15	30	48	48
CCWRF	10	12	20	20	20	20
Satellite Plants		5	5	10	10	10
Subtotal Treatment Capacity	63	90	113	148	180	186
To NRW System	4	8	10	14	14	16
Total Capacity	67	98	123	162	194	202
Total By-pass Flow NSA to SSA, MGD (1)						
	As needed	8	9	8	17	25
(1) Assumes NRW system flows are split between NSA and SSA.						

Note: NSA-Northern Service Area
SSA-Southern Service Area
NRW-Non-Reclaimable Wastewater System

Regional Plant No. 1. The plant is presently operating at 44 MGD. RP-1 is expected to operate at near its design capacity and treat wastewater flows from its service area and excess flows from RP-4 until 2014. A plant expansion to about 52 MGD is planned to be on-line by 2020 to meet increased flows from its service area.

Regional Plant No. 2. RP-2 serves the City of Chino and surrounding areas. A 1994 cease and desist order by the Regional Board requires the plant to be flood protected or relocated. Consequently, the liquid treatment processes at this plant will be potentially abandoned and its capacity replaced by a new RP-5 by 2003. However, solids handling facilities will continue to operate at this site for the useful life of these facilities (approximately 30 years).

Regional Plant No. 4. RP-4 is a 7-MGD wastewater treatment facility that recently began operation. The plant will be expanded to 14 MGD by 2008 and 21 MGD by 2021. Population growth and corresponding wastewater production in the northeastern region of the IEUA service area, including portions of City of Fontana and Cucamonga County Water District will determine the rate of plant expansion.

Carbon Canyon Water Reclamation Facility. Carbon Canyon Water Reclamation Facility (CCWRF) became operational in May 1992. CCWRF is designed to produce recycled water that can be used for non-potable purposes including industrial and irrigation uses in the western region of the Chino Basin. The initial design capacity of 10.2 MGD is planned for increase to 12.3 MGD by 2003 and up to 20 MGD by the year 2020. Sludge generated at the CCWRF is treated at the RP-2 sludge processing facilities and will be for the foreseeable future.

Regional Plant No. 5. Growth in the southern portion of the IEUA service area will require additional treatment capacity. IEUA is currently constructing a new wastewater reclamation plant, RP-5, which is expected to be operational in 2003. The initial phase of this plant will be 15 MGD, of which 5 MGD will replace the liquid treatment capacity at RP-2. The new RP-5 is expected to serve the San Bernardino Agricultural Preserve area as well as treating 3.6 MGD from southern Ontario. Future expansions of RP-5 will provide additional treatment capacity for the cities of Chino and Chino Hills and the areas that currently make up the Agricultural Preserve in Chino and Ontario. Current planning for this site is for a capacity of 48 MGD.

Upland Treatment Plant. IEUA took over operation of this plant on February 5, 2002. The City of Upland operated this plant prior to this date. This plant currently operates at a capacity of 0.15 to 0.30 MGD. Operation and expansion plans for this plant are not part of the proposed master plans and will not be evaluated in this document.

IEUA develops ten-year wastewater forecasts for its service area in conjunction with its CIP. As part of its current CIP, IEUA also prepared a fifty-year projection of wastewater flows. These projections indicate wastewater flows would increase from approximately 57,000 acre-ft/yr in 1997 to approximately 112,000 acre-ft/yr in 2020. This represents an increase of 96 percent.

Non-Reclaimable Wastewater System (NRWS)

The NRWS provides wastewater disposal for industries that produce wastewater too high in saline characteristics for local discharge. Wastewaters accepted into the NRW System are generally not candidates for reclamation or treatment through the Regional Sewage Program. Accordingly, the NRW System supplements the Regional Sewage System by allowing high saline producing industries to locate within IEUA service area.

4.11.2.3 Santa Ana River Interceptor (SARI)

The southern portion of the NRW System flows to the Orange County Sanitation District (OCSD) via the SARI. SARI traverses the IEUA service area, collecting brine and other non-reclaimable wastewater from users and conveying the flow to the facilities of the OCSD for treatment and ocean disposal. The major elements of the system are three collector pipelines that converge into an interceptor trunk sewer. The overall hydraulic capacity of the SARI system is rated at 30 MGD, which is based on the hydraulic capacity of the interceptor trunk sewer, which passes under Prado Dam. The sum of the design capacities of the individual collector pipelines draining into the interceptor sewer exceeds 30 MGD; however, ownership in the line is limited to the hydraulic capacity of this line. The pipeline capacity owned by IEUA is 6.5 MGD. There is 3.5 MGD dedicated to the NRWS to serve the needs of industries in the IEUA service area. The remaining three MGD is reserved for other regional uses. IEUA has approximately 2.6 MGD of available pipeline capacity.

The average treatment capacity of the SARI system is 10.54 MGD. The treatment capacity owned by IEUA is 4.3 MGD. There is 3.5 MGD dedicated to the NRWS to serve the needs of industries in the IEUA service area. The remaining 0.8 MGD is reserved for other required uses. IEUA has approximately 0.4 MGD of treatment capacity available.

4.11.2.4 County Sanitation Districts of Los Angeles County (CSDLAC)

The northern portion of the NRWS discharges to the CSDLAC, and is treated at their treatment plant in the City of Carson. The collector pipelines of this system traverse the central portion of the Agency's service area in a generally east and west direction. Branches of the pipelines pass by RP-1 and RP-4 through the streets adjacent to these plant sites. Therefore, this system is capable of receiving the brine discharges from these two treatment plants. The IEUA owns a capacity right of 16.4 MGD for this NRWS. A significant portion of this capacity right is committed to serve industrial and other users in the area, and only 4.66 MGD is available for new users. According to IEUA staff, this available capacity is in high demand by new industrial users in the area and it is expected to be fully committed in the near future.

4.11.2.5 Water Supplies

Inland Empire Utilities Agency (IEUA or Agency) serves as the imported water wholesaler for the western portion of the Upper Santa Ana River Watershed. The IEUA service area overlies most of the Chino Groundwater Basin, which is a major sub basin of the Santa Ana River Watershed. The IEUA service area encompasses a 242 square-mile area that includes most of San Bernardino County west of the City of Rialto. Water supplies for the IEUA service area include groundwater, surface water, and imported water. Most of IEUA's in plant water requirements are met through reuse of recycled water.

4.11.2.6 Groundwater and Surface Water Sources

The majority of the water supply for IEUA's service area is comprised of groundwater and surface water, managed by a number of local and regional water agencies. Within the IEUA service area, approximately 60 percent of the total water demand (including agricultural) is supplied by local surface and groundwater sources, with the remaining 40 percent coming from imported water supplied by IEUA. The Chino Groundwater Basin is the largest groundwater basin in the Upper Santa Ana Watershed. The Chino Groundwater Basin currently stores approximately five million acre-feet of groundwater and has the capability of storing an additional one million acre-feet.

Total production from the Chino Basin is projected to range between 180,000 to 190,000 acre-feet/year (AFY) through 2020 (OBMP, 2000). The legally annual safe yield from the basin is 140,000 AFY, which is the amount of groundwater that can be pumped from the basin each year while maintaining adequate groundwater levels. The quantity of groundwater pumped above the safe yield (estimate average of 40,000 AFY) is required to be replenished by the agencies that exceed their water rights through purchase of imported water or purchase of water from other agencies in the Basin that have excess water available under their water rights. Other local groundwater supplies also represent a significant supplemental source of water for Chino Basin water agencies. However, most of these sources are essentially fully developed. The aggregate supply from these basins is currently estimated to be 63,000 acre-ft/yr., and is projected to be 76,000 acre-ft/yr. in 2020 (OBMP, 2000).

In addition, a number of water supply agencies that produce groundwater from the Chino Basin obtain a portion of their water supplies from local surface water sources. The principal surface water sources include San Antonio Canyon, Cucamonga Canyon, Day Creek, Deer Creek, Lytle Creek, Santa Ana River, Prado Dam and several smaller surface sources. For the most part, these surface water sources are fully developed and no significant additional supplies are anticipated to be developed in the future. The aggregate supply from these surface water sources is expected to remain at 16,000-17,000 acre-ft/year (OBMP, 2000).

4.11.2.7 Imported Water

IEUA serves as the imported water wholesaler to supplement groundwater and surface water supply throughout their surface area. IEUA is a member of the Metropolitan Water District of Southern California (MWD) and provides service to the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, and Upland, as well as Cucamonga County Water District, the Monte Vista Water District, and the Water Facilities Authority. IEUA is the only MWD member agency serving the Inland Empire. Over the past five years, IEUA has provided an average of 50,000 AFY of imported water to their service area.

MWD is a wholesale water agency serving supplemental imported water to 27 members (city and water agencies) in portions of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. This service area has a current population of more than 16 million people. Approximately one-half of the total water used throughout the entire MWDSC service area is imported water purchased from MWD to supplement the local water supplies in its service area. MWD obtains imported supplies from the Colorado River and the State Water Project (SWP). The demand for direct delivery of imported water for the Chino Basin purchased from MWD is projected to increase from about 68,000 acre-ft/yr in 1997 to 129,000 acre-ft/yr by 2020, an increase of about 90 percent. The demand for replenishment water in the Chino Basin could reach 40,000 acre-ft/yr by 2020 if reclaimed water is not used for replenishment or direct uses and water in local storage accounts is not available for use as replenishment.

Historic MWD deliveries of imported water for direct use to the IEUA service area has increased significantly in the past twenty years, from 11,000 acre-feet of water in 1980 to a peak of 57,000 acre-feet in 1999. Additional imported water supplies are used for groundwater replenishment, contributing to the annual production from the Chino Groundwater Basin. On average, 6,000 AF of imported water have been used annually for this purpose. During the peak of the 1987-1993 drought, 156,000 acre-feet of imported water were purchased over a three-year period for groundwater replenishment. MWD currently provides an average of 40% of the municipal, industrial, and agricultural water used within IEUA boundaries. The remaining 60% comes from local wells, local surface water, and recycled water supplies.

4.11.2.8 Recycled Water

There are several existing sources of recycled water in use within the Chino Basin study area. These include IEUA's wastewater reclamation plants RP-1, RP-2, RP-4, CCRWF, Upland Hills Water Reclamation Plant (which IEUA recently took over operations from the City of Upland), and the California Institute for Men (CIM) Water Reclamation Plant. Another water reclamation plant is currently under construction (RP-5) and will be in operation in 2003.

Currently, IEUA produces approximately 55-60 million gallons per day of recycled water, or about 62,000 acre-feet per year of recycled water. During fiscal year (FY) 1999/2000, recycled water use totaled nearly 5,800 acre-ft. Of this amount, 5,300 acre-ft was used by 37 customers for landscape irrigation and dust control at construction sites. An additional 500 acre-ft was used for a demonstration recharge project at Ely Basin near RP-1. This project is a cooperative effort of IEUA, the Chino Basin Water master, and the Chino Basin Water Conservation District.

The WFMP indicates that very large quantities of recycled water (over 150,000 AFY) will be generated in the future as IEUA's service area builds out to its ultimate population. This is projected to grow to over 100,000 AFY in 20 years. The IEUA projects the demand for recycled water to be about 40 percent for groundwater recharge and 40 percent for non-potable irrigation of landscaped areas. The remaining 20 percent is for non-potable industrial reuse (e.g., cooling towers, boiler feed, etc.).

4.11.2.9 Solid Waste Disposal

Solid waste disposal sites are those facilities used for the final disposition of wastes onto land. Wastes are categorized by the State into four general types: Class I (Hazardous), Class II (Designated Wastes), Class III (Municipal) and Inert Wastes. Solid waste from the project area is and will be disposed of in the Mid-Valley Landfill, located approximately 25 miles from RP-5 at 2390 North Alder Avenue in Rialto. Currently, Mid-Valley Landfill is permitted to accept waste until the year 2033, and has the capacity to admit approximately 40 million more tons of refuse before closure. The landfill has the capacity for 7,500 tons per day; however it currently receives an average daily tonnage of 1,500 tons per day (Gallagher, 2002). San Timoteo Landfill located at 31 Refuse Road in Redlands will serve as a backup should there be a problem with the Mid-Valley Landfill.

Regional planning for solid waste facilities in the project area is under the jurisdiction of the County of San Bernardino as the local enforcement agency under integrated waste management laws. The cities and counties are encouraging source reduction and recycling objectives that meet or exceed the requirements of State Assembly Bill AB 939, which mandates a 50 percent reduction in waste volumes from 1990 levels by the year 2010. As an alternative to landfill disposal, the IEUA currently operates a co-composting facility that processes biosolids from Agency wastewater treatment plants with cattle manure and green waste. Hazardous waste can be landfilled or recycled at several facilities throughout the State. Any hazardous wastes generated within the Study Area are managed in accordance with existing laws and regulations. These materials are stored and handled in accordance with federal and state requirements.

4.11.2.10 Energy

The processing and treatment of wastewater is inherently energy intensive. Electricity is used to pump water, provide necessary process functions such as aeration or mixing, flow through filtration beds, and for purification. Thermal energy (heat) is needed to enable digesters to function properly and efficiently. As a by-product of digestion, methane and other gasses (the mixture is known as digester gas or biogas) are captured, to both control release of odors and to be used as a fuel to supplement natural gas use and recover energy.

Presently, Southern California Edison is the electrical power provider in the region and would supply electrical power where necessary to make up for what electrical demands are not met through on-site power generation. Southern California Gas Company is the natural gas provider in the IEUA service area.

4.11.3 Project Impacts

Wastewater Facilities Master Plan

Construction

The liquid treatment capacity at RP-1 is expected to increase to 60 MGD by 2050 and would be conducted in five phases. An immediate project that would occur shortly after certification of this document would be the modernization of the exterior of the plant. Modernization would include an architectural uplift, upgrading of old and inefficient unit processes and facilities, implementation of an odor control program, and landscaping and tree planting to improve the aesthetics of the facility, and screen views of the plant. Landscaping to screen the views of the plant would be implemented in the near term and would consist of planting trees along the border of the facility along the western, southern, and eastern boundaries. Plant improvements would occur in the near term (by 2010) to upgrade the treatment processes and add odor control for the existing capacity of 44 MGD. Increases to treatment capacity would occur in the long term (by 2050).

By 2050, RP-4 liquid treatment capacity is expected to expand to 35 MGD and the solids treatment capacity would be constructed for 40 MGD. The liquid treatment expansion would occur in 7 MGD increments, with the expansion to 21 MGD expected to commence during the near term period. This expansion would require construction of new facilities including: headworks, primary clarifiers, chlorination systems and basins, oxygen basins, and secondary and tertiary filters. Construction activities would be phased. It is assumed that construction of the new facilities would not impact current operating conditions at RP-4.

The liquid treatment capacity at CCWRF would be increased to approximately 12 MGD in the immediate term (by 2010) and to 20 MGD in the long term (by 2050). Minimal construction activities would be required for the immediate term expansion to divert recycled flows to the SARI line and replace the existing gaseous chlorine with sodium hypochlorite. The long-term expansion to 20 MGD would require construction of new facilities on the plant site.

Two new satellite plants would be constructed in the IEUA's NSA to help provide sufficient treatment capacity and higher quality water for recycled water reuse where it is needed. One satellite plant is expected to be constructed in the near term (by 2010) and the other would be constructed in the long term (by 2050). Construction of new facilities would include primary and secondary treatment processes, filtration, and disinfection.

New conveyance systems would be required for transporting wastewater to the treatment facilities. Up to 11 new conveyance system improvements are planned (see Table 3-17). These include the Upland Interceptor Relief System, San Bernardino Interceptor Pump Station and Force Main, RP-4 Trunk Sewer, RP-1/RP-5 Bypass, Freeway Trunk Sewer, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement and Los Serranos Interceptor Replacement.

Operation

Operation of the WFMP would develop in phases through 2050. Long-term operation of the WFMP would involve the following facilities and strategies designed to make wastewater collection and treatment more comprehensive and efficient to meet projected demands throughout IEUA's service area.

- Establish a maximum treatment capacity at RP-1 of 60 MGD; RP-4 of 48 MGD; CCWRF of 20 MGD; and RP-5 of 48 MGD.
- Construct two small (less than five MGD each) satellite "skimming" plants, not to exceed a collective total of 10 MGD treatment capacity, at select locations in IEUA's NSA, close to reuse and recharge areas to maximize the reuse of good quality water and minimize pumping of reclaimed water from the downstream plants.
- Diversion by gravity and pumping of wastewater to RP-4 from areas now tributary to RP-1 to maximize reuse potential.

- Incorporation of design flexibility in the trunk sewer system to by-pass flow around RP-1 (send untreated or partially treated effluent from RP-1 to RP-5) to allow the treatment plants to operate in a most efficient manner.
- Limitation of wastewater treatment at RP-1 to 60 MGD ultimate capacity (compared to the previous planning goal of 96 MGD) and bypass and intercept surplus flows from NSA at RP-4 and RP-5 for treatment and disposal.

Incorporation of these facilities and strategies are intended to minimize pumping of sewage, and to provide flexibility in the trunk sewer system and available treatment plant capacity to respond to changes in location where growth is occurring.

Recycled Water Master Plan

Construction

The RWMP would require construction of facilities necessary to interconnect and serve recycled water through the north and south recycled water distribution systems. All of the proposed facilities identified in the RWMP would be constructed in the near term (by 2010). These facilities include pipelines, inlet structures, pump stations, reservoirs, and modifications to recharge basins. Major construction activities are anticipated to include grading, excavation, installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation. Please refer to Table 3-17 for more detailed information on individual projects.

Operation

Operation of the RWMP is intended to reuse, to the extent practicable, recycled water produced at IEUA's Regional Water Recycling Plants, except for the 17,000 acre-ft/yr required to be released to the Santa Ana River (SAR) under the 1969 Santa Ana Judgment for Orange County's use. Operation of the RWMP would be developed in phases through the near term, up to 2010. The RWMP would implement a regional recycled water distribution system including:

a. Installation of a distribution system that will interconnect the CCWRF, RP-1, RP-2, RP-4 and RP-5, (which is currently under construction) to provide better distribution capability to local agencies, which are responsible for delivering the water to local users.

b. Installation of a distribution system to provide recycled water more efficiently and at an affordable rate for landscaping, industrial use (i.e. cooling towers, boiler feed), and other various non-potable uses that require large volumes of water and thereby conserve potable groundwater and reduce dependence on imported water from the SWP.

c. Upgrading and utilization of 18 existing recharge basins in conjunction with storm water and recycled water recharge, and the utilization of up to two new recharge basins for blending storm water and imported water, plus an appropriate percentage of recycled water.

Operation of the recycled water distribution system would deliver recycled water to IEUA contract agencies, other retail water utilities, direct industrial customers and to recharge basins where it will be blended with storm water and imported water to recharge the Chino Basin groundwater aquifers.

Organics Management Master Plan

Construction

As part of the OMMP, three organics management facilities (RP-1 Aerated Static Pile (ASP), Inland Empire Regional Composting Facility, and Dairy Digester Pilot Project) are expected to be constructed immediately after certification of this document to handle biosolids, manure, and green wastes. These facilities would be enclosed to control odors and dust. Construction activities would take place at RP-1, adjacent to RP-4, and at the Van der Poel Dairy site. Other facilities identified in the OMMP that would be constructed in the near term (by 2010) include: California Institute for Men Compost Facility, the High Tech Manure Facility, the Advanced Technology Manure Pyrolysis Process, and conveying dairy manure by sewer to treatment facilities. An additional feature at RP-5 would be the processing of additional manure to generate up to 2 MW through capture of methane gas (biogas), which would be used to generate electricity to run the IEUA facilities and also provide excess electricity for operational use.

The ASP pilot demonstration project would be constructed at RP-1 to treat biosolids and digested manure. This facility would be approximately 40,000 sq.ft., and would constructed next to the western boundary of the RP-1 site. Major construction activities would include grading, excavation, concrete forming, and pipeline installation.

The Inland Empire Regional Composting Facility would be located on the property immediately north of RP-4. Major construction activities for this facility would include: demolition, excavation, pipeline installation, landscaping, mechanical equipment installation, and electrical installation.

The Dairy Digester Pilot Project would be located at the Vander Poel Dairy and would consist of an enclosed lagoon digester. Construction activities would include some excavation.

Operation

Operation of the OMMP would be developed in phases through 2010 to involve:

- Treatment of biosolids generated at IEUA-operated regional water recycling plants in addition to manure and green material.
- Enclosed facilities composting at RP-1, RP-4, and the CIM.
- Use of digesters specially located to serve clusters of dairy farms that would generate power that could be utilized by the dairies, at a location undetermined at this time.
- Generation of power from diary washwater as part of the Dairy Digester Pilot Project to be located at the Vander Poel Dairy.

The OMMP is intended to make IEUA more self-sufficient in managing biosolids due to a reduction in available sites for land application, reduced landfill capacity, and an opportunity to develop an alternative energy source through the combination and conversion of waste streams through anaerobic digestion into power.

4.11.3.1 Impacts Analysis

4.11.3.2 Significance Criteria/Thresholds of Significance

The utility issues of concern in this evaluation are increased demand for utility capacity without adequate existing capacity or comparable increases in capacity from implementing the proposed master plans. The project would result in significant impacts to utilities if it causes demand for a utility to exceed the system's capacity and creates a need to develop new utility service system capacity without a means of funding the required system capacity expansion.

The criteria used to determine the significance of proposed project impacts to utilities and service systems are based on the model initial study checklist in Appendices G and F of the State CEQA Guidelines. The proposed project may result in significant impacts if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new storm drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Not have sufficient water supplies available to serve the project from existing entitlements and resources, and would require new or expanded entitlements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Fail to comply with federal, state, and local statutes and regulations related to solid waste.
- Result in determination by the energy providers, which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

a. <u>Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?</u>

Wastewater Facilities Master Plan

Construction Phase

Major construction activities proposed under the WFMP would include grading, excavation, pipeline installation, concrete forming, landscaping, mechanical equipment installation, and electrical installation. These activities are not expected to generate wastewater that would be discharged to the existing treatment plants. Any construction-generated wastewater would be treated on-site and discharged in accordance with applicable state NPDES and local non-point source regulations. Therefore, since mandatory controls on discharge of runoff from construction sites is required, no significant adverse impact is forecast to occur.

Operation Phase

New and expanded facilities proposed in the WFMP would be designed to prevent an overflow situation or discharge that would adversely impact a wastewater treatment plant. All proposed facilities developed under the WFMP would meet Title 22 standards for reclaimed water use and water quality standards set forth in the Basin Plan to protect designated beneficial uses in receiving waters. The volume of increase recycled water discharge at 2050 is estimated to ba approximately 90,000 AFY and at buildout will be about a 300% increase to 190,000 AFY. Because the wastewater must meet state and federal discharge requirements, the operations of the proposed facilities identified in the WFMP will not cause any adverse impacts relative to violations of wastewater treatment requirements.

Recycled Water Master Plan

Construction Phase

Construction activities proposed under the RWMP would include grading, excavation, pipeline installation, concrete forming, mechanical equipment installation, and electrical installation. Wastewater generated during these activities is expected to be minimal, and would not impact wastewater treatment requirements. Any construction-generated wastewater would be treated on-site and discharged in accordance with applicable state NPDES and local non-point source regulations. Therefore, since mandatory controls on discharge of runoff from construction sites is required, no significant adverse impact is forecast to occur.

Operation Phase

Operations of the facilities identified in the WRMP would not generate any wastewater and would therefore not affect wastewater treatment requirements.

Organics Management Master Plan

Construction Phase

Major construction activities proposed under the OMMP would include demolition, grading, excavation, pipeline installation, landscaping, mechanical equipment installation, and electrical installation. During grading, excavation and other site preparation activities, unearthed and exposed soil could potentially cause erosion impacts. In the event of heavy precipitation, these exposed soils could also run off the site into public right-of-ways and/or storm drainage systems. These are considered potentially significant impacts. Potentially significant impacts related to onsite erosion during construction activities are considered adverse, but less than significant with implementation of the mitigation measures mentioned at the end of this section.

Operation Phase

The intent of the OMMP is to improve biosolids and organics waste management. Any wastewater generated at the proposed facilities would be discharged to the appropriate treatment facility for treatment and disposal. Highly saline salts will be discharged to the non-reclaimable wastewater system and treatable wastewater will be delivered to IEUA's wastewater treatment plants. Therefore, operations of OMMP facilities would not affect wastewater treatment requirements.

b. <u>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?</u>

Wastewater Facilities Master Plan

Construction Phase

Construction activities proposed under the WFMP would not generate significantly increased wastewater flows. Therefore, construction of the facilities would not require new wastewater facilities.

Water use during construction of the WFMP facilities would occur during various activities such as grading and excavation activities; however, water use would be minimal and would not adversely impact existing water supplies. Water use during these activities would be primarily to control of fugitive dust at the construction sites as necessary and recycled water will be used to the extent feasible to minimize demand on potable water supplies. Therefore, construction of the facilities would not require new water facilities.

Operation Phase

The facilities proposed in the WFMP would hook up to existing water facilities, and would not require expanded facilities for operation. Wastewater treatment facilities proposed in the WFMP would not utilize large quantities of water because these facilities can use recycled water for most plant operation and landscape management purposes. Therefore, implementation of the proposed plant expansion is not forecast to cause a significant demand on water supply. Water demand for the WFMP would include use for facility cleaning procedures and accommodating potable water demands (consumption and showers, etc.) for employees at the operational facilities. Reclaimed water is used for irrigating landscape on facility properties. The amount of water required to accommodate these facilities is not expected to be significant, therefore it would not result in adverse impacts to existing water facilities.

The WFMP is not forecast to induce population growth or otherwise cause a significant demand for wastewater collection or treatment system capacity. The intent of the WFMP is to expand existing wastewater treatment facilities to accommodate projected demands by anticipated growth within the IEUA service area. No adverse impacts would result to wastewater or water facilities with operation of the facilities and strategies proposed in the WFMP.

Recycled Water Master Plan

Construction Phase

Construction activities proposed under the RWMP are anticipated to include grading, excavation, installation of pipelines, concrete forming, mechanical equipment installation, and necessary electrical installation. These construction activities would not generate significantly increased wastewater flows or demand for new wastewater facilities. As a result, there would be not significant impacts to the sewer system during construction of RWMP facilities.

Water use during construction of the RWMP facilities would occur during various activities such as grading and excavation activities; however, water use would be minimal, and would not adversely impact existing water supplies or existing facilities. Water use during these activities would be primarily for the control of fugitive dust at the construction sites as necessary. Recycled water is available to support most construction activities which further minimizes the potential impact of construction activities on demand for potable water system resources. Therefore, construction of the facilities proposed in the RWMP would not require new water facilities.

Operation Phase

The RWMP would not induce population growth or otherwise cause a significant demand for wastewater collection or treatment system capacity. The proposed facilities under the RWMP would expand connections and service of recycled water through the north and south recycled water distribution systems, in order to facilitate increased use of recycled water to reduce the need for IEUA to import water. The RWMP has no potential to cause adverse impacts to existing water facilities and would not increase wastewater flows or adversely impact existing wastewater collection and treatment levels of service.

Organics Management Master Plan

Construction Phase

The amount of wastewater that would be generated during these construction activities for the facilities proposed under the OMMP would not be substantial and would not require expanded wastewater facilities. As a result, there would be no significant impacts to the sewer system during construction of OMMP facilities.

Water use during construction of the OMMP facilities would occur during construction activities such as grading and excavation activities. Water use during these construction activities would be minimal and would not adversely affect water supplies. Water would be primarily used for dust suppression at the construction sites as necessary. Recycled water is available to support most construction activities which further minimizes the potential impact of construction activities on demand for potable water system resources. Therefore, construction of the facilities identified in the OMMP is not expected to require new water facilities.

Operation Phase

The OMMP would not induce population growth or otherwise cause a significant demand for water or wastewater facilities. The proposed facilities and strategies under the OMMP are intended to expand biosolids management to accommodate projected demands for wastewater treatment capacity within IEUA's service area. Demand for capacity in the non-reclaimable wastewater system has been assigned to the OMMP facilities from the excess capacity available to IEUA in the SARI and CSDLAC systems. The OMMP would accommodate future demands for biosolids management, and would not adversely impact existing water or wastewater collection and treatment levels of service.

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Wastewater Facilitates Master Plan

Construction Phase

Ninety-nine percent of storm water runoff is currently retained onsite at RP-1, RP-4, and CCWRF. The sites are graded to route storm water runoff to onsite catch basins that then transport the storm water into the headworks for treatment. There are no offsite discharge points at any plant. During construction of the facilities proposed under the WFMP, drainage patterns at the proposed construction sites would be temporarily disrupted due to excavation and grading activities. The quantity of runoff leaving the sites may be somewhat reduced during project construction compared to existing conditions, due to the exposure of bare ground surface (allowing water to infiltrate the ground) and because some water will pool in excavated areas rather than drain into catch basins. These temporary changes in drainage conditions at the site are not considered significant and will be addressed by requiring continued collection of storm water during construction and delivery of surface runoff to the headworks. After construction is complete, drainage conditions on site would be restored similar to existing conditions, with storm runoff transported to catch basins and then into plant headworks for treatment. There would be no significant impacts to storm drainage systems.

Operation Phase

Increases in impervious surface area that would result from development of the facilities proposed in the WFMP are not expected to create runoff volumes that would exceed the capacity of existing onsite storm water drainage facilities, which is taken into account in the design of the new facilities at each wastewater reclamation plant.

Landscaping and plant screening of RP-1 in the immediate term would not increase impervious surface area at the site. Development of long-term projects on-site is assumed to result in an approximate 20 percent increase in impervious surface area at RP-1. Currently storm runoff on the east side of TP-1 is directed to a waste wash water basin, and then to a settling basin. Effluent from the settling basin is then directed to the filter back wash and into the headworks at RP-1 for treatment. On the west side of the site, runoff flow would be directed to dissolved air floatation tank (DAFT No. 3). All storm runoff is retained and treated onsite. The existing, onsite storm water drainage system would accommodate increased runoff volumes that would result form the estimated increase in impervious surface area resulting from immediate and long-term projects at RP-1 (Arjunan, 2002). There would be no adverse impacts to existing storm drainage capacity.

Minimal construction activities would take place in the near-term at CCWRF to increase treatment capacity to 12 MGD. These activities are not expected to significantly increase impervious surface area at the site. Long-term projects at the CCWRF are assumed to result in an approximate 15 percent increase in impervious surface area. Currently, onsite storm runoff is directed to an emergency storage pond, which has a capacity of 10 MGD. From the pond, storm water is transported to the headworks at CCWRF for treatment onsite. All storm water is retained and treated onsite. The increases in storm runoff that would result from increases in impervious surface area at CCWRF are not anticipated to adversely impact existing stormwater drainage capacity at the site.

Near term expansion plans at RP-4 would expand treatment capacity to 21 MGD at the 28-acre site. This is anticipated to result in an approximate 10 percent increase in impervious surface area onsite. Long-term projects at the RP-4 include expansion of liquid treatment facilities to 35 MGD, and expansion of biosolids treatment facilities to 40 MGD, and are expected to result in an approximate 50 percent increase in impervious surface area onsite. Currently, all onsite storm runoff is directed to a storage pond, from where it is transported back into the headworks at RP-4 for treatment. The existing, onsite storm water drainage system would accommodate increased runoff volumes that would result from the estimated increase in impervious surface area resulting from immediate and long-term projects at RP-4 (Arjunan, 2002). There would be no adverse impacts to existing storm drainage capacity.

Development of the proposed two satellite plants would occur in the near and long term, on two separate sites that would each occupy approximately two to four acres. Development of the satellite plants is anticipated to result in up to 75 percent increases in impervious surface area at each site. Due to the relatively small size of the satellite plants, this is not expected to create runoff volumes that would exceed the capacity of existing storm drainage facilities that serve each location.

Implementation of the WFMP would not require substantial alterations to existing stormwater drainage facilities at RP-1, RP-4, and CCWRF. Although the sites for the satellite plants have not yet been identified, impacts to storm drainage that could result from development of these plants are not expected to be significant due to the relatively small area required from these facilities. Therefore, impacts to existing storm drainage systems are not expected to occur with implementation of the WFMP.

Recycled Water Master Plan

Construction Phase

Construction activities would involve modifications to the recharge basins (e.g. deepening and reshaping the bottom to maximize percolation, spill ways, and berms), new pipelines, pump stations, and reservoirs. It is assumed that construction activities within the recharge basins would be conducted during the dry season to avoid storm events. No storm runoff is expected from the recharge basins. Storm runoff could be expected from the pump stations and reservoir locations. However, the amount of runoff from these facilities would be minimal due to the anticipated small areas required for these facilities. No impacts to existing storm sewers are anticipated during construction of these facilities.

Operation Phase

Increases of impervious ground surface created by the projects identified under the RWMP are expected to be minimal. The projects that would generate impervious ground surface would be the pump stations and reservoirs. No impacts to storm drains would occur with the operation of these facilities.

Organics Management Master Plan

Construction Phase

During construction of the facilities proposed under the OMMP, drainage patterns at the proposed construction sites would be temporarily disrupted due to excavation and grading activities. The quantity of runoff may be somewhat reduced during project construction compared to existing conditions because some water will pool in excavated areas rather than run off the construction areas. Construction of the proposed projects are not expected to impact existing storm drainage systems.

Operation Phase

Increases in impervious surface area that would result from the projects proposed in the OMMP would result in increased storm runoff volumes. All facilities proposed under the OMMP would be designed to retain storm runoff onsite, with the exception of the CIM Composting Facility.

The ASP composting facility at RP-1 would occupy a 0.9-acre site in the southwest portion of RP-1. The facility would be designed to direct storm water to the pervious biofilter, which would act as a catch basin. Storm runoff would undergo preliminary treatment that would include removal of solids, and would then drain back to the headworks of RP-1 for treatment (Robinson, 2002). No off-site discharge points would be required. Offsite local storm drains would not be adversely impacted, and no significant impacts would occur.

The Dairy Digester Lagoon Pilot Project located at the Vander Poel Dairy would occupy a 10.8-acre site, and is expected to result in an approximate 90 percent increase in impervious surface area at the site. Development of this facility would occur in the immediate term. Storm runoff would be directed to one of five small ponds located onsite, where it would undergo preliminary treatment involving removal of solids, before it would percolate into the ground through the semi-permeable lining of the ponds (Robinson, 2002). No offsite discharge points would be required, and all storm water would be retained onsite. No adverse impacts to storm drainage are anticipated.

The IEUA Regional Composting Facility would occupy a 9.4-acre site adjacent to RP-4, and is expected to result in an approximate 80 percent increase in impervious surface area at the site. All storm runoff at the site would be routed to the pervious biofilter, which would act as a catch basin. Storm runoff would undergo preliminary treatment that would include removal of solids, and would then drain back to the headworks of RP-4 for treatment (Robinson, 2002). No off-site discharge points would be required. Storm water drainage at RP-4 and offsite local storm drains would not be adversely impacted.

The CIM Composting Facility would occupy a 25-acre site, resulting in an approximate 80 percent increase in impervious surface area at the site. It is anticipated that the pervious surface area onsite would primarily include the biofilter and landscaped areas. Storm runoff would not be retained and treated onsite. Existing storm runoff west of Mountain Avenue is currently directed to a natural flow line that runs along the western boundary of RP-5. The City of Chino has plans to improve this flow line in the near-term. Storm runoff east of Mountain Avenue is directed to the Cypress Channel, which is jointly maintained by the San Bernardino County Flood Control, and the City of Chino. It is expected that storm runoff on the western portion of the project site would drain to the natural flow line along the western border of RP-5, and that storm runoff from the eastern portion of the project site would be directed to the Cypress Channel. Following near-term improvement to the natural flow line along RP-5, the increased storm runoff resulting from the proposed project is not expected to result in adverse impacts to storm water drainage (Indrawan, 2002). Note that if the CIM Composting Facility is located at RP-5 it will be part of the plant site operations and all runoff would be collected and delivered to the plant for appropriate management.

The site for the proposed High Tech Manure Facility is unknown at this time, however the facility is expected to occupy seven acres, and result in an approximate 80 percent increase in impervious surface area at the site. All storm runoff would be directed to onsite berms that would transport runoff into the sewer system and then to a local wastewater treatment plant for treatment (Robinson, 2002). Based on the potential locations for this facility, storm water runoff from the site may be discharged to the Kimbal Interceptor for treatment at RP-5. The proposed project would not require any offsite storm water discharge points, and would not result in adverse impacts to storm drainage.

The ASP Composting Facility at RP-1, the Dairy Lagoon Digester Project, IEUA Regional Composting Facility, and High Tech Manure Facility would all be designed to retain all storm water onsite and are not expected to impact local storm drains. Implementation of the CIM Composting Facility would not retain storm water onsite, and runoff would flow offsite. Runoff from the CIM Composting Facility is not expected to adversely impact offsite storm water drainage systems. No adverse impacts to storm drainage would result from implementation of the OMMP.

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Wastewater Facilities Master Plan

Construction Phase

Water use during construction of the WFMP facilities would occur during various activities such as grading and excavation activities, however water use would be minimal, and would not adversely impact existing water supplies. Water use during these activities would be primarily for the control of fugitive dust at the construction sites as necessary. Therefore, impacts to water supplies during construction of the facilities identified in the WFMP would not be significant.

Operation Phase

The projects that are part of the WFMP would not cause a significant demand on water supply. Wastewater treatment facilities proposed in the WFMP would not utilize large quantities of water. Water demand for the WFMP would include use for facility cleaning procedures, and accommodating employees at the operational facilities. Reclaimed water is currently used and would continue to be used for irrigating landscape on facility properties. The amount of water required to accommodate these facilities is not expected to be significant, therefore it would not result in adverse impacts to available water supplies.

The WFMP would benefit regional water supplies by expanding and improving the IEUA's capacity to treat reclaimed water for reuse and for groundwater recharge. Increasing the capacity of wastewater treatment facilities would provide more water for recycling and reuse, an important component to water resource management. Increased water reuse would increase the safe yield of the Chino Groundwater Basin because it would contribute reusable water supplies to the basin and offset the need to pump additional groundwater and import water. The WFMP would treat water for direct use (i.e. irrigation and industrial cooling), and for indirect use to recharge the Chino Basin (depending upon the quality of the recycled water it may be recharged directly or blended with stormwater or imported water to meet the established water quality standards).

The project is not forecast to create growth or demand for new connections that would place additional demand on the existing water supply system beyond what is currently anticipated in the jurisdiction's General Plans. Implementation of the WFMP would develop facilities so that reclaimed water could be treated for reuse to meet projected demands in the IEUA service area. No potential for any adverse, significant water supply impacts are identified. The proposed WFMP would benefit the Chino Basin water supplies by reducing the demand on regional potable water supplies.

Recycled Water Master Plan

Construction Phase

Water use during construction of the RWMP facilities would occur during grading and excavation activities for dust suppression at the construction sites as necessary. Water use during construction would be minimal and would not adversely affect water supplies. Therefore, impacts to water supplies during construction of the facilities identified in the RWMP would not be significant.

Operation Phase

The proposed projects that would be implemented under this master plan consist of a series of recycled water infrastructure facilities that would allow IEUA to utilize (directly consume, use for irrigation, or recharge to the Chino Basin groundwater aquifer) a substantial amount of treated wastewater. The physical components of the regional recycled water program include the upgrade/expansion of 18 basins and the addition of two new basins, along with the addition of nine recycled water pipelines or pipeline segments, up to eight pump stations and a total of five reservoirs. Water usage at the pump stations would be minimal. These facilities would not cause a significant demand on the existing water supply. Implementation of the RWMP would not adversely impact water supplies, and would benefit the regional water supply by reducing the need for imported water through treatment of reclaimed water for reuse.

Organics Management Master Plan

Construction Phase

Water use during construction of the OMMP facilities would occur during construction activities such as grading and excavation activities. Water use during these construction activities would be minimal and would not adversely affect water supplies. Water would be primarily used for dust suppression at the construction sites as necessary. Therefore, impacts to water supplies during construction of the facilities identified in the OMMP are not expected to be significant.

Operation Phase

The projects that are part of the OMMP would not cause a significant demand on water supply. Biosolids handling and processing facilities proposed in the OMMP would not utilize large quantities of water. Water demand for OMMP facilities would be to accommodate employees at the operational facilities, and to use for irrigating landscape where present on facility properties. If reclaimed water is accessible, it would be used to irrigate onsite landscape. The amount of water required to accommodate these facilities would be negligible, and would not significantly impact available water supplies.

e. <u>Result in a determination by the wastewater treatment provider which serves or may serve the project determined that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</u>

Wastewater Facilities Master Plan

Construction Phase

The amount of wastewater that would be generated during construction activities of facilities proposed under the WFMP would not be substantial. Furthermore, construction of the proposed new facilities improvements to existing facilities under the WFMP would occur in phases to ensure that existing levels of wastewater collection and treatment service would not be adversely impacted during construction. As a result, there would be not significant impacts to the sewer system during project construction of WFMP facilities.

Operation Phase

Table 4.11-1 shows current and projected wastewater flows for IEUA's service area. The proposed facilities and strategies under the WFMP are intended to accommodate these projected demands for wastewater treatment capacity within IEUA's service area. The WFMP would accommodate future demands for wastewater collection and treatment capacity, and would not adversely impact existing wastewater collection and treatment levels of service.

Recycled Water Master Plan

Construction Phase

Construction activities for the proposed RWMP facilities would not generate significantly increased wastewater flows. As a result, there would be no significant impacts to the sewer system during construction of RWMP facilities.

Operation Phase

The proposed facilities under the RWMP would expand connections and service of recycled water through the north and south recycled water distribution systems to facilitate increased use of recycled water and to reduce the need for IEUA to import water. Operation of RWMP facilities would not lead to an increase in wastewater treatment due to the fact that there is no wastewater produced from operating the facilities. Similarly, operation of the nine new pipelines would not produce wastewater discharges. The RWMP would not increase wastewater flows or adversely impact existing wastewater collection and treatment levels of service.

Organics Management Master Plan

Construction Phase

Construction activities proposed under the OMMP are not expected to generate wastewater that would be discharged to the existing treatment plants. Any construction-generated wastewater would be treated on-site and discharged in accordance with applicable RWQCB and local regulations. Therefore, no impacts to would occur. The amount of wastewater that would be generated during these construction activities for the facilities proposed under the OMMP would not be substantial. Furthermore, construction of the proposed new facilities improvements to existing facilities under the OMMP would occur in phases to ensure that existing levels of wastewater collection and treatment service, and subsequent biosolids management would not be adversely impacted during construction. As a result, there would be not significant impacts to the sewer system during construction of OMMP facilities.

Operation Phase

The OMMP is designed to manage organic wastes within the IEUA service area. The proposed facilities and strategies under the OMMP are intended to expand biosolids management to accommodate projected demands for wastewater treatment capacity within IEUA's service area. The treatment of these biosolids produces wastewater, which would be discharged to a wastewater treatment facility. The lagoon digester would produce a small amount of wastewater, approximately 100 gallons per day, which would be discharged to the SARI Line (Robinson, 2002). The ASP at RP-1 would produce minimal to no wastewater as is the same for the co-composting site that would be constructed at RP-4. The OMMP would accommodate future demands for biosolids management, and would not adversely impact existing wastewater collection and treatment levels of service.

f. <u>Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?</u>

Wastewater Facilities Master Plan

Construction Phase

The proposed projects in the WFMP would result in the generation of solid waste during construction. The majority of solid waste generated during construction would include scrap lumber, plastics, and inert wastes (such as demolition debris). Inert wastes are wastes not likely to create leachates of environmental concern, such as dirt, concrete, stucco, asphalt, rocks, glass, and other building materials. According to current regulations, new development projects are required to participate in existing countywide programs and to implement site-specific source reduction, recycling, and reuse programs. Compliance would reduce the amount of construction waste that would otherwise be diverted to landfills. The construction waste that remains after recycling and reuse would be disposed at the Mid-Valley Landfill. The amount of construction debris that could not be recycled is not expected to be significant. As a result, impacts to landfill capacity would not be significant.

Excavated earth materials during conveyance line construction, including sands, and sandy soils, would be suitable for the use as backfill and other compacted fill material. The excess material may also be utilized to construct screening berms. Clean fill dirt is often handled by large grading contractors who have involvement in other projects or have knowledge of other material needs in the secondary market. Depending on the timing of construction, it is possible that excavated material could be hauled to the nearest development project in the area needing fill material. In the event no such location is available, earth material would be taken to a landfill in the area with the capacity to accept the material. Compliance with a construction source reduction program would also include compaction and reuse of soils and earth materials.

Green waste produced during construction of the RP-1 landscaping project would be minimized and would either be composted or disposed of at the Mid-Valley landfill. No significant impacts to landfills would occur.

Operation Phase

As a result of the wastewater treatment process, a small amount of solid waste remains after the wastewater has been treated. Operation of the wastewater facilities is expected to produce a substantial amount of solid waste, but that which is produced, can be recycled, reprocessed, or converted into energy, thereby bypassing landfill diversion. An increase of approximately 15,000 tons of biosolids is expected in the next ten years, but 100 percent of that is expected to be composted at RP-4 (Robinson, 2002). Solid waste captured in the bar screens would not be recycled or reused, rather it would have to be disposed of in the Mid-Valley Landfill. Given that the landfill is permitted until the year 2033, the amount of waste that would have to be diverted to the landfill would be negligible. An in depth discussion of the management of the biosolids is included below in the Organics Management Strategy Business Plan analysis. The project would not result in the need for new solid waste facilities in the area.

Recycled Water Master Plan

Construction Phase

Some construction activities would be required for the pump stations and reservoirs. Construction waste generated for these facilities is not expected to be significant. Construction wastes would be recycled in accordance with applicable regulations. Construction wastes that could not be recycled or reused would be disposed of at a landfill. No significant impacts to landfill capacities would occur.

Excavated earth materials during pipeline and feeder line construction, including sands, and sandy soils, would be suitable for the use as backfill and other compacted fill material. Soil removed from the recharge basins to modify the basins by deepening them would be reused as fill material at other sites.

Operation Phase

Operation of the facilities identified in the RWMP is not expected to generate solid waste. Therefore, no impacts would occur.

Organics Management Master Plan

Construction Phase

Construction of the facilities identified in the OMMP would result in the generation of solid waste. The majority of solid waste generated during construction would include scrap lumber, plastics, and inert wastes. Construction wastes would be recycled in accordance with applicable regulations. Construction wastes that could not be recycled or reused would be disposed of at a landfill. No significant impacts to landfill capacity would occur.

Operation Phase

The OMMP has been devised to be implemented over the next 10 years in order to reduce the amount of solids to be disposed of in landfills, which would result in a beneficial impact to landfills. The key elements of the OMMP are: (a) biosolids processing and energy production; (b) co-composting; and (c) manure processing.

Anaerobic digestion and co-generation are methods that will be used to process biosolids and produce energy. 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 from wastewater treatment will be digested at RP-1, RP-2, RP-5, and a new biosolids management facility near RP-4. Biosolids produced at the IEUA plants are a Class-B material (under Federal Register 503 regulations) that can be disposed of in municipal landfills. The co-composting process produces Class-A co-composted materials in accordance with Federal Register 503 regulations. Class-A co-composted material from the IEUA facilities is a disinfected compost that is sold as an organic fertilizer and soil conditioner. This process makes an important contribution in source reduction elements of local solid waste management plans.

Biosolids that are not processed at the co-composting facility will be hauled to a municipal landfill for composting by a private contractor, which would be converted to a Class-A product for reuse. Accordingly, all IEUA biosolids would be beneficially reused. Several alternative biosolids treatment processes used to reduce the amount of solid waste are in the process of being tested with pilot projects, including the following: (a) heat drying and palletizing 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 improvements 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. All of these processes would reduce the amount of solid waste disposed of at Mid-Valley Landfill. Although the amount of solid waste would be drastically reduced, there would still be a small amount left over as by-product of the treatment processes that would need to be diverted to Mid-Valley Landfill. The project is not expected to result in the need for new solid waste facilities in the area, and in fact, will be a benefit to the region by reducing overall waste generation requiring landfill disposal capacity.

g. <u>Comply with federal, state, and local statutes and regulations related to solid waste?</u>

Wastewater Facilities Master Plan

Construction Phase

The proposed projects identified in the WFMP including construction at RP-4 and landscaping at RP-1, would comply with all applicable federal, state and local statutes and regulations for the projects construction phase. This includes waste reduction and recycling efforts for construction waste to the greatest extent practicable. With incorporation of recycling, reuse, and other waste reduction practices, the proposed master plan would meet AB 939 goals. Pursuant to the California Integrated Solid Waste Management Act of 1989, AB 939 requires a reduction in the in the amount of solid waste disposed in landfills by 25 percent in 1995 and by 50 percent in 2000. The green waste produced at RP-1 would be either composted on-site, or diverted to the Mid-Valley Landfill where it would also be composted. This effort would result in no impact.

Operation Phase

Operation of the proposed projects identified in the WFMP would comply with all applicable federal, state and local statutes and regulations related to solid waste. Any solid waste produced in the wastewater treatment process would be recycled or reused as explained above in the OMMP analysis. No significant impacts to solid waste disposal are expected to occur.

Recycled Water Master Plan

Construction Phase

The implementation of the RWMP would comply with all applicable federal, state and local statutes and regulations for the projects construction phase. Construction of the two pump stations and the pipelines follow the same regulations and statutes as mentioned in the WFMP section above. This effort would result in impacts that are less than significant.

Operation Phase

Operation of the proposed projects identified in the RWMP would comply with all applicable federal, state and local statutes and regulations related to solid waste. The operation of the two pump stations and new pipelines would not generate any solid waste, therefore, all regulations and statutes would be followed. No significant impacts to solid waste disposal are expected to occur.

Organics Management Master Plan

Construction Phase

The implementation of the OMMP would comply with all applicable federal, state and local statutes and regulations for the projects construction phase. Construction of the enclosed aerated static pile and the lagoon digesters at RP-1 and the Inland Empire Regional Composting Facility at RP-4 would comply with all the regulations mentioned above. This effort would result in impacts that are less than significant.

Operation Phase

Operation of the OMMP would comply with all applicable federal, state and local statutes and regulations related to solid waste. Any solid waste produced in the recycled water treatment process will be recycled or reused as explained above in the OMSBP analysis. There is no formal recycling program at the facilities due to the fact that there is not a significant amount of solid waste produced during operation of the facilities. Considering capacity available at the composting facilities and alternate disposal options at other commercial composting operations, potential solid waste disposal impacts associated with biosolids disposal would not result in the need for new systems of substantial alterations to solid waste disposal facilities. Considering the nature of IEUA treatment plant processes and solids handling operations, project activities are in compliance with the County Solid Waste Management Plan and federal regulations for the handling, disposal, and use of sewage biosolids (Codified Federal Regulation Title 40 - Protection of Environment - part 503). No significant impacts to solid waste disposal are expected to occur.

h. Cause a significant demand for electricity and natural gas services?

Wastewater Facilities Master Plan

Construction Phase

The proposed projects identified in the WFMP are expected to require minimal outside electrical services during construction. Power tools and welding machines required for construction would be powered through temporary connection to SCE's power lines. Large uses such as lighting (if necessary), would require on-site portable generators to supplement. Construction activities would be scheduled primarily during daylight hours. Night construction activities would only occur on an emergency basis. The amount of electricity necessary for construction would not exceed the amount available in the region, therefore, no significant impacts to energy services would occur.

Operation Phase

Buildout of the proposed facilities identified in the WFMP would result in a total electrical demand increase of approximately 1,726 kW. This equates to an increase of approximately 37 percent relative to current demand. Table 4.11-2 displays the IEUA electricity demand. The increased demand is not expected to have a significant effect on the power supply because the existing facilities generate a substantial amount of electrical power on site and are forecast to increase generation, hopefully, to meet total demand of the WFMP facilities. As shown in Table 4.11-3, it is calculated that RP-1 generates up to 7,415 kW; RP-4 generates up to 2,680 kW; and CCWRF generates up to 2,500 kW of electrical power.

Although the power generated is distributed among the different facilities of each of the three master plans, the difference between how much power would be used and how much would be generated would not exceed the electrical demand projected for near-term usage. Southern California Edison (SCE) is the electrical power provider in the region and would provide electrical power where necessary to make up the difference. SCE stipulates that it can meet the increased electrical demands that will not be met through on-site electricity generation (Callen, 2002). In addition to the existing electrical generation, it is planned that there will be an increase in future on-site generation respective to the increased demands, which in turn would require an increase in natural gas usage. Therefore, significant impacts to power for the facilities identified in the WFMP are not expected to occur.

Southern California Gas Company (SCGC) is the natural gas supplier for the IEUA service area. Buildout of the proposed facilities identified in the WFMP would result in a total gaseous fuel demand increase of approximately 1,512,584 therms per year. Table 4.11-4 provides the natural gas consumption data for the IEUA. The projected increase is approximately 37 percent relative to current demand. This is not expected to have any effect on the natural gas supply because the existing facilities generate a substantial amount of digester gas on-site. It is also planned that in 10 years RP-1 would generate up to 1,739,932 therms per year, and RP-4 would generate up to 253,322 therms per year of digester gas. Of the total 5,587,693 therms per year predicted to be utilized by the facilities proposed in the WFMP in the next ten years, 1,993,254 therms per year would be provided by on-site digester gas production. SCGC stipulates that it can meet the increased natural gas demands that are not met through on-site natural gas

Table 4.11-2
IEUA Electricity Consumption

Facility	Existing Peak Demand, kW	10-yr Peak Demand, kW
Wastewater facilities Master Plan		
RP-1	2,987	4,023.
RP-4	531	1,004
CCWRF	1,135	1,352
Total	4,653	6,379
Recycled Water Master Plan		
RP-1 (discharge)	0	2,525
RP-1 (discharge)	0	493
RP-1 PS#3	0	581
RP-4 (booster) #1	0	834
RP-4 (booster) #2	0	2,341
CCWRF (booster)	25	684
Total	25	7,458
Organics Management Master Plan		
IKEA Co-Composter	0	2,400
CIM Co-Composter	0	1,250
RP-1 Co-Composter	0	250
Total	0	3,900

Table 4.11-3
Power Generation, Existing and Planned at IEUA Facilities

	Avg Demand (kW)	**Peak Demand (kW)**	**Ex. Backup Diesel Generator Capacity (kW)**	**Other Ex. Generator Capacity (kW)**	**Proposed Additional Generator Capacity (kW)**	**Total Potential Generation Capacity (kW)**
RP-1	2,730	3,127	3,750	3,425	240	7,415
RP-2	962	1,015	600	580	60	1,240
RP-4	707	771	2,000		680	2,680
CCWRF	1,059	1,216	1,500		1,000	2,500
Subtotal	***5,458***	***6,129***	***7,850***	***4,005***	***1,980***	***13,835***
Desalter	790	1,180			1,820	1,820
Desalter Wells	824	824			1,180	1,180
Subtotal	***1,614***	***2,004***			***3,000***	***3,000***
RP-5 & New Headquarters		2,700			2,700	2,700
Subtotal		***2,700***			***2,700***	***2,700***
TOTAL	**7,072**	**10,833**	**7,850**	**4,005**	**7,680**	**19,535**

These values were obtained from actual field measurements
Average peak from last 13 months of invoices
Except for RP-5 and the New Headquarters, this generation capacity is expected to be operational by January 2002. RP-5 will be on-line in 2003.

Table 4.11-4
Natural and Methane Gas Consumption

Facility	Existing, therms per year	10-yr, therms per year
Wastewater facilities Master Plan		
RP-1	2,616,227	3,524,043
RP-4	464,788	879,329
CCWRF	994,094	1,184,321
Total	**4,075,109**	**5,587,693**
Recycled Water Master Plan		
RP-1 (discharge)	0	2,211,725
RP-1 (discharge)	0	432,043
RP-1 PS#3	0	508,781
RP-4 (booster) #1	0	730,584
RP-4 (booster) #2	0	2,050,891
CCWRF (booster)	21,760	599,184
Total	**21,760**	**6,533,208**
Organics Management Master Plan		
IKEA Co-Composter	0	2,102,400
CIM Co-Composter	0	1,095,000
RP-1 Co-Composter	0	219,000
Total	**0**	**3,416,400**

generation (Jackson, 2002). Therefore, impacts to natural gas for the facilities identified in the WFMP are not expected to be significant.

Recycled Water Master Plan

Construction Phase

The proposed projects identified in the RWMP are expected to require minimal outside electrical services during construction. Power tools and welding machines required for construction would be powered through temporary connection to SCE's power lines. Large energy uses, such as lighting (if necessary), would require on-site portable generators to supplement. Construction activities would be scheduled primarily during daylight hours. Night construction activities would only occur on an emergency basis. The amount of electricity necessary for construction would not exceed the amount available in the region, therefore, no significant impacts to energy services would occur.

Operation Phase

Buildout of the proposed facilities identified in the RWMP would result in a total electrical demand increase of approximately 7,433kW. This would be a substantial increase because minimal recycled water facilities exist presently. However, the increased demand is not expected to have a significant effect on the power supply because the existing wastewater treatment facilities generate a substantial amount of electrical power on site. It is calculated that RP-1 generates up to 7,415 kW, RP-4 generates up to 2,680 kW, and CCWRF generates up to 2,500 kW of electrical power.

Although the power generated is distributed among the different facilities of each of the three master plans, the difference between how much power would be used and how much would be generated would not exceed the electrical demand projected for near-term usage. SCE is the electrical power provider in the region and would provide electrical power where necessary to make up the difference. SCE stipulates that it can meet the increased electrical demands that will not be met through on-site electricity generation (Callen, 2002). In addition to the existing electrical generation, it is planned that there will be an increase in future on-site generation respective to the increased demands, which in turn would require an increase in natural gas usage. Therefore, significant impacts to power for the facilities identified in the RWMP are not expected to occur.

SCGC is the natural gas supplier for the IEUA service area. Buildout of the proposed facilities identified in the RWMP would result in a total gaseous fuel demand increase of approximately 6,511,448 therms per year. This would be a substantial increase because minimal amounts of recycled water facilities exist presently. However, this is not expected to have any effect on the natural gas supply due to the fact that the existing facilities generate a substantial amount of digester gas on-site. It has also been predicted that in 10 years RP-1 would generate up to 1,739,932 therms per year, and RP-4 would generate up to 253,322 therms per year of digester gas. Of the total 6,533,208 therms per year predicted to be utilized by the facilities proposed in the RWMP in the next ten years, 1,993,254 therms per year would be provided by on-site digester gas production. SCGC stipulates that it can meet the increased natural gas demands that are not met through on-site natural gas generation (Jackson, 2002). Therefore, impacts to natural gas for the facilities identified in the RWMP are not expected to be significant.

Organics Management Master Plan

Construction Phase

The proposed projects identified in the OMMP are expected to require minimal outside electrical services during construction. Power tools and welding machines required for construction would be powered through temporary connection to SCE's power lines. Large uses such as lighting (if necessary), would require on-site portable generators to supplement. Construction activities would be scheduled primarily during daylight hours. Night construction activities would only occur on an emergency basis. The amount of electricity necessary for construction would not exceed the amount available in the region, therefore, no significant impacts to energy services would occur.

Operation Phase

Buildout of the proposed facilities identified in the OMMP would result in a total electrical demand increase of approximately 3,900 kW. This would be a substantial increase because minimal organics management facilities exist presently. However, the increased demand is not expected to have a significant effect on the power supply because the existing facilities generate a substantial amount of electrical power on site. It is calculated that RP-1 generates up to 7,415 kW, RP-4 generates up to 2,680 kW, and CCWRF generates up to 2,500 kW of electrical power.

Although the power generated is distributed among the different facilities of each of the three master plans, the difference between how much power would be used and how much would be generated would not exceed the electrical demand projected for near-term usage. SCE is the electrical power provider in the region and would provide electrical power where necessary to make up the difference. SCE stipulates that it can meet the increased electrical demands that will not be met through on-site electricity generation (Callen, 2002). In addition to the existing electrical generation, it is planned that there will be an increase in future on-site generation respective to the increased demands, which in turn would require an increase in natural gas usage. Therefore, significant impacts to power for the facilities identified in the OMMP are not expected to occur.

SCGC is the natural gas supplier for the IEUA service area. Buildout of the proposed facilities identified in the OMMP would result in a total natural gas demand increase of approximately 3,416,400 therms per year. This would be a substantial increase because minimal organics management facilities exist presently. However, this is not expected to have any effect on the natural gas supply due to the fact that the existing facilities generate a substantial amount of digester gas on site. It has also been predicted that in 10 years RP-1 would generate up to 1,739,932 therms per year, and RP-4 would generate up to 253,322 therms per year of digester gas. Of the total 3,416,400 therms per year predicted to be utilized by the facilities proposed in the OMMP in the next ten years, 1,993,254 therms per year would be provided by on-site digester gas production. Methane gas is a by-product of anaerobic digestion, which is captured and utilized by electric generators. IEUA's goal is to develop alternative energy sources, which can be ulilized to power as many of the facilities as practicable and to assist the Agency to become energy independent over the next five to ten years. SCGC stipulates that it can meet the increased natural gas demands that are not met through on-site natural gas generation (Jackson, 2002). Therefore, impacts to natural gas for the facilities identified in the OMMP are not expected to be significant.

4.11.4 Mitigation Measures

4.11.4.1 Construction Impacts

No mitigation required.

4.11.4.2 Operation Impacts

No mitigation required.

4.11.5 Cumulative Impact

Implementation of the three master plans will contribute to the cumulative demand for wastewater treatment capacity, potable water, landfill capacity, electricity and natural gas in the SCE service area. Regarding wastewater treatment capacity, implementation of the WFMP will ensure adequate capacity to handle the small increment of wastewater that will be generated from implementing the proposed project. For potable water, the demand is not only going to be small, but it will be more than offset by the recharge of recycled water within the Chino Basin, which will be implemented as part of the RWMP. Although minor demand for landfill capacity will be generated by construction and operations of all proposed facilities, the amount of waste diverted in support of the OMMP will actually reduce cumulative demand for landfill capacity within the region. Regarding energy resources, the proposed project will result in substantial increases in energy generation by IEUA, but the proposed project will still place additional demand on both the electricity and natural gas utility grids. The two utilities providing energy resources, SCE and SCG, both indicate that adequate electricity and natural gas resources are available into the future to meet cumulative demand. However, even if temporary shortfalls should occur, IEUA has shown itself capable of dealing with short-term power outages by relying upon portable energy equipment that can utilize other energy resources to bridge any shortfalls in energy availability. In sum, the only utility system that may be adversely impacted by the proposed project is the energy supply system. IEUA is developing independent energy resources to offset its demand and has alternatives during energy resource (power) shortages to ensure that its operations do not create a cumulatively significant demand for these resources or on the utility infrastructure systems that deliver them to southern California.

4.11.6 Unavoidable Significant Impact

No unavoidable significant impacts to utilities have been identified that would result from the implementing the proposed master plans.

4.12 CULTURAL RESOURCES

4.12.1 Introduction

"Cultural Resources" is a term meant to encompass both archaeological, historic, and prehistoric resources. Archaeological and historic resources may occur together on the same site. Although cultural resources are in fact man-made features, they occur on the landscape as a result of previous human activities, and thus are addressed in the CEQA process in a manner similar to natural resources.

Archaeological resources are the physical remains of past human activities, and can be either prehistoric or historic in origin. Such resources include artifacts, refuse, and features in both surface and subsurface contexts, an are greater than 50 years in age and/or meet other established criteria to qualify as historic in nature.

- Prehistoric archaeological resources may include the remains of villages and campsites, food processing locations, lithic (stone) resource procurement and tool-making location, and burial and cremation areas. They may also consist of trails, rock are and geoglyphs (ground figures) and isolated artifacts. Prehistoric archaeological resources are the result of cultural activities of the ancestors and predecessors of contemporary Native Americans, and in many cases, retain special traditional and sacred significance for those people.
- Historic archaeological resources include refuse deposits such as can and bottle dumps, filled-in privy pits and cisterns, melted adobe walls and foundations, collapsed structures and associated features, and roads and trails. They may relate to mission activities, travel an exploration, early settlement, homestead activities, cattle and sheep herding, lumbering, and mining, among other themes. In San Bernardino County, historical archeological resources date from the earliest Spanish Mission activities (ca. 1770) to the turn of the century.

Historic resources are intact structures of any type that are 50 years or more of age. These resources are sometimes called the "built environment" and include houses or other structures, irrigation works, and engineering features, among other items.

Paleontological resources are the fossil remains or traces of past life forms, including both vertebrate and invertebrate species, as well as plants. These resources are found in geologic strata conducive to their preservation, typically sedimentary formations. All vertebrate fossils are considered to be significant; other kinds of paleontologic resources must be evaluated individually for significance depending on their potential scientific value.

Because both archaeological and paleontological resources can be exposed when grading or other ground disturbing activities are carried out, they are considered together in this cultural resources section of the PEIR. Known cultural resources are those which have been identified through formal recognition on one or more of the following inventories: National Register of Historic Places, California Archaeological Inventory, California Historic Resources Inventory, California Historical Landmarks, Points of Historic Interest and others.

The purpose of this PEIR is to provide the Inland Empire Utilities Agency (IEUA) and other interested parties with the necessary information and analysis to determine whether the proposed implementation of the three master plans would have any adverse effects on archaeological resources, as defined by the National Historic Preservation Act (NHPA) Section 106 and CEQA, that may exist within the APE, or on paleontological resources; collectively termed cultural resources in this document

4.12.2 Environmental Setting

The proposed project involves the possible construction and/or modification of both new and/or existing facilities (such as wastewater reclamation plants or recharge basins); with activities including pipeline installation, construction of new facilities and a variety of earthmoving operations. The nature and potential location of projects within the project area is relatively well defined at this time. 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. During construction of new structures where foundations are required, the chances of encountering cultural resources are greater than along existing roadways, however the actual potential of discovery at each location is substantially different in nature, and is highly site/project specific. The locations within the project area boundaries with known sensitivity for cultural resources have been identified as a result of the archival records search discussed below.

4.12.2.1 Project Area Archaeological History

The following information has been abstracted from the Optimum Basin Management Program Program Environmental Impact Report (OBMP PEIR) with minor editing. The following text is a short summary of the cultural history of the project area.

The project area lies mostly within the traditional territory of the Gabrielino, a Native American group generally considered to be the most populous and most powerful ethnic nationality in aboriginal southern California. The Gabrielino's territory was centered in the Los Angeles Basin, but their influence spread as far as the San Joaquin Valley, the Colorado River, and Baja California. Along the eastern edge of the project area, the Gabrielino's territorial claim overlapped with the those of two other Native American groups: the Serrano of the San Bernardino Mountains, and the Luise°ʌo of the Perris-Elsinore region. During the 19th century, a late influx of Cahuilla from the San Gorgonio Pass and Coachella Valley occurred in the present-day Riverside-San Bernardino region, further complicating the ethnic composition of the native population in the early historic period.

Although the first European explorers traveled through the vicinity as early as the 1770s, for more than half a century the arid inland area received little physical impact from the Spanish colonization activities along the Pacific coast. After the establishment of Mission San Gabriel in 1771, the project area gradually became a loosely defined mission rancho used for food production, including crops and cattle, but no Europeans are known to have settled in the area until the late 1830s. In 1834, the Mexican government, which had inherited Alta California from Spain when it gained independence in 1821, began to dismantle the mission system through the process of secularization. Like all other former mission land holdings throughout Alta California, the rancho was divided and granted to various prominent citizens of the territory. Between 1838 and 1846, several large private ranchos was created in and around the project area, including Santa Ana del Chino, Cucamonga, Jurupa, La Sierra (Sepulveda), La Sierra (Yorba), and El Rincon. As elsewhere in southern California during the Rancho Period, cattle raising was the most prevalent economic activity on these ranchos, until the influx of American settlers eventually brought an end to this now-romanticized lifestyle during the second half of the 19th century.

In the 1880s, spurred by the completion of the competing Southern Pacific and the Santa Fe Railroads, a land boom swept through much of southern California. A large number of towns, surrounded by irrigated agricultural land, were laid out in the project area before the end of the 19th century. Following the successful introduction of the naval orange in the mid-1870s, the project area became an important part of southern California's prosperous citrus industry. In the meantime, different communities in the project area also developed distinctive local characteristics in their economic and social life. The Chino area, for example, was long known as the dairy capital of southern California, while the Rancho Cucamonga area was closely associated with vineyard cultivation and wine-making. By the mid-20th century, however, the forces of industrialization and urbanization began to rapidly alter this predominantly agrarian setting of the project area. In particular, the establishment of the Kaiser Steel Mill in the early 1940s dramatically changed the cultural landscape of the Fontana area. During the more recent decades, due to the ever increasing demand for affordable housing by commuters who work in the Greater Los Angeles area, citrus groves and vineyards have given way to housing tracts, as the cities and towns in the project area took on more and more of the characteristics of "bedroom communities."

4.12.3 CULTURAL RESOURCES ASSESSMENT

Activities requiring the excavation or movement of soil material at any location within the project area have the potential to adversely effect cultural resources. The impact evaluation presented below focuses on the proposed physical changes to site landscape and any potential adverse impacts these changes may have on the cultural resources that exist on the site. For purposes of the following analysis of cultural resource impacts, it is assumed that the project will be approved and implemented as proposed and described in the Project Description, Chapter 3 of this document.

The development of land within the project area would include installing a variety of new infrastructure systems. The cultural resources of focus in this evaluation are related to the types of possible alterations project sites from construction of facilities identified in the three master plans, and the potential damage or loss of historical structures that exist within the Project Area that may be impacted from implementing this project. The facilities proposed by the three master plans are summarized below.

Wastewater Facilities Master Plan

Under this plan, several construction projects are planned to provide adequate wastewater collection and treatment services within the IEUA's service area.

RP-1 (see Figure 3-8) is scheduled to proceed through three phases of improvements as it is expanded to provide up to 60 MGD of wastewater treatment capacity. The whole RP-1 project site has been engineered to support wastewater treatment facilities and operations. Even the Cucamonga Creek channel, which traverses the site from north to south, has been concrete lined. Future improvements include:

- Immediate improvements include odor control facilities, expansion of chlorine contact basins and provision of some side stream treatment for the belt press.
- Near term improvements at RP-1 include maintaining the 44 MGD capacity, Phase I improvements (expand aeration basins, add secondary clarifiers, landscaping to screen RP-1 facilities with trees and walls, and provide primary effluent storage and odor control) and Phase II improvements (construct new covered primary flow equalization basins) that will all take place within the existing RP-1 treatment plant footprint.
- Long term projects (through 2050) at RP-1 include: Phase III improvements (expand to 52 MGD capacity, expand aeration basins, add secondary clarifiers, add additional pumps, add new filters and gravity thickener, and expand the plant utility system);

and Phase IV improvements (expand to 60 MGD capacity, expand influent channel, add Parshall flume and bar screen, expand aeration basins, add secondary clarifiers, add additional pump and add new chlorine contact basin). These two phases of improvements will all take place within the existing RP-1 treatment plant footprint.

RP-4 (see Figure 3-17) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 35 MGD of wastewater treatment capacity. The whole RP-4 project site has been engineered to support wastewater treatment facilities and operations.

- Immediate projects at RP-4 include: Expand liquid treatment to 21 MGD capacity (add primary clarifiers, modify oxygen ditches, odor control, chlorination system, expand chlorination basins, expand headwords, add secondary filters and add tertiary filters). These improvements will all take place within the existing RP-4 treatment plant footprint.
- Long-term projects (through 2050) at RP-4 include: Expand liquid treatment to 35 MGD capacity in 7 MGD increments (add primary clarifiers, expand chlorination basins, expand headworks, add secondary filters, and add tertiary filters). Add biosolids treatment capacity up to 40 MGD capacity in 8 MGD increments (thickening centrifuges, three-stage digestion process, dewatering centrifuges, gas storage, cogeneration facilities, odor control, sludge storage facilities and centrate treatment facilities). These liquid and biosolids treatment improvements will all take place within the existing RP-4 treatment plant footprint, or adjacent industrial property.

CCWRF (see Figure 3-15) is scheduled to proceed through two phases of improvements as it is expanded to provide up to 20 MGD of wastewater treatment capacity. The whole CCWRF project site has been engineered to support wastewater treatment facilities and operations. Future improvements include:

- Near term projects at CCWRF include: Expand liquid treatment to 12 MGD capacity (divert recycled flows to the SARI line and replace gaseous chlorine with sodium hypochlorite for disinfection and sodium bisulfite for dechlorination). These improvements will all take place within the existing CCWRF treatment plant footprint.
- Long term projects (through 2050) at CCWRF include: Expand liquid treatment to 20 MGD capacity (add additional headworks grit chamber, two primary clarifiers, new primary effluent pump system, new aeration basins and blowers, additional secondary clarifier, three additional tertiary filters, and add new chlorine contact basin). These liquid treatment capacity improvements will all take place within the existing CCWRF treatment plant footprint.

RP-2 is scheduled for one phase of improvements. The whole RP-2 project site has been engineered to support wastewater treatment facilities and operations.

- Near term projects at RP-2 include: Possible conversion of four digesters to three-phase digestion and install microturbine generator(s). These improvements will all take place within the existing RP-4 treatment plant footprint.

Satellite Plants:

1. Construction of two new satellite "skimming" plants, from a list of nine potential locations:

- Upland Hills WRP [SP-1],
- San Antonio Lakes [SP-2],

- Church Basin [SP-3],
- CCDW-Baseline [SP-4],
- Foothill/I15 Corridor [SP-5],
- Kaiser/CSI WWTP [SP-6],
- Sierra Lakes [SP-7],
- Fontana-Baseline [SP-8], and
- Montclair [SP-9].
- IEUA has identified the RP-3 site as a possible tenth satellite plant location for consideration.

2. Construct two 5 MGD plants (primary clarification, multi-stage aeration, secondary clarification, filtration and disinfection system) one in the near term and one long term

Conveyance Systems

1. Construction of about 129,943 linear feet of new pipelines and two new pumping stations to connect satellite plants and regional plants.
2. Immediate projects: Upland Interceptor Relief System, RP-4 Trunk Sewer (Reaches 1,2 and 3), and RP-1/RP-5 Bypass (Eastern Trunk) & Kimball Interceptor Extension
3. Near term projects: San Bernardino Interceptor Pump Station and Force Main and Freeway Trunk sewer
4. Long term projects: RP-4 Trunk Sewer (Reaches 4 & 5), SARI Diversion Pump Station, Turner Trunk Replacement, Archibald Avenue Trunk Relief Sewer Replacement, Cucamonga Relief Replacement, Lower Westside Replacement, Southwest Chino Trunk Replacement, and Los Serranos Interceptor Replacement.

Recycled Water Master Plan

Under this plan, several construction projects are planned to provide reuse of treated water, thus reducing dependency on imported water to service the IEUA's service area. Construction activity that will be assessed for potential impacts includes:

1. Construction of approximately 397,500 linear feet of new pipelines, up to eight new pump stations and up to five recycled water storage reservoirs to connect the regional treatment plants and the recharge basins.
2. Immediate projects (Phase 1) include: ten pipelines (Fourth Street Regional Pipeline, Wineville Regional Pipeline, Philadelphia Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue Pipeline, North Etiwanda Pipeline, Segment I, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, and Jurupa Regional Pipeline); three pump stations (RP-1, RP-2 and possibly Jurupa Basin); one storage reservoir (Jurupa Basin); and local pipelines from the recycled water distribution pipelines to the recharge basins (Turner Basins 1, 2, 3 and 4, Hickory Basin, Banana Basin, Declez Basin, Ely Basins, Etiwanda Conservation Basins, Jurupa Basin, RP-3 Basins, and Wineville Basin).
3. Near term projects (Phases 2-5) include: 21 pipelines including alternatives (Fourth Street Regional Pipeline (Segment 2), Grove Avenue Regional Pipeline, Monte Vista Regional Pipeline, CCWRF/RP-5 Pipeline, RP-5/RP-2 Pipeline, Pine Avenue, North Etiwanda Pipeline, Segment 2, Etiwanda Conservation Basins Pipeline, Whittram Regional Pipeline, Etiwanda South Regional Pipeline, Arrow Route Regional Pipeline,

210 Freeway Distribution Pipeline, Segment I, 210 Freeway Distribution Pipeline, Segment II, 210 Freeway Distribution Pipeline, Segment III, 210 Freeway Distribution Pipeline, Segment IV, Benson Avenue Distribution Pipeline, Foothill Avenue Distribution Pipeline, Walnut/Riverside Regional Pipeline, Edison/Merrill Regional Pipeline, Euclid Avenue Regional Pipeline (alternative 1), and Conversion of the Ramona Feeder (alternative 2); four pump stations (RP-4, Etiwanda, Benson Avenue, and Montclair; four storage reservoirs (RP-4, Etiwanda, Benson Avenue and Montclair; and local pipelines from the recycled water distribution pipelines to the recharge basins (College Heights Basins, Brooks Street Basin, 7th & 8th Street Basins, Upland Basin, Montclair Basins 1,2,3 & 4, Upland Basin (contingent), Etiwanda Spreading Basins, Lower Day Creek Basin, Victoria Basin, San Sevaine No's 4 and 5, and San Sevaine No's 1, 2 & 3).

4. Up to 40 Groundwater monitoring wells may be installed over the immediate and near term periods
5. No long term recycled water facilities are proposed.

Organics Management Master Plan

Under this plan, several construction projects are planned to improve organics handling and disposal within the IEUA's service area. Construction activity for the following OMMP projects will be assessed for potential impacts.

- Immediate projects include: RP-1 Enclosed ASP (Pilot demonstration project to treat biosolids and digested manure, treat 10,000 tons of biosolids and biofilters to control odors); the Dairy Digester Pilot Project (covered 4 million gallon lagoon, treat 100,000 gallons per day and generate 80 kilowatts of power through use of 3-4 microturbine generators), and Inland Empire Regional Composting Facility (treat 150,000 to 250,000 tons of biosolids per year, separate receiving/mixing building, project loading building, biofilter for odor control, and treat biosolids, manure and green waste).
- Near term projects include: RP-5 Renewable Energy Project (increase power production from 0.75 MW to 2.0 MW and treat an additional 100,000 wet tons of manure); California Institute for Men (CIM) Compost Facility (treat 30,000 tons of biosolids per year, odor control and biosolids from RP-5 conveyed to site via conveyor); High Tech Manure Facility (four 30kW microturbines and a flare for off-spec gas); Advanced Technology Manure Pyrolysis Process (treat 100,000 tons per year of corral-dried manure, heat organics to high temperatures under pressure, and blade-less turbine to generated 7 MW; and sewers to convey dairy manure to facilities.

The facilities summarized above will be evaluated for land use issues in the following sections.

4.12.3.1 Thresholds of Significance

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the IEUA in determining whether such resources meet the official definitions of "historic resources," as provided in the California Public Resources Code, in particular CEQA or significant paleontological resources.

According to PRC §5020.1(j), "historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." Specifically, CEQA guidelines states that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing the California Register of Historical Resources, included in the local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a) (1)-3)).

Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

A significant cultural resource impact would be any one impact that resulted in the damage, disturbance or destruction of an archeological, paleontological, or other historic/cultural resource.

Basin Improvements: Archaeological Resources

San Sevaine Basins 1, 2 and 3: The 1500-foot length of pipeline on the east side of these three basins has not been surveyed for this project, but portions of this route were surveyed as part of the San Sevaine Basin surveys, and for a survey of the channel from Rich Basin (NADB 1061582, 1062851, 1062041). No archaeological resources were located during these surveys, nor in nearby surveys of Interstate 15. However, a historic resource, CA-SBR-6901H, a water transportation system, is recorded 400 feet north of the northern end of this pipeline. Additionally, two roads, CA-SBR-6810H and PSBR-2H, and one agricultural site, CA-SBR-9584H, are located within a one-half mile radius of this project area. Although about half of the area within a one-half mile radius of this project has been surveyed for cultural resources, no prehistoric sites have been recorded. This suggests that the area has a low sensitivity for prehistoric resources.

San Sevaine Basins 4 and 5: About half of the 400-foot pipeline to be built on the east side of these basins has been surveyed as part of the San Sevaine Basins survey (NADB 1061582, 1062041). No archaeological resources were located during these surveys, nor in nearby surveys of Interstate 215. No prehistoric or historic resources are recorded within a one-half mile radius of this project area, although about one-third of this one-half mile radius has been surveyed for cultural resources. This suggests that the area has a low sensitivity for prehistoric resources.

Etiwanda Spreading Basins: The 1300-foot length of pipeline on the west side of this basin encounters historical archaeological site P-1H, for which the site record has been requested. About 25 percent of the area within a one-half mile radius of this basin has been surveyed (NAD 1061582 and 1062851) and three additional historical sites and one historical isolate recorded. The lack of recorded prehistoric site suggests that the area may have a low potential for prehistoric cultural materials.

Victoria Basin: The 200-foot length of pipeline on the south side of this basin has been completely surveyed during previous projects (NADB 1062796, 1062796, and 1062851). No cultural resources are reported for the pipeline area. Within a one-half mile radius, about a third of the area has been surveyed, and six historical resources recorded. The lack of recorded prehistoric site suggests that the area may have a low potential for prehistoric cultural materials.

Lower Day Creek Basin: Two pipelines extend form this basin, to the north and south. Within a one-half mile radius, about 40 percent of the area has been surveyed, including the 80 acres of the basin itself, and 160 acres immediately north and east (NADB 1062851, 1063457, 1061868, 1062316, 1061591 and 1061388). Three historical resources have been recorded within this one-half mile radius. Once outside the Lower Day Creek Basin, the southern pipeline route has not been surveyed. This route crosses one of the recorded historical resources, PSBR-2H, an unnamed historic road. It is unlikely, however, that any trace of this resource remains in the project area.

The entire length of the northern pipeline has been previously surveyed for cultural resources. One historical site, CA-SBR-6254H, lies within this route. No prehistoric sites have been recorded in or around the Lower Day Creek Basin, and this lack of recorded prehistoric sites suggests that the area may have a low potential for these types of cultural materials.

College Heights Basin: The location of the College Heights Basin has been previously surveyed (NADB 1062851). One site, CA-SBR-7794H, is located immediate adjacent to this basin, and portions of the proposed improvements may impact this area. Three additional historic sites have been recorded within a one-half mile radius; no prehistoric sites have been found in that area. This lack of recorded prehistoric sites is probably due to early development of the area, before modern environmental laws requiring survey for cultural resources. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

Upland Basin: About ten percent of the area within a one-half mile radius of the Upland Basin has been surveyed for cultural resources. Three historic sites and no prehistoric sites have been recorded within this radius. This lack of recorded prehistoric sites is probably due to early development of the area, before modern environmental laws requiring survey for cultural resources. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

Montclair Basins 1-4: The two pipelines extending east from these basins to Monte Vista Avenue have not been surveyed for cultural resources, although the four basins have been surveyed (NADB 1062851). One site, P1083-31H, a loading dock, was located during this survey; this site lies in the area proposed for the connector pipeline between Montclair Basin 3 and Montclair Basin 4. The San Bernardino-Sonora Road, recorded as California Point of Historic Interest SBR-21, also crosses Basin 4; however, it is extremely unlikely that any traces of this early road remain intact. Within a one-half mile radius, almost no other cultural resources survey has been done, probably due to early development of the area. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

Brooks Street Basin: About two-thirds of the Brooks Street Basin has been surveyed as the result of another, larger project (NADB 1060500), with no cultural resources located. This survey includes the location proposed for the pipeline extending east to xx Avenue. However, the pipeline extending west to the San Antonio Channel has not been surveyed. Almost none of the area within one-half mile of the Brooks Street Basin has been surveyed for cultural resources. Only one historic resources has been recorded in this area, CA-SBR-10330H, the mainline of the Southern Pacific Railroad. This lack of recorded historic or prehistoric sites is clearly due to early development of the area, before modern environmental laws requiring survey for cultural resources. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

<u>7th and 8th Street Basins:</u> These basins have not been surveyed; only about five percent of the surrounding area in a one-half mile radius has been surveyed. Three historic sites are recorded in the area around this basin, two residential site and a refuse scatter. This lack of recorded historic or prehistoric sites is clearly due to early development of the City of Ontario; because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

<u>Hickory Basin:</u> The area of Hickory Basin has been surveyed (NADB 1063591, 1063063), as has the pipeline route, which extends east from this basin to Banana Basin. The pipeline route, which extends west and north, has not been surveyed. The AT&SF Railroad, CA-SBR-6847H, crosses both of these pipeline routes. Hickory Basin and this eastern pipeline route lie within the Kaiser Steel Complex, which has been recorded as California Point of Historic Interest SBR-71, or CA-SBR-4134H. No other historic sites or prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

<u>Etiwanda Conservation Basins</u>: The area of these basins has been surveyed (NADB 1063579, 1062660). The Etiwanda Conservation Basins lie within the Kaiser Steel Complex, which has been recorded as California Point of Historic Interest SBR-71, or CA-SBR-4134H. No other historic sites or prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

<u>Banana Basin:</u> Banana Basin and it's surrounding have been surveyed as part of other projects (NADB 1063591, 1063063). This includes the pipeline route extending west to Hickory Basin. Banana Basin and this pipeline route, as noted above, lie within the Kaiser Steel Complex, California Point of Historic Interest SBR-71, or CA-SBR-4134H. The AT&SF Railroad, CA-SBR-6847H, passes just north of Banana Basin. No other historic sites or prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

<u>Turner Basins:</u> These basins have not been surveyed for cultural resources; approximately ten percent of the surrounding one-half mile has been surveyed. Two historic sites, both roads, PSBR-1H, and California Point of Historic Interest PSBR-21, have been recorded within a one-half mile radius. No prehistoric sites have been recorded in or around the Turner Basins. This is probably due to the lack of cultural resources survey in the area. Because of this, the potential for historic and prehistoric resources in this area is unknown, and will be classified as high.

<u>Wineville Basin:</u> Within a one-half mile radius of the Wineville Basin, about one-third of the area has been surveyed. No historic or prehistoric cultural resources have been recorded within this one-half mile study area. This suggests that this area has a moderate to low potential for cultural resources.

<u>Ely Basins:</u> These basins have not been surveyed for cultural resources. Approximately five percent of the surrounding one-half mile radius has been surveyed. No historic or prehistoric cultural resources have been recorded within this one-half mile study area. This is due to the lack of cultural resources survey in the area. Because of this, the potential for historic and prehistoric resources in this area is unknown, and will be classified as high.

<u>Jurupa Basin:</u> The Jurupa Basin has been surveyed for cultural resources, as well as about 20 percent of the surrounding area. This includes the pipeline route extending east to the RP-3 Basins. Historic structures are recorded on this pipeline route, including a group of buildings, PSBR-50H, a

church, CA-SBR-4584H, and the Declez Ranch/Felice-Pagliuso Winery and Chapel, all California Point of Historic Interest SBR-95.

In the surrounding half-mile, two prehistoric campsites and a habitation site, CA-SBR-1632, CA-SBR-4549, and CA-SBR-4450 have been recorded, as well a five isolates, two metate fragments, a mano, a core and a flake (P36-060221, -060220, -060219, -060218, and 060217). The abundance of both historic and prehistoric cultural resources in this area suggest that this pipeline route has a high potential to impact cultural resources.

RP-3 Basins: The western two-thirds of the former RP-3 Plant has been surveyed for cultural resources (NADB 1061946, 1061634, 1060145, 1060644, 106 1072, 1061499). About 40 percent of a one-half mile radius around RP-3 has also been surveyed. A historic road, California Point of Historic Interest SBR-21, has been recorded across this area. As noted above, the numerous historic and prehistoric cultural resources near the RP-3 area along the proposed pipeline route, suggest that this route has a high potential to impact cultural resources.

Declez Basin: Only about 25 percent of an area one-half mile in radius around this basin has been surveyed. However, this encompasses most of the proposed pipeline route. Two cultural items, both prehistoric metate fragments, P36-060262, and P36-060215, have been recorded within a one-half mile radius of this basin. This is probably due to the lack of cultural resources survey in the area. Because of this, the potential for historic and prehistoric resources in this area is unknown, and will be classified as high.

Regional Plants: Archaeological Resources

RP-1: A portion of this plant has been surveyed for cultural resources (NADB 1063590), but no sites were found. About ten percent more of the surrounding area within a one-half mile radius of RP-1 has been surveyed. One site has been recorded in this area, PSBR-17H, a historic trail. No other historic sites or prehistoric sites have been recorded within this study area, probably due to the limited amount of survey in the area. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

RP-2: This plant has been surveyed for cultural resources (NADB 1061941, 1061492, 1062058). Four historic sites have been recorded within the boundaries of RP-2, P872-36H, a ranch; P872-47H, a residence; P872-34H, a dairy farm, and P872-75H, a farm. In the surrounding half-mile radius, eleven more historic era agricultural sites have been recorded. Additionally, four prehistoric sites have been recorded within this half-mile radius, a habitation site, CA-SBR-8694; a lithic scatter CA-SBR-4032; and two food-processing sites, CA-SBR-5096, CA-SBR-5245. This abundance of historic and nearby prehistoric sites suggests that the potential for cultural resources within the RP-2 plant is high.

RP-4: The area of this plant has been surveyed for cultural resources (NADB 1062090, 1061894). A winery has been recorded within the boundaries of RP-4, as P1084-52H. The additions proposed for the RP-4 area, the RCIP, etc, have not been surveyed for cultural resources, although about 20 percent of the area within a one-half mile radius of RP-4 and these additional facilities has been surveyed. One site has been recorded in this area, CA-SBR-6847H, the AT&SF Railroad. No prehistoric sites have been recorded within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

RP-5: Portions of RP 5 have been surveyed for cultural resources (NADB 106 0272, 1062974, 1063073 and 1062059). Two sites have been recorded within RP-5, both dairies, CA-SBR-10696H and CA-SBR-10607H. Five historic sites relating to ranching and agriculture have been recorded nearby, as well as two prehistoric food-processing sites (CA-SBR-4212 and CA-SBR-5245) and two isolated groundstone fragments (P36-064,029, P36-064,234). This relative abundance suggests that the potential for cultural resources within the RP-5 plant is high.

CCWRF: The CCWRF has not been surveyed for cultural resources. About five percent of an area one-half mile in radius of this plant has been surveyed, with only one cultural resource recorded, CA-SBR-6871H, a road. Since this area is near to Chino Creek, it is likely that few resources have been recorded due to lack of survey. Because of this setting, the potential for cultural resources in this area is probably moderate to high.

Satellite Plants: Archaeological Resources

Satellite Plant 1 - Upland WRF: The area proposed for construction of Satellite Plant 1 has been completely surveyed, as part of a larger project (NABD 1060546), with no cultural resources found. Within a half-mile radius of this location, about 50 percent of the area has been surveyed, with four historical sites located. The lack of recorded prehistoric sites suggests that the area has a low sensitivity for prehistoric resources, although this lack of sites may be due to development of the area prior to modern environmental laws requiring cultural resources survey.

Satellite Plant 2 - San Antonio Lakes: Of the area proposed for the construction of Satellite Plant 2, the eastern half (east of 19th Avenue,) has been surveyed for cultural resources as part of another project (NADB 1060383). However, the entire SP 2 location lies within a large historic site, CA-SBR-6255H. Within a half-mile radius, about half the area has been surveyed for cultural resources, and an additional five historical sites recorded. The lack of prehistoric sites suggests that the SP 2 location has a low sensitivity for prehistoric cultural resources.

Satellite Plant 3 - Church Basin: This location has not been surveyed for cultural resources; about 10 percent of the surrounding one-half mile radius has been surveyed. One historic cultural resource, a road (P-SBR-2H), crosses this plant location. Three residential sites have been recorded in the surrounding one-half mile. No prehistoric sites have been recorded within the surrounding one-half mile; this lack of prehistoric sites is likely due to the limited amount of survey in the area. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

Satellite Plant 4- Baseline Road: For this plant, a general location along Baseline Road between Carnelian Road and Interstate 15 was assessed for cultural resources sensitivity. Within one-half mile on either side of this portion of Baseline, about 25 percent of the area has been surveyed for cultural resources. However, along this section of Baseline Road itself, about 70 percent has been surveyed for cultural resources (NADB 1060495). Numerous historic sites and five prehistoric sites have been recorded in this area. Historic sites recorded along Baseline Road include multiple structures (P1084-27H), and a winery (P1084-46H). Within a one-half-mile radius, several houses, three churches, and an industrial complex have also been recorded. This section of Baseline Road itself has been recorded as California Point of Historic Interest SBR-12.

Two prehistoric sites straddle this portion of Baseline Road, CA-SBR-902, a campsite, and CA-SBR-900, a food-processing site. Three other prehistoric sites are located nearby, CA-SBR-270, CA-SBR-899 and CA-SBR-901. Two of these sites are large villages.

Satellite Plant 5- Foothill/I-5: For this plant, a general area along Foothill Drive between Rochester and Etiwanda was assessed. About half of this length of Foothill has been assessed for cultural resources (NADB 1060479, 1062501), while about 20 percent of the area within one-half mile of the area has been surveyed. Foothill Road has been recorded as a historic site, CA-SBR-2910H, and several historic sites are recorded along this section, including two wineries, P1084-56H, and P1084-57H; a commercial structure, P1084-51H; and a segment of sewer, CA-SBR-7099H. No prehistoric resources are recorded within the one-half mile study area. This suggests that the SP 5 location has a low sensitivity for prehistoric cultural resources.

Satellite Plant 6 - Kaiser Steel/CSI WWTP: The site for this satellite plant has been completely surveyed (NADB 1063592). This location is completely within the Kaiser Steel Plant complex, which has been recorded as California Point of Historic Interest SBR-71, or CA-SBR-4134H. No prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

Satellite Plant 7-Highland Avenue: For Satellite Plant 7, a general location along Highland Avenue between Citrus Avenue and Interstate-15 was assessed for cultural resources sensitivity. Within one-half mile on either side of this portion of Highland Avenue, about half the area has been surveyed for cultural resources. Forty-four historic resources have been recorded in this area, including more than 25 residential sites or structures, more than five commercial locations, four water-related structures, airport structures, farming structures, a church structure and a historic road. Immediately along Highland Avenue, several historic structures have been recorded, including residential sites, residential structures, commercial locations, airport structures, a church structure and a water reservoir.

One campsite, CA-SBR-9364/H, is located about 2600 feet south of Highland Avenue and is the only prehistoric resource recorded within this assessment area. This suggests that the area has a low sensitivity for cultural resources, although this lack of sites may be due to development of the area prior to modern environmental laws requiring survey for prehistoric resources.

Satellite Plant 8 – Fontana, Baseline: For this plant, a general area along Baseline Road between Citrus and Cherry was assessed. About half of this length of Baseline has been assessed for cultural resources (NADB 1062033, 1061189), while about 30 percent of the area within one-half mile of the area has been surveyed. Baseline Road has been recorded as a California Point of Historical Interest CPHI-SBR-12, and two ranching sites, P1073-7H, and P1073-9H and a residence, P1084-9H are recorded along this section of the road. Three other historical sites, two ranches and a residence, are recorded within the one-half mile study area. No prehistoric resources are recorded within the one-half mile study area, which suggests that the SP 8 location has a low sensitivity for prehistoric cultural resources.

Satellite Plant 9 - Montclair: For Satellite Plant 9, a general location in the City of Montclair between Holt Boulevard and 5th Avenue, bounded by Central Avenue on the east and the Los Angeles County line on the west, was assessed for cultural resources sensitivity. Within one-half mile on either side of this portion of Montclair, only about five percent of the area has been surveyed for cultural resources. Only one historic resources has been recorded in this area, CA-SBR-10330H, the mainline of the Southern Pacific Railroad. This lack of recorded historic or prehistoric sites is clearly due to early development of the area, before modern environmental laws requiring survey for cultural resources. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

RP-3 Site: The western two-thirds of the former RP-3 Plant has been surveyed for cultural resources (NADB 1061946, 1061634, 1060145, 1060644, 106 1072, 1061499). About 40 percent of a one-half mile radius around RP-3 has also been surveyed. A historic road, California Point of Historic Interest SBR-21, has been recorded across this area. As noted above, the numerous historic and prehistoric cultural resources near the RP-3 area along the proposed pipeline route, suggest that this route has a high potential to impact cultural resources.

SEWER LINES: Archaeological Resources

Upland Interceptor Relief System: Phase 1, Reach 1; Phase 1, Reach 2; Phase 2, Reach 1; Phase 2, Reach 3 and Phase 3 of this system have not been surveyed for cultural resources, nor has any portion of the area within a one-quarter mile radius, except for the RP-4 Plant location. No sites are recorded in this radius as well. Portions of Phase 2, Reach 2, and about 25 percent of the surrounding one-quarter mile radius, have been surveyed for cultural resources; no sites have been recorded in this area. This lack of sites is probably due both to early development of some parts of this area, and to the lack of cultural resources surveys. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

RP-4 Trunk Sewer: Reach 2 and Reach 3 of this system have not been surveyed for cultural resources, nor has any portion of the area within a one-quarter mile radius. Approximately ten percent of the Reach 3 alignment and the surrounding quarter mile radius have been surveyed. One site, P-1084-4H, a ranch, has been recorded within one-quarter mile of Reach 1. Within one-quarter mile of Reach 3, one site, P-1084-13H, a commercial location, has been recorded. No prehistoric sites have been found within this study area. This lack of sites is probably due both to early development of some parts of this area, and to the lack of cultural resources surveys. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

San Bernardino Interceptor: The alignment of the San Bernardino Interceptor has been completely surveyed, as part of other projects (NADB 1062660, 1063587). The entire area of this proposed sewer line lies with California Point of Historic Interest SBR-71, the Kaiser Steel Plant. This industrial complex has also been recorded as CA-SBR-4134H. No prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for prehistoric resources in this area is unknown, and will be classified as high.

Eastern Trunk Sewer: The Eastern Trunk Sewer is crossed by several linear surveys (NADB 1060596, 1062623, 1062178), but very little of the route or surrounding area has been examined. Only one resource, a historic trail, PSBR-17H, has been recorded on the Eastern Trunk Sewer. This lack of sites is probably due to the lack of cultural resources surveys. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

Western Trunk Sewer: Various small sections of the Western Trunk Sewer have been surveyed as part of other projects (NADB 1060596, 1061768, 1063066, 1061768, 1060596). Only one resource, a historic trail, PSBR-17H, has been recorded on the Western Trunk Sewer. Sites recorded adjacent to this route include a ranch complex, and several historic structures at the Chino Airport. This lack of sites is probably due to the lack of cultural resources surveys. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

IEUA/Kimball Trunk Sewer: Portions of the route of this sewer line have been surveyed (NADB 1063073, 106596, 1063066, 1061768 1062870), with one historic residence recorded, P872-94H. The only resources recorded within a one-quarter-mile radius are those associated with the Chino Airport. This lack of sites is probably due to the lack of cultural resources surveys. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

RWMP Pump Stations: Archaeological

All other pump stations, except Montclair, are located within facility locations summarized above. The two remaining site archaeological values are summarized below.

Etiwanda at Highland: A study area encompassing one-half mile around this location has been approximately 30 percent surveyed for cultural resources. Two historic sites, P27H and P28H, are located adjacent to the intersection of Etiwanda and Highland. An additional 4 historic sites are recorded with the one-half mile study area. No prehistoric sites have been recorded within this radius, suggesting that the potential for prehistoric sites is low.

Benson and 16th: Sixteenth, as part of baseline Road, has been recorded as a California Point of Historical Interest, CPHI-SBR-12, or PSBR-3H. Within a one-half mile radius of this intersection, almost no other cultural resources survey has been done. Because of this, the potential for cultural resources in this area is essentially unknown, and will be classified as high.

Recycled Wastewater Pipelines: Archaeological

The recycled wastewater pipelines, which follow a network of existing streets, pass numerous historic sites, mostly architectural features, along their routes. For example, Euclid Avenue passes through an area designated as CHS 1761-1, the Euclid Avenue Railroad Grade Properties. In addition, Euclid Avenue itself is recorded as a site, PSBR-49H. Foothill Boulevard is also a historic resource, on the National Register of Historic Places (NRHP-E-OHP-3926) as the Old Trails Highway. However, only one historic site seems to cross the roadways, specifically a historic campsite, P1084-4H. No prehistoric sites are recorded within the routes of the recycled wastewater pipelines, probably due to early development of much of the area. The sensitivity of the recycled wastewater pipelines for historic resources is high; their potential to encounter prehistoric cultural resources is unknown, and will therefore be classified as high.

To mitigate for potential impacts from construction of the recycled wastewater pipelines, routes should be examined in detail prior to construction, to assure there are no impacts to standing structures. Testing of site P1084-4H should take place before construction in this area of Ramona Avenue.

During construction, excavations should be monitored for prehistoric cultural resources, unless it can be demonstrated that sediments in portions of the route under construction are unlikely to contain buried cultural resources. If cultural resources are encountered during construction, the resources should be protected and work in the area halted until a qualified archaeologist can evaluate the nature and significance of the find. If significant discoveries are made, a treatment plan should be developed and implemented, and further treatment performed, in consultation with the appropriate agencies and Native American organizations, as needed. If human remains are exposed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98.

OMMP Facilities: Archaeological

RP-5 Renewable Energy Project: About half the area surrounding this location within a one-half mile radius has been surveyed for cultural resources. No sites have been recorded in the project area, but two historic ranch sites, CA-SBR-7675H and CA-SBR-7677H, and one prehistoric food processing site, CA-SBR-5242 have been recorded within the one-half mile study area. This relative paucity of recorded cultural sites suggests that the area may have a moderate potential for cultural materials.

RP-5 High Tech Manure Digester Project: About half the area surrounding this location within a one-half mile radius has been surveyed for cultural resources. No sites have been recorded in the project area, but two historic ranch sites, CA-SBR-7675H and CA-SBR-7677H, and one prehistoric food processing site, CA-SBR-5242 have been recorded within the one-half mile study area. This relative paucity of recorded cultural sites suggests that the area may have a moderate potential for cultural materials.

Dairy Digester Pilot Project: Within a one-half mile radius of this location, two sites have been recorded, a prehistoric campsite, CA-SBR-5274, and a homestead site, P871-20H. Very little of the surrounding area has been adequately surveyed for cultural resources. Because of this, the potential for cultural resources in this area is essentially unknown, and will be classified as high.

Advanced Technology Manure Pyrolysis Process: About 70 percent of the area within a one-half mile radius of this location has been surveyed for cultural resources, primarily within the Chino Airport. No cultural resources have been recorded in this study area, except those historic features associated with the Chino Airport. This lack of recorded cultural sites suggests that the area may have a low potential for cultural materials.

Inland Empire Regional Composting Facility: This location, adjacent to RP-4, has not been surveyed for cultural resources. Within the surrounding one-half mile, about 20 percent of the area has been surveyed, primarily within the confines of RP-4. Two historic sites are located in the study area, the AT&SF Railroad, CA-SBR-6847H, and the Kaiser Steel Complex, which has been recorded as California Point of Historic Interest SBR-71, or CA-SBR-4134H. No other historic sites or prehistoric sites have been found within this study area, probably due to early development. Because of this, the potential for cultural resources in this area is unknown, and will be classified as high.

California Institute for Men: Small portions of the surrounding half-mile area have been surveyed for cultural resources, primarily within RP-5. Two sites have been recorded within the study area, both dairies, CA-SBR-10696H and CA-SBR-10607H. Because of this lack of survey, the potential for cultural resources in this area is essentially unknown, and will be classified as high. For the RP-5 site, see discussion above.

Table 4.12-1 summarizes the sensitivity for archaeological resources, potential construction impacts (no operational impacts are anticipated), and proposed mitigation measures for each proposed portion of the IEUA Project.

Table 4.12.1
Summary of Archaeological Sensitivity and Mitigation Measures

Facility	Potential for Historic Resources	Potential for Prehistoric Resources	Construction Impacts	Operational Impacts	Mitigation Measures	Unavoidable Significant Impacts
BASINS						
Brooks Street	High	High	Likely	No	1	None
Montclair 1-4	Present	High	Yes	No	1,3	None
7^{th} & 8^{th} Street	High	High	Likely	No	1	None
Upland	Low	High	Possible	No	1	None
Ely 1-3	High	High	Possible	No	1	None
Etiwanda Spreading	Present	Low	Yes	No	1, 3	None
Hickory	Present	High	Yes	No	1,3	None
Lower Day Creek	Present	Low	Yes	No	1, 3	None
San Sevaine 1,2, 3	Moderate	Low	Possible	No	1, 2	None
San Sevaine 4, 5	Low	Low	Minimal	No	1, 2	None
Turner 1- 4	High	High	Possible	No	1	None
Victoria	Moderate	Low	Possible	No	2	None
Banana	Present	High	Yes	No	1,3	None
Declez	High	High	Possible	No	1	None
Etiwanda Conservation	Present	High	Yes	No	1,3	None
Jurupa	High	High	Likely	No	1,3	None
Wineville	Moderate	Moderate	Minimal	No	1	None
NEW:						
College Heights	High	High	Likely	No	1,3	None
RP-3	High	High	Likely	No	1, 3	None
REGIONAL PLANTS						--
RP-1	High	High	Possible	No	1	None
RP-2	Present	High	Yes	No	1,3	None
RP-4	Present	High	Yes	No	1,3	None
RP-5	Present	High	Yes	No	1,3	None
CCWRF	High	High	Possible	No	1	None

Facility	Potential for Historic Resources	Potential for Prehistoric Resources	Construction Impacts	Operational Impacts	Mitigation Measures	Unavoidable Significant Impacts
SATELLITE PLANTS						
SP-1 Upland WRF	Low	Low		No	2	None
SP-2 San Antonio Lakes	Present	Low	Yes	No	1, 3	None
SP-3 Church Basin	Present	High	Possible	No	1,3	None
SP-4 Baseline Road	Present	Present	Yes	No	1,3	None
SP-5 Foothill/I 15	Present	Low	Yes	No	1,3	None
SP-6 Kaiser Steel/CSI WWTP	Present	High	Yes	No	1,3	None
SP-7 Highland Avenue	High	Low	Possible	No	1, 3	None
SP-8 Fontana-Baseline	High	Low	Possible	No	1,3	None
SP-9 Montclair	High	High	Possible	No	1	None
TRUNK SEWERS						
Western Trunk	High	High	Possible	No	1,3	None
Eastern Trunk	High	High	Possible	No	1,3	None
IEUA/Kimball Interceptor	High	High	Possible	No	1,3	None
San Bernardino Interceptor	High	High	Yes	No	1,3	None
Upland Interceptor Relief:						
Phase 1, Reach 1	High	High	Possible	No	1	None
Phase 1, Reach 2	High	High	Possible	No	1	None
Phase 2, Reach 1	High	High	Possible	No	1	None
Phase 2, Reach 2	High	High	Possible	No	1	None
Phase 2, Reach 3	High	High	Possible	No	1	None
Phase 3	High	High	Possible	No	1	None
RP-4 Trunk Sewer						
Reach 1	High	High	Possible	No	1	None
Reach 2	High	High	Possible	No	1	None
Reach3	High	High	Possible	No	1	None

*Sensitivity depends on lithology

4.12.3.2 Paleontologic Resources

The Division of Geological Sciences of the San Bernardino County Museum (SBCM) has completed a literature review and records search for the proposed Inland Empire Utilities Agency (IEUA) master plans project in southwestern San Bernardino County, California. The proposed project is located on portions of the following United States Geological Survey topographic quadrangle maps: Corona North, CA (1967 edition, photorevised 1981); Cucamonga Peak, CA (1996 edition); Devore, CA (1966 edition, photorevised 1988); Fontana, CA (1967 edition, photorevised 1980); Guasti, CA (1966 edition, photorevised 1981); Mount Baldy, CA (1999 edition); Ontario, CA (1967 edition, photorevised 1981); and Prado Dam, CA (1967 edition, photorevised 1981).

Previous geologic mapping of the proposed IEUA study area (Rogers, 1965; Bortugno and Spittler, 1986; Morton, 1999) indicates that regional plants, satellite plants, recharge basins and trunk sewers are located on surface exposures of a variety of sediments dating from the Pleistocene Epoch to recent times. The varied components of the project, the sediments upon which they are located, and the paleontologic sensitivity of those sediments are discussed below.

Regional Plants

R.P. #1: situated on younger alluvial fan deposits and windblown sand. These lithologic units have low potential to contain significant nonrenewable paleontologic resources, and so are assigned low paleontologic sensitivity. However, these sediments may overlie older Pleistocene sediments common in the subsurface throughout this part of the Inland Empire. These sediments, deposited during the Pleistocene Epoch (between ~1.8 million years ago and ∃11,000 years ago), have previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These subsurface Pleistocene sediments are therefore assigned high paleontologic sensitivity. Fossil locality SBCM 05.001.008 is located approximately 3 miles east-northeast of R.P. #1; this locality has yielded fossil remains of extinct mammoth (*Mammuthus*) from ~20 feet below the existing ground surface.

R.P. #2: located on surface exposures of Pleistocene older alluvium, which throughout the Inland Empire has previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Several paleontologic resource localities (SBCM 01.116.241 - 01.116.244, 01.116.271 - 01.116.274, and 01.116.331 - 01.116.335) are located within 1 - 1.5 miles south and west of R.P. #2, but these are recorded from exposures of the fossiliferous Puente Formation, a rock unit dating to the Miocene Epoch, rather than from Pleistocene older alluvium. The proximity of these localities to R.P. #2 is therefore critical only if exposures of the Puente Formation are encountered in the subsurface.

R.P. #4: situated on Pleistocene older fan deposits, which have previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Paleontologic resource locality SBCM 05.001.008 is located approximately 3 miles south-southwest of R.P. #4; locality SBCM 05.001.011 is located roughly 4 miles to the southeast. Additionally, recent monitoring of excavation conducted by the SBCM in nearby Jurupa Basin has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits.

R.P. #5: located on surface exposures of Pleistocene older alluvium, which throughout the Inland Empire has previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Several paleontologic resource localities (SBCM 01.116.241 - 01.116.244, 01.116.271 - 01.116.274, and 01.116.331 - 01.116.335) are located within 1 - 1.5 miles south and southwest of R.P. #5, but these are recorded from exposures of the fossiliferous Puente Formation, a rock unit dating to the Miocene Epoch, rather than from Pleistocene older alluvium. The proximity of these localities to R.P. #5 is therefore critical only if exposures of the Puente Formation are encountered in the subsurface.

CCWRF: The Carbon Canyon Wastewater Reclamation Facility is situated on surface exposures of Pleistocene older alluvium, which throughout the Inland Empire has previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Several paleontologic resource localities (SBCM 01.116.241 - 01.116.244, 01.116.271 - 01.116.274, and 01.116.331 - 01.116.335) are located within 1.5 - 2 miles south and southwest of the CCWRF, but these are recorded from exposures of the fossiliferous Puente Formation, a rock unit dating to the Miocene Epoch, rather than from Pleistocene older alluvium. The proximity of these localities to the CCWRF is therefore critical only if exposures of the Puente Formation are encountered in the subsurface.

Satellite Plants

S.P. #1: situated on surface exposures of recent wash sediments incising and overlying Holocene (Recent) fan deposits. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of S.P. #1 has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

S.P. #2: located on surface exposures of recent wash sediments incising and overlying Holocene (Recent) fan deposits. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of S.P. #2 has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

S.P. #3: located on surface exposures of Holocene (Recent) fan deposits. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of S.P. #3 has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

S.P. #4: crosses surface exposures of recent wash sediments incising and overlying Holocene (Recent) fan deposits. Paleontologic resource locality SBCM 05.001.008 is located ~4.5 miles south of S.P. #4. Excavation within the boundaries of S.P. #4 is interpreted to have low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

S.P. #5: crosses surface exposures of recent wash sediments incising and overlying older Pleistocene fan deposits. The Pleistocene deposits are similar to older Pleistocene alluvium elsewhere throughout the Inland Empire that has previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). The Pleistocene sediments within the boundaries of S.P. #5 are therefore assigned high paleontologic sensitivity. Paleontologic resource locality SBCM 05.001.008 is located ~4 miles south of S.P. #5.

S.P. #6: situated upon surface exposures of recent wash sediments incising and overlying Holocene (Recent) fan deposits. However, it is anticipated that Pleistocene older alluvial sediments may be present at depths of 5' to 10' or more below the surface of S.P. #6, as paleontologic resource locality SBCM 05.001.008 is located 2 miles to the southwest. Older Pleistocene alluvium elsewhere throughout the Inland Empire has previously been demonstrated to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). Any subsurface Pleistocene sediments within the boundaries of S.P. #6 are therefore assigned high paleontologic sensitivity.

S.P. #7: crosses recent wash sediments, younger Holocene fan deposits, and older Pleistocene fan sediments. Older Pleistocene sediments are also likely to be present in the subsurface, overlain by the wash sediments and younger fan deposits. These older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity.

S.P. #8: crosses younger Holocene fan deposits with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of S.P. #8 therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

S.P. #9: crosses recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of S.P. #9 therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

R.P. #3: situated on Pleistocene older fan deposits, which have previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Paleontologic resource locality SBCM 05.001.011 is located within the boundaries of the R.P. #3 basin; this locality yielded fossil remains of the extinct sabre-toothed cat, *Smilodon*, from Pleistocene older fan deposits.

Recharge Basins

College Heights Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

Upland Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

Montclair Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

Brooks Street Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

7th and 8th Street Basins: located upon recent wash sediments incising and overlying older Pleistocene fan deposits. The older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation into older Pleistocene sediments within the boundaries of this parcel has high potential to impact significant paleontologic resources.

Victoria Basin: located upon older Pleistocene fan deposits. These sediments may have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). Depending upon the lithology of these sediments, they are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation into fine- to coarse-grained older Pleistocene sediments within the boundaries of this parcel has high potential to impact significant paleontologic resources. Should these Pleistocene deposits consist primarily or cobbles or boulders, however, they would have low paleontologic sensitivity.

San Sevaine Basins 1 - 5: located upon recent wash sediments incising and overlying older Pleistocene fan deposits. The older Pleistocene sediments may have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and depending upon their lithology are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation into fine- to coarse-grained older Pleistocene sediments within the boundaries of this parcel has high potential to impact significant paleontologic resources. Should these Pleistocene deposits consist primarily or cobbles or boulders, however, they would have low paleontologic sensitivity.

Etiwanda Spreading Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

Lower Dry Creek Basin: located upon recent wash sediments with low potential to contain fossil resources. No paleontologic resource localities are recorded in the RPLI from several miles in any direction. Excavation within the boundaries of this parcel therefore has low potential to impact significant paleontologic resources unless subsurface Pleistocene older alluvial sediments are encountered at depth. In this eventuality, the subsurface Pleistocene older alluvium would have high paleontologic sensitivity.

Turner Basins 1 - 4: situated upon surface exposures of recent wash sediments incising and overlying Holocene (Recent) fan deposits. However, it is anticipated that Pleistocene older alluvial sediments may be present at depths of 5' to 10' or more below the surface of these basins, as paleontologic resource locality SBCM 05.001.008 is located 3 miles to the southeast. Older Pleistocene alluvium elsewhere throughout the Inland Empire has previously been demonstrated to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). Any subsurface Pleistocene sediments within the boundaries of these basins are therefore assigned high paleontologic sensitivity.

Ely Basin: situated on Pleistocene older fan deposits, which have previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Paleontologic resource locality SBCM 05.001.008 is located approximately 3 miles southeast of Ely Basin.

Wineville Basin: located on surface exposures of recent windblown sand overlying Pleistocene older alluvium. The windblown sand has low potential to contain fossil resources. The subsurface Pleistocene sediments have demonstrated high potential to contain significant fossil resources: locality SBCM 05.001.008 is situated within the boundaries of this basin, in the southwestern corner. This locality yielded fossil remains of extinct mammoth (*Mammuthus*) from a depth of ~20' below the existing ground surface.

Hickory Basin: located upon recent wash sediments incising and overlying older Pleistocene fan deposits. The older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity. The nearby Jurupa Basin, located 2.5 miles south of Hickory Basin, has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits. Additionally, paleontologic resource locality SBCM 05.001.008 is located ~4 miles south-southwest of Hickory Basin; this locality has yielded fossil remains of extinct mammoth (*Mammuthus*).

Etiwanda Conservation Basins: situated upon recent wash sediments incising and overlying older Pleistocene fan deposits. The older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity. The nearby Jurupa Basin, located 1.25 miles to the south-southeast, has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits. Additionally, paleontologic resource locality SBCM 05.001.008, located 2 miles south southwest of the Etiwanda Conservation Basins, has yielded fossil remains of extinct mammoth (*Mammuthus*).

Jurupa Basin: situated upon older Pleistocene fan deposits. These older Pleistocene sediments have demonstrated high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity. Excavation in Jurupa Basin by the SBCM has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits. Additionally, paleontologic resource localities SBCM 05.001.008 and 05.001.011 are located within 2-3 miles to the west and east, respectively.

Banana Basin: located upon Holocene alluvial fan deposits overlying older Pleistocene fan deposits. The Holocene sediments have low potential to contain fossil resources. However, the subsurface older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999) and are assigned high paleontologic sensitivity. The nearby Jurupa Basin, located ~3 miles south-southwest, has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits. Additionally, paleontologic resource locality SBCM 05.001.008, located ~3 miles south-southeast of Banana Basin, has yielded fossil remains of extinct mammoth (*Mammuthus*).

Declez Basin: situated upon Holocene alluvial fan deposits overlying older Pleistocene fan deposits. The Holocene sediments have low potential to contain fossil resources. However, the subsurface older Pleistocene sediments have high potential to contain significant fossil resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These subsurface sediments are therefore assigned high paleontologic sensitivity. Nearby paleontologic resource locality SBCM 05.001.011, located 1 mile to the northeast, has yielded fossil remains of extinct sabre-toothed cat (*Smilodon*).

R.P. #3 Basins: situated on Pleistocene older fan deposits, which have previously been demonstrated to contain significant fossil resources, including vertebrate fossils (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999). These Pleistocene sediments are therefore assigned high paleontologic sensitivity. Paleontologic resource locality SBCM 05.001.011 is located within the boundaries of the R.P. #3 basin; this locality yielded fossil remains of the extinct sabre-toothed cat, *Smilodon*, from Pleistocene older fan deposits.

Trunk Sewers

Turner Pump Station Western Trunk: crosses recent windblown sand and recent wash sediments overlying Pleistocene alluvial fan deposits. The windblown sand and the recent wash sediments have low potential to contain fossil resources. However, the subsurface older Pleistocene deposits have high potential to contain such resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from the vicinity of the Western Trunk.

Turner Pump Station Eastern Trunk North: crosses recent windblown sand and recent wash sediments overlying Pleistocene alluvial fan deposits. The windblown sand and the recent wash sediments have low potential to contain fossil resources. However, the subsurface older

Pleistocene deposits have high potential to contain such resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from the vicinity of the Western Trunk.

Turner Pump Station Eastern Trunk South: crosses recent windblown sand and recent wash sediments overlying Pleistocene alluvial fan deposits. The windblown sand and the recent wash sediments have low potential to contain fossil resources. However, the subsurface older Pleistocene deposits have high potential to contain such resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from the vicinity of the Western Trunk.

IEUA/Kimball Interceptor Trunk: crosses older Pleistocene alluvial fan deposits. These sediments have high potential to contain significant nonrenewable paleontologic resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. No paleontologic resource localities are recorded in the RPLI from the vicinity of the Western Trunk.

Upland Interceptor Relief System: Segments 1 and 2 of this system cross recent windblown sand and Holocene alluvial fan sediments overlying Pleistocene alluvial fan deposits. Segment 3 crosses younger alluvial fan deposits overlying older Pleistocene sediments. Segments 4 and 5 traverse Pleistocene alluvial fan deposits exposed at the surface. Segment 6 crosses recent wash sediments. The windblown sands, the recent wash sediments, and the younger fan deposits all have low potential to contain fossil resources. However, the subsurface older Pleistocene deposits have high potential to contain such resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. Locality SBCM 05.001.008 is located ~3 miles east of the easternmost point of Segment 1; this locality yielded fossil remains of extinct mammoth (*Mammuthus*) from Pleistocene older alluvium at a depth of 20' below the existing ground surface.

R.P. #4 Trunk: Reach 1 of this trunk crosses recent wash sediments and older Pleistocene alluvial fan deposits. Reach 2 traverses surficial windblown sand and Holocene alluvial fan deposits overlying older Pleistocene sediments. Reach 3 crosses Holocene alluvial fan deposits overlying older Pleistocene sediments. The windblown sands, the recent wash sediments, and the younger fan deposits all have low potential to contain fossil resources. However, the subsurface older Pleistocene deposits have high potential to contain such resources (Jefferson, 1991; Reynolds and Reynolds, 1991; Woodburne, 1991, Springer and Scott, 1994; Scott, 1997; Springer and others, 1998, 1999), and so are assigned high paleontologic sensitivity. Locality SBCM 05.001.008 is located ~3 miles south of the R.P. #4 Trunk; this locality yielded fossil remains of extinct mammoth (*Mammuthus*) from Pleistocene older alluvium at a depth of 20' below the existing ground surface. The Jurupa Basin is located ~2.5 miles to the south; excavation in Jurupa Basin by the SBCM has yielded abundant vertebrate fossils of extinct mammoths, mastodons, horses, camels and bison from Pleistocene older fan deposits.

San Bernardino Interceptor Sewer: The San Bernardino Interceptor Sewer crosses recent wash sediments and Holocene younger fan deposits that overlie older Pleistocene alluvium. The recent wash sediments and the younger fan deposits have low potential to contain fossil resources. However, the subsurface Pleistocene alluvium has high potential to contain significant nonrenewable paleontologic resources. Paleontologic resource locality SBCM 05.001.008 is

Inland Empire Regional Composting Facility: This location, adjacent to RP-4, is located on the upper portion of the alluvial fans exiting the San Gabriel Mountains where paleontological resources have seldom been encountered. This suggests that the potential for paleontological resources to occur at this location will be low.

California Institute for Men: See the RP-5 discussion above, which also applies to this site.

SUMMARY OF PALEONTOLOGIC SENSITIVITY

The results of the literature review and the check of the RPLI at the SBCM demonstrate that excavation associated with the IEUA Project will incise subsurface Pleistocene older alluvium, encountered at varying depths depending upon the specific location of excavation. If encountered, this Pleistocene older alluvium has high potential to contain significant nonrenewable paleontologic resources. These surficial and/or subsurface Pleistocene sediments therefore have high paleontologic sensitivity. A qualified vertebrate paleontologist must be retained to develop a program to mitigate impacts to nonrenewable paleontologic resources. This mitigation program would need to be consistent with the provisions of the California Environmental Quality Act, as well as with regulations implemented by the County of San Bernardino and with the proposed guidelines of the Society of Vertebrate Paleontology.

Table 4.12-2 summarizes the sensitivity for paleontological resources, potential construction impacts (no operational impacts are anticipated), and proposed mitigation measures for each proposed portion of the IEUA Project.

4.12.4 MITIGATION MEASURES

The following archaeological resource mitigation measures are prescribed for these various activities of the IEUA master plans project. Please note that in all cases, monitoring may be reduced, if in the opinion of a qualified archaeologist, such monitoring is not warranted.

4.12-1 Complete archaeological survey of final alignments or project locations, with recordation, testing and evaluation, and data-recovery and monitoring if needed, of any newly located cultural resources.

4.12-2 Archaeological monitoring not required for ground disturbing activities; however, if cultural resources are located during construction, construction in that area must stop, the resources must be protected, and treatment by a qualified archaeologist must occur, following the procedures prescribed in Mitigation Measure 1.

4.12-3 Archaeological testing and evaluation of recorded resources known to exist in the Project alignment or location. Further treatment, including data-recovery and monitoring, if required.

4.12-4 Archaeological monitoring required, due to high potential for buried cultural resources.

The following paleontological resource mitigation measures are prescribed for these various activities of the IEUA master plans project. Please note that in all cases, monitoring may be reduced if potentially-fossiliferous units are not encountered, or upon exposure and following examination by qualified paleontologic personnel, these units are determined to have low potential to contain fossil resources.

4.12-5 Paleontological monitoring required for all ground disturbing activities, following the monitoring procedures described below.

4.12-6 Paleontological monitoring required for all ground disturbing activities below a depth of five feet from the modern ground surface, following the monitoring procedures described below.

4.12-7 Paleontological monitoring required for all ground disturbing activities below a depth of ten feet from the modern ground surface, following the monitoring procedures described below.

located ~2.5 miles to the southwest of the interceptor sewer, while the highly fossiliferous Jurupa Basin is situated 2 miles due south.

RWMP Pump Stations

All other pump stations, except Montclair, are located within facility locations summarized above. The two remaining site paleontological values are summarized below.

Etiwanda at Highland: This site is located on the upper portion of the alluvial fans exiting the San Gabriel Mountains where paleontological resources have seldom been encountered. This suggests that the potential for paleontological resources to occur at this location will be low.

Benson and 16th: This site is also located on the upper portion of the alluvial fans exiting the San Gabriel Mountains where paleontological resources have seldom been encountered. This suggests that the potential for paleontological resources to occur at this location will be low.

Recycled Wastewater Pipelines

The recycled wastewater pipelines, which follow a network of existing streets, pass numerous known paleontological sites in the central and southern portions of the project area. The majority of the recycled wastewater pipelines are located in the NSA, which has a low potential for encountering paleontological resources. This suggests a mixed potential for such resources to be encountered. The sensitivity of the recycled wastewater pipelines for paleontological resources is mixed, therefore, mitigation will be required for those facilities in the central and southern portions of the project area. To mitigate for potential impacts from construction of the recycled wastewater pipelines, routes should be examined in detail prior to construction, to assure there are no impacts known resources.

During construction, excavations in the central and southern portions of the project area should be monitored for paleontological resources, unless it can be demonstrated that sediments in portions of the route under construction are unlikely to contain buried resources. If paleontological resources are encountered during construction, the resources should be protected and work in the area halted until a qualified paleontologist can evaluate the nature and significance of the find. If significant discoveries are made, a treatment plan should be developed and implemented, and further treatment performed

OMMP Facilities

RP-5 Renewable Energy Project: The area surrounding this location has been surveyed for paleontological resources. Many sites have been recorded in the project area. This area has a high potential for paleontological resources and monitoring will be required.

RP-5 High Tech Manure Digester Project: The discussion immediately above applies to this facility.

Dairy Digester Pilot Project: The discussion for RP-5 regarding paleontological resources also applies to this site.

Advanced Technology Manure Pyrolysis Process: The discussion for RP-5 regarding paleontological resources also applies to this site.

Table 4.12-2
Summary of Paleontological Sensitivity and Mitigation Measures

Facility	Assessment: Potential for Paleontological Resources	Construction Impacts	Operational Impacts	Mitigation Measures	Unavoidable Significant Impacts
BASINS					
Brooks Street	**Low**	**Minimal**	**No**	**4**	**None**
Montclair 1-4	**Low**	**Minimal**	**No**	**4**	**None**
7th & 8th Street	**High below 5 feet depth**	**Possible**	**No**	**2**	**None**
Upland	**Low**	**Minimal**	**No**	**4**	**None**
Ely 1-3	**High**	**Yes**	**No**	**1**	**None**
Etiwanda Spreading	**Low**	**Minimal**	**No**	**4**	**None**
Hickory	**High below 5 feet depth**	**Possible**	**No**	**2**	**None**
Lower Day Creek	**Low**	**Minimal**	**No**	**4**	**None**
San Sevaine 1-5	**High below 5 feet depth***	**Possible**	**No**	**6**	**None**
Turner 1- 4	**High below 5 feet depth***	**Possible**	**No**	**6**	**None**
Victoria	**High***	**Yes**	**No**	**5**	**None**
Banana	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Declez	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Etiwanda Conservation	**High below 5 feet depth**	**Possible**	**No**	**2**	**None**
Jurupa	**High**	**Yes**	**No**	**1**	**None**
Wineville	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
NEW:					
College Heights	Low	Minimal	No	4	None
RP-3	High	Yes	No	1	None
REGIONAL PLANTS					–
RP-1	High below 10 feet depth	Possible	No	3	None
RP-2	High	Yes	No	1	None
RP-4	High	Yes	No	1	None
RP-5	High	Yes	No	1	None
CCWRF	High	Yes	No	1	None

Facility	Assessment: Potential for Paleontological Resources	Construction Impacts	Operational Impacts	Mitigation Measures	Unavoidable Significant Impacts
SATELLITE PLANTS					
SP-1 Upland WRF	Low	Minimal	No	4	None
SP-2 San Antonio Lakes	Low	Minimal	No	4	None
SP-3 Church Basin	Low	Minimal	No	4	None
SP-4 Baseline Road	Low	Minimal	No	4	None
SP-5 Foothill/I 15	High below 5 feet depth	Possible	No	2	None
SP-6 Kaiser Steel/CSI WWTP	High below 5 feet depth	Possible	No	2	None
SP-7 Highland Avenue	High below 5 feet depth	Possible	No	2	None
SP-8 Fontana-Baseline	Low	Minimal	No	4	None
SP-9 Montclair	Low	Minimal	No	4	None
TRUNK SEWERS					
Western Trunk	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Eastern Trunk	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
IEUA/Kimball Interceptor	**High**	**Yes**	**No**	**1**	**None**
San Bernardino Interceptor	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Upland Interceptor Relief:					
Segment 1	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Segment 2	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Segment 3	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Segment 4	**High**	**Yes**	**No**	**1**	**None**
Segment 5	**High**	**Yes**	**No**	**1**	**None**
Segment 6	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
RP-4 Trunk Sewer					
Reach 1	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Reach 2	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**
Reach3	**High below 10 feet depth**	**Possible**	**No**	**3**	**None**

***Sensitivity depends on lithology**

4.12-8 Spot monitoring at depths below 10 feet, to determine if high sensitivity deposits are being excavated. If high sensitivity deposits are being disturbed, then paleontological monitoring will be required for all ground disturbing activities within these deposits.

4.12-9 Assessment of lithology during preliminary ground disturbance, or at required depth, to determine if

older Pleistocene deposits have high sensitivity. If deposits being excavated do have high sensitivity, then paleontological monitoring will be required for all ground disturbing activities within these deposits.

Recommended Paleontological Monitoring Procedures

Monitoring of excavation in areas identified as likely to contain paleontologic resources by a qualified paleontologic monitor. Based upon the results of this review, areas of concern within the boundaries of this project include any and all exposed and subsurface Pleistocene older alluvium and older fan deposits. Given the broad geographic extent of the IEUA project, it is anticipated that these geologic formations will be encountered at varying depths and will have different lithologies.

Paleontologic monitors should be equipped to salvage fossils as they are unearthed to avoid construction delays, and to remove samples of sediments which are likely to contain the remains of small fossil invertebrates and vertebrates. Monitors must be empowered to temporarily halt or divert equipment to allow removal of abundant or large specimens.

Monitoring may be reduced if the potentially-fossiliferous units described herein are not encountered, or upon exposure are determined following examination by qualified paleontologic personnel to have low potential to contain fossil resources.

Preparation of recovered specimens to a point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.

Identification and curation of specimens into a professional, accredited museum repository with permanent retrievable storage (e.g., SBCM). The paleontologist should have a written repository agreement in hand prior to the initiation of mitigation activities.

Preparation of a report of findings with an appended itemized inventory of specimens. The report and inventory, when submitted to the appropriate Lead Agency, would signify completion of the program to mitigate impacts to paleontologic resources.

These measures ensure that implementation of master plans specific 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. Implementing the above measures will contribute to routine environmental impacts associated with disturbing the ground during artifact and data collection.

4.14.5 <u>Cumulative Impact</u>

Cumulative cultural resource impacts can only occur when such resources are not avoided or are not recovered, evaluated and their data value placed in the broader contest of such resources. Based on the requirement to ensure that such resources are avoided or otherwise protected and evaluated, no cumulative significant cultural resource impacts are forecast to occur if the proposed project is implemented.

4.14.6 <u>Unavoidable Adverse Impact</u>

The cultural resource evaluation presented above indicates that, with implementation of appropriate mitigation measures, the proposed project will not cause any significant unavoidable adverse impacts. Therefore, no significant adverse cultural resource impacts are forecast to occur if the proposed project is implemented.

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. Section 15126(d) 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 no significant adverse impacts have been identified. 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."

The proposed project consists of the implementation of three master plans that are designed to ensure adequate wastewater treatment capacity to meet future growth and related generation of wastewater; enhance the safe yield and enhance overall management of the water resources in the ~235 square mile Chino Groundwater Basin; and to ensure that residual organic wastes generated by wastewater reclamation plants, dairies and green waste recycling programs are properly managed within the IEUA service area. IEUA is in the unique position to integrate the management of these various waste products within its service area and derive important benefits by cooperating with various other water and waste management agencies in the Chino Basin.

One of the alternatives that must be evaluated in an EIR is a "no project alternative" regardless of whether it is a feasible alternative to the proposed project, i.e., would meet the project objectives or requirements. Under this alternative, the environmental impacts that would occur if the proposed project is not approved and implemented are identified. Under a "baseline" or no project alternative each of the existing master plans would not be implemented and the existing management systems for wastewater, recycled water and organic materials would continue in their current status. The current baseline conditions are summarized below under the no project alternative discussion and the implications of proceeding forward without implementing the proposed master plans are evaluated. In addition to the no project alternative, two other alternatives are evaluated in this chapter. These alternatives are:

1. No Project
2. Modifying (reducing) the rate of expansion or implementation of the master plans

The following evaluation will also include identification of an environmentally superior alternative as required by the State CEQA Guidelines.

Before proceeding with the analysis of alternatives, it is necessary to discuss the framework in which the master plans have been developed and are proposed for implementation. IEUA has developed the three master plans that are the subject of this PEIR to provide a rational approach to managing three of society's wastes: wastewater, treated effluent (recycled water); and organic materials, much of it (biosolids) generated or associated with the wastewater treatment process. In an urban society such as exists within IEUA's service area, these wastes are being generated and will be generated in the future regardless of whether management systems are in place or not. Thus, the issue is not whether some form of management system and facilities will be required to successfully manage these waste streams because such systems are required. The issue for a management agency like IEUA is what systems are required to manage these waste streams, and how far in the future should the management systems required to meet the societal responsibility be planned to ensure that these wastes do not harm the public health?

Wastewater, recycled water and organics management are IEUA's responsibility. The fundamental responsibility is to manage wastewater generated within the IEUA service area and ensure that the treated effluent meets mandated treatment standards that are protective of public health. However, treating wastewater results in two products that may be managed as wastes (treated effluent and biosolids) or may be managed for their inherent resource value. IEUA has assumed the responsibility for managing treated effluent and biosolids not as wastes for disposal but as resources to maximize their reuse value as "recycled water" and as an organic ingredient in soil supplements.

In assuming this approach to managing wastewater and its byproducts, IEUA has two choices. It can implement management systems in an *ad hoc* or incremental manner, or it can establish a coherent, long-range management plans to ensure that adequate infrastructure systems are in place to meet both existing and future demand. IEUA has committed itself to a coherent and comprehensive management approach, which has resulted in the preparation of the three master plans being evaluated in this PEIR. Thus, IEUA has examined the infrastructure requirements for each management system (wastewater, recycled water, and organics) through the near buildout of its service area (the year 2050) and identified the types of facilities required to provide adequate management of these wastes to ensure that public health is protected and the resource value of the waste materials is utilized to benefit primarily its customers, and society in general. IEUA believes that by implementing the three master plans, it will provide the maximum benefit to the existing and future residents of its service area.

IEUA's management approach stands in contrast to a passive approach that would have the wastewater utility agency only begin to plan for managing increased demand when that demand causes a treatment plant to begin violating its wastewater discharge requirements. And it is this passive approach that leads to the issue of a no project alternative. The CEQA no project alternative requires an examination of maintaining the existing physical conditions, which would mean limiting the infrastructure system for managing these three wastes (wastewater, recycled water and residual organic material) to that which presently exists. For an essential waste management infrastructure system (such as wastewater and its residual waste byproducts, recycled water and organic material), the ultimate failure to expand the system will result in violation of waste discharge requirements and, potentially to significant public health hazards, as the environment, which includes humans, is exposed to inadequately treated/managed wastes. These issues are discussed in the evaluation of the no project alternative that follows.

5.2 NO PROJECT

Under the no project alternative, it is assumed that each of the existing management systems for which the proposed master plans have been prepared remain in their current configuration. This is unusual because in most circumstances a "no project alternative" simply means that a particular development is not implemented and the status quo is maintained. In this instance, the "no project alternative" means that the master plans and the facilities envisioned in the plans would not be implemented and the goal of expanding and/or modifying the various system's capacity and capability to manage wastewater, recycled water and organic waste materials would not be realized. In a seeming contradiction, failure to implement expanded wastewater treatment capacity and modify and expand management of recycled water and organic wastes does not negate the need for the expanded systems, it simply means that at a certain point the existing systems will begin to fail if they are not expanded to meet forecast growth within the IEUA service area.

The ultimate vision of future growth and development within the project area has been established in IEUA's service area by the governing land use plans (general plans) adopted by land use jurisdiction's (cities and county). These adopted land use plans, which establish each jurisdictions vision of the community that they ultimately was to become, assume that the IEUA has identified the essential infrastructure required to support not only the existing communities served by IEUA, but the growth allowed by each jurisdiction as it occurs in the future. Thus, the IEUA is effectively forced to create wastewater, recycled water and organic waste management master plans that can accommodate such growth, at least within the limits of current or future resources that may be available.

Without the IEUA master plans, individual land use jurisdictions would ultimately find it necessary or be forced to construct and install facilities similar to those proposed in IEUA's three master plans, such as expansion of treatment facilities, installation of pipelines, monitoring wells, new recharge basins, pump stations, and water treatment facilities to meet future water demand and water quality needs. If not implemented through IEUA, the local jurisdictions would be forced to provide comparable waste management facilities in the future. The costs of construction would not necessarily be economically feasible to individual jurisdictions without the benefit of regional financing mechanisms or because they would duplicate existing facilities. Finding locations for such individual facilities would, in itself, be a very difficult first step to overcome.

It should be anticipated that implementation of waste management programs would occur more slowly, might never be fully realized, or might have a diminished regional benefit if left to individual jurisdictions. There would be no difference in permitted land uses or development densities within IEUA's service area. This is because the land uses will be developed in accordance with the land use designations and development policies contained in the affected jurisdiction's general plans. One difference between the proposed project and the no project alternative is the inability to cohesively bring competing interests into alignment so that future waste management systems are managed to meet the overall benefit of the whole Basin, i.e., highly treated wastewater that can be reused and management of organic wastes for ultimate benefit to society.

Under another no project alternative scenario, local jurisdictions (cities and county) could place a moratorium on future development and abandon their adopted general plans. This would negate the necessity to expand wastewater, recycled water and organic management systems (although the existing wastes would require continued management). However, this is a societal decision that is beyond the scope of this environmental document to impose. IEUA does not control growth within its service area, the local cities and county make all land use decisions. Under its adopted charter, IEUA is obligated to provide effective management of wastes to the communities, i.e., customers that generate such wastes. If tomorrow the various communities that make up IEUA's service area informed the Agency that they were not issuing any additional building permits, the IEUA master plans as proposed would no longer be needed.

Instead, the master plans could be revised to address a different buildout scenario. But this decision is not IEUA's to make. So within the context of this no project alternative evaluation, a decision to stop growth and issue no more connections to the wastewater system is considered speculative and beyond the scope of this document. In accordance with Section 15145 of the State CEQA Guidelines, this issue will not be given further consideration in this document.

The following discussion assesses the effects of implementing the no project alternative, as described above, on the environmental issues considered in this PEIR.

Air Quality: Proposed project air quality impacts were determined to be significant during construction and operation. Under the no project alternative the existing wastewater treatment facilities would continue to function at their current capacity. At some point in the future when the capacity of these facilities is exceeded, the wastewater reclamation plants would begin to experience upset conditions, which would cause odors that would affect surrounding land uses. Odors would also continue to be generated from onsite biosolids handling and the continuation of outdoor compost operations at the co-composting facility. This would occur because the composting operations would not be placed within enclosed facilities where odor controls can be effectively installed and operations. The amount of particulate and ammonia (a particulate precursor) emissions and combustion emissions would remain at the same level as management of manure as outlined in the master plans would not be implemented and it would continue to be managed as it currently is, i.e., left in place to be collected periodically and trucked out of the SCAB for disposal. The net result would be significant residual emissions that would not be controlled within the SCAB and significant increases in odor impacts within the IEUA service area.

Biological Resources: Proposed project biological resource impacts were found to be nonsignificant with implementation of mitigation measures. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the biological resource impacts would be less than the potential impacts under the master plans, at least until water quality began to degrade from increased violations of waste discharge requirements. As water quality degraded in the future, riparian habitat would experience gradual deterioration from increased pollutants. Ultimately, under this assumption, significant degradation could occur within the Prado Basin, Chino Creek and Mill Creek riparian and aquatic habitats. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact to biological resources would increase relative to the proposed project. Finally, by eliminating the recycled water recharge project, significant adverse impacts to downstream riparian habitat could occur from discharge of increased volumes of treated effluent. As noted in previous U. S. Fish and Wildlife Service comments, the increase in discharges has a potential to convert essential riparian habitat to aquatic habitat to the detriment of endangered species. Thus, the no project alternative could result in greater adverse impacts to biological resources than the proposed master plans project.

Cultural Resources: Proposed project cultural resource impacts were found to be nonsignificant with implementation of mitigation measures. Under a no project alternative where no new facilities are ultimately constructed, fewer disturbances would result and potential for direct impacts to cultural resources would be reduced. Under the alternative where new facilities are constructed by local jurisdictions, greater cultural resource impacts could occur because new treatment facilities would have to be constructed and the area disturbed would be greater.

Thus, the impacts to cultural resources under the no project alternative would vary depending upon the assumptions for this alternative.

Geology and Soils: Proposed project geology and soil impacts were found to be nonsignificant with implementation of mitigation measures. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the geology and soil resource impacts would be less than the potential impacts under the master plans. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact due to geology and soil constraints would be relatively the same as that of the proposed project. Finally, by eliminating the recycled water recharge project, significant adverse impacts to areas exposed to subsidence in the southwestern portion of IEUA's service area could occur. Thus, the impacts to geology and soil resources under the no project alternative would vary depending upon the assumptions for this alternative.

Hydrology and Water Quality: Proposed project hydrology and water quality impacts were found to be nonsignificant with implementation of mitigation measures. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the hydrology and water quality impacts would substantially worse than under the proposed project. When water quality begins to degrade from increased violations of waste discharge requirements, the adverse impacts will be significant within the Chino Basin and downstream. Further, without a program to remove diary manure, both surface water and groundwater quality will continue to degrade as salts, particularly nitrates, are not removed from the Basin. Without implementing reuse of recycled water, the hydrology of the surface and groundwater resources within the Basin will be further damaged. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impacts to hydrology and water quality would remain approximately the same. However, by eliminating the recycled water recharge project, significant adverse impacts to downstream riparian habitat could occur from discharge of increased volumes of treated effluent. Thus, the no project alternative could result in greater adverse impacts to hydrology and water quality than the proposed master plans project.

Land Use and Planning: Proposed land use and planning impacts were found to be non-significant with implementation of mitigation measures. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, at some point the local jurisdictions would encounter limitations on the number of connections to the existing wastewater treatment systems. Significant conflicts with local General Plans would result from this situation. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse land use and planning conflicts will increase because of the need to site new treatment and organics management facilities at other locations within their communities. Thus, the impacts due to land use and planning conflicts will be greater than the proposed master plans project.

Noise: Proposed project noise impacts were found to be non-significant with implementation of mitigation measures. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the noise impacts would be less than the potential impacts under the master plans. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local the Chino Basin. Thus, the no project alternative could result in greater adverse impacts to utility and service systems than the proposed master plans project.

Under the no project scenario, the ability to attain the goals and objectives as described under Chapter 3, Project Description, in this PEIR would be virtually eliminated. Essential resource management actions would not occur and the inclusive approach to managing all of the waste resources associated with wastewater treatment in the IEUA service area would be lost. Stakeholders in the Basin would be unable to collectively correct and mitigate adverse conditions associated with managing these wastes. Thus, the no project alternative, in either of its iterations, cannot meet project objectives and is not considered a feasible alternative to the proposed project.

Project-related impacts are forecast to increase under the no project alternative because of the lack of a coordinated approach to needed facilities within the IEUA service area and the consequences of not meeting water quality, wastewater and water supply management objectives. Over the long-term new treatment plants could be implemented if IEUA were not to implement its master plans, but this approach under the no project alternative has a potential to cause other significant impacts that are greater than the proposed project.

In the final analysis, the no project alternative clearly cannot be considered the environmentally superior alternative from a total environmental standpoint to the proposed project because the environmental damage from not implementing the master plans and/or implementing new wastewater and organics management actions on a case-by-case basis is forecast to be substantially more significant than implementing the proposed project.

5.3 Modifying (Reducing) the Rate of Expansion or Implementation of the Master Plans

The only unavoidable significant environmental impact identified in association with proposed project implementation is air quality, both during construction, using the project implementation scenarios identified in the air quality section, and during operations when all facilities are constructed and in operation. Thus, an alternative which can reduce construction emissions and operational emissions would be an environmentally superior alternative. Regarding operational emissions, the only pollutant to exceed the SCAQMD emissions threshold is NOx, which is forecast to exceed the threshold by about five times: 292 lbs/day emissions compared to the threshold of 55 lbs/day. Since most of these emissions are associated with the energy required to operate essential facilities (wastewater treatment, pump stations, and enclosed organic management facilities), the operational emissions cannot be reduced to a non-significant level without eliminating the ability to meet project objectives. Specifically, NOx-related energy emissions would have to be reduced by 237 lbs/day to 55 lbs/day to be reduced below the significance threshold. This is not possible if project objectives are to be met.

On the other hand, proposed project construction-related emissions could be reduced by reducing the rate of development of master plan facilities. Table 3-14 identifies those projects that are envisioned for implementation over the life of the project, but our focus is on those projects proposed to be constructed over the near term, 2002 through 2010. In fact, under the proposed project it is more likely that projects will be implemented more rapidly, than under a schedule to spread out construction activities. This is because funding for RWMP and OMMP facilities is likely to be available sooner, rather than later. Of particular importance is installation of the recycled water facilities to begin reducing discharges of treated effluent and to begin jurisdictions under this alternative, then the potential for adverse impact due to noise would increase relative to the proposed project because additional areas would be exposed to the permanent noise emitted from new treatment facilities. Thus, the impacts due to noise under the no project alternative would vary depending upon the assumptions for this alternative.

Population and Housing: Proposed project population and housing impacts were found to be non-significant. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the population and housing impacts would be less than the potential impacts under the master plans, at least until water quality began to degrade from increased violations of waste discharge requirements. As water quality degraded in the future, a potential exists for a connection moratorium to be established by the regulatory agencies and significant impacts could then affect population and housing resources, just like land use and planning. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact to population and housing would be essentially the same. Thus, the impact to population and housing resources under the no project alternative would vary depending upon the assumptions for this alternative.

Public Services: Proposed project public service impacts were found to be nonsignificant. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the public service impacts would be less than the potential impacts under the master plans, at least until water quality began to degrade from increased violations of waste discharge requirements. As water quality degraded in the future, a potential exists for a connection moratorium to be established by the regulatory agencies and significant impacts could then affect public services, just like land use and planning. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact to public services would be essentially the same. Thus, the impact to public services under the no project alternative would vary depending upon the assumptions for this alternative.

Transportation and Traffic: Proposed project transportation and traffic impacts were found to be non-significant. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the transportation and traffic impacts would be less than the potential impacts under the master plans because of less construction in roadways. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact to transportation and traffic systems would be essentially the same. Thus, the impact to transportation and traffic systems under the no project alternative would vary depending upon the assumptions for this alternative.

Utilities and Service Systems: Proposed project utilities and service system impacts were found to be non-significant. Under the no project alternative facility operations would continue as they currently exist. Under the assumption that no new facilities would be constructed, the wastewater system component of utilities would be significantly and adversely impacted as would water quality and potentially future water supplies within the Chino Basin. If it is assumed that new wastewater treatment and organics management facilities would be constructed by local jurisdictions under this alternative, then the potential for adverse impact to utilities and service systems would not necessarily be adverse, but such utility systems would be adversely impacted by the lack of a recycled water recharge program to assist future water supply within enhancing Chino Basin water supplies as part of part of the OBMP. Slowing down installation of these facilities could result in an imbalance between desalter extractions and recharge, which could adversely impact the hydrologic balance between the upper and lower portions of the Basin.

Thus, the alternative of reducing construction emissions through extending the construction period is an alternative that could reduce construction pollutant emissions below a significant level, but it will conflict with the project objectives for implementing the RWMP and the OMMP. Therefore, it is not considered a reasonable or feasible alternative to the proposed project and will not be given further consideration in this document.

5.4 CONCLUSION

The two alternatives to the proposed project are not considered feasible alternatives. An examination of other alternatives did not identify any alternatives that would result in reducing the single unavoidable significant adverse impact, air quality that would result from implementing the proposed project. Operational and construction air pollution emissions are unavoidable, and significant, if the project objectives are to be fulfilled. No alternative has been identified that could reduce these air emissions to a level of non-significance and all feasible mitigation measures available have already been incorporated into the proposed project to minimize emissions to the extent possible. Each of the two alternatives have associated environmental impacts that will not eliminate the single significant impact identified in this PEIR, air quality, and may result in different and more significant adverse environmental effects. Based on the analysis contained in this chapter, the proposed project, the implementation of the WFMP, RWMP and OMMP, is considered to be comparably the environmentally superior alternative available that will meet project goals and objectives.

CHAPTER 6
TOPICAL ISSUES

6.1 GROWTH INDUCEMENT

Traditionally, significant growth is induced in one of three ways. In the first instance, a project is located in an isolated area and when developed it brings sufficient urban infrastructure to cause new or additional development pressure on the intervening and surrounding land. 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. This type of growth inducement is typically termed "leap frog" or "premature" development because it creates an island of higher intensity developed land within a larger area of lower intensity land use.

The proposed project will not cause or contribute to "leap frog" or "premature" development because its purpose is to provide an overall management strategy, tied to specific facilities and management actions, that will provide the IEUA with a master plan to meet future demand for wastewater treatment capacity; to reuse recycled water so that it does not become an adverse impact on riparian resources in Prado Basin and to contribute to "*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); and to manage the organic waste materials in a manner that minimizes effects on the environment and fulfills the Agency's responsibility to reuse this resource as a commercial soil amendment. Because the facilities envisioned in the master plans (WFMP, RWMP and OMMP) do not extend service to new areas or lead to accelerated development within the IEUA service area, implementation of these plans cannot cause or contribute to leap frog or premature growth.

A second type of growth inducement is caused when a project of large size, relative to the surrounding community or area, is developed within a community and impacts the surrounding community by producing a "multiplier effect," which results in substantial indirect community growth, not necessarily adjacent to the development site or of the same type of use as the project itself. This type of stimulus to community growth is typified by the development of major destination recreation facilities, such as Disney World near Orlando, Florida, or around a military base, such as the Marine Corps Air Ground Combat Center near Twenty-Nine Palms. The proposed master plans project is not a new development that will cause growth through a "multiplier effect." Development within the project area will be consistent with growth decisions already made by local agencies governing land use decisions, and further, that the master plans project does not remove any existing constraint on future development because existing land use jurisdictions (cities and counties) have alternative means (perhaps not as cost or environmentally effective as the master plans project) to meet future wastewater treatment demands. No new "large" projects are proposed or contingent on the implementation of the proposed project and no potential for this type of multiplier growth inducement can be caused by the implementing the proposed project.

A third and more subtle type of growth inducement occurs when land use plans are established that create a potential for growth because the available land and the land uses permitted result in the attraction of new development. This type of growth inducement is also attributed to other plans developed to provide the infrastructure necessary to meet the land use objectives, or community vision, contained in the governing land use agencies' general plans. In this case, 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 IEUA has identified the wastewater treatment and residuals management 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 IEUA, are effectively forced to create master 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 growth in Sections 4.3 and 4.6 indicate, sufficient wastewater management resources have been identified to meet future demand for the foreseeable future in accordance with adopted general plans.

The position taken in this document is that the utility planning process is appropriately a passive (accommodating) role, not an active (inducing) role, in future growth that is dictated by local land use plans and the unabated growth of population throughout southern California. As discussed in Chapter 5, 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 IEUA, would have designed their future service plans to accommodate a level of future growth consistent with the defined growth in such plans.

In reality, however, IEUA, acting as responsible wastewater planning agency, must plan for a level of future growth that appears to match forecast growth through at least the 2020 planning year, and in this instance to a 2050 horizon year. The master plans project is designed to accommodate growth as envisioned in the study area general plans and SCAG's RCPG. Based on this analysis, implementation of the proposed project 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 in IEUA's service area. No other projects were identified within the service area or vicinity that would contribute to cumulative impacts or cumulative demand for local wastewater, recycled water or organics management infrastructure.

The cumulative impacts of implementing the proposed project is outlined in Chapter 4 for each environmental issue. The proposed project was evaluated in the context of the affected jurisdiction's current adopted general plans, which concluded that no significant adverse cumulative impacts would result except for the loss of agricultural lands, air quality and noise. Based on evaluations of individual issues and, specifically the proposed project's contribution to these cumulative impacts, the following was concluded:

6.2.1 Agriculture

The project's contribution to cumulative removal of agricultural operations (up to about 20 acres out of more than 10,000 acres) could be considered significant, but implementation of the RWMP and the OMMP provides benefits that are concluded to offset this loss of agricultural acreage. Thus, project implementation can 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. This is accomplished because the OMMP programs assist dairy operations to remain functional and in compliance with regulations by removing a substantial portion of the manure wastes generated annually. Further, the RWMP is part of an OBMP implement program that will result in reducing salts within the southern portion of the Chino Basin, which also makes dairy agricultural operations a more viable activity.

The recent allocation of agricultural areas to the Cities of Ontario and Chino, in conjunction with recent annexations, have already committed the former agricultural preserve in the southern portion of the Chino Basin to urban uses. This commitment is not driven directly by water related issues, but indirectly the cost to continue diary operations in the Chino Basin are among the causes of agriculture shifting to alternative locations. As stated above, the proposed project could make a small contribution to demise of agriculture in the Basin, but the effective support provided by implementation of the proposed project is considered to reduce this direct cumulative contribution to a non-significant level.

6.2.2 Air Quality

Implementation of the proposed project will contribute pollutants into the SCAB from construction and operation of the facilities. The facilities are designed to provide an adequate water supply for the land uses and intensities identified in applicable general plans. The AQMD assumes that if growth occurs that is consistent with applicable general plans then federal ambient air quality standards can be met by the year 2010. Because this project does not propose amendments to existing general plan land uses, it is in conformity with the AQMP and will not result in significant adverse cumulative air quality impacts.

6.2.3 Noise

The noise forecast data contained in the local agency general plans demonstrates that future traffic noise levels from general growth (cumulative traffic increases) within the Chino Basin will result in significant noise impacts. The proposed project is forecast to contribute to such cumulative noise impacts which can be attributed to the land use mix contained in the local agency general plans and the inability to reduce potential traffic noise impacts to a non-significant level. Any traffic generated by proposed project operations (a few hundred trips per day) are considered less than significant contributions to this traffic related noise impact. More importantly, the primary source of trip generation associated with the proposed project is the movement of organic matter around the Chino Basin. By installing the organic material management centers within the IEUA service area and by moving much of this organic material, manure, by sewer, overall trip length and number of trips are forecast to be reduced relative to the existing organics management operations. Because implementation of the proposed will not contribute to measurable to cumulative increases in traffic, and may in fact reduce traffic noise generation within the Basin, the proposed project is not forecast to cause a contribute to cumulatively significant noise impacts.

With implementation of mitigation measures to ensure that implementation of the proposed project will not contribute to cumulative degradation of groundwater quality in the Chino Basin, the proposed project is not forecast to contribute to any significant cumulative environmental impacts.

6.3 IRREVERSIBLE ENVIRONMENTAL CHANGES

If the master plans project is effectively implemented, the following irreversible and/or environmental changes would be involved:

a. The construction, installation and maintenance of wastewater treatment facilities, pipelines, new monitoring wells, pump stations, organics management facilities, storage facilities and other public facilities, as proposed in the master plans project, 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 or utilization of individual properties (such as the CIM facility or the Regional facility), in accordance with land uses designated in the 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 proposed project.

d. Building materials, including forest and mineral products, will be permanently committed in construction projects related to the long-term implementation of the proposed project.

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 pollutant emissions and impacts to 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. Soils and geologic resources will be affected 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 (for which mitigation measures have been identified), 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 proposed project, no significant irreversible environmental changes will be caused within the project area that can be attributable to the proposed project, and implementation of the suite of mitigation measures in this document will insure that all irreversible and/or unavoidable environmental impacts, as identified above and described within Chapter 4 of this PEIR, can be adequately mitigated to a level of insignificance.

SECTION 7
PREPARATION RESOURCES

7.1 REPORT PREPARATION

7.1.1 Lead Agency

Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335
(909) 357-0241

Mr. Gary Hackney

7.1.2 IEUA's Master Plans

Wastewater Facilities Master Plan

Parsons
100 W. Walnut Street
Pasadena, CA 91124

Surendra Thakral

Recycled Water Master Plan

Inland Empire Utilities Agency
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335
(909) 357-0241

Mr. Garth Morgan

Organics Management Master Plan

Tetra Tech, Inc.
3280 E. Foothill Boulevard, Suite 350
Pasadena, CA 91107

Mike Hoover

7.1.3 EIR Consultants

Firm	Name	PEIR Responsibility
Tom Dodson & Associates 2150 N. Arrowhead Avenue San Bernardino, CA 92405	Tom Dodson	Project Manager/Biological Resources
Parsons 100 W. Walnut Avenue Pasadena, CA 91224	Jay Officer	Task Manager/Water Resources/ Water Quality
	Brian Farris	Air Quality
	Thanh Luc	Noise
	Devin Thor	Geological Resources
	Claudio Fraioli	Transportation and Circulation
	Brynna McNulty Darin Guthrie	Utilities and Service Systems
Myra Frank & Associates 811 West 7th Street, Suite 800 Los Angeles, CA 90017	Gary Petersen	Task Manager
	Jack Ottaway	Deputy Task Manager
	Enrique Ramos	Population and Housing
	Krista Kline	Land Use
	Carson Anderson	Cultural Resources
Applied Earth Works 3292 E. Florida Avenue, Ste. A Hemet, CA 92544-4941	Mark Robinson	Archaeology and Paleontology

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CHAPTER 8
APPENDICES

8.1 NOTICE OF PREPARATION, COMMENT LETTERS & RESPONSES, AND SUMMARY TABLE

8.2 SECTIONS 15162 & 15168 OF STATE CEQA GUIDELINES

8.3 AIR EMISSIONS CALCULATIONS

8.4 TECHNICAL MEMORANDUM NO. 6 TRAFFIC IMPACT AND ISSUE-TASKS 1.9 / 4.6

8.5 BIOLOGICAL RESOURCES

8.6 NOISE MEASUREMENTS

8.7 WATER QUALITY DATA

A. Introduction

Appendix 8.1 contains those components of the California Environmental Quality Act (CEQA) process that were used to initiate the preparation of the Inland Empire Utilities Agency (IEUA) Master Plans Program Environmental Impact Report (PEIR). A copy of the Notice of Preparation (NOP) for the PEIR was issued on January 25, 2002. The NOP review period extended from January 29, 2002 through February 27, 2002. The NOP was distributed with the following materials: Notice of Completion (copy enclosed); detailed project description (copy not enclosed), the detailed description has been replaced by the Chapter 3 of this document; and the Initial Study Environmental Checklist Form.

A total of 16 comment letters were sent in response to the NOP. Several of these letters were received after the comment period, but have been incorporated into the response package regardless of date transmitted. Those agencies providing some comments include:

1. State Clearinghouse
2. Santa Ana Regional Water Quality Control Board
3. Native American Heritage Commission
4. Southern California Association of Governments
5. The Gas Company
6. U. S. Fish and Wildlife Service and California Department of Fish and Game
7. Chino Valley Independent Fire District
8. City of Ontario
9. California Department of Fish and Game
10. County of Orange, Planning & Development Services Department
11. City of Chino Hills
12. San Bernardino County Land Use Services Department, Planning Division
13. South Coast Air Quality Management District
14. San Bernardino County Department of Public Health, Environmental Health Services
15. California Integrated Waste Management Board
16. Albert A Webb Associates, on behalf of Jurupa Community Services District
17. Mr. Carval Bass, U. S. Army Corps of Engineers, Los Angelesz

Copies of all the letters are provided herein for review. A summary of comments in each letter is provided at the end of the letters and the information and comments have been used as a guide in preparing the PEIR.

The final section in Appendix 8.1 is the information regarding the scoping meeting held for the proposed project. A notice of a public scoping meeting was sent to all parties on the distribution list on February 15, 2002. The scoping meeting was held on February 26, 2002 and a list of attendees is attached to the scoping meeting notice. A summary of the scoping meeting comments is also provided as an attachment to the notice. As in the case of the NOP comments, the scoping meeting comments have been addressed in the PEIR.

Appendix 8.1

NOTICE OF PREPARATION, COMMENT LETTERS & RESPONSES, AND SUMMARY TABLE

Inland Empire
UTILITIES AGENCY

9400 Cherry Ave., Bldg. A • Fontana, CA 92335
P.O. Box 697 • Rancho Cucamonga, CA 91729
TEL (909) 357-0241 • FAX (909) 357-3884
www.ieua.org
A Municipal Water District

MEMORANDUM

January 25, 2002

FROM: Inland Empire Utilities Agency

TO: Responsible and Trustee Agencies/Interested Organizations and Individuals

RE: **Notice of Preparation of A Program Environmental Impact Report to Address Implementation of Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Plans**

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 Environmental Impact Report (EIR) that will evaluate the following potential significant environmental impacts that may result from implementing management plans for wastewater, recycled water and organic materials within its service area: air quality, biological resources, cultural resources, geology and soils, hydrology and water quality, land use and planning, noise, population and housing, public services, transportation and traffic, and utilities and service systems. The IEUA will serve as the Lead Agency for this document, based on its responsibility for constructing and implementing the proposed management plans. This transmittal constitutes a Notice of Preparation (NOP) for the proposed EIR 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 EIR. 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.

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. Gary Hackney
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

Project Location: The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending 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. The locations of the individual facilities are identified in the detailed project description which follows this transmittal. (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 probable environmental effects, is summarized below for use in focusing you or your agencies comments for consideration in the EIR.

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. This NOP solicits agency and interested party concerns regarding the potential environmental effects of implementing the proposed three master plans. 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 EIR. The content of the responses will help guide the focus the scope of the EIR in accordance with State CEQA Guidelines.

I. NOP PROJECT DESCRIPTION

The Inland Empire Utilities Agency (IEUA or Agency) distributes 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 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 Agency currently operates four Regional Wastewater Reclamation Plants (RWRP or Regional Plants), with a fifth plant currently under construction. The Agency also operates a system of regional interceptor sewers to serve the surrounding areas tributary to each of the plants. Maps showing locations can be reviewed in the attached Initial Study Project Description.

The Agency serves the cities of Chino, Chino Hills, Fontana, Montclair, Ontario and Upland, the Cucamonga County Water District (which generally encompasses the City of Rancho Cucamonga), as well as unincorporated areas of San Bernardino County. Approximately 700,000 people are estimated to presently reside in the Agency's service area. This service area encompasses approximately 242 square miles in the west end of San Bernardino County. The Agency's service area generally overlies the Chino Groundwater Basin (Basin), which is a major subbasin in the upper Santa Ana River watershed.

Over the past year, IEUA has been preparing several master plans to provide the foundation for long-term management of its various water, wastewater, and organic management responsibilities. The first of these plans, the Optimum Basin Management Program (OBMP), was approved by the Agency, Chino Basin Watermaster and various other stakeholders in July 2000. The OBMP addresses long-term water quality and water supply issues in the Chino Groundwater 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, reliable, potable water supplies for the long-term while enhancing and protecting the yield and quality of the Basin groundwater aquifers and downstream uses. It is currently being implemented, and one of the programs being evaluated in this environmental impact report (EIR) is a second-tier project under the OBMP.

Three of the IEUA long-term management/master plans have now reached the stage where the Agency intends to consider these plans for implementation. These master plans include:

1. Wastewater Facilities Master Plan (WFMP)
2. Recycled Water Feasibility Plan (RWFS)
3. Organics Management Strategy Business Plan (OMSBP)

This EIR will serve as a program EIR (PEIR) for the three plans listed above. A PEIR has been selected as the appropriate document for compliance with the California Environmental Quality Act (CEQA) based on the definition of a program document contained in Section 15168 of the State CEQA Guidelines which states:

"A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either: (1) Geographically, (2) As a logical part in the chain of contemplated actions, (3) In conjunction with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways."

IEUA is working from a core concept that these three activities are so interrelated that they merit consideration under a program EIR. The three plans are being considered within one environmental document because IEUA has concluded that they are all being proposed for implementation within the same geographic area by the Agency; they are interrelated as a logical part in the chain of contemplated actions by the Agency and they are essentially part of the overall program (one large project) being implemented by the IEUA to fulfill its wastewater treatment, water resource, water quality and organics management responsibilities within its service area.

The following is a brief description of the activities proposed in the master plans being evaluated in the EIR.

1. Wastewater Facilities Master Plan (WFMP)

The WFMP proposes the following activities and facilities to provide adequate wastewater collection and treatment services within the IEUA's service area.

a. Proactive approach on the sizing and locating of trunk and interceptor sewers.
b. Minimize pumping of sewage.
c. Establish a maximum treatment capacity at Regional Plant No. 1 (RP-1) of 60 million gallons per day (MGD); at Regional Plant No. 4 (RP-4) of 48 MGD; at Carbon Canyon Wastewater Recycling Facility (CCWRF) of 20 MGD; and at Regional Plant No. 5 (RP-5) of 48 MGD, with 20 MGD of recycled flows from CCWRF.

d. Maintain existing solids processing facilities at RP-2 and utilize existing liquids process facilities for dairy wash waste liquids, and other sites for habitat enhancements.

e. Construct small (less than 5 MGD) satellite "skimming" plants, not to exceed a collective total of 10 MGD treatment capacity, at select locations in IEUA's Northern Service Area (NSA), close to reuse and recharge areas to maximize the reuse of good quality water and minimize pumping of reclaimed water from the downstream plants.

f. Divert by gravity and pump wastewater to RP-4 from areas now tributary to RP-1 to maximize reuse potential.

g. Incorporate design flexibility in the trunk sewer system to by-pass flow around RP-1 (send untreated or partially treated effluent from RP-1 and RP-4 to RP-5 to allow the treatment plants to operate in a most efficient manner and the greatest utilization.

h. Limit the wastewater treatment at RP-1 to 60 million gallons per day (MGD) ultimate capacity (compared to the previous planning goal of 96 MGD) and bypass and intercept surplus flows from NSA at RP-4 and RP-5 for treatment and disposal.

I. Limit the wastewater treatment at RP-5 to 48 MGD ultimate, plus recycled streams for solids processing from CCWRF, ultimate capacity (compared to the previous planning process that indicated this plant might need to treat up to 60 MGD.

j. Provide flexibility in the trunk sewer system and available treatment plant capacity to respond to changes in location where growth is occurring.

k. Use the non-reclaimable wastewater (NRW) system (up to 16 MGD) for poor quality industrial wastewaters and for brines from desalters, rather than domestic wastewater.

II. RECYCLED WATER MANAGEMENT PLAN (RWMP)

The Inland Empire Utilities Agency (IEUA or Agency) is one of the water management agencies located within the Basin and was the California Environmental Quality Act (CEQA) lead agency for preparation of the OBMP PEIR. IEUA has developed a "Recycled Water System Feasibility Study" to implement one of the component systems identified in the OBMP. However, for the purposes of this EIR, the proposed recycled water system is being evaluated as one of three facility master planning documents that define the project to be evaluated in the program EIR. The proposed project that will be implemented under this master plan consists of a series of recycled water infrastructure facilities that will allow IEUA to utilize (directly consume, use for irrigation or recharge to the Chino Basin groundwater aquifer) a substantial amount of the treated wastewater effluent produced by IEUA's water reclamation plants that meets Title 22 water quality standards. Although this recycled water system component of the overall project is one of the OBMP components, this EIR has been prepared as a stand alone program EIR for IEUA's implementation of all three master plan systems.

IEUA's goal is to reuse, to the extent practicable, recycled water produced at the Agency's Regional Wastewater Treatment Plants, except for the 17,000 acre-feet per year (AFY) required to be released to the Santa Ana River (SAR) under the 1969 Judgment for Orange County's use. A primary Agency goal is to reduce dependency of the Chino Basin on imported State Water Project (SWP) water to offset pumping that exceeds the Basin's safe yield and to improve groundwater quality in the Basin. Wastewater treated by each of the Agency's regional plants produces a recycled water product that meets the California State Department of Health Standards for "Non-Restricted Recreational Use", or full-body contact.

To achieve this goal, a regional recycled water distribution system will be installed to meet the following objectives:

1. Install a distribution system that will interconnect the CCWRF, RP-1, RP-2, RP-4 and RP-5, which is still under construction). This will provide better distribution capability to local agencies, which are responsible for delivering the water to local users.

2. Provide recycled water more efficiently and at an affordable rate for landscaping, cooling towers, boiler feed, and other various non-potable uses that require large volumes of water and thereby conserve potable groundwater and reduce dependence on imported water from the SWP.

3. Provide for the utilization of existing recharge basins and the construction of new recharge basins for blending stormwater and imported water, plus an appropriate percentage of recycled water.

Once the recycled water distribution system is installed and operational, IEUA will deliver recycled water to IEUA contract agencies, other retail water utilities, direct industrial customers and to recharge basins where it will be blended with stormwater and imported water to recharge the Chino Basin groundwater aquifers. As part of the effort, IEUA is working cooperatively with the Chino Basin Water Conservation District (CBWCD), San Bernardino County Flood Control District (SBCFCD), Chino Basin Watermaster (CBWM or Watermaster), and its retail member agencies to deliver recycled water to 18 existing groundwater recharge basins and to develop two new basins, all of which overly the Chino Basin groundwater aquifer. These basins are already in the process of being modified to facilitate recharge of greater volumes of stormwater and State Water Project water under a recent decision by IEUA acting as the CEQA lead agency for the above agencies. The evaluation in the program EIR of recycled water recharge will consider only the environmental effects of those additional facilities that must be installed to deliver recycled water to these recharge basins and the environmental effects of recharging certain volumes of recycled water into the Chino Basin at these basins.

III. ORGANICS MANAGEMENT PLAN (OMP)

The IEUA has developed the OMP to guide its organics management strategy over the next 10 years. The OMP is reviewed and updated as necessary on an annual basis. This Plan contains goals and objectives for managing target quantities of material and it also proposes the development and use of new approaches and technologies. Energy self-sufficiency is also an objective of the Plan. The OMP is intended to satisfy two goals: (a) self-sufficient energy and (b) self-sufficient organics management. A 5-year Action Plan will be pursued to implement the OMP. The key elements of the OMP are: (a) biosolids processing and energy production; (b) co-composting; and ©) manure processing.

The OBMP proposes a series of demonstration and full-scale manure digestion and biosolids/manure/green material composting facilities. The following are projects identified in the OMP:

- Manure digester and enclosed composting facility at RP-1 to treat biosolids and manure by aerated static pile (ASP) composting methods.

- Utilize excess digestion capacity at RP-2 to digest manure and increase the power generating capacity of the system. Add microturbine generators to increase the power potential at the site.

- As part of the program to ultimately generate up to 50 megawatts (MW) of power from dairy manure in the region, several demonstration pilot projects are being constructed to determine the economics and resolve technical issues associated with different technologies such as plug-flow and lagoon digesters at various locations within the Basin.

- Acquire additional land and construct digesters at the RP-4 plant to accommodate the bio-solids from RP-4 and to digest manure when there is surplus capacity.

- Expand the RP-4 plant to accommodate additional wastewater flows and site a composting facility near RP-4 to eliminate biosolids hauling and provide another outlet for biosolids and manure. The composting operation will be enclosed and will be equipped with odor control facilities.

- Additional digesters will be constructed to provide sufficient capacity for biosolids and manure. The increased digestion capacity will allow for increased power generation by using them to digest manure.

- A composting facility that is modular and expandable will be constructed near the RP-5 site to treat biosolids, manure and green wastes. The composting facility will be expanded on an as-needed basis as demand increases.

- Presently, the southern portion of the IEUA's sewer conveyance system has excess capacity. These trunk sewerlines pass by several dairies and it may be feasible to connect the washwater from the dairies to the sewer system for treatment at RP-2 and RP-5. This would eliminate the cost and odor of hauling manure and increase the potential for energy production from the increased manure treatment while removing impacts to the groundwater basin.

- IEUA is considering assisting in the development of highly developed technology to handle dairy manure in a manner that produces salable-by-products.

- The OMP identifies short-term (<10 years) and long-term (>10 years) projects and facilities needed to serve the municipal and agricultural growth of the area. The OMP provides anticipated time tables for implementation of the anticipated facilities.

- The OMP identifies an energy program based on power generation from treated wastes. The goal of the program is to ultimately make IEUA energy self-sufficient.

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. Matthew Poeske at (909) 357-0241

Gary Hackney

Mr. Gary Hackney
Manager of Planning
and Process Engineering

Notice of Completion

State of California
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Master Plans

Project Title

The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending 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.

Project Location -- Specific

Several

Project Location – City

San Bernardino County

Project Location – County

Description of Nature, Purpose, and Beneficiaries of 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 Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management master plans for wastewater, recycled water and organic materials within its service area

Inland Empire Utilities Agency

Lead Agency **Division**

9400 Cherry Avenue, Bldg. A, Fontana, CA 92335

Address Where Copy of Initial Study is Available

January 25, 2002 through February 25, 2002

Review Period

Gary E. Hackney, P. E., Manager of Planning and Process Engineering 909-357-0241

Contact Person **Area Code / Phone / Extension**

Revised March 1986

Notice of Completion and Environmental Document Transmittal Form

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 — 916/445-0613

See NOTE below

SCH # ________________

1. Project Title Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Master Plans
2. Lead Agency Inland Empire Utilities Agency
3. Contact Person Gary E. Hackney, P. E.
3a. Street Address 9400 Cherry Avenue, Bldg. A
3b. City Fontana 92335
3c. County San Bernardino County
3e. Phone 909-357-0241

Project Location The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending 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.

4. County San Bernardino County
4a. City/Community Several
4b. Assessor's Parcel No. N/A
4c. Section N/A Twp. ______ Range ______
5a. Cross Streets Interstates 15 and 10
5b. For Rural, Nearest Community N/A
6. Within 2 miles: 6a. State Hwy # Interstates 10 and 15
6b. Airports Ontario International
6c. Railways Union Pacific Railroad and Burlington Northern
6d. Waterways Several, including Santa Ana River

7. Document Type

CEQA: 01. ☒ NOP; 02. ☐ Early Cons; 03. ☐ Neg Dec; 04. ☐ Draft EIR; 05. ☐ Supplement/Subsequent EIR (Prior SCH No.: ______); 06. ☐ NOE; 07. ☐ NOC; 08. ☐ NOD

NEPA: 09. ☐ NOI; 10. ☐ FONSI; 11. ☐ Draft EIS; 12. ☐ EA

OTHER: 13. ☐ Joint Document; 14. ☐ Final Document; 15. ☐ Other ______

8. Local Action Type

01. ☐ General Plan Update
02. ☐ New Element
03. ☐ General Plan Amendment
04. ☐ Master Plan
05. ☐ Annexation
06. ☐ Specific Plan
07. ☐ Community Plan
08. ☐ Redevelopment
09. ☐ Rezone
10. ☐ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
11. ☐ Use Permit
12. ☐ Waste Mgmt Plan
13. ☐ Cancel Ag Preserve
14. ☒ Other: Master Plans

9. Development Type

01. ☐ Residential: *Units* ____ *Acres* ____
02. ☐ Office: *Sq.ft.* ____ *Acres* ____ *Employees* ____
03. ☐ Shopping/Commercial: *Sq.ft.* ____ *Employees* ~1800
04. ☐ Industrial: *Sq.ft.* ____ *Acres* ____ *Employees* ____
05. ☒ Water Facilities: *MGD* ____
06. ☐ Transportation: *Type* ____
07. ☐ Mining: *Mineral* ____
08. ☐ Power: *Type* ____ *Watts* ____
09. ☒ Waste Treatment: *Type* ____
10. ☐ OCS Related
11. ☐ Other: Recycled Water Recharge Project

10. Total Acres N/A

11. Total Jobs Created N/A

12. Project Issues Discussed in Document

01. ☐ Aesthetics/Visual
02. ☐ Agricultural Land
03. ☑ Air Quality
04. ☑ Archaeological/Historical
05. ☐ Coastal Zone
06. ☐ Economic
07. ☐ Fire Hazard
08. ☑ Flooding/Drainage
09. ☑ Geologic/Seismic
10. ☐ Jobs/Housing Balance
11. ☐ Minerals
12. ☑ Noise
13. ☑ Public Services
14. ☑ Schools
15. ☐ Septic Systems
16. ☑ Sewer Capacity
17. ☐ Social
18. ☑ Soil Erosion
19. ☑ Solid Waste
20. ☑ Toxic/Hazardous
21. ☑ Traffic/Circulation
22. ☑ Vegetation
23. ☑ Water Quality
24. ☐ Water Supply
25. ☑ Wetland/Riparian
26. ☑ Wildlife
27. ☑ Growth Inducing
28. ☑ Incompatible Land Use
29. ☑ Cumulative Effects
30. ☐ Other ______

13. Funding (approx.) Federal $ N/A **State $** N/A **Total $** ______

14. Present Land Use and Zoning: variable

15. Project Description: 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 Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management master plans for wastewater, recycled water and organic materials within its service area

16. Signature of Lead Agency Representative ______________________ **Date** ______________

Reviewing Agencies

- [x] Resource Agency
- [ ] Boating / Waterways
- [x] Conservation
- [x] Fish and Game
- [ ] Forestry
- [ ] Colorado River Board
- [x] Dept. Water Resources
- [ ] Reclamation
- [ ] Parks and Recreation
- [ ] Office of Historic Preservation
- [x] Native American Heritage Commission
- [ ] S.F. Bay Cons. And Dev't. Commission
- [ ] Coastal Commission
- [ ] Energy Commission
- [ ] State Lands Commission
- [x] Air Resources Board
- [x] Solid Waste Management Board
- [x] SWRCB: Sacramento
- [x] RWQCB: Region # 8
- [ ] Water Rights
- [x] Water Quality
- [x] Caltrans District 8
- [ ] Dept. of Transportation Planning
- [ ] Aeronautics
- [ ] California Highway Patrol
- [ ] Housing and Community Development.
- [ ] Statewide Health Planning
- [ ] Health
- [ ] Food and Agriculture
- [ ] Public Utilities Commission
- [ ] Public Works
- [ ] Corrections
- [ ] General Services
- [ ] OLA
- [ ] Santa Monica Mountains
- [ ] TRPA
- [ ] OPR — OLGA
- [ ] OPR — Coastal
- [ ] Bureau of Land Management
- [ ] Forest Service
- [ ] Other ______
- [ ] Other ______

For SCH Use Only:

Date Received at SCH ______ Catalog Number ______

Date Review Starts ______ Applicant ______

Date to Agencies ______ Consultant ______

Date to SCH ______ Contact ______ Phone ______

Clearance Date ______ Address ______

Notes: ______

INITIAL STUDY ENVIRONMENTAL CHECKLIST FORM

This form and the descriptive information in the application package constitute the contents of an Initial Study pursuant to County Guidelines under Ordinance 3040 and Section 15063 of the State CEQA Guidelines.

PROJECT DESCRIPTION:

1.	Project title:	Wastewater Facilities Master Plan Recycled Water Management Plan Organics Management Plan
2.	Lead agency name and address:	Inland Empire Utilities Agency 9400 Cherry Avenue, Bldg. A Fontana, CA 92335
3.	Contact person and phone number:	Matthew Poeske (909) 357-0241
4.	Project location:	Chino Basin
5.	Project sponsor's name and address:	Inland Empire Utilities Agency 9400 Cherry Avenue, Bldg. A Fontana, CA 92335

6. Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary support, or offsite features necessary for its implementation. Attach additional sheets if necessary.)

See attached Project Description.

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	■ Air Quality
■ Biological Resources	■ Cultural Resources	■ Geology / Soils
☐ Hazards & Hazardous Materials	■ Hydrology / Water Quality	■ Land Use / Planning
☐ Mineral Resources	■ Noise	■ Population / Housing
■ Public Services	☐ Recreation	■ Transportation / Traffic
■ Utilities / Service Systems	■ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation, the following finding is made:

☐ The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ 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.

■ The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ 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 may analyze only the effects that remain to be addressed.

☐ 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.

Signature (prepared by) ____________________ Date ____________________

Signature ____________________ 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 scenic vista?	☐	■	☐	☐
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	■	☐	☐
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 (check __ if project is located within the viewshed of any Scenic Route listed in the General Plan):

Visual resources include natural and man-made features that give a particular environment its aesthetic qualities. Criteria used in the analysis of these resources include visual sensitivity, which is the degree of public interest in a visual resource and concern over adverse changes in its quality. Visual sensitivity is categorized in terms of high, medium or low levels.

High visual sensitivity exists in areas where views are rare, unique, or in other ways special, such as in remote or pristine environments. High-sensitivity views would generally include landscapes that have landforms, vegetative patterns, water bodies, or rock formations of unusual or outstanding quality (USAF, 1991).

This evaluation relies extensively on the aesthetics/scenic resources/open space and light and glare evaluations contained in the general plans for the following: the cities of Chino, Chino Hills, Fontana, Montclair, Norco, Ontario, Pomona, Rancho Cucamonga, Rialto, and Upland; and the counties of Riverside and San Bernardino. Data contained in the OBMP PEIR is also used for this evaluation. The evaluation focuses on the potential aesthetic and visual resource impacts from implementing these master plans.

Implementation of these master plans will include installing new infrastructure systems within existing communities and providing water and wastewater services 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 these plans.

The preservation and enhancement of the positive visual aspects, as well as the assurance that new development is aesthetically pleasing, are key features of the general plans within the project area. New construction has the potential to conflict with the views of and from existing neighborhoods and structures. Determination of the visual impact of new development will ultimately have to be made at the specific project level, but guidelines are discussed and established below to ensure that future OBMP facilities and activities do not cause significant adverse aesthetic impacts.

a. Future facilities proposed by these master plans will be underground (pipes), at ground level (recharge basins) and above ground in the form of typical structures that will be used to house digesters, composting facilities, etc. The proposed project facilities and activities are not forecast to cause any significant adverse impacts to a scenic vista or scenic highway because these facilities will not be located in areas or be of a size to adversely impact such vistas or scenic highways.

There are eligible scenic highways within the project area, but no officially designated scenic highways. The County of San Bernardino does have scenic corridors within the project area and established planning standards that should be employed with development. With implementation of mitigation outlined below, development under these master plans will be consistent with current general plan requirements for protecting scenic vistas and scenic highway visual values.

The most significant visual resources are the hills and mountains surrounding the Chino Basin and the pastoral landscape that occurs in the southern portion of the Chino Basin. The activity with the highest potential to conflict with local agency design guidelines is construction disturbance of the landscape. Such disturbance can be reduce to an acceptable level by landscaping or revegetating disturbed areas (pipelines, recharge basins, structural developments, composting facilities, and above ground waste-water treatment facilities) either with landscaping that is consistent with local design guidelines or with native vegetation consistent with that which occurs naturally in the area.

b-c. The proposed facilities will utilize a combination of existing facilities, underground systems and new facility construction both above and below ground. Installation of surface facilities has a potential to modify the existing view or visual setting at future specific project sites which could cause a negative visual impact. Measures outlined above can ensure that construction disturbance is mitigated by replacing vegetation and controlling potential negative aesthetic effects due to landscape scarring. For above ground structures, such as digesters, composting facilities, etc., compliance with local agency design guidelines will ensure that new facilities do not cause significant negative aesthetic effects. Compliance with the measures provided below will also reduce potential impacts to a less than significant level.

d. Some of the proposed facilities will require the installation of night lighting, possibly including areas where little or no night lighting currently exists. Glare from new light fixtures that may be installed as part of proposed master plans improvements have 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. Lighting can increase nighttime visibility and thereby achieve a greater degree of safety for motorists, residents, and business owners.

Future specific projects will include facilities located at developed and undeveloped sites that may require the installation of infrastructure improvements that require lighting. Night lighting installed in support of future 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 night lights, by selecting the appropriate type of lighting for the specific site and location, and by directing the lights through use of hoods and other directional controls.

The last potentially significant adverse light-and-glare impact relates to headlights from vehicles traveling on project area roadways. The majority of increased vehicle trips will be attributable to daytime construction and maintenance related trips to IEUA facilities in the future. The small number of night-time trips (unquantifiable at this stage of review) is so small relative to existing trips on roadways 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 the IEUA facilities.

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 and, in some cases, by clustering development to maximize open space and by encouraging the underground placement of utilities, where practicable. In addition to compliance with design and light and glare guidelines of local jurisdictions, the following measures shall be implemented to reduce potential impacts to visual resources to a less than significant level.

I-1 All surface areas disturbed by construction activities, except those area used 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 (note that native vegetation is also eminently suited to man-made landscapes and requires less maintenance). Once construction is completed, revegetation shall begin immediately and, where a formal landscape plan is being implemented, it shall be coordinated with the local agency and the local design guidelines for consistency.

I-2 Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, project implementation will conform with design requirements established in these planning documents.

I-3 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.

I-4 When above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.

I-5 All utilities for project facilities shall be placed underground unless such undergrounding is not technically feasible.

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.*

The aesthetics and visual resources evaluation presented above indicates that although the proposed project has a potential to cause changes in visual settings, no significant adverse impact to aesthetics or visual resources are forecast to occur based on implementation of mitigation measures. Therefore, no significant, adverse aesthetic, visual resource or light and glare impacts are forecast to occur if the proposed project is implemented as outlined above.

	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 Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), 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 agricultural 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 (check ___ if project is located in the Important Farmlands Overlay):

a-c. The Chino Basin contains very significant agricultural resources, primarily dairy ranches that are located in the southern portion of the Basin. Actions have been taken (beginning in 1994) which have resulted in a large portion of the dairy ranches in San Bernardino County being annexed or available for annexation to the cities of Chino and Ontario. Agricultural uses are forecast to gradually shift to urban uses within the project area, 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 first step in the transition to urban uses has been taken by most jurisdictions with agricultural areas (excluding some county areas) because new land use designations have been or are in the process of being assigned to the dairy ranch areas. According to the OBMP PEIR, as of 2000, the 8,200 acres annexed to the City of Ontario, 5,200 acres have been assigned residential designations, 504 acres commercial designations, 338 acres industrial, 500 acres for educational uses, and 776 acres are allocated to public and infrastructure uses. Thus, 89 percent of the annexed areas are allocated to urban uses. Since 2000, additional acreage in the southerly portion of the Chino Basin has been converted from agricultural land use designations to non-agricultural use designations.

IEUA is mandated to provide an adequate supply of potable water to customers within its service area. It is also mandated to provide wastewater collection and treatment services and to manage the wastes generated. Implementation of these master plans will help IEUA achieve these goals.

At the general plan level, these master plans 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. Thus, at the master plan adoption level, implementation of this project is not forecast to have any adverse effect on the agricultural to urban land use transition.

At the project specific level, implementation of individual projects identified in the master plans have some potential to affect agricultural lands. This potential exists primarily in the southerly portion of the Basin where most of the existing agricultural uses occur. Facilities which could affect agricultural activities include siting new composting or wastewater treatment facilities. The sites for these facilities would be relatively small (less than 5 acres at any site) and would generally be located adjacent to or near existing IEUA facilities not on agricultural land. The recharge basin are existing and will be located in the northerly portion of the basin where there is minimal agricultural uses.

Most pipelines will be placed within existing rights-of-way (implying that these alignments are already disturbed) and if placed under agricultural land would allow most agricultural operations to continue. The installation and operation of pipelines is not forecast to cause any measurable loss of agricultural land.

The facilities proposed by these master plans are generally viewed as supportive of agriculture. The composting and wastewater treatment facilities will provide a more efficient method of dairy waste treatment and disposal. The provision of additional water supplies is viewed as a benefit to all land uses including agriculture. Based on the above, it is concluded that implementation of these master plans will not adversely effect agricultural resources or uses. Potential impacts to agricultural resources will not be a topic of evaluation in the EIR prepared for this project.

		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?	■	□	□	□

SUBSTANTIATION (discuss conformity with the South Coast Air Quality Management Plan, if applicable):

a-e. Implementation of these master plans has the potential to generate a substantial amount of air pollutants within urbanized areas during the construction and operations phases. The waste treatment and processing activities have the potential to generate odors that could affect a substantial number of people. Due to the potential for significant adverse air quality impacts from construction and operation of the facilities proposed by these master plans, potential air quality impacts will be a topic of evaluation in the PEIR being prepared for the project.

		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, 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 community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US 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 corridors, or impede the use of native wildlife nursery sites?	■	☐	☐	☐
e.	Conflict with any local policies or ordinances protecting biological resources, such as a 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?	■	☐	☐	☐

SUBSTANTIATION (check if project is located in the Biological Resources Overlay __ or contains habitat for any species listed in the California Natural Diversity Database __):

a-f. Implementation of the projects identified in these master plans has the potential to adversely affect biological resources. Potential impacts will be associated with alteration of the quantity and quality of water discharged from treatment facilities proposed. Of particular concern are the potential impacts to riparian and wetland areas along drainage channels such as the Santa Ana River and the Prado Basin. Potential impacts to biological resources will be a topic evaluated in the EIR.

	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 (check if the project is located in the Cultural ___ or Paleontologic ___ Resources overlays or cite results of cultural resource review):

a-d. The area covered by these master plans is known to contain sensitive areas for cultural resources. Throughout the Chino Basin there is a significant potential for encountering both surface and subsurface (buried) cultural resources. Implementation of the projects identified in these master plans will result in construction and excavation activities could encountered sensitive resources. Therefore, the topic of potential affects to cultural resources (archaeologic and paleontologic) will be evaluated in the EIR prepared for this project.

	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:				
• 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.	■	☐	☐	☐
• Strong seismic ground shaking?	■	☐	☐	☐
• Seismic-related ground failure, including liquefaction?	■	☐	☐	☐
• 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 onsite 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 risks to life or property?	■	☐	☐	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	■

SUBSTANTIATION (check ___ if project is located in the Geologic Hazards Overlay District):

a-d. The Chino Basin is located within a seismically active area. Known and suspected fault zones exist within and near the Chino Basin. It is anticipated that facilities proposed by these master plans will be subjected to strong seismically induced groundshaking. The southern portion of the Basin contains high groundwater and has a high liquefaction potential. Construction and operation of proposed facilities have the potential to result in the loss of topsoil and substantial soil erosion.

Based on the potential for significant impacts associated with geologic hazards and soil constraints, these issues will be topics of evaluation in the EIR prepared for this project.

e. The master plans being evaluated do 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 EIR.

		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 materials 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?	☐	☐	☐	■

SUBSTANTIATION:

a-c. The projects will create a less than significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials. In the short term, the only hazardous materials that will be used or stored by the project are petroleum products used by construction equipment. Unmanaged releases of hazardous materials during construction are readily controlled to a non-significant level of hazard through control or remediation of accidental releases of petroleum products. The following mitigation measure will be implemented to prevent any significant hazard through the "routine transport, use or disposal" of petroleum products during construction.

VII-1 ***If petroleum products are accidentally released to the environment during any phase of construction, the City shall require the area or contamination to be defined; shall require the removal of any contaminated soil or material from the contaminated area; and ensure that any area exposed to accidentally released contaminants are remediated to a threshold that meets regulatory requirements established by law or agencies overseeing the remediation.***

Operation of this facility will result in the use and storage of chlorine, sodium or calcium hypochlorite and polymers. The transport use and storage of these chemicals are controlled by state and federal regulations. These regulations have been adopted by the regulatory agencies to reduce the potential risk of exposure of people to these substances to acceptable levels of risk. Permitting of the use of such substances requires that adequate containment of the substances is provided to reduce the potential for release to the environment to acceptable levels. These regulatory agencies have determined that compliance with the regulations governing the transport, storage, and use of these substances is adequate to mitigate the potential risk of release to a non-significant level. Compliance with applicable regulations and the securing of required permits is a requirement of project implementation.

The highest potential for a hazard to the public or the environment will be through the operation of storage tanks to store biogas produced during peak production. All of the tanks are high pressure (95 psi), and will store the digester methane gas that will be used to power the Internal Combustion Engines.

Scenarios for the accidental release of digester methane gas are described in the IEUA Risk Management Plan (RMP) for both IEUA RP-1 and RP-2 facilities. The Plan describes two (2) scenarios for the release of the gas. The first scenario is a "Worst-Case Release Scenario, in which one of the anaerobic digesters currently on these sites experiences a catastrophic failure due to an unknown external event. The Plan states that this scenario would be initiated by some unknown external event (i.e., an airplane, missile, or meteorite) impacting the digester. This scenario may also be initiated by a seismic event. The Plan states that this scenario is highly unlikely. The Plan continues to state that in the highly unlikely case that this scenario occurs, approximately 20,000 pounds of methane would be released. The release would be outdoors. The primary hazard associated with methane is explosion and the subsequent overpressure wave. The scenario in the Plan assumes that the 20,000 pounds of methane was released and that a vapor cloud containing methane within its explosivity limits was generated and ignited. The Plan states that using this assumption is much more conservative in nature and resulted in the estimation of the largest vulnerable zone for these types of accident scenarios.

Utilizing the methodology specified by the USEPA, the RMP estimated the vulnerable zone for this scenario is less than 0.2 miles. The project sites identified for this project would have similar zones. This scenario is not directly applicable to the projects proposed by these plans, as the maximum release from a tank would be vary depending on the size of the tank.

The second scenario is an "Alternative Release Scenario." Alternative release scenarios which are considered to be more likely to occur are those which may result in the release of anywhere from less than one-pound up to 5,000 pounds of methane. The scenarios include situations such as pinhole leaks or partial or complete failure of the digester gas collection and handling lines or complete failure of the gas compressors. As with the first scenario above, the primary hazard associated with methane is explosion and the subsequent overpressure wave. The scenario in the RMP assumes that the 5,000 pounds of methane was released and that a vapor cloud containing methane within its explosivity limits was generated and ignited. The Plan states that using this assumption is much more conservative in nature and resulted in the estimation of the largest vulnerable zone for these types of accident scenarios. Utilizing the methodology specified by the USEPA, the estimated vulnerable zone for these types of scenarios is less than 0.1 miles which would be similar for the proposed project. This scenario would be applicable to the projects, as the amount of methane that could be released from the tanks are as follows:

- 30,000 gallon tank (30,000 gallon tank) = 790 lbs. of methane gas

Because sensitive receptors are located within 0.1 or 0.2 miles from the project site at the current time, mitigation measures will be added to the projects to assure that any impacts created from the installation, operation and maintenance of the tank to current or future development are mitigated to a less than significant level. The projects will comply with the measures contained on Page ES-5 of the Risk Management Plan. These are:

ES 4.0	Accidental Release Prevention Program and Chemical Specific Prevention Steps
ES 5.0	Emergency Response
ES 6.0	Planned Changes to Improve Safety

With the incorporation of these programs and the following mitigation measures, project impacts can be reduced to a less than significant level of hazard. Copies of the Risk Management Plan sections referenced above are available for review at the IEUA office in Fontana.

All other components of the projects will not result in a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. These do not have the same level of volatility as digester gas storage tanks. Installation, operation and maintenance of these projects in accordance with current building and fire codes will be sufficient to assure that impacts will not occur.

To further reduce the potential risks from hazardous materials and substances, the following measures shall be implemented:

VII-2 ***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.***

VII-3 ***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.***

VII-4 ***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.***

VII-5 *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.*

VII-6 *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.*

VII-7 *To the extent feasible, installation of pipelines or other construction activities 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.*

VII-8 *Where alternative treatment systems are available to reduce potential health risks at proposed facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities.*

VII-9 *Prior to approving specific recycled water recharge facility locations and volumes, the extent of the aquifer area that would be removed from water production to meet potable water production requirements (6-month detention and 20% concentration in groundwater) shall be defined. If it conflicts with significant water production wells (existing or proposed), an alternative recharge location shall be selected, or wells will be closed and a new supply developed.*

VII-10 *Hydrogeologic studies, including modeling, will be done for each recharge site to define the recharge impacts on existing known contaminated 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 impacted production facilities will be replaced.*

VII-11 *All recycled 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 recycled recharge operations shall be terminated or modified to eliminate the adverse impact.*

d. Based on available plans, none of the projects are not located on a site which is included on a list of hazardous materials 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. Final plans will be reviewed to verify that no such sites are affected.

e. Based on available plans, none of the proposed above ground structures are located within an airport land use plan area. Should, however, final plans include above ground structures that are located within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B") for an airport which may 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 that store methane within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B"), a final determination will be made on the acceptability of such facilities*

within this zone. 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 by 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 airport operations.

f. The projects are not within the vicinity of private airstrips; therefore they will not result in a safety hazards for people residing or working in the project area. No mitigation measures are required.

g. 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 infrastructure 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 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.***

h. The projects will not expose people or structures to a significant risk of loss, injury or death involving wildland fires. The projects are not located in proximity to areas where wildland fires will occur. No mitigation measures are required.

		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 onsite 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?	■	☐	☐	☐
j.	Inundation by seiche, tsunami, or mudflow?	■	☐	☐	☐

SUBSTANTIATION:

a-j. The projects identified in these master plans include wastewater treatment facilities that will treat and discharge treated effluent. The discharge of this recycled water has some potential to violate water quality standards or discharge requirements. Construction and operation of the facilities identified have some potential to alter stormwater runoff and affect the quality of stormwater. Due to the potential for adverse impacts to Hydrology and Water Quality, these issues will be evaluated in the EIR prepared for the project.

	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?	■	☐	☐	☐

SUBSTANTIATION:

a-c. The facilities proposed by these mater plans have some potential to divide a community. This could result from siting large above ground structures within an established community, thus altering or dividing that community. The projects proposed in the master plans also have some potential to conflict with applicable land use plans by siting a facility that is not compatible with existing land uses or land use designations including habitat or natural conservation plans. Due to these potential conflicts with land use plans and existing communities, land use and planning will be a topic of evaluation in the EIR prepared for this project.

	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 a 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?	☐	☐	■	☐

SUBSTANTIATION (check ___ if project is located within the Mineral Resources Zone Overlay):

a-b. According to data provided in the OBMP EIR, existing mineral production in the Chino Basin is limited to oil and gas and industrial minerals. Oil and gas production occurs from two small oilfields located in the Chino Hills. None of the projects proposed by the master plans are located within the Chino Hills and no potential for impact to these resources will result from implementing these master plans.

Th industrial minerals in the area are comprised of construction aggregate (sand, gravel, cobble, etc.). These materials are primarily located within drainage courses. The structures proposed, except recharge basins and pipelines, will be located outside drainage courses and have no potential to result in the loss of any known mineral resources. Some pipelines and recharge basins have the potential to affect such resources. However, the areas affected will be relatively small when compared to the amount of construction aggregate available in the area. Additionally, pipelines and recharge basins will not permanently eliminate such areas from production. The recharge basins and pipelines could be relocated if significant resources were identified on individual sites. Based on the above, it is concluded that implementation of these master plans will not result in the loss of availability of any known mineral resources. No mitigation is required and this issue will not be a topic of evaluation in an EIR being prepared for this project.

		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 (check if the project is located in the Noise Hazard Overlay District ___ or is subject to severe noise levels according to the General Plan Noise Element ___):

a-f. Implementation of the projects proposed by the master plans have the potential to generate noise in both the long and short term. Short-term noise will be associated with construction activities. Long-term noise will be associated with the operation of the facilities constructed (motors, equipment, vehicles, etc.) including the potential for locating facilities within high noise areas. Based on the potential for significant noise impacts to result from implementing the projects proposed by these master plans, noise will be a topic of evaluation in an EIR prepared for the project.

		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 population 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:

a-c. Typically, the provision of an adequate supply of water and adequate wastewater treatment facilities are not considered growth inducing. Such facilities generally accommodate growth by providing the needed services and do not displace housing or people. However, due to the large scope of the facilities and services proposed by these master plans, potential impacts to population and housing will be a topic evaluated in the EIR prepared for this project.

	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:				
Fire protection?	■	☐	☐	☐
Police protection?	■	☐	☐	☐
Schools?	■	☐	☐	☐
Parks?	■	☐	☐	☐
Other public facilities?	■	☐	☐	☐

SUBSTANTIATION:

These master plans propose improvements to IEUA's service systems that could result in physical changes to existing land uses and change land use designations. These changes will result from providing a more efficient and effective water supply and wastewater and waste collection, treatment, and disposal facilities. As a result, implementation of the projects proposed have the potential to increase the demand for public services in the affected area and the issue of public services will be a topic of evaluation in an EIR prepared for the project.

		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:

a-b. The demand for recreational opportunities is typically associated with the population of an area. The greater the population or the growth in population, the greater the demand for recreational opportunities.

As previously stated in this Initial Study, IEUA, as a water and wastewater treatment service purveyor, is required to provide customers within its service area with both an adequate supply of domestic water and adequate capacity to treat or reclaim wastewater. The amount of water consumed and the amount of wastewater generated is determined by the type and density of development within the service area. The type and density of land uses within the service area are established by local planning documents such as the general plans and zoning regulations which establish the demand for these services. The provision of these services is viewed as growth accommodating not growth inducing in that the demand drives the need to provide the service.

While the master plans provide schedules for development of proposed facilities, actual implementation will be based on demand for water and wastewater treatment in the service area. Therefore, implementation of the projects proposed are not forecast to induce growth which would increase the demand for recreational facilities.

IEUA forecasts that implementation of the proposed projects could result in the need for up to 100 new employees to operate the new facilities proposed. IEUA forecast that most of these new jobs will be filled from the local workforce and will not induce a substantial number of people to move into the area.

It should also be noted that one of the goals of these master plans is to generate additional recycled water for use in the service area, thus increasing the amount of water available for irrigation of recreation facilities.

Based on the above, it is concluded this project has no potential to substantially increase the demand for parks or other recreational opportunities or affect any existing such facilities or opportunities. No mitigation is required and recreation will not be a topic evaluated in the EIR.

		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, a level of service standard established by the county congestion management agency 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:

a-g. Implementation of the projects will result in an increase in traffic over both the short and long term. Short-term increases will occur during construction of the facilities. Long-term increase may result from changes in land uses and land use designations. Therefore, the issues associated with potential impacts to the transportation system and traffic will be the topic of evaluation in the EIR prepared for this project.

		Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVI.	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 storm water 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:

a-g. The projects proposed by these master plans could result in physical changes to existing land uses and changes to land use designations which could increase the demand for utilities. Therefore the topic of potential impacts to utilities and utility systems will be a topic of evaluation in an EIR prepared for this project.

	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVII. 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:

a. Implementation of the proposed master plans has the potential to adversely affect biological and cultural resources. Therefore these issues will be evaluated in an EIR prepared for this project.

b. Implementation of the master plans will result in impacts that are potentially both individually and cumulatively significant. Therefore, these impacts will be evaluated in the EIR prepared for this project.

c. The projects proposed by these master plans include the treatment and reuse of wastewater and dairy wastes. Wastewater and materials used to treat wastewater have the potential to cause adverse effects on human beings and these issues will be evaluated in an EIR.

MITIGATION MEASURES:

I-1 All surface areas disturbed by construction activities, except those area used 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 (note that native vegetation is also eminently suited to man-made landscapes and requires less maintenance). Once construction is completed, revegetation shall begin immediately and, where a formal landscape plan is being implemented, it shall be coordinated with the local agency and the local design guidelines for consistency.

I-2 Where facilities are proposed to be located adjacent to scenic highways, corridors or other scenic features identified in local agency planning documents, project implementation will conform with design requirements established in these planning documents.

I-3 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.

I-4 When above ground facilities are constructed in the future, the local agency design guidelines for the project site shall be followed to the extent that they do not conflict with the engineering and budget constraints established for the facility.

I-5 All utilities for project facilities shall be placed underground unless such undergrounding is not technically feasible.

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.

VII-1 If petroleum products are accidentally released to the environment during any phase of construction, the City shall require the area or contamination to be defined; shall require the removal of any contaminated soil or material from the contaminated area; and ensure that any area exposed to accidentally released contaminants are remediated to a threshold that meets regulatory requirements established by law or agencies overseeing the remediation.

VII-2 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.

VII-3 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.

VII-4 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.

VII-5 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.

VII-6 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.

VII-7 To the extent feasible, installation of pipelines or other construction activities 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.

VII-8 Where alternative treatment systems are available to reduce potential health risks at proposed facilities, such alternatives shall be selected if they meet defined technical, logistical and economic requirements for operation of such facilities.

VII-9 Prior to approving specific recycled water recharge facility locations and volumes, the extent of the aquifer area that would be removed from water production to meet potable water production requirements (6-month detention and 20% concentration in groundwater) shall be defined. If it conflicts with significant water production wells (existing or proposed), an alternative recharge location shall be selected, or wells will be closed and a new supply developed.

VII-10 Hydrogeologic studies, including modeling, will be done for each recharge site to define the recharge impacts on existing known contaminated 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 impacted production facilities will be replaced.

VII-11 All recycled 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 recycled recharge operations shall be terminated or modified to eliminate the adverse impact.

VII-12 Prior to installing any above ground structures or facilities that store methane within FAA Restricted Use, Development and Height Area (ACLUP Referral Area "B"), a final determination will be made on the acceptability of such facilities within this zone. 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 by 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.

REFERENCES:

Inland Empire Utilities Agency, Final EIR for the Optimum Basin Management Plan

Inland Empire Utilities Agency, Final Mitigated Negative Declaration for the Inland Empire Utilities Agency On-Site Dairy Digester / Chino I Desalter Power Generation Pilot Scale Project

Inland Empire Utilities Agency, Wastewater Facilities Master Plan

Inland Empire Utilities Agency, Water Management Plan

Inland Empire Utilities Agency, Organics Management Plan

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

State Clearinghouse

Gray Davis
GOVERNOR

Steven A. Nissen
DIRECTOR

Notice of Preparation

January 29, 2002

FEB - 4 2002

To: Reviewing Agencies

Re: Inland Empire Utilities Agency Wastewate. Recycled Water and Organics Management Master Plan
SCH# 2002011116

Attached for your review and comment is the Notice of Preparation (NOP) for the Inland Empire Utilities Agency Wastewate, Recycled Water and Organics Management Master Plan draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Gary E. Hackney
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
San Bernardino, CA 92335

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

for:

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

State Clearinghouse Data Base

SCH#	2002011116
Project Title	Inland Empire Utilities Agency Wastewate, Recycled Water and Organics Management Master Plan
Lead Agency	Inland Empire Utilities Agency

Type NOP Notice of Preparation

Description The Inland Empire Utilities Agency (IEUA) will serve as the Lead Agency under the California Environmental Act (CEQA) and will coordinate the preparation of a focused Environmental Impact Report (EIR) that will evaluate the potential significant environmental impacts that may result from implementing management plans for wastewater, recycled, water and organic materials within its service area.

Lead Agency Contact

Name Gary E. Hackney
Agency Inland Empire Utilities Agency
Phone 909-357-0241 *Fax*
email
Address 9400 Cherry Avenue, Building A
City San Bernardino *State* CA *Zip* 92335

Project Location

County San Bernardino
City Chino Hills, Fontana, San Gabriel
Region
Cross Streets Interstates 15 and 10
Parcel No.
Township *Range* *Section* *Base*

Proximity to:

Highways I-10 & 15
Airports Ontario International
Railways UP & BN
Waterways Several, including Santa Ana River
Schools
Land Use

Project Issues Air Quality; Archaeologic-Historic; Flood Plain/Flooding; Drainage/Absorption; Geologic/Seismic; Cumulative Effects; Landuse; Growth Inducing; Wildlife; Wetland/Riparian; Water Quality; Vegetation; Traffic/Circulation; Toxic/Hazardous; Solid Waste; Soil Erosion/Compaction/Grading; Sewer Capacity; Schools/Universities; Public Services; Noise

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Reviewing Agencies Resources Agency; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Game, Region 6; Native American Heritage Commission; Public Utilities Commission; State Lands Commission; Caltrans, District 8; Department of Housing and Community Development; Air Resources Board, Major Industrial Projects; Integrated Waste Management Board; Regional Water Quality Control Bd., Region 6 (Victorville); Department of Conservation

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Date Received 01/29/2002 *Start of Review* 01/29/2002 *End of Review* 02/27/2002

Note: Blanks in data fields result from insufficient information provided by lead agency.

? Distributic ist

County: San rnadino SCH# 2006011116

urces Agency

- iesources Agency
  ladell Gayou
-)ept. of Boating & Waterways
  ill Curry
- :alifornia Coastal
  :ommission
  :lizabeth A. Fuchs
-)ept. of Conservation
  Roseanne Taylor
- Dept. of Forestry & Fire
  Protection
  Allen Robertson
- Office of Historic
  Preservation
  Hans Kreutzberg
- Dept of Parks & Recreation
  Resource Mgmt. Division
- Reclamation Board
  Pam Bruner
- S.F. Bay Conservation &
  Dev't. Comm.
  Steve McAdam
- Dept. of Water Resources
  Resources Agency
  Nadell Gayou

lth & Welfare

- Health & Welfare
  Wayne Hubbard
  Dept. of Health/Drinking Water

d & Agriculture

- Food & Agriculture
  Steve Shaffer
  Dept. of Food and Agriculture

Fish and Game

- [ ] Dept. of Fish & Game
  Scott Flint
  Environmental Services Division
- [ ] Dept. of Fish & Game 1
  Donald Koch
  Region 1
- [ ] Dept. of Fish & Game 2
  Banky Curtis
  Region 2
- [ ] Dept. of Fish & Game 3
  Robert Floerke
  Region 3
- [ ] Dept. of Fish & Game 4
  William Laudermilk
  Region 4
- [ ] Dept. of Fish & Game 5
  Don Chadwick
  Region 5, Habitat Conservation
  Program
- [x] Dept. of Fish & Game 6
  Gabrina Gatchel
  Region 6, Habitat Conservation
  Program
- [ ] Dept. of Fish & Game 6 I/M
  Tammy Allen
  Region 6, Inyo/Mono, Habitat
  Conservation Program
- [ ] Dept. of Fish & Game M
  Tom Napoli
  Marine Region

Independent Commissions

- [ ] California Energy Commission
  Environmental Office
- [x] Native American Heritage
  Comm.
  Debbie Treadway
- [x] Public Utilities Commission
  Ken Lewis
- [x] State Lands Commission
  Betty Silva
- [ ] Governor's Office of Planning
  & Research
  State Clearinghouse Planner

- [ ] Colorado River Board
  Gerald R. Zimmerman
- [ ] Tahoe Regional Planning
  Agency (TRPA)
  Lyn Barnett
- [ ] Office of Emergency Services
  John Rowden, Manager
- [ ] Delta Protection Commission
  Debby Eddy
- [ ] Santa Monica Mountains
  Conservancy
  Paul Edelman

Dept. of Transportation

- [ ] Dept. of Transportation 1
  IGR/Planning
  District 1
- [ ] Dept. of Transportation 2
  Vicki Roe
  Local, Development Review,
  District 2
- [ ] Dept. of Transportation 3
  Jeff Pulverman
  District 3
- [ ] Dept. of Transportation 4
  Jean Finney
  District 4
- [ ] Dept. of Transportation 5
  Lawrence Newland
  District 5
- [ ] Dept. of Transportation 6
  Marc Birnbaum
  District 6
- [ ] Dept. of Transportation 7
  Stephen J. Buswell
  District 7
- [x] Dept. of Transportation 8
  Mike Sim
  District 8
- [ ] Dept. of Transportation 9
  Colleen O'Brien
  District 9
- [ ] Dept. of Transportation 10
  Chris Sayre
  District 10
- [ ] Dept. of Transportation 11
  Lou Salazar
  District 11
- [ ] Dept. of Transportation 12
  Aileen Kennedy
  District 12

Business, Trans & Housing

- [x] Housing & Community Development
  Cathy Creswell
  Housing Policy Division
- [ ] Caltrans - Division of Aeronautics
  Sandy Hesnard
- [ ] California Highway Patrol
  Lt. Julie Page
  Office of Special Projects
- [ ] Dept. of Transportation
  Ron Helgeson
  Caltrans - Planning
- [ ] Dept. of General Services
  Robert Sleppy
  Environmental Services Section

Air Resources Board

- [ ] Airport Projects
  Jim Lerner
- [ ] Transportation Projects
  Ann Geraghty
- [x] Industrial Projects
  Mike Tollstrup

- [x] California Integrated Waste
  Management Board
  Sue O'Leary
- [ ] State Water Resources Control
  Board
  Diane Edwards
  Division of Clean Water Programs
- [ ] State Water Resources Control
  Board
  Greg Frantz
  Division of Water Quality
- [ ] State Water Resouces Control
  Board
  Mike Falkenstein
  Division of Water Rights
- [ ] Dept. of Toxic Substances Control
  CEQA Tracking Center

Regional Water Quality Control Board (RWQCB)

- [ ] RWQCB 1
  Cathleen Hudson
  North Coast Region (1)
- [ ] RWQCB 2
  Environmental Document
  Coordinator
  San Francisco Bay Region (2)
- [ ] RWQCB 3
  Central Coast Region (3)
- [ ] RWQCB 4
  Jonathan Bishop
  Los Angeles Region (4)
- [ ] RWQCB 5S
  Central Valley Region (5)
  - [ ] RWQCB 5F
    Central Valley Region (5)
    Fresno Branch Office
  - [ ] RWQCB 5R
    Central Valley Region (5)
    Redding Branch Office
- RWQCB 6
  Lahontan Region (6)
  - [x] RWQCB 6V
    Lahontan Region (6)
    Victorville Branch Office
- [ ] RWQCB 7
  Colorado River Basin Region (7)
- [ ] RWQCB 8
  Santa Ana Region (8)
- [ ] RWQCB 9
  San Diego Region (9)

California Regional Water Quality Control Board

Santa Ana Region

Winston H. Hickox
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov/rwqcb8
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 - FAX (909) 781-6288

Gray Davis
Governor

March 12, 2002

Mr. Tom Dodson
Dodson & Associates
2150 N. Arrowhead Avenue
San Bernardino, CA. 92405

INLAND EMPIRE UTILITIES AGENCY WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLANS PROGRAM ENVIRONMENTAL IMPACT REPORT

Dear Mr. Dodson:

Regional Board staff attended the recent scoping meeting for the development of the Program Environmental Impact Report (PEIR) for the proposed Inland Empire Utilities Agency (IEUA) wastewater, recycled water and organics management plan. At the scoping meeting, you requested that our office provide input on how your team can use the new proposed TDS and nitrate water quality objectives and groundwater subbasin boundaries in the development of the PEIR.

As you are probably aware, a number of wastewater and water supply agencies in the region, under the auspices of the Santa Ana Watershed Project Authority (SAWPA), formed the Nitrogen/TDS Task Force. The Task Force has been involved in studies to update the TDS and nitrate management plan currently specified in the Water Quality Control Plan (Basin Plan). As part of this update, revised groundwater subbasin boundaries (Management Zones) and TDS and nitrate water quality objectives have been proposed.

The public process of incorporating the proposed revised groundwater TDS and nitrate quality objectives and many of the subbasin boundaries into the Basin Plan will be initiated by Regional Board staff in the Fall of 2002. Regional Board staff will likely propose changes to the TDS and nitrate water quality objectives and subbasin boundaries that are consistent with the recommendations of the Task Force. However, changes to these objectives and/or subbasin boundaries can be recommended during Basin Plan amendment process. A table of the recommended TDS and nitrate water quality objectives and Management Zone boundaries can be obtained from SAWPA (the most recent revision is being prepared).

The Basin Plan update process can take up to one year to complete since it is necessary to have Regional Board adoption of the proposed changes as well as approval by the State Water Resources Control Board, the State Office of Administrative Law and the U. S. Environmental Protection Agency.

We believe that in the PEIR, you should review both the existing TDS and nitrate Basin Plan water quality objectives and boundaries as well as the proposed objectives and Management Zones boundaries developed as part of the Nitrogen/TDS study. This is particularly important in the Chino Basin since the proposed changes are significant and will likely affect local dischargers and recycled water reuse programs.

We look forward to reviewing the PEIR when it becomes available. In the meantime, if we can be of any additional assistance, please feel free to call on me at (909) 782-4493 or you may contact Robert Nicklen at (909) 782-4492.

Sincerely,

Hope Smythe

Hope Smythe
Chief, Inland Waters Planning Section

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

FEB 19 2002

February 14, 2002

Gary E. Hackney
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
San Bernardino, CA 92335

RE: SCH# 2002011116 – Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Master Plan

Dear Mr. Hackney:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess and mitigate project-related impacts on archaeological resources, the Commission recommends the following actions be required:

✓ Contact the appropriate Information Center for a record search. The record search will determine:
  - If a part or all of the area of project effect (APE) has been previously surveyed for cultural resources.
  - If any known cultural resources have already been recorded on 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.

✓ Contact the Native American Heritage Commission for:
  - A Sacred Lands File Check.
  - A list of appropriate Native American Contacts for consultation concerning the project site and to assist in the mitigation measures.

✓ 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.
  - 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 in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5 (e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

Rob Wood
Environmental Specialist III
(916) 653-4040

CC: State Clearinghouse

Matt, John

FEB 15 2002

FEB 15 2002

SOUTHERN CALIFORNIA

ASSOCIATION of GOVERNMENTS

Main Office

818 West Seventh Street

12th Floor

Los Angeles, California

90017-3435

t (213) 236-1800

f (213) 236-1825

www.scag.ca.gov

February 12, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

RE: **Comments on the Notice of Preparation for a Draft Program Environmental Impact Report to Address Implementation of IEUA Wastewater, Recycled Water and Organics Management Plans – SCAG No. I 20020044**

Dear Mr. Hackney:

Thank you for submitting the **Notice of Preparation for a Draft Program Environmental Impact Report to Address Implementation of IEUA Wastewater, Recycled Water and Organics Management Plans** to SCAG for review and comment. As areawide clearinghouse for regionally significant projects, SCAG reviews the consistency of local plans, projects, and programs with regional plans. This activity is based on SCAG's responsibilities as a regional planning organization pursuant to state and federal laws and regulations. Guidance provided by these reviews is intended to assist local agencies and project sponsors to take actions that contribute to the attainment of regional goals and policies.

We have reviewed the **Notice of Preparation for a Draft Program Environmental Impact Report to Address Implementation of IEUA Wastewater, Recycled Water and Organics Management Plans,** and have determined that the proposed Project is regionally significant per SCAG mandates for regionally significant projects that directly relate to policies and strategies contained in the Regional Comprehensive Plan and Guide (RCPG) and Regional Transportation Plan (RTP). The proposed Project considers the implementation of a regional water management plan. CEQA requires that EIRs discuss any inconsistencies between the proposed project and applicable general plans and **regional plans (Section 15125 [d]).** If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.

Policies of SCAG's Regional Comprehensive Plan and Guide and Regional Transportation Plan, which may be applicable to your project, are outlined in the attachment. **We expect the Draft EIR to specifically cite the appropriate SCAG policies and address the manner in which the Project is consistent with applicable core policies or supportive of applicable ancillary policies. Please use our policy numbers to refer to them in your Draft EIR. Also, we would encourage you to use a side-by-side comparison of SCAG policies with a discussion of the consistency or support of the policy with the Proposed Project.**

Please provide a minimum of 45 days for SCAG to review the Draft EIR when this document is available. If you have any questions regarding the attached comments, please contact me at (213) 236-1867. Thank you.

Sincerely,

JEFFREY M. SMITH, AICP
Senior Planner
Intergovernmental Review

COMMENTS ON THE PROPOSAL TO DEVELOP A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE IMPLMENTATION OF IEUA WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLAN SCAG NO. I 20020044

PROJECT DESCRIPTION

The proposed Project considers the implementation of management master plans for wastewater, recycled water and organic materials with in the IEUA service area.

CONSISTENCY WITH REGIONAL COMPREHENSIVE PLAN AND GUIDE POLICIES

The **Growth Management Chapter (GMC)** of the Regional Comprehensive Plan and Guide (RCPG) contains the following policies that are particularly applicable and should be addressed in the Draft PEIR for the Inland Empire Utilities Agency Implementation Plan.

3.03 *The timing, financing, and location of public facilities, utility systems, and transportation systems shall be used by SCAG to implement the region's growth policies.*

The **Regional Transportation Plan (RTP)** also has goals, objectives, policies and actions pertinent to this proposed project. This RTP links the goal of sustaining mobility with the goals of fostering economic development, enhancing the environment, reducing energy consumption, promoting transportation-friendly development patterns, and encouraging fair and equitable access to residents affected by socio-economic, geographic and commercial limitations. Among the relevant goals, objectives, policies and actions of the RTP are the following:

Core Regional Transportation Plan Policies

4.02 *Transportation investments shall mitigate environmental impacts to an acceptable level.*

4.04 *Transportation Control Measures shall be a priority.*

4.16 *Maintaining and operating the existing transportation system will be a priority over* *expanding capacity.*

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL STANDARD OF LIVING

The Growth Management goals to develop urban forms that enable individuals to spend less income on housing cost, that minimize public and private development costs, and that enable firms to be more competitive, strengthen the regional strategic goal to stimulate the regional economy. The evaluation of the proposed project in relation to the following policies would be intended to guide efforts toward achievement of such goals and does not infer regional interference with local land use powers.

3.05 Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.

3.09 Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.

3.10 Support local jurisdictions' actions to minimize red tape and expedite the permitting process to maintain economic vitality and competitiveness.

GMC POLICIES RELATED TO THE RCPG GOAL TO IMPROVE THE REGIONAL QUALITY OF LIFE

The Growth Management goals to attain mobility and clean air goals and to develop urban forms that enhance quality of life, that accommodate a diversity of life styles, that preserve open space and natural resources, and that are aesthetically pleasing and preserve the character of communities, enhance the regional strategic goal of maintaining the regional quality of life. The evaluation of the proposed project in relation to the following policies would be intended to provide direction for plan implementation, and does not allude to regional mandates.

3.18 Encourage planned development in locations least likely to cause environmental impact.

3.20 Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.

3.21 *Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.*

3.22 *Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.*

3.23 *Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.*

GMC POLICIES RELATED TO THE RCPG GOAL TO PROVIDE SOCIAL, POLITICAL, AND CULTURAL EQUITY

The Growth Management Goal to develop urban forms that avoid economic and social polarization promotes the regional strategic goal of minimizing social and geographic disparities and of reaching equity among all segments of society. The evaluation of the proposed project in relation to the policy stated below is intended guide direction for the accomplishment of this goal, and does not infer regional mandates and interference with local land use powers.

3.27 *Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.*

AIR QUALITY CHAPTER CORE ACTIONS

The **Air Quality Chapter** core actions related to the proposed project includes:

5.07 *Determine specific programs and associated actions needed (e.g., indirect source rules, enhanced use of telecommunications, provision of community based shuttle services, provision of demand management based programs, or vehicle-miles-traveled/emission fees) so that options to command and control regulations can be assessed.*

5.11 *Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.*

WATER QUALITY CHAPTER RECOMMENDATIONS AND POLICY OPTIONS

The **Water Quality Chapter** core recommendations and policy options relate to the two water quality goals: to restore and maintain the chemical, physical and biological integrity of the nation's water; and, to achieve and maintain water quality objectives that are necessary to protect all beneficial uses of all waters.

11.02 Encourage "watershed management" programs and strategies, recognizing the primary role of local governments in such efforts.

11.05 Support regional efforts to identify and cooperatively plan for wetlands to facilitate both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.

11.07 Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.

OPEN SPACE CHAPTER ANCILLARY GOALS

Public Health and Safety

9.04 Maintain open space for adequate protection of lives and properties against natural and man-made hazards.

9.05 Minimize potentially hazardous developments in hillsides, canyons, areas susceptible to flooding, earthquakes, wildfire and other known hazards, and areas with limited access for emergency equipment.

9.06 Minimize public expenditure for infrastructure and facilities to support urban type uses in areas where public health and safety could not be guaranteed.

Resource Protection

9.08 Develop well-managed viable ecosystems or known habitats of rare, threatened and endangered species, including wetlands.

CONCLUSIONS

All feasible measures needed to mitigate any potentially negative regional impacts associated with the proposed project should be implemented and monitored, as required by CEQA.

SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

Roles and Authorities

THE SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS (SCAG) is a *Joint Powers Agency* established under California Government Code Section 6502 et seq. Under federal and state law, SCAG is designated as a Council of Governments (COG), a Regional Transportation Planning Agency (RTPA), and a Metropolitan Planning Organization (MPO). SCAG's mandated roles and responsibilities include the following:

SCAG is designated by the federal government as the Region's ***Metropolitan Planning Organization*** and mandated to maintain a continuing, cooperative, and comprehensive transportation planning process resulting in a Regional Transportation Plan and a Regional Transportation Improvement Program pursuant to 23 U.S.C. '134, 49 U.S.C. '5301 et seq., 23 C.F.R. '450, and 49 C.F.R. '613. SCAG is also the designated ***Regional Transportation Planning Agency***, and as such is responsible for both preparation of the Regional Transportation Plan (RTP) and Regional Transportation Improvement Program (RTIP) under California Government Code Section 65080 and 65082 respectively.

SCAG is responsible for developing the demographic projections and the integrated land use, housing, employment, and transportation programs, measures, and strategies portions of the ***South Coast Air Quality Management Plan***, pursuant to California Health and Safety Code Section 40460(b)-(c). SCAG is also designated under 42 U.S.C. '7504(a) as a ***Co-Lead Agency*** for air quality planning for the Central Coast and Southeast Desert Air Basin District.

SCAG is responsible under the Federal Clean Air Act for determining ***Conformity*** of Projects, Plans and Programs to the State Implementation Plan, pursuant to 42 U.S.C. '7506.

Pursuant to California Government Code Section 65089.2, SCAG is responsible for ***reviewing all Congestion Management Plans (CMPs) for consistency with regional transportation plans*** required by Section 65080 of the Government Code. SCAG must also evaluate the consistency and compatibility of such programs within the region.

SCAG is the authorized regional agency for ***Inter-Governmental Review*** of Programs proposed for federal financial assistance and direct development activities, pursuant to Presidential Executive Order 12,372 (replacing A-95 Review).

SCAG reviews, pursuant to Public Resources Code Sections 21083 and 21087, Environmental Impacts Reports of projects of regional significance for consistency with regional plans [California Environmental Quality Act Guidelines Sections 15206 and 15125(b)].

Pursuant to 33 U.S.C. '1288(a)(2) (Section 208 of the Federal Water Pollution Control Act), SCAG is the authorized ***Areawide Waste Treatment Management Planning Agency***.

SCAG is responsible for preparation of the ***Regional Housing Needs Assessment***, pursuant to California Government Code Section 65584(a).

SCAG is responsible (with the Association of Bay Area Governments, the Sacramento Area Council of Governments, and the Association of Monterey Bay Area Governments) for preparing the ***Southern California Hazardous Waste Management Plan*** pursuant to California Health and Safety Code Section 25135.3.

Revised July 2001

C. ([illegible]

The Gas Company

A Sempra Energy company

Southern California
Gas Company
1981 W. Lugonia Avenue
Redlands, CA 92374-9720

Mailing Address:
PO Box 3003, SC8031
Redlands, CA 92373-0306

MAR 26 2002

March 20, 2002

Inland Empire Utilites Agency
P.O. Box 697
9400 Cherry Avenue, Bld. A
Fontana CA 92335

Attention: Mr. Gary Hackney

Re: Waste Water Plans, Chino Basin, San Gabriel Mtns., on the North Prado Basin, on the South between City of Chino Hills and Fontana.

Thank you for the opportunity to respond to the above-referenced project. Please note that Southern California Gas Company has facilities in the area where the above named project is proposed. Gas service to the project could be provided without any significant impact on the environment. The service would be in accordance with the Company's policies and extension rules on file with the California Public Utilities Commission at the time contractual arrangements are made.

You should be aware that this letter is not to be interpreted as a contractual commitment to serve the proposed project, but only as an informational service. The availability of natural gas service, as set forth in this letter, is based upon present conditions of gas supply and regulatory policies. As a public utility, The Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. We can also be affected by actions of federal regulatory agencies. Should these agencies take any action, which affects gas supply, or the conditions under which service is available, gas service will be provided in accordance with revised conditions.

Typical demand use for:

a.	Residential (System Area Average/Use Per Meter)	Yearly
	Single Family	799 therms/year dwelling unit
	Multi-Family 4 or less units	482 therms/year dwelling unit
	Multi-Family 5 or more units	483 therms/year dwelling unit

These averages are based on total gas consumption in residential units served by Southern California Gas Company, and it should not be implied that any particular home, apartment or tract of homes will use these amounts of energy.

b. Commercial

Due to the fact that construction varies so widely (a glass building vs. a heavily insulated building) and there is such a wide variation in types of materials and , a typical demand figure is not available for this type of construction. Calculations would need to be made after the building has been designed.

We have Demand Side Management programs available to commercial/industrial customers to provide assistance in selecting the most effective applications of energy of our energy conservation programs, please contact our Commercial/Industrial Support Center at 1-800-GAS-2000.

Sincerely,

Steve Dunivin
Technical Supervisor

U.S. Fish and Wildlife Service
Carlsbad Fish and Wildlife Office
2730 Loker Avenue West
Carlsbad, California 92008
(760) 431-9440
FAX (760) 431-5902 + 9618

CA Dept. of Fish & Game
4775 Bird Farm Road
Chino Hills, California 91709
(909) 597-9823
FAX (909) 597-0067

In Reply Refer To:
FWS-SB-2690.1

MAR 20 2002

MAR 15 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Building A
Fontana, California 92335

Re: Notice of Preparation of a Program Environmental Impact Report (PEIR) for the proposed Implementation of Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Plans in San Bernardino County, California

Dear Mr. Hackney:

The U.S. Fish and Wildlife Service (Service) and the California Department of Fish and Game (Department), hereafter collectively referred to as the Wildlife Agencies, have collectively reviewed the Notice of Preparation (NOP) for a Program Environmental Impact Report (PEIR) for the proposed Implementation of Inland Empire Utilities Agency (IEUA) Wastewater, Recycled Water and Organics Management Plans in San Bernardino County, California. The wastewater management plan will add satellite facilities, establish maximum treatment capacities of existing wastewater treatment facilities and provide design flexibility to the trunk sewer system and treatment plant capacity. The recycled water management plan will establish a regional recycled water distribution system that will interconnect the Carbon Canyon Wastewater Treatment Facility (CCWRF), RP-1, Regional Plant Number 2 (RP-2), Regional Plant Number 4 (RP-4) and Regional Plant Number 5 (RP-5), provide recycled water more efficiently, utilize existing recharge basins, and provide for construction of two new recharge basins. The organics management plan will provide for self-sufficient energy and self-sufficient organics management. The key elements of this plan include biosolids processing, energy production, composting and manure processing.

The primary concern and mandate of the Service is the protection of public fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and endangered animals and plants occurring in the United States. The Service is also responsible for administering the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

The Department is responding as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15386, and as a Responsible Agency regarding any discretionary actions pursuant to CEQA Guidelines Section 15381. The Department as a Trustee

Agency has jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. The Department, as a Responsible Agency is required to actively participate in the CEQA process and review and use the Lead Agency's CEQA documents when making a decision on the project (CEQA Guidelines Sec 15096).

The Wildlife Agencies are concerned about the potential impacts of the proposed project on the federally endangered Delhi Sands flower-loving fly (*Rhaphiomidas abdominalis terminatus*, "DSF"), the federally threatened Santa Ana sucker (*Catostomus santaanae*, "sucker"), the State and federally endangered Least Bell's vireo (*Vireo bellii pusillus*, "vireo"), the State and federally endangered southwestern willow flycatcher (*Empidonax traillii extimus*, "flycatcher"), the federally endangered San Bernardino kangaroo rat (*Dipodomys merriami parvus*), the federally threatened coastal California gnatcatcher (*Polioptila californica californica*, "gnatcatcher") and the State-endangered western yellow-billed cuckoo (*Coccyzus americanus*, "cuckoo"). We are also concerned about the potential impacts of the project on California Species of Special Concern that include, but are not limited to, the arroyo chub (*Gila orcutti* "chub") and the yellow breasted chat (*Icteria virens*, "chat"). The project will likely impact (1) riparian habitats that harbor the vireo, flycatcher, chat and cuckoo, (2) Delhi Sands that contains appropriate habitat for the DSF, and (3) Riversidean alluvial sage scrub that contains habitat for the gnatcatcher and SBKR. Therefore, we recommend that focused surveys be conducted within the project area by permitted biologists for the vireo, flycatcher, DSF, SBKR and gnatcatcher. If any listed species are detected during these surveys, then the IEUA should contact the Service and/or the Department prior to project approval and initiation of ground-disturbing activities to obtain information regarding compliance with the Endangered Species Act and the Fish and Game Code Section 2080 *et seq*. Further, impacts to sensitive species, regardless of listing status may be considered significant under CEQA and require appropriate avoidance, minimization and compensation measures.

Certain aspects of the project, such as the enclosed composting facility in Colton that is directly adjacent to the Santa Ana River, may negatively impact the sucker and the chub. The sucker, which was federally listed in April 2000, and the chub consistently occupy the Santa Ana River between Prado Dam and the confluence of the Rialto Drain.

The Wildlife Agencies have determined that this project has the potential to have significant environmental impacts on sensitive faunal resources, including State and federally listed threatened and endangered species. Therefore, critical aspects of the PEIR should include an alternatives analysis that focuses on environmental resources and mitigation measures for impacts identified as significant. To enable the Wildlife Agencies 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 focus 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 (within the last two years) biological study of the site to determine if any sensitive species or habitats may be potentially impacted by the proposed project. A complete assessment of sensitive fish, wildlife, reptile and amphibian species and vegetation communities, habitat types and soil types should be included in the PEIR. Results from protocol surveys for the above mentioned federally listed species should also be included in the PEIR. This assessment should include species identification and distribution, specific acreage, and description of habitat types that may be affected by the proposed project or project alternatives. Seasonal variations in use of the project areas should also be addressed. Detailed vegetation and soil maps, tables, and pictures should be included to summarize such information.

b. 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.

c. The Wildlife Agencies requests those 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 Wildlife Agencies.

2. A thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, 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, as well as public lands, open space, adjacent natural habitats, and riparian ecosystems. Impacts to and maintenance of wildlife corridor 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 PEIR 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 and section 10 of the Act, the Department and the Service through the Natural Communities Conservation Planning (NCCP) and Habitat Conservation Plan programs are coordinating with local jurisdictions, landowners and Federal agencies to preserve local and regional biological diversity. The Wildlife Agencies recommend 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 with other requirements of the NCCP and HCP programs.

3. A range of alternatives should be analyzed to ensure that all options to the proposed project are fully considered and evaluated, including those that avoid or otherwise minimize impacts to sensitive biological resources. 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 an alternative 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 applied for 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 Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Wildlife Agencies oppose 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 that preserve the riparian and aquatic values and maintain their value to onsite and offsite wildlife populations.

   a. We recommend that the PEIR include a discussion of the on site hydrological needs of federally and State-listed and other sensitive species on site or potentially downstream that may be impacted by the proposed site.

   b. We also recommend an analysis of the consequences of the project on the fluvial dynamics and hydrology of all streams and rivers or wetland communities, respectively, within the sphere of influence of the project. This analysis should include a figure depicting an estimated 100-year flood event before and after the proposed project is implemented. Analyses should also be conducted to determine how this project affects fluvial processes.

6. The Service recommends that the PEIR include an assessment of wetlands or jurisdictional waters of the United States affected by the proposed project, including whether a section 404 permit from the U.S. Army Corps of Engineers (Corps) is required. Section 404 of the Clean Water Act prohibits the unauthorized discharge of dredged or fill material into such waters, including wetlands. This section also provides that the Corps may issue permits for discharges of dredged or fill material into jurisdictional waters and wetlands. Potential areas of Corps jurisdiction should be evaluated and wetlands should be delineated using the methodology set forth in the Corps' Wetland Delineation Manual (Environmental Laboratory, 1987). The PEIR should disclose all impacts to jurisdictional waters and wetlands and propose measures to be taken to avoid and minimize impacts and mitigate unavoidable impacts.

7. 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 association 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 Departments'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 habitat (e.g., riparian and alluvial fan sage scrub) 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.

a. Incorporate all information regarding impacts to lakes, streams and associated habitat within the PEIR. 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 of California also has a policy of no net loss of wetlands.

b. Include in the PEIR 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.

c. 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. Pre-project meetings are held every week at the Department's Chino Hills office. To schedule a pre-project meeting or to obtain a streambed Alteration Agreement Notification Package, please call (562) 590-5880.

We appreciate the opportunity to comment on the proposed project. If you have any questions pertaining to these comments, then please phone Leslie MacNair (Department) at (949) 458-1754 or Lucy Caskey (Service) at (760) 431-9440.

Sincerely,

Karen A. Evans

Karen A. Evans
Assistant Field Supervisor
U. S. Fish and Wildlife Service

Jeff Drongensen
Habitat Conservation Supervisor
California Department of Fish and Game

Chino Valley Independent Fire District

2005 Grand Avenue
Chino Hills, CA 91709
(909) 902-5260 Administration
(909) 902-5280 Fire Prevention
(909) 902-5250 Fax

March 20, 2002

MAR 25 2002
IEUA
PLANNING

Inland Empire Utilities Agency
Mr. Gary Hackney
P.O. Box 697
9400 Cherry Avenue, Building A
Fontana, CA 92335

RE: WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLANS
(January 25, 2002)
FIRE PROTECTION COMMENTS

Dear Mr. Hackney:

The Fire District has reviewed the Notice of Preparation of a Program Environmental Impact Report to Address Implementation of IEUA Wastewater, Recycled Water and Organics Management Plans (dated January 25, 2002). Fire protection requirements for the project are outlined below:

> All development is to comply with current fire protection requirements, including Fire District standards. All development and construction plans ae to be submitted directly to the Fire District for review and approval.
>
> All Fire District access standards are to be complied with, including road widths at a minimum of 26 feet (without parking) and a minimum of 13 feet 6 inch height clearance.
>
> Buildings with fire sprinklers require a maximum of 4,000 gallons per minute (gpm) for a 4-hour duration, and a minimum of 1,500 gpm for a 2-hour duration, based on square footage.
>
> Recycled water is not to be used for fire protection systems.
>
> Any increase in the quantity or types of hazardous materials used is to be submitted to the Fire District and County of San Bernardino Environmental Health for review and approval.

Please let us know if further clarification is needed. We appreciate the opportunity to be involved in this planning process.

Sincerely,

Paul L. Benson
Fire Chief

Tom J. Maxham

By: Tom J. Maxham
Division Chief

CITY OF ONTARIO

303 EAST "B" STREET, CIVIC CENTER ONTARIO CALIFORNIA 91764-4196 (909) 395-2000
FAX (909) 395-2070

February 21, 2002

Inland Empire Utilities Agency
Attn: Mr. Gary Hackney
P.O. Box 697
Fontana, California 92335

RE: NOTICE OF PREPARATION OF A PROGRAM ENVIRONMENTAL IMPACT REPORT TO ADDRESS IMPLEMENTATION OF THE INLAND EMPIRE UTILITIES AGENCY WASTEWATER, RECYCLED WATER AND ORGANICS MANAGEMENT PLANS

Dear Mr. Hackney,

Thank you for giving the City of Ontario the opportunity to review and comment on the above referenced project. The Planning Department forwarded copies of the Management Plan documents to our Public Works/Community Services Agencies and Engineering Department for their review. Below are the comments, which we believe should be addressed in the EIR for the Management Plans:

1. Page IS-28 (item VII-9) - The comments "wells will be closed and a new supply developed" does not indicate responsibility by whom.

2. Figure 4 does not include Turner Basins 2, 3 &4.

3. Page PD-14 (3. Biosolid Management and Optimal Use) - Indicates co-composting yard debris – does this mean refuse trucks will enter the site? There will be residual wastes, how will these be handled? Or will access be limited to transfer or "processed clean" green wastes from transfer stations (recommended for fewer impacts)? Items need further review.

4. Page PD-22 (RP-1, an Odor Free Facility in Near Future) - Step 2 needs a schedule as a part of the mitigation monitoring plan, particularly for item 7. Also need to include elimination of the trickling filter as an element of Step 2.

5. Page PD-23 (-Remove/Replace Old ... Facilities) - The words "could be" should be changed to "shall be".

6. Page PD-23 (RP-1 Proposed Ultimate Facilities) - Need to explain why the ultimate capacity does not match to the capacities listed in Table 4.

7. Page PD-24 (Table 5) - Lists 3 alternatives, yet a fourth and recommended alternative is proposed in a subsequent site layout.

8. Figure 9 Alternative 1, which retains open storage of primary sewage without odor control and retains the trickling filter without odor control is unacceptable to Ontario and requires further mitigation.

9. Figure 10 Alternative 2, which retains open storage of primary sewage without odor control and retains the trickling filter without odor control, is unacceptable to Ontario and requires further mitigation.

10. Figure 11 Alternative 3, does not indicate the removal and property reuse of the primary equalization ponds and still retains the trickling filter without odor control. This requires further study and mitigation.

11. Page PD-29 (Table 6) - Schedule for Near Term Phase I and II, is merely listed as "within 10 years". A more definitive schedule is recommended and a mitigation measure to place the schedule into the IEUA 10 year CIP is recommended.

12. Page PD-29 (Table 6 - Notes 1 and 2) - Discuss Figures 13 and 14, these Figures should immediately follow this text, Note 1 identifies Alternative 2 as the recommended, however, Alternative 4 is the recommended Alternative, Alternative 2 is unacceptable to Ontario due to unmitigated odor sources.

13. Neither Figure 13 or 14 match to the description of Alternative 4. The do not depict covered primary storage with odor control. These figures, as depicted, are unacceptable to Ontario due to unmitigated odor sources.

14. Page PD-51 (Last Paragraph) - The bypass sewer capacity is via a joint project and joint ownership between IEUA and the City of Ontario.

15. Page PD-86 refers to the 4th Street regional recycled water pipeline. Is this a final decision on location, or is a 6th Street alignment still possible?

16. Page PD-97 (Other Organics) - This section will require much more analysis of source, contamination and transportation, and specific environmental review if "green wastes" are to be included.

17. Page PD-101 (Additional Dairy Digesters Pilot Project) - If located in Ontario, these may require more specific planning and environmental review.

18. Figure 43 - Facility should have odor control on the conveyors and sludge hopper/truck loading area.

19. Figure 44 (Conceptual Siting Location for Lagoon Digesters) - If located in Ontario, these may require more specific planning and environmental review.

20. Page PD-108 (Enclosed ASP Project) - Is not really a "pilot" project. It will handle the solids from RP-1 (and some from RP-4 for a period of time). This project needs more specific definition, source definition, and specific review of potential impacts and mitigation measures.

We appreciate being informed of the project and look forward to continued communications regarding this project. If you have any questions regarding our comments, please contact me at (909) 395-2036 or Ken Jeske, Public Works Director, at (909) 395-2611.

Sincerely,

ONTARIO PLANNING DEPARTMENT

FOR

Jerry L. Blum
Planning Director

JB:dm:dak

DEPARTMENT OF FISH AND GAME
Eastern Sierra - Inland Deserts Region
4775 Bird Farm Road
Chino Hills, California 91709[1]
(909) 597-5043

February 28, 2002

Mr. Gary E. Hackney
Inland Empire Utilities Agency
9400 Cherry Avenue, Building A
San Bernardino, California 92335
Phone (909) 357-0241
Fax (909) 357-3884

Re: **Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Inland Empire Utilities Agency, Recycled Water and Organics Management Master Plan – SCH # 2002011116**

Dear Mr. Bruorton:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project with regards to impacts to biological resources. The proposed project will implement management plans for wastewater, recycled water and organic materials within its service area. The proposed project encompasses wastewater, recycled water and organic material facilities, structures, pipelines, recharge basins and pumps throughout the Chino Basin, extending from the base of the San Gabriel Mountains on the north to the Prado Basin on the south and the City of Chino Hills on the west and Fontana on the east, San Bernardino County, California.

The Department is responding as a Trustee Agency pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15386, and as a Responsible Agency regarding any discretionary actions pursuant to CEQA Guidelines Section 15381. The Department, as a Trustee Agency, has jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. The Department, as a Responsible Agency, is required to actively participate in the CEQA process and review and use the Lead Agency's CEQA documents when making a decision on the project (CEQA Guidelines Sec. 15096).

A review of records from the California Natural Diversity Database (CNDDB) and other area resources indicate that many sensitive species and sensitive habitat types occur in the project vicinity and may be affected by the proposed project. These species include: coastal California gnatcatcher (*Polioptila californica californica*; FT, CSC[1]), burrowing owl (*Athene cunicularia*; CSC), Bell's sage sparrow (*Amphispiza belli belli*; CSC), golden eagle (*Aquila chrysaetos*; CSC), least

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[1]CSC=California Special Concern Species; SE=State listed as Endangered; ST=State listed as Threatened;FE=Federally listed as Endangered; FT=Federally listed as Threatened; List X =California Native Plant Society (CNPS) inventory list

Bell's vireo (*Vireo bellii pusillus*; FE, SE), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*; SE), willow flycatcher (*Empidonax traillii*; SE), yellow-breasted chat (*Icteria virens*; CSC), long-eared owl (*Asio otus*; CSC), black swift (*Cypseloides niger*; CSC), San Bernardino kangaroo rat (*Dipodomys merriami ssp maritimus*; FE, CSC), California mastiff bat (*Eumops perotis californicus*; CSC), San Diego horned lizard (*Phrynosoma coronatum blainvillei*; CSC), orange-throated whiptail (*Cnemidophorus hyperythrus*; CSC), southwestern pond turtle (*Clemmys marmorata pallida*; CSC), mountain yellow-legged frog (*Rana muscosa*; FE, CSC), Santa Ana speckled dace (*Rhinichthys osculus ssp 3*; CSC), arroyo chub (*Gila orcutti*; CSC), Santa Ana sucker (*Catostomus santaanae*; FT, CSC), delhi sands flower-loving fly (*Rhaphiomidas terminatus abdominalis*; FE), quino checkerspot butterfly (*Euphydryas editha quino*; FE), chaparal sand-verbena (*Abronia villosa var aurita*; List 1B), Coulter's saltbush (*Atriplex coulteri*; List 1B), Hall's monardella (*Monardella macrantha ssp hallii*; List 1B), intermediate mariposa lily (*Calochortus weedii var intermedius*; List 1B), Johnston's buckwheat (*Eriogonum microthecum var johnstonii*; List 1B), lemon lily (*Lilium parryi*; List 1B), many-stemmed dudleya (*Dudleya multicaulis*; List 1B), marsh sandwort (*Arenaria paludicola*; FE, SE, List 1B), Nevin's barberry (*Berberis nevinii*; FE, SE, List 1B), Parry's spineflower (*Chorizanthe parryi var parryi*; List 3), Peirson's spring beauty (*Claytonia lanceolata var peirsonii*; List 1B), Plummer's mariposa lily (*Calochortus plummerae*; List 1B), Pringle's monardella (*Monardella pringlei*; List 1A), Parish's desert-thorn (*Lycium parishii*; List 2), Robinson's pepper-grass (*Lepidium virginicum var robinsonii*; List 1B), rock creek broomrape (*Orobanche valida ssp valida*; List 1B), salt marsh bird's-beak (*Cordylanthus maritimus ssp maritimus*; FE, SE, List 1B), salt spring checkerbloom (*Sidalcea neomexicana*; List 2), San Gabriel linanthus (*Linanthus concinnus*; List 1B), Santa Ana River woollystar (*Eriastrum densifolium ssp sanctorum*; FE, SE, List 1B), slender mariposa lily (*Calochortus clavatus var gracilis*; List 1B), slender-horned spineflower (*Dodecahema leptoceras*; FE, SE, List 1B), California Walnut Woodland, Canyon Live Oak Ravine Forest, Coastal and Valley Freshwater Marsh, Southern California Arroyo Chub/Santa Ana Sucker Stream, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Riparian Forest, Southern Sycamore Alder Riparian Woodland, Southern Willow Scrub and Riversidian Alluvial Fan Sage Scrub. Other sensitive resources include: Nelson's bighorn sheep (*Ovis canadensis nelsoni*) and San Gabriel slender salamander (*Batrachoseps gabrieli*). Although many of the above-mentioned species are not listed as threatened or endangered, they are considered sensitive and may become listed in the future. Impacts to sensitive species, regardless of listing status, may be considered significant under CEQA and require appropriate avoidance, minimization, and compensation measures. The Department requests that the potential direct and indirect impacts to sensitive species (including those listed above) be analyzed in the DEIR. The identification of sensitive species potentially occurring in the area and may be impacted by the proposed project should not be limited to a search of the CNDDB.

This particular project has the potential to have significant environmental impacts on sensitive fauna resources, including State and Federally listed threatened and endangered species. Therefore, critical aspects of the DEIR should include an alternatives analysis which focuses on environmental resources and mitigation measures 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 (within the last 2 years) general biological study of the site to determine if any sensitive species or habitat (including 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 DEIR. Seasonal variations in use of the project area should also be addressed;

    b. If appropriate habitat for any listed species occurs on the site, including waters potentially containing any fish, 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 during the appropriate time of year 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 avoidance, minimization, and mitigation measures. 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).

    f. 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).

    g. The Department requests that impacts to State and Federal 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, 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 DEIR 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. Coastal sage scrub is the first natural community to be planned for under the NCCP program. The Department recommends that the lead agency ensure that the development of this and other proposed projects does not preclude long-term preserve planning options and that projects conform with 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 Department-approved Mitigation Agreement and Mitigation Plan 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 habitat (e.g. 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 DEIR. 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 DEIR 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. Pre-project meetings are held every week at the Department's Chino Hills office. To schedule a pre-project meeting or to obtain a Streambed Alteration Agreement Notification package, please call (562) 590-5880.

Thank you for this opportunity to comment. Questions regarding this letter and further coordination on these issues should be directed to Ms. Leslie MacNair, Staff Environmental Scientist at (949) 458-1754.

Sincerely,

Jeff Drongesen

Jeff Drongesen
Senior Environmental Scientist - Supervisor
Habitat Conservation - Southwest
Region 6

cc: Jeff Newman, USFWS, Carlsbad
State Clearinghouse, Sacramento

State of California
THE RESOURCES AGENCY
Department of Fish and Game
May 4, 1984

GUIDELINES FOR ASSESSING THE EFFECTS OF PROPOSED DEVELOPMENTS ON RARE AND ENDANGERED PLANTS AND PLANT COMMUNITIES

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted and what information should be contained in the survey report.

1. Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare and endangered plants and plant communities. Rare and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered under the following definitions.

   A species, subspecies or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy form one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition or disease. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

   Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain rare or endangered species. The most current version of the California Natural Diversity Data Base's Outline of Terrestrial Communities in California may be used as a guide to the names of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare plants will be affected by proposed project when:

   a. Based on an initial biological assessment, it appears that the project may damage potential rare plant habitat;

   b. Rare plants have historically been identified on the project site, but adequate information of impact assessment is lacking; or

   c. No initial biological assessment has been conducted and it is unknown whether or not rare plants or their habitat exist on the site.

3. Botanical consultants should be selected on the basis of possession of the following qualifications (in order of importance):

   a. Experience as a botanical field investigator with experience in field sampling design and field methods;

   b. Taxonomic experience and a knowledge of plant ecology;

   c. Familiarity with the plants of the area, including rare species; and

   d. Familiarity with the appropriate state and federal statutes related to rare plants and plant collecting.

4. Field surveys should be conducted in a manner that will locate any rare or endangered species that may be present. Specifically, rare or endangered plant surveys should be:

   a. Conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Field surveys should be scheduled (1) to coincide with known flowering periods, and/or (2) during periods phenological development that are necessary to identify the plant species of concern.

b. Floristic in nature. "Predictive surveys" (which predict the occurrence of rare species based on the occurrence of habitat or other physical features rather than actual field inspection) should be reserved f... ecological studies, not for impact assessment. Every species noted in the field should be identified to t... extent necessary to determine whether it is rare or endangered.

c. Conducted in a manner that is consistent with conservation ethics. Collection of rare or suspected rare species (voucher specimens) should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit regulations. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a reasonably thorough coverage of potential impact areas.

e. Well documented. When a rare or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form should be completed and submitted to the Natural Diversity Data Base.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations, EIR's and EIS's, should contain the following information:

a. Project description, including a detailed map of the project location and study area.

b. A written description of biological setting referencing the community nomenclature used and a vegetation map.

c. Detailed description of survey methodology.

d. Dates of field surveys.

e. Results of survey (including detailed maps).

f. An assessment of potential impacts.

g. Discussion of the importance of rare plant populations with consideration of nearby populations and total species distribution.

h. Recommended mitigation measures to reduce or avoid impacts.

i. List of all species identified.

j. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.

k. Name of field investigator(s).

l. References cited, persons contacted, herbaria visited, and disposition of voucher specimens.

SENSITIVITY OF TOP PRIORITY RARE NATURAL COMMUNITIES IN SOUTHERN CALIFORNIA*

Sensitivity rankings are determined by the Department of Fish and Game, California Natural Diversity Data Base and based on either number of known occurrences (locations) and/or amount of habitat remaining (acreage). The three rankings used for these top priority rare natural communities are as follows:

S1. - Less than 6 known locations and/or on less than 2,000 acres of habitat remaining.

S2. - Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining.

S3. - Occurs in 21-100 known locations and/or 10,000-50,000 acres of habitat remaining.

The number to the right of the decimal point after the ranking refers to the degree of threat posed to the natural community regardless of the ranking. For example:

S1.<u>1</u> = <u>very threatened</u>
S2.<u>2</u> = <u>threatened</u>
S3.<u>3</u> = <u>no current threats known</u>

<u>Sensitivity Rankings</u> (February 1992)

<u>Rank</u>	<u>Community Name</u>	
S1.1	Mojave Riparian Forest	Southern Dune Scrub
	Sonoran Cottonwood Willow Riparian	Southern Coastal Bluff Scrub
	Mesquite Bosque	Maritime Succulent Scrub
	Elephant Tree Woodland	Riversidean Alluvial Fan Sage Scrub
	Crucifixion Thorn Woodland	Southern Maritime Chaparral
	Allthorn Woodland	Valley Needlegrass Grassland
	Arizonan Woodland	Great Basin Grassland
	Southern California Walnut Forest	Mojave Desert Grassland
	Mainland Cherry Forest	Pebble Plains
	Southern Bishop Pine Forest	Southern Sedge Bog
	Torrey Pine Forest	Cismontane AlkaliMarsh
	Desert Mountain White Fir Forest	
S1.2	Southern Foredunes	
	Mono Pumice Flat	
	Southern Interior Basalt Fl. Vernal Pool	
S2.1	Venturan Coastal Sage Scrub	Coastal and Valley Freshwater Marsh
	Diegan Coastal Sage Scrub	S. Arroyo Willow Riparian Forest
	Riversidian Upland Coastal Sage Scrub	Southern Willow Scrub
	Riversidian Desert Sage Scrub	Modoc-G. Bas. Cottonwood Willow Rip.
	Sagebrush Steppe	Modoc-Great Basin Riparian Scrub
	Desert Sink Scrub	Mojave Desert Wash Scrub
	Mafic Southern Mixed Chaparral	Engelmann Oak Woodland
	San Diego Mesa Hardpan Vernal P.	Open Engelmann Oak Woodland
	San Diego Mesa Claypan Vernal P.	Closed Engelmann Oak Woodland
	Alkali Meadow	Island Ironwood Forest
	Southern Coastal Salt Marsh	Island Cherry Forest
	Coastal Brackish Marsh	S. Interior Cypress Forest
	Transmontane Alkali Marsh	Bigcone Spruce-Canyon Oak Forest
S2.2	Active Coastal Dunes	White Mountains Fellfield
	Active Desert Dunes	
	Stab. and Part. Stab. Desert Dunes	
	Stab. and Part. Stab. Desert Sandfield	
	Mojave Mixed Steppe	
	Transmontane Freshwater Marsh	
	Coulter Pine Forest	
	S. California Fellfield	
S2.3	Bristlecone Pine Forest	
	Limber Pine Forest	

Top Priority Rare Natural Communities
From Region Five

Code Number	Location	Few Records	Name
S1.1 Rank			
21330	Cis		Southern Dune Scrub
31200	Cis		Southern Coastal Scrub
32400	Cis		Maritime Succulent Scrub
32720	Cis		Riversidean Alluvial Fan Sage Scrub
37030	Cis	Y	Southern Maritime Chaparral
42110	Cis		Valley Needlegrass Grassland
43000	Des	Y	Great Basin Grassland
43777	Des	Y	Mojave Desert Grassland
47000	Cis		Pebble Plains
51177	Cis	Y	Southern Sedge Bog
52310	Cis		Cismontane Alkali Marsh
61700	Des		Mojave Riparian Forest
61810	Des		Sonoran Cottonwood Willow Riparian
61820	Des		Mesquite Bosque
75100	Des	Y	Elephant Tree Woodland
75200	Des	Y	Crucifixion Thorn Woodland
75300	Des	Y	Allthorn Woodland
75400	Des	Y	Arizonan Woodland
81600	Cis		Southern California Walnut Forest
81820	Cis	Y	Mainland Cherry Forest
83122	Cis	Y	Southern Bishop Pine Forest
83140	Cis		Torrey Pine Forest
85330	Des	Y	Desert Mountain White Fir Forest
S1.2 Rank			
21230	Cis		Southern Foredunes
35410	Des		Mono Pumice Flat
44310	Cis		Southern Interior Basalt Fl. Vernal Pool
S2.1 Rank			
32300	Cis	Y	Venturan Coastal Sage Scrub
32500	Cis		Diegan Coastal Sage Scrub
32710	Cis	Y	Riversidian Upland Coastal Sage Scr.
32730	Cis	Y	Riversidian Desert Sage Scrub
35300	Des	Y	Sagebrush Steppe
35120	Des	Y	Desert Sink Scrub
37122	Cis	Y	Mafic Southern Mixed Chaparral
44321	Cis		San Diego Mesa Hardpan Vernal P.
44322	Cis		San Diego Mesa Claypan Vernal P.
45310	Des		Alkali Meadow
52120	Cis		Southern Coastal Salt Marsh
52320	Cis		Coastal Brackish Marsh
52410	Des		Transmontane Alkali Marsh

Coded as either cis (for cismontane) or des (for desert)

Code Number	Location	Few Records	Name
52410	Cis		Coastal and Valley Freshwater Marsh
61320	Cis		S. Arroyo Willow Riparian Forest
63320	Cis		Southern Willow Scrub
61610	Des		Modoc-G Bas Cottonwood Willow Rip.
63600	Des	Y	Modoc-Great Basin Riparian Scrub
63700	Des	Y	Mojave Desert Wash Scrub
71180	Cis	Y	Engelmann Oak Wood
71181	Cis	Y	Open Engelmann Oak Wood
71182	Cis	Y	Closed Engelmann Oak Woodland
71190	Cis	Y	Island Oak Woodland
71210	Cis		California Walnut Woodland
81700	Cis	Y	Island Ironwood Forest
81810	Cis		Island Cherry Forest
83230	Cis		S. Interior Cypress Forest
84150	Cis	Y	Bigcone Spruce-Canyon Oak Forest
S2.2 Rank			
21100	Cis	Y	Active Coastal Dunes
22100	Des		Active Desert Dunes
22200	Des		Stab. and Part Stab. Desert Dunes
22300	Des	Y	Stab. and Part Stab. Desert Sandfield
34220	Des	Y	Mojave Mixed Steppe
52420	Des	Y	Transmontane Freshwater Marsh
84140	Cis	Y	Coulter Pine Forest
81130	Cis	Y	S. California Fellfield
81140	Des	Y	White Mountains Fellfield
S2.3 Rank			
86400	Des		Bristlecone Pine Forest
86700	Des	Y	Limber Pine Forest

GLOBAL RANKING

The *global rank* (G-rank) is a reflection of the overall condition of an element throughout its global range.

SPECIES OR NATURAL COMMUNITY LEVEL

G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3 = 21-100 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

SUBSPECIES LEVEL

Subspecies receive a T-rank attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.
For example: *Chorizanthe robusta* var. *hartwegii*. This plant is ranked G2T1. The G-rank refers to the whole species range i.e., *Chorizanthe robusta*. The T-rank refers only to the global condition of var. *hartwegii*.

STATE RANKING

The *state rank* (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.

S1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
- S1.1 = very threatened
- S1.2 = threatened
- S1.3 = no current threats known

S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- S2.1 = very threatened
- S2.2 = threatened
- S2.3 = no current threats known

S3 = 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
- S3.1 = very threatened
- S3.2 = threatened
- S3.3 = no current threats known

S4 = Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. NO THREAT RANK.

S5 = Demonstrably secure to ineradicable in California. NO THREAT RANK.

Notes:

1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take a bird's eye or aerial view when ranking sensitive elements rather than simply counting EOs.

2. Uncertainty about the rank of an element is expressed in two major ways:

   By expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3.

   By adding a ? to the rank: e.g., S2? This represents more certainty than S2S3, but less than S2.

3. Other symbols

   GH All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical).
   GX All sites are extirpated; this element is extinct in the wild (SX = All California sites are extirpated).
   GXC Extinct in the wild; exists in cultivation.
   G1Q The element is very rare, but there are taxonomic questions associated with it.

CITY OF CHINO HILLS
2001 GRAND AVENUE
CHINO HILLS, CALIFORNIA 91709-4869
(909) 364-2600 • (909) 364-2695 FAX

CITY OF CHINO HILLS
INCORPORATED 1991

February 28, 2002

MAR 4 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Building A
Fontana, CA 92335

Re: Notice of Preparation of a Program Environmental Impact Report to Address Implementation of the Inland Empire Utilities Agency (IEUA) Wastewater, Recycled Water and Organics Management Plans

Dear ~~Mr. Hackney~~ Gary:

Thank you for the opportunity to comment on the subject Notice of Preparation (NOP).

As stated in the NOP, installation of surface facilities has a potential to modify the existing view or visual setting at future specific project sites that could cause a negative visual impact. Typical above ground structures, such as digesters and composting facilities, could cause a negative visual impact to our community. We understand that the IEUA will make every effort to ensure that this will not occur.

In addition, we understand that the IEUA will provide the necessary and appropriate means to prevent any hazardous materials upset at the facilities, and that the IEUA is committed to selecting state-of-the-art treatment systems that reduce potential health risks and odors.

We are looking forward to a review of the project CEQA documents to evaluate the measures that will be taken to address the project's impacts.

Please feel free to call me if you have any questions regarding this matter.

Sincerely,

Doug ~~las~~ N. La Belle
City Manager

cc: Mayor and Council Members

County of Orange
Planning & Development Services Department

THOMAS B. MATHEWS
DIRECTOR

300 N. FLOWER ST.
SANTA ANA, CALIFORNIA

MAILING ADDRESS:
P.O. BOX 4048
SANTA ANA, CA 92702-4048

MAR 06 2002

NCL 02-12

March 4, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Building A
Fontana, CA 92335

SUBJECT: NOP for the Implementation of the Wastewater, Recycled Water and Organics Management Plans

Dear Mr. Hackney:

The above referenced item is a Notice of Preparation (NOP) of a Draft Program Environmental Impact Report (DPEIR) for the Inland Empire Utilities Agency. The proposed DPEIR will evaluate the significant environmental impacts that may result from implementing management plans for wastewater, recycled water and organic materials within its service area.

The County of Orange has reviewed the NOP and offers the following comment regarding trails and bikeways:

> The project may have components that would impact the proposed Santa Ana River Trail, a regional riding and hiking trail, and the proposed Santa Ana River Bikeway, a Class 1 (paved off-road) bikeway. Also, there has been discussion regarding the addition of a Class 1 bikeway along SR-71 (potentially, to be included in Caltrans' road widening project). We request that the DPEIR address regional and local trails and bikeways, both existing and proposed. The project should provide for the continuity of these routes.

Thank you for the opportunity to respond to the NOP. Please send one complete set of the DPEIR to me at the above address when it becomes available. If you have any questions, please contact Charlotte Harryman at (714) 834-2522.

Sincerely,

for Tim Neely, Manager
Environmental Planning Services Division

CH

LAND USE SERVICES DEPARTMENT

COUNTY OF SAN BERNARDINO
ECONOMIC DEVELOPMENT
AND PUBLIC SERVICES GROUP

"' ANNING DIVISION
North Arrowhead Avenue • San Bernardino, CA 92415-0182 • (909) 387-4131
First Floor Fax (909) 387-3249 • Third Floor Fax (909) 387-3223
15505 Civic Drive • Victorville, CA 92392 • (760) 243-8245 • Fax (760) 243-8212
http://www.sbcounty.gov/landuseservices

MICHAEL E. HAYS
Director of Land Use Services

February 22, 2002

FEB 25 2002

Mr. Gary Hackney
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

RE: NOP OF A PROGRAM EIR TO ADDRESS IMPLEMENTATION OF IEUA WASTEWATER, RECYCLED WATER, AND ORGANICS MANAGEMENT PLANS

Dear Mr. Hackney:

Thank you for providing San Bernardino County Land Use Services Department a copy of the Notice of Preparation for the above-stated proposed project. We have reviewed this document and agree with the conclusions of the Initial Study. We support the comprehensive planning effort to address water, wastewater, and handling of organics basin-wide. In an effort to address the potential significant effects of this project on Biological Resources, some informational resources may be available to you. Please be aware that the cities of Chino and Ontario have initiated their own programs to identify, evaluate, and address the biological species and habitats in their areas. Therefore, Inland Empire Utilities Agency may be able to utilize these work efforts as well. Please include our office on the distribution list for the EIR. The San Bernardino County Public Works Department-Transportation/Flood Control Division should also be included on the distribution list and provided a separate copy of the EIR for review and comment. If you have any questions regarding this response letter, please call me at (909) 387-4147.

Sincerely,

Matthew W. Slowik

MATTHEW W. SLOWIK, M.U.R.P.
Senior Associate Planner
Advance Planning Division

MWS:dja

EnvTeam\Comment Letters\IEUA NOP Water-Wastewater-Organics Plan.doc c/(Matt) John

FEB 11 2002

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

February 1, 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

Dear Mr. Hackney:

Notice of Preparation of a Program Environmental Impact Report for Inland Empire Utilities Agency Wastewater, Recycled Water and <u>Organics Management Plans</u>

The South Coast Air Quality Management District (AQMD) appreciates the opportunity to comment on the above-mentioned document. The AQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the Draft Environmental Impact Report (EIR).

<u>Air Quality Analysis</u>

The AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The AQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the AQMD's Subscription Services Department by calling (909) 396-3720.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction and operations should be considered. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the evaluation. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures
In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the AQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additionally, AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources
AQMD rules and relevant air quality reports and data are available by calling the AQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the AQMD's World Wide Web Homepage (http://www.aqmd.gov).

The AQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. Please call Dr. Charles Blankson, Transportation Specialist, CEQA Section, at (909) 396-3304 if you have any questions regarding this letter.

Sincerely,

Steve Smith

Steve Smith, Ph.D.
Program Supervisor, CEQA Section
Planning, Rule Development and Area Sources

SS:CB:li

SBC020131-02LI
Control Number

DEPARTMENT OF PUBLIC HEALTH

COUNTY OF SAN BERNARDINO
HUMAN SERVICES SYSTEM

'IRONMENTAL HEALTH SERVICES
385 North Arrowhead Avenue • San Bernardino, CA 92415-0160 • (909) 884-4056
1647 East Holt Boulevard • Ontario, CA 91764 • (909) 458-9673
15505 Civic Drive • Victorville, CA 92392 • (760) 243-8141
17780 Arrow Boulevard • Fontana, CA 92335 • (909) 356-6444
San Bernardino County Vector Control Program
2355 East Fifth Street • San Bernardino, CA 92415-0064 • (909) 388-4600

THOMAS J. PRENDERGAST, JR., MD, MPH
Director of Public Health

DANIEL J. AVERA, REHS
Chief, Division of Environmental Health

Also serving the cities of:

Adelanto, Apple Valley, Barstow, Big Bear Lake, Chino, Chino Hills, Colton, Fontana, Grand Terrace, Hesperia, Highland, Loma Linda, Montclair, Needles, Ontario, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, Victorville, Yucaipa, Yucca Valley

February 15, 2002

FEB 20 2002

Mr. Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
9400 Cherry Avenue, Bldg. A
Fontana, CA 92335

RECEIVED FEB 20 2002

SUBJECT: LEA COMMENTS ON THE NOTICE OF PREPARATION OF A PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE INLAND EMPIRE UTILITIES AGENCY (IEUA), SWIS #36-AA-0316

Dear Mr. Hackney:

Thank you for sending a copy of the above-stated Notice of Preparation (NOP) to the LEA for review and comment. The Local Enforcement Agency (LEA) has reviewed the NOP as identified above, in accordance with Section 21080.4 of the California Environmental Quality Act (CEQA). After review of the NOP, it is unclear what level of regulatory permit or approval is needed for each proposed composting project. The proposed composting projects discussed under the Organics Management Plan in the NOP may involve composting of biosolids, dairy manure, green materials, and food waste. In order to help identify environmental issues and determine the regulatory permit tier, the following comments and questions should be addressed in the Draft Environmental Impact Report (DEIR):

1. Quantities and types of materials to be accepted/handled/processed.
2. Design capacity.
3. Quantities of residuals/contaminants in the feedstocks.
4. Sources of input materials (including sludge).
5. Permitted area (acreage), facility, and operations area boundaries.
6. Traffic volume.
7. Quantities and types of materials to be "stored" as defined in Chapter 3 of Title 14.
8. Prohibited wastes.
9. Environmental impacts associated with crushing, grinding screening, baling, or other processing at the facility.
10. Load-checking/hazardous waste prevention.
11. Litter control.

12. Drainage/erosion control.
13. Hours open to the public/hours of site activities.
14. Proposed sampling and pathogen reduction method(s).
15. Potential creation of health hazards and/or public nuisances including:

    i. Noise
    ii. Odors
    iii. Dust
    iv. Vectors

If you have any questions, please call me at (909) 387-4655.

Sincerely,

Jacquelyn Adams
For

Raymond A. Britain, REHS
Waste Management/LEA Section

RAB:ar

F Y I —

21080.4 Notices of Preparation; Scope and Content; OPR Assistance

(a) If a lead agency determines that an environmental impact report is required for a project, the lead agency shall immediately send notice of that determination by certified mail or an equivalent procedure to each responsible agency and to those public agencies having jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State of California. Upon receipt of the notice, each responsible agency and each public agency having jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State of California shall specify to the lead agency the scope and content of the environmental information that is germane to the statutory responsibilities of that responsible agency or public agency in connection with the proposed project and which, pursuant to the requirements of this division, shall be included in the environmental impact report. The information shall be specified in writing and shall be communicated to the lead agency by certified mail or equivalent procedure not later than 30 days after the date of receipt of the notice of the lead agency's determination. The lead agency shall request similar guidance from appropriate federal agencies.

(b) * * * To expedite the requirements of subdivision (a), the lead agency or any responsible agency or public agency having jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State of California may request one or more meetings between representatives of those agencies for the purpose of assisting the lead agency to determine the scope and content of the environmental information that any of those responsible agencies or public agencies may require. In the case of a project described in subdivision (c) of Section 21065, the request may also be made by the project applicant. The meetings shall be convened by the lead agency as soon as possible, but not later than 30 days * * * after the date that the meeting was requested.

(c) * * * To expedite the requirements of subdivision (a), the Office of Planning and Research, upon request of a lead agency, shall assist the lead agency in determining the various responsible agencies, public agencies having jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State of California, and any federal agencies that have responsibility for carrying out or approving a proposed project. In the case of a project described in subdivision (c) of Section 21065, such a request may also be made by the project applicant.

(d) If a state agency is a responsible agency or a public agency having jurisdiction by law over natural resources affected by the project that are held in trust for the people of the State of California, subject to the requirements of subdivision (a), the Office of Planning and Research shall ensure that the information required by subdivision (a) is transmitted to the lead agency, and that affected agencies are notified regarding meetings to be held upon request pursuant to subdivision (b), within the required time period.

(Amended: Chapter 1201, Statutes of 1992; Amended: Chapter 415, Statutes of 1997)

21080.5 Certified Regulatory Programs

(a) * * * Except as provided in Section 21158.1, when the regulatory program of a state agency * * * requires a plan or other written documentation, containing environmental information and complying with * * * paragraph (3) of subdivision (d), to be submitted in support of any * * * activity listed in subdivision (b), the plan or other written documentation may be submitted in lieu of the environmental impact report required by this division * * * if the Secretary of the Resources Agency has certified the regulatory program pursuant to this section.

(b) This section * * * applies only to regulatory programs or portions thereof which involve either of the following:

(1) The issuance to a person of a lease, permit, license, certificate, or other entitlement for use.

(2) The adoption or approval of standards, rules, regulations, or plans for use in the regulatory program.

(c) A regulatory program certified pursuant to this section is exempt from * * * Chapter 3 (commencing with Section 21100), and Chapter 4 (commencing with Section 21150), and Section 21167, except as provided in Article 2 (commencing with Section 21157) of Chapter 4.5.

(d) * * * To qualify for certification pursuant to this section, a regulatory program shall require the utilization of an interdisciplinary approach that will ensure the integrated use of the natural and social sciences in decisionmaking and which shall meet all of the following criteria:

(1) The enabling legislation of the regulatory program * * * does both of the following:

* * * (A) Includes protection of the environment among its principal purposes.

* * * (B) Contains authority for the administering agency to adopt rules and regulations for the protection of the environment, guided by standards set forth in the enabling legislation.

(2) The rules and regulations adopted by the administering agency * * * for the regulatory program do all of the following:

(A) Require that an activity will not be approved or adopted as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

(B) Include guidelines for the orderly evaluation of proposed activities and the preparation of the plan or other written documentation in a manner consistent with the environmental protection purposes of the regulatory program.

(C) Require the administering agency to consult with all public agencies which have jurisdiction, by law, with respect to the proposed activity.

(D) Require that final action on the proposed activity include the written responses of the issuing authority to significant environmental points raised during the evaluation process.

(E) Require the filing of a notice of the decision by the administering agency on the proposed activity with the Secretary of the Resources Agency. Those notices shall be available for public inspection, and a list of the notices shall be posted on a weekly basis in the Office of the Resources Agency. Each list shall remain posted for a period of 30 days.

(F) Require notice of the filing of the plan or other written documentation to be made to the public and to any person who requests, in writing, notification. The notification shall be made in a manner that will provide the public or any person requesting notification with sufficient time to review and comment on the filing.

(3) The plan or other written documentation required by the regulatory program * * * does both of the following:

* * * (A) Includes a description of the proposed activity with alternatives to the activity, and mitigation measures to minimize any significant adverse * * * effect on the environment of the activity.

* * * (B) Is available for a reasonable time for review and comment by other public agencies and the general public.

(e) (1) The Secretary of the Resources Agency shall certify a regulatory program which the secretary determines meets all the qualifications for certification set forth in this section, and withdraw certification on determination that the regulatory program has been altered so that it no longer meets those qualifications. Certification and withdrawal of certification shall occur only after compliance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

(2) In determining whether or not a regulatory program meets the qualifications for certification set forth in this section, the inquiry of the secretary * * * shall extend only to the questions of whether the regulatory program meets the generic requirements of subdivision (d). The inquiry shall not extend to individual decisions to be reached under the regulatory program, including the nature of specific alternatives or mitigation measures which might be proposed to lessen any significant adverse * * * effect on the environment of the activity.

* * * (3) If the secretary * * * determines that the regulatory program submitted for certification does not meet the qualifications for certification set forth in this section, the secretary shall adopt findings setting forth the reasons for the determination.

(f) After a regulatory program has been certified pursuant to this section, any proposed change in the program which could affect compliance with the qualifications for certification specified in subdivision (d) may be submitted to the Secretary of the Resources Agency for review and comment. The scope of the secretary's review shall extend only to the question of whether the regulatory program meets the generic requirements of subdivision (d). The review shall not extend to individual decisions to be reached under the regulatory program, including specific

California Integrated Waste Management Board

Linda Moulton-Patterson, Chair
1001 I Street • P.O. Box 4025 • Sacramento, California 95812-4025 • (916) 341-6000
www.ciwmb.ca.gov

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

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INLAND EMPIRE UTILITIES AGENCY

March 1, 2002

Gary Hackney
Inland Empire Utilities Agency
P.O. Box 697
Fontana, CA 92335

Subject: **SCH No. 2002011116:** Notice of Preparation (NOP) and Initial Study (IS) for the preparation of a Program Environmental Impact Report (PEIR) to Address Implementation of Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Plans, San Bernardino County. A Co-Compost Facility is permitted by the CIWMB under Solid Waste Facility as Permit (SWFP) No. 36-AA-0316.

Dear Mr. Hackney:

California Integrated Waste Management Board (CIWMB or Board) Environmental Review Section (ERS) staff received and reviewed the NOP/IS for the proposed PEIR cited above. This NOP/IS was received on January 29, 2002.

ERS STAFF PROJECT DESCRIPTION

ERS staff offer the following description and analysis of the proposed project based on ERS staff's understanding of the project as described in the above documents. If our project description varies substantially from the project as proposed by the Lead Agency, ERS staff request notification of any significant differences prior to circulation of any subsequent environmental documents.

According to the NOP/IS, the Inland Empire Utilities Agency, acting as Lead Agency, has prepared and circulated to prospective Responsible Agencies the environmental documents (ED) in order to help identify and evaluate potential environmental impacts and/or other Responsible Agency concerns that could occur with the approval and/or implementation of the proposed project. The proposed project will consider the implementation of three long-term management/master plans. These three plans are:

1. Wastewater Facilities Master Plan (WFMP)
2. Recycled Water Feasibility Plan (RWFS)
3. Organics Management Strategy Business Plan (OMSBP)

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The PEIR, when certified, is proposed by the Lead Agency to serve as the foundation environmental document (ED) for the three plans listed above.

Specific projects that are permitted by the Local Enforcement Agency (LEA) and concurred on by the Board that would be affected by the implementation of the plans include the Chino Co-Compost Facility. This facility is owned and operated by the Inland Empire Utilities Agency (IEUA) and operates under a SWFP No. 36-AA-0316 issued by the Local Enforcement Agency (LEA). Additional composting sites may be constructed as a part of the proposed project that would require a SWFP.

The LEA for San Bernardino County is the County of San Bernardino Division of Environmental Health Services. The Chino Co-Compost Facility is permitted to accept processed sewage sludge and dairy manure for recycling and composting into soil amendment products.

NOP/IS for the PEIR FINDINGS

Page IS-2 of the NOP/IS indicates under the Section entitled "Environmental Factors Potentially Affected" that the proposed project will have potential direct and/or cumulative environmental impacts requiring mitigation measures in the areas of Biological Resources, Public Services, Utilities/Service Systems, Cultural Resources, Hydrology/Water Quality, Noise, Mandatory Findings of Significance, Air Quality, Geology/Soils, Land Use/Planning, Population/Housing, Transportation/Traffic.

ERS STAFF GENERAL COMMENTS

The CIWMB does not regulate or have discretionary approval authority for proposed General Plan or Master Plan Amendment projects, therefore, all following ERS staff comments related to this NOP/IS for a PEIR are presented from the perspective of a "commenting agency," at this time, in order to assist the Lead Agency in identifying potentially significant environmental issues and to facilitate the review and evaluation of any subsequent solid waste related projects under the CEQA.

Separate Environmental Document

It is the opinion of ERS staff that the lead agency may wish to address the relocation of the Co-Compost facility in a separate, project specific environmental study under the PEIR.

Solid Waste Facility Permit

Pages PD-99 and PD-104 of the NOP/IS for the PEIR indicate that the IEUA, as the Chino Co-Compost Facility owner/operator, is planning on replacing the existing facility with a newly located, fully enclosed facility. **The Lead Agency should be aware that relocation of a solid waste facility operating under a full SWFP issued by the LEA will require revision of the existing SWFP or a new SWFP for that facility.** The Lead Agency should consult closely with the County of San Bernardino Division of Environmental Health Services (LEA) regarding this planned relocation. The CIWMB will be a Responsible Agency for the environmental review of that proposed project, and for concurrence on the revised or new SWFP. The contact person for the LEA is:

Mr. Dan Avera, Director
County of San Bernardino Division of Environmental Health Services (LEA)
385 North Arrowhead Avenue
San Bernardino, CA 92415-0160
(Phone: 909-387-4688)

Mitigation Measures

The building of a new enclosed Co-Composting Facility is proposed as a mitigation measure, the PEIR should thoroughly describe the physical aspects of the proposed enclosure and explain how the enclosure will effectively mitigate potentially significant impacts.

Mitigation Reporting or Monitoring Program (MRMP)

Mitigation measures may be necessary to offset potential environmental impacts that were identified in the NOP/IS for a PEIR. This is a determination to be made by the Lead Agency. The operator and the Lead Agency should consider the following information:

Public Resources Code, Section 21081.6, states that the Lead Agency should submit a MRMP at the time of local adoption of the Environmental Impact Report or Mitigated Negative Declaration. This should identify the environmental impacts associated with the proposed project, identify mitigation measures to reduce impacts to a less than significant level, identify agencies responsible for ensuring the implementation of the proposed mitigations, and specify a monitoring/tracking mechanism. The MRMP is also required to be made a condition of project approval.

Section 21081.6 (b) also requires that "A public agency shall provide the measures to mitigate or avoid significant effects on the environment are fully enforceable through permit conditions, agreements, or other measures." ERS staff suggest that the final environmental document establish enforcement procedures and penalties, as well as develop conflict resolution provisions.

<u>SUMMARY</u>

ERS staff thanks the Lead Agency for the opportunity to review and comment on this NOP/IS for a PEIR. ERS staff hopes that this comment letter will be useful to the Lead Agency in carrying out their responsibilities in the CEQA process. ERS staff request copies of any subsequent environmental documents for this project including the PEIR, copies of public notices, MRMPs, Notices of Determination and any Statement of Overriding Consideration prepared for this project. ERS staff request receipt of a written proposed response to our comments (or a copy of the FEIR) at least 10 days prior to certification of the FEIR in accordance with CEQA Statutes, PRC Section 21092.5(a). If the FEIR is to be certified during a public hearing, ERS staff requests a ten-day prior notice of this hearing. If the document is to be certified without a public hearing, ERS staff requests a ten-day prior notification of the proposed date of the certification and project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at (916) 341-6730.

Sincerely,

Steven L. Hooper
Environmental Review Section
Permitting and Inspection Branch
Permitting and Enforcement Division
CIWMB

cc: Scott Morgan
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

Sue O'Leary Supervisor
Environmental Review Section
Permitting and Inspection Branch
Permitting and Enforcement Division
California Integrated Waste Management Board

Bill Marciniak
Permitting and Inspection Branch, Region 3
Permitting and Enforcement Division
California Integrated Waste Management Board

Suzanne Hambleton, Supervisor
Permitting and Inspection Branch, Region 3
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California Integrated Waste Management Board

Dan Avera, Program Director
San Bernardino County
Division of Environmental Health Services
385 N. Arrowhead Ave.
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w.o. #97-0318
file #1432.0709

February 5, 2002

Mr. Gary F. Hackney, P.E.
Inland Empire Utilities Agency
P.O. Box 697
Rancho Cucamonga, CA 91729

RE: Notice of Preparation of a Program
Environmental Impact Report to address
Implementation of Inland Empire Utilities Agency
Wastewater, Recycled Water and Organics Management Plans.

Dear Mr. Hackney:

Jurupa Community Services District requested that we receive the subject document. Towards that end, it would be helpful to us to have copies of the following three reference documents: "Inland Empire Utilities Agency, Wastewater Facilities Master Plan", "Inland Empire Utilities Agency, Water Management Plan" and "Inland Empire Utilities Agency, Organics Management Plan".

We would appreciate it if you would call us and let us know when we can obtain these documents. If you have any questions, please call me at (909) 686-1070.

Sincerely,

ALBERT A. WEBB ASSOCIATES

Sam I. Gershon, P.E.
Senior Vice President

SIG/lm

cc: Carole McGreevy, General Manager
Jurupa Community Services District

Matt Poeske

From: Bass, Carvel H SPL [Carvel.H.Bass@spl01.usace.army.mil]

Sent: Wednesday, February 20, 2002 11:09 AM

To: 'Matt Poeske'; Craig Parker; Bass, Carvel H SPL; Szijj, Antal J SPL; Hayley Lovan (E-mail); Scott Burton (E-mail); Tom Dodson (E-mail); Jay Officer (E-mail); Surendra Thakral (E-mail); Ted Masigat (E-mail); Steve Gapuzan (E-mail); Parks, Katie B SPL; Trabold, Phyllis A SPL

Cc: Dwyer, Charles S SPL

Subject: RE: Wastewater Master Plan Scoping Meeting

Matt - Operations cannot attend; however, here is a set of Partial Comments from Corps. Operations Branch:

The Corps, Operations Branch, reviews projects which would directly or indirectly. appreciably affect flood control and other operations in the federally-owned Prado basin, whose boundaries include 2 Counties as well as Federal land, recently incorporated and unincorporated lands in northern basin, as well as substantial Orange County Water District land ownership. All direct or indirect, appreciable anticipated effects to Federal land must be dealt with in a NEPA, not a CEQA document which in this case has not dealt with Federal parameters and so Operations Branch at this time limits its comments to the present message.

The CEQA document needs a Table of Contents, badly.

Any case-by-case projects by IEUT, upon or directly or indirectly, appreciably affecting federal land, would be described at that time in a NEPA document and reviewed by the Corps through Operations Branch and via appropriate federal agencies such as US Fish and Wildlife Service.

Any effects to Corps land at Prado by this project, envisioned by IEUT and needing Corps approval, should be addressed in a scoping meeting at the Corps District office, 911 Wilshire, Los Angeles. At that time, Engineering, Real Estate, and Operations among other Corps disciplines, would be present and able to address project effects. Please call if you wish to schedule a scoping session for project-specific effects to Federal lands.

Carvel Bass, Ecologist
Operations Branch, USACE
213 452 3392

-----Original Message-----
From: Matt Poeske [mailto:mpoeske@ieua.org]
Sent: Friday, February 15, 2002 8:24 AM
To: Craig Parker; Carvel Bass (E-mail); Antal Szijj (E-mail); Hayley Lovan (E-mail); Scott Burton (E-mail); Tom Dodson (E-mail); Jay Officer (E-mail); Surendra Thakral (E-mail); Ted Masigat (E-mail); Steve Gapuzan (E-mail)
Subject: Wastewater Master Plan Scoping Meeting

When: Tuesday, February 26, 2002 8:00 AM-10:00 AM (GMT-08:00) Pacific Time (US & Canada); Tijuana.

Where: IEUA 9400 Cherry Ave., Fontana, CA, Board Room

~~*~*~*~*~*~*~*~*

The Inland Empire Utilities Agency (IEUA) will be holding a scoping meeting to elicit comments on the Wastewater, Recycled Water, Biosolids/Organics Management master plan. The Agencies consultant will be sending out a more detailed invitation to additional invitees. Your attendance would be appreciated.

SUMMARY OF NOTICE OF PREPARATION, COMMENT LETTER, ISSUES AND CONCERNS

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
Governor=s Office of Planning and Research State Clearinghouse Scott Morgan Project Analyst Letter dated January 29, 2002	Courtesy notice from State Clearinghouse acknowledging receipt of Notice of Preparation and distribution of the NOP to the responsible agencies.	
California Regional Water Quality Control Board - Santa Ana Region Hope Smythe Chief Inland Waters Planning Section Letter dated March 12, 2002	The Program Environmental Impact Report (PEIR) should review both the existing Total Dissolved Solids (TDS) and Nitrate Basin Plan water quality objectives and boundaries as well as the proposed objectives and Management Zone boundaries developed as part of the Ntirogen.TDS study currently being updated under the auspices of Santa Ana Watershed Project Authority (SAWPA). Consideration of both plans is noted to be of particular importance in the Chino Basin since the proposed changes are significant and will likely affect local dischargers and recycled water reuse programs.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
Native American Heritage Commission (NAHC)	Request that the appropriate Information center be contacts and that a records search be conducted for	

Rob Wood Environmental Specialist III Letter dated February 14, 2002	contacts and that a records search be conducted for the area of project effect (APE). If an archaeological inventory survey is required, a professional report detailing the findings and recommendations of the records search and field survey shall be prepared to NAHC standards. Request that the NAHC be contacted for a Sacred Land File Check and a list of appropriate Native American Contacts for consultation concerning the project and to assist on the mitigation measures. Provide a mitigation plan to address archaeological resources.	
<u>Southern California Association of Governments (SCAG)</u> Jeffrey M. Smith, AICP Senior Planner Intergovernmental Review Letter dated February 12, 2002	Discuss any inconsistencies between the proposed project and applicable general plans and regional plans. If there are inconsistencies, an explanation and rationalization for such inconsistencies should be provided.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
<u>Southern California Association of Governments (SCAG)</u> (continued)	Cite and address the appropriate SCAG polices and the manner in which the project is consistent with applicable core policies or supportive of applicable ancillary policies using SCAG policy	

	numbers and a side-by-side comparison format to evaluate consistency or support. The following topics should be reviewed and evaluated for consistency and support under the Regional Comprehensive Plan and as applicable the Regional Transportation Plan: Growth Management, Standard of Living, Regional Quality of Life, Social/Political/Cultural Equity, Air Quality, Water Quality, and Open Space considerations.	
Southern California Gas Company Steve Dunivin Technical Supervisor Letter dated March 20, 2002	Courtesy notice to indicate an ability to serve the gas needs of the project.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
U.S. Fish and Wildlife Service - Carlsbad Fish and Wildlife Office and the CA Department of Fish & Game (Joint Agency Letter) Karen A. Evans Assistant Field Supervisor U.S. Fish and Wildlife Service Jeff Drongesen Habitat Conservation Supervisor	The Wildlife Agencies has requested focused biological surveys should be conducted within the project area to address the potential impacts of the proposed project on a number of federally and State endangered and threatened species as well as California Species of Special Concern. Also the NDDB search should be included. the project should avoid/minimize environmental impacts using alternatives analysis and direct, indirect, and cumulative impacts analyses especially	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
California Department of Fish & Game Letter dated March 15, 2002	with a focus on implementation of Natural Communities Conservation Planning (NCCP) and Habitat Conservation Plan (HCP) programs. The project description/mitigation monitoring plan/impact analysis should be complete enough to allow DFG, USFWS and other agencies to determine significant impacts and to make decisions regarding permit issuance (especially for a CESA permit) whenever possible. DFG has jurisdiction over activities that would affect any river, lake or stream and their associated habitat	
U.S. Fish and Wildlife Service - Carlsbad Fish and Wildlife Office and the CA Department of Fish & Game (Joint Agency Letter) (continued)	The Wildlife Agencies oppose the elimination of watercourses and/or the channelization or conversion to subsurface drains and recommend that the PEIR include a discussion of the on-site hydrological needs of federally and State-listed and other sensitive species on site or potentially downstream that may be impacted by the proposed project. The Wildlife agencies recommend an analysis of the consequences of the project on the fluvial dynamics and hydrology of all streams and rivers or wetland communities, respectively, within the sphere of influence of the project.	

	The Service recommends that the PEIR include an assessment of wetlands or jurisdictional waters of the United States affected by the proposed project including whether a section 404 permit is required. The EIR should include impacts for increased runoff, sedimentation, soil erosion, and/or urban pollutants on streams or watercourses on or near the project site and proposed mitigation measures.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
Chino Valley Independent Fire District (CVIFD) Tom J. Maxham Division Chief Letter dated March 20, 2002	CVIFD identifies the fire protection requirements for the project which shall be incorporated into the conditions of approval.	
City of Ontario Jerry L. Blum Planning Director Letter dated February 21, 2002	Page IS-28 (item VII-9) - The comments "wells will be closed and a new supply developed" does not indicate responsibility by whom. Figure 4 does not include Turner Basins 2,3, and 4. Page PD-14 (3. Biosolid Management and Optimal Use) - Indicates co-composting yard debris - does this mean refuse trucks will enter the site? There will be residual wastes, how will these be handled? Or	

	will access be limited to transfer or Aprocessed clean@ green wastes from transfer stations (recommended for fewer impacts)? Items need further review.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
City of Ontario (continued)	Page PD-22 (RP-1, an Odor Free Facility in Near Future) - Step 2 needs a schedule as a part of the mitigation monitoring plan, particularly for item 7. Also need to include elimination of the trickling filter as an element of Step 2.	
	Page PD-23 (Remove, Replace Old ... Facilities) - The words "could be" should be chanced to **Ashall** be@.	
	Page PD-23 (RP-1 Proposed Ultimate Facilities) - Need to explain "why the ultimate capacity does not match to the capacities listed in Table 4.	
	Page PD-24 (Table 5) - Lists 3 alternatives, yet a fourth and recommended alternative is proposed in a subsequent site layout.	
	Figure 9 Alternative 1, which retains open storage of primary sewage without odor control and retains the trickling filter without odor control is unacceptable to Ontario and requires further mitigation.	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
City of Ontario (continued)	Figure 10 Alternative 2, which retains open storage of primary sewage without odor control and retains the trickling filter without odor control, is unacceptable to Ontario and requires further mitigation. Figure 11 Alternative 3 does not indicate the removal and property reuse of the primary equalization ponds and still retains the trickling filter without odor control. This requires further study and mitigation. Page PD-29 (Table 6) - Schedule for Near Term Phase I and II, is merelv listed as "within 10 years". A more definitive schedule is recommended and a mitigation measure to place the schedule into the IEUA 10 year CIP is recommended. Page PD-29 (Table 6 - Notes 1 and 2) - Discuss Figures 13 and 14, these Figures should immediately follow this text, Note 1 identifies Alternative 2 as the recommended, however, Alternative 4 is the recommended Alternative. Alternative 2 is unacceptable to Ontario due to unmitigated odor sources.	

AGENCY OR INDIVIDUAL | ISSUES RAISED OR COMMENT | POTENTIAL PROJECTS TO

		BE CONSIDERED
City of Ontario (continued)	Neither Figure 13 or 14 match to the description of Alternative 4. They do not depict covered primary storage with odor control. These figures, as depicted, are unacceptable to Ontario due to unmitigated odor sources. Page PD-51 (Last Paragraph) - The bypass sewer capacity is via a joint project and joint ownership between IEUA and the City of Ontario. Page PD-86 refers to the 4th Street regional recycled water pipeline. Is this a final decision on location, or is a 6th Street alignment still possible? Page PD-97 (Other Organics) - This section will require much more analysis of source. contamination and transportation. and specific environmental review if Agreen wastes@ are to be included. Page PD-101 (Additional Dairy Digesters Pilot Project) - If located in Ontario, these made require more specific planning and environmental review. Figure 43 - Facility should have odor control on the conveyors and sludge hopper/truck loading area.	
AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED

City of Ontario (continued)	Figure 44 (Conceptual Siting Location for Lagoon Digesters) - If located in the City of Ontario, these may require more specific planning and environmental review. Page PD-108 (Enclosed ASP Project) - Is not really a "pilot@ project. It will handle the solids from RP-1 (and some from RP-4 for a period of time). This project needs more specific definition, source definition, and specific review of potential impacts and mitigation measures.	
CA Department of Fish & Game Jeff Drongesen Habitat Conservation Supervisor California Department of Fish & Game Letter dated February 28, 2002	Duplicate of Joint Agency Letter, see comments to Wildlife Agencies letter	

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
County of Orange, Planning & Development Services Department Tim Neely Manager Environmental Planning Services Division Letter dated March 4, 2002	The EIR should address regional trails and bikeways, both existing and proposed and provide for the continuity of these routes.	

SUMMARY OF NOTICE OF PREPARATION, COMMENT LETTER, ISSUES AND CONCERNS

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
City of Chino Hills Douglas N. LaBelle City Manager Letter dated February 28, 2002	The EIR should evaluate the visual impacts of any proposed above ground structure and recommend mitigation measures. The EIR should address the potential for hazardous materials upset at the planned facilities and the necessary mitigation measures to reduce potential health risks.	
County of San Bernardino Land Use Service Department Matthew W. Slowik, M.U.R.P. Senior Associate Planner Advance Planning Division Letter dated February 22, 2002	Courtesy letter acknowledging receipt of NOP and offering resources to support the preparation of the PEIR.	
South Coast Air Quality Management District (SCAQMD) Steve Smith, Ph.D. Program Supervisor, CEQA Section Planning, Rule Development and Area Sources Letter dated February 1, 2002	An Air Quality Analysis should be prepared as part of the PEIR and should address air quality impacts from all phases of the project and identify all air pollutants sources related to the project from both construction and operations. This analysis should include all toxic air contaminant impacts due to the decommissioning or use of equipment. Mitigation measures should be utilized during project construction and operations to minimize or eliminate	

significant adverse air quality impacts.

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
County of San Bernardino, Department of Public Health Raymond A. Britain, REHS Waste Management/LEA Section Letter dated February 15, 2002	The EIR should address the quantities and types of materials to be accepted/handled/processed. The EIR should address design capacity. Identify quantities of residuals/contaminants in the feedstocks. Identify sources of input materials (including sludge). Identify permitted area (acreage), facility, and operations area boundaries. Address traffic volume. Identify quantities and types of materials to be "stored" as defined in Chapter 3 of Title 14. Identify prohibited wastes. Evaluate the environmental impacts associated with crushing, grinding, screening, baling, or other processing at the facility.	

SUMMARY OF NOTICE OF PREPARATION, COMMENT LETTER, ISSUES AND CONCERNS

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
County of San Bernardino, Department of Public Health (continued)	Evaluate load-checking/hazardous waste prevention. Identify litter control measures. Identify drainage/erosion control. Identify hours the facilities will be open to the public/hours of site activities. Identify proposed sampling and pathogen reduction method(s). Identify the potential creation of health hazards and/or public nuisances including noise, odors, dust and vectors.	
California Integrated Waste Management Board Steven I. Hooper Environmental Review Section Permitting and Inspection Branch Permitting and Enforcement Division Letter Dated March 1, 2002	The Lead Agency may wish to address the relocation of the Co-Composting facility in a separate, project specific environmental study under the PEIR. Advisory note that relocation of a solid waste facility operating under a full SWFP issued by the LEA will require revision of the existing SWFP or a new SWFP.	

SUMMARY OF NOTICE OF PREPARATION, COMMENT LETTER, ISSUES AND CONCERNS

AGENCY OR INDIVIDUAL	ISSUES RAISED OR COMMENT	POTENTIAL PROJECTS TO BE CONSIDERED
California Integrated Waste Management Board (continued)	The PEIR should thoroughly described the physical aspects of the proposed enclosure of the Co-Composting Facility and explain how the enclosure will effectively mitigate significant impacts. Mitigation measures should be included within the PEIR.	
Albert A. Webb Associates Sam I. Gershon, P.E. Senior Vice President Letter dated February 5, 2002	Request for reference documents.	

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SCOPING MEETING NOTICE

February 15, 2002

From: Tom Dodson

To: Distribution

Subj: **Notice of public scoping meeting for the Inland Empire Utilities Agency Wastewater, Recycled Water and Organics Management Plans Program Environmental Impact Report**

On January 25, 2002 the Inland Empire Utilities Agency (IEUA) issued a Notice of Preparation for preparation of a Program Environmental Impact Report (PEIR) for the adoption of Wastewater, Recycled Water and Organics Management Plans. Recent State legislation requires that projects of statewide, regional and areawide significance hold a formal scoping meeting as part of an agency's California Environmental Quality Act (CEQA) review process. Because of the scope of the three management plans being proposed for approval and implementation by IEUA under this project, IEUA will hold a CEQA scoping meeting to take comments on the scope of issues to be considered in the PEIR from interested agencies and members of the public. This scoping meeting will be conducted as follows:

Date: **February 26, 2002**

Time: **8:00 a.m. to 10:00 a.m.**

Location: **IEUA Board meeting room located at: 9400 Cherry Avenue; Building A; Fontana, California**

Subject: **A scoping meeting will be held to take public comments on the proposed management plans project proposed by IEUA. Materials will be available for inspection at the meeting room and a short presentation will precede the public comment period. The scoping meeting will remain open for comment over the whole period of time identified above.**

If you have questions regarding the scoping meeting, the IEUA point of contact Matthew Poeske at IEUA, 909-357-0251.

Tom Dodson

Tom Dodson
on behalf of IEUA

February 26, 2002
IEUA Master Plans PEIR
Scoping Meeting
Attendance Sheet

Name	Agency (if applicable)	Phone Number / e-mail
Robert Nicklen	Regional Board	rnicklen@rb8.swrcb.c
GARY HACKNEY	IEUA	357-0241 ghackney@ieua.org
Pat Tennant	O.C.W.D.	909 322-3157 ptennant@ocwd
STEVE GAPUZAN	CITY OF UPLAND	909 931 4270 sgapuzan@ci.upland.ca.us
John Robinson	Tetra Tech	626-683-0066 john.robinson@ttisg.com
WILSON NOLAN	INLAND COMPOSTING	WE NOLAN @ WNOLAN.COM
Kel Baly	CDDK	(909) 353-4327
MARC WILDERMUTH	WE INC	(949) 499-9261
Gloria Lai-Blum	Parsons	626-440-6335
Suzanna Thakod	Parsons	(626) 440-6263
LAYNE BAROLDI	CCSA	(714) 593-7456 LBAROLDI@CCSA.C

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CONFERENCE REPORT

Project	IEUA Master Plan Program EIR	Meeting Date:	February 26, 2002
Subject	Scoping Meeting	Report Date:	March 5, 2002
Place	IEUA Offices; Fontana, CA		
By:	Gary Petersen		

This report is a summary of subjects discussed and decisions reached at the above meeting. Any discrepancies should be promptly brought to our attention.

Background: The purpose of the meeting was to obtain input from responsible agencies and the public concerning alternatives and environmental a issues to be addressed in the Draft EIS/EIR.

Presentation: Tom Dodson, primary consultant for preparation of the Program EIR, made a brief presentation, summarizing each of the three master plan components; namely the Wastewater Master Plan, Recycled Water Master Plan, and Organics Management Master Plan. The combined master plans are intended to provide for IEUA's facilities needs until the year 2050. Mr. Dodson used a series of overhead slides to illustrate key points in the presentation, copies of which are on file at IEUA.

Comments from the Floor: Following the presentation, comments were received from various parties in attendance, summarized as follows:

- Pat Tennant (Orange County Water District [OCWD]) - Wanted to know where proposed interceptor lines were located. Mr. Tennant was referred to Jay Officer (Parsons-Engineering Science), who assisted him in locating the lines. None of the lines would affect OCWD.

- Robert Nicklen (Regional Water Quality Control Board [RWQCB]) - Stated that the IEUA plans were showing 100,000 acre-feet per year of recycled water in the year 2050, about one-half of which would be available by 2010. The Regional Board expects that demineralization would be required for this quantity, based upon currently developing regulations (which will include adopting new water quality objectives in the Basin Plan that will be more stringent). He also recommended not counting on using storm water for dilution purposes, nor should water from the State Water Project be so counted. In addition, Mr. Nicklen recommended that a monitoring program be implemented to ensure no damage to groundwater sources.

  Mr. Dodson responded by stating that IEUA expects to capture additional storm water for dilution purposes, and that the agency expects to demonstrate adequate blending at the recharge basins, such that degradation of the groundwater would not occur. If proposed computer modeling of future conditions indicates otherwise, demineralization would be considered. Mr. Dodson requested feedback from RWQCB on ways to use the proposed Basin Plan objectives for this project.

- Mark Wildermuth (representing ?) - Made reference to an ongoing TIN and TDS Study, which raises issues concerning IEUA planning vis-à-vis regional groundwater planning.

- Kel Baliga (California Department of Health Services [DHS]) - Asked whether a health effects study was being done for purposes of the Program EIR, related to groundwater discharge. He further stated that although DHS criteria do not call for such a study, it would be desirable to perform, nonetheless. Such a study should address site-specific geotechnical conditions.

  Mr. Dodson responded by stating that IEUA presumes DHS criteria to be health-based, and therefore adherence to published criteria is presumed to be sufficient for public health purposes. However, the comment would be taken under advisement.

- Surendra Thakral (Parsons) - Asked what the expected shelf life was for a Program EIR of the type proposed.

  Mr. Dodson responded by stating that the document will be describing what IEUA believes to be "build-out" conditions (or nearly so); therefore, insofar as facilities are concerned, the shelf life should be substantial, barring changes in underlying conditions or unforeseen needs that may occur in the intervening time. Mr. Dodson suggested 2020 as the likely shelf life of the document.

- Kel Baliga (DHS) - Commented about the analysis years. He stated that an analysis should be done for 2050 and then a "build-out" year beyond, say 2100 or 2150.

  Mr. Dodson responded by stating that IEUA believes 2050 to be the build-out year for pipelines, but for the treatment plants, this may not be the case. Nonetheless, the Program EIR will not go beyond 2050.

- Kel Baliga (DHS) - Stated that the valid period for the EIR will depend upon the "staticness" of the setting.

  Mr. Dodson responded by stating that IEUA will reevaluate the stability of the underlying setting as time goes on, and should additional documentation be indicated, it will be provided.

- Pat Tennant (OCWD) - Expressed two concerns, namely the quantity of water being produced and the quality of such water. Regulatory agencies handle water quality, and therefore this should not be an issue. The quantity of water produced and discharged to surface waters (i.e., Mill Creek and Chino Creek), however, is a concern, because there are potential adverse habitat implications, particularly as may affect the Least Bell's Vireo and Southwestern Willow Flycatcher. Diversion of some portion of the flows to other than traditional discharge waters may need to be considered at some point, should this concern become a reality.

  Mr. Dodson stated that the expected quantities of discharge waters should actually decrease over time, owing to the increased emphasis on recycling. The relationship of expected discharge versus recycled quantities will need to be laid out in order to get a better understanding of what the expectations will be.

- Kel Baliga (DHS) - Asked how the quantities of recycled water were estimated. He also stated that industrial users may have reservations about accepting recycled water.

Tom Love of IEUA responded by stating that existing experience was used as a basis of the projections, coupled with unit estimates applied to current and expected future customers. Also considered were some additional planned public facilities that could be users of recycled water, such as new parks. He further stated that industrial users must accept the recycled water if it meets appropriate standards.

Conclusion: The meeting remained open for additional input until 10:00 a.m., but there were no further comments received. Both the Orange County Water District and the Regional Water Quality Control Board indicated they would be sending comment letters in response to the scoping request.

Appendix 8.2

SECTIONS 15162 & 15168 OF STATE CEQA GUIDELINES

(b) A lead agency shall not adopt a negative declaration or mitigated negative declaration for a project described in subsection (a) unless the lead agency considers whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21096, Public Resources Code.

Article 11. Types of EIRs Sections 15160 to 15170

15160 General

This article describes a number of examples of variations in EIRs as the documents are tailored to different situations and intended uses. These variations are not exclusive. Lead agencies may use other variations consistent with the guidelines to meet the needs of other circumstances. All EIRs must meet the content requirements discussed in Article 9 beginning with Section 15120.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21061, 21100, and 21151, Public Resources Code.

15161 Project EIR

The most common type of EIR examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21061, 21100, and 21151, Public Resources Code.

15162 Subsequent EIRs and Negative Declarations

(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 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.

(b) If changes to a project or its circumstances occur or new information becomes available after adoption of a negative declaration, the lead agency shall prepare a subsequent EIR if required under subsection (a). Otherwise the lead agency shall determine whether to prepare a subsequent negative declaration, an addendum, or no further documentation.

(c) Once a project has been approved, the lead agency's role in project approval is completed, unless further discretionary approval on that project is required. Information appearing after an approval does not require reopening of that approval. If after the project ~~was~~ is approved, any of ~~prior to the occurrence~~ ~~of~~ the conditions described in ~~s~~subsection (a) occurs, a ~~the~~ subsequent EIR or negative declaration shall only be prepared by the public agency which grants the next discretionary approval for the project, if any. In this situation no other responsible agency shall grant an approval for the project until the subsequent EIR has been certified or subsequent negative declaration adopted.

(d) A subsequent EIR or subsequent negative declaration shall be given the same notice and public review as required under Section 15087 or Section 15072. A subsequent EIR or negative declaration shall state where the previous document is available and can be reviewed.

Note: Authority cited: Public Resources Code Sections 21083 and 21087. Reference: Section 21166, Public Resources Code; *Bowman v. City of Petaluma* (1986) 185 Cal. App.3d 1065 ~~(1986)~~; ~~and~~ *Benton v. Board of Supervisors* (1991) 226 Cal.App.3d 1467 ~~(1991)~~; and *Fort Mojave Indian Tribe v. California Department of Health Services et al.* (1995) 38 Cal.App.4th 1574.

Discussion: This section implements the requirements in Section 21166 of CEQA which limit preparation of a subsequent EIR to certain situations. This section provides interpretation of the three situations in which the statute requires preparation of a subsequent EIR. These interpretations are necessary to add certainty to the process.

This section also clarifies that a subsequent EIR may be prepared where a negative declaration had previously been adopted. Further, a subsequent negative declaration may be adopted where none of the situations described in subsection (a) have occurred.

Subsections (b) and (c) explain which agency would have responsibility for preparing a subsequent EIR under different circumstances. A subsequent EIR must, of course, receive the same circulation and review as the previous EIR.

Fund for Environmental Defense v. Orange (1988) 204 Cal.App.3d 1538, contains a discussion of the application of §15162 and §15163. The Court in *Bowman v. Petaluma* (1986) 185 Cal.App.3d 1065 distinguished requirements for a subsequent EIR from the threshold required for initial EIR preparation, saying "whereas §15064 (§21151 PRC) requires an EIR if the initial project may have a significant effect on the environment, §15162 (§21166 PRC) indicates a quite different intent, namely, to restrict the powers of agencies by prohibiting them from requiring a subsequent or supplemental EIR unless "substantial changes" in the project or its circumstances will require major revisions to the EIR. §15162 (§21166 PRC) comes into play precisely because in-depth review has already occurred, the time for challenging the sufficiency of the original EIR has long since expired, and the question is whether circumstances have changed enough to justify repeating a substantial portion of the process.

15163 Supplement to an EIR

(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.

(b) The supplement to the EIR need contain only the information necessary to make the previous EIR adequate for the project as revised.

(c) A supplement to an EIR shall be given the same kind of notice and public review as is given to a draft EIR under Section 15087.

(d) A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR.

(e) When the agency decides whether to approve the project, the decision-making body shall consider the previous EIR as revised by the supplemental EIR. A finding under Section 15091 shall be made for each significant effect shown in the previous EIR as revised.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21166, Public Resources Code.

Discussion: This section provides a short-form method where only minor additions or changes would be necessary in the previous EIR to make that EIR apply in the changed situation. The section also provides essential interpretations of how to handle public notice, public review, and circulation of the supplement.

A supplement to an EIR may be distinguished from a subsequent EIR by the following: a supplement augments a previously certified EIR to the extent necessary to address the conditions described in section 15162 and to examine mitigation and project alternatives accordingly. It is intended to revise the previous EIR through supplementation. A subsequent EIR, in contrast, is a complete EIR which focuses on the conditions described in section 15162.

15164 Addendum to an EIR or Negative Declaration

(a) The lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.

(b) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.

(c) An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.

(d) The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.

(e) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21166, Public Resources Code; *Bowman v. City of Petaluma* (1986) 185 Cal.App.3d 1065 ~~(1986)~~; and *Benton v. Board of Supervisors* (1991) 226 Cal.App. 3d 1467 ~~(1991)~~

Discussion: This section is designed to provide clear authority for an addendum as a way of making minor corrections in EIRs and negative declarations without recirculating the EIR or negative declaration.

15165 Multiple and Phased Projects

Where individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environmental effect, the lead agency shall prepare a single program EIR for the ultimate project as described in Section 15168. Where an individual project is a necessary precedent for action on a larger project, or commits the lead agency to a larger project, with significant environmental effect, an EIR must address itself to the scope of the larger project. Where one project is one of several similar projects of a public agency, but is not deemed a part of a larger undertaking or a larger project, the agency may prepare one EIR for all projects, or one for each project, but shall in either case comment upon the cumulative effect.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21061, 21100, and 21151, Public Resources Code; *Whitman v. Board of Supervisors*, 88 Cal.App.3d 397 (1979).

Discussion: This section follows the principle that the EIR on a project must show the big picture of what is involved. If the approval of one particular activity could be expected to lead to many other activities being approved in the same general area, the EIR should examine the expected effects of the ultimate environmental changes. This section is consistent with the *Whitman* decision cited in the note interpreting CEQA.

15166 EIR as Part of a General Plan

(a) The requirements for preparing an EIR on a local general plan, element, or amendment thereof will be satisfied by using the general plan, or element document, as the EIR and no separate EIR will be required, if:

(1) The general plan addresses all the points required to be in an EIR by Article 9 of these guidelines, and

(2) The document contains a special section or a cover sheet identifying where the general plan document addresses each of the points required.

(b) Where an EIR rather than a negative declaration has been prepared for a general plan, element, or amendment thereto, the EIR shall be forwarded to the State Clearinghouse for review. The requirement shall apply regardless of whether the EIR is prepared as a separate document or as a part of the general plan or element document.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21003, 21061, 21083, 21100, 21104, 21151, and 21152, Public Resources Code.

Discussion: A separate section is provided to authorize combining the general plan document with the EIR. This section allows the use of the general plan document as the EIR if the document contains a special section or a cover sheet identifying where each of the points required in an EIR may be found. This section also identifies the special requirement for an EIR on a general plan to be submitted to the State Clearinghouse for review as a project of areawide, regional, or statewide significance as provided in Section 15207.

15167 Staged EIR

(a) Where a large capital project will require a number of discretionary approvals from government agencies and one of the approvals will occur more than two years before construction will begin, a staged EIR may be prepared covering the entire project in a general form. The staged EIR shall evaluate the proposal in light of current and contemplated plans and produce an informed estimate of the environmental consequences of the entire project. The aspect of the project before the public agency for approval shall be discussed with a greater degree of specificity.

(b) When a staged EIR has been prepared, a supplement to the EIR shall be prepared when a later approval is required for the project, and the information available at the time of the later approval would permit consideration of additional environmental impacts, mitigation measures, or reasonable alternatives to the project.

(c) Where a statute such as the Warren-Alquist Energy Resources Conservation and Development Act provides that a specific agency shall be the lead agency for a project and requires the lead agency to prepare an EIR, a responsible agency which must grant an approval for the project before the lead agency has completed the EIR may prepare and consider a staged EIR.

(d) An agency requested to prepare a staged EIR may decline to act as the lead agency if it determines, among other factors, that:

(1) Another agency would be the appropriate lead agency; and

(2) There is no compelling need to prepare a staged EIR and grant an approval for the project before the appropriate lead agency will take its action on the project.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21003, Public Resources Code.

Discussion: The staged EIR was developed as a device to deal with the problem of a large development project which would require many years for planning, engineering, and construction but would need a number of approvals from public agencies before the final plans for the project would be available. Where those final plans would not be available, the Lead Agency preparing an EIR for one of the early approvals would have difficulty providing enough information about the project to evaluate the effects of the entire project as would otherwise be required.

The device of the staged EIR provides a special relaxation of the requirement for the EIR on a development project to examine the entire project in detail. To make up for this lack of detail with the early approval, the section requires preparation of a supplement with later approvals when additional information becomes available. The section also allows this device to be used in the troublesome situation where an agency with limited control over the project is asked to grant the first approval for the project long before the normal Lead Agency would be called upon to act. The Responsible Agency needs some document to use in order to comply with CEQA. At the same time, due to its limited control over the project, it would not be a prime candidate for being Lead Agency. This approach allows the Responsible Agency to do a limited EIR examining the effects of its approval but noting in a general way the larger scope of the project and the general environmental effects expected.

15168 Program EIR

(a) General. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:

(1) Geographically,

(2) As logical parts in the chain of contemplated actions,

(3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or

(4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

(b) Advantages. Use of a program EIR can provide the following advantages. The program EIR can:

(1) Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action,

(2) Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis,

(3) Avoid duplicative reconsideration of basic policy considerations,

(4) Allow the lead agency to consider broad policy alternatives and programwide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts,

(5) Allow reduction in paperwork.

(c) Use with Later Activities. Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.

(1) If a later activity would have effects that were not examined in the program EIR, a new initial study would need to be prepared leading to either an EIR or a negative declaration.

(2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.

(3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.

(4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.

(5) A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

(d) Use with Subsequent EIRs and Negative Declarations. A program EIR can be used to simplify the task of preparing environmental documents on later parts of the program. The program EIR can:

(1) Provide the basis in an initial study for determining whether the later activity may have any significant effects.

(2) Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.

(3) Focus an EIR on a subsequent project to permit discussion solely of new effects which had not been considered before.

(e) Notice with Later Activities. When a law other than CEQA requires public notice when the agency later proposes to carry out or approve an activity within the program and to rely on the program EIR for CEQA compliance, the notice for the activity shall include a statement that:

(1) This activity is within the scope of the program approved earlier, and

(2) The program EIR adequately describes the activity for the purposes of CEQA.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21003, Public Resources Code; *County of Inyo v. Yorty*, 32 Cal.App.3d 795 (1973).

Discussion: The program EIR is a device originally developed by federal agencies under NEPA. Use of this approach was recommended for CEQA in the court decision of *County of Inyo v. Yorty* cited in the note.

The detailed description of the permissible uses of this document are provided in an effort to encourage its use. The program EIR can be used effectively with a decision to carry out a new governmental program or to adopt a new body of regulations in a regulatory program. The program EIR enables the agency to examine the overall effects of the proposed course of action and to take steps to avoid unnecessary adverse environmental effects.

Use of the program EIR also enables the Lead Agency to characterize the overall program as the project being approved at that time. Following this approach when individual activities within the program are proposed, the agency would be required to examine the individual activities to determine whether their effects were fully analyzed in the program EIR. If the activities would have no effects beyond those analyzed in the program EIR, the agency could assert that the activities are merely part of the program which had been approved earlier, and no further CEQA compliance would be required. This approach offers many possibilities for agencies to reduce their costs of CEQA compliance and still achieve high levels of environmental protection.

15169 Master Environmental Assessment

(a) General. A public agency may prepare a master environmental assessment, inventory, or data base for all, or a portion of, the territory subject to its control in order to provide information which may be used or referenced in EIRs or negative declarations. Neither the content, the format, nor the procedures to be used to develop a master environmental assessment are prescribed by these guidelines. The descriptions contained in this section are advisory. A master environmental assessment is suggested solely as an approach to identify and organize environmental information for a region or area of the state.

(b) Contents. A master environmental assessment may contain an inventory of the physical and biological characteristics of the area for which it is prepared and may contain such additional data and information as the public agency determines is useful or necessary to describe environmental characteristics of the area. It may include identification of existing levels of quality and supply of air and water, capacities and levels of use of existing services and facilities, and generalized incremental effects of different categories of development projects by type, scale, and location.

(c) Preparation.

(1) A master environmental assessment or inventory may be prepared in many possible ways. For example, a master environmental assessment may be prepared as a special, comprehensive study of the area involved, as part of the EIR on a general plan, or as a data base accumulated by indexing EIRs prepared for individual projects or programs in the area involved.

(2) The information contained in a master environmental assessment should be reviewed periodically and revised as needed so that it is accurate and current.

(3) When advantageous to do so, master environmental assessments may be prepared through a joint exercise of powers agreement with neighboring local agencies or with the assistance of the appropriate Council of Governments.

(d) Uses.

(1) A master environmental assessment can identify the environmental characteristics and constraints of an area. This information can be used to influence the design and location of individual projects.

(2) A master environmental assessment may provide information agencies can use in initial studies to decide whether certain environmental effects are likely to occur and whether certain effects will be significant.

(3) A master environmental assessment can provide a central source of current information for use in preparing individual EIRs and negative declarations.

(4) Relevant portions of a master environmental assessment can be referenced and summarized in EIRs and negative declarations.

(5) A master environmental assessment can assist in identifying long range, areawide, and cumulative impacts of individual projects proposed in the area covered by the assessment.

(6) A master environmental assessment can assist a city or county in formulating a general plan or any element of such a plan by identifying environmental characteristics and constraints that need to be addressed in the general plan.

(7) A master environmental assessment can serve as a reference document to assist public agencies which review other environmental documents dealing with activities in the area covered by the assessment. The public agency preparing the assessment should forward a completed copy to each agency which will review projects in the area.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Section 21003, Public Resources Code.

Discussion: The Master Environmental Assessment was developed as a way of providing a data base for use with later EIRs. If an agency prepared a Master Environmental Assessment, the agency could reduce the amount of work necessary to prepare later EIRs. The environmental setting would have been fully analyzed, and the likely environmental effects in the area could be anticipated. Thus, the Master Environmental Assessment could help focus initial studies as well as EIRs.

15170 Joint EIR-EIS

A lead agency under CEQA may work with a federal agency to prepare a joint document which will meet the requirements of both CEQA and NEPA. Use of such a joint document is described in Article 14, beginning with Section 15220.

Note: Authority cited: Sections 21083 and 21087, Public Resources Code. Reference: Sections 21083.5 and 21083.7, Public Resources Code.

Discussion: This section identifies the joint EIR-EIS as a special type of EIR. This special treatment is appropriate because many unusual steps would be required in order to meet the requirements of NEPA as well as CEQA. These steps may include formal

Appendix 8.3

AIR EMISSIONS CALCULATIONS

Appendix XX-1

Wastewater Facilities Master Plan - RP4 Liquid Treatment Expansion
Calculations Of Construction Emissions

RP4 Plant Modifications - Site Preparation/Earthwork					
			Emission Rate (lb/day)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
			Emission Rate (lb/day)		
Front End Loader	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		AP-42, Table II-7.1
1 Units	CO	0.572	3.432	0.13	
6 hr/day	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
			Emission Rate (lb/day)		
Dump/Haul Trucks	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		CARBE7EPSCF
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
			Emission Rate (lb/day)		
Water Truck	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
			Emission Rate (lb/day)		
Grader	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		AP-42, Table II-7.1
1 unit	CO	0.151	0.906	0.04	
6 hr/day	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
			Emission Rate (lb/day)		
Excavator	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
1 Units	CO	0.011	0	0.00	
6 hr/day	VOC	0.002	0	0.00	
	NOx	0.023	0	0.00	
	SOx	0.002	0	0.00	
	PM10	0.005	0	0.00	
Site Preparation/Earthwork Phase - Fugitive PM10 Emissions from Earthmoving.					
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =			0.313		
s = silt content (%)			7		
M = moisture content (%)			15		
n= no. units			4		
H= hours/day			6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =			7.50		SCAQMD CEQA Handbook, Table A9-9

RP4 Plant Modifications - Piping and Forming Concrete Placement					
			Emission Rate (lb/day)		
Backhoe	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
			Emission Rate (lb/day)		
ConcreteTruck/Mixer	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Material Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Concrete Pump	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.011	0.066	0.00	
6 hr/day	VOC	0.002	0.012	0.00	
	NOx	0.018	0.108	0.00	
	PM10	0.002	0.012	0.00	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
2 unit	CO	0.24	2.88	0.11	
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	

Concrete Saw	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
1 unit	CO	0.039	0.234	0.01	
6 hr/day	VOC	0.559	3.354	0.13	
	NOx	0.052	0.312	0.01	
	SOx	0.0065	0.039	0.00	
	PM10	0.00325	0.02	0.00	

Water Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Generator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
2 unit	CO	2.036	24.432	0.95	
6 hr/day	VOC	0.893	10.716	0.42	
	NOx	0.0006	0.007	0.00	
	SOx	0.0006	0.007	0.00	
	PM10	0.00845	0.101	0.00	

Concrete Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

Welding Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
3 unit	CO	0.675	12.15	0.47	
6 hr/day	VOC	0.15	2.7	0.11	
	NOx	1.7	30.6	1.19	
	SOx	0.143	2.574	0.10	
	PM10	0.14	2.52	0.10	

Piping and Forming Concrete Placement Phase - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7	
M = moisture content (%)	18	
n= no. units	1	
H= hours/day	6	
Emission Rate (lb/day) = (# Units * hr/day * EF) =	1.90	

RP4 Modifications - Site Finishing

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.3	1.8	0.07	
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Equipment	Emission Factor		Emission Rate (lb/day)		Source
Sand Blaster	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 Units	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	
Material Truck	Emission Factor (g/min)		(# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Dozer	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Paving Machine	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.421	0.842	0.03	
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	
Water Truck	Emission Factor (g/min)		(# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Site Finishing Phase - Fugitive PM10 Emissions from Earthmoving	
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313
s = silt content (%)	7
M = moisture content (%)	15
n= no. units	1
H= hours/day	6
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90

SUMMARY BY OPERATION – LB/DAY

CO	VOC	NOx	SOx	PM-10
Site Preparation/Earthwork				
23.80	4.70	28.10	2.30	9.70
Piping and Forming Concrete Placement				
93.10	23.50	62.70	4.10	38.00
Site Finishing				
21.10	54.90	28.20	5.70	3.60

Emissions from Construction Worker Commutes
Site Preparation/Earthwork Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	16	1.452
CO	7.32	40	16	10.319
VOC	0.69	40	16	0.973
PM10	0.06	40	16	0.085

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Piping and Forming Concrete Placement Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	24	2.178
CO	7.32	40	24	15.478
VOC	0.69	40	24	1.459
PM10	0.06	40	24	0.127

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Site Finishing Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.031	40	12	1.089
CO	7.321	40	12	7.739
VOC	0.691	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-2

Wastewater Facilities Master Plan - Conveyance Systems Construction
Calculation Of Construction Emissions

Upland Interceptor Relief System

Backhoe	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	3.59	21.54	0.84	AP-42, Table II-7.1
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 unit	CO	0.24	2.88	0.11	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	

2 Dump/1 Haul Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
3 unit	CO	0.41	7.38	0.29	CARBE7EPSCF
6 hr/day	VOC	0.071	1.278	0.05	
	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	

Paving Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.421	0.842	0.03	Los Angeles Unified School District, 2002
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	

Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.304	1.824	0.07	AP-42, Table II-7.1
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	

Roller/Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.304	1.824	0.07	AP-42, Table II-7.1
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	

Pavement Cutter	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.43	2.58	0.10	AP-42, Table 3.3-1
6 hr/day	VOC	0.16	0.96	0.04	
	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	

Grinder	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.675	4.05	0.16	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
Upland Interceptor Relief System				
50.70	7.30	53.10	3.30	4.10
SUMMARY BY OPERATION – TONS/QUARTER				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes Each System

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

San Bernardino Interceptor Pump Station & Force Main

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Backhoe					AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Crane, 5-ton					SCAQMD CEQA Handbook, Table A9-8-A
2 unit	CO	0.24	2.88	0.11	
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	
2 Dump/1 Haul Truck					CARBE7EPSCF
3 unit	CO	0.41	7.38	0.29	
6 hr/day	VOC	0.071	1.278	0.05	
	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	
Paving Machine					Los Angeles Unified School District, 2002
1 Units	CO	0.421	0.842	0.03	
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	
Compactor					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Roller/Vibrator					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Pavement Cutter					AP-42, Table 3.3-1
1 Units	CO	0.43	2.58	0.10	
6 hr/day	VOC	0.16	0.96	0.04	
	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	

Grinder	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
San Bernardino Interceptor				
50.70	7.30	53.10	3.30	4.10
SUMMARY BY OPERATION – TONS/QUARTER				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes
Each System

Pollutant	Emission	Trip	Number	Total
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

RP4 Trunk Sewer (Reaches 1, 2 & 3)

Backhoe	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					SCAQMD CEQA Handbook, Table A9-8-A
2 unit	CO	0.24	2.88	0.11	
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	

2 Dump/1 Haul Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					CARBE7EPSCF
3 unit	CO	0.41	7.38	0.29	
6 hr/day	VOC	0.071	1.278	0.05	
	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	

Paving Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					Los Angeles Unified School District, 2002
1 Units	CO	0.421	0.842	0.03	
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	

Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	

Roller/Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	

	SOx 0.067	0.402	0.02	
	PM10 0.05	0.3	0.01	

Pavement Cutter	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.43	2.58	0.10	AP-42, Table 3.3-1
6 hr/day	VOC	0.16	0.96	0.04	
	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	

Grinder	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.675	4.05	0.16	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION -- LB/DAY				
CO	VOC	NOx	SOx	PM10
RP4 Trunk Sewer				
50.70	7.30	53.10	3.30	4.10
RP4 Trunk Sewer				
SUMMARY BY OPERATION -- TONS/QUARTER				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes
Each System

Pollutant	Emission	Trip	Number	Total
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

RP1/RP5 Bypass

Backhoe	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	3.59	21.54	0.84	AP-42, Table II-7.1
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 unit	CO	0.24	2.88	0.11	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	

2 Dump/1 Haul Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
3 unit	CO	0.41	7.38	0.29	CARBE7EPSCF
6 hr/day	VOC	0.071	1.278	0.05	
	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	

Paving Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.421	0.842	0.03	Los Angeles Unified School District, 2002
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	

Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.304	1.824	0.07	AP-42, Table II-7.1

6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	

Roller/Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	

Pavement Cutter	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table 3.3-1
1 Units	CO	0.43	2.58	0.10	
6 hr/day	VOC	0.16	0.96	0.04	
	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	

Grinder	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION -- LB/DAY				
CO	VOC	NOx	SOx	PM-10
RP1/RP5 Bypass				
50.70	7.30	53.10	3.30	4.10
SUMMARY BY OPERATION -- TONS/QUARTER				
RP1/RP5 Bypass				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes Each System

Pollutant	Emission	Trip	Number	Total
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Appendix XX-3

Wastewater Facilities Master Plan - Phases I and II
Calculations Of Construction Emissions

RP1 Plant Modifications - Site Preparation/Earthwork

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer					Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader					AP-42, Table II-7.1
1 Units	CO	0.572	3.432	0.13	
6 hr/day	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks					CARBE7EPSCF
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck					Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader					AP-42, Table II-7.1
1 unit	CO	0.151	0.906	0.04	
6 hr/day	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator					SCAQMD CEQA Handbook, Table A9-8-B
1 Units	CO	0.011	0	0.00	
6 hr/day	VOC	0.002	0	0.00	
	NOx	0.023	0	0.00	
	SOx	0.002	0	0.00	
	PM10	0.005	0	0.00	

Site Preparation/Earthwork Phase - Fugitive PM10 Emissions from Earthmoving.

Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	4	
H= hours/day	6	
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	SCAQMD CEQA Handbook, Table A9-9

RP1 Plant Modifications - Piping and Forming Concrete Placement

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Backhoe					AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
ConcreteTruck/Mixer					Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Material Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Concrete Pump	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.011	0.066	0.00	
6 hr/day	VOC	0.002	0.012	0.00	
	NOx	0.018	0.108	0.00	
	PM10	0.002	0.012	0.00	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
2 unit	CO	0.24	2.88	0.11	
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	

Concrete Saw	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
1 unit	CO	0.039	0.234	0.01	
6 hr/day	VOC	0.559	3.354	0.13	
	NOx	0.052	0.312	0.01	
	SOx	0.0065	0.039	0.00	
	PM10	0.00325	0.02	0.00	

Water Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Generator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
2 unit	CO	2.036	24.432	0.95	
6 hr/day	VOC	0.893	10.716	0.42	
	NOx	0.0006	0.007	0.00	
	SOx	0.0006	0.007	0.00	
	PM10	0.00845	0.101	0.00	

Concrete Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

Welding Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
3 unit	CO	0.675	12.15	0.47	
6 hr/day	VOC	0.15	2.7	0.11	
	NOx	1.7	30.6	1.19	
	SOx	0.143	2.574	0.10	
	PM10	0.14	2.52	0.10	

Piping and Forming Concrete Placement Phase - Fugitive PM10 Emissions from Earthmoving		SCAQMD CEQA Handbook, Table A9-9
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate (lb/day) = (# Units * hr/day * EF) =	1.90	

RP1 Modifications - Site Finishing

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.3	1.8	0.07	
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Sand Blaster	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		
1 Units	CO	0.675	4.05	0.16	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

Material Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		
2 unit	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Dozer	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		
1 Units	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	

Paving Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		
1 Units	CO	0.421	0.842	0.03	Los Angeles Unified School District, 2002
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	

Water Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		
1 unit	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Site Finishing Phase - Fugitive PM10 Emissions from Earthmoving	
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313
s = silt content (%)	7
M = moisture content (%)	15
n= no. units	1
H= hours/day	6
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90

SUMMARY BY OPERATION -- LB/DAY				
CO	VOC	NOx	SOx	PM-10
Site Preparation/Earthwork				
23.80	4.70	28.10	2.30	9.70
Piping and Forming Concrete Placement				
93.10	23.50	62.70	4.10	38.00
Site Finishing				
21.10	54.90	28.20	5.70	3.80

Emissions from Construction Worker Commutes

Site Preparation/Earthwork Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	16	1.452
CO	7.32	40	16	10.316
VOC	0.69	40	16	0.973
PM10	0.06	40	16	0.085

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Piping and Forming Concrete Placement Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	24	2.178
CO	7.32	40	24	15.478
VOC	0.69	40	24	1.459
PM10	0.06	40	24	0.127

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Site Finishing Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-4

Wastewater Facilities Master Plan - Satellite Plant
Calculations Of Construction Emissions

Satellite Plant - Site Preparation/Earthwork

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer					Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader					AP-42, Table II-7.1
1 Units	CO	0.572	3.432	0.13	
6 hr/day	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks					CARBE7EPSCF
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck					Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader					AP-42, Table II-7.1
1 unit	CO	0.151	0.906	0.04	
6 hr/day	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator					SCAQMD CEQA Handbook, Table A9-8-B
1 Units	CO	0.011	0	0.00	
6 hr/day	VOC	0.002	0	0.00	
	NOx	0.023	0	0.00	
	SOx	0.002	0	0.00	
	PM10	0.005	0	0.00	

Site Preparation/Earthwork Phase - Fugitive PM10 Emissions from Earthmoving.

Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	4	
H= hours/day	6	
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	SCAQMD CEQA Handbook, Table A9-9

Satellite Plant - Piping and Forming Concrete Placement

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Backhoe					AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
ConcreteTruck/Mixer					Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Material Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	4.92	0.19	
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	

Concrete Pump	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.011	0.066	0.00	
6 hr/day	VOC	0.002	0.012	0.00	
	NOx	0.018	0.108	0.00	
	PM10	0.002	0.012	0.00	

Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook Table A9-8-A
1 unit	CO	0.24	1.44	0.06	
6 hr/day	VOC	0.08	0.48	0.02	
	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Concrete Saw	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
1 unit	CO	0.039	0.234	0.01	
6 hr/day	VOC	0.559	3.354	0.13	
	NOx	0.052	0.312	0.01	
	SOx	0.0065	0.039	0.00	
	PM10	0.00325	0.02	0.00	

Water Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Generator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-B
2 unit	CO	2.036	24.432	0.95	
6 hr/day	VOC	0.893	10.716	0.42	
	NOx	0.0006	0.007	0.00	
	SOx	0.0006	0.007	0.00	
	PM10	0.00845	0.101	0.00	

Concrete Vibrator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

Welding Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

Piping and Forming Concrete Placement Phase - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate (lb/day) = (# Units * hr/day * EF) =	1.90	

Satellite Plant - Site Finishing

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.3	1.8	0.07	
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Equipment	Emission Factor		Emission Rate		Source
Sand Blaster	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		SCAQMD CEQA Handbook, Table A9-8-A
1 Units	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	
Material Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
2 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Dozer	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Paving Machine	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)		Los Angeles Unified School District, 2002
1 Units	CO	0.421	0.842	0.03	
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	
Water Truck	Emission Factor (g/min)		Emission Rate (lb/day) (# Units x hr/day x 60 / 453.6 x EF)		Assumed to be equivalent to haul trucks
1 unit	CO	0.41	2.46	0.10	
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Site Finishing Phase - Fugitive PM10 Emissions from Earthmoving	
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313
s = silt content (%)	7
M = moisture content (%)	15
n= no. units	1
H= hours/day	6
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90

SUMMARY BY OPERATION – LB/DAY

CO	VOC	NOx	SOx	PM-10
Site Preparation/Earthwork				
23.80	4.70	27.30	2.30	9.70
Piping and Forming Concrete Placement				
78.40	20.80	39.10	2.40	15.70
Site Finishing				
21.10	54.90	28.20	5.70	3.80

Emissions from Construction Worker Commutes

Site Preparation/Earthwork Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	16	1.452
CO	7.32	40	16	10.319
VOC	0.69	40	16	0.973
PM10	0.06	40	16	0.085

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Piping and Forming Concrete Placement Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	16	1.452
CO	7.32	40	16	10.319
VOC	0.69	40	16	0.973
PM10	0.06	40	16	0.085

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Site Finishing Phase

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-5

Regional Wastewater Management Plan - Phases 1-5
Calculation Of Construction Emissions

RWMP Phases 1-5 (All Facilities Constructed Simultaneously)

Equipment	Pollutant	Emission Factor (lbs/hr)	Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer					Los Angeles Unified School District, 2002
1 Units	CO	0.287	1.722	0.07	
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader					AP-42, Table II-7.1
0 Units	CO	0.572	0	0.00	
6 hr/day	VOC	0.291	0	0.00	
	NOx	1.89	0	0.00	
	SOx	0.182	0	0.00	
	PM10	0.172	0	0.00	
Dump/Haul Trucks					CARBE7EPSCF
12 unit	CO	0.41	29.52	1.15	
6 hr/day	VOC	0.071	5.112	0.20	
	NOx	0.226	16.272	0.63	
	SOx	0	0	0.00	
	PM10	0.021	1.512	0.06	
Water Truck					Assumed to be equivalent to haul trucks
0 unit	CO	0.41	0	0.00	
6 hr/day	VOC	0.071	0	0.00	
	NOx	0.226	0	0.00	
	SOx	0	0	0.00	
	PM10	0.021	0	0.00	
Grader					AP-42, Table II-7.1
0 unit	CO	0.151	0	0.00	
6 hr/day	VOC	0.052	0	0.00	
	NOx	0.713	0	0.00	
	SOx	0.086	0	0.00	
	PM10	0.061	0	0.00	
Excavator					SCAQMD CEQA Handbook, Table A9-8-B
5 Units	CO	0.011	0.33	0.01	
6 hr/day	VOC	0.002	0.06	0.00	
	NOx	0.023	0.69	0.03	
	SOx	0.002	0.06	0.00	
	PM10	0.005	0.15	0.01	
Backhoe					AP-42, Table II-7.1
8 Units	CO	3.59	172.32	6.72	
6 hr/day	VOC	0.218	10.464	0.41	
	NOx	1.269	60.912	2.38	
	SOx	0.09	4.32	0.17	
	PM10	0.136	6.528	0.25	
Material Truck					Assumed to be equivalent to haul trucks
21 unit	CO	0.41	51.66	2.01	
6 hr/day	VOC	0.071	8.946	0.35	
	NOx	0.226	28.476	1.11	
	PM10	0.021	2.646	0.10	
Crane, 5-ton					SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.24	1.44	0.06	
6 hr/day	VOC	0.08	0.48	0.02	
	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
5 Units	CO	0.3	9	0.35	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.055	1.95	0.08	
	NOx	0.87	26.1	1.02	
	SOx	0.67	20.1	0.78	
	PM10	0.05	1.5	0.06	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
0 Units	CO	1.257	0	0.00	AP-42, Table II-7.1
6 hr/day	VOC	0.282	0	0.00	
	NOx	3.84	0	0.00	
	SOx	0.463	0	0.00	
	PM10	0.406	0	0.00	

Bituminous Paver	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
5 Units	CO	0.675	20.25	0.79	AP-42, Table II-7.1
6 hr/day	VOC	0.183	5.49	0.21	
	NOx	1.691	50.73	1.98	
	SOx	0.143	4.29	0.17	
	PM10	0.139	4.17	0.16	

RWMP Phases 1-5			
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	5		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	9.40	0.37	

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
RWMP Phases 1-5				
336.50	89.20	198.90	32.20	24.30

Emissions from Construction Worker Commutes

RWMP Phases 1-5

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	78	7.078
CO	7.32	40	78	50.305
VOC	0.69	40	78	4.742
PM10	0.06	40	78	0.412

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	0	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-6

Regional Water Management Plan - Philadelphia Regional Pipeline Construction
Calculation Of Construction Emissions

Philadelphia Regional Pipeline

Equipment	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Backhoe					AP-42, Table II-7.1
1 Units	CO	3.59	21.54	0.84	
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Crane, 5-ton					SCAQMD CEQA Handbook, Table A9-8-A
2 unit	CO	0.24	2.88	0.11	
6 hr/day	VOC	0.08	0.96	0.04	
	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	
2 Dump/1 Haul Truck					CARBE7EPSCF
3 unit	CO	0.41	7.38	0.29	
6 hr/day	VOC	0.071	1.278	0.05	
	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	
Paving Machine					Los Angeles Unified School District, 2002
1 Units	CO	0.421	0.842	0.03	
2 hr/day	VOC	0.06	0.12	0.00	
	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	
Compactor					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Roller/Vibrator					AP-42, Table II-7.1
1 Units	CO	0.304	1.824	0.07	
6 hr/day	VOC	0.083	0.498	0.02	
	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Pavement Cutter					AP-42, Table 3.3-1
1 Units	CO	0.43	2.58	0.10	
6 hr/day	VOC	0.16	0.96	0.04	
	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	
Grinder					SCAQMD CEQA Handbook, Table A9-8-A
1 unit	CO	0.675	4.05	0.16	
6 hr/day	VOC	0.15	0.9	0.04	
	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving		
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
Philadelphia Regional Pipeline				
50.70	7.30	53.10	3.30	4.10
SUMMARY BY OPERATION – TONS/QUARTER				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes
Philadelphia Regional Pipeline

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Appendix XX-7

Organics Management Plan - RP1 Enclosed ASP
Calculation Of Construction Emissions

RP1 Enclosed ASP

Dozer	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 Units	CO	1.257	15.084	0.59	AP-42, Table II-7.1
6 hr/day	VOC	0.282	3.384	0.13	
	NOx	3.84	46.08	1.80	
	SOx	0.463	5.556	0.22	
	PM10	0.406	4.872	0.19	

Dump/Haul Trucks	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 unit	CO	0.41	4.92	0.19	CARBE7EPSCF
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	

Water Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	

Grader	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.151	0.906	0.04	AP-42, Table II-7.1
6 hr/day	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	

Backhoe	Emission Factor (lbs/hr)		(# Units x hr/day x EF)		
1 Units	CO	3.59	21.54	0.84	AP-42, Table II-7.1
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	

Site Preparation/Earthwork Phase - Fugitive PM10 Emissions from Earthmoving.		Emission Rate (tons/qtr)	Emissions Factor Source
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	5		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	9.40	0.37	SCAQMD CEQA Handbook, Table A9-8

SUMMARY BY OPERATION – LB/DAY

CO	VOC	NOx	SOx	PM-10
RP1 ASP				
57.00	59.20	68.20	8.60	16.30

Emissions from Construction Worker Commutes
RP1 Enclosed ASP

Pollutant	Emission	Round	Number	Total
NOx	1.03	40	16	1.452
CO	7.32	40	16	10.319
VOC	0.69	40	16	0.973
PM10	0.06	40	16	0.085

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission	Surface	Clean-up	Total
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-8

Organics Management Plan - Dairy Digester Pilot Project
Calculation Of Construction Emissions

Dairy Digester Pilot Project			Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Front End Loader	Emission Factor (lbs/hr)				AP-42, Table II-7.1
1 Units	CO	0.572	3.432	0.13	
6 hr/day	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	

Dairy Digester Pilot Project - Fugitive PM10 Emissions from Earthmoving		Emission Rate (tons/qtr)	Emissions Factor Source
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	1		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	1.90	0.07	

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
Lagoon Digesters				
3.40	1.90	11.60	1.10	2.90

Emissions from Construction Worker Commutes
Lagoon Digesters

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	3	0.272
CO	7.32	40	3	1.935
VOC	0.69	40	3	0.182
PM10	0.06	40	3	0.016

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Appendix XX-9

Organics Management Plan - RP4 Inland Empire Regional Composting Facility
Calculation Of Construction Emissions

Inland Empire Regional Composting Facility

Equipment	Pollutant	Emission Factor (lbs/hr)	Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer 1 Units 6 hr/day	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader 1 Units 6 hr/day	CO	0.572	3.432	0.13	AP-42, Table II-7.1
	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks 2 unit 6 hr/day	CO	0.41	4.92	0.19	CARBE7EPSCF
	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck 1 unit 6 hr/day	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader 1 unit 6 hr/day	CO	0.151	0.906	0.04	AP-42, Table II-7.1
	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator 1 Units 6 hr/day	CO	0.011	0.066	0.00	SCAQMD CEQA Handbook, Table A9-8-B
	VOC	0.002	0.012	0.00	
	NOx	0.023	0.138	0.01	
	SOx	0.002	0.012	0.00	
	PM10	0.005	0.03	0.00	
Backhoe 1 Units 6 hr/day	CO	3.59	21.54	0.84	AP-42, Table II-7.1
	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Material Truck 2 unit 6 hr/day	CO	0.41	4.92	0.19	Assumed to be equivalent to haul trucks
	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	PM10	0.021	0.252	0.01	
Crane, 5-ton 1 unit 6 hr/day	CO	0.24	1.44	0.06	SCAQMD CEQA Handbook, Table A9-8-A
	VOC	0.08	0.48	0.02	
	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source Los Angeles Unified School District, 2002
1 Units	CO	0.3	1.8	0.07	
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source AP-42, Table II-7.1
1 Units	CO	1.257	7.542	0.29	
6 hr/day	VOC	0.282	1.692	0.07	
	NOx	3.84	23.04	0.90	
	SOx	0.463	2.778	0.11	
	PM10	0.406	2.436	0.10	

Inland Empire Regional Composting Facility			
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	4		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	0.29	

SUMMARY BY OPERATION -- LB/DAY				
CO	VOC	NOx	SOx	PM-10
Inland Empire Regional Composting Facility				
70.10	61.80	69.80	10.00	13.60

Emissions from Construction Worker Commutes
Inland Empire Regional Composting Facility

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	30	2.722
CO	7.32	40	30	19.348
VOC	0.69	40	30	1.824
PM10	0.06	40	30	0.159

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-10

Organics Management Master Plan - CIM Compost Facility Construction
Calculation Of Construction Emissions

CIM Compost Facility Construction

Equipment	Pollutant	Emission Factor (lbs/hr)	Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer 1 Units 6 hr/day	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader 1 Units 6 hr/day	CO	0.572	3.432	0.13	AP-42, Table II-7.1
	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks 2 unit 6 hr/day	CO	0.41	4.92	0.19	CARBE7EPSCF
	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck 1 unit 6 hr/day	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader 1 unit 6 hr/day	CO	0.151	0.906	0.04	AP-42, Table II-7.1
	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator 1 Units 6 hr/day	CO	0.011	0.066	0.00	SCAQMD CEQA Handbook, Table A9-8-B
	VOC	0.002	0.012	0.00	
	NOx	0.023	0.138	0.01	
	SOx	0.002	0.012	0.00	
	PM10	0.005	0.03	0.00	
Backhoe 1 Units 6 hr/day	CO	3.59	21.54	0.84	AP-42, Table II-7.1
	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Material Truck 1 unit 6 hr/day	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	PM10	0.021	0.126	0.00	
Crane, 5-ton 1 unit 6 hr/day	CO	0.24	1.44	0.06	SCAQMD CEQA Handbook, Table A9-8-A
	VOC	0.08	0.48	0.02	
	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.3	1.8	0.07	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	1.257	7.542	0.29	AP-42, Table II-7.1
6 hr/day	VOC	0.282	1.692	0.07	
	NOx	3.84	23.04	0.90	
	SOx	0.463	2.778	0.11	
	PM10	0.406	2.436	0.10	

CIM Compost Facility Construction PM10 Emissions from Earthmoving			
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	4		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	0.29	

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM10
CIM Compost Facility Construction				
58.00	60.50	67.10	9.80	13.50

Emissions from Construction Worker Commutes
CIM Compost Facility Construction

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	15	1.361
CO	7.32	40	15	9.674
VOC	0.69	40	15	0.912
PM10	0.06	40	15	0.079

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-11

Organics Management Master Plan - High Tech Manure Facility Construction
Calculation Of Construction Emissions

High Tech Manure Facility Construction

Equipment	Pollutant	Emission Factor (lbs/hr)	Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Dozer	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
1 Units	VOC	0.057	0.342	0.01	
6 hr/day	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader	CO	0.572	3.432	0.13	AP-42, Table II-7.1
1 Units	VOC	0.291	1.746	0.07	
6 hr/day	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks	CO	0.41	4.92	0.19	CARBE7EPSCF
2 unit	VOC	0.071	0.852	0.03	
6 hr/day	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
1 unit	VOC	0.071	0.426	0.02	
6 hr/day	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader	CO	0.151	0.906	0.04	AP-42, Table II-7.1
1 unit	VOC	0.052	0.312	0.01	
6 hr/day	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator	CO	0.011	0	0.00	SCAQMD CEQA Handbook, Table A9-8-B
0 Units	VOC	0.002	0	0.00	
6 hr/day	NOx	0.023	0	0.00	
	SOx	0.002	0	0.00	
	PM10	0.005	0	0.00	
Backhoe	CO	3.59	21.54	0.84	AP-42, Table II-7.1
1 Units	VOC	0.218	1.308	0.05	
6 hr/day	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Material Truck	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
1 unit	VOC	0.071	0.426	0.02	
6 hr/day	NOx	0.226	1.356	0.05	
	PM10	0.021	0.126	0.00	
Crane, 5-ton	CO	0.24	1.44	0.06	SCAQMD CEQA Handbook, Table A9-8-A
1 unit	VOC	0.08	0.48	0.02	
6 hr/day	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					Los Angeles Unified School District, 2002
1 Units	CO	0.3	1.8	0.07	
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
					AP-42, Table II-7.1
2 Units	CO	1.257	15.084	0.59	
6 hr/day	VOC	0.282	3.384	0.13	
	NOx	3.84	46.08	1.80	
	SOx	0.463	5.556	0.22	
	PM10	0.406	4.872	0.19	

High Tech Manure Facility Construction PM10 Emissions from Earthmoving			
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-9
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	4		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	0.29	

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
High Tech Manure Facility Construction				
68.70	62.50	90.40	12.60	16.00

Emissions from Construction Worker Commutes
High Tech Manure Facility Construction

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	20	1.815
CO	7.32	40	20	12.899
VOC	0.69	40	20	1.216
PM10	0.06	40	20	0.106

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-B.

Appendix XX-12

Organics Management Master Plan - Advanced Technology Manure Pyrolysis Process Facility Construction
Calculation Of Construction Emissions

Advanced Technology Manure Pyrolysis Process Facility Construction					
Dozer	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.287	1.722	0.07	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.057	0.342	0.01	
	NOx	1.033	6.198	0.24	
	SOx	0.115	0.69	0.03	
	PM10	0.057	0.342	0.01	
Front End Loader	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.572	3.432	0.13	AP-42, Table II-7.1
6 hr/day	VOC	0.291	1.746	0.07	
	NOx	1.89	11.34	0.44	
	SOx	0.182	1.092	0.04	
	PM10	0.172	1.032	0.04	
Dump/Haul Trucks	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 unit	CO	0.41	4.92	0.19	CARBE7EPSCF
6 hr/day	VOC	0.071	0.852	0.03	
	NOx	0.226	2.712	0.11	
	SOx	0	0	0.00	
	PM10	0.021	0.252	0.01	
Water Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	SOx	0	0	0.00	
	PM10	0.021	0.126	0.00	
Grader	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.151	0.906	0.04	AP-42, Table II-7.1
6 hr/day	VOC	0.052	0.312	0.01	
	NOx	0.713	4.278	0.17	
	SOx	0.086	0.516	0.02	
	PM10	0.061	0.366	0.01	
Excavator	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
0 Units	CO	0.011	0	0.00	SCAQMD CEQA Handbook, Table A9-8-B
6 hr/day	VOC	0.002	0	0.00	
	NOx	0.023	0	0.00	
	SOx	0.002	0	0.00	
	PM10	0.005	0	0.00	
Backhoe	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	3.59	21.54	0.84	AP-42, Table II-7.1
6 hr/day	VOC	0.218	1.308	0.05	
	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Material Truck	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.41	2.46	0.10	Assumed to be equivalent to haul trucks
6 hr/day	VOC	0.071	0.426	0.02	
	NOx	0.226	1.356	0.05	
	PM10	0.021	0.126	0.00	
Crane, 5-ton	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 unit	CO	0.24	1.44	0.06	SCAQMD CEQA Handbook, Table A9-8-A
6 hr/day	VOC	0.08	0.48	0.02	
	NOx	0.41	2.46	0.10	
	SOx	0.01	0.06	0.00	
	PM10	0.04	0.24	0.01	

Roller/Compactor	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
1 Units	CO	0.3	1.8	0.07	Los Angeles Unified School District, 2002
6 hr/day	VOC	0.065	0.39	0.02	
	NOx	0.87	5.22	0.20	
	SOx	0.67	4.02	0.16	
	PM10	0.05	0.3	0.01	

Scraper	Emission Factor (lbs/hr)		Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
2 Units	CO	1.257	15.084	0.59	AP-42, Table II-7.1
6 hr/day	VOC	0.282	3.384	0.13	
	NOx	3.84	46.08	1.80	
	SOx	0.463	5.556	0.22	
	PM10	0.406	4.872	0.19	

Advanced Technology Manure Pyrolysis Process Facility			
Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313		SCAQMD CEQA Handbook, Table A9-8
s = silt content (%)	7		
M = moisture content (%)	15		
n= no. units	4		
H= hours/day	6		
Emission Rate (lb/day) = (# Units * hr/day * EF) =	7.50	0.29	

SUMMARY BY OPERATION – LB/DAY				
CO	VOC	NOx	SOx	PM-10
Manure Pyrolysis Facility Construction				
68.70	62.50	90.40	12.60	16.00

Emissions from Construction Worker Commutes
Manure Pyrolysis Facility Construction

Pollutant	Emission Factor (grams/mile)	Round TripTrip Length (Miles)	Number of Workers	Total Emissions (lbs/day)
NOx	1.03	40	20	1.815
CO	7.32	40	20	12.899
VOC	0.69	40	20	1.216
PM10	0.06	40	20	0.106

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Daily Coatings Application Emissions

Pollutant	Emission Factor (lbs/1000 SF)	Surface Area Coated (SF)	Clean-up Emisson Rate*	Total Emissions (lbs/day)
VOC	93.77	500	10%*	51.60

* clean-up rate assumed at 10% of application emissions

1. Emissions factors are from SCAQMD CEQA Handbook Table A9-13-8.

Appendix XX-13

Organics Management Master Plan - Convey Manure by Sewer Pipeline Construction
Calculation Of Construction Emissions

Convey Manure by Sewer Pipeline

Equipment	Pollutant	Emission Factor (lbs/hr)	Emission Rate (lb/day) (# Units x hr/day x EF)	Emission Rate (tons/qtr)	Emissions Factor Source
Backhoe	CO	3.59	21.54	0.84	AP-42, Table II-7.1
1 Units	VOC	0.218	1.308	0.05	
6 hr/day	NOx	1.269	7.614	0.30	
	SOx	0.09	0.54	0.02	
	PM10	0.136	0.816	0.03	
Crane, 5-ton	CO	0.24	2.88	0.11	SCAQMD CEQA Handbook, Table A9-8-A
2 unit	VOC	0.08	0.96	0.04	
6 hr/day	NOx	0.41	4.92	0.19	
	SOx	0.01	0.12	0.00	
	PM10	0.04	0.48	0.02	
2 Dump/1 Haul Truck	CO	0.41	7.38	0.29	CARBE7EPSCF
3 unit	VOC	0.071	1.278	0.05	
6 hr/day	NOx	0.226	4.068	0.16	
	SOx	0	0	0.00	
	PM10	0.021	0.378	0.01	
Paving Machine	CO	0.421	0.842	0.03	Los Angeles Unified School District, 2002
1 Units	VOC	0.06	0.12	0.00	
2 hr/day	NOx	1.384	2.768	0.11	
	SOx	0.12	0.24	0.01	
	PM10	0.06	0.12	0.00	
Compactor	CO	0.304	1.824	0.07	AP-42, Table II-7.1
1 Units	VOC	0.083	0.498	0.02	
6 hr/day	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Roller/Vibrator	CO	0.304	1.824	0.07	AP-42, Table II-7.1
1 Units	VOC	0.083	0.498	0.02	
6 hr/day	NOx	0.862	5.172	0.20	
	SOx	0.067	0.402	0.02	
	PM10	0.05	0.3	0.01	
Pavement Cutter	CO	0.43	2.58	0.10	AP-42, Table 3.3-1
1 Units	VOC	0.16	0.96	0.04	
6 hr/day	NOx	2.01	12.06	0.47	
	SOx	0.13	0.78	0.03	
	PM10	0.14	0.84	0.03	
Grinder	CO	0.675	4.05	0.16	SCAQMD CEQA Handbook, Table A9-8-A
1 unit	VOC	0.15	0.9	0.04	
6 hr/day	NOx	1.7	10.2	0.40	
	SOx	0.143	0.858	0.03	
	PM10	0.14	0.84	0.03	

System Construction - Fugitive PM10 Emissions from Earthmoving

Emission Factor (lb/hr) = 0.75 x (s)^1.5 x (M)^-1.4 =	0.313	
s = silt content (%)	7	
M = moisture content (%)	15	
n= no. units	1	
H= hours/day	6	
Emission Rate lb/day = (# Units x hr/day x EF) =	1.90	0.07

SUMMARY BY OPERATION -- LB/DAY				
CO	VOC	NOx	SOx	PM-10
Convey Manure by Sewer Pipeline				
50.70	7.30	53.10	3.30	4.10
SUMMARY BY OPERATION -- TONS/QUARTER				
1.98	0.28	2.07	0.13	0.16

Emissions from Construction Worker Commutes
Convey Manure by Sewer Pipeline

Pollutant	Emission Factor (grams/mile)	Trip Length (Miles)	Number of Trips	Total Emisions (lbs/day)
NOx	1.03	40	12	1.089
CO	7.32	40	12	7.739
VOC	0.69	40	12	0.730
PM10	0.06	40	12	0.063

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Appendix XX-14
Motor Vehicle Emission Calculation Spreadsheet

Employee Commuting Trips
RP1 Year 2010

Pollutant	Emission Factor (grams/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.86	203	0.38
CO	4.24	203	1.90
VOC	0.46	203	0.21
PM10	0.05	203	0.02

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Truck Delivery Trips
RP1 Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	80	2.72
CO	0.041	80	3.28
VOC	0.01	80	0.80
SOx	0	80	0.00
PM10	0.00698	80	0.56

1. Emission Factors are from CARB E7EPSCF

Employee Commuting Trips
RP4 Year 2010

Pollutant	Emission Factor (grams/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.86	451	0.85
CO	4.24	451	4.21
VOC	0.46	451	0.46
PM10	0.05	451	0.05

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Truck Delivery Trips
RP4 Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (Increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	60	2.04
CO	0.041	60	2.46
VOC	0.01	60	0.60
SOx	0	60	0.00
PM10	0.00698	60	0.42

1. Emission Factors are from CARB E7EPSCF

Employee Commuting Trips
Satellite Plant Year 2010

Pollutant	Emission Factor (grams/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.86	930	1.76
CO	4.24	930	8.69
VOC	0.46	930	0.94
PM10	0.05	930	0.10

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Truck Delivery Trips
Satellite Plant Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (Increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	60	2.04
CO	0.041	60	2.46
VOC	0.01	60	0.60
SOx	0	60	0.00
PM10	0.00698	60	0.42

1. Emission Factors are from CARB E7EPSCF

Truck Hauling Trips
RP1 Enclosed ASP Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	20	0.68
CO	0.041	20	0.82
VOC	0.01	20	0.20
SOx	0	20	0.00
PM10	0.00698	20	0.14

1. Emission Factors are from CARB E7EPSCF

Truck Hauling Trips
Dairy Digester Pilot Project (Lagoon Digester) Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	80	2.72
CO	0.041	80	3.28
VOC	0.01	80	0.80
SOx	0	80	0.00
PM10	0.00698	80	0.56

1. Emission Factors are from CARB E7EPSCF

Truck Hauling Trips
Inland Empire Regional Composting Facility Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	1220	41.48
CO	0.041	1220	50.02
VOC	0.01	1220	12.20
SOx	0	1220	0.00
PM10	0.00698	1220	8.52

1. Emission Factors are from CARB E7EPSCF

Truck Hauling Trips
High Tech Manure Facility Year 2010

Pollutant	Emission Factor (lbs/mile)	Miles Travelled (Increase only)	Total Emissions Increase (lbs/day)
NOx	0.034	460	15.64
CO	0.041	460	18.86
VOC	0.01	460	4.60
SOx	0	460	0.00
PM10	0.00698	460	3.21

1. Emission Factors are from CARB E7EPSCF

Employee Commuting Trips
High Tech Manure Facility Year 2010

Pollutant	Emission Factor (grams/mile)	Miles Travelled (increase only)	Total Emissions Increase (lbs/day)
NOx	0.86	200	0.38
CO	4.24	200	1.87
VOC	0.46	200	0.20
PM10	0.05	200	0.02

1. Emission Factors include complete trip cycle.
2. Emission Factors are for 2002 and are from EMFAC7F1.1
3. Emission Factor is for average commute speed of 30 mph.

Appendix XX-15
Process Unit Emission Calculation Spreadsheet

Process Unit VOC Emissions
RP1 Modernization Phases I and II

Source	Emission Factor (lbs/year/ mgd)	Flow Increase (mgd)	Total Emissions Increase (lbs/day)
Aeration Basin	27	44	3.25
Secondary Clarifiers	12	44	1.45
Total			4.70

Notes:
1. Emission factors from SCAQMD Joint Emissions Inventory Program, Table 1
2. Reflects conversion from annual to daily rates based on 365 days per year.

Process Unit VOC Emissions
RP4 Liquid Treatment Expansion

Source	Emission Factor (lbs/year/ mgd)	Flow Increase (mgd)	Total Emissions Increase (lbs/day)
Headworks	86	7	1.65
Grit Removal	7	7	0.13
Aeration Basin	27	7	0.52
Primary Clarifiers	37	7	0.71
Secondary Clarifiers	12	7	0.23
Total			3.24

Notes:
1. Emission factors from SCAQMD Joint Emissions Inventory Program, Table 1
2. Headworks, grit removal and primary clarifier emissions reflect 50% reduction for covers and treatment of exhaust through biofilters. Reflects conversion from annual to daily rates based on 365 days per year.

Process Unit VOC Emissions
New Satellite Plant

Source	Emission Factor (lbs/year/ mgd)	Flow Increase (mgd)	Total Emissions Increase (lbs/day)
Headworks	86	5	1.18
Grit Removal	7	5	0.10
Aeration Basin	27	5	0.37
Primary Clarifiers	37	5	0.51
Secondary Clarifiers	12	5	0.16
Total			2.32

Notes:
1. Emission factors from SCAQMD Joint Emissions Inventory Program, Table 1
2. Headworks, grit removal and primary clarifier emissions reflect 50% reduction for covers and treatment of exhaust through biofilters. Reflects conversion from annual to daily rates based on 365 days per year.

Appendix XX-16
Electricity Generation Emission Calculation Spreadsheet

Pollutant	Emissions (lb/d)
CO	37.80
ROC	1.89
NOX	217.34
SOX	22.68
PM10	7.56

DATA:
Yearly Consumption in Mwh
68,980.62

	CO	ROC	NOX	SOX	PM10
EMISSIONS FACTORS*:	0.2	0.01	1.15	0.12	0.04

*Source - SCAQMD CEQA Handbook Table A-9-11

1.6 Odor Control

1.6.1 Biofilter Design

The odor control system for the RP-1 composting facility is a biofilter. In addition to the composting facility the biofilter will provide odor control for the nearby Dewatering Building. Biofiltration is the most commonly used method of odor treatment at composting facilities because of the low cost and the low required daily attention. The most significant odorous compounds identified at composting facilities include sulfur compounds, ammonia and amine compounds, acetone, phenol, and toluene (Henz, et al., 1992; Miller, 1992).

Biofilters are constructed of three main layers:

- Plenum layer
- Media layer
- Cover layer

The plenum layer distributes the air going into the biofilter and collects the leachate from the biofilter. Biofilters generally cover relatively large areas. Therefore, it is vital to insure that the air to be treated is distributed evenly throughout the entire biofilter. Biofilters also require irrigation to function properly. This irrigation leads to leachate that may contain some mineral salts. This leachate must be treated through a wastewater treatment plant. The plenum serves both of these functions.

The plenum layer is generally constructed of washed gravel with air distribution pipes running through it. The pipes carry the air to be treated to the biofilter. These pipes are perforated with a progressive hole pattern than ensures even air distribution throughout the plenum. A liner at the bottom of the plenum traps the leachate, and drains return it to the headworks of the wastewater treatment plant. In this case, the biofilter is located in a pit, thus requiring a lift pump to send the leachate to the headworks.

The media layer is the site of the actual treatment of the air stream.

The media can consist of compost, sand, shredded bark, peat, and other materials. As odorous or contaminated gases are passed through the media, two basic removal mechanisms occur simultaneously: absorption/adsorption and biooxidation. As odorous gases are passed through the biofilter, they are adsorbed onto the surfaces of the biofilter medium particles and/or absorbed into the moist surface layer (water film) surrounding the particles. Microorganisms, principally bacteria, actinomycetes, and fungi, are attached to the filtering medium. This medium serves as a nutrient supply and/or organic substrate for the microorganisms, thereby supplementing those nutrients that may or may not be present in the gas stream to be treated (Ottengraf, 1986). Microbes degrade organic compounds, and inorganic constituents of odorous gases are oxidized. When a biofilter system performs properly, carbon dioxide, water, and mineral salts are formed. The rate of microbial degradation of sorbed odorous compounds must equal or exceed the absorption/adsorption rate in order to maximize odor removal rates (Williams, 1993).
The cover layer serves two purposes:

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- Retain moisture
- Prevent weed growth

Since biofiltration relies on adsorption of compounds into a moisture film on the surface of particles, it is vital that the proper moisture level be maintained in the biofilter. As noted earlier, a humidification system and surface irrigation system have been included to this end. The cover layer is a minimum 6-inch layer of ground wood or wood chips. This layer shields the media from direct sunlight, thus helping to prevent drying.

The cover layer also inhibits weed growth but will not completely prevent it. Root structures from weeds provide pathways for air to short-circuit the biofilter, thus avoiding treatment. Continuing maintenance of the cover layer is vital to avoid this problem.

There are several key factors to the design and operation of a biofilter:

- Media selection
- Retention time of the air in the biofilter
- Temperature of the media
- pH of the media
- Pressure drop through the media
- Maintenance of the surface

Organic and inorganic media have been used in biofilters. Organic media requires less than half the speed needed for inorganic media, with the tradeoff being the necessity of replacing the media periodically. Organic media biofilters are also the most common in use at composting facilities and have a proven track record for these types of facilities. At the RP-1 composting facility, space is very limited, and an organic media biofilter will be used.

Biofilters function best with a minimum of 40 to 45 seconds of retention time. The biofilter for the RP-1 composting facility will have a retention time of 60 seconds under the normal loading of 10 air changes per hour in the composting/curing area and a minimum of 12 air changes per hour from the room where the belt filter presses are located in the dewatering building (the entire second floor). The retention time in the biofilter can be reduced to 45 seconds under three conditions:

- When a portion of the biofilter is taken out of service for routine media replacement
- If future increased biosolids loading makes it desirable to increase the airflow to 12 air changes per hour in the composting/curing area
- If additional air removal is required from the dewatering building

Experience has shown that biofilter media has a life of about three to five years. Thus, routine media replacement is to be expected. The air distribution layer of the plenum will be designed with dividers so that section of the biofilter can be taken out of service for maintenance. Valves located on the pipes leading into the distribution plenum layer will allow the air to be shut off to the section to be worked on. With proper management, the odor control system can continue in operation with 45 seconds of retention time and good treatment during the maintenance work.

Should it become necessary due to increased biosolids or grass loading, the air changes in the building can be increased to 12 air changes per hour by modifying or replacing the blowers feeding air into the biofilter. If this change is made, the biofilter will still provide the minimum 45-second retention time required for good odor removal.

Biofilters function best at temperatures at or below 104°F. The compost process exhaust may be over 130°F. With the addition of dilution air from inside the composting/curing area, the temperature should be controllable in the desired range. In-duct humidification will also help to reduce temperatures. Should the biosolids loading increase to the facility it may be necessary to add a wet scrubber to further cool the air before it enters the biofilter.

An approximately neutral pH provides generally optimum odor removal conditions in biofilters. Biofilters treating air from composting facilities historically do not experience swings in the pH of the media. Thus, no system for dealing with pH fluctuations is provided.

As noted above, the media is an organic media and will have to periodically be replaced. Since the media is organic, it will slowly decompose. This can be seen in a gradual increase in back pressure of the air system and a collapse of the media. When the back pressure increases by about 3 inches w.c., it is likely time to replace the media.

As noted above in discussions of the cover layer, weed growth is detrimental to biofilter performance. Routine inspection and chemical weed treatment will keep the surface in good operating condition.

1.6.2 Compost Facility Odor Dispersion Model Analysis

A computerized atmospheric dispersion model has been generated to predict the likely odor impact on the areas surrounding the proposed composting facility. These results are for the composting facility only and do not take into consideration any potential odor impacts from the wastewater treatment plant.

The composting facility will be completely enclosed with odor control provided in the form of a biofilter. The entire facility will be maintained under a slight negative pressure with all ventilation and process exhaust being treated through the biofilter. In addition the dewatering building will also be kept at a slight negative pressure and all of this ventilation air will be treated through this same biofilter. The biofilter will be the only source of odor emissions for the composting facility.

The computer model used in predicting off-site odor impacts is the United States Environmental Protection Agency-recommended ISCST3 model. The model used local topography and meteorological data collected from the Pomona, California weather station. The South Coast Air Quality Management District provided meteorological data from year 1981 and requested that it be used. Odor emissions sampled from similar composting operations' biofilters were also used in the model.

The results of the model are plotted as isopleth lines indicating the highest odor concentrations that may be experienced along the isopleth during any 10-minute interval over the course of a year. In addition, a table indicating the highest concentration and the number of times a nuisance concentration may be experienced for individual receptors is provided. The location of the receptors is shown on the isopleth map. For the purposes of this model, an odor concentration of 7 dilutions to threshold or greater is considered a nuisance condition.

Odor is measured as a concentration dilution to threshold. The dilution to threshold indicates the number of times a sample of odorous air is diluted with fresh air when 50 percent of the members of an odor panel can detect the presence of an odor. An odor panel consists of 10 persons who are provided air samples by the forced-choice olfactometer method in accordance with ASTM E-679. The higher the dilution to threshold, the stronger the odor.

The major input assumptions for the model were:

- The sizing and location of the biofilter
- The odor emissions chosen for the biofilter

The biofilter is located in an expanded rotary roadway area between the proposed composting facility and the existing dewatering building. Based on testing data of existing biofilters at composting and other types of facilities, an odor emission concentration of 25 dilutions to threshold has been used for the model.

Table 1-5 shows the emission data used in the model. The 25 dilutions to threshold has been converted to an emission rate in odor units per unit time.

Table 1-5
Emissions Data

Process or Location	Odor Generation Rate (ou/sec-m^2)	Total Contributing Area (m^2)	Odor Emission (ou/sec)
Biofilter	0.508	1,795	912

The model examined impacts on a 500-meter-radius area surrounding the proposed facility. In addition, six individual receptor locations were examined for odor impacts. Figure 1-5 is the isopleth map of the highest expected odor impacts to the surrounding area over a 10-minute duration. The analysis is based on the 1981 meteorological data.

As noted, an odor concentration of 7 dilutions to threshold is assumed to represent an odor nuisance condition. Generally a nuisance odor is considered to be sufficiently strong to cause offense. Odors less than this level may be detectable but not a nuisance. What will constitute a nuisance in the area will depend on who and what is in that area. A more odorous source in the area could easily overwhelm a 7 dilutions to threshold odor concentration from the composting facility. Only a few states currently have specific odor concentration guidelines defining the nuisance level dilution to threshold. Generally, these range from 5 to 10 dilutions to threshold.

Isopleth lines on Figure 1-5 indicate the maximum distance that a particular odor concentration may be experienced. Figure 1-5 indicates that odors levels from 7 to 11 dilutions to threshold may occasionally extend to 100 to 150 meters to the west of the facility boundary. This area consists of rough and fairway portions of the adjacent golf course.

Individual specific locations (receptors) were also examined with the model to see the specific odor impact at these locations. For example Receptors 5 and 6 shown on Figure 1-5 are the nearest greens on the golf course to the proposed facility. The number in parenthesis at the receptor location indicates the number of expected 10-minute nuisance conditions would be experienced in a year. As can be seen on Figure 1-5 no impacts are expected at any of the nearest receptor locations. Table 1-6 lists the receptors and the maximum odor concentration from the composting facility that each could expect to see in the course of a year.

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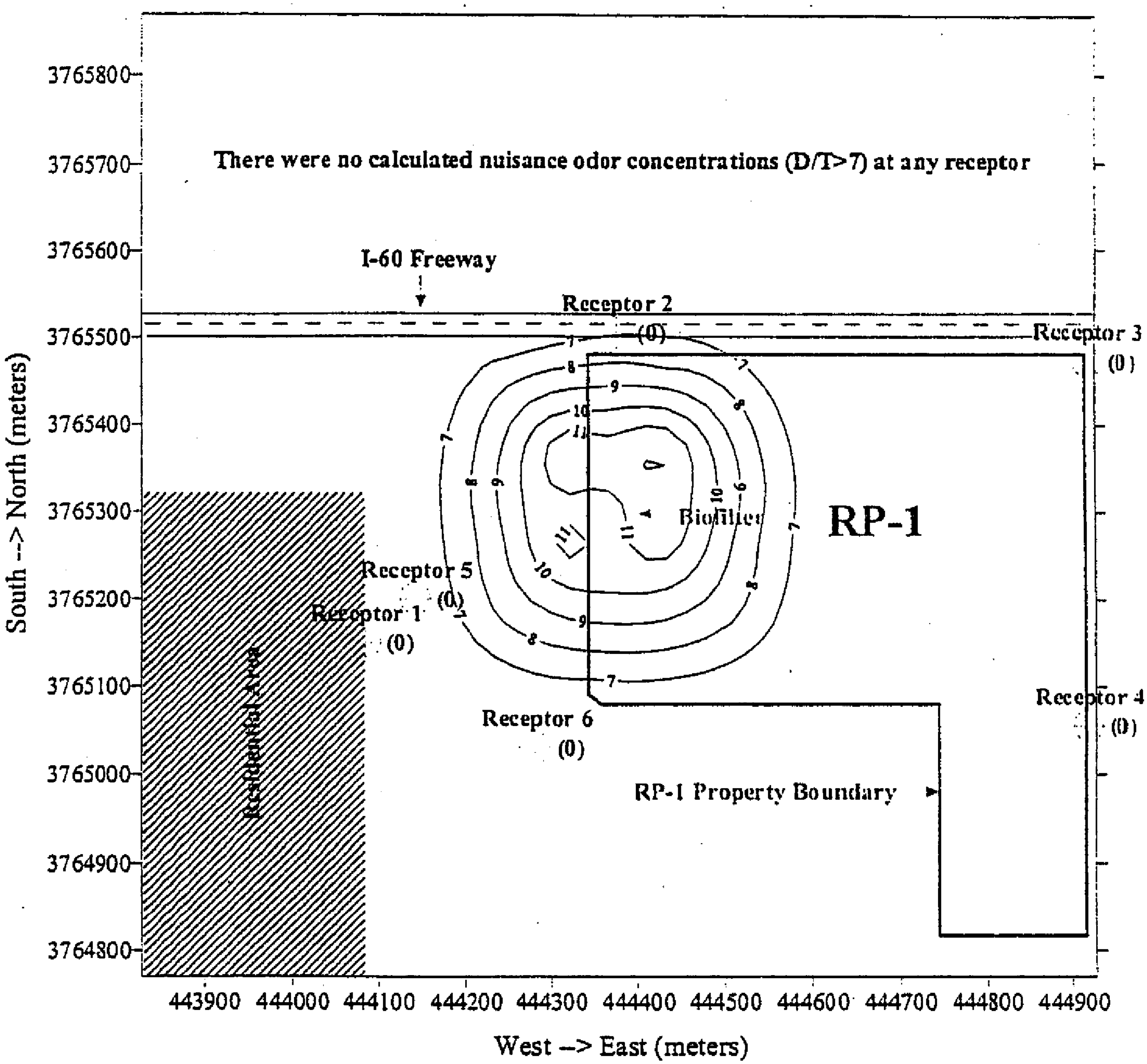
Table 1-6

Impacts at Specific Receptors Based on the 1981 Meteorological Data

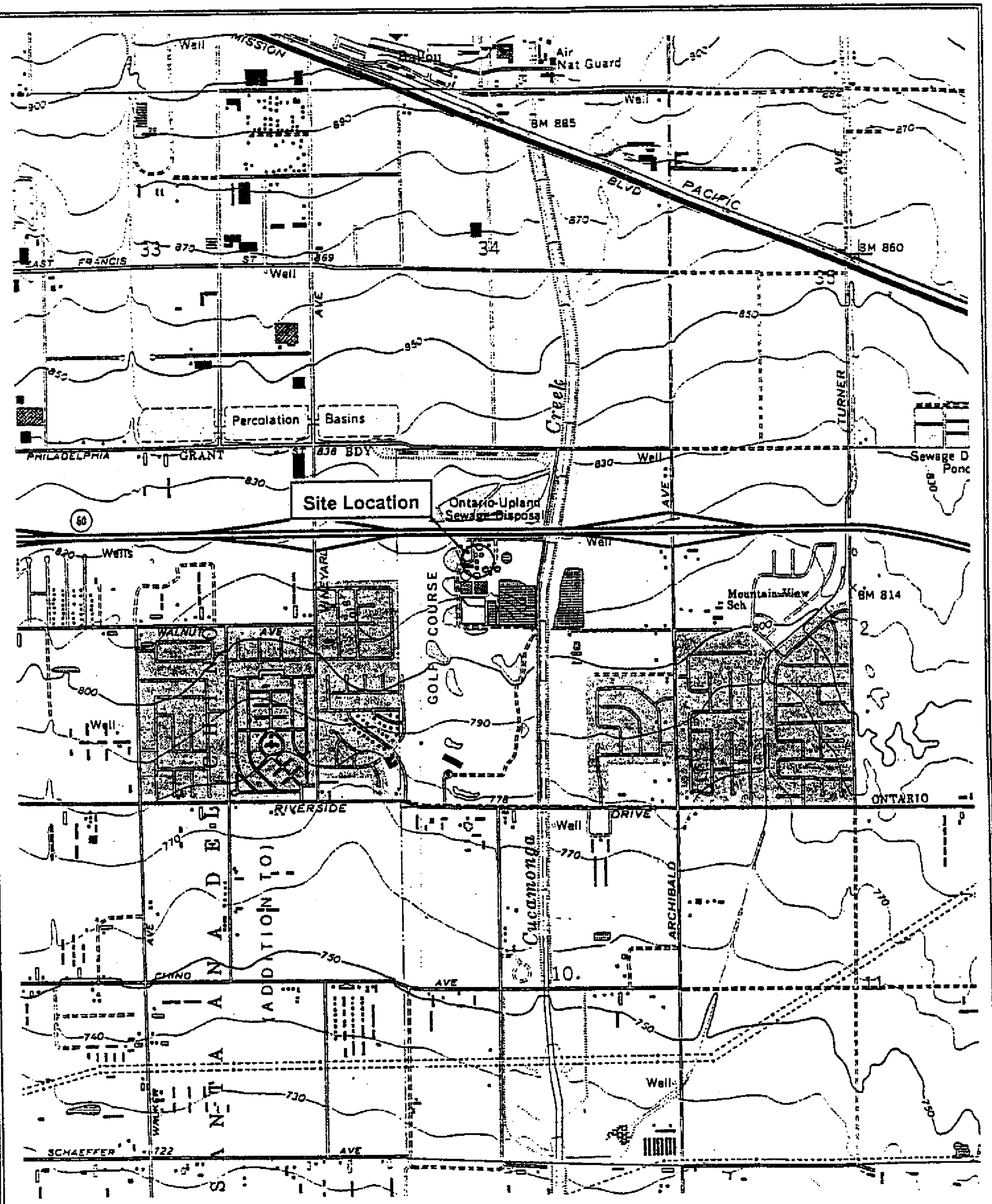
Receptor Number	Receptor Location	Highest Expected Odor Concentration (D/T)	Number of Impacts at 7 D/T or Greater
1	Residential Area	4.6	0
2	Interstate 60	6.8	0
3	Police Station	2.3	0
4	Movie Theaters	2.2	0
5	Golf Course Green – West of Property	6.0	0
6	Golf Course Green – Southwest of Property	5.3	0

There are several receptors in the immediate vicinity of the proposed facility. However, the six closest receptors were selected for the model.

IEUA RP-1 Composting Facility
Highest 10 Minute Odor Concentrations



Isopleths are labeled with the maximum odor concentrations projected to occur over a one-year period. The six discrete receptors are labeled with the number of odor impacts (D/T >7) that are projected to occur at those points.



PROJECT LOCATION

Source: USGS - Quasti Quadrangle, California
7.5 Minute Series (topographic)

TOM DODSON & ASSOCIATES
Environmental Consultants

FIGURE 1

TETRA TECH, INC.
Infrastructure Services Group

MEMORANDUM

TO: Tom Dodson

FROM: Charles Egigian-Nichols

SUBJECT: CEQA Initial Study Information

DATE: September 26, 2001

Per our coordinating meeting on CEQA compliance for the RP-1 Pilot/Demonstration Composting Facility, we are supplying the following information. If you need any additional information, feel free to contact us at anytime.

- The building type/construction will be concrete tilt-up.
- The facility will be operated 5-days per week, Monday thru Friday using a single shift with a crew of 2-persons.
- We recommend the following Composting Process paragraphs:

"The Process Flow Diagram for the demonstration project is included as Figure _.

Two sources of feedstocks will be used in the composting process. The first is yard debris and wood waste (approximately 20,000 cubic yards per year) that will be combined with recycled yard waste used previously in the composting process. Small amounts of manure (approximately 1,200 cubic yards) will occasionally be added to the compost demonstration. These materials will be mixed with dewatered biosolids (approximately 12,500 cubic yards) from RP-1. The total amount of mixed material, including recycle, is about 40,280 cubic yards per year.

After mixing, the blended materials will be composted in an enclosed building for a minimum of 21-days. The composting piles will be aerated through a system of fans and air piping to maintain aerobic conditions and the desired pile temperatures. After passing through the compost piles, the air will be passed through biofilters that scrub the odor from the air.

After composting, the blend will be cured for an additional minimum 28-days inside the building. After curing, the material will be screened to create the finished product. The screening step allows larger wood chips to be removed and recycled in the composting process. A dust collection system will be installed to minimize dust during screening. The compost product will be loaded directly into a truck. About 300 cubic yards per year of material will be disposed of to landfill. About 16,530 cubic yards per year of completed product will be created through this process. The finished product will be stored in the building for only 24-hours or less. Trucks that bring in feedstock will be used to remove finished products."

- Excavation of material will be only from onsite soils. Approximately 4,743 cubic yards of soil will be excavated and recompacted.
- The tilt-up concrete walls may be constructed on-site or may be imported to the site. The final determination of the method of construction will be supplied by the building contractor.
- The amount of electricity demand for the facility averages 306 kilowatts.

- The amount of recycled water consumed during the composting process is approximately 18,190 gallons per day. The amount of potable water consumption is expected to average 200 gallons per day.
- The overall ventilation and odor control strategy for the facility is detailed below:

All of the air in the facility will be collected and treated through the biofilter. The composting/curing area will have a minimum of 10 air changes per hour, which will include all of the process air from active composting and curing. Air from the receiving/screening area will provide the make-up air into the composting/curing area at a rate of 6 air changes per hour.

The screening operation will be a major source of dust. At many facilities, this operation takes place outdoors under a roof only. At the RP-1 facility, all operations will be indoors, including screening. Therefore, the dust generated during screening must be collected. Once collected, the dust can be added to the finished compost and removed from the site as product.

Hoods with enclosing plastic curtains will be placed over the screen deck and screen discharge points. A fan and ductwork will convey the dust to the removal devise. There are several removal mechanisms available. These include:

- Cyclones
- Bag houses
- Wet scrubbers
- Electrostatic precipitators

Cyclones and baghouses are the lowest cost and most common dust removal devices used at composting operations. The dust generated from screening compost has particle sizes of mostly 10 microns or less. In this size range, baghouses are the more effective of the two devices in removing dust. Therefore, a baghouse is recommended for use at the RP-1 facility.

VENTILATION AND BUILDING ENVIRONMENTAL ANALYSIS

4.1 – INTRODUCTION

The composting facility at the RP-1 wastewater treatment facility is designed to provide a safe and healthy environment for workers and visitors based on current standards. The primary strategy for providing this environment within the fully enclosed composting and processing facility is to:

- Operate the composting process and processing equipment in a manner that minimizes the release of undesirable substances into the building atmosphere.
- Provide ventilation, which supplies fresh air to the working areas and removes undesirable substances from the building for treatment.

- Provide focused air management for processes that tend to release greater quantities of undesirable substances. Physical barriers and dedicated ventilation and treatment systems will be used to limit the impact of these processes on other operating areas.

4.2 – DESIGN ISSUES AND CRITERIA

4.2.1 – Airborne Contaminants in the Composting Workplace

California Code of Regulations, Title 8, Section 5155 provides the standards for airborne contaminants in the workplace. Table 4-1 provides a list of airborne gases that have been measured at facilities that process biosolids, including composting facilities. The standards for these substances are also provided. Most of these contaminants are normally present in very low concentrations, but higher levels can be experienced under some circumstances.

Table 4-1. Permissible Exposure Limits (PEL)

Name	*Registry Number*	*Skin Effect*	*PEL*		*Short-term Exposure Limit*	
			ppm	*mg/M*^{3}	*ppm*	*mg/M*^{3}
Ammonia	7664417		25	18	35	27
Carbon disulfide	75150	yes	4	12	12	36
Diethylamine	109897	yes	5	15		
Dimethylamine	124403		5	9.2		
Ethanethiol	75081		0.5	1		
Ethylamine	75047	yes	5	9.2		
Hydrogen Sulfide	7783064		10	14	15	21
Methylamine	74895		5	6.4		
Methylethylketone	78933		200	590		
Methyl Mercaptan	74931		0.5	1		
Total Dust			10			
Respirable dust			5			
Wood dust				5		10
Triethylamine	121448	yes	1	4.1		

Trimethylamine	75503		5	12		

In addition, the American Conference of Government Industrial Hygienists, in 1998 TLVs and BEIs, indicated a notice of change for additional compounds that have been detected in association with biosolids management activities.

Table 4-2. ACGIH Proposed Permissible Exposure Limits (PEL)

Name	*Registry Number*	*Skin Effect*	*PEL*		*Short-term Exposure Limit*	
			ppm	*mg/M³*	*ppm*	*mg/M³*
Dimethyl disulfide			5			
Dimethyl sulfide			25			
Hydrogen Sulfide	7783064		5			
Ethanethiol	75081		10			
Methyl Mercaptan	74931		5			
Wood dust			5			

4.2.2 – Airborne Particulates in the Composting Workplace

Airborne particulates at composting facilities can be an irritant if present in high enough concentrations. Particulates can be classified as aerospores (biologically active) or organic and inorganic dusts. The following sections present information about the most commonly evaluated components of airborne particulates at composting facilities and their potential impact on worker health.

4.2.2.1 – Total and Respirable Dust

Airborne particulates are common in many work environments, and permissible levels for total and respirable dust have been set by State and Federal regulation. State standards for dust are provided in Table 4-2 above. The Federal OSHA standards for airborne particulate matter are 15 mg/m^3 for total dust and 5 mg/m^3 for respirable dust. These are average PELs over an eight-hour work shift. These are Federal standards. The State set a total dust level of 10 mg/m^3, which applies to this compost facility.

The airborne particulates in a composting facility are classified as organic dust. Organic dusts, as defined by the Committee on Organic Dust of the International Commission on Occupational Health, are dusts of vegetable, animal, or microbial origin (Rylander and Jacobs, 1994). The health effects caused by the inhalation of organic dusts can vary considerably and are dependent on dust origin, particle size, and overall health condition of the exposed worker. Specific components of organic dust at composting facilities that can cause health problems include *Aspergillus fumigatus,* bacterial endotoxins, proteases, fungal beta-1-3 glucans, mycotoxins, pollens, and various proteins (Millner, et al., 1994).

The health effects from organic dust exposure include inflammation, allergy, and infection. Inflammation effects resulting from organic dust exposure, which can be mild or very severe, are summarized as follows:

- *Mucous Membrane Irritation (MMI).* MMI is characterized by irritation in the eyes, nose, and throat. It can develop after several weeks of exposure to low levels of organic dust and may lead to bronchioconstriction, a narrowing of the airways, and respiratory deficit.
- *Chronic Bronchitis.* Chronic bronchitis is characterized by excess mucous production, increase in mucous glands, and changes in the rheological properties of the mucous. It typically requires several years of exposure to relatively high levels of airborne organic dust.
- *Toxic Pneumonitis.* Toxic pneumonitis is characterized by fever, influenza-like symptoms, and fatigue, which are manifested within several hours after exposure. It is caused by exposure to very high concentrations of airborne organic dust over a short duration. If severe enough, the symptoms will be clinically recognizable as organic dust toxic syndrome (ODTS).

Allergy is the immunologic reaction that results from a low exposure to a material that sensitizes specialized cell systems. Antigenic materials in organic dust that may cause an allergic reaction include fungal beta-1-3 glucans, endotoxins, pollen, and various proteins. Asthma, a type of allergy, is characterized by an intense reaction after exposure to small levels of organic dust (or other causative agent). Skin problems have been identified by workers in agricultural activities and among persons in "sick buildings." Symptoms include rashes and redness of skin, particularly in the face and scalp (Rylander, 1994).

Exposure to airborne microbes can result in infection. However, only individuals who are immunocompromised or otherwise debilitated are typically affected. Several studies that examined the health of wastewater treatment plant workers indicated that there was no increased risk of infection from airborne microorganisms.

4.2.2.2 – Endotoxins

Endotoxins are non-living components of the cell wall of gram-negative bacteria. Gram-negative bacteria and their endotoxins are found in the soil, water, and in other living organisms throughout the world (Millner, et al., 1994). Organic dusts are a common source of airborne endotoxins (Olenchock, et al., 1990). Although they are not living and, therefore, do not grow and multiply in the body, endotoxins can trigger a response that may result in varying levels of respiratory distress. Reactions to high concentrations of endotoxins may include acute fever, chest tightness, coughing, shortness of breath, and wheezing. Long-term exposure may lead to decreased pulmonary function and chronic bronchitis.

The levels of gram-negative bacteria may be very high at composting facilities, and the movement of materials around a facility provides a means for widespread dispersion of dust and other bioaerosols. Some studies have shown elevated levels of endotoxins at composting and other waste handling facilities. Lundholm and Rylander (1980) reported that workers at an experimental municipal solid waste composting facility had a higher incidence of subjective symptoms, including nausea, headaches, and diarrhea. In a National Institute of Health article on the worldwide web (NIH, 1997), Castranova reported that the presence of endotoxins stimulates a greater response to other stimuli (such as dust), creating pulmonary inflammation. In the same article, Castellan reports that endotoxins provide a much stronger dose-response relationship as an index of exposure than non-specific dusts for which there is no dose-response relationship. It is, therefore, recommended that the air at composting facilities be sampled and evaluated for the presence of endotoxins so that mitigation measures may be implemented if necessary.

Although no regulatory standards for airborne endotoxins exist, the International Committee on Occupational Health (Olenchock, 1994) has suggested the following threshold levels:

- 20 – 50 ng/m^3 – mucous membrane irritation
- 100 – 200 ng/m^3 – acute bronchi constriction
- 1,000 – 2,000 ng/m^3 – organic dust toxic syndrome

The ICOH has also recommended that endotoxin exposure be limited to 1.0 to 2.0 ng/m^3 in cotton mills and 0.2 to 470 ng/m^3 in the animal feed industry. There are no recommendations for waste processing plants, but a Danish study (Sigsgaard, et al., 1990) in 1990 proposed that endotoxin levels not exceed 100 to 200 ng/m^3 at a garbage sorting facility.

4.2.2.3 – *Aspergillus fumigatus*

Aspergillus fumigatus is a common fungus that is typically associated with decomposing organic matter. Numerous studies have clearly shown this fungal species to be ubiquitous. It is found in commercial soil potting products (Millner, 1977), wood chip piles in the forest product industry (Passman, 1980), and lawn clippings (Slavin and Winzenburger, 1977). Table 4-3 shows background levels collected in the Washington, D.C. metropolitan area in 1979 to 1980.

Table 4-3. Background Viable *Aspergillus fumigatus* Counts in the Washington, DC Metropolitan Area During 1979-1980

Monitoring Site	*Seasonal Aspergillus fumigatus Counts (CFU/m^3)*			
	Fall	*Winter*	*Spring*	*Summer*
Lawn:				
- during mowing	1	5	2	0
- with mulch	75	2	6	686
- of park	8	4	24	2
Wooded Area:				
- arboretum	4	1	6	136
- nature trail	56	0	10	8
- roadside	1	5	2	3
Agricultural:				
- corn field	1	0	0	4
- barn	2,070	105	352	5,550
- barnyard	44	0	35	4
- poultry coop	21	93	2,060	6
- mushroom house	88,700	740,000	580,000	67,100
Refuse:				
- municipal dump	6	2	0	5
- supermarket dumpster	2	0	0	12
Various Reference Sites:				

- library stacks	171	0	0	0
- attic	---	1	1,160	125
- boiler room	30	38	1	1
- school playground	6	1	12	9
- university parking lot	7	1	2	4
- shopping center	11	1	7	3

Source: Millner, et al., 1994.

Aspergillus fumigatus is also frequently found in households. Hirsch and Sosman (1976) studied the occurrence of *Aspergillus fumigatus* in homes and found the fungus to be present in 42 percent of bedrooms, 56 percent of bathrooms, and 85 percent of basements. *Aspergillus fumigatus* was found to be the fourth most common mold in households and present in all seasons. Other studies (Solomon, 1974; Slavin and Winzenburger, 1977) have also clearly established the fungus to be frequently present in homes.

During the composting process, *Aspergillus fumigatus* is an active decomposer, resulting in increased populations of this fungus within the composting mass. Airborne *Aspergillus fumigatus* levels associated with undisturbed compost piles are typically low. Activities such as screening, mixing, and windrow turning will increase airborne *Aspergillus fumigatus* concentrations. However, numerous research and monitoring studies have shown airborne levels of *Aspergillus fumigatus* to decrease rapidly to ambient levels within a relatively short distance from the center of activity (typically less than 250 feet).

Epstein and Alpert (1982) studied the occurrence of *Aspergillus fumigatus* at an unenclosed biosolids/yard debris composting facility in Greenwich, Connecticut. The airborne concentration of *Aspergillus fumigatus* was found to decrease significantly with distance from the center of activity. At 100 feet from the activity center, the airborne propagule concentration was reduced by 28 to 98 percent. At 250 feet from the activity center, the airborne *Aspergillus fumigatus* concentration was at or near ambient levels. Similar results have been reported by Passman (1980) and Cookson, et al., (1983).

From a human health perspective, *Aspergillus fumigatus* is of very low pathogenicity unless resistance is overcome by an overwhelming innoculum or debilitating illness. *Aspergillus fumigatus* infections occur almost exclusively in people who are severely immunocompromised. Serious and fatal infections have occurred in immunosuppressed hospital patients having kidney transplants or receiving chemotherapy for leukemia or lymphoma (Clark, et al., 1984).

Workers at composting operations are the most exposed individuals. An evaluation of worker health at various composting sites provides an indication of the potential health impacts of chronic exposure to elevated levels of *Aspergillus fumigatus*. Several extensive studies have been conducted (Epstein, 1983; Hampton Roads Sanitation District, 1981; Lees and Tockman, 1987). The results clearly indicate that workers at composting sites who are constantly exposed to and inhale high levels of *Aspergillus fumigatus* spores have not had significant health problems. In addition, there are no OSHA standards that would define an unacceptable or unsafe level of *Aspergillus fumigatus* at a work site.

4.2.3 – Heat Stress

The American Conference of Government Industrial Hygienists, in 1998 TLVs and BEIs, provides guidelines for protection of workers in hot and humid conditions. The guidelines include Permissible Heat Exposure Limit Values. These values reflect the effect of humidity on worker heat stress. Heat and humidity are a particularly important consideration in the composting hall, where the hot humid air associated with composting is released into the building atmosphere during operations such as pile breakdown, positive aeration, and product screening. The standards for continuous work activity are summarized in Table 4-4.

Table 4-4. Standards for Continuous Work Activity

Level of Effort	*Relative Humidity (%)*	*Dry Bulb Temperature (°F)*
Light Work	100	86
	75	91
	50	97
Moderate Work	100	80
	75	84
	50	91

A light work effort would include equipment operators. A moderate work effort would include monitoring and most maintenance activities.

Guidelines are also provided for work activity in which rest time is provided half and three quarters of the work period.

4.3 – VENTILATION STRATEGY

Ventilation is the primary method used to maintain a safe and healthy environment in the composting building. Operational procedures and focused ventilation are also available methods of improving the working environment.

4.3.1 – Operational Procedures

Maintaining a moist composting material will reduce the potential for dust and related airborne particulates in all of the activities that take place in the building. Normally, biosolids composting does not require moisture addition. If moisture addition is required at times, the logical point in the process to add moisture would be during the move from active composting to curing.

Operation in the negative aeration mode will result in much less byproduct (such as ammonia), heat, and moisture being released into the building. This operating mode is available under conditions when fog potential is high or during periods when the highest level of activity is occurring in the composting area.

4.3.2 – General Building Ventilation and Air Treatment

Ventilation air is drawn into the receiving and processing area to provide a minimum of 6 air changes per hour in this area. The same air is then drawn into the composting area, where it provides a minimum of 10 air changes per hour. Air is drawn through the composting area so that the maximum exchange of air occurs in the aisle where the majority of equipment travel occurs. All building and process air is treated in a compost media biofilter.

4.3.3 – Focused Operation Ventilation and Air Treatment

Focused ventilation is provided for the screening to assure that dust generated in this area does not impact the other processing areas.

4.4 – EVALUATED CONDITIONS

For the purpose of estimating environmental conditions that will be experienced in the composting building, the following conditions have been evaluated:

- *Airborne Chemical Contaminants.* Ammonia is the compound of concern that would likely be found at a composting facility. The estimated concentration of ammonia is used as a measure of acceptable conditions in the building.
- *Airborne Particulates.* Control of airborne particulates is accomplished by control at the source and is not expected to be a significant issue.
- *Fogging.* The 2 percentile temperature of 43°F with operation in the positive and negative aeration modes are evaluated to determine the potential for fogging.

- *Heat Stress.* The 2 percentile high temperature of 98°F with operation in positive aeration is the basis for determining the potential for heat stress.

4.5 – PROJECTED BUILDING ENVIRONMENTAL CONDITIONS

4.5.1 – Weather Factors

Analysis of one year (1981) of hourly temperature data for the weather station at Pomona indicates that hot weather conditions occur with the following frequencies:

- Maximum 111°F
- 98 Percentile (175 hours per year) 98°F
- 95 Percentile (438 hours per year) 93°F

Since outside air at the above temperatures will be used to ventilate the composting building, the interior temperatures in the building will reflect these temperatures. Comparison of the temperature record with recommended heat stress guidelines indicates that conditions may occur within the composting building that suggest adjustment of work effort or provision of air-conditioned workspace under some circumstances.

The same data set provides information useful for estimating the potential for occurrence of fog in the building. Fog will occur when cool ventilation air is mixed with hot, moist air from the composting process. If the moisture content of the mixture of hot and cool air contains more than what can be held by the air at the combined temperature, then a portion of the moisture will condense as fog. Such fog is a safety concern due to reduced visibility. The analysis of the data indicates the following low temperatures:

- Minimum 34°F
- 2 Percentile (175 hours per year) 43°F
- 5 Percentile (438 hours per year) 46°F

4.5.2 – Generation and Removal of Ammonia

It is assumed that the Total Kjeldahl Nitrogen (TKN) content of the biosolids before composting is 5 percent and the TKN of the product is 1 percent and that all removed nitrogen is in the form of ammonia transported from the composting mass in the cooling air stream. With a peak loading of _____ wet tons per day of biosolids at 25 percent total solids, this results in a daily release of _____ pounds of ammonia as nitrogen. With an average process and ventilation airflow rate of 60,000 cfm operating in positive aeration, this would result in an average ammonia concentration in the composting hall of _____ ppm. This is ***(higher/lower)*** than the state standards of 25 ppm.

When operating in negative aeration, it is estimated that 5 percent or less of the ammonia released from the composting material will be discharged to the building. The balance will be removed directly to the biofilter. The portion entering the composting area would result in an average concentration in the air of _____ ppm, which is below the state standards.

4.5.3 – Fog Formation Potential

During composting at facility capacity, it is estimated that _____ pounds per day of water is removed from the composting material. This reflects a saturated air stream at 55°C of _____ cfm, or _____ percent of the process airflow.

4.5.3.1 – Positive Aeration

When operating in positive aeration, it is again assumed that all of the moisture being removed from the pile is released to the building. In this case, fogging conditions ***(do/do not)*** occur when mixed with the ventilation airstream of 60,000 cfm at 43°F.

4.5.3.2 – Negative Aeration

When operating in negative aeration, it is again assumed that 5 percent of the moisture being removed from the pile is released to the building. In this case, fogging conditions ***(do/do not)*** occur when mixed with the ventilation air stream of 60,000 cfm at 43°F.

4.5.4 – Dust Control

4.5.4.1 – Moisture Content of Materials

The primary method of dust control is to maintain a moist compost material.

4.5.4.2 – Dust Capture and Removal

Dust generated in the screening process will be captured with a dedicated ventilation hood, with capture and removal of the dust prior to release of the treated air back into the composting area.

4.5.5 – Heat Stress

Based on this analysis, it is recommended that the front-end loader be provided with air conditioning and an air filter system designed to remove dust and ammonia from the air entering the cab. In addition, it is recommended that monitoring and maintenance work in the composting area be limited during periods of high heat and humidity and that workers have an air-conditioned space for periodic cooling during the working day.

4.6 – EMPLOYEE HEALTH PROTECTION

It is recommended that employee health and safety be promoted through training, testing, and providing personal protection equipment as required. All normal safety, sanitation, and personal hygiene features normally provided to wastewater treatment plant operators should be available to the compost facility operators.

4.6.1 – Employee Training

Prior to startup, the employees will be trained to identify and avoid unhealthy or unsafe conditions.

4.6.2 – Facility Startup

During startup, testing will be conducted to document environmental conditions in the building. Although no undesirable conditions are anticipated, an assessment of conditions may require adjustment of operating procedures.

4.6.3 – Mitigation Procedures

As required, personal protection equipment, such as air filters, should be provided to workers.

The odor dispersion analysis for the facility is summarized below.

5.0 – COMPOST FACILITY ODOR DISPERSION MODEL ANALYSIS

5.1 – INTRODUCTION

A computerized atmospheric dispersion model has been generated to predict the likely odor impact on the areas surrounding the proposed composting facility. These results are for the composting facility only and do not take into consideration any potential odor impacts from the wastewater treatment plant. The composting facility will be completely enclosed with odor control provided in the form of a biofilter. The biofilter will treat the process air directly from the enclosed facility, which will be the only odor source resulting from composting operations.

5.2 – THE MODEL

The computer model used in predicting off-site odor impacts is the United States Environmental Protection Agency-recommended ISCST3 model. The model used local topography and meteorological data collected from the Pomona, California weather station. The South Coast Air Quality Management District provided meteorological data from year 1981 and requested that it be used. Odor emissions sampled from similar composting operations' biofilters were also used in the model. See Section 3 for specific input information.

The results of the model are plotted as isopleth lines indicating the highest 10-minute odor concentration that may be experienced along the isopleth. In addition, a table indicating the highest concentration and the number of times a nuisance concentration may be experienced for individual receptors is provided. The location of the receptors is shown on the isopleth map.

For the purposes of this model, an odor concentration of 7 dilutions to threshold or greater is considered a nuisance condition.

Odor is measured as a concentration dilution to threshold. The dilution to threshold indicates the number of times a sample of odorous air is diluted with fresh air when 50 percent of the members of an odor panel can detect the presence of an odor. An odor panel consists of 10 persons who are provided air samples by the forced-choice olfactometer method in accordance with ASTM E-679. The higher the dilution to threshold, the stronger the odor.

5.3 – INPUT ASSUMPTIONS

The major input assumptions for the model were:

- The sizing and location of the biofilter
- The odor emissions chosen for the biofilter

5.3.1 – Biofilter Sizing and Location

Due to the composting facility sizing and layout, the biofilter was assumed to be 125 feet by 125 feet and located within the previous sludge management area at the southwest corner of the property.

5.3.2 – Emission Input

As noted in Section 1, data from facilities with emissions similar to what will be generated by the proposed biofilter was used as the emission input for the model. The odor concentration was assumed to generate continuously at 25 dilutions to threshold.

Table 5-1 outlines the emission data used in the model.

Table 5-1. Emissions Data

Process or Location	*Odor Generation Rate (ou/sec-m^2)*	*Total Contributing Area (m^2)*	*Odor Emission (ou/sec)*
Biofilter	0.508	1452.4	737.4

5.4 – MODEL RESULTS

The model examined impacts on a 500-meter-radius area surrounding the odor source. In addition, six individual receptor locations were examined for odor impacts. Figure 5-1 is the isopleth map of the highest predicted odor impacts to the surrounding area based on the 1981 meteorological data.

As noted in Section 2, an odor concentration of 7 dilutions to threshold is assumed to represent an odor nuisance condition. What will constitute a nuisance in the area will depend on who and what is in that area. A more odorous source in the area could easily overwhelm a 7 dilutions to threshold odor concentration from the composting facility. Only a few states currently have specific odor concentration guidelines defining the nuisance level dilution to threshold. Generally, these range from 5 to 10 dilutions to threshold.

Figure 5-1 indicates odor concentrations greater than 7 dilutions to threshold will occur west and southwest of the property boundary. Overall, odor concentrations ranging from 2 to 10 dilutions to threshold at some time will be experienced over the course of a one-year period over the entire area modeled. Six receptors were added to the model to provide a gauge of the frequency of the impact conditions. Table 5-2 summarizes the receptor locations and anticipated impacts.

Table 5-2. Impacts at Specific Receptors Based on the 1981 Meteorological Data

Receptor Number	*Receptor Location*	*Highest Expected Odor Concentration (D/T)*	*Number of Impacts at 7 D/T or Greater*
1	Residential Area	4.0	0
2	Interstate 60	4.0	0
3	Police Station	1.8	0
4	Movie Theaters	2.2	0
5	Golf Course Green – West of Property	4.9	0
6	Golf Course Green – Southwest of Property	7.3	50

For example, the model predicts that Receptor #6 may have 50 odor incidences (>7 dilutions to threshold) per year, on the average of less than one odor incidence per week; whereas Receptors #1, #2, #3, #4, and #5 are predicted to have no odor incidences.

5.5 – CONCLUSIONS

The composting facility will be completely enclosed with odor control provided in the form of a biofilter. The biofilter will treat the process air directly from the enclosed facility and will be the only odor source resulting from composting operations.

There are several receptors in the immediate vicinity of the proposed facility. Six were identified within a 500-meter radius from the modeled odor source. The odor model indicated that the potential to impact receptors in the area is very minimal, with potential impacts at one of the six modeled receptors at less than one incidence per week.

CEN:

cc: Gary Hackney

Rose Hess
Mike Hoover
Larry Sasser

Appendix 8.4

TECHNICAL MEMORANDUM NO. 6 TRAFFIC IMPACT AND ISSUES - TASKS 1.9 / 4.6

RELOCATION/DEVELOPMENT FEASIBILITY & PREDESIGN OF ORGANICS MANAGEMENT FACILITIES AND FOR A FEASIBILITY STUDY AND CONCEPTUAL DESIGN FOR THE PROVISION OF SUPPLEMENTAL ORGANIC MANAGEMENT FACILITIES

TECHNICAL MEMORANDUM NO. 6

Traffic Impact and Issues – Tasks 1.9/4.6

May 31, 2001

TECHNICAL MEMORANDUM NO. 6
TRAFFIC IMPACT AND ISSUES – TASKS 1.9/4.6

INTRODUCTION

This document identifies the potential traffic impacts associated with the construction of two or more organics processing sites to serve the western portion of San Bernardino County. The Inland Empire Utilities Agency (IEUA) is working to improve its management of organic wastes by constructing additional digestion and/or processing facilities. The facilities will process manure from local dairy farms and biosolids generated by IEUA's water reclamation plants. Farms potentially serviced by the facilities are in the Chino and Ontario area south of the Pomona Freeway (State Route 60). Figure 1 illustrates the location of the dairy farms in the study area. The manure and biosolids will be transported to the processing sites via 20-ton trucks.[1] The wastes will be converted to usable products for agriculture and horticulture uses. The final products will be loaded onto 25-ton trucks and dispersed to retail, industrial and farms throughout the Southern and Central California area. Two processing facilities are anticipated to be complete in the year 2006. This traffic analysis evaluated impacts based on this future year.

Sixteen sites were initially identified and evaluated for potential implementation. Five sites were chosen for further feasibility analysis. The sites include three sites in the City of Chino near RP-5, a site in San Bernardino County adjacent to RP-4 and a site in the City of Colton near the intersection of the Santa Ana River and Riverside Avenue. The location of the five potential sites is shown in Figure 2.

Two scenarios are evaluated in this analysis. In Scenario 1, processing sites 10 and 1, 4, or 9 will each have a manure bulking material processing capacity of 30,000 tons/year plus a biosolids operation of 30,000 tons per year. In Scenario 2, in addition to the aforementioned sites, an added facility, Site 8, is projected to have a maximum manure capacity of 150,000 tons/year.

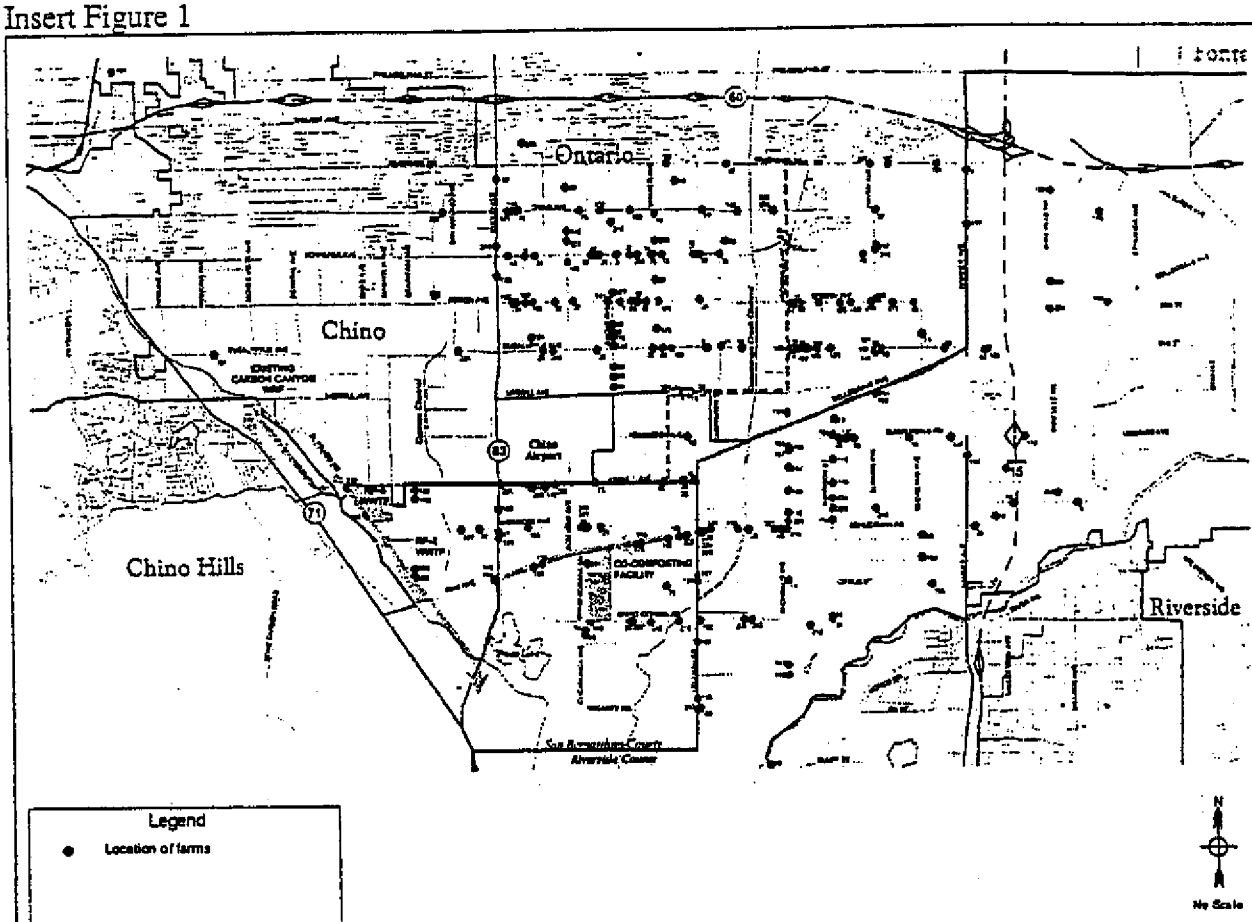
Katz, Okitsu & Associates was retained to study the traffic and transportation impacts of increased truck traffic to these sites would generate on the surrounding roadway system. The roadway system potentially affected by truck traffic includes the following components:

- Roadways providing access to concentrated areas of local dairies
- Truck routes connecting dairies and potential composting sites
- Truck routes connecting water reclamation plants (RP) and potential composting sites
- Intersections near the composting sites and concentrated areas of local dairies
- Mainline freeway and freeway access ramps

[1] 20-ton trucks are the current standard for biosolids transportation and 10-ton trucks for manure are the current standard. On occasion 20-ton trucks are utilized for manure transportation and as such a 20-ton truck was the standard for hauling biosolids/manure in this technical memorandum.

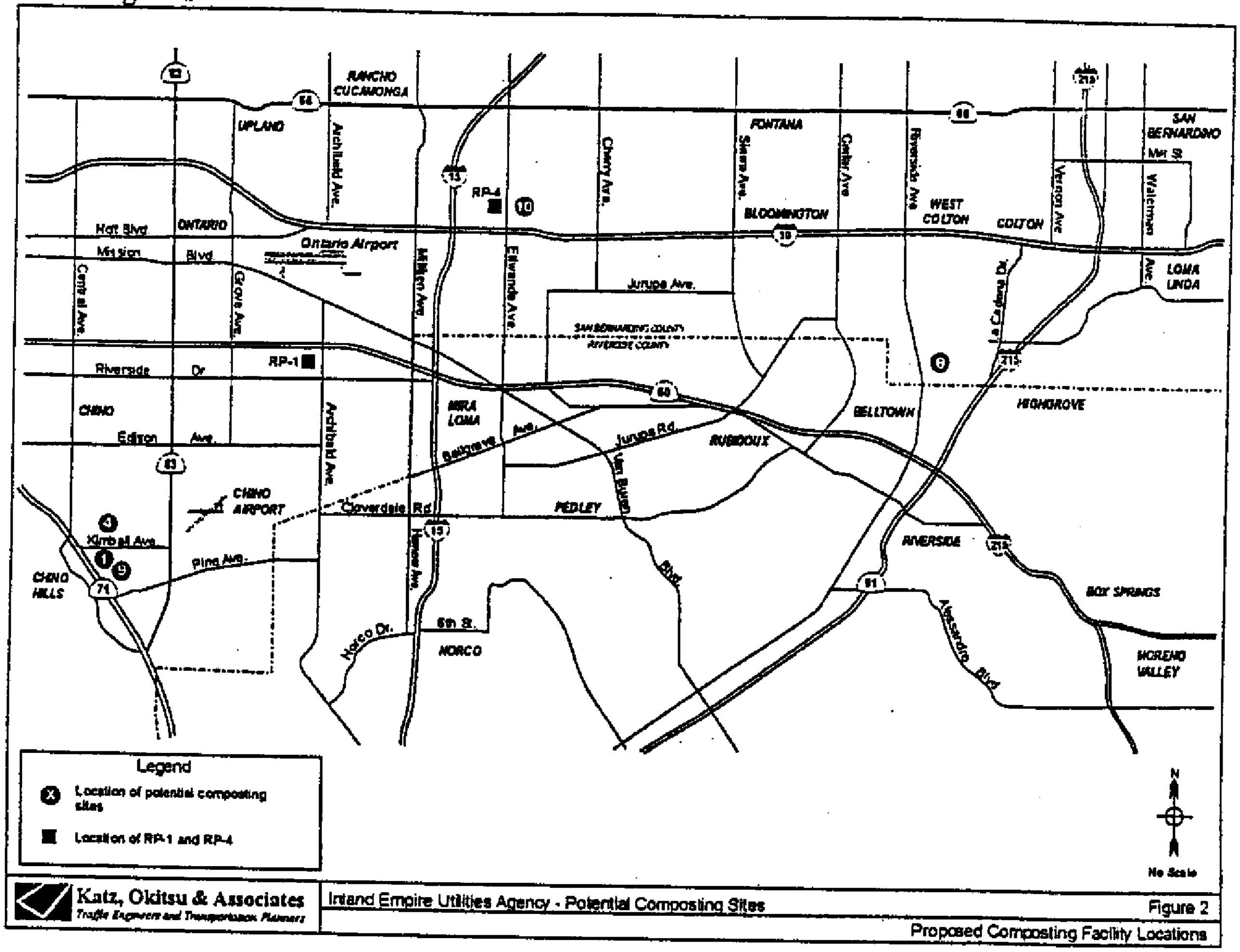
Technical Memorandum No. 6

Insert Figure 1



Katz, Okitsu & Associates | Inland Empire Utilities Agency - Potential Composting Sites | Figure 1
Locations of Dairy Farms

Insert Figure 2



Key tasks undertaken by the consultants included: 1) define the study area and determine existing traffic conditions, 2) forecast the number of trucks necessary to transport the quantities of material to and from each composting site, 3) assign the trucks to the roadway system and 4) evaluate the impact of the truck traffic on the roadway system. Detailed roadway level-of-service analysis is not a part of this phase of the study.

The Year 2006 was selected for the traffic analysis to coincide with the targeted completion of the development of the selected alternatives.

STUDY APPROACH

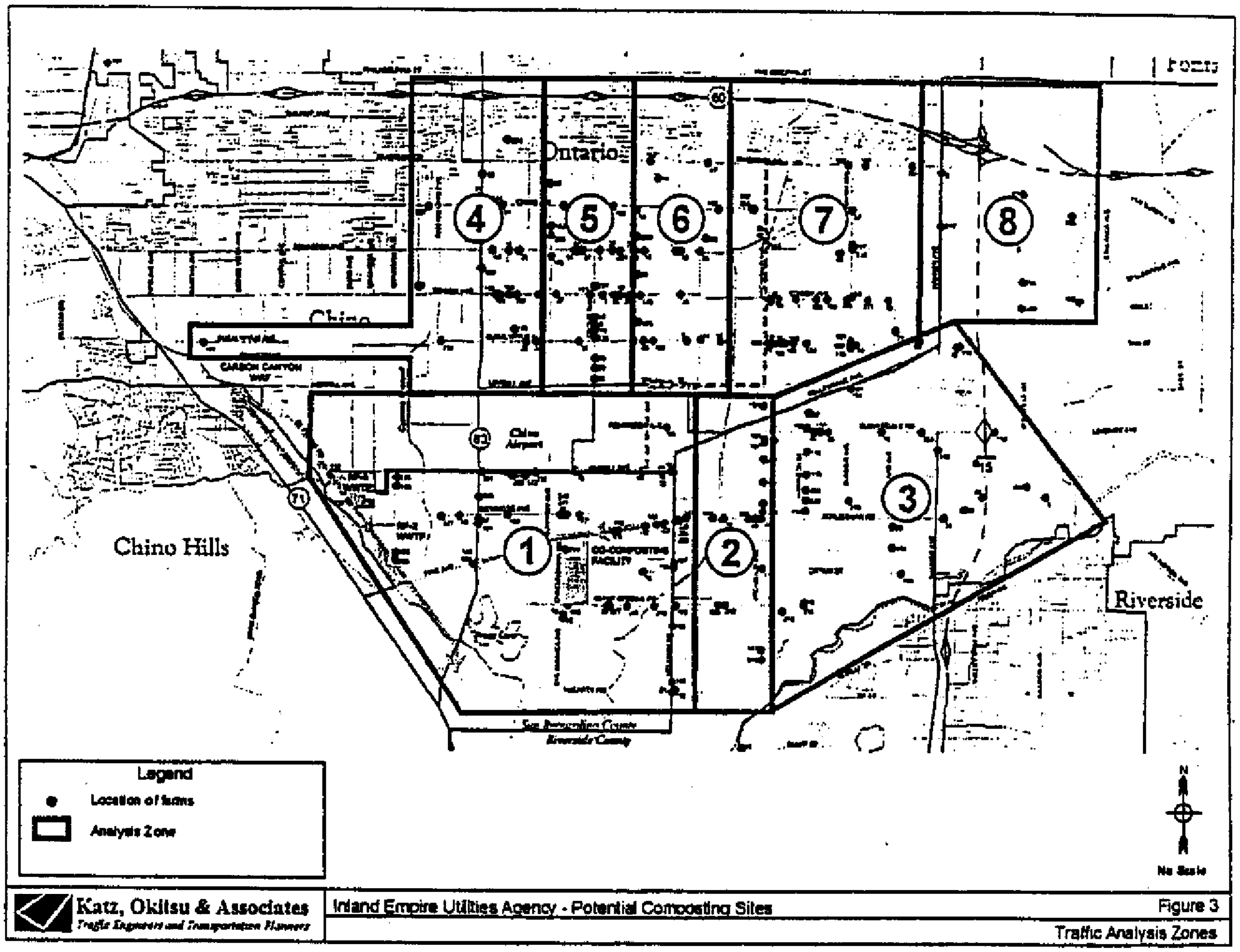
In order to assess the traffic impacts associated with the operation of each composting facility site, the dairies shown in Figure 1 were first grouped into traffic analysis zones (TAZ's). The basis for the development and assignment of dairies into TAZ's was on their proximity to truck routes and to the Pomona Freeway. The analysis zones include portions of four municipalities (Chino, Ontario, Colton and Fontana) in both San Bernardino and Riverside County. Figure 3 shows the boundaries of each traffic analysis zone. Utilizing data provided by Tetra Tech ASL, the tons of manure produced per year was aggregated for the dairies within each zone. Table 1 summarizes the production of manure per zone.

Table 1 - Yearly Production of Manure

ZONE	Yearly Tonnage of Manure	Percentage of Total
1	195,899	19%
2	55,380	6%
3	183,147	18%
4	83,103	8%
5	130,107	13%
6	119,754	12%
7	153,226	15%
8	39,761	4%
Unidentified	44,871	4%
TOTALS	*1,005,248*	*100*

The trucks transporting the manure from the farms to the composting have a total hauling capacity of 20 tons. The total number of trucks associated with each traffic analysis zone was correlated to the tonnage produced by each farm in each zone. The truck traffic assumed by this study was directly related only to the maximum capacities of the composting sites.

Insert Figure 3



As shown in Table 1, the amount of manure and potentially requiring transport varies. Zone 1 produces nearly 20% of the manure, while Zones 3 and 7 produce 18 and 15 percent respectively. These are important datum to note when considering the location of high manure producing farms and the location of the composting facilities vis-à-vis transportation requirements, particularly distances trucked.

DEVELOPMENT OF TRAFFIC FORECASTS/IMPACT ASSESSMENT

In order to determine where and which roadway segments would have the highest probability of project related truck impacts, it was necessary to identify a number of key attributes of the transportation system in the surrounding area. Some of the key elements that were analyzed include a review of traffic volume data, truck route designations and proposed project locations.

The following sections summarize the collection and development of this information for use in this analysis.

Data Collection

The data collection effort for this effort included field surveys and the collection of existing and projected traffic volumes and infrastructure improvements in the overall planning area.

Field Surveys

Field reconnaissance was undertaken to identify the condition of the roadway infrastructure near each potential site. This included noting the number of lanes on each key access route, the types of nearby land uses, condition of roadway surfaces and the presence or absence of traffic signalization at nearby critical intersections.

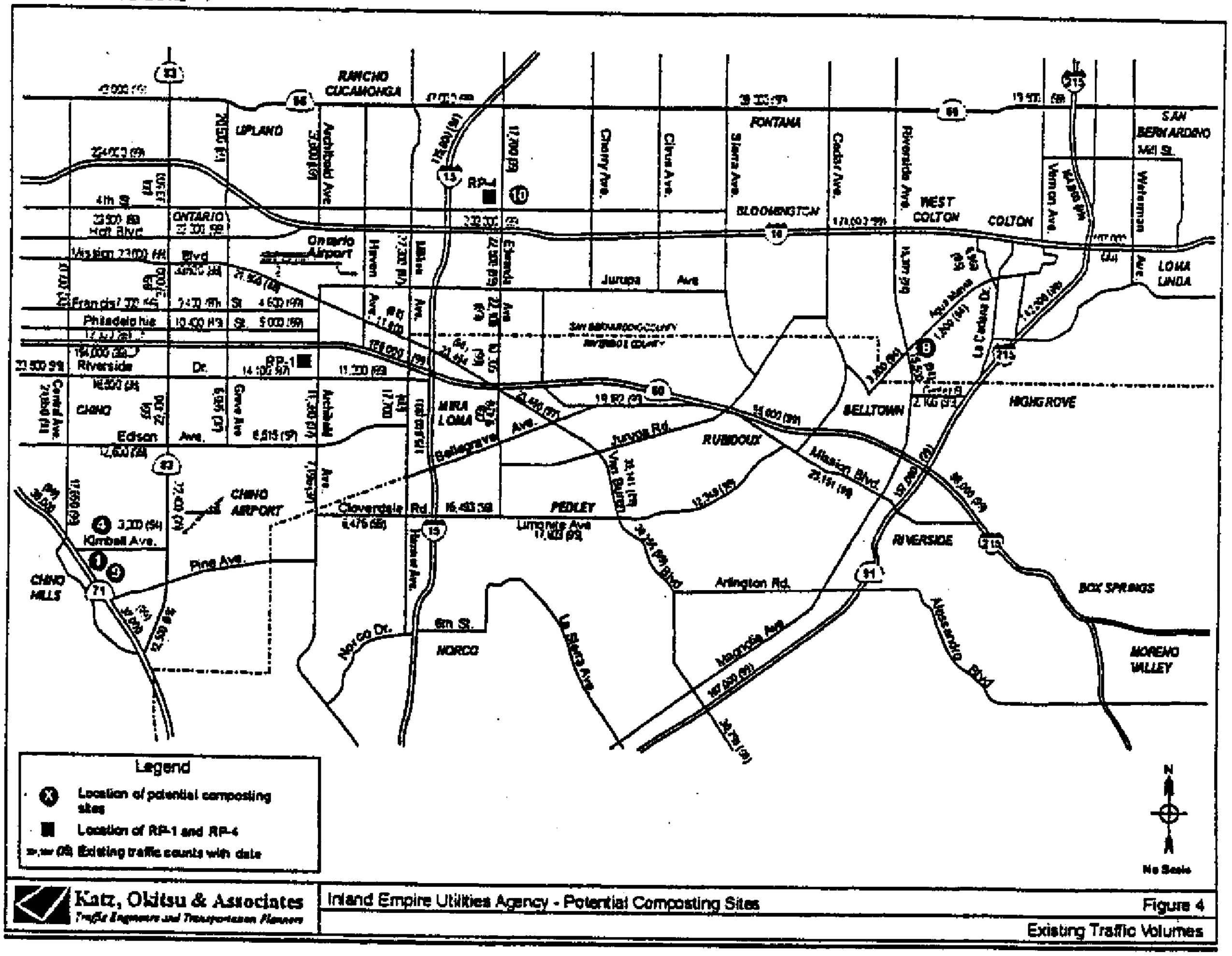
Existing Traffic Counts

Katz, Okitsu & Associates collected existing traffic volume data from the Cities of Chino, Ontario, Colton and Fontana and from San Bernardino and Riverside Counties. The level of information available is variable and is derived from current circulation elements and recent project study reports. Figure 4 illustrates the existing average daily traffic volumes on key area roadways.

Identification of Planned Infrastructure Improvements

Katz, Okitsu & Associates obtained the circulation elements from the cities of Chino, Ontario, Colton, Fontana and San Bernardino and Riverside Counties for planned improvements to the transportation infrastructure. This information will assist in the assessment of future project conditions.

INSERT FIGURE 4



Development of Background Traffic Growth Factors

To effectively compare traffic forecasts, it was necessary to establish a baseline condition for the year 2000 condition. Traffic forecast data was obtained from the San Bernardino Association of Governments (SANBAG) traffic forecast model. This tool was chosen in an attempt to normalize variable traffic forecasts from cities in the project area.

According to the SANBAG model, daily traffic volumes over the next 20 years are projected to increase on key roadways in the study area by about 13 percent.

Identification of Truck Routes

A key assumption in the assignment of project related truck trips is their use and reliance of designated truck routes for longer haul trips. Therefore, it was necessary to identify the designated truck routes in each jurisdiction that could be used for transport between dairies and the composting facilities. The city and county agencies within the study area provided maps and other information on existing truck routes. Figure 5 depicts the designated truck routes. These routes were used during the trip assignment phase of the study to develop project routing within the study area.

Project Trip Generation Forecasts

Project trip generation forecasts are currently occurring from the two project scenarios. The manure transport was recalculated in order to determine the requirements from each dairy which determined the truck traffic that would be generated. Next, trip generation forecasts were developed between dairies and the composting facility and the composting facility and bi-product users. Finally, truck trips were converted to passenger car equivalents (PCE's) for purposes of analysis and then the trips were distributed on the regional roadway network.

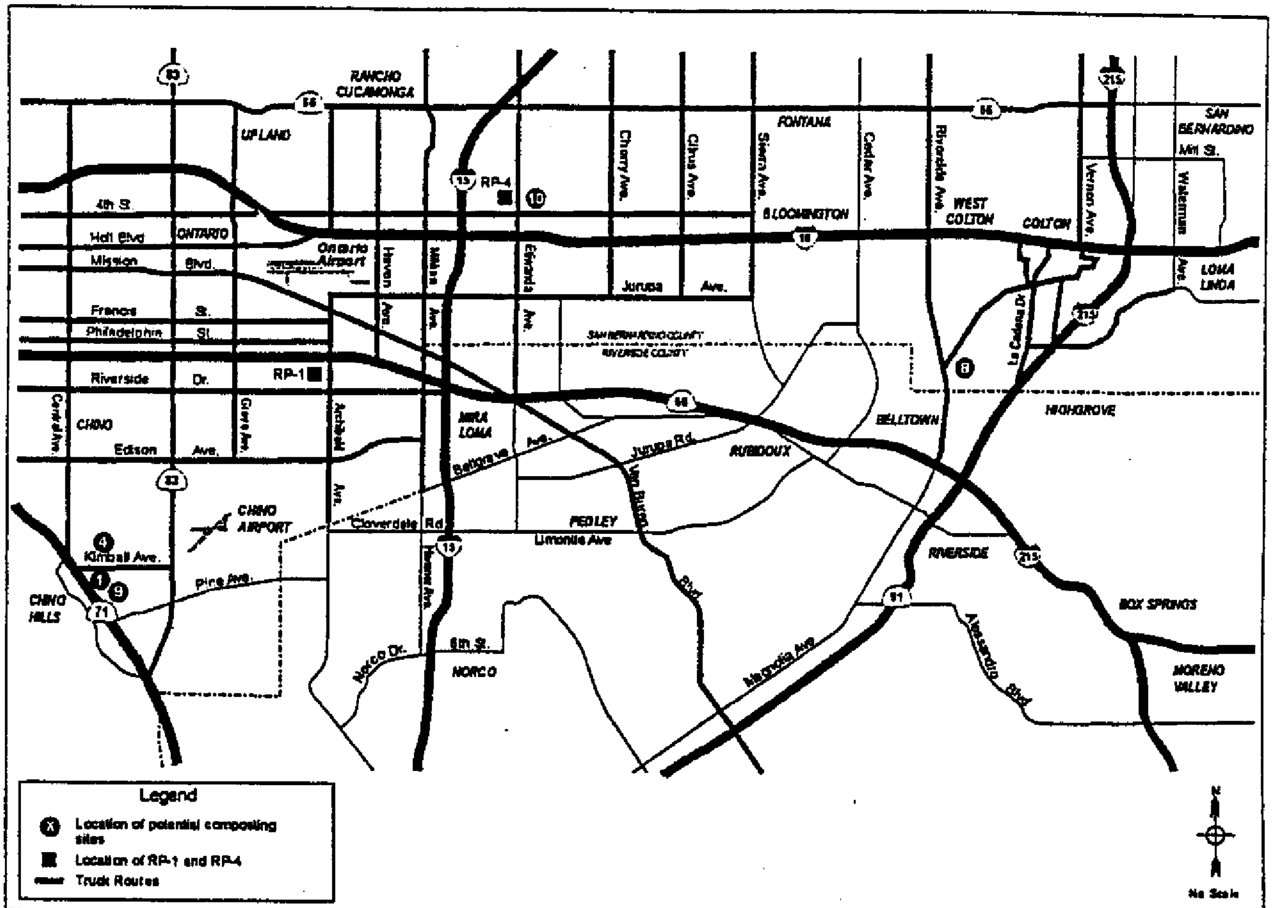
Passenger Car Equivalents

Whenever vehicles other than passenger cars (which include small trucks and vans) exist in the traffic stream, the number of vehicles that can be served by a roadway section is lessened. Heavy vehicles are defined as vehicles having more than four tires touching the pavement.

Heavy vehicles adversely affect traffic in two ways. First, they are larger than passenger cars and therefore occupy more roadway space than passenger cars. Second, they have poorer operating capabilities than passenger cars, particularly with respect to acceleration, deceleration, and the ability to maintain speed on upgrades.

The second impact is more critical. Because heavy vehicles cannot keep pace with passenger cars in many situations, large gaps form in the traffic stream that is difficult to fill by passing maneuvers. These gaps create inefficiencies in the use of the roadway space that cannot be completely overcome.

Insert Figure 5



Katz, Okitsu & Associates — Traffic Engineers and Transportation Planners

Inland Empire Utilities Agency - Potential Composting Sites — Figure 5

Designated Truck Routes

In order to estimate the impact of increased truck traffic, it is necessary to develop a passenger car equivalent factor that can be applied to heavy vehicles so that the impact of trucks on roadway levels of service can be accurately calculated. To do this, trucks volumes are converted to passenger car equivalents (PCE's) and then added to the baseline traffic volumes for analysis.

PCE factors vary between 1.5 and 10.0 depending of the grade and length of the roadway sections being analyzed with factors in the 1.5 to 2.5 ranges for moderate grades. For purposes of this analysis, a PCE factor of 2.2 was used to convert truck trips to passenger car equivalents (PCE's). This factor is consistent with truck factors recently developed by the Southern California Association of Governments (SCAG) for use in their regional heavy-duty truck model.

Project Scenarios

Katz, Okitsu & Associates was provided with the following project scenarios by Tetra Tech ASL for the transportation component of the analysis.

<u>Scenario 1</u>

- 30,000 tons/year of biosolids trucked from RP-2 & in the future RP-5 to Site 1, 4, or 9
- <u>30,000</u> tons/year of manure/bulking agents trucked from local dairies to Site 1, 4, or 9
  Subtotal 60,000

- 30,000 tons/year of manure/bulking agents trucked from local dairies to Site 10
- <u>30.000</u> tons/year of biosolids trucked from RP-1 and/or RP-4 to Site 10
  Subtotal 60,000

Total for Scenario 1: 120,000 tons/year

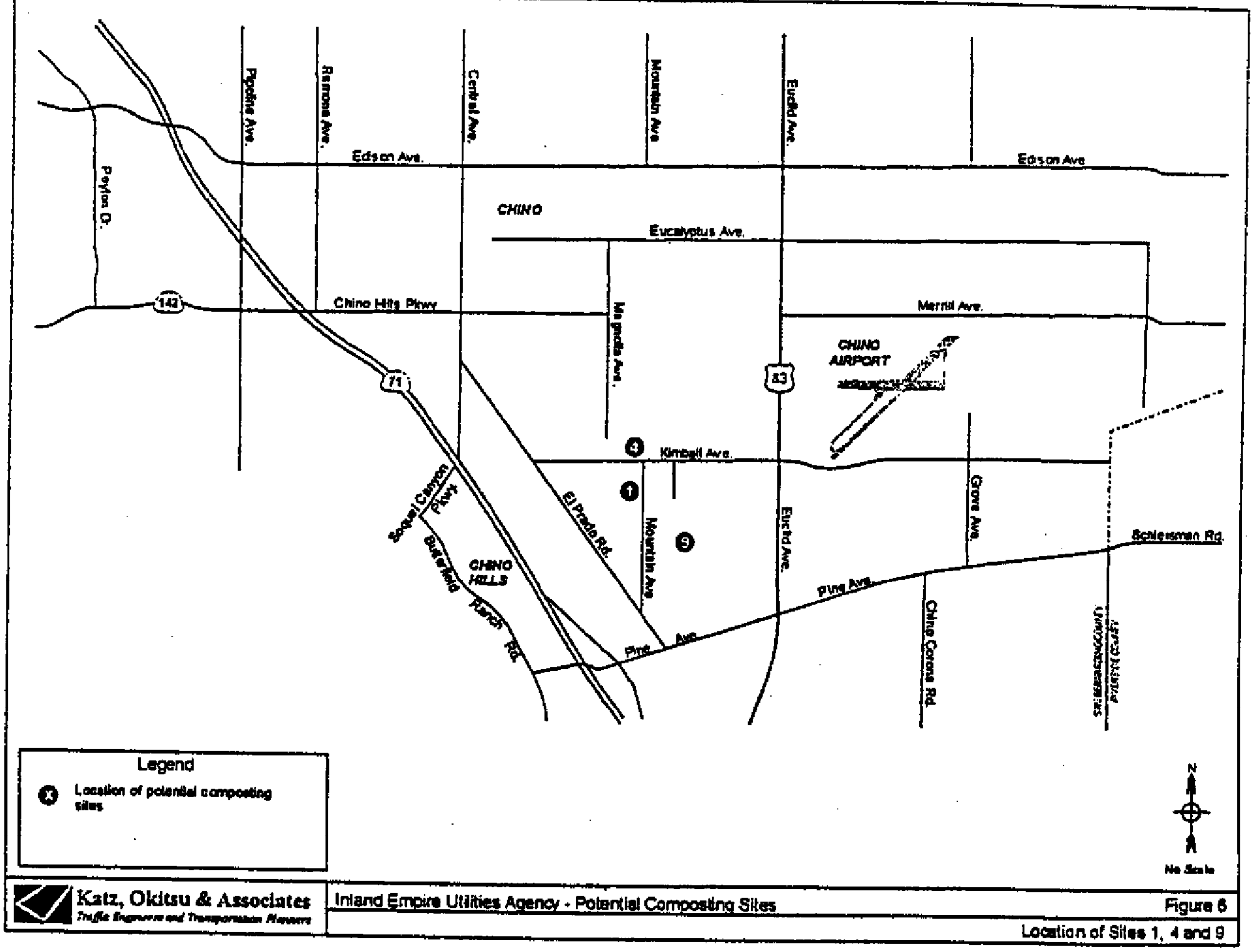
<u>Scenario 2</u>

- Scenario 1 above; PLUS
- 150,000 tons/year of manure trucked to Site 8 from local dairies

Total for Scenario 2: 270,000 tons/year

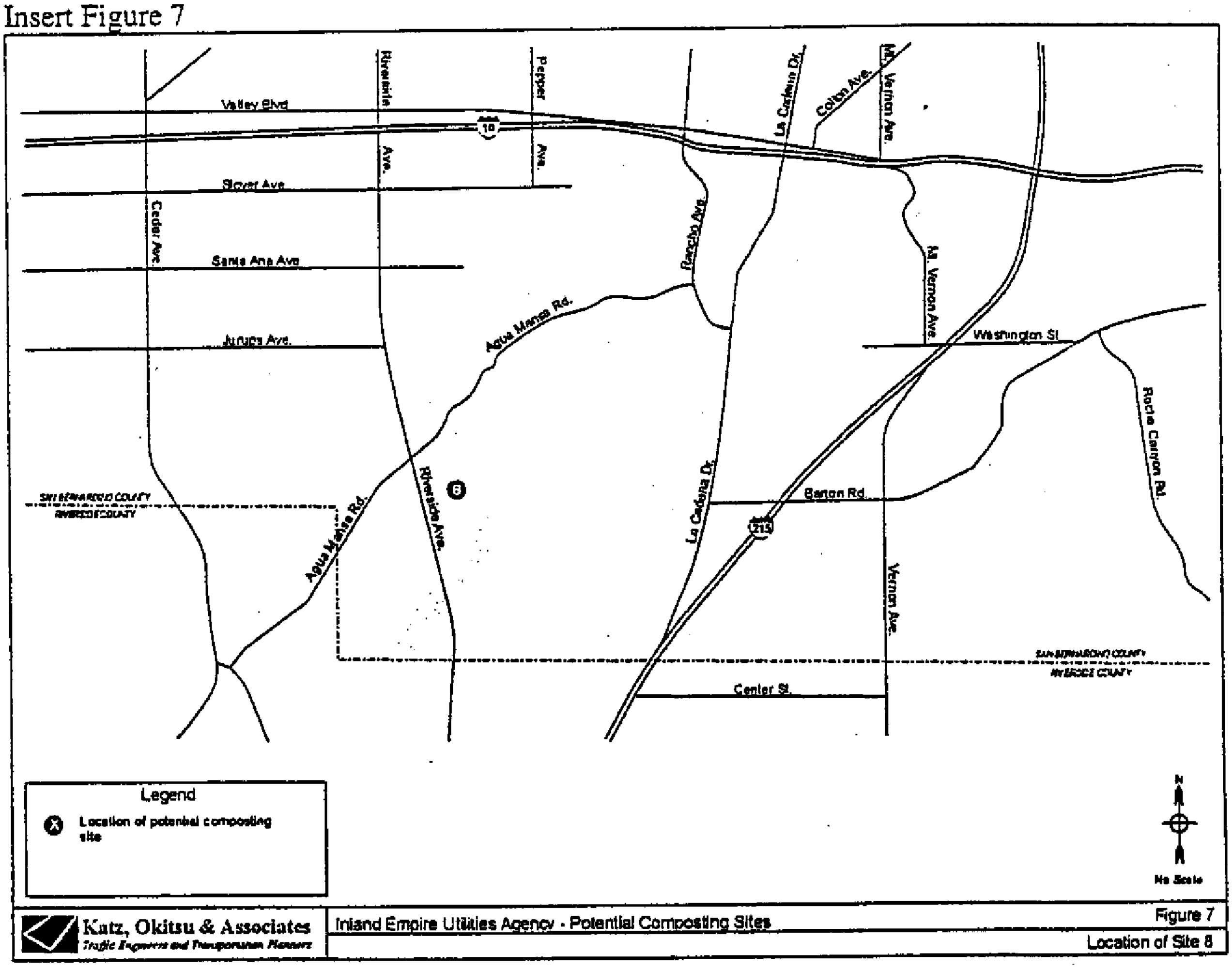
Each of the site locations is illustrated in detail in the following figures so the surrounding roadway network is more discernable. Figure 6 illustrates the location of sites 1, 4 and 9. Figure 7 illustrates the location of Site 8. Figure 8 illustrates the location of site 10.

Insert Figure 6



Technical Memorandum No. 6

Insert Figure 7



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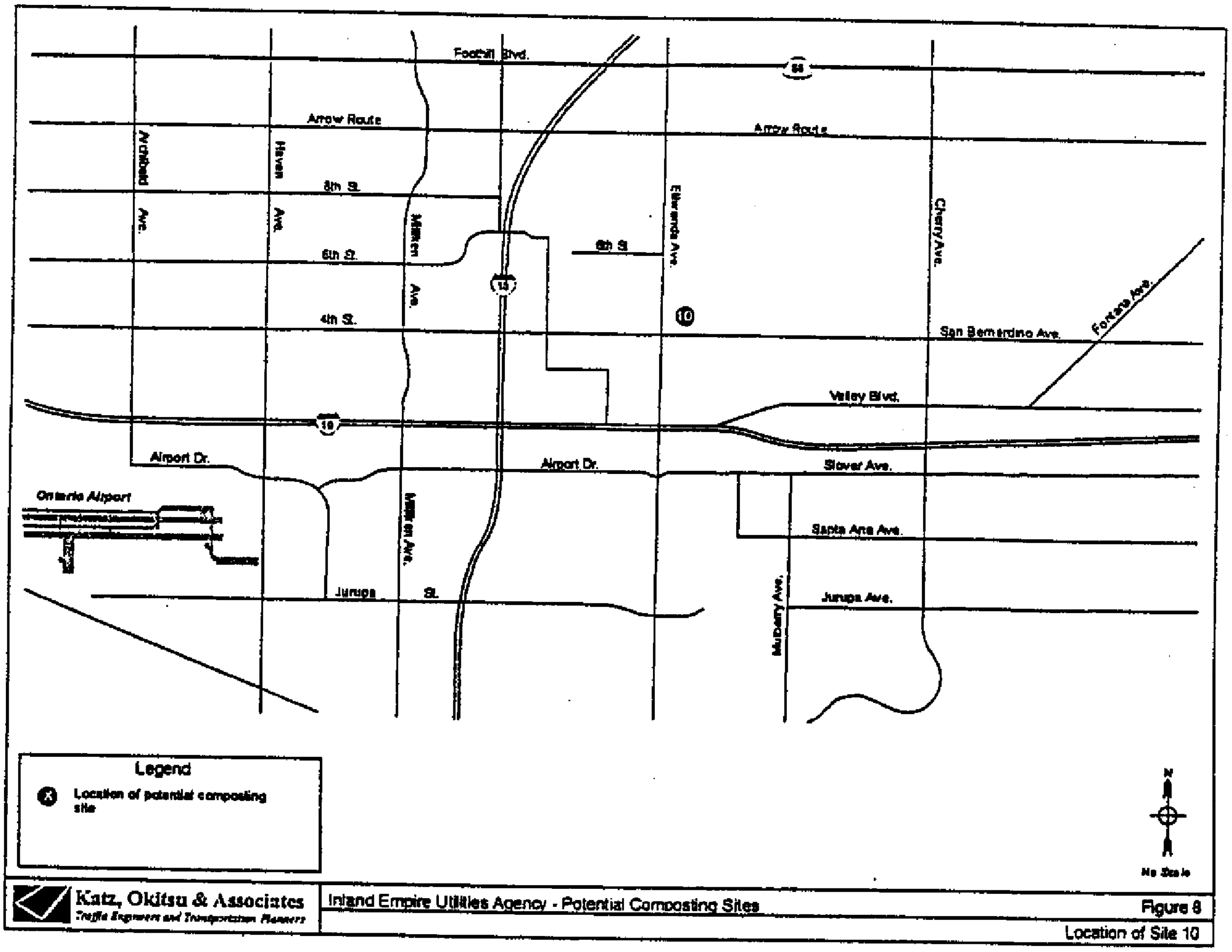


Projected Project Traffic

As discussed in the study approach section, the estimated project related truck traffic was based on the capacities of the composting sites. Employee data was not available and auto trips related to employees are not included in this analysis. Assuming each composting site has a small work force, the effect of employee trips would likely be low. Typically, we would expect each employee to generate two trips per day, one in the morning and one in the evening. Visitor and employee trips will be evaluated in more detail in the next phase of the study.

Project Trip Assignment

In order to develop project trip distribution forecasts, Katz, Okitsu & Associates modeled area roadways by creating a traffic model network and modeling the dairy sites and proposed composting facilities as traffic generating zones. Because the analysis is focused on truck traffic, it was assumed that truckers would use a combination of local routes between dairy driveways and the designated truck routes to the composting sites.

The dairies in the study area are widely dispersed. In order to facilitate the analysis, the dairies were grouped into 8 traffic analysis zones as shown in Figure 3. The total annual tonnage of manure associated with each of these analysis zones is shown in Table 1.

Not all of the tonnage of manure shown in Table 1 was assigned to trucks. This is because the trip generation was a function of the capacity of the composting sites rather than total production from the dairies. The manure capacity in Scenario 1 was 60,000 tons per year and Scenario 2 was 150,000 tons per year versus total manure generated over 1,000,000 tons per year.

Development of Forecast Traffic Volumes

As previously discussed, available traffic volume data was factored by a 0.65%[2] annual growth rate to develop Year 2006 baseline traffic volumes. No new traffic ounts were undertaken and all volumes were based on information obtained from the cities and counties in the area. Traffic forecasts for each scenario were added to the baseline traffic volumes to determine traffic conditions under each scenario. Figure 9 illustrates the estimated Year 2006 baseline daily traffic volumes on area roadways.

Projected Year 2006 Traffic Forecast/Impact Assessment (Scenario 1)

Scenario 1 is based on the construction of two composting facilities, one at Site 10 and one at Site 1,4 or 9. The total processing capacity of this scenario is 120,000 tons/year. Using the analysis methodology discussed above, projected truck volumes were assigned to the network. Table 2 shows the paths to and from the traffic analysis zones (dairies, water reclamation plants) to the composting sites.

[2] SANBAG projects total traffic growth over 20 years at 13%. Annual growth = $(0.13 \div 20) \times 100 = 0.65\%$ per year.

INSERT FIGURE 9

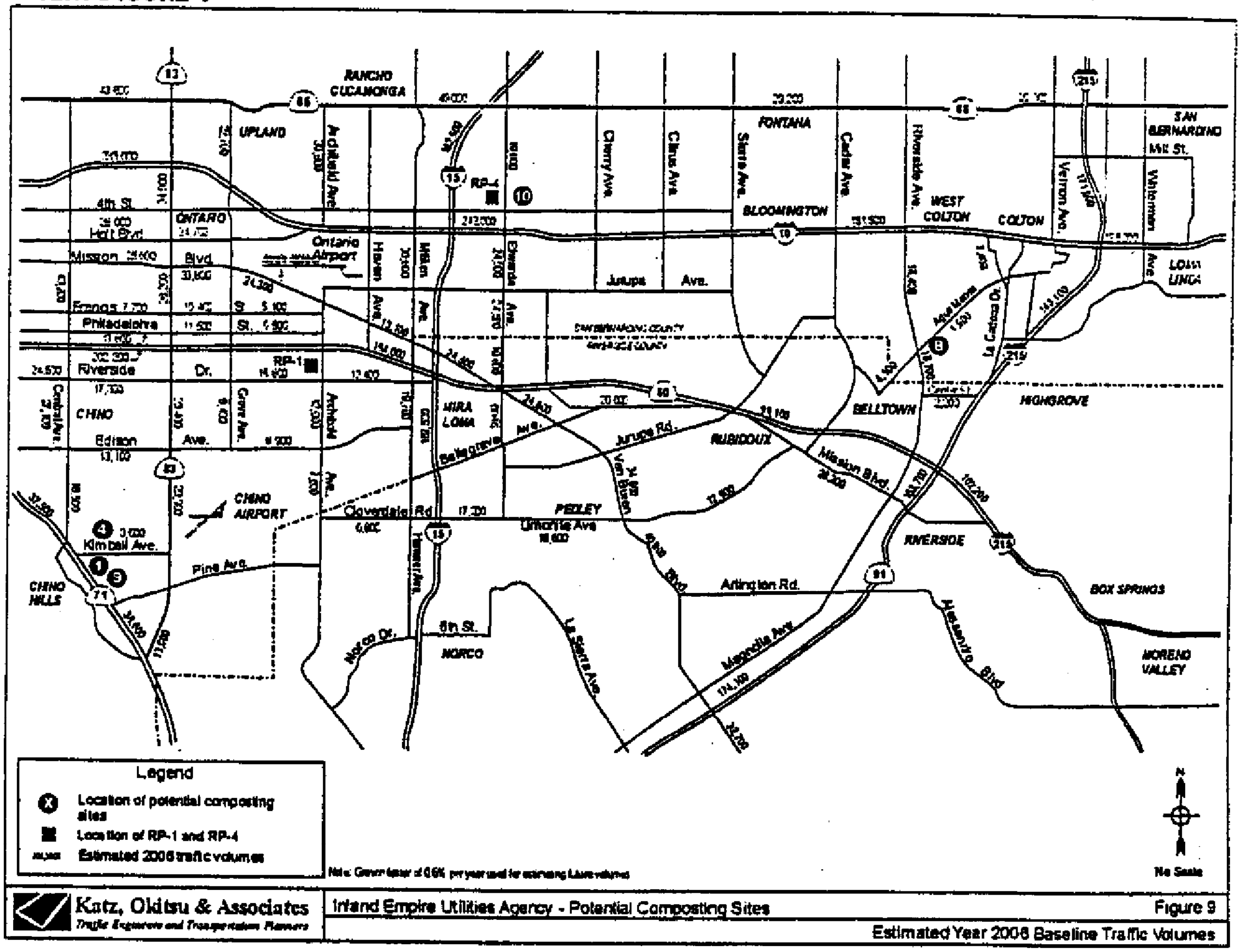


Table 2 – Scenario 1 Trip Paths

				inbound to composting sites			outbound from composting sites		
Origin	Destination	Truck Path	% Atth	Roadways Traversed	Truck Trips in from Dairies & RPs	Truck Trips in to Collect Product	Roadways Traversed	Truck Trips out to Dairies & RPs	Truck Trips out to Distribute Product
RP-1	Site (1,4,9)	1	100%	RP-1 driveway (NB)	7		Mountain Avenue (NB)	7	
				Philadelphia Street (WB)	7		Kimball Avenue (EB)	7	
				Euclid Avenue (SB)	7		Euclid Avenue (NB)	7	
				Kimball Avenue (WB)	7		Philadelphia Street (EB)	7	
				Mountain Avenue (SB)	7		RP-1 driveway (SB)	7	
TOTAL					7			7	
Zone 1	Site (1,4,9)	2	40%	Kimball Avenue (WB)	3		Mountain Avenue (NB)	3	
				Mountain Avenue (SB)	3		Kimball Avenue (EB)	3	
		3	40%	Euclid Avenue (NB)	3		Mountain Avenue (NB)	3	
				Kimball Avenue (WB)	3		Kimball Avenue (EB)	3	
				Mountain Avenue (SB)	3		Euclid Avenue (SB)	3	
		4	20%	Pine Avenue (WB)	1		Mountain Avenue (NB)	1	
				Euclid Avenue (NB)	1		Kimball Avenue (EB)	1	
				Kimball Avenue (WB)	1		Euclid Avenue (SB)	1	
				Mountain Avenue (SB)	1				
TOTAL					7			7	
RP-4	Site 10	5	100%	4th Street (WB)	7		Etiwanda Avenue (SB)	7	
				Etiwanda Avenue (NB)	7		4th Street (EB)	7	
TOTAL					7			7	
Zone 8	Site 10	6	40%	Hammer Avenue (NB)	3		Etiwanda Avenue (SB)	3	
				Interstate 15 (NB)	3		Interstate 10 (WB)	3	
				Interstate 10 (EB)	3		Interstate 15 (SB)	3	
				Etiwanda Avenue (NB)	3				
		7	30%	Wineville Road (NB)	2		Etiwanda Avenue (SB)	2	
				Riverside Drive (WB)	2		Interstate 10 (WB)	2	
				Hammer Avenue (NB)	2		Interstate 15 (SB)	2	
				Interstate 15 (NB)	2		Hammer Avenue (SB)	2	
				Interstate 10 (EB)	2		Riverside Drive (EB)	2	
				Etiwanda Avenue (NB)	2				
		8	30%	Riverside Drive (EB)	2		Etiwanda Avenue (SB)	2	
				Hammer Avenue (NB)	2		Interstate 10 (WB)	2	
				Interstate 15 (NB)	2		Interstate 15 (NB)	2	
				Interstate 10 (EB)	2				
				Etiwanda Avenue (NB)	2				
TOTAL					7			7	
Site (1,4,9)	Global Distribution	10	60%	CA 60 (WB)		4	Mountain Avenue (NB)		4
				Euclid Avenue (SB)		4	Kimball Avenue (EB)		4
				Kimball Avenue (WB)		4	Euclid Avenue (NB)		4
				Mountain Avenue (SB)		4	CA 60 (EB)		4
		11	40%	CA 60 (EB)		2	Mountain Avenue (NB)		2
				Euclid Avenue (SB)		2	Kimball Avenue (EB)		2
				Kimball Avenue (WB)		2	Euclid Avenue (NB)		2
				Mountain Avenue (SB)		2	CA 60 (WB)		2
TOTAL						6			6
Site 10	Global Distribution	12	60%	Interstate 10 (EB)		4	Etiwanda Avenue (SB)		4
				Etiwanda Avenue (NB)		4	Interstate 10 (EB)		4
			40%	Interstate 10 (WB)		2	Etiwanda Avenue (SB)		2
				Etiwanda Avenue (NB)		2	Interstate 10 (WB)		2
TOTAL						6			6

Table 3 shows the truck assignment summary for Scenario 1. The table also shows roadway segment truck volumes by direction. As can be seen from the table, the total number of trips on the study roadway segments ranges from 0 to 40 trucks per day. The highest truck volumes are shown on Etiwanda Avenue (40) and on Kimball and Mountain Avenues (37). Based on a review of existing and projected daily traffic volumes, these added volumes are insufficient to produce an identifiable impact on roadway operating conditions.

Table 3 - Scenario 1 Truck Assignment

Impacted Roadways	Roadway Segment (directional)	Truck Trips	Roadway Segment (non-directional)	Truck Trips	Year 2006 ADT	Year 2006 ADT (With Added)	% of Year 2006 ADT
RP-1 driveway							
(NB)	Access passing below I-10	7	Access passing below I-10	14	[redacted]	14	[redacted]
(SB)	Access passing below I-10	7					
Philadelphia Street							
(EB)	Grove Av-Archibald Av	7	Grove Av-Archibald Av	14	5,500	5,514	0.255%
	Euclid Av-Archibald Av	7	Euclid Av-Archibald Av	14	11,500	11,514	0.122%
(WB)	Grove Av-Archibald Av	7					
	Euclid Av-Archibald Av	7					
Euclid Avenue							
(NB)	Riverside Dr-Edison Av	13	Riverside Dr-Edison Av	26	23,400	23,426	0.111%
	Edison Av-Kimball Av	13	Edison Av-Kimball Av	26	23,900	23,926	0.109%
	Kimball Av-Pine Av	4	Kimball Av-Pine Av	8	[redacted]	8	
(SB)	Riverside Dr-Edison Av	13					
	Edison Av-Kimball Av	13					
	Kimball Av-Edison Av	4					
Kimball Avenue							
(EB)	Mountain Av-Euclid Av	17	Mountain Av-Euclid Av	37	3,500	3,537	1.063%
(WB)	Mountain Av-Euclid Av	20	Euclid Av-Bonview Av	3	[redacted]	3	[redacted]
	Euclid Av-Bonview Av	3					
Mountain Avenue							
(NB)	Kimball Av-Bickmore Av	17	Kimball Av-Bickmore Av	37	[redacted]	37	[redacted]
(SB)	Kimball Av-Bickmore Av	20					
Pine Avenue							
(WB)	Euclid Av-Hellman Rd	1	Euclid Av-Hellman Rd	1	[redacted]	1	[redacted]
4th Street							
	near Etiwanda Av	14	near Etiwanda Av	14	[redacted]	14	[redacted]
Etiwanda Avenue							
(NB)	4th Street-Interstate 10	20	4th Street-Interstate 10	40	24,900	24,940	0.161%
(SB)	4th Street-Interstate 10	20					
Hamner Avenue							
(NB)	Riverside Dr-Bellegrave Av	7	Riverside Dr-Bellegrave Av	9	19,700	19,709	0.046%
(SB)	Riverside Dr-Bellegrave Av	2					
Riverside Drive							
(WB)	Archibald Av-Haven Av	0	Archibald Av-Haven Av	0	14,400	14,400	0.000%
	Haven Av-Wineville Rd	2	Haven Av-Wineville Rd	6	11,200	11,206	0.056%
(EB)	Haven Av-Wineville Rd	4					
Wineville Road							
(NB)	Riverside Dr-Bellegrave Av	2	Riverside Dr-Bellegrave Av	2	[redacted]	2	[redacted]
Bellegrave Avenue							
(EB)	Hamner Av-Etiwanda Av	5	Hamner Av-Etiwanda Av	5	[redacted]	5	[redacted]
CA 60							
(EB)	East of Euclid Av	2	East of Euclid Av	2	202,300	202,302	0.001%
	Euclid Av-Archibald Av	4	Euclid Av-Archibald Av	4	202,300	202,304	0.002%
	Archibald Av-Riverside Av	4	Archibald Av-Etiwanda Av	4	194,000	194,004	0.002%
	East of Riverside Av	4	East of Riverside Av	4	99,100	99,104	0.004%
(WB)	West of Euclid Av	2	West of Euclid Av	0	202,300	202,300	0.000%
	Euclid Av-Archibald Av	0					
	Euclid Av-Riverside Av	0					
	West of Riverside Av	0					
Edison Avenue							
(EB)	Archibald Av-Haven Av	0	Archibald Av-Haven Av	0	6,900	6,900	0.000%
Archibald Avenue							
(NB)	CA 60-Chino Av	0	CA 60-Chino Av	0	12,000	12,000	0.000%
	Riverside Dr-Chino Av	0	Riverside Dr-Chino Av	0	12,000	12,000	0.000%
	Chino Av-Edison Av	0	Chino Av-Edison Av	0	12,000	12,000	0.000%
	Edison Av-Bellegrave Av	0	Edison Av-Bellegrave Av	0	12,000	12,000	0.000%
(SB)	South of CA 60	0	South of CA 60	0	12,000	12,000	0.000%
Riverside Avenue							
(NB)	North of Interstate 10	0	North of Interstate 10	0	16,400	16,400	0.000%

Table 4 shows the conversion of these truck volumes to passenger car equivalents (PCE). As was discussed earlier a PCE factor of 2.2 was used to determine passenger car equivalents based on the truck sizes used in this study. The table also shows estimated Year 2006 average daily traffic (ADT) volumes on the roadway system and the addition of the project traffic as PCE's. The final column of the table shows the percentage of the Year 2006 total volumes the project adds to the traffic stream.

Table 4 – Scenario 1 Project Traffic Converted to PCE's

Impacted Roadways	Roadway Segment (directional)	Passenger Car Trips	Roadway Segment (non-directional)	Passenger Car Trips	Year 2006 ADT	Year 2006 ADT (With Added)	%of Year 2006 ADT
RP-1 driveway							
(NB)	Access passing below I-10	15	Access passing below I-10	31		31	
(SB)	Access passing below I-10	15					
Philadelphia Street							
(EB)	Grove Av-Archibald Av	15	Grove Av-Archibald Av	31	5,500	5,531	0.560%
	Euclid Av-Archibald Av	15	Euclid Av-Archibald Av	31	11,500	11,531	0.268%
(WB)	Grove Av-Archibald Av	15					
	Euclid Av-Archibald Av	15					
Euclid Avenue							
(NB)	Riverside Dr-Edison Av	29	Riverside Dr-Edison Av	57	23,400	23,457	0.244%
	Edison Av-Kimball Av	29	Edison Av-Kimball Av	57	23,900	23,957	0.239%
	Kimball Av-Pine Av	9	Kimball Av-Pine Av	18		18	
(SB)	Riverside Dr-Edison Av	29					
	Edison Av-Kimball Av	29					
	Kimball Av-Edison Av	9					
Kimball Avenue							
(EB)	Mountain Av-Euclid Av	38	Mountain Av-Euclid Av	82	3,500	3,582	2.338%
(WB)	Mountain Av-Euclid Av	44	Euclid Av-Bonview Av	6		6	
	Euclid Av-Bonview Av	6					
Mountain Avenue							
(NB)	Kimball Av-Bickmore Av	38	Kimball Av-Bickmore Av	82		82	
(SB)	Kimball Av-Bickmore Av	44					
Pine Avenue							
(WB)	Euclid Av-Hellman Rd	3	Euclid Av-Hellman Rd	3		3	
4th Street							
	near Etiwanda Av	31	near Etiwanda Av	31		31	
Etiwanda Avenue							
(NB)	4th Street-Interstate 10	44	4th Street-Interstate 10	88	24,900	24,988	0.353%
(SB)	4th Street-Interstate 10	44					
Hamner Avenue							
(NB)	Riverside Dr-Bellegrave Av	15	Riverside Dr-Bellegrave Av	20	19,700	19,720	0.102%
(SB)	Riverside Dr-Bellegrave Av	5					
Riverside Drive							
(WB)	Archibald Av-Haven Av	0	Archibald Av-Haven Av	0	14,400	14,400	0.000%
	Haven Av-Wineville Rd	5	Haven Av-Wineville Rd	14	11,200	11,214	0.124%
(EB)	Haven Av-Wineville Rd	9					
Wineville Road							
(NB)	Riverside Dr-Bellegrave Av	5	Riverside Dr-Bellegrave Av	5		5	
Bellegrave Avenue							
(EB)	Hamner Av-Etiwanda Av	10	Hamner Av-Etiwanda Av	10		10	
CA 60							
(EB)	East of Euclid Av	5	East of Euclid Av	5	202,300	202,305	0.003%
	Euclid Av-Archibald Av	8	Euclid Av-Archibald Av	8	202,300	202,308	0.004%
	Archibald Av-Riverside Av	8	Archibald Av-Etiwanda Av	8	194,000	194,008	0.004%
	East of Riverside Av	8	East of Riverside Av	8	99,100	99,108	0.008%
(WB)	West of Euclid Av	5	West of Euclid Av	0	202,300	202,300	0.000%
	Euclid Av-Archibald Av	0					
	Euclid Av-Riverside Av	0					
	West of Riverside Av	0					
Edison Avenue							
(EB)	Archibald Av-Haven Av	0	Archibald Av-Haven Av	0	6,900	6,900	0.000%
Archibald Avenue							
(NB)	CA 60-Chino Av	0	CA 60-Chino Av	0	12,000	12,000	0.000%
	Riverside Dr-Chino Av	0	Riverside Dr-Chino Av	0	12,000	12,000	0.000%
	Chino Av-Edison Av	0	Chino Av-Edison Av	0	12,000	12,000	0.000%
	Edison Av-Bellegrave Av	0	Edison Av-Bellegrave Av	0	12,000	12,000	0.000%
(SB)	South of CA 60	0	South of CA 60	0	12,000	12,000	0.000%
Riverside Avenue							
(NB)	North of Interstate 10	0	North of Interstate 10	0	16,400	16,400	0.000%

As can be seen from Table 4, volumes associated with the project range from 0 to 88 PCE's. The highest PCE volumes are shown on Etiwanda Avenue (88) and on Kimball and Mountain Avenues (82). The maximum percentage increase from project traffic in scenario one is to Kimball Avenue where 2.4% of the future traffic results from the project. None of these volumes is expected to produce an adverse traffic impact. Figure 10 summarizes the project added traffic in both trucks and PCE's for Scenario 1.

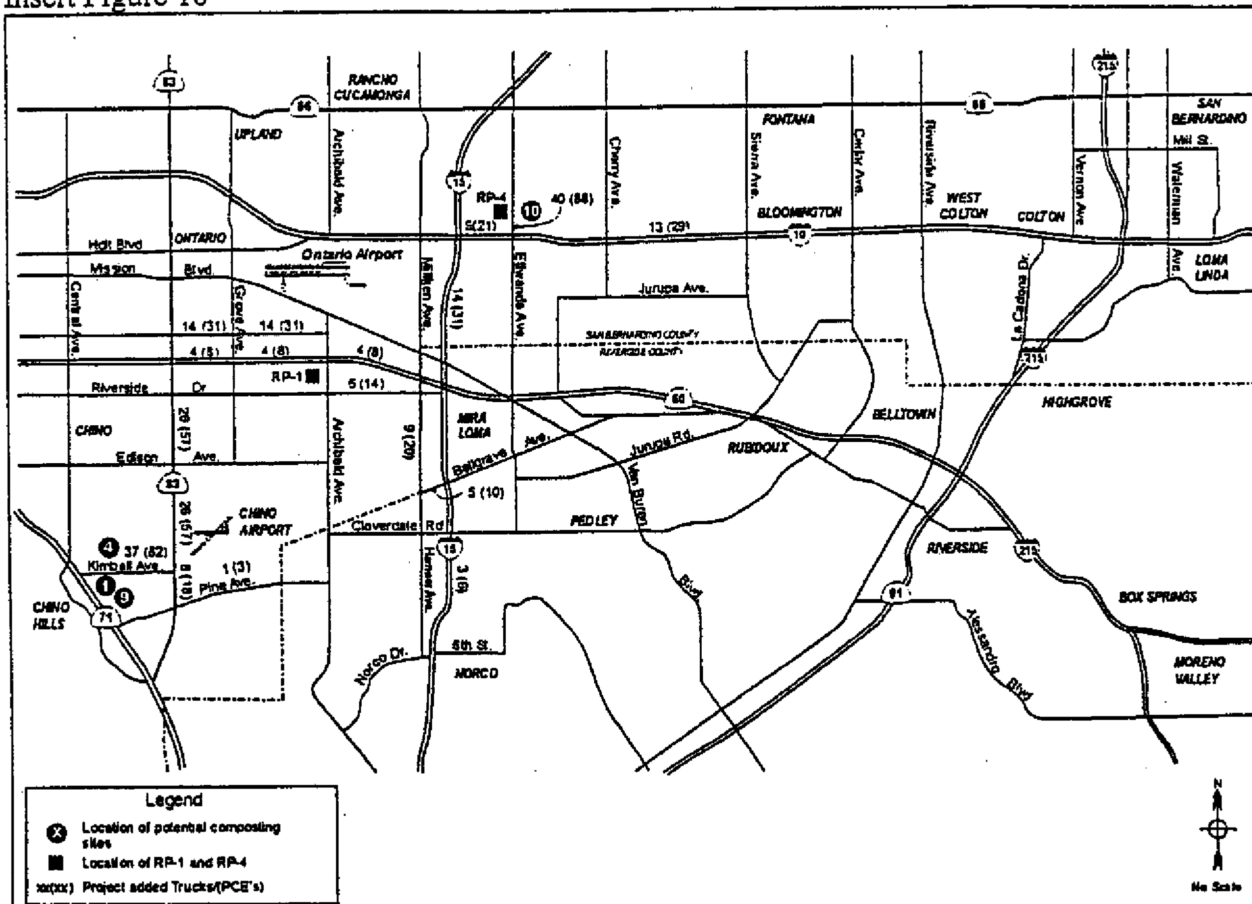
Projected Year 2006 Traffic Forecast/Impact Assessment (Scenario 2)

Scenario 2 is based on the construction of three composting facilities, one at Site 10 and one at Site 1, 4 or 9 and one at Site 8. The total processing capacity of this scenario is 210,000 tons/year. Using the analysis methodology discussed above, projected truck volumes were assigned to the network. Table 5 shows the paths to and from the traffic analysis zones (dairies and water reclamation plants) to the composting sites.

Table 5 – Scenario 2 Trip Paths

				inbound to composting sites			outbound from composting sites		
Origin	Destination	Truck Path	% Attb	Roadways Traversed	Truck Trips in from Farms & RPs	Truck Trips in to Collect Product	Roadways Traversed	Truck Trips out to Farms & RPs	Truck Trips out to Distribute Product
RP-1	Site (1,4,9)	1	100%	RP-1 driveway (NB)	7		Mountain Avenue (NB)	7	
				Philadelphia Street (WB)	7		Kimball Avenue (EB)	7	
				Euclid Avenue (SB)	7		Euclid Avenue (NB)	7	
				Kimball Avenue (WB)	7		Philadelphia Street (EB)	7	
				Mountain Avenue (SB)	7		RP-1 driveway (SB)	7	
TOTAL TRUCKS					7			7	
Zone 1	Site (1,4,9)	2	40%	Kimball Avenue (WB)	3		Mountain Avenue (NB)	3	
				Mountain Avenue (SB)	3		Kimball Avenue (EB)	3	
		3	40%	Euclid Avenue (NB)	3		Mountain Avenue (NB)	3	
				Kimball Avenue (WB)	3		Kimball Avenue (EB)	3	
				Mountain Avenue (SB)	3		Euclid Avenue (SB)	3	
		4	20%	Pine Avenue (WB)	1		Mountain Avenue (NB)	1	
				Euclid Avenue (NB)	1		Kimball Avenue (EB)	1	
				Kimball Avenue (WB)	1		Euclid Avenue (SB)	1	
				Mountain Avenue (SB)	1				
TOTAL TRUCKS					7			7	
RP-4	Site 10	5	100%	4th Street (WB)	7		Etiwanda Avenue (SB)	7	
				Etiwanda Avenue (NB)	7		4th Street (EB)	7	
TOTAL TRUCKS					7			7	
Zone 8	Site 10	6	40%	Hamner Avenue (NB)	3		Etiwanda Avenue (SB)	3	
				Interstate 15 (NB)	3		Interstate 10 (WB)	3	
				Interstate 10 (EB)	3		Interstate 15 (SB)	3	
				Etiwanda Avenue (NB)	3				
		7	30%	Wineville Road (NB)	2		Etiwanda Avenue (SB)	2	
				Riverside Drive (WB)	2		Interstate 10 (WB)	2	
				Hamner Avenue (NB)	2		Interstate 15 (SB)	2	
				Interstate 15 (NB)	2		Hamner Avenue (SB)	2	
				Interstate 10 (EB)	2		Riverside Drive (EB)	2	
				Etiwanda Avenue (NB)	2				
		8	30%	Riverside Drive (EB)	2		Etiwanda Avenue (SB)	2	
				Hamner Avenue (NB)	2		Interstate 10 (WB)	2	
				Interstate 15 (NB)	2		Interstate 15 (NB)	2	
				Interstate 10 (EB)	2				
				Etiwanda Avenue (NB)	2				
TOTAL TRUCKS					7			7	
Site (1,4,9)	Global Distribution	10	60%	CA 60 (WB)		4	Mountain Avenue (NB)		4
				Euclid Avenue (SB)		4	Kimball Avenue (EB)		4
				Kimball Avenue (WB)		4	Euclid Avenue (NB)		4
				Mountain Avenue (SB)		4	CA 60 (EB)		4
		11	40%	CA 60 (EB)		2	Mountain Avenue (NB)		2
				Euclid Avenue (SB)		2	Kimball Avenue (EB)		2
				Kimball Avenue (WB)		2	Euclid Avenue (NB)		2
				Mountain Avenue (SB)		2	CA 60 (WB)		2
TOTAL TRUCKS						6			6
Site 10	Global Distribution	12	60%	Interstate 10 (EB)		4	Etiwanda Avenue (SB)		4
				Etiwanda Avenue (NB)		4	Interstate 10 (EB)		4
			40%	Interstate 10 (WB)		2	Etiwanda Avenue (SB)		2
				Etiwanda Avenue (NB)		2	Interstate 10 (WB)		2
TOTAL TRUCKS						6			6

Insert Figure 10



Katz, Okitsu & Associates
Traffic Engineers and Transportation Planners

Inland Empire Utilities Agency - Potential Composting Sites

Figure 10

Scenario 1 - Project Traffic Forecast

Table 6 shows the truck assignment summary for Scenario 2. The table also shows roadway segment truck volumes by direction. As can be seen from the table, the total number of trips on the study roadway segments ranges from 1 to 86 trucks per day. The highest truck volumes are shown on Riverside Avenue (86) and on the 60 Freeway (82). Archibald Avenue, Kimball Avenue, Mountain Avenue and Etiwanda Avenue have volumes ranging from 37 to 40. These volumes are insufficient to produce an identifiable adverse impact on roadway operating conditions.

Table 6 - Scenario 2 Truck Assignment

Impacted Roadways	Roadway Segment (directional)	Passenger Car Trips	Roadway Segment (non-directional)	Passenger Car Trips	Year 2006 ADT	Year 2006 ADT (With Added)	%of Year 2006 ADT
RP-1 driveway							
(NB)	Access passing below I-10	7	Access passing below I-10	14	[redacted]	14	[redacted]
(SB)	Access passing below I-10	7					
Philadelphia Street							
(EB)	Grove Av-Archibald Av	7	Grove Av-Archibald Av	14	5,500	5,514	0.255%
	Euclid Av-Archibald Av	7	Euclid Av-Archibald Av	14	11,500	11,514	0.122%
(WB)	Grove Av-Archibald Av	7					
	Euclid Av-Archibald Av	7					
Euclid Avenue							
(NB)	Riverside Dr-Edison Av	13	Riverside Dr-Edison Av	26	23,400	23,426	0.111%
	Edison Av-Kimball Av	13	Edison Av-Kimball Av	26	23,900	23,926	0.109%
	Kimball Av-Pine Av	4	Kimball Av-Pine Av	8	[redacted]	8	
(SB)	Riverside Dr-Edison Av	13					
	Edison Av-Kimball Av	13					
	Kimball Av-Edison Av	4					
Kimball Avenue							
(EB)	Mountain Av-Euclid Av	17	Mountain Av-Euclid Av	37	3,500	3,537	1.063%
(WB)	Mountain Av-Euclid Av	20	Euclid Av-Bonview Av	3	[redacted]	3	[redacted]
	Euclid Av-Bonview Av	3					
Mountain Avenue							
(NB)	Kimball Av-Bickmore Av	17	Kimball Av-Bickmore Av	37	[redacted]	37	[redacted]
(SB)	Kimball Av-Bickmore Av	20					
Pine Avenue							
(WB)	Euclid Av-Hellman Rd	1	Euclid Av-Hellman Rd	1	[redacted]	1	[redacted]
4th Street							
	near Etiwanda Av	14	near Etiwanda Av	14	[redacted]	14	[redacted]
Etiwanda Avenue							
(NB)	4th Street-Interstate 10	20	4th Street-Interstate 10	40	24,900	24,940	0.161%
(SB)	4th Street-Interstate 10	20					
Hamner Avenue							
(NB)	Riverside Dr-Bellegrave Av	7	Riverside Dr-Bellegrave Av	9	19,700	19,709	0.046%
(SB)	Riverside Dr-Bellegrave Av	2					
Riverside Drive							
(WB)	Archibald Av-Haven Av	7	Archibald Av-Haven Av	7	14,400	14,407	0.049%
	Haven Av-Wineville Rd	2	Haven Av-Wineville Rd	6	11,200	11,206	0.056%
(EB)	Haven Av-Wineville Rd	4					
Wineville Road							
(NB)	Riverside Dr-Bellegrave Av	2	Riverside Dr-Bellegrave Av	2	[redacted]	2	[redacted]
Bellegrave Avenue							
(EB)	Hamner Av-Etiwanda Av	5	Hamner Av-Etiwanda Av	5	[redacted]	5	[redacted]
CA 60							
(EB)	East of Euclid Av	6	East of Euclid Av	6	202,300	202,306	0.003%
	Euclid Av-Archibald Av	8	Euclid Av-Archibald Av	17	202,300	202,317	0.008%
	Archibald Av-Riverside Av	43	Archibald Av-Etiwanda Av	82	194,000	194,082	0.042%
	East of Riverside Av	8	East of Riverside Av	12	99,100	99,112	0.012%
(WB)	West of Euclid Av	6	West of Euclid Av	4	202,300	202,304	0.002%
	Euclid Av-Archibald Av	9					
	Euclid Av-Riverside Av	39					
	West of Riverside Av	4					
Edison Avenue							
(EB)	Archibald Av-Haven Av	14	Archibald Av-Haven Av	14	6,900	6,914	0.203%
Archibald Avenue							
(NB)	CA 60-Chino Av	35	CA 60-Chino Av	35	12,000	12,035	0.292%
	Riverside Dr-Chino Av	28	Riverside Dr-Chino Av	28	12,000	12,028	0.233%
	Chino Av-Edison Av	23	Chino Av-Edison Av	23	12,000	12,023	0.190%
	Edison Av-Bellegrave Av	9	Edison Av-Bellegrave Av	9	12,000	12,009	0.073%
(SB)	South of CA 60	16	South of CA 60	16	12,000	12,016	0.131%
Riverside Avenue							
(NB)	North of Interstate 10	2	North of Interstate 10	3	16,400	16,403	0.020%

Table 7 shows the conversion of these truck volumes to passenger car equivalents (PCE). As was discussed earlier, a PCE factor of 2.2 was used to determine passenger car equivalents based on the truck sizes used in this study.

Table 7 – Scenario 2 Project Traffic Converted to PCE's

Impacted Roadways	Roadway Segment (directional)	Passenger Car Trips	Roadway Segment (non-directional)	Passenger Car Trips	Year 2006 ADT	Year 2006 ADT (With Added)	%of Year 2006 ADT
RP-1 driveway	(NB) Access passing below I-10	15	Access passing below I-10	31		31	
	(SB) Access passing below I-10	15					
Philadelphia Street	(EB) Grove Av-Archibald Av	15	Grove Av-Archibald Av	31	5,500	5,531	0.560%
	Euclid Av-Archibald Av	15	Euclid Av-Archibald Av	31	11,500	11,531	0.268%
	(WB) Grove Av-Archibald Av	15					
	Euclid Av-Archibald Av	15					
Euclid Avenue	(NB) Riverside Dr-Edison Av	29	Riverside Dr-Edison Av	57	23,400	23,457	0.244%
	Edison Av-Kimball Av	29	Edison Av-Kimball Av	57	23,900	23,957	0.239%
	Kimball Av-Pine Av	9	Kimball Av-Pine Av	18		18	
	(SB) Riverside Dr-Edison Av	29					
	Edison Av-Kimball Av	29					
	Kimball Av-Edison Av	9					
Kimball Avenue	(EB) Mountain Av-Euclid Av	38	Mountain Av-Euclid Av	82	3,500	3,582	2.338%
	(WB) Mountain Av-Euclid Av	44	Euclid Av-Bonview Av	6		6	
	Euclid Av-Bonview Av	6					
Mountain Avenue	(NB) Kimball Av-Bickmore Av	38	Kimball Av-Bickmore Av	82		82	
	(SB) Kimball Av-Bickmore Av	44					
Pine Avenue	(WB) Euclid Av-Hellman Rd	3	Euclid Av-Hellman Rd	3		3	
4th Street	near Etiwanda Av	31	near Etiwanda Av	31		31	
Etiwanda Avenue	(NB) 4th Street-Interstate 10	44	4th Street-Interstate 10	88	24,900	24,988	0.353%
	(SB) 4th Street-Interstate 10	44					
Hamner Avenue	(NB) Riverside Dr-Bellegrave Av	15	Riverside Dr-Bellegrave Av	20	19,700	19,720	0.102%
	(SB) Riverside Dr-Bellegrave Av	5					
Riverside Drive	(WB) Archibald Av-Haven Av	15	Archibald Av-Haven Av	15	14,400	14,415	0.107%
	Haven Av-Wineville Rd	5	Haven Av-Wineville Rd	14	11,200	11,214	0.124%
	(EB) Haven Av-Wineville Rd	9					
Wineville Road	(NB) Riverside Dr-Bellegrave Av	5	Riverside Dr-Bellegrave Av	5		5	
Bellegrave Avenue	(EB) Hamner Av-Etiwanda Av	10	Hamner Av-Etiwanda Av	10		10	
CA 60	(EB) East of Euclid Av	14	East of Euclid Av	14	202,300	202,314	0.007%
	Euclid Av-Archibald Av	17	Euclid Av-Archibald Av	37	202,300	202,337	0.018%
	Archibald Av-Riverside Av	94	Archibald Av-Etiwanda Av	180	194,000	194,180	0.093%
	East of Riverside Av	17	East of Riverside Av	36	99,100	99,126	0.026%
	(WB) West of Euclid Av	14	West of Euclid Av	9	202,300	202,309	0.004%
	Euclid Av-Archibald Av	20					
	Euclid Av-Riverside Av	86					
	West of Riverside Av	9					
Edison Avenue	(EB) Archibald Av-Haven Av	31	Archibald Av-Haven Av	31	6,900	6,931	0.446%
Archibald Avenue	(NB) CA 60-Chino Av	77	CA 60-Chino Av	77	12,000	12,077	0.642%
	Riverside Dr-Chino Av	62	Riverside Dr-Chino Av	62	12,000	12,062	0.513%
	Chino Av-Edison Av	50	Chino Av-Edison Av	50	12,000	12,050	0.417%
	Edison Av-Bellegrave Av	19	Edison Av-Bellegrave Av	19	12,000	12,019	0.160%
	(SB) South of CA 60	35	South of CA 60	35	12,000	12,035	0.289%
Riverside Avenue	(NB) North of Interstate 10	4	North of Interstate 10	7	16,400	16,407	0.043%

Table 7 also shows estimated Year 2006 average daily traffic (ADT) volumes on the roadway system and the addition of the project traffic as PCE's. The final column of the table shows the percentage of the Year 2006 total volumes resulting from the project traffic. As can be seen from the table volumes associated with the project range from 3 to 189 PCE's. The highest truck volumes are shown on Riverside Avenue (189) and on the 60 Freeway (180). Archibald Avenue, Kimball Avenue, Mountain and Etiwanda Avenue have volumes ranging from 77 to 88. The maximum percentage increase from project traffic in scenario 2 is to Kimball Avenue where 2.4% of the future traffic results from the project. None of these volumes is expected to produce an adverse traffic impact. Figure 11 summarizes the project added traffic in both trucks and PCE's for Scenario 2.

FINDINGS AND RECOMMENDATIONS

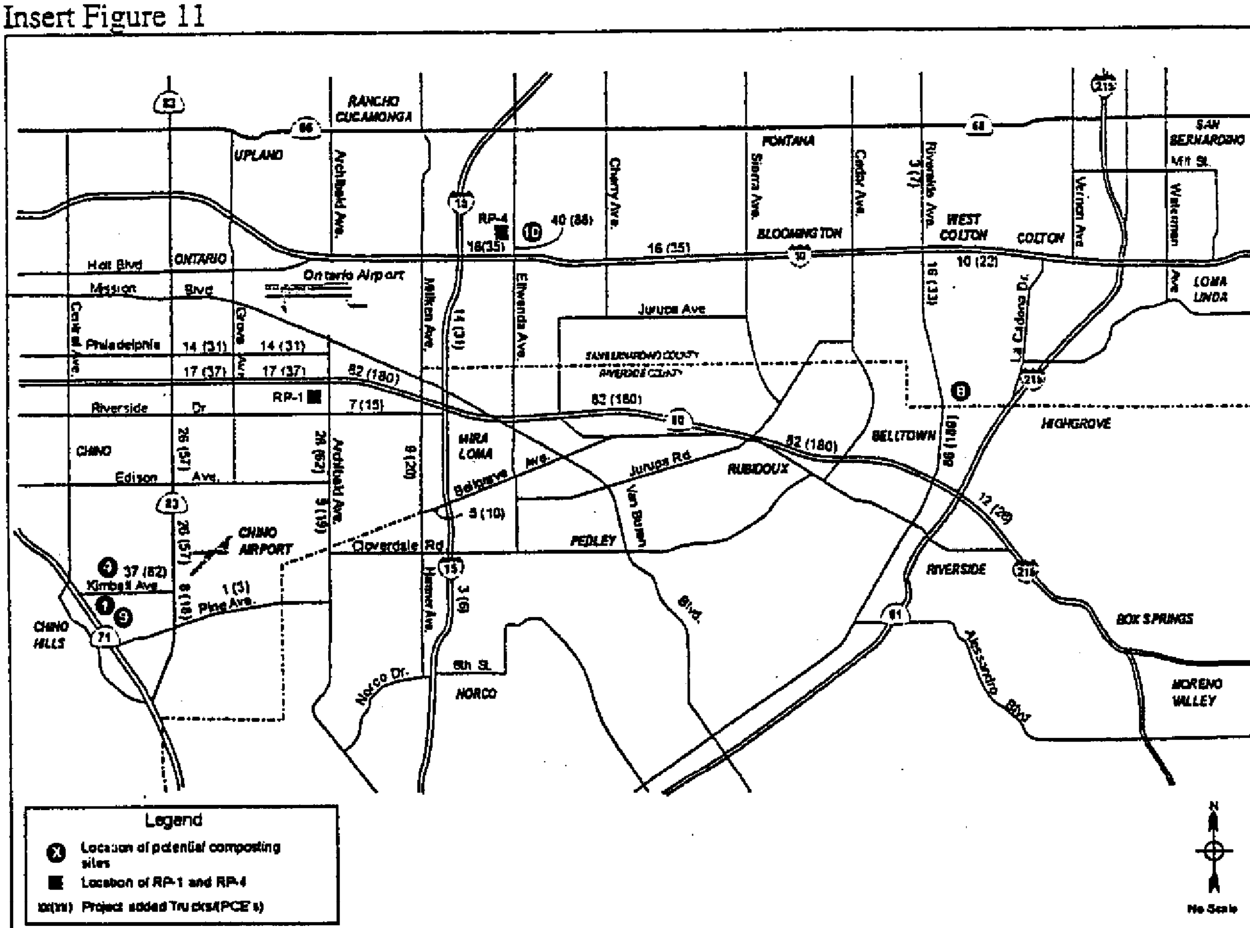
Based on the projected traffic volumes for both scenarios, no adverse traffic impact is anticipated in terms of traffic operations. Roadways providing access to composting sites will need to be evaluated in terms of intersection turning radii and pavement strength to ensure that project-generated truck traffic does not cause damage to the surface and to the curbs.

The next step in the analysis of project traffic impacts will be to conduct a detailed operational analysis for the final site locations and, as necessary, development conceptual design plans to accommodate project traffic. The concept improvements should be specifically oriented toward facilitating the movement of large trucks at facility driveways and nearby intersections. Critical issues that need further analysis and understanding include the availability of right-of-way, adjacent land uses and locations of driveways, existing improvement plans, roadway cross-sections and unique characteristics such as difficulty in making turns, truck queues from adjacent intersections to driveways and pavement conditions.

As part of the process, a toolbox of strategies to improve truck movements should be developed and applied as required at each site and nearby intersections. Some of the toolbox of strategies that should be considered for application includes the following:

- Signalization, signing and striping improvements
- Additional through or turn lanes as dictated by volume
- Additional storage area for vehicle queuing (i.e. right- and left-turn bays)
- Increasing curb radii to accommodate higher turning radius truck
- Pavement/roadbed improvements
- Widening to provide sufficient lane widths for trucks
- Improvements to enhance sight distances

Insert Figure 11



Katz, Okitsu & Associates | Inland Empire Utilities Agency - Potential Composting Sites | Figure 11
Scenario 2 - Project Traffic Forecast

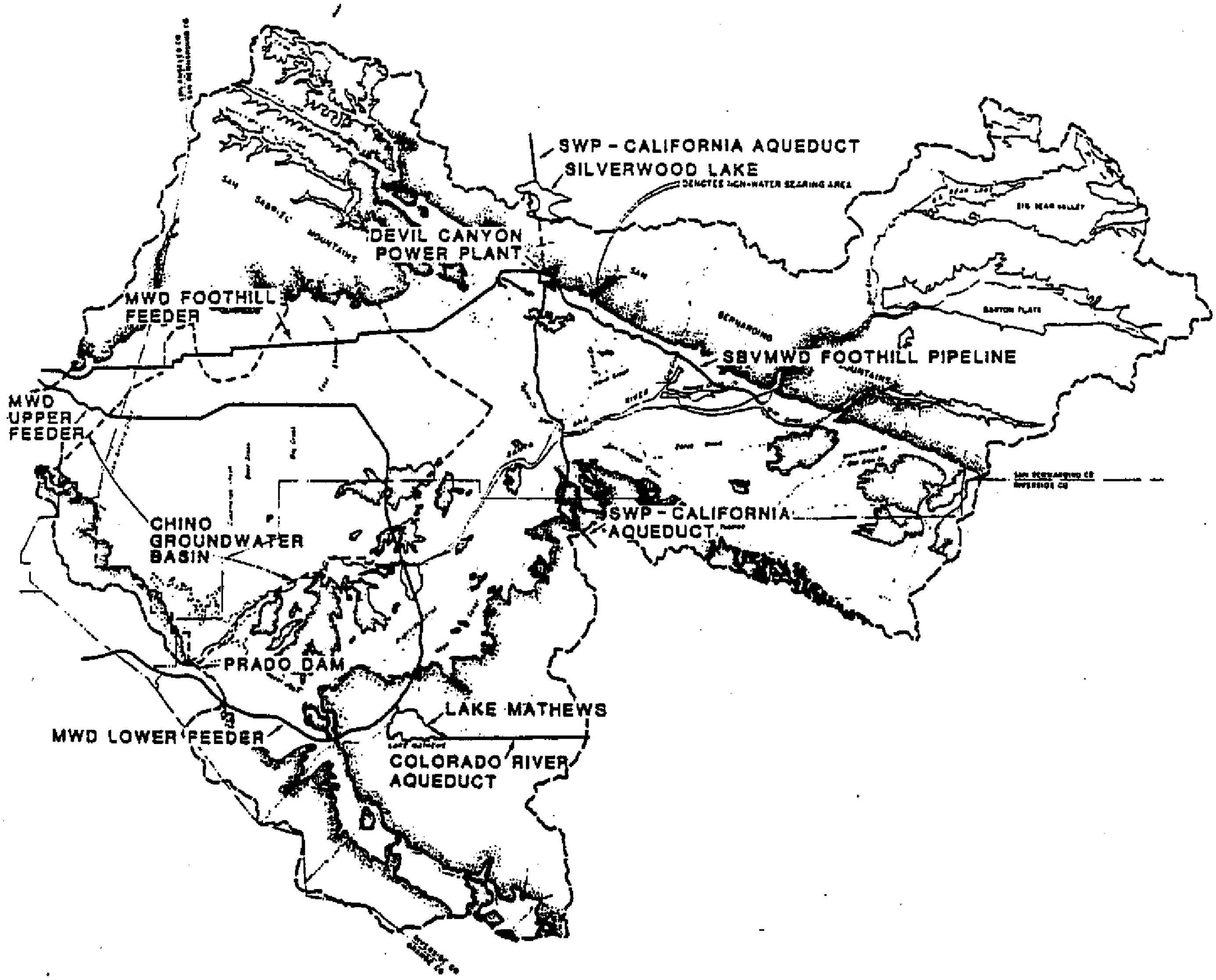
Appendix 8.5

BIOLOGICAL RESOURCES

MWDSC'S CHINO BASIN GROUNDWATER STORAGE EIR'S BIOLOGICAL SECTION

CHINO BASIN GROUNDWATER STORAGE PROGRAM

DRAFT ENVIRONMENTAL IMPACT REPORT



METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

JUNE 1988

REPORT NUMBER 975

Conservation alternatives at Prado Reservoir include the allowance of a maximum conservation pool of 514 ft above MSL rather than 512 ft above MSL (USACE, 1986). However, the previous feasibility study indicated that it was more economical to increase the diversion and recharge capacity of the spreading basins than to further increase the height of Prado Dam only for conservation benefits.

EXISTING BIOLOGICAL RESOURCES

This section describes biological resources in areas potentially affected by the Storage Program. These include Prado Basin and the Santa Ana River, along the Chino Valley Pipeline alignment, at existing spreading basins, and in proposed well field areas.

Prado Basin And Santa Ana River

The Storage Program area lies 30 to 40 miles upstream from the mouth of the Santa Ana River. The limited natural history literature available for the area deals almost exclusively with the Prado Basin portion of the area behind Prado Dam. This area could be affected by the Storage Program and is described below.

Prado Basin is defined as the area behind the dam to an elevation of 566 ft; an area of approximately 11,000 acres (Zembal and Kramer, 1984). Over 4,000 acres of this area is covered with riparian vegetation of which 2,000 to 2,500 acres is dense riparian habitat dominated by monotypic willow woodland (Salix goodingii), within the Prado Dam inundation area which historically was not present (USACE, 1980).

The primary effects of the Storage Program will, with increased water storage, be an increase in groundwater level and baseflow in recharge years and a return to existing baseflows and groundwater levels in extraction years when the stored water is withdrawn from the basin. The magnitude of groundwater storage and/or withdrawal will vary from year-to-year based on SWP water availability for recharge and demand from Metropolitan's member agencies. The baseline condition has been evaluated with these potential effects in mind.

Vegetation and Wildlife Habitat. A total of 311 species of vascular plants, belonging to 65 families, were identified by Zembal and Kramer (1980), who designated 15 habitat types within the Prado Basin. Of these, there are three major vegetational communities within the basin. First is the extensive (>4,000 acres) riparian habitat that occurs in the low lying sections of the basin and along the Santa Ana River and streams running into the basin. The riparian habitat is dominated by extensive stands of black willow (Salix goodingii) with occasional smaller stands of arroyo willow (Salix lasiolepis). There are scattered stands of tall cottonwoods (Populus fremontii) and a single stand of sycamore (Platanus racemosa). The second major vegetation type is upland habitat, found on the surrounding hills, that consists of low shrubs characteristic of coastal sage scrub, plus grasses and exotic weeds, and has been heavily impacted by agriculture and grazing of cattle. A third distinct community consists of the aquatic and semi-aquatic plants living in permanent streams and artificial duck ponds, and in intermittently filled reservoirs and streams within the basin.

Wildlife. The wildlife in the Prado Basin occurs in association with specific habitats and can readily be characterized for the three major vegetational communities discussed above. This section is based on two days of general field work and the recent thorough study of the wildlife within the Prado Basin and adjacent Santa Ana River canyon by the U.S. Fish and Wildlife Service (USFWS) (Zembal and Kramer, 1984), and other references as noted.

The aquatic habitat is host to ten species of fish, but these consist entirely of species introduced either accidentally, such as goldfish (Carassius auratus), or intentionally purpose for sportfishing, such as Brown bullhead (Ictalurus nebulosus), bluegill (Lepomis macrochirus), and largemouth bass (Micropterus salmoides) (Wells and Diana, 1975). Among the amphibians there are also two introduced species, the bullfrog (Rana catesbeiana) and African clawed frog (Xenopus laevis). The latter, a common inhabitant of ponds within the basin, is highly predacious and has caused the near extinction of a number of aquatic species, including the native red-legged frog (Rana aurora), a very rare resident in the basin. The western pond turtle (Clemmys marmorata) is also resident in the basin. Waterbirds associated with the aquatic community include breeding colonies of great blue heron (Ardea herodias) and black-crowned night heron (Nycticorax nycticorax), as well as many wintering species of herons, geese, and 16 species of ducks. Osprey (Pandion haliaetus) have been observed occasionally.

The wildlife of the upland shrublands consists of a variety of reptiles, mammals, and birds characteristic of open areas and grasslands. Among the reptiles is the San Diego horned lizard (Phrynosoma coronatum blainvillei), a category 2 candidate for Federal endangered species listing (Table 4-16). Birds of this habitat include a variety of insectivorous and granivorous species. These include western meadowlark (Sturnella neglecta), western kingbird (Tyrannus vociferans) and several species of sparrows. During winter months, a large number and variety of raptors regularly hunt over the open upland fields within the Prado Basin. These include several sensitive species such as black-shouldered kite (Elanus caeruleus), northern harrier (Cicus cyaneus) and golden eagle (Aquila chrysaetos). Burrowing owls (Athena cunicularia), also considered sensitive, are resident within the grassy areas of the basin, and a flock of Canada geese (Branta canadensis)

TABLE 4-16
LISTING OF SPECIAL STATUS SPECIES
FOUND IN THE STORAGE PROGRAM STUDY AREA

	Listed Species		Federal Candidates[3,4]	
	Federal[1]	State[2]	Category 1	Category 2
Bald Eagle	X	X		
Peregrine Falcon	X	X		
Yellow-billed Cuckco		X		X
Least Bell's Vireo		X	X	
San Diego Horned Lizard				X
Many-stemmed Live-Forever				X
Swainson's Hawk		X		

	Sensitive Species			Audubon 7
	FWS[5]	CDFG[6]	Blue List	Special Concern
Western Greve			X	
Double-crested Cormorant		X		
American Bittern			X	
Least Bittern		X	X	
White-faced Ibis	X	X		
Turkey Vulture				X
Osprey		X		X
Northern Harrier		X	X	
Sharp-shinned Hawk		X	X	
Cooper's Hawk		X		X
Red-shouldered Hawk			X	
Swainson's Hawk		X	X	
Golden Eagle		X		
Common Barn-owl				X
Western Screech-owl				X
Burrowing Owl		X		X
Long-eared Owl		X		
Willet				X
Hairy Woodpecker			X	
Willow Flycatcher	X	X	X	
Bewick's Wren			X	
Western Bluebird	X			X
Mountain Bluebird				X
Loggerhead Shrike	X		X	
Yellow Warbler	X	X	X	
Yellow-breasted Chat		X		

[1] USFWS 1983a [2] CDFG 1980 [3] USFWS 1983b [4] USFWS 1983c
[5] USFWS 1982a [6] Remsen 1979 [7] Tate and Tate 1982
From Zembel and Kramer, 1984

regularly winters in the basin, feeding on shoots of grasses i the upland areas. Mammals of the upland areas include many rodents, with pocket gophers (Thomomys bottae) and California ground squirrel (Spermophilus beecheyi) abundant. Coyote (Canis latrans) is the one common large predator.

The riparian area within the Prado Basin is extensive, coverin the low lying areas just above Prado Dam as well as stream and river channels entering the basin. Most of the riparian habitat is covered by dense monotypic willow woodland. The region regularly inundated behind the dam contains a low diversity of weedy species and dead willows.

Wildlife of the riparian community includes a variety of amphibians, such as garden slender salamander (Batrachoseps major) and Pacific tree frog (Hyla regilla). Mammals within this habitat include bobcat (Felis rufus), mule deer (Odocoileus hemionus), racoon (procyon lotor) and opossum (Didelphis virginians).

Birds are numerous in the willow riparian habitat both as wintering and breeding species. Among the breeding birds are several species of special concern which are considered in the following section. Of the 171 species of birds observed in Prado Basin by Zembal and Kramer (1984), 100 were associated with riparian and open-water habitats. Several species nesting near or on the ground are adversely affected when the willow woodland is inundated during the breeding season. Affected species include common yellowthroat (Geothlypis trichas), song sparrow (Melospiza melodia), yellow-breasted chat (Icteria virens) and least Bell's vireo (Vireo bellii pusillus).

Threatened, Endangered, and Other Special Status Species. Special status species found in the Prado Basin are summarized in Table 4-16. Three species of birds are listed as both State and Federal endangered species: bald eagle (Haliaeetus leucocephalus), peregrine falcon (Falco peregrinus) and least

Bell's vireo, which although listed as a category 2 candidate species in the table from Zembal and Kramer (1984) was listed as Federally endangered in June, 1986. Two other birds, Swainson's hawk (Buteo swainsoni) and yellow-billed cuckoo (Coccyzus americanus) are listed by the State as Endangered; the latter species is also a category 2 candidate for Federal listing. There are two additional category 2 candidate species for Federal listing: the San Diego horned lizard and a plant, the many-stemmed live-forever (Dudleya multicaulis).

An additional 25 species of birds occurring in the Prado Basin are listed as sensitive species by the U.S. Fish and Wildlife Service, California Department of Fish and Game, and/or Audubon Society (Table 4-16). Of the endangered and sensitive species, four species are known to breed in the willow woodland in the Prado Basin: yellow warbler (Dendroica petechia), willow flycatcher (Empidonax traillii), yellow-billed cuckoo, and least Bell's vireo. Least Bell's vireos were more numerous formerly but have been reduced in number throughout their range by two major factors. The common factors adversely impacting these species are loss of riparian habitat throughout their range and decrease in nesting success caused by parasitism from brown-headed cowbirds. Of all the special status species found within the Prado Basin, the least Bell's vireo deserves special attention as Prado basin contains a significant portion of the population of this species and the basin is proposed as critical habitat for the species.

Status of Least Bell's Vireo. The least Bell's vireo (Vireo bellii pusillus) is a small migratory songbird that breeds in riparian habitat from Central California southward into northern Baja California. The species has declined from its abundance in former times due to habitat loss and to brood parasitism by the brown-headed cowbird, a species that has increased in numbers since the introduction of horses and cattle to California. Because of its rarity, the least Bell's vireo was listed as endangered by the State of California in

1980 and as a Federal endangered species on June 2, 1986 (USFWS 1985, 1986). Critical habitat was not designated at the time, but under the Endangered Species Act must be designated within one year of listing of a species.

A species listed as endangered is protected by law from any harassment or harm. Areas designated as critical habitat are protected from disturbance or destruction whether or not vireos are present in the area. The amount of habitat designated as critical habitat is designed to be sufficient for an endangered species to increase in numbers to the point where it no longer requires endangered status.

The proposed critical habitat area for the least Bell's vireo consists of ten areas in Southern California; one in Santa Barbara County, one area (Santa Clara River) that involves both Los Angeles and Ventura Counties, one area (Prado Basin) that involves both Riverside and San Bernardino Counties, and seven areas in San Diego County. These ten proposed critical habitat areas involve about 43,000 acres and include about 75 percent of the known population of least Bell's vireo. The rest of the population occurs scattered in small areas that contain few vireos. A complete survey of one of the San Diego County areas, the Sweetwater River, is underway under the auspices of the San Diego Association of Governments and CALTRANS. This report will be finished in 1987. Although no general surveys of the other proposed critical habitat areas are currently in progress, biological studies of several of the other areas have been completed.

One of the proposed critical habitat areas for least Bell's vireo consists of the Prado Basin and a section of the Santa Ana River immediately upstream from Prado Dam. The proposed critical habitat area includes "All lands below the 543-foot contour....within the Prado Flood control Basin (upstream from Prado Dam)" (USFWS 1985, p. 18972). In addition, map coordinates that bound about 12 miles of the Santa Ana River upstream from Prado Dam also identify critical habitat area.

At the time the critical areas were proposed, it was thought that "vireos obtain all their survival [sic] needs (food, cover, nest sites, nestling and fledgling protection) within the riparian zone" (USFWS 1985, p. 18971). However, subsequent studies have provided additional information on vireo behavior. When the least Bell's vireo was listed, it was known that "birds forage in riparian and adjoining chaparral habitat" (USFWS 1986, p. 16474). Such foraging in adjoining habitat can extend up to 300 yards from the nest site.

Much of what is known about the behavior of least Bell's vireos was obtained from populations that were reduced in numbers by cowbird parasitism. In the last few years, studies of populations freed from parasitism by programs for trapping cowbirds have revealed additional information about vireo behavior. Some of this information is of great relevance to management plans for the least Bell's vireo.

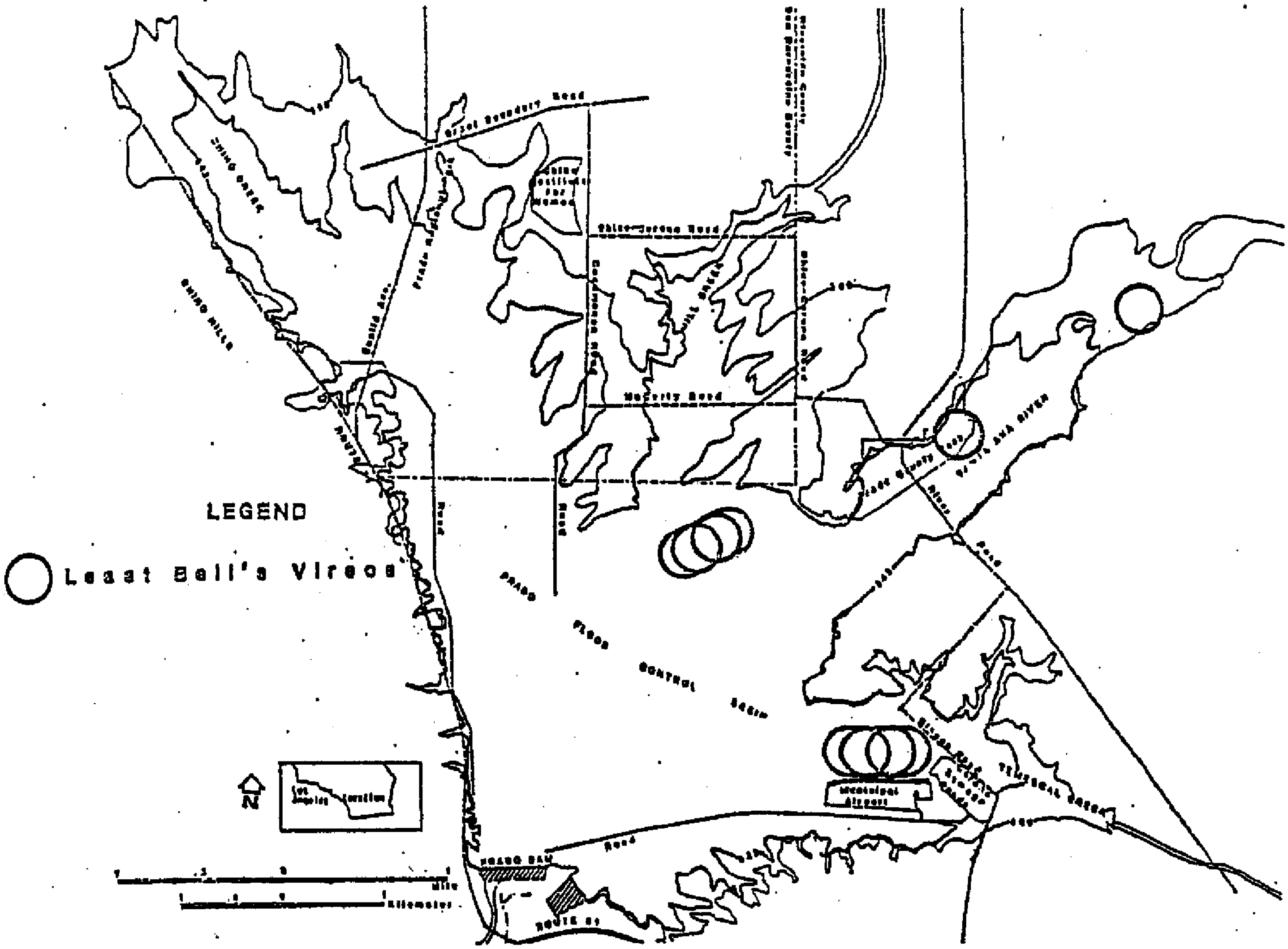
Recent studies have shown that as vireo nest success increased in an area due to cowbird elimination, the additional vireos tended to nest in the same area where they fledged, increasing the density in that area, rather than colonizing new areas. This phenomenon of site tenacity (preference for the area where an individual was fledged) means that while it will be fairly easy, through the elimination of cowbirds, to increase vireo density in areas where they already exist, it will be harder to get vireos to recolonize other areas of seemingly suitable habitat where they do not now exist. For this reason, plans to increase vireo populations have focused on a few large areas of suitable habitat where vireo populations are currently found rather than on other areas of suitable habitat that lack vireos. When critical habitat areas were proposed, it was known that least Bell's vireos nested preferentially in dense riparian habitat, preferring young willow thickets. As vireo numbers increased with the elimination of cowbirds, vireos were found to be less selective as to riparian habitat type. It would seem that their past preference for young, dense willow thickets was due in part to the vegetational density of this habitat being the best protection against cowbird parasitism. With the elimination of cowbirds, other riparian habitats became acceptable to vireos.

A biological survey of the Prado Basin was conducted by the USFWS during the summer of 1983 (Zembal and Kramer, 1984). This survey found 25 territorial male least Bell's vireos (a singing male is considered evidence of nesting). One of these was in riparian habitat along the Santa Ana River downstream from Prado Dam. All other males were within the proposed critical habitat area within the Prado Basin and along the Santa Ana River upstream of the basin (Figure 4-29).

The Prado Basin is home to one of the four largest remaining populations of least Bell's vireo. As it is also one of the largest areas of riparian habitat among the proposed critical habitat areas, the protection and improvement of this area for least Bell's vireo is an essential part of the recovery plan for this species.

Chino Valley Pipeline

For most of its length, the proposed alignment is in existing streets in residential or commercial areas, where no native vegetation or wildlife occur. Only the section between the southern end of Wheeler Avenue and the A.T. and S.F. Railroad right-of-way, where the alignment turns east, traverses an open graded field. This section is approximately 900 feet long. The field is characterized by a mix of native and introduce grasses, providing habitat, between discings, for grassland species of birds and rodents. The habitat is not considered to be significant because of its highly disturbed condition.



SOURCE: ZEMBAL AND KRAMER, 1986, Pg. 43

LOCATION OF TERRITORIAL MALE LEAST BELL'S VIREOS
FIGURE 4-29

If the alignment, alternatively, goes from 3rd and Wheeler, east to Park, then south on Park to Arrow Highway and east, then the entire pipeline would be laid in roadways and no biological resources would be expected to be encountered.

At the eastern end of the pipeline, all three alternatives would place the line in the streets.

For alignments in streets, potentially affected biologic resources would be negligible, the vegetation limited to ornamental plants and non-native grasses, and animals to suburban bird species. No rare, threatened, or endangered species would be impacted.

Existing Spreading Basins

If spreading basins were kept full of water and not maintained, a lake and lakeside habitat would develop. Fish do enter the basins from the aqueduct. Because the basins are periodically drained and sediment excavated, and weeds removed to maintain percolation rates, however, such habitat is effectively inhibited. Periodic draining is also necessary to control populations of midge flies and other water-associated flying insects. As a result, the basins are not considered to contain significant biological resources.

Well Field Areas

The wellfields have not been precisely defined and well sites have not yet been determined. The general areas are characterized by agriculture, with growing areas of industrial and suburban development. These land uses do not contain significant biological resources because virtually all natural vegetation has been removed.

There should be no loss of agricultural crops as the wells and pipelines would be in existing rights-of-way wherever possible. The finished wells would each occupy an area perhaps 20 ft by 20 ft adjacent to a roadway. The acreage required for the entire wellfield would be negligible.

Future Condition Of Biological Resources Without the Storage Program

Prado Reservoir. Future conditions of the riparian and aquatic vegetation and wildlife habitat may remain relatively unaltered in the future. Urbanization in and immediately adjacent to these habitat types in the Prado Basin area is unlikely because the land is owned or controlled by the USACE in the Prado Dam inundation area and the Dairy Trust in the surrounding upland. Urbanization in the upstream portions of San Bernardino County may result in increased flow of reduced water quality. Certain related projects will affect biological resources, as described below.

The proposed Seven Oaks Dam on the upper Santa Ana River would reduce the frequency and magnitude of flooding in the Chino Basin, USACE 1985). Reduced flooding is predicted to decrease the frequency and extent of removal of willows and other riparian vegetation by floods. These changes in surface flow regime should result in an increase in the extent and duration of mature willow woodland in the current riparian zone. There would be a concomitant decrease in the extent of young, dense, willow thickets that develop in the first few years after a flood has scoured away streamside vegetation. Such young dense willows are the preferred habitat of the endangered least Bells' vireo. Specific impacts of the Seven Oaks Dam on the biological resources downstream in the Prado Basin were not considered in the 1985 Final Supplemental Environmental Impact Statement (USACE 1985). Studies to assess the downstream impacts are planned for 1987 by the USACE.

Raising the Prado Dam spillway would significantly increase the potential inundation area behind the dam. Seasonal inundation of a greater portion of the riparian habitat would reduce the understory species and associated dense near-ground habitat, used by species such as the least Bell's vireo. Inundation during the growing season is known to have serious negative effects on many riparian plant species because of decreased oxygen concentration in the root zone in saturated soil (Teskey and Hinckley 1980). One unpublished study reports that black willows in the central valley of California had 100 percent survival after 60 days of constant total submersion (Walters, et al., 1980). No information on number and size of the willows or season of inundation in the study is available. However, this study suggests that temporary inundation in the winter in Prado Basin would probably not kill willows unless the water was present continuously for significantly more than two months.

Water conservation storage in Prado Reservoir as proposed by OCWD would result in inundation of extensive areas of Prado Basin for up to 10 months per year. Walters, et al. (1980) list black willow as a flood tolerant species, defined by them as "trees which can withstand flooding for most of one growing season. Some new root development can be expected during this period." They list sycamore and cottonwood as intermediately tolerant of flooding, defined by them as "species which are able to survive flooding for periods between one to three months during the growing season. The root systems of these plants may produce few new roots or will be dormant during the flooded period." Consequently, inundation of the duration required by a water conservation project probably would kill all willows and other riparian vegetation inundated and drastically reduce the extent and quality of the willow woodland adversely impacting the many species of vertebrates, including the endangered least Bell's vireo, dependent on willow woodland and extensive areas of associated riparian vegetation. The extensive inundation of the reservoir would probably enhance the use of the area by birds dependent on open water, such as ducks, geese, herons, and egrets.

Chino Valley Pipeline. The future biological conditions in the absence of the project along the Chino Valley Pipeline, at the spreading basins and well field area will be essentially as at present. As the wellfield area develops, land use will continue to change from agriculture to industrial and suburban. Natural biological resources will continue to be essentially absent.

CULTURAL RESOURCES

In June and July 1987, Scientific Resource Surveys, Inc. (SRS) conducted a literature search, records check, field reconnaissance and prepared a cultural resources survey report for the proposed project facilities sites, and for Prado Dam where cumulative impacts are a consideration. This report is included as Appendix F hereafter, and contains a detailed discussion of the cultural history of the Storage Program area. A summary of the results of these investigations follows.

The cultural resources analysis was organized into several tasks based on the facilities locations proposed and potential related impact areas as outlined below.

- well field and connecting pipelines routes,
- Chino Valley Pipeline alignment,
- Wells along the Etiwanda Pipeline alignment, and
- Prado Basin.

Well Field and Pipelines

No prehistoric cultural resources were identified within the well field and pipeline potential site areas as a result of the survey. Twenty historical structures more than 50 years old were identified based on stylistic characteristics, but none appear to be significant, based on National Register criteria.

CALIFORNIA NATIVE PLANT SOCIETY (CNPS) PLANT LIST

California Department of Fish and Game
Natural Diversity Database

SPECIAL PLANTS LIST

January 2000

Citation: California Department of Fish and Game, Natural Diversity Database. January, 2000. Special Plants List. Biannual publication, Mimeo., 119p.

SPECIAL PLANTS

"Special Plants" is a broad term used to refer to all the plant taxa inventoried by the Department of Fish and Game's California Natural Diversity Database (CNDDB), regardless of their legal or protection status. Special Plant taxa are species, subspecies, or varieties that fall into one or more of the following categories:

- Officially listed by California or the Federal Government as Endangered, Threatened, or Rare;
- A candidate for state or federal listing as Endangered, Threatened, or Rare;
- Taxa which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- A Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S. Forest Service Sensitive Species;
- Taxa listed in the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California*;
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range but not currently threatened with extirpation;
- Population(s) in California that may be peripheral to the major portion of a taxon's range but are threatened with extirpation in California; and
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands, valley shrubland habitats, vernal pools, etc.).

This list contains taxa that are actively inventoried by the CNDDB (Note: a "yes" in the right column of the list) as well as an almost equal number of taxa which it tracks but as yet has no computerized site information. For the latter taxa, we maintain site and other information in manual files. These plants will be added to the computerized inventory as time permits or when we have enough information to determine that they fulfill our rarity and/or endangerment criteria. For more copies of this list or other CNDDB information, call (916) 324-3812.

ELEMENT RANKING

GLOBAL RANKING

The *global rank* (G-rank) is a reflection of the overall condition of an element throughout its global range.

SPECIES OR NATURAL COMMUNITY LEVEL

G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres.
G2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres.
G3 = 21-100 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres.
G4 = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.

SUBSPECIES LEVEL

Subspecies receive a **T-rank** attached to the G-rank. With the subspecies, the G-rank reflects the condition of the entire species, whereas the T-rank reflects the global situation of just the subspecies or variety.
For example: *Chorizanthe robusta* var. *hartwegii*. This plant is ranked G2TI. The G-rank refers to the whole species range i.e., *Chorizanthe robusta*. The T-rank refers only to the global condition of var. *hartwegii*.

STATE RANKING

The *state rank* (S-rank) is assigned much the same way as the global rank, except state ranks in California often also contain a threat designation attached to the S-rank.

S1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres
- S1.1 = very threatened
- S1.2 = threatened
- S1.3 = no current threats known

S2 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres
- S2.1 = very threatened
- S2.2 = threatened
- S2.3 = no current threats known

S3 = 21-100 EOs or 3,000-10,000 individuals OR 10,000-50,000 acres
- S3.1 = very threatened
- S3.2 = threatened
- S3.3 = no current threats known

S4 = Apparently secure within California; this rank is clearly lower than S3 but factors exist to cause some concern; i.e. there is some threat, or somewhat narrow habitat. NO THREAT RANK.

S5 = Demonstrably secure to ineradicable in California. NO THREAT RANK.

Notes:

1. Other considerations used when ranking a species or natural community include the pattern of distribution of the element on the landscape, fragmentation of the population/stands, and historical extent as compared to its modern range. It is important to take a bird's eye or aerial view when ranking sensitive elements rather than simply counting EOs.

2. Uncertainty about the rank of an element is expressed in two major ways:

   By expressing the rank as a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3.

   By adding a ? to the rank: e.g., S2? This represents more certainty than S2S3, but less than S2.

3. Other symbols

   GH All sites are historical; the element has not been seen for at least 20 years, but suitable habitat still exists (SH = All California sites are historical).
   GX All sites are extirpated; this element is extinct in the wild (SX = All California sites are extirpated).
   GXC Extinct in the wild; exists in cultivation.
   G1Q The element is very rare, but there are taxonomic questions associated with it.

The California Native Plant Society's (CNPS) Lists and R-E-D Code[1]

1A. Presumed extinct in California
1B. Rare or Endangered in California and elsewhere
2. Rare or Endangered in California, more common elsewhere
3. Plants for which we need more information - Review list
4. Plants of limited distribution - Watch list

List 1A: Plants presumed Extinct in California

The 37 plants of List 1A are presumed extinct because they have not been seen or collected in the wild in California for many years. Although most of them are restricted to California, a few are found in other states as well. In many cases, repeated attempts have been made to rediscover these plants by visiting known historical locations. Note the difference between "extinct" and "extirpated." A plant is extirpated if it has been locally eliminated, but it may be doing well elsewhere in its range. The NDDB further splits this group of plants into those that are statewide historical (SH) and those that are extinct in the state (SX).

All of the plants constituting List 1A meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. If these taxa are rediscovered, they should be fully considered during preparation of environmental documents relating the California Environmental Quality Act (CEQA).

List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.

The 857 plants of List 1B are rare throughout their range. All but a few are endemic to California. All of them are judged to be vulnerable under present circumstances or to have a high potential for becoming so because of their limited or vulnerable habitat, their low numbers of individuals per population (even though they may be wide ranging), or their limited number of populations. Most of the plants of List 1B have declined significantly since the arrival of non-indigenous humanity in California.

All of the plants constituting List 1B meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. List 1B plants should be fully considered during preparation of environmental documents relating to CEQA.

List 2: Plants Rare, Threatened, or Endangered in California, but more common elsewhere

Except for being common beyond the boundaries of California, the 272 plants of List 2 would have appeared on List 1B. From the federal perspective, plants common in other states or countries are not eligible for consideration under the provisions of the Endangered Species Act. Until 1979, a similar policy was followed in California. However, after the passage of the Native Plant Protection Act, plants were considered for protection without regard to their distribution outside the state.

All of the plants constituting List 2 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. List 2 plants should be fully considered during preparation of environmental documents relating to CEQA.

List 3: Plants about which we need more information - A Review list

The 47 plants that comprise List 3 are united by one common theme--we lack the necessary information to assign them to one of the other lists or to reject them.

Some of the plants constituting List 3 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and are eligible for state listing. We recommend that List 3 plants be evaluated for consideration during preparation of environmental documents relating to CEQA.

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[1] Excerpted and modified from Skinner, M.W. and B.M. Pavlik. 1994. *CNPS Inventory of Rare and Endangered Vascular Plants of California*, Fifth edition. CNPS Special Publication No. 1, Sacramento, California.

List 4: Plants of limited distribution - A Watch list

The 532 plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time. While CNPS cannot call these plants "rare" from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Should the degree of endangerment or rarity of a List 4 plant change, it will be transferred to a more appropriate list or deleted from consideration.

Very few of the plants constituting List 4 meet the definitions of Sec. 1901, Chapter 10 (Native Plant Protection Act) or Secs. 2062 and 2067 (California Endangered Species Act) of the California Department of Fish and Game Code, and few, if any, are eligible for state listing. Nevertheless, many of them are significant locally, and we recommend that List 4 plants be evaluated for consideration during preparation of environmental documents relating to CEQA. This may be particularly appropriate for the type locality of a List 4 plant, for populations at the periphery of a species' range or in areas where the taxon is especially uncommon or has sustained heavy losses, or for populations exhibiting unusual morphology or occurring on unusual substrates.

The R-E-D Code

Even before the publication of the first edition of the *CNPS Inventory*, CNPS determined that attempts to categorize plants solely on the degree of threat, as embodied in such terms as rare, threatened, or endangered, were too restrictive. This is so primarily because the question of rarity frequently interferes with the question of endangerment. With few exceptions, endangered plants are also rare. However, some plants of more widespread occurrence are endangered and their numbers have declined because of commercial or private exploitation for horticultural use. Many cacti, lilies, orchids, succulents, and insectivorous plants fall into this category. In other cases, very rare plants occur in stable habitants such as alpine fell fields. Typically these plants cannot realistically be described as endangered, except perhaps through stochastic extinction associated with small population sizes or numbers.

In an attempt to increase the refinement of assigning plants to categories, CNPS uses a scheme that combines three complementary elements that are scored independently. These components are: **rarity (R)**, which addresses the extent of the plant, both in terms of numbers of individuals and the nature and extent of distribution; **endangerment(E)**, which embodies the perception of the plant's vulnerability to extinction for any reason; and **distribution (D)**, which focuses on the overall range of the plant.

Together these three elements form the R-E-D Code. Each element in the code is divided into three classes or degrees of concern, represented by the numbers 1, 2, or 3. In each case, higher numbers indicate greater concern. The system is summarized as follows:

R (Rarity)

1. **Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction is low at this time**
2. **Distributed in a limited number of occurrences, occasionally more if each occurrence is small**
3. **Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported**

E (Endangerment)

1. Not endangered
2. **Endangered in a portion of its range**
3. **Endangered throughout it range**

D (Distribution)

1. More or less widespread outside California
2. Rare outside California
3. Endemic to California

For example, an R-E-D Code of 3-3-3 indicates that the plant in question is limited to one population or several restricted ones, that it is endangered throughout its range, and that it is endemic to California.

State of California
THE RESOURCES AGENCY
Department of Fish and Game
May 4, 1984
Revised August 15, 1997

GUIDELINES FOR ASSESSING THE EFFECTS OF PROPOSED DEVELOPMENTS ON RARE AND ENDANGERED PLANTS AND PLANT COMMUNITIES

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted, and what information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare, threatened and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered under the following definitions:

   A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

   Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Data Base's Outline of Terrestrial Communities in California may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

   a. Based on an initial biological assessment, natural vegetation occurs on the site and it is unknown if rare, threatened, or endangered plants or habitats occur on the site; or

   b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

   a. Experience conducting floristic field surveys;

   b. Knowledge of plant taxonomy and plant ecology;

   c. Familiarity with the plants of the area, including rare, threatened, and endangered species; and

   d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

   a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

      Additionally, field surveys should be conducted with a sufficient number of visits spaced throughout the growing season to accomplish a floristic survey of the site (see 4.b.). When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A complete species list should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species (voucher specimens) should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Plant Conservation Program of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens..

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5' minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations, EIRs and EISs, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.

b. A written description of biological setting referencing the community nomenclature used and a vegetation map.

c. Detailed description of survey methodology.

d. Dates of field surveys and total person-hours spent on field surveys.

e. Results of survey (including detailed maps).

f. An assessment of potential impacts.

g. Discussion of the importance of rare, threatened, or endangered plant populations with consideration of nearby populations and total species distribution.

h. Recommended measures to avoid impacts.

I. List of all species occurring on the project site.

j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).

k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.

l. Name(s) of field investigator(s).

l. References cited, persons contacted, herbaria visited, and disposition of voucher specimens.

California Department of Fish and Game, Natural Diversity Data Base
Special Plants List

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ABIES AMABILIS PACIFIC SILVER FIR PGPIN01010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	2 211
ABIES BRACTEATA BRISTLECONE FIR PGPIN01030	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G2? S2?	List: Code:	4 113
ABIES LASIOCARPA VAR LASIOCARPA SUBALPINE FIR PGPIN01072	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S3.3	List: Code:	2 211
ABRONIA ALPINA RAMSHAW MEADOWS ABRONIA PDNYC01020	Records in NDDB: *Yes*	Federal: State:	Candidate None	Global: State:	G1 S1.1	List: Code:	1B 333
ABRONIA MARITIMA RED SAND-VERBENA PDNYC010E0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3? S3?	List: Code:	4 122
ABRONIA NANA SSP COVILLEI COVILLE'S DWARF ABRONIA PDNYC010H1	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3T4 S3.2	List: Code:	4 121
ABRONIA UMBELLATA SSP BREVIFLORA PINK SAND-VERBENA PDNYC010N2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.1	List: Code:	1B 222
ACANTHOMINTHA DUTTONII SAN MATEO THORN-MINT PDLAM01040	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
ACANTHOMINTHA ILICIFOLIA SAN DIEGO THORN-MINT PDLAM01010	Records in NDDB: *Yes*	Federal: State:	Threatened Endangered	Global: State:	G1 S1.1	List: Code:	1B 232
ACANTHOMINTHA LANCEOLATA SANTA CLARA THORN-MINT PDLAM01020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ACANTHOMINTHA OBOVATA SSP CORDATA HEART-LEAVED THORN-MINT PDLAM01033	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3T3? S3.2?	List: Code:	4 123
ACANTHOMINTHA OBOVATA SSP OBOVATA SAN BENITO THORN-MINT PDLAM01032	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G3T3 S3.2?	List: Code:	4 123
ACHNATHERUM ARIDUM MORMON NEEDLE GRASS PMPOA5X010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	2 211
ACHNATHERUM DIEGOENSE SAN DIEGO COUNTY NEEDLE GRASS PMPOA5X0B0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 121

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ACHNATHERUM LEMMONII VAR PUBESCENS PUBESCENT NEEDLE GRASS PMPOA5X0F2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T2 S1.2?	List: Code:	3 323
ACLEISANTHES LONGIFLORA ANGEL TRUMPETS PDNYC02040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3	List: Code:	2 311
ADOLPHIA CALIFORNICA CALIFORNIA ADOLPHIA PDRHA01010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S2.1	List: Code:	2 121
AGAVE SHAWII SHAW'S AGAVE PMAGA010P0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S1.1	List: Code:	2 331
AGAVE UTAHENSIS UTAH AGAVE PMAGA010S0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3?	List: Code:	4 122
AGERATINA SHASTENSIS SHASTA AGERATINA PDASTBX0R0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G2G3 S2S3	List: Code:	4 113
AGROSTIS BLASDALEI BLASDALE'S BENT GRASS PMPOA04060	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
AGROSTIS CLIVICOLA VAR CLIVICOLA COASTAL BLUFF BENT GRASS PMPOA040A1	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G3T3 S3?	List: Code:	
AGROSTIS CLIVICOLA VAR PUNTA-REYESENSIS PT REYES BENT GRASS PMPOA040A2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3T1 S1.2	List: Code:	
AGROSTIS HENDERSONII HENDERSON'S BENT GRASS PMPOA040K0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1Q S1.1	List: Code:	3 322
AGROSTIS HOOVERI HOOVER'S BENT GRASS PMPOA040M0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2?	List: Code:	4 123
AGROSTIS HUMILIS MOUNTAIN BENT GRASS PMPOA040P0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.3	List: Code:	2 311
ALLIUM ATRORUBENS VAR ATRORUBENS GREAT BASIN ONION PMLIL02061	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T4 S3.3	List: Code:	2 211
ALLIUM BOLANDERI VAR MIRABILE WONDERFUL ONION PMLIL02093	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4G5T3 S2?	List: Code:	
ALLIUM FIMBRIATUM VAR PURDYI PURDY'S ONION PMLIL020Y7	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3G4T3 S3.3?	List: Code:	4 113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ALLIUM HICKMANII		Federal:	Species of concern	Global:	G2	List:	1B
HICKMAN'S ONION		State:	None	State:	S2.2	Code:	223
PMLIL02140	Records in NDDB: *Yes*						
ALLIUM HOFFMANII		Federal:	None	Global:	G3	List:	4
BEEGUM ONION		State:	None	State:	S3.3	Code:	113
PMLIL02150	Records in NDDB: *No*						
ALLIUM HOWELLII VAR CLOKEYI		Federal:	None	Global:	G3T3	List:	4
MT. PINOS ONION		State:	None	State:	S3?	Code:	113
PMLIL02161	Records in NDDB: *No*						
ALLIUM JEPSONII		Federal:	Species of concern	Global:	G1	List:	1B
JEPSON'S ONION		State:	None	State:	S1.2	Code:	323
PMLIL022V0	Records in NDDB: *Yes*						
ALLIUM MUNZII		Federal:	Endangered	Global:	G1	List:	1B
MUNZ'S ONION		State:	Threatened	State:	S1.1	Code:	333
PMLIL022Z0	Records in NDDB: *Yes*						
ALLIUM NEVADENSE		Federal:	None	Global:	G4	List:	2
NEVADA ONION		State:	None	State:	S1.3	Code:	311
PMLIL021J0	Records in NDDB: *Yes*						
ALLIUM PARISHII		Federal:	None	Global:	G3	List:	4
PARISH'S ONION		State:	None	State:	S3.3?	Code:	112
PMLIL021N0	Records in NDDB: *No*						
ALLIUM PENINSULARE VAR FRANCISCANUM		Federal:	None	Global:	G5T2?	List:	
SAN FRANCISCO ONION		State:	None	State:	S2?	Code:	
PMLIL021R1	Records in NDDB: *No*						
ALLIUM SANBORNII VAR CONGDONII		Federal:	None	Global:	G3T3	List:	4
CONGDON'S ONION		State:	None	State:	S3.3	Code:	113
PMLIL02211	Records in NDDB: *No*						
ALLIUM SANBORNII VAR SANBORNII		Federal:	None	Global:	G3T3	List:	4
SANBORN'S ONION		State:	None	State:	S3.2	Code:	122
PMLIL02212	Records in NDDB: *No*						
ALLIUM SHARSMITHAE		Federal:	None	Global:	G2	List:	1B
SHARSMITH'S ONION		State:	None	State:	S2?	Code:	213
PMLIL020Y9	Records in NDDB: *Yes*						
ALLIUM SHEVOCKII		Federal:	Species of concern	Global:	G1	List:	1B
SPANISH NEEDLE ONION		State:	None	State:	S1.3	Code:	313
PMLIL022M0	Records in NDDB: *Yes*						
ALLIUM SISKIYOUENSE		Federal:	None	Global:	G4	List:	4
SISKIYOU ONION		State:	None	State:	S3.3?	Code:	111
PMLIL02280	Records in NDDB: *No*						
ALLIUM TRIBRACTEATUM		Federal:	Species of concern	Global:	G2	List:	1B
THREE-BRACTED ONION		State:	None	State:	S2.2	Code:	323
PMLIL022D0	Records in NDDB: *Yes*						
ALLIUM TUOLUMNENSE		Federal:	Species of concern	Global:	G2	List:	1B
RAWHIDE HILL ONION		State:	None	State:	S2.2	Code:	223
PMLIL022W0	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ALLIUM YOSEMITENSE YOSEMITE ONION PMLIL022L0	Records in NDDB: *Yes*	Federal: State:	None Rare	Global: State:	G2 S2.3	List: Code:	1B 213
ALOPECURUS AEQUALIS VAR SONOMENSIS SONOMA ALOPECURUS PMPOA07012	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G5T1 S1.1	List: Code:	1B 333
AMBROSIA CHENOPODIIFOLIA SAN DIEGO BUR-SAGE PDAST0C080	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.1	List: Code:	2 221
AMBROSIA PUMILA SAN DIEGO AMBROSIA PDAST0C0M0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 332
AMMOSELINUM GIGANTEUM DESERT SAND-PARSLEY PDAPI05020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 SH	List: Code:	2 311
AMSINCKIA GRANDIFLORA LARGE-FLOWERED FIDDLENECK PDBOR01050	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
AMSINCKIA LUNARIS BENT-FLOWERED FIDDLENECK PDBOR01070	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3?	List: Code:	4 113
AMSINCKIA VERNICOSA VAR FURCATA FORKED FIDDLENECK PDBOR01030	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G5T3 S3.2	List: Code:	4 123
ANDROSACE ELONGATA SSP ACUTA CALIFORNIA ANDROSACE PDPRI02031	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G?T3? S3.2?	List: Code:	4 122
ANDROSACE FILIFORMIS SLENDER-STEMMED ANDROSACE PDPRI02040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1?	List: Code:	2 311
ANDROSTEPHIUM BREVIFLORUM SMALL-FLOWERED ANDROSTEPHIUM PMLIL06010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3	List: Code:	2 311
ANGELICA CALLII CALL'S ANGELICA PDAPI07060	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3?	List: Code:	4 113
ANTENNARIA FLAGELLARIS STOLONIFEROUS PUSSYTOES PDAST0H0W0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5? S3.2	List: Code:	4 121
ANTENNARIA MARGINATA WHITE-MARGINED EVERLASTING PDAST0H1G0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4? S1.3	List: Code:	2 311
ANTENNARIA PULCHELLA BEAUTIFUL PUSSY-TOES PDAST0H1H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 112

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ANTENNARIA SUFFRUTESCENS EVERGREEN EVERLASTING PDAST0H0S0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.3?	**List:** 4 **Code:** 112
ANTIRRHINUM CYATHIFERUM DEEP CANYON SNAPDRAGON PDSCR2R010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3G4 **State:** S1.3	**List:** 2 **Code:** 311
ANTIRRHINUM OVATUM OVAL-LEAVED SNAPDRAGON PDSCR2K010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123
ANTIRRHINUM SUBCORDATUM DIMORPHIC SNAPDRAGON PDSCR2S070 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 223
ANTIRRHINUM VIRGA TALL SNAPDRAGON PDSCR2S090 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3?	**List:** 4 **Code:** 113
APHANISMA BLITOIDES APHANISMA PDCHE02010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S1.2	**List:** 1B **Code:** 222
ARABIS ACULEOLATA WALDO ROCK CRESS PDBRA06010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S2.2	**List:** 2 **Code:** 321
ARABIS BLEPHAROPHYLLA COAST ROCK CRESS PDBRA06040 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3?	**List:** 4 **Code:** 113
ARABIS BODIENSIS BODIE HILLS ROCK CRESS PDBRA06240 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 212
ARABIS BREWERI VAR PECUNIARIA SAN BERNARDINO ROCK CRESS PDBRA06053 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4?T1 **State:** S1.2	**List:** 1B **Code:** 323
ARABIS COBRENSIS MASONIC ROCK CRESS PDBRA06080 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** 2 **Code:** 311
ARABIS CONSTANCEI CONSTANCE'S ROCK CRESS PDBRA06090 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 123
ARABIS DISPAR PINYON ROCK CRESS PDBRA060F0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S2.3	**List:** 2 **Code:** 211
ARABIS FERNALDIANA VAR STYLOSA STYLOSE ROCK CRESS PDBRA060K2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3G4T2 **State:** S1.3	**List:** 1B **Code:** 312
ARABIS HOFFMANNII HOFFMANN'S ROCK CRESS PDBRA060V0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ARABIS JOHNSTONII JOHNSTON'S ROCK CRESS PDBRA060Y0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
ARABIS KOEHLERI VAR STIPITATA KOEHLER'S STIPITATE ROCK CRESS PDBRA060Z2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T3 S1.3	List: Code:	1B 312
ARABIS MACDONALDIANA MCDONALD'S ROCK CRESS PDBRA06150	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2 S2.1	List: Code:	1B 232
ARABIS MICROPHYLLA VAR MICROPHYLLA SMALL-LEAVED ROCK CRESS PDBRA06162	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T4? S3.3	List: Code:	4 111
ARABIS MODESTA MODEST ROCK CRESS PDBRA06180	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3Q S3.3?	List: Code:	4 112
ARABIS OREGANA OREGON ROCK CRESS PDBRA061A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3G4Q S3.3?	List: Code:	4 111
ARABIS PARISHII PARISH'S ROCK CRESS PDBRA061C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARABIS PINZLAE PINZL'S ROCK CRESS PDBRA06270	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.3	List: Code:	1B 312
ARABIS PULCHRA VAR MUNCIENSIS DARWIN ROCK CRESS PDBRA061M3	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T4? S1.3	List: Code:	2 311
ARABIS PYGMAEA TULARE COUNTY ROCK CRESS PDBRA061N0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G1G2 S1S2	List: Code:	4 113
ARABIS RIGIDISSIMA VAR DEMOTA CARSON RANGE ROCK CRESS PDBRA061R1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3T2 S1.2	List: Code:	1B 322
ARABIS RIGIDISSIMA VAR RIGIDISSIMA TRINITY MOUNTAINS ROCK CRESS PDBRA061R2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3T3 S3.3	List: Code:	4 113
ARABIS SERPENTINICOLA PRESTON PEAK ROCK CRESS PDBRA061U0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1Q S1.3	List: Code:	1B 313
ARABIS SHOCKLEYI SHOCKLEY'S ROCK CRESS PDBRA061V0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S2.2	List: Code:	2 321
ARABIS TIEHMII TIEHM'S ROCK CRESS PDBRA06280	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.3	List: Code:	1B 312

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ARCTOMECON MERRIAMII WHITE BEAR POPPY PDPAP02030	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 222
ARCTOSTAPHYLOS ANDERSONII SANTA CRUZ MANZANITA PDERI04030	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2?	List: Code:	1B 223
ARCTOSTAPHYLOS AURICULATA MT. DIABLO MANZANITA PDERI04040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 313
ARCTOSTAPHYLOS BAKERI SSP BAKERI BAKER'S MANZANITA PDERI04221	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G2T2 S2.1	List: Code:	1B 333
ARCTOSTAPHYLOS BAKERI SSP SUBLAEVIS THE CEDARS MANZANITA PDERI04222	Records in NDDB: *Yes*	Federal: State:	None Rare	Global: State:	G2T2 S2.2	List: Code:	1B 323
ARCTOSTAPHYLOS CANESCENS SSP SONOMENSIS SONOMA MANZANITA PDERI04066	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS CATALINAE SANTA CATALINA ISLAND MANZANITA PDERI04070	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS CONFERTIFLORA SANTA ROSA ISLAND MANZANITA PDERI040A0	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G1 S1	List: Code:	1B 323
ARCTOSTAPHYLOS CRUZENSIS ARROYO DE LA CRUZ MANZANITA PDERI040B0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS DENSIFLORA VINE HILL MANZANITA PDERI040C0	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
ARCTOSTAPHYLOS EDMUNDSII LITTLE SUR MANZANITA PDERI04260	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
ARCTOSTAPHYLOS GABRIELENSIS SAN GABRIEL MANZANITA PDERI042P0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
ARCTOSTAPHYLOS GLANDULOSA SSP CRASSIFOLIA DEL MAR MANZANITA PDERI040E8	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G5T1 S1.1	List: Code:	1B 332
ARCTOSTAPHYLOS GLUTINOSA SCHREIBER'S MANZANITA PDERI040G0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
ARCTOSTAPHYLOS HISPIDULA HOWELL'S MANZANITA PDERI04230	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 122

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ARCTOSTAPHYLOS HOOKERI SSP FRANCISCANA FRANCISCAN MANZANITA PDERI040J3	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3TXC SX	List: Code:	1A *
ARCTOSTAPHYLOS HOOKERI SSP HEARSTIORUM HEARST'S MANZANITA PDERI040J4	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G3T1 S1.2	List: Code:	1B 323
ARCTOSTAPHYLOS HOOKERI SSP HOOKERI HOOKER'S MANZANITA PDERI040J1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T2 S2?	List: Code:	1B 223
ARCTOSTAPHYLOS HOOKERI SSP MONTANA MT. TAMALPAIS MANZANITA PDERI040J5	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3T2 S2.3	List: Code:	1B 313
ARCTOSTAPHYLOS HOOKERI SSP RAVENII PRESIDIO MANZANITA PDERI040J2	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G3T1 S1.1	List: Code:	1B 333
ARCTOSTAPHYLOS HOOVERI HOOVER'S MANZANITA PDERI040K0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3?	List: Code:	4 113
ARCTOSTAPHYLOS IMBRICATA SAN BRUNO MOUNTAIN MANZANITA PDERI040L0	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
ARCTOSTAPHYLOS KLAMATHENSIS KLAMATH MANZANITA PDERI041R0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
ARCTOSTAPHYLOS LUCIANA SANTA LUCIA MANZANITA PDERI040N0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS MALLORYI MALLORY'S MANZANITA PDERI04065	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3Q S3.3?	List: Code:	4 113
ARCTOSTAPHYLOS MANZANITA SSP LAEVIGATA CONTRA COSTA MANZANITA PDERI04273	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T2 S2	List: Code:	1B 323
ARCTOSTAPHYLOS MENDOCINOENSIS PYGMY MANZANITA PDERI04280	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1?	List: Code:	1B 323
ARCTOSTAPHYLOS MEWUKKA SSP TRUEI TRUE'S MANZANITA PDERI041P0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4?T3Q S3.2	List: Code:	4 123
ARCTOSTAPHYLOS MONTARAENSIS MONTARA MANZANITA PDERI040L2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
ARCTOSTAPHYLOS MONTEREYENSIS MONTEREY MANZANITA PDERI040R0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ARCTOSTAPHYLOS MORROENSIS MORRO MANZANITA PDERI040S0 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 233
ARCTOSTAPHYLOS MYRTIFOLIA IONE MANZANITA PDERI04240 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
ARCTOSTAPHYLOS NISSENANA NISSENAN MANZANITA PDERI040V0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ARCTOSTAPHYLOS NORTENSIS DEL NORTE MANZANITA PDERI04092 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G4? **State:** S3.3?	**List:** 4 **Code:** 113
ARCTOSTAPHYLOS OBISPOENSIS BISHOP MANZANITA PDERI040X0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3?	**List:** 4 **Code:** 113
ARCTOSTAPHYLOS OSOENSIS OSO MANZANITA PDERI042S0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2?	**List:** 1B **Code:** 333
ARCTOSTAPHYLOS OTAYENSIS OTAY MANZANITA PDERI040Y0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ARCTOSTAPHYLOS PACIFICA PACIFIC MANZANITA PDERI040Z0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G?Q **State:** S?	**List:** **Code:**
ARCTOSTAPHYLOS PAJAROENSIS PAJARO MANZANITA PDERI04100 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.1	**List:** 1B **Code:** 233
ARCTOSTAPHYLOS PALLIDA PALLID MANZANITA PDERI04110 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Endangered	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 333
ARCTOSTAPHYLOS PECHOENSIS PECHO MANZANITA PDERI04140 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2?	**List:** 1B **Code:** 233
ARCTOSTAPHYLOS PENINSULARIS SSP PENINSULARIS PENINSULAR MANZANITA PDERI04151 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2T2 **State:** S2?	**List:** 2 **Code:** 311
ARCTOSTAPHYLOS PILOSULA SANTA MARGARITA MANZANITA PDERI04160 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ARCTOSTAPHYLOS PUMILA SANDMAT MANZANITA PDERI04180 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ARCTOSTAPHYLOS PURISSIMA LA PURISIMA MANZANITA PDERI041A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2? **State:** S2?	**List:** 1B **Code:** 233

Scientific Name, Common Name, Element Code	Listing Status		Rank		CNPS	
ARCTOSTAPHYLOS RAINBOWENSIS RAINBOW MANZANITA PDERI042T0 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.1	List: Code:	1B 333
ARCTOSTAPHYLOS REFUGIOENSIS REFUGIO MANZANITA PDERI041B0 Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2?	List: Code:	1B 223
ARCTOSTAPHYLOS REGISMONTANA KINGS MOUNTAIN MANZANITA PDERI041C0 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3?	List: Code:	4 113
ARCTOSTAPHYLOS RUDIS SAND MESA MANZANITA PDERI041E0 Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS SILVICOLA BONNY DOON MANZANITA PDERI041F0 Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS STANFORDIANA SSP DECUMBENS RINÇON MANZANITA PDERI041G4 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T1 S1.1	List: Code:	1B 333
ARCTOSTAPHYLOS STANFORDIANA SSP RAICHEI RAICHE'S MANZANITA PDERI041G2 Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3T2? S2?	List: Code:	1B 233
ARCTOSTAPHYLOS TOMENTOSA SSP DACITICOLA DACITE MANZANITA PDERI041HD Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T1 S1.1	List: Code:	1B 333
ARCTOSTAPHYLOS TOMENTOSA SSP EASTWOODIANA EASTWOOD'S MANZANITA PDERI041H4 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T2? S2?	List: Code:	1B 233
ARCTOSTAPHYLOS TOMENTOSA SSP INSULICOLA ISLAND MANZANITA PDERI041H5 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123
ARCTOSTAPHYLOS TOMENTOSA SSP SUBCORDATA SANTA CRUZ ISLAND MANZANITA PDERI041H7 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123
ARCTOSTAPHYLOS VIRGATA MARIN MANZANITA PDERI041K0 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 223
ARCTOSTAPHYLOS VIRIDISSIMA WHITE-HAIRED MANZANITA PDERI041L0 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2?	List: Code:	4 123
ARCTOSTAPHYLOS WELLSII WELLS'S MANZANITA PDERI042B0 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.1?	List: Code:	1B 233
ARENARIA MACRADENIA VAR KUSCHEI FOREST CAMP SANDWORT PDCAR040K4 Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G5T2? S2?	List: Code:	3 ??3

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ARENARIA PALUDICOLA MARSH SANDWORT PDCAR040L0	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 332
ARENARIA URSINA BIG BEAR VALLEY SANDWORT PDCAR040R0	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2 S2.2	List: Code:	1B 223
ARGYROCHOSMA LIMITANEA VAR LIMITANEA CLOAK FERN PPADI0N051	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G?T3T4 S2.3	List: Code:	2 311
ARISTOCAPSA INSIGNIS INDIAN VALLEY SPINEFLOWER PDPGN0U010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G2 S2?	List: Code:	4 123
ARNICA CERNUA SERPENTINE ARNICA PDAST0Q040	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 112
ARNICA FULGENS HILLSIDE ARNICA PDAST0Q090	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2.2	List: Code:	2 311
ARNICA SORORIA TWIN ARNICA PDAST0Q0L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5 S2.3	List: Code:	2 211
ARNICA SPATHULATA KLAMATH ARNICA PDAST0Q0M0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3? S3.3	List: Code:	4 112
ARNICA VENOSA SHASTA COUNTY ARNICA PDAST0Q0Q0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ARNICA VISCOSA MT. SHASTA ARNICA PDAST0Q0R0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 112
ARTEMISIA PALMERI SAN DIEGO SAGEWORT PDAST0S160	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2? S2.1	List: Code:	2 221
ASARUM MARMORATUM MARBLED WILD-GINGER PDARI02070	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3G4 S1.3	List: Code:	2 311
ASCLEPIAS SOLANOANA SERPENTINE MILKWEED PDASC021R0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ASPIDOTIS CARLOTTA-HALLIAE CARLOTTA HALL'S LACE FERN PPADI07020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ASPLENIUM SEPTENTRIONALE NORTHERN SPLEENWORT PPASP021F0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3G4 S2.3	List: Code:	2 311

Scientific Name, Common Name, Element Code	Listing Status		Rank		CNPS	
ASPLENIUM TRICHOMANES SSP TRICHOMANES MAIDENHAIR SPLEENWORT PPASP021K2 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S2.3	List: Code:	2 311
ASPLENIUM TRICHOMANES-RAMOSUM GREEN SPLEENWORT PPASP02250 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.3	List: Code:	2 311
ASTER GREATAE GREATA'S ASTER PDAST0T1F0 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
ASTER LENTUS SUISUN MARSH ASTER PDAST0T540 Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ASTRAGALUS AGNICIDUS HUMBOLDT MILK-VETCH PDFAB0F080 Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
ASTRAGALUS ALBENS CUSHENBURY MILK-VETCH PDFAB0F0A0 Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G1 S1.1	List: Code:	1B 333
ASTRAGALUS ALLOCHROUS VAR PLAYANUS PLAYA MILK-VETCH PDFAB0F0C1 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T3?Q S1.2	List: Code:	2 221
ASTRAGALUS ANXIUS TROUBLED MILK-VETCH PDFAB0FBD0 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.2	List: Code:	1B 313
ASTRAGALUS ARGOPHYLLUS VAR ARGOPHYLLUS SILVER-LEAVED MILK-VETCH PDFAB0F0S1 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T4 S1.2	List: Code:	2 321
ASTRAGALUS ATRATUS VAR MENSANUS DARWIN MESA MILK-VETCH PDFAB0F0Z3 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T1 S1.3	List: Code:	1B 313
ASTRAGALUS BICRISTATUS CRESTED MILK-VETCH PDFAB0F1A0 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
ASTRAGALUS BRAUNTONII BRAUNTON'S MILK-VETCH PDFAB0F1G0 Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G2 S2.2	List: Code:	1B 323
ASTRAGALUS BREWERI BREWER'S MILK-VETCH PDFAB0F1J0 Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ASTRAGALUS CIMAE VAR CIMAE CIMA MILK-VETCH PDFAB0F231 Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2T2 S2.2	List: Code:	1B 322
ASTRAGALUS CLARIANUS CLARA HUNT'S MILK-VETCH PDFAB0F240 Records in NDDB: *Yes*	Federal: State:	Endangered Threatened	Global: State:	G1 S1.1	List: Code:	1B 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ASTRAGALUS CLEVELANDII CLEVELAND'S MILK-VETCH PDFAB0F250	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3?	**List:** **Code:**	4 113
ASTRAGALUS CROTALARIAE SALTON MILK-VETCH PDFAB0F2K0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4G5 S3.3	**List:** **Code:**	4 112
ASTRAGALUS DEANEI DEAN'S MILK-VETCH PDFAB0F2R0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.1	**List:** **Code:**	1B 333
ASTRAGALUS DOUGLASII VAR PERSTRICTUS JACUMBA MILK-VETCH PDFAB0F303	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G5T2 S2.2	**List:** **Code:**	1B 222
ASTRAGALUS ERTTERAE WALKER PASS MILK-VETCH PDFAB0FB30	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1 S1.3	**List:** **Code:**	1B 313
ASTRAGALUS FUNEREUS BLACK MILK-VETCH PDFAB0F3K0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 322
ASTRAGALUS GEYERI VAR GEYERI GEYER'S MILK-VETCH PDFAB0F3M1	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T5 S2.2	**List:** **Code:**	2 321
ASTRAGALUS GILMANII GILMAN'S MILK-VETCH PDFAB0F3R0	**Records in NDDB:** *No*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3? S3.2	**List:** **Code:**	4 122
ASTRAGALUS INSULARIS VAR HARWOODII HARWOOD'S MILK-VETCH PDFAB0F491	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S2.2?	**List:** **Code:**	2 221
ASTRAGALUS INVERSUS SUSANVILLE MILK-VETCH PDFAB0F4A0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
ASTRAGALUS JAEGERIANUS LANE MOUNTAIN MILK-VETCH PDFAB0F4F0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered None	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
ASTRAGALUS JOHANNIS-HOWELLII LONG VALLEY MILK-VETCH PDFAB0F4H0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None Rare	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 222
ASTRAGALUS KENTROPHYTA VAR DANAUS SWEETWATER MOUNTAINS MILK-VETCH PDFAB0F4J2	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T2T3 S?	**List:** **Code:**	4 113
ASTRAGALUS KENTROPHYTA VAR ELATUS SPINY-LEAVED MILK-VETCH PDFAB0F4J4	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T4 S1.2	**List:** **Code:**	2 221
ASTRAGALUS LENTIFORMIS LENS-POD MILK-VETCH PDFAB0F4P0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 323

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ASTRAGALUS LENTIGINOSUS VAR ANTONIUS SAN ANTONIO MILK-VETCH PDFAB0FB92 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1?	**List:** 1B **Code:** 313
ASTRAGALUS LENTIGINOSUS VAR BORREGANUS BORREGO MILK-VETCH PDFAB0FB95 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T4T5 **State:** S3.3	**List:** 4 **Code:** 111
ASTRAGALUS LENTIGINOSUS VAR COACHELLAE COACHELLA VALLEY MILK-VETCH PDFAB0FB97 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G5T2 **State:** S2.2	**List:** 1B **Code:** 223
ASTRAGALUS LENTIGINOSUS VAR KERNENSIS KERN PLATEAU MILK-VETCH PDFAB0FB98 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T3? **State:** S2.2?	**List:** 2 **Code:** 221
ASTRAGALUS LENTIGINOSUS VAR MICANS SHINING MILK-VETCH PDFAB0FB9C **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1Q **State:** S1.2	**List:** 1B **Code:** 323
ASTRAGALUS LENTIGINOSUS VAR PISCINENSIS FISH SLOUGH MILK-VETCH PDFAB0FB9E **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333
ASTRAGALUS LENTIGINOSUS VAR SESQUIMETRALIS SODAVILLE MILK-VETCH PDFAB0FB9K **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 332
ASTRAGALUS LENTIGINOSUS VAR SIERRAE BIG BEAR VALLEY MILK-VETCH PDFAB0FB9L **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1?	**List:** 1B **Code:** 223
ASTRAGALUS LEUCOLOBUS BIG BEAR VALLEY WOOLLYPOD PDFAB0F4T0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
ASTRAGALUS MACRODON SALINAS MILK-VETCH PDFAB0F520 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
ASTRAGALUS MAGDALENAE VAR PEIRSONII PEIRSON'S MILK-VETCH PDFAB0F532 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Endangered	**Global:** G3G4T2 **State:** S2.2	**List:** 1B **Code:** 222
ASTRAGALUS MIGUELENSIS SAN MIGUEL ISLAND MILK-VETCH PDFAB0F5C0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3?	**List:** 4 **Code:** 113
ASTRAGALUS MOJAVENSIS VAR HEMIGYRUS CURVED-POD MILK-VETCH PDFAB0F5J1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3T2 **State:** SH	**List:** 1A **Code:** *
ASTRAGALUS MONOENSIS VAR MONOENSIS MONO MILK-VETCH PDFAB0F5N1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G2T2 **State:** S2.2	**List:** 1B **Code:** 223
ASTRAGALUS MONOENSIS VAR RAVENII RAVEN'S MILK-VETCH PDFAB0F5N2 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2T1Q **State:** S1.3	**List:** 1B **Code:** 313

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ASTRAGALUS NEVINII SAN CLEMENTE ISLAND MILK-VETCH PDFAB0F5X0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
ASTRAGALUS NUTANS PROVIDENCE MOUNTAINS MILK-VETCH PDFAB0F620 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
ASTRAGALUS OOCARPUS SAN DIEGO MILK-VETCH PDFAB0F6B0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ASTRAGALUS OOPHORUS VAR LAVINII LAVIN'S MILK-VETCH PDFAB0F6C4 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G4T1 **State:** S1	**List:** 1B **Code:** 322
ASTRAGALUS PACHYPUS VAR JAEGERI JAEGER'S MILK-VETCH PDFAB0F6G1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G?T1 **State:** S1.1	**List:** 1B **Code:** 333
ASTRAGALUS PAUPERCULUS DEPAUPERATE MILK-VETCH PDFAB0F6N0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
ASTRAGALUS PLATYTROPIS BROAD-KEELED MILK-VETCH PDFAB0F6X0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.2	**List:** 2 **Code:** 221
ASTRAGALUS PREUSSII VAR LAXIFLORUS LANCASTER MILK-VETCH PDFAB0F721 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T2T3 **State:** S1.1	**List:** 1B **Code:** 332
ASTRAGALUS PREUSSII VAR PREUSSII PREUSS'S MILK-VETCH PDFAB0F722 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T4 **State:** S1.2	**List:** 2 **Code:** 311
ASTRAGALUS PSEUDIODANTHUS TONOPAH MILK-VETCH PDFAB0F750 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 322
ASTRAGALUS PULSIFERAE VAR PULSIFERAE PULSIFER'S MILK-VETCH PDFAB0F783 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T2 **State:** S2.2	**List:** 1B **Code:** 212
ASTRAGALUS PULSIFERAE VAR SUKSDORFII SUKSDORF'S MILK-VETCH PDFAB0F782 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T3 **State:** S3?	**List:** 1B **Code:** 312
ASTRAGALUS PYCNOSTACHYUS VAR LANOSISSIMUS VENTURA MARSH MILK-VETCH PDFAB0F7B1 **Records in NDDB:** *Yes*	**Federal:** Proposed Endangered **State:** Candidate	**Global:** G3?T1 **State:** S1.1	**List:** 1A **Code:** *
ASTRAGALUS RATTANII VAR JEPSONIANUS JEPSON'S MILK-VETCH PDFAB0F7E1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T2 **State:** S2.2	**List:** 1B **Code:** 223
ASTRAGALUS RATTANII VAR RATTANII RATTAN'S MILK-VETCH PDFAB0F7E2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ASTRAGALUS SERENOI VAR SHOCKLEYI NAKED MILK-VETCH PDFAB0F802 Records in NDDB: *Yes*	Federal: None State: None	Global: G4T3 State: S2?	List: 2 Code: 221
ASTRAGALUS SHEVOCKII SHEVOCK'S MILK-VETCH PDFAB0F850 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.3	List: 1B Code: 313
ASTRAGALUS SUBVESTITUS KERN COUNTY MILK-VETCH PDFAB0F8M0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
ASTRAGALUS TENER VAR FERRISIAE FERRIS'S MILK-VETCH PDFAB0F8R3 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2T1 State: S1.1	List: 1B Code: 333
ASTRAGALUS TENER VAR TENER ALKALI MILK-VETCH PDFAB0F8R1 Records in NDDB: *Yes*	Federal: None State: None	Global: G2T1 State: S1.2	List: 1B Code: 323
ASTRAGALUS TENER VAR TITI COASTAL DUNES MILK-VETCH PDFAB0F8R2 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G2T1 State: S1.1	List: 1B Code: 333
ASTRAGALUS TRASKIAE TRASK'S MILK-VETCH PDFAB0F910 Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G2 State: S2.2	List: 1B Code: 323
ASTRAGALUS TRICARINATUS TRIPLE-RIBBED MILK-VETCH PDFAB0F920 Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G1 State: S1.2	List: 1B Code: 313
ASTRAGALUS UMBRATICUS BALD MOUNTAIN MILK-VETCH PDFAB0F990 Records in NDDB: *No*	Federal: None State: None	Global: G4 State: S3.3	List: 4 Code: 112
ASTRAGALUS WEBBERI WEBBER'S MILK-VETCH PDFAB0F9J0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.2	List: 1B Code: 323
ASTROLEPIS COCHISENSIS SCALY CLOAK FERN PPADI0P010 Records in NDDB: *Yes*	Federal: None State: None	Global: G5? State: S1S2	List: 2 Code: 211
ATRIPLEX CORDULATA HEARTSCALE PDCHE040B0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2? State: S2.2?	List: 1B Code: 223
ATRIPLEX CORONATA VAR CORONATA CROWNSCALE PDCHE040C3 Records in NDDB: *No*	Federal: None State: None	Global: G4T3 State: S3.2	List: 4 Code: 123
ATRIPLEX CORONATA VAR NOTATIOR SAN JACINTO VALLEY CROWNSCALE PDCHE040C2 Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G4T1 State: S1.1	List: 1B Code: 333
ATRIPLEX COULTERI COULTER'S SALTBUSH PDCHE040E0 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.2	List: 1B Code: 222

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ATRIPLEX DEPRESSA BRITTLESCALE PDCHE042L0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G2Q S2.2	**List:** **Code:**	1B 223
ATRIPLEX GARDNERI VAR FALCATA FALCATE SALTBUSH PDCHE040J0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4Q S1.2	**List:** **Code:**	
ATRIPLEX JOAQUINIANA SAN JOAQUIN SALTBUSH PDCHE041F3	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
ATRIPLEX MINUSCULA LESSER SALTSCALE PDCHE042M0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1Q S1.1	**List:** **Code:**	1B 333
ATRIPLEX PACIFICA SOUTH COAST SALTSCALE PDCHE041C0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3G4 S2.2	**List:** **Code:**	1B 322
ATRIPLEX PARISHII PARISH'S BRITTLESCALE PDCHE041D0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2? S1.1	**List:** **Code:**	1B 332
ATRIPLEX PERSISTENS PERSISTENT-FRUITED SALTSCALE PDCHE042P0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S?	**List:** **Code:**	
ATRIPLEX SERENANA VAR DAVIDSONII DAVIDSON'S SALTSCALE PDCHE041T1	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T2? S2?	**List:** **Code:**	1B 322
ATRIPLEX SUBTILIS PDCHE042T0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1G2 S1S2	**List:** **Code:**	
ATRIPLEX TULARENSIS BAKERSFIELD SMALLSCALE PDCHE04240	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Endangered	**Global:** **State:**	G1Q S1.1	**List:** **Code:**	1B 333
ATRIPLEX VALLICOLA LOST HILLS CROWNSCALE PDCHE04250	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 223
AYENIA COMPACTA AYENIA PDSTE01020	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	2 211
AZOLLA MEXICANA MEXICAN MOSQUITO FERN PPAZO01030	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S3.2?	**List:** **Code:**	4 121
BACCHARIS MALIBUENSIS MALIBU BACCHARIS PDAST0W0W0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.1	**List:** **Code:**	
BACCHARIS PLUMMERAE SSP GLABRATA SAN SIMEON BACCHARIS PDAST0W0D1	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G3G4T1 S1.2	**List:** **Code:**	1B 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
BACCHARIS PLUMMERAE SSP PLUMMERAE PLUMMER'S BACCHARIS PDAST0W0D2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3G4T3 **State:** S3.2	**List:** 4 **Code:** 113
BACCHARIS VANESSAE ENCINITAS BACCHARIS PDAST0W0P0 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 233
BALSAMORHIZA HOOKERI VAR LANATA WOOLLY BALSAMROOT PDAST11047 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T1 **State:** S1.2	**List:** 1B **Code:** 333
BALSAMORHIZA MACROLEPIS VAR MACROLEPIS BIG-SCALE BALSAMROOT PDAST11061 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3T2 **State:** S2.2	**List:** 1B **Code:** 223
BALSAMORHIZA SERICEA SILKY BALSAMROOT PDAST110C0 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G4Q **State:** S2.3?	**List:** 4 **Code:** 212
BENSONIELLA OREGONA BENSONIELLA PDSAX02010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 332
BERBERIS FREMONTII FREMONT BARBERRY PDBER06060 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2?	**List:** 3 **Code:** ??1
BERBERIS NEVINII NEVIN'S BARBERRY PDBER060A0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G2 **State:** S2.1	**List:** 1B **Code:** 333
BERBERIS PINNATA SSP INSULARIS ISLAND BARBERRY PDBER060B2 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G5T1 **State:** S1.2	**List:** 1B **Code:** 323
BERGEROCACTUS EMORYI GOLDEN-SPINED CEREUS PDCAC11010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S2.1	**List:** 2 **Code:** 221
BLENNOSPERMA BAKERI SONOMA SUNSHINE PDAST1A010 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 233
BLENNOSPERMA NANUM VAR ROBUSTUM POINT REYES BLENNOSPERMA PDAST1A022 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G4T1 **State:** S1.2	**List:** 1B **Code:** 323
BLEPHARIDACHNE KINGII KING'S EYELASH GRASS PMPOA0X020 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S1.3	**List:** 2 **Code:** 211
BLEPHARIZONIA PLUMOSA SSP PLUMOSA BIG TARPLANT PDAST1C011 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T1 **State:** S1.1	**List:** 1B **Code:** 333
BLOOMERIA HUMILIS DWARF GOLDENSTAR PMLIL0B020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
BOLANDRA CALIFORNICA SIERRA BOLANDRA PDSAX03010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
BOSCHNIAKIA HOOKERI SMALL GROUNDCONE PDORO01010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1S2	List: Code:	2 311
BOTRYCHIUM ASCENDENS UPSWEPT MOONWORT PPOPH010S0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3? S1.3?	List: Code:	2 311
BOTRYCHIUM CRENULATUM SCALLOPED MOONWORT PPOPH010L0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S1.2	List: Code:	1B 212
BOTRYCHIUM LUNARIA COMMON MOONWORT PPOPH01080	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	2 311
BOTRYCHIUM MINGANENSE MINGAN MOONWORT PPOPH010R0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.3	List: Code:	2 311
BOTRYCHIUM MONTANUM WESTERN GOBLIN PPOPH010K0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3? S1.3?	List: Code:	2 311
BOTRYCHIUM PINNATUM NORTHWESTERN MOONWORT PPOPH010V0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5? S1.3?	List: Code:	2 311
BOUTELOUA TRIFIDA RED GRAMA PMPOA100L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5 S2?	List: Code:	2 311
BOYKINIA ROTUNDIFOLIA ROUND-LEAVED BOYKINIA PDSAX04050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
BRODIAEA CORONARIA SSP ROSEA INDIAN VALLEY BRODIAEA PMLIL0C032	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G4T1 S1.1	List: Code:	1B 333
BRODIAEA FILIFOLIA THREAD-LEAVED BRODIAEA PMLIL0C050	Records in NDDB: *Yes*	Federal: State:	Threatened Endangered	Global: State:	G2 S2.1	List: Code:	1B 333
BRODIAEA INSIGNIS KAWEAH BRODIAEA PMLIL0C060	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G2 S2.2	List: Code:	1B 223
BRODIAEA KINKIENSIS SAN CLEMENTE ISLAND BRODIAEA PMLIL0C080	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
BRODIAEA ORCUTTII ORCUTT'S BRODIAEA PMLIL0C0B0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S3.1	List: Code:	1B 132

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
BRODIAEA PALLIDA CHINESE CAMP BRODIAEA PMLIL0C0C0 Records in NDDB: *Yes*	Federal: Threatened State: Endangered	Global: G1 State: S1.1	List: 1B Code: 333
BURSERA MICROPHYLLA ELEPHANT TREE PDBUR01020 Records in NDDB: *Yes*	Federal: None State: None	Global: G4 State: S2.3	List: 2 Code: 321
CALAMAGROSTIS BOLANDERI BOLANDER'S REED GRASS PMPOA17010 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CALAMAGROSTIS CRASSIGLUMIS THURBER'S REED GRASS PMPOA17070 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3 State: S1.1	List: 2 Code: 331
CALAMAGROSTIS FOLIOSA LEAFY REED GRASS PMPOA170C0 Records in NDDB: *Yes*	Federal: None State: Rare	Global: G3 State: S3.2	List: 4 Code: 123
CALAMAGROSTIS OPHITIDIS SERPENTINE REED GRASS PMPOA170V0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CALANDRINIA BREWERI BREWER'S CALANDRINIA PDPOR01020 Records in NDDB: *No*	Federal: None State: None	Global: G4 State: S3.2?	List: 4 Code: 122
CALANDRINIA MARITIMA SEASIDE CALANDRINIA PDPOR09020 Records in NDDB: *No*	Federal: None State: None	Global: G3G4 State: S3.2	List: 4 Code: 121
CALLIANDRA ERIOPHYLLA FAIRYDUSTER PDFAB0N040 Records in NDDB: *Yes*	Federal: None State: None	Global: G5 State: S2.3?	List: 2 Code: 311
CALOCHORTUS CATALINAE CATALINA MARIPOSA LILY PMLIL0D080 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
CALOCHORTUS CLAVATUS VAR AVIUS PLEASANT VALLEY MARIPOSA LILY PMLIL0D095 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T3 State: S3.2	List: 1B Code: 223
CALOCHORTUS CLAVATUS VAR CLAVATUS CLUB-HAIRED MARIPOSA LILY PMLIL0D091 Records in NDDB: *No*	Federal: None State: None	Global: G4T3 State: S3.3	List: 4 Code: 113
CALOCHORTUS CLAVATUS VAR GRACILIS SLENDER MARIPOSA LILY PMLIL0D096 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T1 State: S1.1?	List: 1B Code: 323
CALOCHORTUS CLAVATUS VAR RECURVIFOLIUS ARROYO DE LA CRUZ MARIPOSA LILY PMLIL0D098 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T1 State: S1.2	List: 1B Code: 323
CALOCHORTUS DUNNII DUNN'S MARIPOSA LILY PMLIL0D0C0 Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G2 State: S2.2	List: 1B Code: 222

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CALOCHORTUS EXCAVATUS		**Federal:**	Species of concern	**Global:**	G3	**List:**	1B
INYO COUNTY STAR-TULIP		**State:**	None	**State:**	S3.1	**Code:**	233
PMLIL0D0F0	**Records in NDDB:** *Yes*						
CALOCHORTUS GREENEI		**Federal:**	Species of concern	**Global:**	G2	**List:**	1B
GREENE'S MARIPOSA LILY		**State:**	None	**State:**	S2.2	**Code:**	322
PMLIL0D0H0	**Records in NDDB:** *Yes*						
CALOCHORTUS LONGEBARBATUS VAR LONGEBARBATUS		**Federal:**	Species of concern	**Global:**	G3T3	**List:**	1B
LONG-HAIRED STAR-TULIP		**State:**	None	**State:**	S3.2	**Code:**	122
PMLIL0D0R1	**Records in NDDB:** *Yes*						
CALOCHORTUS MONANTHUS		**Federal:**	Species of concern	**Global:**	GH	**List:**	1A
SINGLE-FLOWERED MARIPOSA LILY		**State:**	None	**State:**	SH	**Code:**	*
PMLIL0D0W0	**Records in NDDB:** *Yes*						
CALOCHORTUS OBISPOENSIS		**Federal:**	None	**Global:**	G2	**List:**	1B
SAN LUIS MARIPOSA LILY		**State:**	None	**State:**	S2.2	**Code:**	223
PMLIL0D110	**Records in NDDB:** *Yes*						
CALOCHORTUS PALMERI VAR MUNZII		**Federal:**	Species of concern	**Global:**	G2T1	**List:**	1B
MUNZ'S MARIPOSA LILY		**State:**	None	**State:**	S1.2	**Code:**	323
PMLIL0D121	**Records in NDDB:** *Yes*						
CALOCHORTUS PALMERI VAR PALMERI		**Federal:**	Species of concern	**Global:**	G2T2	**List:**	1B
PALMER'S MARIPOSA LILY		**State:**	None	**State:**	S2.2	**Code:**	223
PMLIL0D122	**Records in NDDB:** *Yes*						
CALOCHORTUS PANAMINTENSIS		**Federal:**	None	**Global:**	G3	**List:**	4
PANAMINT MARIPOSA LILY		**State:**	None	**State:**	S3.3	**Code:**	113
PMLIL0D130	**Records in NDDB:** *No*						
CALOCHORTUS PERSISTENS		**Federal:**	Species of concern	**Global:**	G1	**List:**	1B
SISKIYOU MARIPOSA LILY		**State:**	Rare	**State:**	S1.1	**Code:**	333
PMLIL0D140	**Records in NDDB:** *Yes*						
CALOCHORTUS PLUMMERAE		**Federal:**	Species of concern	**Global:**	G3	**List:**	1B
PLUMMER'S MARIPOSA LILY		**State:**	None	**State:**	S3.2	**Code:**	223
PMLIL0D150	**Records in NDDB:** *Yes*						
CALOCHORTUS PULCHELLUS		**Federal:**	None	**Global:**	G2	**List:**	1B
MT. DIABLO FAIRY-LANTERN		**State:**	None	**State:**	S2.2	**Code:**	223
PMLIL0D160	**Records in NDDB:** *Yes*						
CALOCHORTUS RAICHEI		**Federal:**	Species of concern	**Global:**	G1	**List:**	1B
THE CEDARS FAIRY-LANTERN		**State:**	None	**State:**	S1.2	**Code:**	323
PMLIL0D1L0	**Records in NDDB:** *Yes*						
CALOCHORTUS SIMULANS		**Federal:**	None	**Global:**	G3	**List:**	4
SAN LUIS OBISPO MARIPOSA LILY		**State:**	None	**State:**	S3.3	**Code:**	113
PMLIL0D170	**Records in NDDB:** *No*						
CALOCHORTUS STRIATUS		**Federal:**	Species of concern	**Global:**	G2	**List:**	1B
ALKALI MARIPOSA LILY		**State:**	None	**State:**	S2.2	**Code:**	222
PMLIL0D190	**Records in NDDB:** *Yes*						
CALOCHORTUS TIBURONENSIS		**Federal:**	Threatened	**Global:**	G1	**List:**	1B
TIBURON MARIPOSA LILY		**State:**	Threatened	**State:**	S1.2	**Code:**	333
PMLIL0D1C0	**Records in NDDB:** *Yes*						

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CALOCHORTUS UMBELLATUS OAKLAND STAR-TULIP PMLIL0D1E0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
CALOCHORTUS WEEDII VAR INTERMEDIUS INTERMEDIATE MARIPOSA LILY PMLIL0D1J1 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T2 State: S2.2	List: 1B Code: 223
CALOCHORTUS WEEDII VAR VESTUS LATE-FLOWERED MARIPOSA LILY PMLIL0D1J2 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T2 State: S2.2	List: 1B Code: 223
CALOCHORTUS WESTONII SHIRLEY MEADOWS STAR-TULIP PMLIL0D1M0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.2	List: 1B Code: 323
CALYCADENIA HOOVERI HOOVER'S CALYCADENIA PDAST1P040 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 213
CALYCADENIA OPPOSITIFOLIA BUTTE COUNTY CALYCADENIA PDAST1P070 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CALYCADENIA TRUNCATA SSP MICROCEPHALA SNOW MOUNTAIN CALYCADENIA PDAST1P0A1 Records in NDDB: *No*	Federal: None State: None	Global: G4T1 State: S1.2?	List: Code:
CALYCADENIA VILLOSA DWARF CALYCADENIA PDAST1P0B0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.1	List: 1B Code: 333
CALYPTRIDIUM PARRYI VAR HESSEAE SANTA CRUZ MOUNTAINS PUSSYPAWS PDPOR09052 Records in NDDB: *No*	Federal: None State: None	Global: G2?T? State: S?	List: 3 Code: ??3
CALYPTRIDIUM PULCHELLUM MARIPOSA PUSSYPAWS PDPOR09060 Records in NDDB: *Yes*	Federal: Threatened State: None	Global: G1 State: S1.1	List: 1B Code: 333
CALYPTRIDIUM QUADRIPETALUM FOUR-PETALED PUSSYPAWS PDPOR09080 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CALYSTEGIA ATRIPLICIFOLIA SSP BUTTENSIS BUTTE COUNTY MORNING-GLORY PDCON04012 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G?T? State: S?	List: 3 Code: ??3
CALYSTEGIA COLLINA SSP OXYPHYLLA MT. SAINT HELENA MORNING-GLORY PDCON04032 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T3 State: S3.2	List: 4 Code: 123
CALYSTEGIA COLLINA SSP VENUSTA SOUTH COAST RANGE MORNING-GLORY PDCON04034 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G3T3 State: S3.2	List: 4 Code: 113
CALYSTEGIA MACROSTEGIA SSP AMPLISSIMA ISLAND MORNING-GLORY PDCON04081 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G4G5T3 State: S3.3	List: 4 Code: 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CALYSTEGIA MALACOPHYLLA VAR BERRYI BERRY'S MORNING-GLORY PDCON040K2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113
CALYSTEGIA PEIRSONII PEIRSON'S MORNING-GLORY PDCON040A0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123
CALYSTEGIA SEPIUM SSP BINGHAMIAE SANTA BARBARA MORNING-GLORY PDCON040E6 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4G5T **State:** SH	**List:** 1B **Code:** 333
CALYSTEGIA STEBBINSII STEBBINS'S MORNING-GLORY PDCON040H0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CALYSTEGIA SUBACAULIS SSP EPISCOPALIS CAMBRIA MORNING-GLORY PDCON040J1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G?T1 **State:** S1?	**List:** 1B **Code:** 323
CAMISSONIA BENITENSIS SAN BENITO EVENING-PRIMROSE PDONA03030 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CAMISSONIA BOOTHII SSP ALYSSOIDES PINE CREEK EVENING-PRIMROSE PDONA03051 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 111
CAMISSONIA BOOTHII SSP BOOTHII BOOTH'S EVENING-PRIMROSE PDONA03052 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T4 **State:** S3.3	**List:** 4 **Code:** 111
CAMISSONIA GUADALUPENSIS SSP CLEMENTINA SAN CLEMENTE ISLAND EVENING-PRIMROSE PDONA030M1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2T1 **State:** S1.2	**List:** 1B **Code:** 323
CAMISSONIA HARDHAMIAE HARDHAM'S EVENING-PRIMROSE PDONA030N0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1Q **State:** S1.2	**List:** 1B **Code:** 323
CAMISSONIA INTEGRIFOLIA KERN RIVER EVENING-PRIMROSE PDONA030T0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CAMISSONIA KERNENSIS SSP KERNENSIS KERN COUNTY EVENING-PRIMROSE PDONA030V2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113
CAMISSONIA LEWISII LEWIS'S EVENING-PRIMROSE PDONA030X0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G? **State:** S?	**List:** 3 **Code:** ??2
CAMISSONIA MINOR NELSON'S EVENING-PRIMROSE PDONA03110 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.3	**List:** 4 **Code:** 111
CAMISSONIA SIERRAE SSP ALTICOLA MONO HOT SPRINGS EVENING-PRIMROSE PDONA031H1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2G3T1 **State:** S1.2	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code				Listing Status		Rank		CNPS	
Scientific Name	Common Name	Element Code	Records in NDDB	Federal	State	Global	State	List	Code
CAMISSONIA TANACETIFOLIA SSP QUADRIPERFORATA	SIERRA VALLEY EVENING-PRIMROSE	PDONA031M1	*Yes*	None	None	G5T3	S3.2	4	113
CAMPANULA CALIFORNICA	SWAMP HAREBELL	PDCAM02060	*Yes*	Species of concern	None	G2	S2.2	1B	123
CAMPANULA EXIGUA	CHAPARRAL HAREBELL	PDCAM020A0	*No*	None	None	G3	S3.3	4	113
CAMPANULA SCABRELLA	ROUGH HAREBELL	PDCAM020U0	*No*	None	None	G5	S3.3	4	112
CAMPANULA SHARSMITHIAE	SHARSMITH'S HAREBELL	PDCAM02100	*Yes*	Species of concern	None	G1	S1.2	1B	333
CAMPANULA SHETLERI	CASTLE CRAGS HAREBELL	PDCAM020W0	*Yes*	None	None	G2	S2.3	1B	313
CAMPANULA WILKINSIANA	WILKIN'S HAREBELL	PDCAM020Z0	*Yes*	Species of concern	None	G2	S2.2	1B	223
CANBYA CANDIDA	PYGMY POPPY	PDPAP05020	*Yes*	None	None	G2	S2.2	1B	223
CARDAMINE NUTTALLII VAR GEMMATA	YELLOW-TUBERED TOOTHWORT	PDBRA0K180	*Yes*	Species of concern	None	G5T2?	S2.2	1B	312
CARDAMINE PACHYSTIGMA VAR DISSECTIFOLIA	DISSECTED-LEAVED TOOTHWORT	PDBRA0K1B1	*No*	None	None	G?T3?	S2S3	3	??3
CAREX ALBIDA	WHITE SEDGE	PMCYP030D0	*Yes*	Endangered	Endangered	G1	S1.1	1B	333
CAREX CALIFORNICA	CALIFORNIA SEDGE	PMCYP032D0	*Yes*	None	None	G5	S2?	2	311
CAREX COMOSA	BRISTLY SEDGE	PMCYP032Y0	*Yes*	None	None	G5	S1.1	2	331
CAREX CONGDONII	CONGDON'S SEDGE	PMCYP03320	*No*	None	None	G3	S3.3	4	113
CAREX DAVYI	DAVY'S SEDGE	PMCYP033H0	*No*	None	None	G3	S3.3	4	113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CAREX ELEOCHARIS		Federal:	None	Global:	G4G5	List:	2
SPIKERUSH SEDGE		State:	None	State:	S2?	Code:	211
PMCYP03450	Records in NDDB: *Yes*						
CAREX GEYERI		Federal:	None	Global:	G4	List:	4
GEYER'S SEDGE		State:	None	State:	S3.2	Code:	121
PMCYP03540	Records in NDDB: *No*						
CAREX GIGAS		Federal:	None	Global:	G3?	List:	4
SISKIYOU SEDGE		State:	None	State:	S3.3	Code:	112
PMCYP03560	Records in NDDB: *No*						
CAREX HALLIANA		Federal:	None	Global:	G4G5	List:	2
HALL'S SEDGE		State:	None	State:	S1.3?	Code:	311
PMCYP035M0	Records in NDDB: *Yes*						
CAREX HYSTRICINA		Federal:	None	Global:	G5	List:	2
BOTTLEBRUSH SEDGE		State:	None	State:	S1?	Code:	331
PMCYP036D0	Records in NDDB: *Yes*						
CAREX INCURVIFORMIS VAR DANAENSIS		Federal:	None	Global:	G5?T4	List:	4
DANA'S SEDGE		State:	None	State:	S3.3	Code:	111
PMCYP036G1	Records in NDDB: *No*						
CAREX LASIOCARPA		Federal:	None	Global:	G5	List:	2
SLENDER SEDGE		State:	None	State:	S1.3?	Code:	311
PMCYP03720	Records in NDDB: *Yes*						
CAREX LEPTALEA		Federal:	None	Global:	G5	List:	2
FLACCID SEDGE		State:	None	State:	S2?	Code:	321
PMCYP037E0	Records in NDDB: *Yes*						
CAREX LIMOSA		Federal:	None	Global:	G5	List:	2
SHORE SEDGE		State:	None	State:	S3?	Code:	221
PMCYP037K0	Records in NDDB: *Yes*						
CAREX LIVIDA		Federal:	None	Global:	G5	List:	1A
LIVID SEDGE		State:	None	State:	SH	Code:	*
PMCYP037L0	Records in NDDB: *Yes*						
CAREX NORVEGICA		Federal:	None	Global:	G5	List:	2
SCANDINAVIAN SEDGE		State:	None	State:	S1.3?	Code:	311
PMCYP039D0	Records in NDDB: *Yes*						
CAREX OBISPOENSIS		Federal:	None	Global:	G2	List:	1B
SAN LUIS OBISPO SEDGE		State:	None	State:	S2.2	Code:	223
PMCYP039J0	Records in NDDB: *Yes*						
CAREX PARRYANA VAR HALLII		Federal:	None	Global:	G4?T4?	List:	2
HALL'S SEDGE		State:	None	State:	S1.3	Code:	211
PMCYP035N0	Records in NDDB: *Yes*						
CAREX PETASATA		Federal:	None	Global:	G5	List:	2
LIDDON'S SEDGE		State:	None	State:	S1S2	Code:	211
PMCYP03AE0	Records in NDDB: *Yes*						
CAREX PRATICOLA		Federal:	None	Global:	G5	List:	2
MEADOW SEDGE		State:	None	State:	S2S3	Code:	221
PMCYP03B20	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CAREX SCOPARIA POINTED BROOM SEDGE PMCYP03C90	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2S3	List: Code:	2 321
CAREX SHELDONII SHELDON'S SEDGE PMCYP03CE0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.2	List: Code:	2 211
CAREX TIOGANA TIOGA PASS SEDGE PMCYP03GP0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 313
CAREX TOMPKINSII TOMPKINS'S SEDGE PMCYP03DR0	Records in NDDB: *Yes*	Federal: State:	None Rare	Global: State:	G2 S2.2	List: Code:	1B 223
CAREX VULPINOIDEA FOX SEDGE PMCYP03EN0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S3?	List: Code:	2 221
CARLOWRIGHTIA ARIZONICA ARIZONA CARLOWRIGHTIA PDACA07010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.3	List: Code:	2 321
CARNEGIEA GIGANTEA SAGUARO PDCAC12010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.2	List: Code:	2 321
CARPENTERIA CALIFORNICA TREE-ANEMONE PDHDR04010	Records in NDDB: *Yes*	Federal: State:	Species of concern Threatened	Global: State:	G2 S2.2	List: Code:	1B 323
CASTELA EMORYI CRUCIFIXION THORN PDSIM03030	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.2	List: Code:	2 211
CASTILLEJA AFFINIS SSP NEGLECTA TIBURON INDIAN PAINTBRUSH PDSCR0D260	Records in NDDB: *Yes*	Federal: State:	Endangered Threatened	Global: State:	G5T1 S1.2	List: Code:	1B 323
CASTILLEJA AMBIGUA SSP HUMBOLDTIENSIS HUMBOLDT BAY OWL'S-CLOVER PDSCR0D402	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S2.2	List: Code:	1B 223
CASTILLEJA CAMPESTRIS SSP SUCCULENTA SUCCULENT OWL'S-CLOVER PDSCR0D3Z1	Records in NDDB: *Yes*	Federal: State:	Threatened Endangered	Global: State:	G4?T2 S2.2	List: Code:	1B 223
CASTILLEJA CINEREA ASH-GRAY INDIAN PAINTBRUSH PDSCR0D0H0	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2 S2.2	List: Code:	1B 223
CASTILLEJA GLEASONII MT. GLEASON INDIAN PAINTBRUSH PDSCR0D140	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G2 S2.2	List: Code:	1B 323
CASTILLEJA GRISEA SAN CLEMENTE ISLAND INDIAN PAINTBRUSH PDSCR0D160	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2 S2.2	List: Code:	1B 123

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CASTILLEJA HISPIDA SSP BREVILOBATA SHORT-LOBED INDIAN PAINTBRUSH PDSCR0D0A0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3? **State:** S3.2	**List:** 4 **Code:** 121
CASTILLEJA LANATA SSP HOLOLEUCA WHITE-FELTED INDIAN PAINTBRUSH PDSCR0D1L1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 1B **Code:** 223
CASTILLEJA LASIORHYNCHA SAN BERNARDINO MOUNTAINS OWL'S-CLOVER PDSCR0D410 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 123
CASTILLEJA LATIFOLIA MONTEREY INDIAN PAINTBRUSH PDSCR0D1P0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CASTILLEJA MENDOCINENSIS MENDOCINO COAST INDIAN PAINTBRUSH PDSCR0D3N0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
CASTILLEJA MINIATA SSP ELATA SISKIYOU INDIAN PAINTBRUSH PDSCR0D0T0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T3? **State:** S3.2	**List:** 2 **Code:** 121
CASTILLEJA MOLLIS SOFT-LEAVED INDIAN PAINTBRUSH PDSCR0D230 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CASTILLEJA MONTIGENA HECKARD'S INDIAN PAINTBRUSH PDSCR0D3G0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CASTILLEJA PLAGIOTOMA MOJAVE INDIAN PAINTBRUSH PDSCR0D2J0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CASTILLEJA SCHIZOTRICHA SPLIT-HAIR INDIAN PAINTBRUSH PDSCR0D2Y0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 112
CASTILLEJA ULIGINOSA PITKIN MARSH INDIAN PAINTBRUSH PDSCR0D380 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** GXQ **State:** SX	**List:** 1A **Code:** *
CAULANTHUS AMPLEXICAULIS VAR BARBARAE SANTA BARBARA JEWEL-FLOWER PDBRA0M012 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3?T1 **State:** S1.3	**List:** 1B **Code:** 313
CAULANTHUS CALIFORNICUS CALIFORNIA JEWEL-FLOWER PDBRA31010 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CAULANTHUS HETEROPHYLLUS VAR PSEUDOSIMULANS BUCK'S JEWEL-FLOWER PDBRA0M0B1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T2T3 **State:** S2S3	**List:** **Code:**
CAULANTHUS SIMULANS PAYSON'S JEWEL-FLOWER PDBRA0M0H0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CAULANTHUS STENOCARPUS SLENDER-POD JEWEL-FLOWER PDBRA0M0J0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G?Q **State:** S?	**List:** **Code:**
CAULOSTRAMINA JAEGERI JAEGER'S CAULOSTRAMINA PDBRA0N010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
CEANOTHUS CONFUSUS RINCON RIDGE CEANOTHUS PDRHA041K0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2Q **State:** S2.1	**List:** 1B **Code:** 333
CEANOTHUS CUNEATUS VAR RIGIDUS MONTEREY CEANOTHUS PDRHA04067 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 123
CEANOTHUS CYANEUS LAKESIDE CEANOTHUS PDRHA04070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 322
CEANOTHUS DIVERGENS CALISTOGA CEANOTHUS PDRHA04161 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
CEANOTHUS FERRISAE COYOTE CEANOTHUS PDRHA040C0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CEANOTHUS FOLIOSUS VAR VINEATUS VINE HILL CEANOTHUS PDRHA040D6 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3T1 **State:** S1?	**List:** 1B **Code:** 333
CEANOTHUS FRESNENSIS FRESNO CEANOTHUS PDRHA040E0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CEANOTHUS GLORIOSUS VAR GLORIOSUS POINT REYES CEANOTHUS PDRHA040F2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
CEANOTHUS GLORIOSUS VAR PORRECTUS MT. VISION CEANOTHUS PDRHA040F7 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3T2 **State:** S2.2	**List:** 1B **Code:** 313
CEANOTHUS HEARSTIORUM HEARST'S CEANOTHUS PDRHA040J0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
CEANOTHUS MARITIMUS MARITIME CEANOTHUS PDRHA040T0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
CEANOTHUS MASONII MASON'S CEANOTHUS PDRHA040F6 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 323
CEANOTHUS MEGACARPUS VAR INSULARIS ISLAND CEANOTHUS PDRHA040W1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CEANOTHUS OPHIOCHILUS VAIL LAKE CEANOTHUS PDRHA041M0 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CEANOTHUS PURPUREUS HOLLY-LEAVED CEANOTHUS PDRHA04160 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CEANOTHUS RODERICKII PINE HILL CEANOTHUS PDRHA04190 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Rare	**Global:** G2Q **State:** S2.2	**List:** 1B **Code:** 323
CEANOTHUS SONOMENSIS SONOMA CEANOTHUS PDRHA04068 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
CEANOTHUS VERRUCOSUS WART-STEMMED CEANOTHUS PDRHA041J0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S2.2	**List:** 2 **Code:** 121
CERCOCARPUS BETULOIDES VAR BLANCHEAE ISLAND MOUNTAIN-MAHOGANY PDROS08022 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
CERCOCARPUS TRASKIAE CATALINA ISLAND MOUNTAIN-MAHOGANY PDROS08030 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CHAENACTIS CARPHOCLINIA VAR PEIRSONII PEIRSON'S PINCUSHION PDAST20042 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T1 **State:** S1.3	**List:** 1B **Code:** 213
CHAENACTIS DOUGLASII VAR ALPINA ALPINE DUSTY MAIDENS PDAST20065 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T5 **State:** S2.3?	**List:** 2 **Code:** 211
CHAENACTIS PARISHII PARISH'S CHAENACTIS PDAST200D0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 112
CHAENACTIS SUFFRUTESCENS SHASTA CHAENACTIS PDAST200H0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2?	**List:** 1B **Code:** 213
CHAMAEBATIA AUSTRALIS SOUTHERN MOUNTAIN MISERY PDROS0A010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.2	**List:** 4 **Code:** 121
CHAMAESYCE ARIZONICA ARIZONA SPURGE PDEUP0D060 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.3	**List:** 2 **Code:** 211
CHAMAESYCE HOOVERI HOOVER'S SPURGE PDEUP0D150 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
CHAMAESYCE OCELLATA SSP RATTANII STONY CREEK SPURGE PDEUP0D1P1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G7T3 **State:** S3.3	**List:** 4 **Code:** 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CHAMAESYCE PLATYSPERMA FLAT-SEEDED SPURGE PDEUP0D1X0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3 State: S1.2?	List: 1B Code: 322
CHEILANTHES WOOTONII WOOTON'S LACE FERN PPADI090S0 Records in NDDB: *Yes*	Federal: None State: None	Global: G5 State: S1.3	List: 2 Code: 211
CHENOPODIUM SIMPLEX LARGE-SEEDED GOOSEFOOT PDCHE091P0 Records in NDDB: *No*	Federal: None State: None	Global: G5 State: S3.3	List: 4 Code: 111
CHLOROGALUM GRANDIFLORUM RED HILLS SOAPROOT PMLIL0G020 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 223
CHLOROGALUM POMERIDIANUM VAR MINUS DWARF SOAPROOT PMLIL0G042 Records in NDDB: *Yes*	Federal: None State: None	Global: G5T1 State: S1.2	List: 1B Code: 223
CHLOROGALUM PURPUREUM VAR PURPUREUM PURPLE AMOLE PMLIL0G051 Records in NDDB: *Yes*	Federal: Proposed Threatened State: None	Global: G1T1 State: S1.1	List: 1B Code: 333
CHLOROGALUM PURPUREUM VAR REDUCTUM CAMATTA CANYON AMOLE PMLIL0G052 Records in NDDB: *Yes*	Federal: Proposed Threatened State: Rare	Global: G1T1 State: S1.1	List: 1B Code: 333
CHORIZANTHE BILOBA VAR IMMEMORA SAN BENITO SPINEFLOWER PDPGN04025 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T1? State: S1?	List: 1B Code: 223
CHORIZANTHE BLAKLEYI BLAKLEY'S SPINEFLOWER PDPGN04030 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CHORIZANTHE BREWERI BREWER'S SPINEFLOWER PDPGN04050 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.2	List: 1B Code: 313
CHORIZANTHE CUSPIDATA VAR CUSPIDATA SAN FRANCISCO BAY SPINEFLOWER PDPGN04081 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T2 State: S2.2	List: 1B Code: 223
CHORIZANTHE CUSPIDATA VAR VILLOSA WOOLLY-HEADED SPINEFLOWER PDPGN04082 Records in NDDB: *Yes*	Federal: None State: None	Global: G3T1 State: S1.2	List: 1B Code: 223
CHORIZANTHE DOUGLASII DOUGLAS'S SPINEFLOWER PDPGN040A0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
CHORIZANTHE HOWELLII HOWELL'S SPINEFLOWER PDPGN040C0 Records in NDDB: *Yes*	Federal: Endangered State: Threatened	Global: G1 State: S1.2	List: 1B Code: 323
CHORIZANTHE LEPTOTHECA PENINSULAR SPINEFLOWER PDPGN040D0 Records in NDDB: *No*	Federal: None State: None	Global: G4 State: S3.2	List: 4 Code: 122

Scientific Name, Common Name, Element Code				Listing Status		Rank		CNPS	
Scientific Name	Common Name	Element Code	Records in NDDB	Federal	State	Global	State	List	Code
CHORIZANTHE ORCUTTIANA	ORCUTT'S SPINEFLOWER	PDPGN040G0	*Yes*	Endangered	Endangered	G1	S1.1	1B	333
CHORIZANTHE PALMERI	PALMER'S SPINEFLOWER	PDPGN040H0	*No*	None	None	G3?	S3.2?	4	123
CHORIZANTHE PARRYI VAR FERNANDINA	SAN FERNANDO VALLEY SPINEFLOWER	PDPGN040J1	*Yes*	Candidate	None	G2T1	S1.1	1A	*
CHORIZANTHE PARRYI VAR PARRYI	PARRY'S SPINEFLOWER	PDPGN040J2	*Yes*	Species of concern	None	G2T2?	S2.2	3	?23
CHORIZANTHE POLYGONOIDES VAR LONGISPINA	LONG-SPINED SPINEFLOWER	PDPGN040K1	*Yes*	Species of concern	None	G5T3	S2.2	1B	222
CHORIZANTHE PROCUMBENS	PROSTRATE SPINEFLOWER	PDPGN040L0	*No*	None	None	G4G5	S3.2?	4	122
CHORIZANTHE PUNGENS VAR HARTWEGIANA	BEN LOMOND SPINEFLOWER	PDPGN040M1	*Yes*	Endangered	None	G1G2T1	S1.1	1B	233
CHORIZANTHE PUNGENS VAR PUNGENS	MONTEREY SPINEFLOWER	PDPGN040M2	*Yes*	Threatened	None	G2T2	S2.2	1B	223
CHORIZANTHE RECTISPINA	STRAIGHT-AWNED SPINEFLOWER	PDPGN040N0	*Yes*	Species of concern	None	G1	S1.2	1B	313
CHORIZANTHE ROBUSTA VAR HARTWEGII	SCOTT'S VALLEY SPINEFLOWER	PDPGN040Q1	*Yes*	Endangered	None	G2T1	S1.1	1B	333
CHORIZANTHE ROBUSTA VAR ROBUSTA	ROBUST SPINEFLOWER	PDPGN040Q2	*Yes*	Endangered	None	G2T1	S1.1	1B	333
CHORIZANTHE SPINOSA	MOJAVE SPINEFLOWER	PDPGN040R0	*No*	None	None	G3	S3.2	4	123
CHORIZANTHE VALIDA	SONOMA SPINEFLOWER	PDPGN040V0	*Yes*	Endangered	Endangered	G1	S1.1	1B	333
CHORIZANTHE WHEELERI	WHEELER'S SPINEFLOWER	PDPGN040Y0	*No*	None	None	G3	S3.3	4	113
CHORIZANTHE XANTI VAR LEUCOTHECA	WHITE-BRACTED SPINEFLOWER	PDPGN040Z1	*No*	None	None	G4T3	S3.2	4	123

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CHRYSOTHAMNUS GRAMINEUS PANAMINT ROCK-GOLDENROD PDAST2C0H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4? S3.3	List: Code:	4 111
CIRSIUM ANDREWSII FRANCISCAN THISTLE PDAST2E050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
CIRSIUM CILIOLATUM ASHLAND THISTLE PDAST2E0P0	Records in NDDB: *Yes*	Federal: State:	None Endangered	Global: State:	G3Q S1.1	List: Code:	2 331
CIRSIUM CRASSICAULE SLOUGH THISTLE PDAST2E0U0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.1	List: Code:	1B 323
CIRSIUM FONTINALE VAR CAMPYLON MT. HAMILTON THISTLE PDAST2E0F0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T2 S2.2	List: Code:	1B 223
CIRSIUM FONTINALE VAR FONTINALE FOUNTAIN THISTLE PDAST2E161	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2T1 S1.1	List: Code:	1B 333
CIRSIUM FONTINALE VAR OBISPOENSE CHORRO CREEK BOG THISTLE PDAST2E162	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2T1 S1.2	List: Code:	1B 323
CIRSIUM HYDROPHILUM VAR HYDROPHILUM SUISUN THISTLE PDAST2E1G1	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G1T1 S1.1	List: Code:	1B 333
CIRSIUM HYDROPHILUM VAR VASEYI MT. TAMALPAIS THISTLE PDAST2E1G2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1T1 S1.2	List: Code:	1B 323
CIRSIUM LONCHOLEPIS LA GRACIOSA THISTLE PDAST2E1N0	Records in NDDB: *Yes*	Federal: State:	Proposed Endangered Threatened	Global: State:	G2 S2.1	List: Code:	1B 323
CIRSIUM OCCIDENTALE VAR COMPACTUM COMPACT COBWEBBY THISTLE PDAST2E1Z1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3G4T2 S2.2	List: Code:	1B 223
CIRSIUM PRAETERIENS PALO ALTO THISTLE PDAST2E2B0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	GX SX	List: Code:	
CIRSIUM RHOTHOPHILUM SURF THISTLE PDAST2E2J0	Records in NDDB: *Yes*	Federal: State:	Species of concern Threatened	Global: State:	G2 S2.2	List: Code:	1B 223
CLARKIA AMOENA SSP WHITNEYI WHITNEY'S FAREWELL-TO-SPRING PDONA05025	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 113
CLARKIA AUSTRALIS SMALL'S SOUTHERN CLARKIA PDONA05040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 223

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CLARKIA BILOBA SSP AUSTRALIS MARIPOSA CLARKIA PDONA05051	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4T2 S2.2	**List:** **Code:**	1B 323
CLARKIA BOREALIS SSP ARIDA SHASTA CLARKIA PDONA05061	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G?T1Q S1.1	**List:** **Code:**	1B 333
CLARKIA BOREALIS SSP BOREALIS NORTHERN CLARKIA PDONA05062	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113
CLARKIA BREWERI BREWER'S CLARKIA PDONA05080	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.2	**List:** **Code:**	4 123
CLARKIA CONCINNA SSP AUTOMIXA SANTA CLARA RED RIBBONS PDONA050A1	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G4?T1 S1.2	**List:** **Code:**	1B 223
CLARKIA CONCINNA SSP RAICHEI RAICHE'S RED RIBBONS PDONA050A2	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G4?T1 S1.1?	**List:** **Code:**	1B 313
CLARKIA DELICATA DELICATE CLARKIA PDONA050D0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G2G3 S1?	**List:** **Code:**	2 121
CLARKIA EXILIS SLENDER CLARKIA PDONA050G0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
CLARKIA FRANCISCANA PRESIDIO CLARKIA PDONA050H0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
CLARKIA GRACILIS SSP ALBICAULIS WHITE-STEMMED CLARKIA PDONA050J1	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T2 S2.2?	**List:** **Code:**	1B 323
CLARKIA IMBRICATA VINE HILL CLARKIA PDONA050K0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
CLARKIA JOLONENSIS JOLON CLARKIA PDONA050L0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
CLARKIA LEWISII LEWIS'S CLARKIA PDONA050N0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
CLARKIA LINGULATA MERCED CLARKIA PDONA050P0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
CLARKIA MILDREDIAE MILDRED'S CLARKIA PDONA050Q0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113

Scientific Name, Common Name, Element Code	Records in NDDB	Listing Status: Federal	Listing Status: State	Rank: Global	Rank: State	CNPS List	CNPS Code
CLARKIA MOSQUINII SSP MOSQUINII MOSQUIN'S CLARKIA PDONA050S1	*Yes*	Species of concern	None	G1T1	S1.1	1B	333
CLARKIA MOSQUINII SSP XEROPHILA ENTERPRISE CLARKIA PDONA050S2	*Yes*	Species of concern	None	G1T1	S1.1	1B	333
CLARKIA ROSTRATA BEAKED CLARKIA PDONA050Y0	*Yes*	Species of concern	None	G2	S2.2	1B	213
CLARKIA SPECIOSA SSP IMMACULATA PISMO CLARKIA PDONA05111	*Yes*	Endangered	Rare	G3T1	S1.1	1B	333
CLARKIA SPRINGVILLENSIS SPRINGVILLE CLARKIA PDONA05120	*Yes*	Threatened	Endangered	G1	S1.1	1B	323
CLARKIA TEMBLORIENSIS SSP CALIENTENSIS VASEK'S CLARKIA PDONA05141	*Yes*	Species of concern	None	G3T1	S1.1	1B	333
CLARKIA VIRGATA SIERRA CLARKIA PDONA05160	*No*	None	None	G3	S3.3	4	113
CLARKIA XANTIANA SSP PARVIFLORA KERN CANYON CLARKIA PDONA05181	*Yes*	None	None	G5T1	S1.2	1B	323
CLAYTONIA LANCEOLATA VAR PEIRSONII PEIRSON'S SPRING BEAUTY PDPOR03097	*Yes*	Species of concern	None	G5T1	S1.1	1B	333
CLAYTONIA MEGARHIZA FELL-FIELDS CLAYTONIA PDPOR030A0	*Yes*	None	None	G4?	S2S3	2	211
CLAYTONIA PALUSTRIS MARSH CLAYTONIA PDPOR030S0	*No*	None	None	G3	S3.3	4	113
CLAYTONIA UMBELLATA GREAT BASIN CLAYTONIA PDPOR030P0	*Yes*	None	None	G5?	S1.3	1B	312
CLEOMELLA HILLMANII HILLMAN'S CLEOMELLA PDCPP04030	*Yes*	None	None	G3?	S1?		
COCHLEARIA OFFICINALIS VAR ARCTICA ARCTIC SPOONWORT PDBRA0S032	*Yes*	None	None	G5T3T4	S1.3	2	311
COLLINSIA CORYMBOSA ROUND-HEADED CHINESE HOUSES PDSCR0H060	*Yes*	None	None	G1	S1.2	1B	223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
COLLINSIA MULTICOLOR SAN FRANCISCO COLLINSIA PDSCR0H0B0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2?	**List:** 4 **Code:** 113
COLLOMIA DIVERSIFOLIA SERPENTINE COLLOMIA PDPLM02020 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
COLLOMIA LARSENII TALUS COLLOMIA PDPLM02014 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S1.2	**List:** 2 **Code:** 321
COLLOMIA RAWSONIANA FLAMING TRUMPET PDPLM02080 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
COLLOMIA TRACYI TRACY'S COLLOMIA PDPLM020B0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
COLUBRINA CALIFORNICA LAS ANIMAS COLUBRINA PDRHA05030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5 **State:** S3.3	**List:** 4 **Code:** 112
COMAROSTAPHYLIS DIVERSIFOLIA SSP DIVERSIFOLIA SUMMER HOLLY PDERI0B011 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3T2 **State:** S2.2	**List:** 1B **Code:** 222
CONDALIA GLOBOSA VAR PUBESCENS SPINY ABROJO PDRHA06031 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 121
CONVOLVULUS SIMULANS SMALL-FLOWERED MORNING-GLORY PDCON05060 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
CORALLORHIZA TRIFIDA NORTHERN CORALROOT PMORC0M050 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.1	**List:** 2 **Code:** 331
CORDYLANTHUS CAPITATUS YAKIMA BIRD'S-BEAK PDSCR0J030 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S2.2	**List:** 2 **Code:** 121
CORDYLANTHUS EREMICUS SSP EREMICUS DESERT BIRD'S-BEAK PDSCR0J042 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3T3 **State:** S3?	**List:** 4 **Code:** 113
CORDYLANTHUS EREMICUS SSP KERNENSIS KERN PLATEAU BIRD'S-BEAK PDSCR0J043 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3T3 **State:** S3.3?	**List:** 4 **Code:** 113
CORDYLANTHUS MARITIMUS SSP MARITIMUS SALT MARSH BIRD'S-BEAK PDSCR0J0C2 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G3T2 **State:** S2.2	**List:** 1B **Code:** 222
CORDYLANTHUS MARITIMUS SSP PALUSTRIS POINT REYES BIRD'S-BEAK PDSCR0J0C3 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3T2 **State:** S2.2	**List:** 1B **Code:** 222

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CORDYLANTHUS MOLLIS SSP HISPIDUS HISPID BIRD'S-BEAK PDSCR0J0D1 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2T2 State: S2.1	List: 1B Code: 233
CORDYLANTHUS MOLLIS SSP MOLLIS SOFT BIRD'S-BEAK PDSCR0J0D2 Records in NDDB: *Yes*	Federal: Endangered State: Rare	Global: G2T1 State: S1.2	List: 1B Code: 323
CORDYLANTHUS NIDULARIUS MT. DIABLO BIRD'S-BEAK PDSCR0J0F0 Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G1 State: S1.2	List: 1B Code: 333
CORDYLANTHUS ORCUTTIANUS ORCUTT'S BIRD'S-BEAK PDSCR0J0G0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2? State: S1.1	List: 2 Code: 331
CORDYLANTHUS PALMATUS PALMATE-BRACTED BIRD'S-BEAK PDSCR0J0J0 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G1 State: S1.1	List: 1B Code: 333
CORDYLANTHUS PARVIFLORUS PURPLE BIRD'S-BEAK PDSCR0J0K0 Records in NDDB: *Yes*	Federal: None State: None	Global: G4G5 State: S1S2	List: 2 Code: 311
CORDYLANTHUS RIGIDUS SSP LITTORALIS SEASIDE BIRD'S-BEAK PDSCR0J0P2 Records in NDDB: *Yes*	Federal: Species of concern State: Endangered	Global: G5T1 State: S1.1	List: 1B Code: 233
CORDYLANTHUS TECOPENSIS TECOPA BIRD'S-BEAK PDSCR0J0Q0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S1.2	List: 1B Code: 322
CORDYLANTHUS TENUIS SSP BARBATUS FRESNO COUNTY BIRD'S-BEAK PDSCR0J0S4 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G4T3 State: S3.3?	List: 4 Code: 113
CORDYLANTHUS TENUIS SSP BRUNNEUS SERPENTINE BIRD'S-BEAK PDSCR0J0S1 Records in NDDB: *No*	Federal: None State: None	Global: G4T3 State: S3.3	List: 4 Code: 113
CORDYLANTHUS TENUIS SSP CAPILLARIS PENNELL'S BIRD'S-BEAK PDSCR0J0S2 Records in NDDB: *Yes*	Federal: Endangered State: Rare	Global: G4T1 State: S1.2	List: 1B Code: 323
CORDYLANTHUS TENUIS SSP PALLESCENS PALLID BIRD'S-BEAK PDSCR0J0S3 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T1 State: S1.2	List: 1B Code: 323
COREOPSIS HAMILTONII MT. HAMILTON COREOPSIS PDAST2L0C0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 323
COREOPSIS MARITIMA SEA DAHLIA PDAST2L0L0 Records in NDDB: *Yes*	Federal: None State: None	Global: G3 State: S2.2	List: 2 Code: 221
CORETHROGYNE FILAGINIFOLIA VAR INCANA SAN DIEGO SAND ASTER PDAST2M025 Records in NDDB: *Yes*	Federal: None State: None	Global: G4T1 State: S1.1	List: 1B Code: 222

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
CORETHROGYNE FILAGINIFOLIA VAR LINIFOLIA DEL MAR MESA SAND ASTER PDAST2M027 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T1 **State:** S1.1	**List:** 1B **Code:** 323
CORETHROGYNE LEUCOPHYLLA BRANCHING BEACH ASTER PDAST2M030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3? **State:** S3.2	**List:** 4 **Code:** 113
CORYDALIS CASEANA SSP CASEANA SIERRA CORYDALIS PDFUM03043 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
CREPIS RUNCINATA SSP HALLII HALL'S MEADOW HAWKSBEARD PDAST2R0KB **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T3? **State:** S2?	**List:** 2 **Code:** 331
CROSSOSOMA CALIFORNICUM CATALINA CROSSOSOMA PDCRO02020 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
CROTON WIGGINSII WIGGINS'S CROTON PDEUP0H140 **Records in NDDB:** *Yes*	**Federal:** None **State:** Rare	**Global:** G3 **State:** S1.2	**List:** 2 **Code:** 221
CRYPTANTHA CLEVELANDII VAR DISSITA SERPENTINE CRYPTANTHA PDBOR0A0H2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5TH **State:** SH	**List:** 1B **Code:** 223
CRYPTANTHA CLOKEYI CLOKEY'S CRYPTANTHA PDBOR0A211 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
CRYPTANTHA COSTATA RIBBED CRYPTANTHA PDBOR0A0M0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4G5 **State:** S3.3	**List:** 4 **Code:** 112
CRYPTANTHA CRINITA SILKY CRYPTANTHA PDBOR0A0Q0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
CRYPTANTHA CRYMOPHILA SUBALPINE CRYPTANTHA PDBOR0A0R0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CRYPTANTHA EXCAVATA DEEP-SCARRED CRYPTANTHA PDBOR0A0W0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
CRYPTANTHA GANDERI GANDER'S CRYPTANTHA PDBOR0A120 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S1.1	**List:** 1B **Code:** 332
CRYPTANTHA HOLOPTERA WINGED CRYPTANTHA PDBOR0A180 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3G4 **State:** S?	**List:** 4 **Code:** 112
CRYPTANTHA HOOVERI HOOVER'S CRYPTANTHA PDBOR0A190 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CRYPTANTHA MARIPOSAE MARIPOSA CRYPTANTHA PDBOR0A1Q0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
CRYPTANTHA RATTANII RATTAN'S CRYPTANTHA PDBOR0A2H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
CRYPTANTHA ROOSIORUM BRISTLECONE CRYPTANTHA PDBOR0A2L0	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G1 S1.2	List: Code:	1B 323
CRYPTANTHA SCOPARIA GRAY CRYPTANTHA PDBOR0A2Q0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
CRYPTANTHA TRASKIAE TRASK'S CRYPTANTHA PDBOR0A370	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
CRYPTANTHA TUMULOSA NEW YORK MOUNTAINS CRYPTANTHA PDBOR0A380	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4? S3.3	List: Code:	4 112
CUPRESSUS ABRAMSIANA SANTA CRUZ CYPRESS PGCUP04080	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 323
CUPRESSUS ARIZONICA SSP NEVADENSIS PIUTE CYPRESS PGCUP04012	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T2 S2.2	List: Code:	1B 223
CUPRESSUS BAKERI BAKER'S CYPRESS PGCUP04020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 122
CUPRESSUS FORBESII TECATE CYPRESS PGCUP040C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.1	List: Code:	1B 322
CUPRESSUS GOVENIANA SSP GOVENIANA GOWEN CYPRESS PGCUP04031	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2T1 S1.2	List: Code:	1B 323
CUPRESSUS GOVENIANA SSP PIGMAEA PYGMY CYPRESS PGCUP04032	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T1 S1.2	List: Code:	1B 123
CUPRESSUS MACROCARPA MONTEREY CYPRESS PGCUP04060	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
CUPRESSUS NOOTKATENSIS ALASKA CEDAR PGCUP03020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 111
CUPRESSUS STEPHENSONII CUYAMACA CYPRESS PGCUP040B0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
CUSICKIELLA QUADRICOSTATA BODIE HILLS CUSICKIELLA PDBRA2V010	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3 S2.2	**List:** **Code:**	1B 222
CYMOPTERUS DESERTICOLA DESERT CYMOPTERUS PDAPI0U090	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 323
CYMOPTERUS GILMANII GILMAN'S CYMOPTERUS PDAPI0U0C0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G3? S2.2	**List:** **Code:**	2 211
CYMOPTERUS RIPLEYI RIPLEY'S CYMOPTERUS PDAPI0U0X0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S1.2	**List:** **Code:**	2 321
CYNANCHUM UTAHENSE UTAH VINE MILKWEED PDASC050M0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 111
CYPRIPEDIUM CALIFORNICUM CALIFORNIA LADY'S-SLIPPER PMORC0Q040	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3G4 S3.2	**List:** **Code:**	4 122
CYPRIPEDIUM FASCICULATUM CLUSTERED LADY'S-SLIPPER PMORC0Q060	**Records in NDDB:** *No*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G4 S3.2	**List:** **Code:**	4 122
CYPRIPEDIUM MONTANUM MOUNTAIN LADY'S-SLIPPER PMORC0Q080	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.2	**List:** **Code:**	4 112
DALEA ORNATA ORNATE DALEA PDFAB1A150	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4G5 S1.3	**List:** **Code:**	2 331
DARLINGTONIA CALIFORNICA CALIFORNIA PITCHERPLANT PDSAR01010	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.2	**List:** **Code:**	4 121
DEDECKERA EUREKENSIS JULY GOLD PDPGN06010	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Rare	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 213
DELPHINIUM BAKERI BAKER'S LARKSPUR PDRAN0B050	**Records in NDDB:** *Yes*	**Federal:** **State:**	Proposed Endangered Rare	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
DELPHINIUM CALIFORNICUM SSP INTERIUS HOSPITAL CANYON LARKSPUR PDRAN0B0A2	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3T2 S2?	**List:** **Code:**	1B 323
DELPHINIUM GYPSOPHILUM SSP GYPSOPHILUM GYPSUM-LOVING LARKSPUR PDRAN0B0S1	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113
DELPHINIUM GYPSOPHILUM SSP PARVIFLORUM SMALL-FLOWERED GYPSUM-LOVING LARKSPUR PDRAN0B0S2	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
DELPHINIUM HANSENII SSP EWANIANUM EWAN'S LARKSPUR PDRAN0B0T2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123
DELPHINIUM HESPERIUM SSP CUYAMACAE CUYAMACA LARKSPUR PDRAN0B0U1	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G4T2 S2.2	List: Code:	1B 223
DELPHINIUM HUTCHINSONIAE HUTCHINSON'S LARKSPUR PDRAN0B0V0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
DELPHINIUM INOPINUM UNEXPECTED LARKSPUR PDRAN0B0W0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	1B 223
DELPHINIUM LUTEUM YELLOW LARKSPUR PDRAN0B0Z0	Records in NDDB: *Yes*	Federal: State:	Proposed Endangered Rare	Global: State:	G1 S1.1	List: Code:	1B 333
DELPHINIUM PARISHII SSP SUBGLOBOSUM SONORAN DESERT LARKSPUR PDRAN0B1A3	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 112
DELPHINIUM PARRYI SSP BLOCHMANIAE DUNE LARKSPUR PDRAN0B1B1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S2.2	List: Code:	1B 323
DELPHINIUM PARRYI SSP PURPUREUM MT. PINOS LARKSPUR PDRAN0B1B5	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 113
DELPHINIUM PURPUSII KERN COUNTY LARKSPUR PDRAN0B1G0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
DELPHINIUM RECURVATUM RECURVED LARKSPUR PDRAN0B1J0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 123
DELPHINIUM STACHYDEUM SPIKED LARKSPUR PDRAN0B1Q0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
DELPHINIUM ULIGINOSUM SWAMP LARKSPUR PDRAN0B1V0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
DELPHINIUM UMBRACULORUM UMBRELLA LARKSPUR PDRAN0B1W0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
DELPHINIUM VARIEGATUM SSP KINKIENSE SAN CLEMENTE ISLAND LARKSPUR PDRAN0B1X3	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G4T1 S1.1	List: Code:	1B 333
DELPHINIUM VARIEGATUM SSP THORNEI THORNE'S ROYAL LARKSPUR PDRAN0B1X2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T1 S1.1	List: Code:	1B 333

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
DENDROMECON HARFORDII VAR HARFORDII CHANNEL ISLAND TREE POPPY PDPAP08020 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G4T3Q **State:** S3.2	**List:** 4 **Code:** 123
DENDROMECON HARFORDII VAR RHAMNOIDES ISLAND TREE POPPY PDPAP08012 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T1Q **State:** S1.1	**List:** 1B **Code:** 333
DESCHAMPSIA ATROPURPUREA MOUNTAIN HAIR GRASS PMPOA6M010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5 **State:** S3.3	**List:** 4 **Code:** 111
DICENTRA FORMOSA SSP OREGANA OREGON BLEEDING HEART PDFUM04052 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T4 **State:** S3.2	**List:** 4 **Code:** 122
DICENTRA NEVADENSIS TULARE COUNTY BLEEDING HEART PDFUM04060 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
DICHANTHELIUM LANUGINOSUM VAR THERMALE GEYSERS DICHANTHELIUM PMPOA24025 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333
DICHONDRA OCCIDENTALIS WESTERN DICHONDRA PDCON08060 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4? **State:** S3.2	**List:** 4 **Code:** 121
DIMERESIA HOWELLII DOUBLET PDAST2Z010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4? **State:** S3.3	**List:** 4 **Code:** 111
DIRCA OCCIDENTALIS WESTERN LEATHERWOOD PDTHY03010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2G3 **State:** S2S3	**List:** 1B **Code:** 223
DISSANTHELIUM CALIFORNICUM CALIFORNIA DISSANTHELIUM PMPOA29010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
DITAXIS CALIFORNICA CALIFORNIA DITAXIS PDEUP08050 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
DITAXIS CLARIANA GLANDULAR DITAXIS PDEUP080L0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4G5 **State:** S1S2	**List:** 2 **Code:** 321
DITHYREA MARITIMA BEACH SPECTACLEPOD PDBRA10020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Threatened	**Global:** G2 **State:** S2.1	**List:** 1B **Code:** 332
DODECAHEMA LEPTOCERAS SLENDER-HORNED SPINEFLOWER PDPGN0V010 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
DOWNINGIA CONCOLOR VAR BREVIOR CUYAMACA LAKE DOWNINGIA PDCAM06041 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G4T1 **State:** S1.1	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
DOWNINGIA PUSILLA DWARF DOWNINGIA PDCAM060C0 Records in NDDB: *Yes*	Federal: None State: None	Global: G3 State: S3.2	List: 2 Code: 121
DRABA ASTEROPHORA VAR ASTEROPHORA TAHOE DRABA PDBRA110D1 Records in NDDB: *Yes*	Federal: None State: None	Global: G4T2 State: S1.3	List: 1B Code: 312
DRABA ASTEROPHORA VAR MACROCARPA CUP LAKE DRABA PDBRA110D2 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T1 State: S1.2	List: 1B Code: 313
DRABA AUREOLA GOLDEN DRABA PDBRA110F0 Records in NDDB: *Yes*	Federal: None State: None	Global: G4 State: S1.3	List: 1B Code: 312
DRABA CALIFORNICA CALIFORNIA DRABA PDBRA11380 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
DRABA CANA HOARY DRABA PDBRA110M0 Records in NDDB: *Yes*	Federal: None State: None	Global: G5 State: S1.3	List: 2 Code: 311
DRABA CARNOSULA MT. EDDY DRABA PDBRA112T0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.3	List: 1B Code: 313
DRABA CRUCIATA MINERAL KING DRABA PDBRA110U0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
DRABA HOWELLII HOWELL'S DRABA PDBRA11150 Records in NDDB: *No*	Federal: None State: None	Global: G4 State: S3.3	List: 4 Code: 112
DRABA INCRASSATA SWEETWATER MOUNTAINS DRABA PDBRA113G0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
DRABA MONOENSIS WHITE MOUNTAINS DRABA PDBRA113B0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.2	List: 1B Code: 223
DRABA PTEROSPERMA WINGED-SEED DRABA PDBRA11230 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
DRABA SHARSMITHII MT. WHITNEY DRABA PDBRA113F0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.3	List: 1B Code: 313
DRABA SIERRAE SIERRA DRABA PDBRA112A0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
DRABA SUBUMBELLATA MOUND DRABA PDBRA11370 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
DROSERA ANGLICA ENGLISH SUNDEW PDDRO02010	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S2S3	**List:** **Code:**	2 211
DRYOPTERIS FILIX-MAS MALE FERN PPDRY0A0B0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S1.3	**List:** **Code:**	2 311
DUDLEYA ABRAMSII SSP AFFINIS SAN BERNARDINO MOUNTAINS DUDLEYA PDCRA04013	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3T2 S2.2	**List:** **Code:**	1B 223
DUDLEYA ABRAMSII SSP BETTINAE SAN LUIS OBISPO SERPENTINE DUDLEYA PDCRA04011	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3T1 S1.2	**List:** **Code:**	1B 313
DUDLEYA ABRAMSII SSP MURINA SAN LUIS OBISPO DUDLEYA PDCRA04012	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3T3 S3.2	**List:** **Code:**	4 113
DUDLEYA ABRAMSII SSP PARVA CONEJO DUDLEYA PDCRA04016	**Records in NDDB:** *Yes*	**Federal:** **State:**	Threatened None	**Global:** **State:**	G3T2 S2.1	**List:** **Code:**	1B 323
DUDLEYA ALAINAE BANNER DUDLEYA PDCRA040X0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G1Q S1?	**List:** **Code:**	3 323
DUDLEYA ATTENUATA SSP ORCUTTII ORCUTT'S DUDLEYA PDCRA04031	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G4T2 S1.1	**List:** **Code:**	2 331
DUDLEYA BLOCHMANIAE SSP BLOCHMANIAE BLOCHMAN'S DUDLEYA PDCRA04051	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2T2 S2.1	**List:** **Code:**	1B 222
DUDLEYA BLOCHMANIAE SSP BREVIFOLIA SHORT-LEAVED DUDLEYA PDCRA04060	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Endangered	**Global:** **State:**	G2T1 S1.1	**List:** **Code:**	1B 333
DUDLEYA BLOCHMANIAE SSP INSULARIS SANTA ROSA ISLAND DUDLEYA PDCRA04052	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2T1 S1.1	**List:** **Code:**	1B 333
DUDLEYA CALCICOLA LIMESTONE SIERRA DUDLEYA PDCRA04014	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
DUDLEYA CANDELABRUM CANDLEHOLDER DUDLEYA PDCRA04080	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
DUDLEYA CYMOSA SSP COSTAFOLIA PIERPOINT SPRINGS DUDLEYA PDCRA040A2	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G5T2 S2.2	**List:** **Code:**	1B 323
DUDLEYA CYMOSA SSP CREBRIFOLIA SAN GABRIEL RIVER DUDLEYA PDCRA040A8	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G5T1 S1.2	**List:** **Code:**	1B 313

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
DUDLEYA CYMOSA SSP MARCESCENS MARCESCENT DUDLEYA PDCRA040A3 Records in NDDB: *Yes*	Federal: Threatened State: Rare	Global: G5T2 State: S2.2	List: 1B Code: 323
DUDLEYA CYMOSA SSP OVATIFOLIA SANTA MONICA MOUNTAINS DUDLEYA PDCRA040A5 Records in NDDB: *Yes*	Federal: Threatened State: None	Global: G5T2Q State: S2.2	List: 1B Code: 223
DUDLEYA DENSIFLORA SAN GABRIEL MOUNTAINS DUDLEYA PDCRA040B0 Records in NDDB: *Yes*	Federal: Candidate State: None	Global: G1 State: S1.1	List: 1B Code: 333
DUDLEYA GNOMA MUNCHKIN DUDLEYA PDCRA040W0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.1	List: Code:
DUDLEYA GREENEI GREENE'S DUDLEYA PDCRA040E0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
DUDLEYA MULTICAULIS MANY-STEMMED DUDLEYA PDCRA040H0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 123
DUDLEYA NESIOTICA SANTA CRUZ ISLAND DUDLEYA PDCRA040J0 Records in NDDB: *Yes*	Federal: Threatened State: Rare	Global: G1 State: S1.2	List: 1B Code: 333
DUDLEYA SAXOSA SSP SAXOSA PANAMINT DUDLEYA PDCRA040N2 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G4T3 State: S3.2	List: 4 Code: 123
DUDLEYA SETCHELLII SANTA CLARA VALLEY DUDLEYA PDCRA040AC Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G1 State: S1.1	List: 1B Code: 333
DUDLEYA STOLONIFERA LAGUNA BEACH DUDLEYA PDCRA040P0 Records in NDDB: *Yes*	Federal: Threatened State: Threatened	Global: G1 State: S1.1	List: 1B Code: 333
DUDLEYA TRASKIAE SANTA BARBARA ISLAND DUDLEYA PDCRA040Q0 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G1 State: S1.2	List: 1B Code: 333
DUDLEYA VARIEGATA VARIEGATED DUDLEYA PDCRA040R0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 222
DUDLEYA VERITYI VERITY'S DUDLEYA PDCRA040U0 Records in NDDB: *Yes*	Federal: Threatened State: None	Global: G1 State: S1.1	List: 1B Code: 323
DUDLEYA VIRENS BRIGHT GREEN DUDLEYA PDCRA040S0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.2	List: 1B Code: 222
DUDLEYA VISCIDA STICKY DUDLEYA PDCRA040T0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 323

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ECHINOCEREUS ENGELMANNII VAR HOWEI HOWE'S HEDGEHOG CACTUS PDCAC06035	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1	List: Code:	1B 333
ELEOCHARIS PARVULA SMALL SPIKERUSH PMCYP091G0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
ELEOCHARIS QUADRANGULATA FOUR-ANGLED SPIKERUSH PMCYP091J0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1S2	List: Code:	2 321
ELYMUS CALIFORNICUS CALIFORNIA BOTTLE-BRUSH GRASS PMPOA2H0W0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
ELYMUS SCRIBNERI SCRIBNER'S WHEAT GRASS PMPOA2H170	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	2 211
EMPETRUM NIGRUM SSP HERMAPHRODITUM BLACK CROWBERRY PDEMP03021	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S2?	List: Code:	2 321
ENCELIOPSIS COVILLEI PANAMINT DAISY PDAST3G020	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S3.2	List: Code:	1B 323
ENCELIOPSIS NUDICAULIS NAKED-STEMMED DAISY PDAST3G030	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T5 S2S3	List: Code:	4 111
ENNEAPOGON DESVAUXII NINE-AWNED PAPPUS GRASS PMPOA2J010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	2 311
EPILOBIUM HOWELLII SUBALPINE FIREWEED PDONA06180	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 313
EPILOBIUM LUTEUM YELLOW WILLOWHERB PDONA060H0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	2 311
EPILOBIUM NIVIUM SNOW MOUNTAIN WILLOWHERB PDONA060M0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 223
EPILOBIUM OREGANUM OREGON FIREWEED PDONA060P0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 222
EPILOBIUM RIGIDUM SISKIYOU MOUNTAINS WILLOWHERB PDONA060V0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3? S3.3	List: Code:	4 112
EPILOBIUM SEPTENTRIONALE HUMBOLDT COUNTY FUCHSIA PDONA06110	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
EPILOBIUM SISKIYOUENSE SISKIYOU FIREWEED PDONA06100 Records in NDDB: *Yes*	Federal: None State: None	Global: G3 State: S2.2	List: 1B Code: 312
EQUISETUM PALUSTRE MARSH HORSETAIL PPEQU01050 Records in NDDB: *No*	Federal: None State: None	Global: G5 State: S1S2	List: 3 Code: 3?1
EREMALCHE KERNENSIS KERN MALLOW PDMAL0C031 Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G1Q State: S1.1	List: 1B Code: 333
ERIASTRUM BRANDEGEAE BRANDEGEE'S ERIASTRUM PDPLM03020 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3 State: S3.2	List: 1B Code: 223
ERIASTRUM DENSIFOLIUM SSP SANCTORUM SANTA ANA RIVER WOOLLYSTAR PDPLM03035 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G4T1 State: S1.1	List: 1B Code: 333
ERIASTRUM HOOVERI HOOVER'S ERIASTRUM PDPLM03070 Records in NDDB: *Yes*	Federal: Threatened State: None	Global: G3 State: S3.2	List: 4 Code: 123
ERIASTRUM LUTEUM YELLOW-FLOWERED ERIASTRUM PDPLM03080 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
ERIASTRUM TRACYI TRACY'S ERIASTRUM PDPLM030C0 Records in NDDB: *Yes*	Federal: None State: Rare	Global: G1 State: S1.1	List: Code:
ERIASTRUM VIRGATUM VIRGATE ERIASTRUM PDPLM030D0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
ERICAMERIA CUNEATA VAR MACROCEPHALA LAGUNA MOUNTAINS GOLDENBUSH PDAST3L062 Records in NDDB: *Yes*	Federal: None State: None	Global: G5T2? State: S2.3	List: 1B Code: 213
ERICAMERIA FASCICULATA EASTWOOD'S GOLDENBUSH PDAST3L080 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.1	List: 1B Code: 333
ERICAMERIA GILMANII GILMAN'S GOLDENBUSH PDAST3L0P0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.3	List: 1B Code: 313
ERICAMERIA OPHITIDIS SERPENTINE GOLDENBUSH PDAST3L0S0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
ERICAMERIA PALMERI SSP PALMERI PALMER'S GOLDENBUSH PDAST3L0C1 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T2T3 State: S1.2	List: 2 Code: 221
ERIGERON AEQUIFOLIUS HALL'S DAISY PDAST3M030 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.3	List: 1B Code: 313

Scientific Name, Common Name, Element Code		Listing Status	Rank	CNPS
ERIGERON ANGUSTATUS NARROW-LEAVED DAISY PDAST3M5G0	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2?	**List:** 1B **Code:** 223
ERIGERON BIOLETTII STREAMSIDE DAISY PDAST3M5H0	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3?	**List:** 3 **Code:** ??3
ERIGERON BLOCHMANIAE BLOCHMAN'S LEAFY DAISY PDAST3M5J0	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 123
ERIGERON BLOOMERI VAR NUDATUS WALDO DAISY PDAST3M0M2	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T4 **State:** S2?	**List:** 2 **Code:** 211
ERIGERON BREWERI VAR BISANCTUS PIOUS DAISY PDAST3M0P5	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4G5T1 **State:** S1.2	**List:** 1B **Code:** 223
ERIGERON BREWERI VAR JACINTEUS SAN JACINTO MOUNTAINS DAISY PDAST3M0P3	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4G5T3 **State:** S3.3	**List:** 4 **Code:** 113
ERIGERON CALVUS BALD DAISY PDAST3M083	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1Q **State:** S1	**List:** 1B **Code:** 333
ERIGERON CERVINUS SISKIYOU DAISY PDAST3M0U0	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 112
ERIGERON DECUMBENS VAR ROBUSTIOR ROBUST DAISY PDAST3M134	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113
ERIGERON ELEGANTULUS VOLCANIC DAISY PDAST3M190	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4G5 **State:** S3.3	**List:** 4 **Code:** 111
ERIGERON INORNATUS VAR CALIDIPETRIS HOT ROCK DAISY PDAST3M1Z1	**Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
ERIGERON INORNATUS VAR KEILII KEIL'S DAISY PDAST3M1Z2	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T1 **State:** S1.2	**List:** 1B **Code:** 223
ERIGERON MARIPOSANUS MARIPOSA DAISY PDAST3M5L0	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
ERIGERON MISER STARVED DAISY PDAST3M2K0	**Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 213
ERIGERON MULTICEPS KERN RIVER DAISY PDAST3M2N0	**Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ERIGERON PARISHII PARISH'S DAISY PDAST3M310	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2 S2.1	List: Code:	1B 233
ERIGERON PETROPHILUS VAR SIERRENSIS NORTHERN SIERRA DAISY PDAST3M351	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 113
ERIGERON PETROPHILUS VAR VISCIDULUS KLAMATH DAISY PDAST3M352	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 112
ERIGERON SANCTARUM SAINT'S DAISY PDAST3M3R0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
ERIGERON SERPENTINUS SERPENTINE DAISY PDAST3M5M0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 313
ERIGERON SUPPLEX SUPPLE DAISY PDAST3M3Z0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
ERIGERON UNCIALIS VAR UNCIALIS LIMESTONE DAISY PDAST3M452	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G?T3? S1	List: Code:	2 321
ERIODICTYON ALTISSIMUM INDIAN KNOB MOUNTAINBALM PDHYD04010	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2Q S2.1	List: Code:	1B 333
ERIODICTYON ANGUSTIFOLIUM NARROW-LEAVED YERBA SANTA PDHYD04020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
ERIODICTYON CAPITATUM LOMPOC YERBA SANTA PDHYD04040	Records in NDDB: *Yes*	Federal: State:	Proposed Endangered Rare	Global: State:	G2 S2.2	List: Code:	1B 323
ERIOGONUM ALPINUM TRINITY BUCKWHEAT PDPGN08060	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G2 S2.2	List: Code:	1B 313
ERIOGONUM APRICUM VAR APRICUM IONE BUCKWHEAT PDPGN080F1	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2T2 S2.1	List: Code:	1B 333
ERIOGONUM APRICUM VAR PROSTRATUM IRISH HILL BUCKWHEAT PDPGN080F2	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2T1 S1.1	List: Code:	1B 333
ERIOGONUM ARGILLOSUM CLAY-LOVING BUCKWHEAT PDPGN080J0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
ERIOGONUM BIFURCATUM FORKED BUCKWHEAT PDPGN080R0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S1.2	List: Code:	1B 322

Scientific Name	Common Name	Element Code	Records in NDDB	Listing Status: Federal	Listing Status: State	Rank: Global	Rank: State	CNPS: List	CNPS: Code
ERIOGONUM BREEDLOVEI VAR BREEDLOVEI	BREEDLOVE'S BUCKWHEAT	PDPGN080V1	*Yes*	Species of concern	None	G3T2	S2.2	1B	323
ERIOGONUM BREEDLOVEI VAR SHEVOCKII	THE NEEDLES BUCKWHEAT	PDPGN080V2	*Yes*	None	None	G3T3	S3.3	4	113
ERIOGONUM BUTTERWORTHIANUM	BUTTERWORTH'S BUCKWHEAT	PDPGN080X0	*Yes*	Species of concern	Rare	G1	S1.3	1B	313
ERIOGONUM CONGDONII	CONGDON'S BUCKWHEAT	PDPGN081A0	*No*	None	None	G3	S3.3	4	113
ERIOGONUM CONTIGUUM	REVEAL'S BUCKWHEAT	PDPGN081B0	*Yes*	None	None	G3G3	S2?	2	211
ERIOGONUM CROCATUM	CONEJO BUCKWHEAT	PDPGN081G0	*Yes*	Species of concern	Rare	G2	S2.2	1B	223
ERIOGONUM DICLINUM	JAYNES CANYON BUCKWHEAT	PDPGN081S0	*No*	None	None	G3	S3.3	4	112
ERIOGONUM EASTWOODIANUM	EASTWOOD'S BUCKWHEAT	PDPGN081V0	*No*	None	None	G3Q	S3.3	4	113
ERIOGONUM EREMICOLA	WILDROSE CANYON BUCKWHEAT	PDPGN08210	*Yes*	Species of concern	None	G1	S1.3	1B	313
ERIOGONUM ERICIFOLIUM VAR THORNEI	THORNE'S BUCKWHEAT	PDPGN08233	*Yes*	Species of concern	Endangered	G3T1	S1.2	1B	323
ERIOGONUM FOLIOSUM	LEAFY BUCKWHEAT	PDPGN08290	*Yes*	None	None	G3	SH	1B	222
ERIOGONUM GIGANTEUM VAR COMPACTUM	SANTA BARBARA ISLAND BUCKWHEAT	PDPGN082A1	*Yes*	Species of concern	Rare	G2T2	S2.3	1B	313
ERIOGONUM GIGANTEUM VAR FORMOSUM	SAN CLEMENTE ISLAND BUCKWHEAT	PDPGN082A2	*Yes*	Species of concern	None	G2T2	S2.2	1B	323
ERIOGONUM GILMANII	GILMAN'S BUCKWHEAT	PDPGN082B0	*No*	None	None	G3	S3.3	4	113
ERIOGONUM GOSSYPINUM	COTTONY BUCKWHEAT	PDPGN082E0	*No*	None	None	G3	S3.2	4	123

Scientific Name, Common Name, Element Code	Listing Status		Rank		CNPS	
ERIOGONUM GRANDE VAR GRANDE ISLAND BUCKWHEAT PDPGN082J1 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3T3 S3.2	**List:** **Code:**	4 123
ERIOGONUM GRANDE VAR RUBESCENS RED-FLOWERED BUCKWHEAT PDPGN082J2 **Records in NDDB:** *No*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3T3 S3.2	**List:** **Code:**	4 123
ERIOGONUM GRANDE VAR TIMORUM SAN NICOLAS ISLAND BUCKWHEAT PDPGN082J3 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Endangered	**Global:** **State:**	G3T2 S1.1	**List:** **Code:**	1B 233
ERIOGONUM HEERMANNII VAR FLOCCOSUM CLARK MOUNTAIN BUCKWHEAT PDPGN082P3 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S3.3	**List:** **Code:**	4 113
ERIOGONUM HEERMANNII VAR OCCIDENTALE WESTERN HEERMANN'S BUCKWHEAT PDPGN082P6 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S3.2	**List:** **Code:**	4 123
ERIOGONUM HIRTELLUM KLAMATH MOUNTAIN BUCKWHEAT PDPGN082T0 **Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 213
ERIOGONUM HOFFMANNII VAR HOFFMANNII HOFFMANN'S BUCKWHEAT PDPGN082V1 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113
ERIOGONUM HOFFMANNII VAR ROBUSTIUS ROBUST HOFFMANN'S BUCKWHEAT PDPGN082V2 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113
ERIOGONUM INTRAFRACTUM JOINTED BUCKWHEAT PDPGN08360 **Records in NDDB:** *No*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
ERIOGONUM KELLOGGII KELLOGG'S BUCKWHEAT PDPGN083A0 **Records in NDDB:** *Yes*	**Federal:** **State:**	Candidate Endangered	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 333
ERIOGONUM KENNEDYI VAR ALPIGENUM SOUTHERN ALPINE BUCKWHEAT PDPGN083B1 **Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4T2 S2.3	**List:** **Code:**	1B 213
ERIOGONUM KENNEDYI VAR AUSTROMONTANUM SOUTHERN MOUNTAIN BUCKWHEAT PDPGN083B2 **Records in NDDB:** *Yes*	**Federal:** **State:**	Threatened None	**Global:** **State:**	G4T2 S2.2	**List:** **Code:**	1B 223
ERIOGONUM KENNEDYI VAR PINICOLA KERN BUCKWHEAT PDPGN083B4 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G4T1 S1.1	**List:** **Code:**	1B 333
ERIOGONUM LIBERTINI DUBAKELLA MOUNTAIN BUCKWHEAT PDPGN083M0 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.2	**List:** **Code:**	4 123
ERIOGONUM LUTEOLUM VAR CANINUM TIBURON BUCKWHEAT PDPGN083S1 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3Q S3.2	**List:** **Code:**	3 723

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ERIOGONUM MICROTHECUM VAR CORYMBOSOIDES SAN BERNARDINO BUCKWHEAT PDPGN083W3 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
ERIOGONUM MICROTHECUM VAR JOHNSTONII JOHNSTON'S BUCKWHEAT PDPGN083W5 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1.3	**List:** 1B **Code:** 313
ERIOGONUM MICROTHECUM VAR LAPIDICOLA INYO MOUNTAINS BUCKWHEAT PDPGN083W6 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 112
ERIOGONUM MICROTHECUM VAR PANAMINTENSE PANAMINT MOUNTAINS BUCKWHEAT PDPGN083W9 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.3	**List:** 1B **Code:** 313
ERIOGONUM NERVULOSUM SNOW MOUNTAIN BUCKWHEAT PDPGN08440 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
ERIOGONUM NORTONII PINNACLES BUCKWHEAT PDPGN08470 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 213
ERIOGONUM NUDUM VAR DECURRENS BEN LOMOND BUCKWHEAT PDPGN08492 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2 **State:** S2.1	**List:** 1B **Code:** 333
ERIOGONUM NUDUM VAR INDICTUM PROTRUDING BUCKWHEAT PDPGN08494 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 123
ERIOGONUM NUDUM VAR MURINUM MOUSE BUCKWHEAT PDPGN08495 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.2	**List:** 1B **Code:** 223
ERIOGONUM NUDUM VAR PARALINUM DEL NORTE BUCKWHEAT PDPGN08498 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T4? **State:** S2?	**List:** 2 **Code:** 221
ERIOGONUM NUDUM VAR REGIRIVUM KINGS RIVER BUCKWHEAT PDPGN0849F **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2 **State:** S2.2	**List:** 1B **Code:** 323
ERIOGONUM NUTANS NODDING BUCKWHEAT PDPGN084B0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2.2	**List:** 2 **Code:** 211
ERIOGONUM OCHROCEPHALUM VAR ALEXANDERAE ALEXANDER'S BUCKWHEAT PDPGN084C5 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4?T3 **State:** S2?	**List:** 2 **Code:** 321
ERIOGONUM OVALIFOLIUM VAR EXIMIUM BROWN-MARGINED BUCKWHEAT PDPGN084FD **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 111
ERIOGONUM OVALIFOLIUM VAR VINEUM CUSHENBURY BUCKWHEAT PDPGN084F8 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code				Listing Status		Rank		CNPS	
Scientific Name	Common Name	Element Code	Records in NDDB	Federal	State	Global	State	List	Code
ERIOGONUM PENDULUM	WALDO BUCKWHEAT	PDPGN084Q0	*Yes*	None	None	G4	S2.2	2	321
ERIOGONUM POLYPODUM	TULARE COUNTY BUCKWHEAT	PDPGN084U0	*No*	None	None	G3	S3.3	4	113
ERIOGONUM PRATTENIANUM VAR AVIUM	KETTLE DOME BUCKWHEAT	PDPGN084V1	*No*	None	None	G4T3	S3.2	4	123
ERIOGONUM PROCIDUUM	PROSTRATE BUCKWHEAT	PDPGN084W0	*Yes*	Species of concern	None	G3	S2.2	1B	222
ERIOGONUM PUBERULUM	DOWNY BUCKWHEAT	PDPGN084X0	*Yes*	None	None	G3?	S1.3	2	311
ERIOGONUM SHOCKLEYI VAR SHOCKLEYI	SHOCKLEY'S BUCKWHEAT	PDPGN085E2	*No*	None	None	G5T4?	S3.3	4	111
ERIOGONUM SISKIYOUENSE	SISKIYOU BUCKWHEAT	PDPGN085F0	*No*	None	None	G3	S3.3	4	113
ERIOGONUM STRICTUM VAR GREENEI	GREENE'S BUCKWHEAT	PDPGN085L3	*No*	None	None	G5T3	S3.3	4	113
ERIOGONUM TEMBLORENSE	TEMBLOR BUCKWHEAT	PDPGN085P0	*No*	Species of concern	None	G3	S3.3	4	113
ERIOGONUM TERNATUM	TERNATE BUCKWHEAT	PDPGN085R0	*No*	None	None	G4	S3.3	4	112
ERIOGONUM TRIPODUM	TRIPOD BUCKWHEAT	PDPGN085Y0	*No*	None	None	G3	S3.2	4	123
ERIOGONUM TRUNCATUM	MT. DIABLO BUCKWHEAT	PDPGN085Z0	*Yes*	None	None	GH	SH	1A	*
ERIOGONUM TWISSELMANNII	TWISSELMANN'S BUCKWHEAT	PDPGN08610	*Yes*	Species of concern	Rare	G2	S2.2	1B	223
ERIOGONUM UMBELLATUM VAR GLABERRIMUM	GREEN BUCKWHEAT	PDPGN086U2	*Yes*	None	None	G5T2?	S1.2	2	311
ERIOGONUM UMBELLATUM VAR HUMISTRATUM	MT. EDDY BUCKWHEAT	PDPGN086U4	*No*	None	None	G5T3	S3.3	4	113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ERIOGONUM UMBELLATUM VAR JUNIPORINUM JUNIPER BUCKWHEAT PDPGN086U6	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T3? S1S2	List: Code:	2 311
ERIOGONUM UMBELLATUM VAR MINUS ALPINE SULFUR-FLOWERED BUCKWHEAT PDPGN086U7	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.2	List: Code:	4 123
ERIOGONUM UMBELLATUM VAR TORREYANUM DONNER PASS BUCKWHEAT PDPGN086U9	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.2	List: Code:	1B 323
ERIOGONUM VESTITUM IDRIA BUCKWHEAT PDPGN08640	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3Q S3.3	List: Code:	4 113
ERIOGONUM WRIGHTII VAR OLANCHENSE OLANCHA PEAK BUCKWHEAT PDPGN086D3	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T1 S1.3	List: Code:	1B 313
ERIONEURON PILOSUM HAIRY ERIONEURON PMPOA2S020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2S3	List: Code:	2 211
ERIOPHYLLUM CONGDONII CONGDON'S WOOLLY SUNFLOWER PDAST3N030	Records in NDDB: *Yes*	Federal: State:	None Rare	Global: State:	G2 S2.2	List: Code:	1B 213
ERIOPHYLLUM JEPSONII JEPSON'S WOOLLY SUNFLOWER PDAST3N040	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2?	List: Code:	4 113
ERIOPHYLLUM LANATUM VAR HALLII FORT TEJON WOOLLY SUNFLOWER PDAST3N058	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1	List: Code:	1B 333
ERIOPHYLLUM LANATUM VAR OBOVATUM SOUTHERN SIERRA WOOLLY SUNFLOWER PDAST3N05D	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 113
ERIOPHYLLUM LATILOBUM SAN MATEO WOOLLY SUNFLOWER PDAST3N060	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
ERIOPHYLLUM MOHAVENSE BARSTOW WOOLLY SUNFLOWER PDAST3N070	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
ERIOPHYLLUM NEVINII NEVIN'S WOOLLY SUNFLOWER PDAST3N090	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.3	List: Code:	1B 213
ERIOPHYLLUM NUBIGENUM YOSEMITE WOOLLY SUNFLOWER PDAST3N0A0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.3	List: Code:	1B 213
ERYNGIUM ARISTULATUM VAR HOOVERI HOOVER'S BUTTON-CELERY PDAPI0Z043	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1?	List: Code:	4 113

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
ERYNGIUM ARISTULATUM VAR PARISHII SAN DIEGO BUTTON-CELERY PDAPI0Z042 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G5T2 State: S2.1	List: 1B Code: 232
ERYNGIUM CONSTANCEI LOCH LOMOND BUTTON-CELERY PDAPI0Z0W0 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G1 State: S1.1	List: 1B Code: 333
ERYNGIUM PINNATISECTUM TUOLUMNE BUTTON-CELERY PDAPI0Z0P0 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G3 State: S3.2	List: 4 Code: 123
ERYNGIUM RACEMOSUM DELTA BUTTON-CELERY PDAPI0Z0S0 Records in NDDB: *Yes*	Federal: Species of concern State: Endangered	Global: G2Q State: S2.1	List: 1B Code: 233
ERYNGIUM SPINOSEPALUM SPINY-SEPALED BUTTON-CELERY PDAPI0Z0Y0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 323
ERYSIMUM AMMOPHILUM COAST WALLFLOWER PDBRA16010 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 223
ERYSIMUM CAPITATUM SSP ANGUSTATUM CONTRA COSTA WALLFLOWER PDBRA16052 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G5T1 State: S1.1	List: 1B Code: 333
ERYSIMUM CAPITATUM SSP LOMPOCENSE SAN LUIS OBISPO WALLFLOWER PDBRA160M3 Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.2	List: 4 Code: 123
ERYSIMUM FRANCISCANUM SAN FRANCISCO WALLFLOWER PDBRA160A0 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G3 State: S3.2	List: 4 Code: 123
ERYSIMUM INSULARE SSP INSULARE ISLAND WALLFLOWER PDBRA160D1 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3T2 State: S2.3	List: 1B Code: 213
ERYSIMUM INSULARE SSP SUFFRUTESCENS SUFFRUTESCENT WALLFLOWER PDBRA160D2 Records in NDDB: *No*	Federal: None State: None	Global: G3T3 State: S3.2	List: 4 Code: 123
ERYSIMUM MENZIESII SSP EUREKENSE HUMBOLDT BAY WALLFLOWER PDBRA160E2 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G3T1 State: S1.1	List: 1B Code: 333
ERYSIMUM MENZIESII SSP MENZIESII MENZIES'S WALLFLOWER PDBRA160E1 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G3T2 State: S2.1	List: 1B Code: 333
ERYSIMUM MENZIESII SSP YADONII YADON'S WALLFLOWER PDBRA160E4 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G3T1 State: S1.1	List: 1B Code: 323
ERYSIMUM TERETIFOLIUM SANTA CRUZ WALLFLOWER PDBRA160N0 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G2 State: S2.1	List: 1B Code: 233

Scientific Name, Common Name, Element Code	Records in NDDB	Listing Status: Federal	Listing Status: State	Rank: Global	Rank: State	CNPS List	CNPS Code
ERYTHRONIUM CITRINUM VAR CITRINUM LEMON-COLORED FAWN LILY PMLIL0U041	*No*	None	None	G4T4	S3.3	4	111
ERYTHRONIUM CITRINUM VAR RODERICKII SCOTT MOUNTAINS FAWN LILY PMLIL0U042	*Yes*	None	None	G4T1	S1.3	1B	313
ERYTHRONIUM HELENAE ST. HELENA FAWN LILY PMLIL0U060	*No*	None	None	G3	S3.2	4	123
ERYTHRONIUM HENDERSONII HENDERSON'S FAWN LILY PMLIL0U070	*Yes*	None	None	G4	S1.3	2	311
ERYTHRONIUM HOWELLII HOWELL'S FAWN LILY PMLIL0U080	*No*	None	None	G3	S2.2	4	112
ERYTHRONIUM KLAMATHENSE KLAMATH FAWN LILY PMLIL0U090	*No*	None	None	G4	S3.3	4	111
ERYTHRONIUM PLURIFLORUM SHUTEYE PEAK FAWN LILY PMLIL0U0Q0	*Yes*	None	None	G1	S1.3	1B	213
ERYTHRONIUM PUSATERII KAWEAH FAWN LILY PMLIL0U0R0	*Yes*	None	None	G2	S2.3	1B	313
ERYTHRONIUM TAYLORI PILOT RIDGE FAWN LILY PMLIL0U0S0	*No*	None	None	G1	S1.1		
ERYTHRONIUM TUOLUMNENSE TUOLUMNE FAWN LILY PMLIL0U0H0	*Yes*	Species of concern	None	G2	S2.2	1B	223
ESCHSCHOLZIA HYPECOIDES SAN BENITO POPPY PDPAP0A060	*No*	None	None	G3	S3.3	4	113
ESCHSCHOLZIA LEMMONII SSP KERNENSIS TEJON POPPY PDPAP0A071	*Yes*	None	None	G5T1	S1.1?	1B	333
ESCHSCHOLZIA MINUTIFLORA SSP TWISSELMANNII RED ROCK POPPY PDPAP0A093	*Yes*	Species of concern	None	G5T2	S2.2	1B	323
ESCHSCHOLZIA PROCERA KERNVILLE POPPY PDPAP0A0B0	*No*	Species of concern	None	G1G2Q	S1S2	3	??3
ESCHSCHOLZIA RAMOSA ISLAND POPPY PDPAP0A0C0	*No*	None	None	G3	S3.3	4	112

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ESCHSCHOLZIA RHOMBIPETALA DIAMOND-PETALED CALIFORNIA POPPY PDPAP0A0D0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1A *
ESCOBARIA VIVIPARA VAR ALVERSONII FOXTAIL CACTUS PDCAC0X0G0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T3 S2.2	List: Code:	1B 222
ESCOBARIA VIVIPARA VAR ROSEA VIVIPAROUS FOXTAIL CACTUS PDCAC0X0G8	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T3 S2.2	List: Code:	1B 322
EUCNIDE RUPESTRIS ROCK NETTLE PDLOA02020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S2.2?	List: Code:	2 321
EUPHORBIA EXSTIPULATA VAR EXSTIPULATA CLARK MOUNTAIN SPURGE PDEUP0Q0P1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5? S1.3	List: Code:	2 331
EUPHORBIA MISERA CLIFF SPURGE PDEUP0Q1B0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S3.2	List: Code:	2 221
FENDLERELLA UTAHENSIS YERBA DESIERTO PDHDR08010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
FEROCACTUS VIRIDESCENS SAN DIEGO BARREL CACTUS PDCAC08060	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4 S3.1	List: Code:	2 131
FIMBRISTYLIS THERMALIS HOT SPRINGS FIMBRISTYLIS PMCYP0B0N0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.2	List: Code:	2 221
FRANKENIA PALMERI PALMER'S FRANKENIA PDFRA01040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3G4 S1.1	List: Code:	2 331
FREMONTODENDRON DECUMBENS PINE HILL FLANNELBUSH PDSTE03030	Records in NDDB: *Yes*	Federal: State:	Endangered Rare	Global: State:	G1 S1.2	List: Code:	1B 323
FREMONTODENDRON MEXICANUM MEXICAN FLANNELBUSH PDSTE03020	Records in NDDB: *Yes*	Federal: State:	Endangered Rare	Global: State:	G2 S1.2	List: Code:	1B 322
FRITILLARIA AFFINIS VAR TRISTULIS MARIN CHECKER LILY PMLIL0V0P1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T1 S1.1	List: Code:	1B 333
FRITILLARIA AGRESTIS STINKBELLS PMLIL0V010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
FRITILLARIA BIFLORA VAR INEZIANA HILLSBOROUGH CHOCOLATE LILY PMLIL0V031	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3G4T1 S1.1	List: Code:	1B 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
FRITILLARIA BRANDEGEI GREENHORN FRITILLARY PMLIL0V040	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 123
FRITILLARIA EASTWOODIAE BUTTE COUNTY FRITILLARY PMLIL0V060	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3Q S3.2	List: Code:	1B 223
FRITILLARIA FALCATA TALUS FRITILLARY PMLIL0V070	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 333
FRITILLARIA LILIACEA FRAGRANT FRITILLARY PMLIL0V0C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 123
FRITILLARIA OJAIENSIS OJAI FRITILLARY PMLIL0V0N0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
FRITILLARIA PLURIFLORA ADOBE-LILY PMLIL0V0F0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 123
FRITILLARIA PURDYI PURDY'S FRITILLARY PMLIL0V0H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 113
FRITILLARIA RODERICKII RODERICK'S FRITILLARY PMLIL0V0M0	Records in NDDB: *Yes*	Federal: State:	None Endangered	Global: State:	G1Q S1.1	List: Code:	1B 323
FRITILLARIA STRIATA STRIPED ADOBE-LILY PMLIL0V0K0	Records in NDDB: *Yes*	Federal: State:	Species of concern Threatened	Global: State:	G2 S2.1	List: Code:	1B 333
FRITILLARIA VIRIDEA SAN BENITO FRITILLARY PMLIL0V0L0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S3.2	List: Code:	4 123
GALIUM ANDREWSII SSP GATENSE SERPENTINE BEDSTRAW PDRUB0N032	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.2	List: Code:	4 123
GALIUM ANGUSTIFOLIUM SSP BORREGOENSE BORREGO BEDSTRAW PDRUB0N042	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G5T2 S2.3	List: Code:	1B 323
GALIUM ANGUSTIFOLIUM SSP GABRIELENSE SAN ANTONIO CANYON BEDSTRAW PDRUB0N044	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 113
GALIUM ANGUSTIFOLIUM SSP GRACILLIMUM SLENDER BEDSTRAW PDRUB0N04B	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.2	List: Code:	4 123
GALIUM ANGUSTIFOLIUM SSP JACINTICUM SAN JACINTO MOUNTAINS BEDSTRAW PDRUB0N04C	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T1 S1.3	List: Code:	1B 313

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
GALIUM ANGUSTIFOLIUM SSP ONYCENSE ONYX PEAK BEDSTRAW PDRUB0N048	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 113
GALIUM BUXIFOLIUM BOX BEDSTRAW PDRUB0N0D0	Records in NDDB: *Yes*	Federal: State:	Endangered Rare	Global: State:	G2 S2.2	List: Code:	1B 323
GALIUM CALIFORNICUM SSP LUCIENSE CONE PEAK BEDSTRAW PDRUB0N0E3	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.3	List: Code:	1B 313
GALIUM CALIFORNICUM SSP MIGUELENSE SAN MIGUEL ISLAND BEDSTRAW PDRUB0N0E5	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.2	List: Code:	4 123
GALIUM CALIFORNICUM SSP PRIMUM CALIFORNIA BEDSTRAW PDRUB0N0E6	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1	List: Code:	1B 323
GALIUM CALIFORNICUM SSP SIERRAE EL DORADO BEDSTRAW PDRUB0N0E7	Records in NDDB: *Yes*	Federal: State:	Endangered Rare	Global: State:	G5T1 S1.2	List: Code:	1B 323
GALIUM CATALINENSE SSP ACRISPUM SAN CLEMENTE ISLAND BEDSTRAW PDRUB0N0F1	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G4T2 S2.2	List: Code:	1B 323
GALIUM CATALINENSE SSP CATALINENSE SANTA CATALINA ISLAND BEDSTRAW PDRUB0N0F2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123
GALIUM CLEMENTIS SANTA LUCIA BEDSTRAW PDRUB0N0H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
GALIUM CLIFTONSMITHII SANTA BARBARA BEDSTRAW PDRUB0N0J0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
GALIUM GLABRESCENS SSP MODOCENSE MODOC BEDSTRAW PDRUB0N0T2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4?T2 S2.2	List: Code:	1B 223
GALIUM GRANDE SAN GABRIEL BEDSTRAW PDRUB0N0V0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 313
GALIUM HARDHAMIAE HARDHAM'S BEDSTRAW PDRUB0N0Y0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.3	List: Code:	1B 213
GALIUM HILENDIAE SSP CARNEUM PANAMINT MOUNTAINS BEDSTRAW PDRUB0N0Z1	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 113
GALIUM HILENDIAE SSP KINGSTONENSE KINGSTON MOUNTAINS BEDSTRAW PDRUB0N0Z3	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S1.3	List: Code:	1B 312

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
GALIUM HYPOTRICHIUM SSP TOMENTELLUM TELESCOPE PEAK BEDSTRAW PDRUB0N126	**Records in NDDB:** *Yes*	**Federal:** None	**State:** None	**Global:** G5T1	**State:** S1.3	**List:** 1B	**Code:** 313
GALIUM JEPSONII JEPSON'S BEDSTRAW PDRUB0N130	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G3	**State:** S3.3	**List:** 4	**Code:** 113
GALIUM JOHNSTONII JOHNSTON'S BEDSTRAW PDRUB0N140	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G3	**State:** S3.3	**List:** 4	**Code:** 113
GALIUM MUNZII MUNZ'S BEDSTRAW PDRUB0N1G0	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G5	**State:** S3.3	**List:** 4	**Code:** 111
GALIUM NUTTALLII SSP INSULARE NUTTALL'S ISLAND BEDSTRAW PDRUB0N1K1	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G5?T3	**State:** S3.3	**List:** 4	**Code:** 113
GALIUM OREGANUM OREGON BEDSTRAW PDRUB0N1N0	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G4	**State:** S2S3	**List:** 3	**Code:** 3?1
GALIUM SERPENTICUM SSP SCOTTICUM SCOTT MOUNTAIN BEDSTRAW PDRUB0N1Y6	**Records in NDDB:** *Yes*	**Federal:** None	**State:** None	**Global:** G4G5T2	**State:** S2.2	**List:** 1B	**Code:** 223
GALIUM SERPENTICUM SSP WARNERENSE WARNER MOUNTAINS BEDSTRAW PDRUB0N1Y8	**Records in NDDB:** *Yes*	**Federal:** None	**State:** None	**Global:** G4G5T1	**State:** S1.2	**List:** 1B	**Code:** 322
GALIUM WRIGHTII WRIGHT'S BEDSTRAW PDRUB0N2F0	**Records in NDDB:** *Yes*	**Federal:** None	**State:** None	**Global:** G3G4	**State:** S1.3	**List:** 2	**Code:** 311
GALVEZIA SPECIOSA ISLAND SNAPDRAGON PDSCR2H010	**Records in NDDB:** *Yes*	**Federal:** Species of concern	**State:** None	**Global:** G2	**State:** S2.2	**List:** 1B	**Code:** 222
GENTIANA AFFINIS VAR PARVIDENTATA SMALL-TOOTHED PRAIRIE GENTIAN PDGEN06013	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G4T3?Q	**State:** S1S2	**List:** 3	**Code:** ??1
GENTIANA FREMONTII MOSS GENTIAN PDGEN060Y0	**Records in NDDB:** *Yes*	**Federal:** None	**State:** None	**Global:** G4	**State:** S2.3	**List:** 2	**Code:** 311
GENTIANA PLURISETOSA KLAMATH GENTIAN PDGEN060V0	**Records in NDDB:** *No*	**Federal:** Species of concern	**State:** None	**Global:** G3	**State:** S3.3	**List:** 4	**Code:** 112
GENTIANA PROSTRATA PYGMY GENTIAN PDGEN060M0	**Records in NDDB:** *No*	**Federal:** None	**State:** None	**Global:** G4	**State:** S3.3	**List:** 4	**Code:** 111
GENTIANA SETIGERA MENDOCINO GENTIAN PDGEN060S0	**Records in NDDB:** *Yes*	**Federal:** Species of concern	**State:** None	**Global:** G2	**State:** S1.2	**List:** 1B	**Code:** 332

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
GERAEA VISCIDA STICKY GERAEA PDAST42020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S2.3?	List: Code:	2 211
GEUM ALEPPICUM ALEPPO AVENS PDROS0S010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2.2?	List: Code:	2 321
GILIA CARUIFOLIA CARAWAY-LEAVED GILIA PDPLM040C0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4? S3.3	List: Code:	4 111
GILIA LATIFLORA SSP CUYAMENSIS CUYAMA GILIA PDPLM040T2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5?T3 S3.3	List: Code:	4 113
GILIA MACULATA LITTLE SAN BERNARDINO MOUNTAINS GILIA PDPLM041Y0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 323
GILIA NEVINII NEVIN'S GILIA PDPLM04160	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 112
GILIA RIPLEYI RIPLEY'S GILIA PDPLM041E0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2G3 S1.3	List: Code:	2 311
GILIA TENUIFLORA SSP ARENARIA SAND GILIA PDPLM041P2	Records in NDDB: *Yes*	Federal: State:	Endangered Threatened	Global: State:	G3T2 S2.2	List: Code:	1B 323
GILIA TENUIFLORA SSP HOFFMANNII HOFFMANN'S SLENDER-FLOWERED GILIA PDPLM041P3	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G3T1 S1.3	List: Code:	1B 313
GILMANIA LUTEOLA GOLDEN CARPET PDPGN0A010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 313
GITHOPSIS DIFFUSA SSP FILICAULIS MISSION CANYON BLUECUP PDCAM07023	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T3T4 S1.1	List: Code:	1B 332
GLOSSOPETALON PUNGENS PUNGENT GLOSSOPETALON PDCRO04020	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T3 S1.2	List: Code:	1B 322
GLYCERIA GRANDIS AMERICAN MANNA GRASS PMPOA2Y080	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3?	List: Code:	2 311
GOODMANIA LUTEOLA GOLDEN GOODMANIA PDPGN0B010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 122
GRAPHIS SAXORUM BAJA ROCK LICHEN NLTES29470	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.2?	List: Code:	

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
GRATIOLA HETEROSEPALA BOGGS LAKE HEDGE-HYSSOP PDSCR0R060 **Records in NDDB:** *Yes*	**Federal:** None **State:** Endangered	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 122
GRINDELIA FRAXINO-PRATENSIS ASH MEADOWS GUMPLANT PDAST47080 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** None	**Global:** G2 **State:** S1.2	**List:** 1B **Code:** 322
GRINDELIA HIRSUTULA VAR HALLII SAN DIEGO GUMPLANT PDAST470D4 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2 **State:** S2.2	**List:** 1B **Code:** 223
GRINDELIA HIRSUTULA VAR MARITIMA SAN FRANCISCO GUMPLANT PDAST470D3 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.1	**List:** 1B **Code:** 223
GRINDELIA STRICTA VAR ANGUSTIFOLIA MARSH GUMPLANT PDAST470Y2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4?T3 **State:** S3.3	**List:** 4 **Code:** 113
HACKELIA AMETHYSTINA AMETHYST STICKSEED PDBOR0G010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
HACKELIA BREVICULA POISON CANYON STICKSEED PDBOR0G040 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 313
HACKELIA CUSICKII CUSICK'S STICKSEED PDBOR0G090 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5? **State:** S3.3	**List:** 4 **Code:** 111
HACKELIA SHARSMITHII SHARSMITH'S STICKSEED PDBOR0G0Q0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3? **State:** S3.3	**List:** 2 **Code:** 211
HALIMOLOBOS VIRGATA VIRGATE HALIMOLOBOS PDBRA1A040 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S1.3?	**List:** 2 **Code:** 311
HARPAGONELLA PALMERI PALMER'S GRAPPLINGHOOK PDBOR0H010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4 **State:** S3.1	**List:** 2 **Code:** 121
HAZARDIA CANA SAN CLEMENTE ISLAND HAZARDIA PDAST4H020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 322
HAZARDIA DETONSA ISLAND HAZARDIA PDAST4H030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
HAZARDIA ORCUTTII ORCUTT'S HAZARDIA PDAST4H070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1G2 **State:** S1.1	**List:** 1B **Code:** 332
HELIANTHELLA CASTANEA DIABLO HELIANTHELLA PDAST4M020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
HELIANTHEMUM GREENEI ISLAND RUSH-ROSE PDCIS02090 Records in NDDB: *Yes*	Federal: Threatened State: None	Global: G2 State: S2.2	List: 1B Code: 323
HELIANTHEMUM SUFFRUTESCENS BISBEE PEAK RUSH-ROSE PDCIS020F0 Records in NDDB: *Yes*	Federal: None State: None	Global: G2Q State: S2.2	List: 3 Code: 223
HELIANTHUS EXILIS SERPENTINE SUNFLOWER PDAST4N1J0 Records in NDDB: *No*	Federal: None State: None	Global: G3Q State: S3.2	List: 4 Code: 123
HELIANTHUS NIVEUS SSP TEPHRODES ALGODONES DUNES SUNFLOWER PDAST4N0Z2 Records in NDDB: *Yes*	Federal: Species of concern State: Endangered	Global: G4T3 State: S1.2	List: 1B Code: 322
HELIANTHUS NUTTALLII SSP PARISHII LOS ANGELES SUNFLOWER PDAST4N102 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G5TH State: SH	List: 1A Code: *
HEMIZONIA ARIDA RED ROCK TARPLANT PDAST4R010 Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G1 State: S1.2	List: 1B Code: 323
HEMIZONIA CLEMENTINA ISLAND TARPLANT PDAST4R040 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
HEMIZONIA CONGESTA SSP CALYCULATA MENDOCINO TARPLANT PDAST4R030 Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.3	List: 4 Code: 113
HEMIZONIA CONGESTA SSP LEUCOCEPHALA HAYFIELD TARPLANT PDAST4R0V0 Records in NDDB: *No*	Federal: None State: None	Global: G5T2T3 State: S2S3	List: 3 Code: ??3
HEMIZONIA CONGESTA SSP TRACYI TRACY'S TARPLANT PDAST4R0H3 Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.3	List: 4 Code: 113
HEMIZONIA CONJUGENS OTAY TARPLANT PDAST4R070 Records in NDDB: *Yes*	Federal: Threatened State: Endangered	Global: G1 State: S1.1	List: 1B Code: 332
HEMIZONIA FLORIBUNDA TECATE TARPLANT PDAST4R0B0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3 State: S2.2	List: 1B Code: 222
HEMIZONIA HALLIANA HALL'S TARPLANT PDAST4R0C0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.1	List: 1B Code: 333
HEMIZONIA INCRESCENS SSP VILLOSA GAVIOTA TARPLANT PDAST4R0U3 Records in NDDB: *Yes*	Federal: Proposed Endangered State: Endangered	Global: G5T1 State: S1.1	List: 1B Code: 333
HEMIZONIA MINTHORNII SANTA SUSANA TARPLANT PDAST4R0J0 Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G2 State: S2.2	List: 1B Code: 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
HEMIZONIA MOHAVENSIS MOJAVE TARPLANT PDAST4R0K0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1A **Code:** *
HEMIZONIA PARRYI SSP AUSTRALIS SOUTHERN TARPLANT PDAST4R020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.1	**List:** 1B **Code:** 332
HEMIZONIA PARRYI SSP CONGDONII CONGDON'S TARPLANT PDAST4R0P1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333
HEMIZONIA PUNGENS SSP LAEVIS SMOOTH TARPLANT PDAST4R0E0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.1	**List:** 1B **Code:** 233
HERISSANTIA CRISPA CURLY HERISSANTIA PDMAL0F010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.3?	**List:** 2 **Code:** 311
HESPEREVAX SPARSIFLORA VAR BREVIFOLIA SHORT-LEAVED EVAX PDASTE5011 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.2	**List:** 4 **Code:** 121
HESPEROLINON ADENOPHYLLUM GLANDULAR WESTERN FLAX PDLIN01010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
HESPEROLINON BICARPELLATUM TWO-CARPELLATE WESTERN FLAX PDLIN01020 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
HESPEROLINON BREWERI BREWER'S WESTERN FLAX PDLIN01030 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
HESPEROLINON CONGESTUM MARIN WESTERN FLAX PDLIN01060 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Threatened	**Global:** G2 **State:** S2.1	**List:** 1B **Code:** 333
HESPEROLINON DIDYMOCARPUM LAKE COUNTY WESTERN FLAX PDLIN01070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
HESPEROLINON DRYMARIOIDES DRYMARIA-LIKE WESTERN FLAX PDLIN01090 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
HESPEROLINON SP NOV "SERPENTINUM" NAPA WESTERN FLAX PDLIN010D0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
HESPEROLINON TEHAMENSE TEHAMA COUNTY WESTERN FLAX PDLIN010C0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
HETEROTHECA SHEVOCKII SHEVOCK'S HAIRY GOLDEN-ASTER PDAST4V0T0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 213

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
HEUCHERA ABRAMSII		Federal:	None	Global:	G3	List:	4
ABRAMS'S ALUMROOT		State:	None	State:	S3.3	Code:	113
PDSAX0E010	Records in NDDB: *No*						
HEUCHERA BREVISTAMINEA		Federal:	None	Global:	G2	List:	1B
LAGUNA MOUNTAINS ALUMROOT		State:	None	State:	S2.3	Code:	313
PDSAX0E050	Records in NDDB: *Yes*						
HEUCHERA CHLORANTHA		Federal:	None	Global:	G4G5	List:	2
GREEN-FLOWERED ALUMROOT		State:	None	State:	SH	Code:	311
PDSAX0E080	Records in NDDB: *Yes*						
HEUCHERA DURANII		Federal:	None	Global:	G3	List:	1B
DURAN'S ALUMROOT		State:	None	State:	S2.3	Code:	212
PDSAX0E0A0	Records in NDDB: *Yes*						
HEUCHERA ELEGANS		Federal:	None	Global:	G3	List:	4
URN-FLOWERED ALUMROOT		State:	None	State:	S3.3	Code:	113
PDSAX0E0C0	Records in NDDB: *No*						
HEUCHERA HIRSUTISSIMA		Federal:	None	Global:	G2	List:	1B
SHAGGY-HAIRED ALUMROOT		State:	None	State:	S2.3	Code:	313
PDSAX0E0J0	Records in NDDB: *Yes*						
HEUCHERA MAXIMA		Federal:	Species of concern	Global:	G2	List:	1B
ISLAND ALUMROOT		State:	None	State:	S2.2	Code:	223
PDSAX0E0M0	Records in NDDB: *Yes*						
HEUCHERA PARISHII		Federal:	None	Global:	G2	List:	1B
PARISH'S ALUMROOT		State:	None	State:	S2.3	Code:	213
PDSAX0E0S0	Records in NDDB: *Yes*						
HEUCHERA RUBESCENS VAR VERSICOLOR		Federal:	None	Global:	G4T2T3	List:	2
SAN DIEGO COUNTY ALUMROOT		State:	None	State:	S1.3?	Code:	311
PDSAX0E106	Records in NDDB: *Yes*						
HIBISCUS LASIOCARPUS		Federal:	None	Global:	G4	List:	2
ROSE-MALLOW		State:	None	State:	S2.2	Code:	221
PDMAL0H0Q0	Records in NDDB: *Yes*						
HIEROCHLOE ODORATA		Federal:	None	Global:	G5	List:	2
VANILLA-GRASS		State:	None	State:	S1.3?	Code:	311
PMPOA35040	Records in NDDB: *Yes*						
HOLOCARPHA MACRADENIA		Federal:	Proposed Threatened	Global:	G1	List:	1B
SANTA CRUZ TARPLANT		State:	Endangered	State:	S1.1	Code:	233
PDAST4X020	Records in NDDB: *Yes*						
HOLOCARPHA VIRGATA SSP ELONGATA		Federal:	Species of concern	Global:	G5T3	List:	4
GRACEFUL TARPLANT		State:	None	State:	S3.2	Code:	123
PDAST4X041	Records in NDDB: *No*						
HORDEUM INTERCEDENS		Federal:	None	Global:	G?	List:	3
VERNAL BARLEY		State:	None	State:	S3S4	Code:	?22
PMPOA380E0	Records in NDDB: *No*						
HORKELIA BOLANDERI		Federal:	Species of concern	Global:	G1	List:	1B
BOLANDER'S HORKELIA		State:	None	State:	S1.2	Code:	323
PDROS0W010	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
HORKELIA CONGESTA SSP NEMOROSA JOSEPHINE HORKELIA PDROS0W032	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T4? S1.1	List: Code:	2 331
HORKELIA CUNEATA SSP SERICEA KELLOGG'S HORKELIA PDROS0W043	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T1 S1.1	List: Code:	1B 333
HORKELIA HENDERSONII HENDERSON'S HORKELIA PDROS0W090	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1G2 S1.1	List: Code:	1B 332
HORKELIA HISPIDULA WHITE MOUNTAINS HORKELIA PDROS0W0A0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.3	List: Code:	1B 313
HORKELIA MARINENSIS POINT REYES HORKELIA PDROS0W0B0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 313
HORKELIA PARRYI PARRY'S HORKELIA PDROS0W0C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
HORKELIA SERICATA HOWELL'S HORKELIA PDROS0W0D0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5? S3.3	List: Code:	4 111
HORKELIA TENUILOBA THIN-LOBED HORKELIA PDROS0W0E0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 223
HORKELIA TRUNCATA RAMONA HORKELIA PDROS0W0G0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S2.3	List: Code:	1B 312
HORKELIA TULARENSIS KERN PLATEAU HORKELIA PDROS0W0H0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.3	List: Code:	1B 313
HORKELIA WILDERAE BARTON FLATS HORKELIA PDROS0W0J0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 333
HORKELIA YADONII SANTA LUCIA HORKELIA PDROS0W0K0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
HOWELLIA AQUATILIS WATER HOWELLIA PDCAM0A010	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2 S1.2	List: Code:	
HULSEA BREVIFOLIA SHORT-LEAVED HULSEA PDAST4Z020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
HULSEA CALIFORNICA SAN DIEGO SUNFLOWER PDAST4Z030	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.3	List: Code:	1B 213

Scientific Name, Common Name, Element Code		Listing Status	Rank	CNPS
HULSEA MEXICANA MEXICAN HULSEA PDAST4Z050	Records in NDDB: *Yes*	Federal: None State: None	Global: G3G4 State: S1.3	List: 2 Code: 311
HULSEA VESTITA SSP CALLICARPHA BEAUTIFUL HULSEA PDAST4Z074	Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.2	List: 4 Code: 123
HULSEA VESTITA SSP GABRIELENSIS SAN GABRIEL MOUNTAINS SUNFLOWER PDAST4Z075	Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.3	List: 4 Code: 113
HULSEA VESTITA SSP INYOENSIS INYO HULSEA PDAST4Z073	Records in NDDB: *Yes*	Federal: None State: None	Global: G5T2T3 State: S1.2	List: 2 Code: 221
HULSEA VESTITA SSP PARRYI PARRY'S SUNFLOWER PDAST4Z076	Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.3	List: 4 Code: 113
ILIAMNA BAKERI BAKER'S GLOBE MALLOW PDMAL0K010	Records in NDDB: *No*	Federal: None State: None	Global: G4 State: S3.3	List: 4 Code: 111
ILIAMNA LATIBRACTEATA CALIFORNIA GLOBE MALLOW PDMAL0K040	Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 112
IPOMOPSIS EFFUSA BAJA CALIFORNIA IPOMOPSIS PDPLM060U0	Records in NDDB: *Yes*	Federal: None State: None	Global: G3? State: S1.1	List: 2 Code: 331
IPOMOPSIS TENUIFOLIA SLENDER-LEAVED IPOMOPSIS PDPLM060J0	Records in NDDB: *Yes*	Federal: None State: None	Global: G3G4 State: S2.3?	List: 2 Code: 211
IRIS BRACTEATA SISKIYOU IRIS PMIRI09020	Records in NDDB: *No*	Federal: None State: None	Global: G5? State: S3.3	List: 4 Code: 111
IRIS HARTWEGII SSP COLUMBIANA TUOLUMNE IRIS PMIRI090D2	Records in NDDB: *No*	Federal: None State: None	Global: G?T3 State: S3.2	List: 4 Code: 113
IRIS INNOMINATA DEL NORTE COUNTY IRIS PMIRI090F0	Records in NDDB: *No*	Federal: None State: None	Global: G5? State: S3.3	List: 4 Code: 111
IRIS MUNZII MUNZ'S IRIS PMIRI090M0	Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
IRIS TENAX SSP KLAMATHENSIS ORLEANS IRIS PMIRI090Z2	Records in NDDB: *No*	Federal: None State: None	Global: G? T3 State: S3.3	List: 4 Code: 113
ISOCOMA ARGUTA CARQUINEZ GOLDENBUSH PDAST57050	Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.1	List: 1B Code: 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ISOCOMA MENZIESII VAR DECUMBENS DECUMBENT GOLDENBUSH PDAST57091	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T3? S2.2	List: Code:	1B 222
ISOCOMA MENZIESII VAR DIABOLICA SATAN'S GOLDENBUSH PDAST57092	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.2	List: Code:	4 123
IVA HAYESIANA SAN DIEGO MARSH-ELDER PDAST580A0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3? S2.2?	List: Code:	2 221
IVESIA APERTA VAR APERTA SIERRA VALLEY IVESIA PDROS0X011	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T2 S2.2	List: Code:	1B 222
IVESIA APERTA VAR CANINA DOG VALLEY IVESIA PDROS0X012	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T1 S1.1	List: Code:	1B 333
IVESIA ARGYROCOMA SILVER-HAIRED IVESIA PDROS0X020	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 222
IVESIA ARIZONICA VAR ARIZONICA YELLOW IVESIA PDROS0X0R1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2?	List: Code:	3 ??1
IVESIA BAILEYI VAR BAILEYI BAILEY'S IVESIA PDROS0X031	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T4 S1.3	List: Code:	2 321
IVESIA BAILEYI VAR BENEOLENS OWYHEE IVESIA PDROS0X032	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S1.3	List: Code:	2 311
IVESIA CALLIDA TAHQUITZ IVESIA PDROS0X040	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G1 S1.3	List: Code:	1B 313
IVESIA CAMPESTRIS FIELD IVESIA PDROS0X050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 113
IVESIA JAEGERI JAEGER'S IVESIA PDROS0X080	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S1.3	List: Code:	1B 312
IVESIA KINGII VAR KINGII ALKALI IVESIA PDROS0X092	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T2 S2.2	List: Code:	1B 312
IVESIA LONGIBRACTEATA CASTLE CRAGS IVESIA PDROS0X0U0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.3	List: Code:	1B 313
IVESIA PANICULATA ASH CREEK IVESIA PDROS0X0S0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 213

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
IVESIA PATELLIFERA KINGSTON MOUNTAINS IVESIA PDROS0X0Z0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.3	List: 1B Code: 313
IVESIA PICKERINGII PICKERING'S IVESIA PDROS0X0D0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 323
IVESIA SERICOLEUCA PLUMAS IVESIA PDROS0X0K0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 123
IVESIA UNGUICULATA YOSEMITE IVESIA PDROS0X0N0 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.2	List: 1B Code: 323
IVESIA WEBBERI WEBBER'S IVESIA PDROS0X0Q0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.1	List: 1B Code: 332
JAMESIA AMERICANA VAR ROSEA ROSY-PETALLED CLIFFBUSH PDHDR02019 Records in NDDB: *No*	Federal: None State: None	Global: G5T3 State: S3.3	List: 4 Code: 112
JEPSONIA HETERANDRA FOOTHILL JEPSONIA PDSAX0J010 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
JEPSONIA MALVIFOLIA ISLAND JEPSONIA PDSAX0J020 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G4 State: S3.3	List: 4 Code: 112
JUGLANS CALIFORNICA SOUTHERN CALIFORNIA BLACK WALNUT PDJUG02020 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
JUGLANS HINDSII NORTHERN CALIFORNIA BLACK WALNUT PDJUG02040 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.1	List: 1B Code: 333
JUNCUS ACUTUS SSP LEOPOLDII SOUTHWESTERN SPINY RUSH PMJUN01051 Records in NDDB: *No*	Federal: None State: None	Global: G5T5 State: S3.2	List: 4 Code: 121
JUNCUS DUDLEYI DUDLEY'S RUSH PMJUN01390 Records in NDDB: *Yes*	Federal: None State: None	Global: G5 State: S1.3	List: 2 Code: 311
JUNCUS DURANII DURAN'S RUSH PMJUN013T0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
JUNCUS HEMIENDYTUS VAR ABJECTUS CENTER BASIN RUSH PMJUN011F1 Records in NDDB: *No*	Federal: None State: None	Global: G5T4 State: S3.3	List: 4 Code: 111
JUNCUS LEIOSPERMUS VAR AHARTII AHART'S DWARF RUSH PMJUN011L1 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2T1 State: S1.2	List: 1B Code: 313

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
JUNCUS LEIOSPERMUS VAR LEIOSPERMUS RED BLUFF DWARF RUSH PMJUN011L2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2T2 S2.2	List: Code:	1B 323
JUNCUS MARGINATUS VAR MARGINATUS RED-ANTHERED RUSH PMJUN011S1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S2S3	List: Code:	2 321
JUNCUS NODOSUS KNOTTED RUSH PMJUN01210	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
JUNCUS REGELII REGEL'S RUSH PMJUN012D0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4? S1.3?	List: Code:	2 311
JUNCUS SUPINIFORMIS HAIR-LEAVED RUSH PMJUN012R0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4? S3.3	List: Code:	4 112
KOBRESIA BELLARDII SEEP KOBRESIA PMCYP0F050	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3? S1.3	List: Code:	2 311
KOEBERLINIA SPINOSA SSP TENUISPINA CROWN-OF-THORNS PDCPP05012	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T4 S2.2	List: Code:	2 321
LASTHENIA BURKEI BURKE'S GOLDFIELDS PDAST5L010	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
LASTHENIA CONJUGENS CONTRA COSTA GOLDFIELDS PDAST5L040	Records in NDDB: *Yes*	Federal: State:	Endangered None	Global: State:	G1 S1.1	List: Code:	1B 333
LASTHENIA GLABRATA SSP COULTERI COULTER'S GOLDFIELDS PDAST5L0A1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T3 S2.1	List: Code:	1B 232
LASTHENIA LEPTALEA SALINAS VALLEY GOLDFIELDS PDAST5L0B0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LATHYRUS BIFLORUS TWO-FLOWERED PEA PDFAB25180	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 313
LATHYRUS DELNORTICUS DEL NORTE PEA PDFAB25070	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 112
LATHYRUS GLANDULOSUS STICKY PEA PDFAB251A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LATHYRUS JEPSONII VAR JEPSONII DELTA TULE PEA PDFAB250D2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.2	List: Code:	1B 223

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LATHYRUS PALUSTRIS MARSH PEA PDFAB250P0 Records in NDDB: *Yes*	Federal: None State: None	Global: G5 State: S2S3	List: 2 Code: 221
LATHYRUS SPLENDENS PRIDE-OF-CALIFORNIA PDFAB250Z0 Records in NDDB: *No*	Federal: None State: None	Global: G3? State: S3.3	List: 4 Code: 112
LATHYRUS SULPHUREUS VAR ARGILLACEUS DUBIOUS PEA PDFAB25101 Records in NDDB: *No*	Federal: None State: None	Global: G5T? State: S1S2	List: 3 Code: 373
LAVATERA ASSURGENTIFLORA SSP ASSURGENTIFLORA ISLAND MALLOW PDMAL0N021 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2T1 State: S1.1	List: 1B Code: 333
LAVATERA ASSURGENTIFLORA SSP GLABRA SOUTHERN ISLAND MALLOW PDMAL0N022 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2T2 State: S2.1	List: 1B Code: 333
LAYIA CARNOSA BEACH LAYIA PDAST5N010 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G1 State: S1.1	List: 1B Code: 333
LAYIA DISCOIDEA RAYLESS LAYIA PDAST5N030 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 233
LAYIA HETEROTRICHA PALE-YELLOW LAYIA PDAST5N070 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.1	List: 1B Code: 333
LAYIA JONESII JONES'S LAYIA PDAST5N090 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.2	List: 1B Code: 323
LAYIA LEUCOPAPPA COMANCHE POINT LAYIA PDAST5N0A0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G1 State: S1.1	List: 1B Code: 333
LAYIA MUNZII MUNZ'S TIDY-TIPS PDAST5N0B0 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.2	List: 1B Code: 223
LAYIA SEPTENTRIONALIS COLUSA LAYIA PDAST5N0F0 Records in NDDB: *Yes*	Federal: None State: None	Global: G2 State: S2.2	List: 1B Code: 223
LEGENERE LIMOSA LEGENERE PDCAM0C010 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 233
LEMBERTIA CONGDONII SAN JOAQUIN WOOLLYTHREADS PDASTA8010 Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G3 State: S3.2	List: 1B Code: 323
LEPECHINIA CARDIOPHYLLA HEART-LEAVED PITCHER SAGE PDLAM0V020 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 322

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
LEPECHINIA FRAGRANS FRAGRANT PITCHER SAGE PDLAM0V030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123
LEPECHINIA GANDERI GANDER'S PITCHER SAGE PDLAM0V040 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 312
LEPIDIUM FLAVUM VAR FELIPENSE BORREGO VALLEY PEPPER-GRASS PDBRA1M0B1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1.2	**List:** 1B **Code:** 323
LEPIDIUM JAREDII SSP ALBUM PANOCHE PEPPER-GRASS PDBRA1M0G2 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1T1 **State:** S1.2	**List:** 1B **Code:** 323
LEPIDIUM JAREDII SSP JAREDII JARED'S PEPPER-GRASS PDBRA1M0G1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1T1 **State:** S1.2	**List:** 1B **Code:** 323
LEPIDIUM LATIPES VAR HECKARDII HECKARD'S PEPPER-GRASS PDBRA1M0K1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T1 **State:** S1.2	**List:** 1B **Code:** 323
LEPIDIUM VIRGINICUM VAR ROBINSONII ROBINSON'S PEPPER-GRASS PDBRA1M114 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2? **State:** SH	**List:** 1B **Code:** 322
LEPTODACTYLON CALIFORNICUM SSP TOMENTOSUM FUZZY PRICKLY PHLOX PDPLM08021 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 123
LEPTODACTYLON JAEGERI SAN JACINTO PRICKLY PHLOX PDPLM08030 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
LESQUERELLA KINGII SSP BERNARDINA SAN BERNARDINO MOUNTAINS BLADDERPOD PDBRA1N0W1 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333
LESSINGIA ARACHNOIDEA CRYSTAL SPRINGS LESSINGIA PDAST5S0C0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
LESSINGIA GERMANORUM SAN FRANCISCO LESSINGIA PDAST5S0D0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
LESSINGIA GLANDULIFERA VAR TOMENTOSA WARNER SPRINGS LESSINGIA PDAST5S022 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4?T2? **State:** S1.1?	**List:** 2 **Code:** 311
LESSINGIA HOLOLEUCA WOOLLY-HEADED LESSINGIA PDAST5S030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3?	**List:** 3 **Code:** ??3
LESSINGIA MICRADENIA VAR GLABRATA SMOOTH LESSINGIA PDAST5S062 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2T1 **State:** S1.2	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
LESSINGIA MICRADENIA VAR MICRADENIA TAMALPAIS LESSINGIA PDAST5S063	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T1 S1.2	List: Code:	1B 323
LESSINGIA OCCIDENTALIS WESTERN LESSINGIA PDAST15010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LESSINGIA TENUIS SPRING LESSINGIA PDAST5S0B0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LEWISIA BRACHYCALYX SHORT-SEPALED LEWISIA PDPOR04010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
LEWISIA CANTELOVII CANTELOW'S LEWISIA PDPOR04020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	1B 223
LEWISIA CONGDONII CONGDON'S LEWISIA PDPOR04040	Records in NDDB: *Yes*	Federal: State:	None Rare	Global: State:	G1 S1.3	List: Code:	1B 313
LEWISIA COTYLEDON VAR HECKNERI HECKNER'S LEWISIA PDPOR04052	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S2.2	List: Code:	1B 223
LEWISIA COTYLEDON VAR HOWELLII HOWELL'S LEWISIA PDPOR04053	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G4T4Q S3?	List: Code:	3 222
LEWISIA DISEPALA YOSEMITE LEWISIA PDPOR04060	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.3	List: Code:	1B 213
LEWISIA LONGIPETALA LONG-PETALED LEWISIA PDPOR040K0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 313
LEWISIA OPPOSITIFOLIA OPPOSITE-LEAVED LEWISIA PDPOR040B0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.2	List: Code:	1B 222
LEWISIA SERRATA SAW-TOOTHED LEWISIA PDPOR040E0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 333
LEWISIA STEBBINSII STEBBINS'S LEWISIA PDPOR040G0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.2	List: Code:	1B 323
LILAEOPSIS MASONII MASON'S LILAEOPSIS PDAPI19030	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G3 S3.2	List: Code:	1B 223
LILIUM BOLANDERI BOLANDER'S LILY PMLIL1A010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.2	List: Code:	4 121

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LILIUM HUMBOLDTII SSP HUMBOLDTII HUMBOLDT LILY PMLIL1A071	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123
LILIUM HUMBOLDTII SSP OCELLATUM OCELLATED HUMBOLDT LILY PMLIL1A072	Records in NDDB: *No*	Federal: State:	Species of concern None	Global: State:	G4T3 S3.2	List: Code:	4 123
LILIUM KELLOGGII KELLOGG'S LILY PMLIL1A0A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 112
LILIUM MARITIMUM COAST LILY PMLIL1A0C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.1	List: Code:	1B 233
LILIUM OCCIDENTALE WESTERN LILY PMLIL1A0G0	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.2	List: Code:	1B 332
LILIUM PARDALINUM SSP PITKINENSE PITKIN MARSH LILY PMLIL1A0H3	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G4T1 S1.1	List: Code:	1B 333
LILIUM PARDALINUM SSP VOLLMERI VOLLMER'S LILY PMLIL1A0H2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T4 S3.3	List: Code:	4 111
LILIUM PARDALINUM SSP WIGGINSII WIGGINS' LILY PMLIL1A0S0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T4 S3.3	List: Code:	4 112
LILIUM PARRYI LEMON LILY PMLIL1A0J0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S2.2	List: Code:	1B 222
LILIUM RUBESCENS REDWOOD LILY PMLIL1A0N0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
LILIUM WASHINGTONIANUM SSP PURPURASCENS PURPLE-FLOWERED WASHINGTON LILY PMLIL1A0R2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T4 S3.3	List: Code:	4 111
LIMNANTHES BAKERI BAKER'S MEADOWFOAM PDLIM02020	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G1 S1.1	List: Code:	1B 333
LIMNANTHES DOUGLASII SSP SULPHUREA POINT REYES MEADOWFOAM PDLIM02038	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G4T1 S1.2	List: Code:	1B 323
LIMNANTHES FLOCCOSA SSP BELLINGERIANA BELLINGER'S MEADOWFOAM PDLIM02041	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S1.2	List: Code:	1B 322
LIMNANTHES FLOCCOSA SSP CALIFORNICA BUTTE COUNTY MEADOWFOAM PDLIM02042	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G4T1 S1.1	List: Code:	1B 333

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
LIMNANTHES FLOCCOSA SSP FLOCCOSA WOOLLY MEADOWFOAM PDLIM02043 Records in NDDB: *Yes*	Federal: None State: None	Global: G4T3? State: S2.2	List: 2 Code: 221
LIMNANTHES GRACILIS SSP PARISHII PARISH'S MEADOWFOAM PDLIM02052 Records in NDDB: *Yes*	Federal: Species of concern State: Endangered	Global: G3T2 State: S2.2	List: 1B Code: 223
LIMNANTHES VINCULANS SEBASTOPOL MEADOWFOAM PDLIM02090 Records in NDDB: *Yes*	Federal: Endangered State: Endangered	Global: G2 State: S2.1	List: 1B Code: 233
LIMOSELLA SUBULATA DELTA MUDWORT PDSCR10050 Records in NDDB: *Yes*	Federal: None State: None	Global: G4? State: S2.1	List: 2 Code: 231
LINANTHUS ACICULARIS BRISTLY LINANTHUS PDPLM09010 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
LINANTHUS AMBIGUUS SERPENTINE LINANTHUS PDPLM09020 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
LINANTHUS ARENICOLA SAND LINANTHUS PDPLM09040 Records in NDDB: *Yes*	Federal: None State: None	Global: G2? State: S2.2	List: 2 Code: 121
LINANTHUS BELLUS DESERT BEAUTY PDPLM09070 Records in NDDB: *Yes*	Federal: None State: None	Global: G2G3 State: S2.3?	List: 2 Code: 211
LINANTHUS CONCINNUS SAN GABRIEL LINANTHUS PDPLM090D0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2?	List: 1B Code: 323
LINANTHUS FLORIBUNDUS SSP HALLII SANTA ROSA MOUNTAINS LINANTHUS PDPLM090J3 Records in NDDB: *Yes*	Federal: None State: None	Global: G4T1 State: S1.3	List: 1B Code: 313
LINANTHUS GRANDIFLORUS LARGE-FLOWERED LINANTHUS PDPLM090K0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.2	List: 4 Code: 123
LINANTHUS JEPSONII JEPSON'S LINANTHUS PDPLM09140 Records in NDDB: *Yes*	Federal: None State: None	Global: G1 State: S1.2	List: Code:
LINANTHUS KILLIPII BALDWIN LAKE LINANTHUS PDPLM090N0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 223
LINANTHUS NUTTALLII SSP HOWELLII MT. TEDOC LINANTHUS PDPLM090V4 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G5T1 State: S1.3	List: 1B Code: 313
LINANTHUS OBLANCEOLATUS SIERRA NEVADA LINANTHUS PDPLM090W0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
LINANTHUS ORCUTTII		Federal:	Species of concern	Global:	G4	List:	1B
ORCUTT'S LINANTHUS		State:	None	State:	S2.3	Code:	312
PDPLM090X0	Records in NDDB: *Yes*						
LINANTHUS PYGMAEUS SSP PYGMAEUS		Federal:	None	Global:	G4T2	List:	1B
PYGMY LINANTHUS		State:	None	State:	S1.2	Code:	322
PDPLM09102	Records in NDDB: *Yes*						
LINANTHUS RATTANII		Federal:	None	Global:	G3	List:	4
RATTAN'S LINANTHUS		State:	None	State:	S3.3	Code:	113
PDPLM09110	Records in NDDB: *No*						
LINANTHUS SERRULATUS		Federal:	None	Global:	G1	List:	1B
MADERA LINANTHUS		State:	None	State:	S1?	Code:	223
PDPLM09130	Records in NDDB: *Yes*						
LISTERA CORDATA		Federal:	None	Global:	G5	List:	4
HEART-LEAVED TWAYBLADE		State:	None	State:	S3.2	Code:	121
PMORC1N060	Records in NDDB: *No*						
LITHOPHRAGMA MAXIMUM		Federal:	Endangered	Global:	G1	List:	1B
SAN CLEMENTE ISLAND WOODLAND STAR		State:	Endangered	State:	S1.1	Code:	333
PDSAX0M070	Records in NDDB: *Yes*						
LOEFLINGIA SQUARROSA VAR ARTEMISIARUM		Federal:	None	Global:	G5T2	List:	1B
SAGEBRUSH LOEFLINGIA		State:	None	State:	S2.2	Code:	222
PDCAR0E011	Records in NDDB: *Yes*						
LOMATIUM CILIOLATUM VAR HOOVERI		Federal:	None	Global:	G?T3	List:	4
HOOVER'S LOMATIUM		State:	None	State:	S3.3	Code:	113
PDAPI1B082	Records in NDDB: *No*						
LOMATIUM CONGDONII		Federal:	Species of concern	Global:	G2	List:	1B
CONGDON'S LOMATIUM		State:	None	State:	S2.2	Code:	223
PDAPI1B0B0	Records in NDDB: *Yes*						
LOMATIUM ENGELMANNII		Federal:	None	Global:	G3	List:	4
ENGELMANN'S LOMATIUM		State:	None	State:	S3.3	Code:	112
PDAPI1B0K0	Records in NDDB: *No*						
LOMATIUM FOENICULACEUM SSP INYOENSE		Federal:	None	Global:	G5T3	List:	4
INYO LOMATIUM		State:	None	State:	S3.3	Code:	111
PDAPI1B0M4	Records in NDDB: *No*						
LOMATIUM HENDERSONII		Federal:	None	Global:	G5?	List:	2
HENDERSON'S LOMATIUM		State:	None	State:	S2.2	Code:	311
PDAPI1B0T0	Records in NDDB: *Yes*						
LOMATIUM HOWELLII		Federal:	None	Global:	G5	List:	4
HOWELL'S LOMATIUM		State:	None	State:	S3.3	Code:	111
PDAPI1B0U0	Records in NDDB: *No*						
LOMATIUM INSULARE		Federal:	Species of concern	Global:	G2	List:	1B
SAN NICOLAS ISLAND LOMATIUM		State:	None	State:	S2.1	Code:	222
PDAPI1B0W0	Records in NDDB: *Yes*						
LOMATIUM MARTINDALEI		Federal:	None	Global:	G5	List:	2
COAST RANGE LOMATIUM		State:	None	State:	S2.3	Code:	211
PDAPI1B140	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
LOMATIUM OBSERVATORIUM MT. HAMILTON LOMATIUM PDAPI1B2J0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	
LOMATIUM PARVIFOLIUM SMALL-LEAVED LOMATIUM PDAPI1B1F0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2?	List: Code:	4 123
LOMATIUM PECKIANUM PECK'S LOMATIUM PDAPI1B1G0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.2	List: Code:	2 221
LOMATIUM RAVENII RAVEN'S LOMATIUM PDAPI1B1L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S3.2	List: Code:	4 121
LOMATIUM REPOSTUM NAPA LOMATIUM PDAPI1B1M0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LOMATIUM RIGIDUM STIFF LOMATIUM PDAPI1B1N0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
LOMATIUM SHEVOCKII OWENS PEAK LOMATIUM PDAPI1B2C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.3	List: Code:	1B 313
LOMATIUM STEBBINSII STEBBINS'S LOMATIUM PDAPI1B1V0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
LOMATIUM TRACYI TRACY'S LOMATIUM PDAPI1B1Y0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 112
LOTUS ARGOPHYLLUS VAR ADSURGENS SAN CLEMENTE ISLAND BIRD'S-FOOT TREFOIL PDFAB2A041	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G5T1 S1.1	List: Code:	1B 333
LOTUS ARGOPHYLLUS VAR NIVEUS SANTA CRUZ ISLAND BIRD'S-FOOT TREFOIL PDFAB2A048	Records in NDDB: *Yes*	Federal: State:	Species of concern Endangered	Global: State:	G5T2 S2.2	List: Code:	1B 223
LOTUS ARGYRAEUS VAR MULTICAULIS SCRUB LOTUS PDFAB2A052	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4?T1 S1.3	List: Code:	1B 313
LOTUS ARGYRAEUS VAR NOTITIUS PROVIDENCE MOUNTAINS LOTUS PDFAB2A053	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4?T1 S1.3	List: Code:	1B 213
LOTUS CRASSIFOLIUS VAR OTAYENSIS OTAY MOUNTAIN LOTUS PDFAB2A092	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1	List: Code:	1B 333
LOTUS DENDROIDEUS VAR DENDROIDEUS ISLAND BROOM PDFAB2A1G1	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2	List: Code:	4 123

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
LOTUS DENDROIDEUS VAR TRASKIAE SAN CLEMENTE ISLAND LOTUS PDFAB2A1G2 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G4T2 **State:** S2.1	**List:** 1B **Code:** 333
LOTUS DENDROIDEUS VAR VEATCHII SAN MIGUEL ISLAND DEERWEED PDFAB2A1G3 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3? **State:** S3.3	**List:** 4 **Code:** 112
LOTUS HAYDONII PYGMY LOTUS PDFAB2A0H0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 112
LOTUS NUTTALLIANUS NUTTALL'S LOTUS PDFAB2A0V0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 332
LOTUS OBLONGIFOLIUS VAR CUPREUS COPPER-FLOWERED BIRD'S-FOOT TREFOIL PDFAB2A0W1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 113
LOTUS RUBRIFLORUS RED-FLOWERED LOTUS PDFAB2A150 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
LOTUS YOLLABOLLIENSIS YOLLA BOLLY MOUNTAINS BIRD'S-FOOT TREFOIL PDFAB2A1F0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
LUPINUS ALBIFRONS VAR ABRAMSII ABRAM'S LUPINE PDFAB2B010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T1Q **State:** S1.2	**List:** 3 **Code:** 323
LUPINUS ANTONINUS ANTHONY PEAK LUPINE PDFAB2B0C0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
LUPINUS CERVINUS SANTA LUCIA LUPINE PDFAB2B0X0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
LUPINUS CITRINUS VAR CITRINUS ORANGE LUPINE PDFAB2B103 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2T2 **State:** S2.2	**List:** 1B **Code:** 123
LUPINUS CITRINUS VAR DEFLEXUS MARIPOSA LUPINE PDFAB2B102 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Threatened	**Global:** G2T1 **State:** S1.2	**List:** 1B **Code:** 323
LUPINUS CONSTANCEI THE LASSICS LUPINE PDFAB2B490 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
LUPINUS CROCEUS VAR PILOSELLUS SAFFRON-FLOWERED LUPINE PDFAB2B162 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G?T3 **State:** S3.3	**List:** 4 **Code:** 113
LUPINUS DALESIAE QUINCY LUPINE PDFAB2B1A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
LUPINUS DURANII MONO LAKE LUPINE PDFAB2B1E0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 223
LUPINUS ELATUS SILKY LUPINE PDFAB2B1F0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
LUPINUS EXCUBITUS VAR JOHNSTONII INTERIOR BUSH LUPINE PDFAB2B1J4 Records in NDDB: *No*	Federal: None State: None	Global: G4T3 State: S3.3	List: 4 Code: 113
LUPINUS EXCUBITUS VAR MEDIUS MOUNTAIN SPRINGS BUSH LUPINE PDFAB2B1J5 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G4T2 State: S2.3	List: 1B Code: 213
LUPINUS EXIMIUS SAN MATEO TREE LUPINE PDFAB2B0E2 Records in NDDB: *No*	Federal: Species of concern State: None	Global: G2?Q State: S2.2	List: 3 Code: 223
LUPINUS GRACILENTUS SLENDER LUPINE PDFAB2B1R0 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
LUPINUS GUADALUPENSIS GUADALUPE ISLAND LUPINE PDFAB2B1T0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 322
LUPINUS HOLMGRENANUS HOLMGREN'S LUPINE PDFAB2B1Y0 Records in NDDB: *Yes*	Federal: None State: None	Global: G3? State: S2S3	List: 2 Code: 211
LUPINUS LAPIDICOLA MT. EDDY LUPINE PDFAB2B280 Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
LUPINUS LEPIDUS VAR CULBERTSONII HOCKETT MEADOWS LUPINE PDFAB2B171 Records in NDDB: *Yes*	Federal: None State: None	Global: G5T1 State: S1.3	List: 1B Code: 313
LUPINUS LUDOVICIANUS SAN LUIS OBISPO COUNTY LUPINE PDFAB2B2G0 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G2 State: S2.2	List: 1B Code: 323
LUPINUS MAGNIFICUS VAR GLARECOLA COSO MOUNTAINS LUPINE PDFAB2B2K1 Records in NDDB: *No*	Federal: None State: None	Global: G3T3 State: S3.3	List: 4 Code: 113
LUPINUS MAGNIFICUS VAR HESPERIUS MCGEE MEADOWS LUPINE PDFAB2B2K2 Records in NDDB: *No*	Federal: None State: None	Global: G3T3 State: S3.3	List: 4 Code: 113
LUPINUS MAGNIFICUS VAR MAGNIFICUS PANAMINT MOUNTAINS LUPINE PDFAB2B2K3 Records in NDDB: *Yes*	Federal: Species of concern State: None	Global: G3TH State: SH	List: 1B Code: 313
LUPINUS MILO-BAKERI MILO BAKER'S LUPINE PDFAB2B4E0 Records in NDDB: *Yes*	Federal: Species of concern State: Threatened	Global: G1Q State: S1.1	List: 1B Code: 233

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
LUPINUS NIPOMENSIS NIPOMO MESA LUPINE PDFAB2B111	**Records in NDDB:** *Yes*	**Federal:** **State:**	Proposed Endangered Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
LUPINUS PADRE-CROWLEYI FATHER CROWLEY'S LUPINE PDFAB2B2Z0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Rare	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 323
LUPINUS PEIRSONII PEIRSON'S LUPINE PDFAB2B330	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
LUPINUS SERICATUS COBB MOUNTAIN LUPINE PDFAB2B3J0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
LUPINUS SPECTABILIS SHAGGYHAIR LUPINE PDFAB2B3P0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
LUPINUS TIDESTROMII TIDESTROM'S LUPINE PDFAB2B3Y0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G2 S2.1	**List:** **Code:**	1B 333
LUPINUS TRACYI TRACY'S LUPINE PDFAB2B3Z0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 112
LUPINUS UNCIALIS LILLIPUT LUPINE PDFAB2B410	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S1.1	**List:** **Code:**	
LYCIUM BREVIPES VAR HASSEI SANTA CATALINA ISLAND DESERT-THORN PDSOL0G0N0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4T1 S1.1	**List:** **Code:**	1B 333
LYCIUM PARISHII PARISH'S DESERT-THORN PDSOL0G0D0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G3? S2S3	**List:** **Code:**	2 211
LYCIUM VERRUCOSUM SAN NICOLAS ISLAND DESERT-THORN PDSOL0G0M0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	GXQ SX	**List:** **Code:**	1A *
LYCOPODIELLA INUNDATA BOG CLUB-MOSS PPLYC03060	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4? S1?	**List:** **Code:**	2 321
LYCOPODIUM CLAVATUM RUNNING-PINE PPLYC01080	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5? S2S3	**List:** **Code:**	2 211
LYCOPUS UNIFLORUS NORTHERN BUGLEWEED PDLAM0X080	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S3.3	**List:** **Code:**	4 111
LYCURUS PHLEOIDES VAR PHLEOIDES WOLFTAIL PMPOA3W011	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T4? S1?	**List:** **Code:**	2 321

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
LYONOTHAMNUS FLORIBUNDUS SSP ASPLENIIFOLIUS SANTA CRUZ ISLAND IRONWOOD PDROS12011	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T2 S2.2	List: Code:	1B 223
LYONOTHAMNUS FLORIBUNDUS SSP FLORIBUNDUS SANTA CATALINA ISLAND IRONWOOD PDROS12012	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2T1 S1.2	List: Code:	1B 323
LYROCARPA COULTERI VAR PALMERI COULTER'S LYREPOD PDBRA1R012	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T4 S3.3	List: Code:	4 111
MACHAERANTHERA ASTEROIDES VAR LAGUNENSIS MOUNT LAGUNA ASTER PDAST64131	Records in NDDB: *Yes*	Federal: State:	Species of concern Rare	Global: State:	G5T2T3 S1.1	List: Code:	2 331
MACHAERANTHERA CANESCENS VAR ZIEGLERI ZIEGLER'S ASTER PDAST640B2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T1 S1.2	List: Code:	1B 323
MACHAERANTHERA JUNCEA RUSH-LIKE BRISTLEWEED PDAST641A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
MADIA DORIS-NILESIAE NILES'S MADIA PDAST650L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.1	List: Code:	1B 333
MADIA HALLII HALL'S MADIA PDAST650A0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
MADIA NUTANS NODDING MADIA PDAST650D0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
MADIA RADIATA SHOWY MADIA PDAST650E0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.1	List: Code:	1B 233
MADIA STEBBINSII STEBBINS'S MADIA PDAST650K0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 323
MADIA YOSEMITANA YOSEMITE MADIA PDAST650J0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G2G3 S2S3	List: Code:	3 ?23
MAHONIA SONNEI TRUCKEE BARBERRY PDBER060F0	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G?Q S?	List: Code:	
MALACOTHAMNUS ABBOTTII ABBOTT'S BUSH MALLOW PDMAL0Q010	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 333
MALACOTHAMNUS ABORIGINUM INDIAN VALLEY BUSH MALLOW PDMAL0Q020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	1B 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
MALACOTHAMNUS ARCUATUS ARCUATE BUSH MALLOW PDMAL0Q0E0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3Q **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS CLEMENTINUS SAN CLEMENTE ISLAND BUSH MALLOW PDMAL0Q030 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
MALACOTHAMNUS DAVIDSONII DAVIDSON'S BUSH MALLOW PDMAL0Q040 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 223
MALACOTHAMNUS FASCICULATUS VAR NESIOTICUS SANTA CRUZ ISLAND BUSH MALLOW PDMAL0Q061 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G4T1Q **State:** S1.1	**List:** 1B **Code:** 333
MALACOTHAMNUS GRACILIS SLENDER BUSH MALLOW PDMAL0Q0J0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3Q **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS HALLII HALL'S BUSH MALLOW PDMAL0Q0F0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1Q **State:** S1.2	**List:** 1B **Code:** 323
MALACOTHAMNUS HELLERI HELLER'S BUSH MALLOW PDMAL0Q0G0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3Q **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS JONESII JONES'S BUSH MALLOW PDMAL0Q090 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS MENDOCINENSIS MENDOCINO BUSH MALLOW PDMAL0Q0D0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** GX **State:** SX	**List:** 1A **Code:** *
MALACOTHAMNUS NIVEUS SAN LUIS OBISPO COUNTY BUSH MALLOW PDMAL0Q0H0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3Q **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS PALMERI VAR INVOLUCRATUS CARMEL VALLEY BUSH MALLOW PDMAL0Q0B1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T2Q **State:** S2.2	**List:** 1B **Code:** 123
MALACOTHAMNUS PALMERI VAR LUCIANUS ARROYO SECO BUSH MALLOW PDMAL0Q0B2 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T1Q **State:** S1.2	**List:** 1B **Code:** 323
MALACOTHAMNUS PALMERI VAR PALMERI SANTA LUCIA BUSH MALLOW PDMAL0Q0B5 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113
MALACOTHAMNUS PARISHII PARISH'S BUSH MALLOW PDMAL0Q0C0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
MALACOTHRIX FOLIOSA LEAFY MALACOTHRIX PDAST66060 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4? **State:** S3.2	**List:** 4 **Code:** 122

Scientific Name, Common Name, Element Code		Listing Status		Rank	CNPS
MALACOTHRIX INCANA		Federal:	None	Global: G5	List: 4
DUNEDELION		State:	None	State: S3.3	Code: 113
PDAST66070	Records in NDDB: *No*				
MALACOTHRIX INDECORA		Federal:	Endangered	Global: G1	List: 1B
SANTA CRUZ ISLAND MALACOTHRIX		State:	None	State: S1.1	Code: 333
PDAST660J0	Records in NDDB: *Yes*				
MALACOTHRIX SAXATILIS VAR ARACHNOIDEA		Federal:	Species of concern	Global: G5T2	List: 1B
CARMEL VALLEY MALACOTHRIX		State:	None	State: S2.2	Code: 323
PDAST660C2	Records in NDDB: *Yes*				
MALACOTHRIX SQUALIDA		Federal:	Endangered	Global: G1	List: 1B
ISLAND MALACOTHRIX		State:	None	State: S1.2	Code: 333
PDAST660K0	Records in NDDB: *Yes*				
MALAXIS MONOPHYLLOS SSP BRACHYPODA		Federal:	None	Global: G?T4	List: 2
ADDER'S-MOUTH		State:	None	State: S1.1	Code: 331
PMORC1R010	Records in NDDB: *Yes*				
MALPERIA TENUIS		Federal:	None	Global: G4?	List: 2
BROWN TURBANS		State:	None	State: S1.3	Code: 311
PDAST67010	Records in NDDB: *Yes*				
MARINA ORCUTTII VAR ORCUTTII		Federal:	Species of concern	Global: G?T1T2	List: 1B
CALIFORNIA MARINA		State:	None	State: S1.3	Code: 312
PDFAB2F031	Records in NDDB: *Yes*				
MARSILEA OLIGOSPORA		Federal:	None	Global: G5	List: 3
NELSON'S PEPPERWORT		State:	None	State: S3?	Code: ?71
PPMAR010B0	Records in NDDB: *No*				
MATELEA PARVIFOLIA		Federal:	None	Global: G5?	List: 2
SPEARLEAF		State:	None	State: S2.3	Code: 311
PDASC0A0J0	Records in NDDB: *Yes*				
MAURANDYA ANTIRRHINIFLORA SSP ANTIRRHINIFLORA		Federal:	None	Global: G4?T3?	List: 2
VIOLET TWINING SNAPDRAGON		State:	None	State: S1.3	Code: 311
PDSCR2M011	Records in NDDB: *Yes*				
MAURANDYA PETROPHILA		Federal:	Species of concern	Global: G1	List: 1B
ROCK LADY		State:	Rare	State: S1.3	Code: 323
PDSCR2J010	Records in NDDB: *Yes*				
MECONELLA OREGANA		Federal:	Species of concern	Global: G?	List:
OREGON MECONELLA		State:	None	State: SH	Code:
PDPAP0G030	Records in NDDB: *No*				
MELICA SPECTABILIS		Federal:	None	Global: G5	List: 4
PURPLE ONION GRASS		State:	None	State: S3.3	Code: 111
PMPOA3X0G0	Records in NDDB: *No*				
MENTZELIA HIRSUTISSIMA		Federal:	None	Global: G3?	List: 2
HAIRY STICKLEAF		State:	None	State: S2S3	Code: 211
PDLOA030K0	Records in NDDB: *Yes*				
MERTENSIA BELLA		Federal:	None	Global: G4	List: 2
OREGON LUNGWORT		State:	None	State: S2S3	Code: 321
PDBOR0N040	Records in NDDB: *Yes*				

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
MICROPUS AMPHIBOLUS		Federal:	None	Global:	G3	List:	4
MT. DIABLO COTTONWEED		State:	None	State:	S3.3	Code:	113
PDAST6D030	Records in NDDB: *No*						
MICROSERIS BOREALIS		Federal:	None	Global:	G5?	List:	2
NORTHERN MICROSERIS		State:	None	State:	S1.1	Code:	331
PDAST6E030	Records in NDDB: *Yes*						
MICROSERIS DOUGLASII VAR PLATYCARPHA		Federal:	None	Global:	G4T3	List:	4
SMALL-FLOWERED MICROSERIS		State:	None	State:	S3.2	Code:	122
PDAST6E062	Records in NDDB: *No*						
MIMULUS ACUTIDENS		Federal:	None	Global:	G2Q	List:	3
KINGS RIVER MONKEYFLOWER		State:	None	State:	S2?	Code:	??3
PDSCR1B010	Records in NDDB: *No*						
MIMULUS ARIDUS		Federal:	None	Global:	G4?	List:	4
LOW BUSH MONKEYFLOWER		State:	None	State:	S3.3	Code:	112
PDSCR22040	Records in NDDB: *No*						
MIMULUS BRACHIATUS		Federal:	None	Global:	G2Q?	List:	3
SERPENTINE MONKEYFLOWER		State:	None	State:	S2	Code:	??3
PDSCR1B0H0	Records in NDDB: *No*						
MIMULUS BRANDEGEI		Federal:	Species of concern	Global:	GX	List:	1A
SANTA CRUZ ISLAND MONKEYFLOWER		State:	None	State:	SX	Code:	*
PDSCR1B0K0	Records in NDDB: *Yes*						
MIMULUS CLEVELANDII		Federal:	None	Global:	G3G4	List:	4
CLEVELAND'S BUSH MONKEYFLOWER		State:	None	State:	S3.2	Code:	122
PDSCR22010	Records in NDDB: *No*						
MIMULUS DIFFUSUS		Federal:	None	Global:	G4Q	List:	4
PALOMAR MONKEYFLOWER		State:	None	State:	S3.3	Code:	111
PDSCR1B0Z0	Records in NDDB: *No*						
MIMULUS EXIGUUS		Federal:	Species of concern	Global:	G2	List:	1B
SAN BERNARDINO MOUNTAINS MONKEYFLOWER		State:	None	State:	S2.2	Code:	222
PDSCR1B140	Records in NDDB: *Yes*						
MIMULUS FILICAULIS		Federal:	Species of concern	Global:	G2	List:	1B
SLENDER-STEMMED MONKEYFLOWER		State:	None	State:	S2.2	Code:	223
PDSCR1B150	Records in NDDB: *Yes*						
MIMULUS FLEMINGII		Federal:	None	Global:	G3	List:	4
ISLAND BUSH MONKEYFLOWER		State:	None	State:	S3.3	Code:	113
PDSCR1B320	Records in NDDB: *No*						
MIMULUS GLABRATUS SSP UTAHENSIS		Federal:	None	Global:	G5T5?	List:	2
UTAH MONKEYFLOWER		State:	None	State:	S1.1	Code:	321
PDSCR1B1A6	Records in NDDB: *Yes*						
MIMULUS GLAUCESCENS		Federal:	None	Global:	G3	List:	4
SHIELD-BRACTED MONKEYFLOWER		State:	None	State:	S3.3	Code:	113
PDSCR1B1B0	Records in NDDB: *No*						
MIMULUS GRACILIPES		Federal:	None	Global:	G3	List:	4
SLENDER-STALKED MONKEYFLOWER		State:	None	State:	S3.3	Code:	113
PDSCR1B1C0	Records in NDDB: *No*						

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
MIMULUS GRAYI GRAY'S MONKEYFLOWER PDSCR1B1D0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS INCONSPICUUS SMALL-FLOWERED MONKEYFLOWER PDSCR1B1F0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS LACINIATUS CUT-LEAVED MONKEYFLOWER PDSCR1B1L0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS MICROPHYLLUS SMALL-LEAVED MONKEYFLOWER PDSCR1B300 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3,3	**List:** 4 **Code:** 113
MIMULUS MOHAVENSIS MOJAVE MONKEYFLOWER PDSCR1B1V0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
MIMULUS NORRISII KAWEAH MONKEYFLOWER PDSCR1B2Y0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 313
MIMULUS NUDATUS BARE MONKEYFLOWER PDSCR1B200 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS PICTUS CALICO MONKEYFLOWER PDSCR1B240 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
MIMULUS PULCHELLUS PANSY MONKEYFLOWER PDSCR1B280 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS PURPUREUS PURPLE MONKEYFLOWER PDSCR1B2B0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1? **State:** S1.1	**List:** 2 **Code:** 231
MIMULUS PYGMAEUS EGG LAKE MONKEYFLOWER PDSCR1B2C0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4 **State:** S3.2	**List:** 1B **Code:** 212
MIMULUS RATTANII SSP DECURTATUS SANTA CRUZ COUNTY MONKEYFLOWER PDSCR1B2D2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.2	**List:** 4 **Code:** 123
MIMULUS RUPICOLA DEATH VALLEY MONKEYFLOWER PDSCR1B2H0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
MIMULUS SHEVOCKII KELSO CREEK MONKEYFLOWER PDSCR1B2Z0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
MIMULUS SUBSECUNDUS ONE-SIDED MONKEYFLOWER PDSCR1B2K0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113

Scientific Name, Common Name, Element Code	Listing Status		Rank		CNPS	
MIMULUS TRASKIAE SANTA CATALINA ISLAND MONKEYFLOWER PDSCR1B2P0 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	GX SX	**List:** **Code:**	1A *
MIMULUS WHIPPLEI WHIPPLE'S MONKEYFLOWER PDSCR1B2U0 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	GX SX	**List:** **Code:**	1A *
MINUARTIA DECUMBENS THE LASSICS SANDWORT PDCAR0G0Y0 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 323
MINUARTIA HOWELLII HOWELL'S SANDWORT PDCAR0G0F0 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4? S3.3	**List:** **Code:**	4 112
MINUARTIA OBTUSILOBA ALPINE SANDWORT PDCAR0G0N0 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S3.3	**List:** **Code:**	4 111
MINUARTIA ROSEI PEANUT SANDWORT PDCAR0G0R0 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.2	**List:** **Code:**	4 123
MINUARTIA STOLONIFERA SCOTT MOUNTAIN SANDWORT PDCAR0G110 **Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.3	**List:** **Code:**	1B 313
MIRABILIS TENUILOBA SLENDER-LOBED FOUR-O'CLOCK PDNYC0A150 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 111
MOBERGIA CALCULIFORMIS LIGHT GRAY LICHEN NLTES41770 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.1	**List:** **Code:**	
MONARDELLA ANTONINA SSP ANTONINA SAN ANTONIO HILLS MONARDELLA PDLAM18011 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3Q S3?	**List:** **Code:**	3 ?23
MONARDELLA ANTONINA SSP BENITENSIS SAN BENITO MONARDELLA PDLAM18012 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113
MONARDELLA BENEOLENS SWEET-SMELLING MONARDELLA PDLAM180U0 **Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.3	**List:** **Code:**	1B 313
MONARDELLA CANDICANS SIERRA MONARDELLA PDLAM18050 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
MONARDELLA CINEREA GRAY MONARDELLA PDLAM18060 **Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 113
MONARDELLA CRISPA CRISP MONARDELLA PDLAM18070 **Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
MONARDELLA DOUGLASII SSP VENOSA VEINY MONARDELLA PDLAM18082	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.1	List: Code:	1B 333
MONARDELLA FOLLETTII FOLLETT'S MONARDELLA PDLAM180W0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.2	List: Code:	1B 313
MONARDELLA FRUTESCENS SAN LUIS OBISPO MONARDELLA PDLAM180X0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
MONARDELLA HYPOLEUCA SSP LANATA FELT-LEAVED MONARDELLA PDLAM180A2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5?T2 S2.2	List: Code:	1B 222
MONARDELLA LEUCOCEPHALA MERCED MONARDELLA PDLAM180C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	GH SH	List: Code:	1A *
MONARDELLA LINOIDES SSP OBLONGA FLAX-LIKE MONARDELLA PDLAM180D2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.3	List: Code:	1B 313
MONARDELLA LINOIDES SSP VIMINEA WILLOWY MONARDELLA PDLAM180D4	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G5T3 S2.1	List: Code:	1B 232
MONARDELLA MACRANTHA SSP HALLII HALL'S MONARDELLA PDLAM180E1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	1B 213
MONARDELLA NANA SSP LEPTOSIPHON SAN FELIPE MONARDELLA PDLAM180F2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4G5T2 S2.2	List: Code:	2 321
MONARDELLA PALMERI PALMER'S MONARDELLA PDLAM180H0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
MONARDELLA PRINGLEI PRINGLE'S MONARDELLA PDLAM180J0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	GX SX	List: Code:	1A *
MONARDELLA ROBISONII ROBISON'S MONARDELLA PDLAM180K0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.3	List: Code:	1B 313
MONARDELLA STEBBINSII STEBBINS'S MONARDELLA PDLAM180L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 313
MONARDELLA UNDULATA CURLY-LEAVED MONARDELLA PDLAM180N0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
MONARDELLA VILLOSA SSP GLOBOSA ROBUST MONARDELLA PDLAM180P7	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T1 S1.1	List: Code:	1B 323

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
MONARDELLA VIRIDIS SSP SAXICOLA ROCK MONARDELLA PDLAM180Q1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3T3 **State:** S3.2	**List:** 4 **Code:** 123
MONARDELLA VIRIDIS SSP VIRIDIS GREEN MONARDELLA PDLAM180Q2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3T3 **State:** S3.3	**List:** 4 **Code:** 113
MONOTROPA UNIFLORA INDIAN-PIPE PDMON03030 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2S3	**List:** 2 **Code:** 221
MONTIA HOWELLII HOWELL'S MONTIA PDPOR05070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2? **State:** SH	**List:** 1A **Code:** *
MUCRONEA CALIFORNICA CALIFORNIA SPINEFLOWER PDPGN0F010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2?	**List:** 4 **Code:** 123
MUHLENBERGIA APPRESSA APPRESSED MUHLY PMPOA48020 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S3?	**List:** 2 **Code:** 221
MUHLENBERGIA ARSENEI TOUGH MUHLY PMPOA48060 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** 2 **Code:** 211
MUHLENBERGIA CALIFORNICA CALIFORNIA MUHLY PMPOA480A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** GH **State:** SH	**List:** 1B **Code:** 223
MUHLENBERGIA FRAGILIS DELICATE MUHLY PMPOA480Q0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5? **State:** S1.3?	**List:** 2 **Code:** 311
MUHLENBERGIA PAUCIFLORA FEW-FLOWERED MUHLY PMPOA48170 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.3?	**List:** 2 **Code:** 311
MUILLA CLEVELANDII SAN DIEGO GOLDENSTAR PMLIL1H010 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.1	**List:** 1B **Code:** 222
MUILLA CORONATA CROWNED MUILLA PMLIL1H020 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 122
MUNROA SQUARROSA FALSE BUFFALO-GRASS PMPOA49010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** 2 **Code:** 321
MYOSURUS MINIMUS SSP APUS LITTLE MOUSETAIL PDRAN0H031 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2Q **State:** S2.2	**List:** 3 **Code:** 232
NAMA DICHOTOMUM VAR DICHOTOMUM FORKED PURPLE MAT PDHYD0A061 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T? **State:** S1.3?	**List:** 2 **Code:** 311

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
NAMA STENOCARPUM MUD NAMA PDHYD0A0H0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5 S1S2	List: Code:	2 321
NAVARRETIA ERIOCEPHALA HOARY NAVARRETIA PDPLM0C060	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
NAVARRETIA FOSSALIS SPREADING NAVARRETIA PDPLM0C080	Records in NDDB: *Yes*	Federal: State:	Threatened None	Global: State:	G2 S2.1	List: Code:	1B 232
NAVARRETIA HETERANDRA TEHAMA NAVARRETIA PDPLM0C0A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3? S3.3	List: Code:	4 112
NAVARRETIA JAREDII PASO ROBLES NAVARRETIA PDPLM0C0Y0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
NAVARRETIA JEPSONII JEPSON'S NAVARRETIA PDPLM0C0D0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
NAVARRETIA LEUCOCEPHALA SSP BAKERI BAKER'S NAVARRETIA PDPLM0C0E1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3T2 S2.2	List: Code:	1B 223
NAVARRETIA LEUCOCEPHALA SSP PAUCIFLORA FEW-FLOWERED NAVARRETIA PDPLM0C0E4	Records in NDDB: *Yes*	Federal: State:	Endangered Threatened	Global: State:	G3T1 S1.1	List: Code:	1B 333
NAVARRETIA LEUCOCEPHALA SSP PLIEANTHA MANY-FLOWERED NAVARRETIA PDPLM0C0E5	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G3T1 S1.2	List: Code:	1B 323
NAVARRETIA MYERSII SSP DEMINUTA PDPLM0C0X2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1T1 S1.1	List: Code:	
NAVARRETIA MYERSII SSP MYERSII PINCUSHION NAVARRETIA PDPLM0C0X1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1T1 S1.1	List: Code:	1B 333
NAVARRETIA NIGELLIFORMIS SSP RADIANS SHINING NAVARRETIA PDPLM0C0J2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T1 S1.2	List: Code:	1B 223
NAVARRETIA PENINSULARIS BAJA NAVARRETIA PDPLM0C0L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3? S2.2	List: Code:	1B 222
NAVARRETIA PROLIFERA SSP LUTEA YELLOW BUR NAVARRETIA PDPLM0C0N1	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.3	List: Code:	4 113
NAVARRETIA ROSULATA MARIN COUNTY NAVARRETIA PDPLM0C0Z0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2? S2?	List: Code:	1B 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
NAVARRETIA SETILOBA PIUTE MOUNTAINS NAVARRETIA PDPLM0C0S0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
NAVARRETIA SUBULIGERA AWL-LEAVED NAVARRETIA PDPLM0C0U0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.3	**List:** 4 **Code:** 112
NEMACAULIS DENUDATA VAR DENUDATA COAST WOOLLY-HEADS PDPGN0G011 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T3? **State:** S1S2	**List:** 2 **Code:** 221
NEMACAULIS DENUDATA VAR GRACILIS SLENDER WOOLLY-HEADS PDPGN0G012 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T3? **State:** S2S3	**List:** 2 **Code:** 221
NEMACLADUS GRACILIS SLENDER NEMACLADUS PDCAM0F030 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
NEMACLADUS TWISSELMANNII TWISSELMANN'S NEMACLADUS PDCAM0F0D0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
NEMOPHILA PARVIFLORA VAR QUERCIFOLIA OAK-LEAVED NEMOPHILA PDHYD0B073 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.3	**List:** 4 **Code:** 112
NEOSTAPFIA COLUSANA COLUSA GRASS PMPOA4C010 **Records in NDDB:** *Yes*	**Federal:** Threatened **State:** Endangered	**Global:** G3 **State:** S3.1	**List:** 1B **Code:** 133
NEVIUSIA CLIFTONII SHASTA SNOW-WREATH PDROS14020 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
NITROPHILA MOHAVENSIS AMARGOSA NITROPHILA PDCHE0G010 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 332
NOLINA CISMONTANA CALIFORNIA BEARGRASS PMAGA080E0 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** **Code:**
NOLINA INTERRATA DEHESA NOLINA PMAGA08070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G2 **State:** S1.1	**List:** 1B **Code:** 332
OENOTHERA CAESPITOSA SSP CRINITA CAESPITOSE EVENING-PRIMROSE PDONA0C063 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 121
OENOTHERA CALIFORNICA SSP EUREKENSIS EUREKA DUNES EVENING-PRIMROSE PDONA0C071 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Rare	**Global:** G47T1 **State:** S1.2	**List:** 1B **Code:** 323
OENOTHERA DELTOIDES SSP HOWELLII ANTIOCH DUNES EVENING-PRIMROSE PDONA0C0B4 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G5T1 **State:** S1.1	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
OENOTHERA WOLFII		Federal:	Species of concern	Global:	G2	List:	1B
WOLF'S EVENING-PRIMROSE		State:	None	State:	S1.1	Code:	332
PDONA0C1K0	Records in NDDB: *Yes*						
OPHIOGLOSSUM CALIFORNICUM		Federal:	None	Global:	G4	List:	4
CALIFORNIA ADDER'S-TONGUE		State:	None	State:	S3.2	Code:	122
PPOPH020G0	Records in NDDB: *No*						
OPHIOGLOSSUM PUSILLUM		Federal:	None	Global:	G5	List:	1A
NORTHERN ADDER'S-TONGUE		State:	None	State:	S1.2	Code:	*
PPOPH020F0	Records in NDDB: *Yes*						
OPUNTIA BASILARIS VAR BRACHYCLADA		Federal:	Species of concern	Global:	G5T1	List:	1B
SHORT-JOINT BEAVERTAIL		State:	None	State:	S1.2	Code:	323
PDCAC0D053	Records in NDDB: *Yes*						
OPUNTIA BASILARIS VAR TRELEASEI		Federal:	Endangered	Global:	G5T2	List:	1B
BAKERSFIELD CACTUS		State:	Endangered	State:	S2.1	Code:	333
PDCAC0D055	Records in NDDB: *Yes*						
OPUNTIA CURVOSPINA		Federal:	None	Global:	G?	List:	2
CURVED-SPINE BEAVERTAIL		State:	None	State:	S2S3	Code:	221
PDCAC0D270	Records in NDDB: *Yes*						
OPUNTIA FRAGILIS		Federal:	None	Global:	G4G5	List:	2
BRITTLE PRICKLY-PEAR		State:	None	State:	SH	Code:	331
PDCAC0D0H0	Records in NDDB: *Yes*						
OPUNTIA MUNZII		Federal:	Species of concern	Global:	G1	List:	1B
MUNZ'S CHOLLA		State:	None	State:	S1.2	Code:	313
PDCAC0D0V0	Records in NDDB: *Yes*						
OPUNTIA PARRYI VAR SERPENTINA		Federal:	Species of concern	Global:	G3T2	List:	1B
SNAKE CHOLLA		State:	None	State:	S1.1	Code:	332
PDCAC0D0Y2	Records in NDDB: *Yes*						
OPUNTIA PULCHELLA		Federal:	None	Global:	G4	List:	2
BEAUTIFUL CHOLLA		State:	None	State:	S2S3	Code:	221
PDCAC0D120	Records in NDDB: *Yes*						
OPUNTIA WIGGINSII		Federal:	None	Global:	G3Q	List:	3
WIGGINS'S CHOLLA		State:	None	State:	S1.2?	Code:	312
PDCAC0D1P0	Records in NDDB: *Yes*						
OPUNTIA WOLFII		Federal:	None	Global:	G4?	List:	4
WOLF'S CHOLLA		State:	None	State:	S3.3	Code:	113
PDCAC0D2R0	Records in NDDB: *No*						
ORCUTTIA CALIFORNICA		Federal:	Endangered	Global:	G2	List:	1B
CALIFORNIA ORCUTT GRASS		State:	Endangered	State:	S2.1	Code:	332
PMPOA4G010	Records in NDDB: *Yes*						
ORCUTTIA INAEQUALIS		Federal:	Threatened	Global:	G2	List:	1B
SAN JOAQUIN VALLEY ORCUTT GRASS		State:	Endangered	State:	S2.1	Code:	233
PMPOA4G060	Records in NDDB: *Yes*						
ORCUTTIA PILOSA		Federal:	Endangered	Global:	G2	List:	1B
HAIRY ORCUTT GRASS		State:	Endangered	State:	S2.1	Code:	233
PMPOA4G040	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
ORCUTTIA TENUIS SLENDER ORCUTT GRASS PMPOA4G050	Records in NDDB: *Yes*	Federal: State:	Threatened Endangered	Global: State:	G3 S3.1	List: Code:	1B 233
ORCUTTIA VISCIDA SACRAMENTO ORCUTT GRASS PMPOA4G070	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 333
OREONANA PURPURASCENS PURPLE MOUNTAIN-PARSLEY PDAPI1G020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	1B 223
OREONANA VESTITA WOOLLY MOUNTAIN-PARSLEY PDAPI1G030	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
ORNITHOSTAPHYLOS OPPOSITIFOLIA BAJA CALIFORNIA BIRDBUSH PDERI0W010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.1	List: Code:	2 331
OROBANCHE PARISHII SSP BRACHYLOBA SHORT-LOBED BROOM-RAPE PDORO040A2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4?T2 S2.2	List: Code:	1B 222
OROBANCHE VALIDA SSP HOWELLII HOWELL'S BROOMRAPE PDORO040G1	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3T3 S3.3	List: Code:	4 113
OROBANCHE VALIDA SSP VALIDA ROCK CREEK BROOMRAPE PDORO040G2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3T1 S1.2	List: Code:	1B 323
ORTHOCARPUS CUSPIDATUS SSP CUSPIDATUS SISKIYOU MOUNTAINS ORTHOCARPUS PDSCR1H081	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3? S3.3	List: Code:	4 112
ORTHOCARPUS PACHYSTACHYUS SHASTA ORTHOCARPUS PDSCR1H0L0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.1	List: Code:	1A *
ORYCTES NEVADENSIS NEVADA ORYCTES PDSOL0Q010	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S1.1	List: Code:	1B 332
OXYTHECA CARYOPHYLLOIDES CHICKWEED OXYTHECA PDPGN0J010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
OXYTHECA EMARGINATA WHITE-MARGINED OXYTHECA PDPGN0J030	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
OXYTHECA PARISHII VAR ABRAMSII ABRAMS'S OXYTHECA PDPGN0J041	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4?T2 S2.2	List: Code:	1B 223
OXYTHECA PARISHII VAR CIENEGENSIS CIENEGA SECA OXYTHECA PDPGN0J042	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4?T1 S1.3	List: Code:	1B 313

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
OXYTHECA PARISHII VAR GOODMANIANA		Federal:	Endangered	Global:	G4?T1	List:	1B
CUSHENBURY OXYTHECA		State:	None	State:	S1.1	Code:	333
PDPGN0J043	Records in NDDB: *Yes*						
OXYTHECA WATSONII		Federal:	None	Global:	G2	List:	2
WATSON'S OXYTHECA		State:	None	State:	S1.1	Code:	321
PDPGN0J070	Records in NDDB: *Yes*						
OXYTROPIS DEFLEXA VAR SERICEA		Federal:	None	Global:	G5T5	List:	2
BLUE PENDENT-POD OXYTROPE		State:	None	State:	S1.1	Code:	331
PDFAB2X053	Records in NDDB: *Yes*						
PALAFOXIA ARIDA VAR GIGANTEA		Federal:	Species of concern	Global:	G5T3	List:	1B
GIANT SPANISH-NEEDLE		State:	None	State:	S1.2	Code:	212
PDAST6T012	Records in NDDB: *Yes*						
PARONYCHIA AHARTII		Federal:	Species of concern	Global:	G2	List:	1B
AHART'S PARONYCHIA		State:	None	State:	S1.2	Code:	323
PDCAR0L0V0	Records in NDDB: *Yes*						
PARVISEDUM LEIOCARPUM		Federal:	Endangered	Global:	G1	List:	1B
LAKE COUNTY STONECROP		State:	Endangered	State:	S1.1	Code:	333
PDCRA0F020	Records in NDDB: *Yes*						
PEDICULARIS BRACTEOSA VAR FLAVIDA		Federal:	None	Global:	G5T4	List:	4
YELLOWISH LOUSEWORT		State:	None	State:	S3.3	Code:	111
PDSCR1K044	Records in NDDB: *No*						
PEDICULARIS CENTRANTHERA		Federal:	None	Global:	G4	List:	2
DWARF LOUSEWORT		State:	None	State:	S1.2	Code:	311
PDSCR1K070	Records in NDDB: *Yes*						
PEDICULARIS CONTORTA		Federal:	None	Global:	G5	List:	4
CURVED-BEAK LOUSEWORT		State:	None	State:	S3.3	Code:	111
PDSCR1K090	Records in NDDB: *No*						
PEDICULARIS CRENULATA		Federal:	None	Global:	G4	List:	2
SCALLOPED-LEAVED LOUSEWORT		State:	None	State:	S1.2	Code:	311
PDSCR1K0A0	Records in NDDB: *Yes*						
PEDICULARIS DUDLEYI		Federal:	Species of concern	Global:	G2	List:	1B
DUDLEY'S LOUSEWORT		State:	Rare	State:	S2.2	Code:	323
PDSCR1K0D0	Records in NDDB: *Yes*						
PEDICULARIS HOWELLII		Federal:	None	Global:	G4	List:	4
HOWELL'S LOUSEWORT		State:	None	State:	S3.3	Code:	112
PDSCR1K0J0	Records in NDDB: *No*						
PELLAEA TRUNCATA		Federal:	None	Global:	G5	List:	2
CLIFF BRAKE		State:	None	State:	S1S2	Code:	211
PPADI0H0C0	Records in NDDB: *Yes*						
PENSTEMON ALBOMARGINATUS		Federal:	Species of concern	Global:	G2	List:	1B
WHITE-MARGINED BEARDTONGUE		State:	None	State:	S1.2	Code:	322
PDSCR1L070	Records in NDDB: *Yes*						
PENSTEMON BARNEBYI		Federal:	None	Global:	G3	List:	2
BARNEBY'S BEARDTONGUE		State:	None	State:	S1.2	Code:	331
PDSCR1L0Q0	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
PENSTEMON CALCAREUS		Federal:	None	Global:	G2	List:	2
LIMESTONE BEARDTONGUE		State:	None	State:	S2.3	Code:	211
PDSCR1L100	Records in NDDB: *Yes*						
PENSTEMON CALIFORNICUS		Federal:	None	Global:	G3?	List:	1B
CALIFORNIA BEARDTONGUE		State:	None	State:	S2.2	Code:	322
PDSCR1L110	Records in NDDB: *Yes*						
PENSTEMON CINEREUS		Federal:	None	Global:	G4	List:	4
GRAY BEARDTONGUE		State:	None	State:	S3.3	Code:	111
PDSCR1L354	Records in NDDB: *No*						
PENSTEMON CINICOLA		Federal:	None	Global:	G4	List:	4
ASH BEARDTONGUE		State:	None	State:	S3.2?	Code:	121
PDSCR1L1B0	Records in NDDB: *No*						
PENSTEMON CLEVELANDII VAR CONNATUS		Federal:	None	Global:	G5T4	List:	4
SAN JACINTO BEARDTONGUE		State:	None	State:	S3.3	Code:	111
PDSCR1L1D2	Records in NDDB: *No*						
PENSTEMON FILIFORMIS		Federal:	Species of concern	Global:	G3	List:	1B
THREAD-LEAVED BEARDTONGUE		State:	None	State:	S3.3	Code:	213
PDSCR1L2A0	Records in NDDB: *Yes*						
PENSTEMON FRUTICIFORMIS VAR AMARGOSAE		Federal:	Species of concern	Global:	G5T3	List:	4
DEATH VALLEY BEARDTONGUE		State:	None	State:	S3.3	Code:	112
PDSCR1L2F2	Records in NDDB: *No*						
PENSTEMON HETERODOXUS VAR SHASTENSIS		Federal:	None	Global:	G5T3	List:	4
SHASTA BEARDTONGUE		State:	None	State:	S3.3	Code:	113
PDSCR1L5Q0	Records in NDDB: *No*						
PENSTEMON NEWBERRYI VAR SONOMENSIS		Federal:	None	Global:	G4T1	List:	1B
SONOMA BEARDTONGUE		State:	None	State:	S1.3	Code:	313
PDSCR1L483	Records in NDDB: *Yes*						
PENSTEMON PAPILLATUS		Federal:	None	Global:	G3	List:	4
INYO BEARDTONGUE		State:	None	State:	S3.3	Code:	113
PDSCR1L4L0	Records in NDDB: *No*						
PENSTEMON PERSONATUS		Federal:	Species of concern	Global:	G2	List:	1B
CLOSED-THROATED BEARDTONGUE		State:	None	State:	S2.2	Code:	223
PDSCR1L4Y0	Records in NDDB: *Yes*						
PENSTEMON PURPUSII		Federal:	None	Global:	G3	List:	4
SNOW MOUNTAIN BEARDTONGUE		State:	None	State:	S3.3	Code:	113
PDSCR1L590	Records in NDDB: *No*						
PENSTEMON RATTANII VAR KLEEI		Federal:	None	Global:	G4T2	List:	1B
SANTA CRUZ MOUNTAINS BEARDTONGUE		State:	None	State:	S2.2	Code:	223
PDSCR1L5B1	Records in NDDB: *Yes*						
PENSTEMON STEPHENSII		Federal:	Species of concern	Global:	G2	List:	1B
STEPHENS'S BEARDTONGUE		State:	None	State:	S2.3	Code:	223
PDSCR1L5W0	Records in NDDB: *Yes*						
PENSTEMON THURBERI		Federal:	None	Global:	G5	List:	4
THURBER'S BEARDTONGUE		State:	None	State:	S3.2?	Code:	121
PDSCR1L680	Records in NDDB: *No*						

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
PENSTEMON TRACYI TRACY'S BEARDTONGUE PDSCR1L6A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
PENTACHAETA BELLIDIFLORA WHITE-RAYED PENTACHAETA PDAST6X030 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
PENTACHAETA EXILIS SSP AEOLICA SLENDER PENTACHAETA PDAST6X041 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1.2	**List:** 1B **Code:** 323
PENTACHAETA LYONII LYON'S PENTACHAETA PDAST6X060 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
PERIDERIDIA BACIGALUPII BACIGALUPI'S YAMPAH PDAPI1N020 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 123
PERIDERIDIA GAIRDNERI SSP GAIRDNERI GAIRDNER'S YAMPAH PDAPI1N062 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G5T3 **State:** S3.2	**List:** 4 **Code:** 123
PERIDERIDIA LEPTOCARPA NARROW-SEEDED YAMPAH PDAPI1N0A0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3Q **State:** S3.3	**List:** 4 **Code:** 112
PERIDERIDIA PARISHII SSP PARISHII PARISH'S YAMPAH PDAPI1N0C2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T3T4 **State:** S2.2?	**List:** 2 **Code:** 221
PERIDERIDIA PRINGLEI ADOBE YAMPAH PDAPI1N0D0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
PERITYLE INYOENSIS INYO ROCK DAISY PDAST700F0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 323
PERITYLE VILLOSA HANAUPAH ROCK DAISY PDAST700V0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
PETALONYX THURBERI SSP GILMANII DEATH VALLEY SANDPAPER-PLANT PDLOA04041 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T2 **State:** S2.3	**List:** 1B **Code:** 323
PETERIA THOMPSONIAE SPINE-NODED MILK VETCH PDFAB32020 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S1.3?	**List:** 2 **Code:** 311
PHACELIA AMABILIS SALINE VALLEY PHACELIA PDHYD0C040 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1Q **State:** S1	**List:** 3 **Code:** 313
PHACELIA ANELSONII AVEN NELSON'S PHACELIA PDHYD0C060 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2G3 **State:** S2.3?	**List:** 2 **Code:** 211

Scientific Name, Common Name, Element Code			Listing Status		Rank		CNPS	
PHACELIA ARGENTEA SAND DUNE PHACELIA PDHYD0C070	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G2	State: S1.1	List: 1B	Code: 332
PHACELIA CILIATA VAR OPACA MERCED PHACELIA PDHYD0C0S2	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G5T1	State: S1.2	List: 1B	Code: 313
PHACELIA CINEREA ASHY PHACELIA PDHYD0C0T0	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: GX	State: SX	List: 1A	Code: *
PHACELIA COOKEI COOKE'S PHACELIA PDHYD0C0Y0	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G1	State: S1.1	List: 1B	Code: 333
PHACELIA DALESIANA SCOTT MOUNTAIN PHACELIA PDHYD0C140	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G3	State: S3.2	List: 1B	Code: 123
PHACELIA EXILIS TRANSVERSE RANGE PHACELIA PDHYD0C4Y0	Records in NDDB:	*No*	Federal: None	State: None	Global: G3Q	State: S3.3	List: 4	Code: 113
PHACELIA FLORIBUNDA MANY-FLOWERED PHACELIA PDHYD0C1G0	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G2	State: S1.2	List: 1B	Code: 322
PHACELIA GREENEI SCOTT VALLEY PHACELIA PDHYD0C1V0	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G2	State: S2.2	List: 1B	Code: 223
PHACELIA INSULARIS VAR CONTINENTIS NORTH COAST PHACELIA PDHYD0C2B1	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G2T1	State: S1.2	List: 1B	Code: 323
PHACELIA INSULARIS VAR INSULARIS NORTHERN CHANNEL ISLANDS PHACELIA PDHYD0C2B2	Records in NDDB:	*Yes*	Federal: Endangered	State: None	Global: G2T1	State: S1.1	List: 1B	Code: 323
PHACELIA INUNDATA PLAYA PHACELIA PDHYD0C2E0	Records in NDDB:	*Yes*	Federal: None	State: None	Global: G2	State: S1.2	List: 2	Code: 211
PHACELIA INYOENSIS INYO PHACELIA PDHYD0C2F0	Records in NDDB:	*No*	Federal: None	State: None	Global: G3	State: S3.3	List: 4	Code: 113
PHACELIA LEONIS SISKIYOU PHACELIA PDHYD0C2N0	Records in NDDB:	*Yes*	Federal: None	State: None	Global: G2	State: S2.2	List: 1B	Code: 212
PHACELIA MOHAVENSIS MOJAVE PHACELIA PDHYD0C310	Records in NDDB:	*No*	Federal: None	State: None	Global: G3Q	State: S3.3	List: 4	Code: 113
PHACELIA MONOENSIS MONO COUNTY PHACELIA PDHYD0C4V0	Records in NDDB:	*Yes*	Federal: Species of concern	State: None	Global: G3	State: S2.1	List: 1B	Code: 332

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
PHACELIA MUSTELINA DEATH VALLEY ROUND-LEAVED PHACELIA PDHYD0C330 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S1.3	**List:** 1B **Code:** 212
PHACELIA NASHIANA CHARLOTTE'S PHACELIA PDHYD0C350 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 123
PHACELIA NOVENMILLENSIS NINE MILE CANYON PHACELIA PDHYD0C3A0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 323
PHACELIA OROGENES MOUNTAIN PHACELIA PDHYD0C3C0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
PHACELIA PARISHII PARISH'S PHACELIA PDHYD0C3G0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S1.1	**List:** 2 **Code:** 331
PHACELIA PHACELIOIDES MT. DIABLO PHACELIA PDHYD0C3Q0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 223
PHACELIA PULCHELLA VAR GOODDINGII GOODDING'S PHACELIA PDHYD0C3V1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2T3 **State:** S1.3?	**List:** 2 **Code:** 311
PHACELIA SERICEA VAR CILIOSA BLUE ALPINE PHACELIA PDHYD0C4A1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T5 **State:** S1.3?	**List:** 2 **Code:** 211
PHACELIA STEBBINSII STEBBINS'S PHACELIA PDHYD0C4D0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S3.2	**List:** 1B **Code:** 223
PHACELIA STELLARIS BRAND'S PHACELIA PDHYD0C510 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1G2 **State:** S1.1	**List:** 1B **Code:** 332
PHACELIA SUAVEOLENS SSP KECKII SANTIAGO PEAK PHACELIA PDHYD0C4G1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G5T1 **State:** S1.3	**List:** 1B **Code:** 313
PHASEOLUS FILIFORMIS SLENDER-STEM BEAN PDFAB330P0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.3	**List:** 2 **Code:** 311
PHLOX DISPERSA HIGH SIERRA PHLOX PDPLM0D0M0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
PHLOX DOLICHANTHA BIG BEAR VALLEY PHLOX PDPLM0D0P0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
PHLOX HIRSUTA YREKA PHLOX PDPLM0D100 **Records in NDDB:** *Yes*	**Federal:** Proposed Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 323

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
PHLOX MUSCOIDES MOSS PHLOX PDPLM0D115	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S2S3	**List:** **Code:**	2 211
PHOLISMA SONORAE SAND FOOD PDLNN02020	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G3 S1.2	**List:** **Code:**	1B 222
PHOLISTOMA AURITUM VAR ARIZONICUM ARIZONA PHOLISTOMA PDHYD0D011	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T1 S1.3	**List:** **Code:**	2 311
PHYSALIS LOBATA LOBED GROUND-CHERRY PDSOL0T010	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S1.3?	**List:** **Code:**	2 311
PICEA ENGELMANNII ENGELMANN SPRUCE PGPIN03030	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S2.2	**List:** **Code:**	2 221
PILOSTYLES THURBERI THURBER'S PILOSTYLES PDRAF01010	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5 S3.3	**List:** **Code:**	4 111
PINGUICULA VULGARIS SSP MACROCERAS HORNED BUTTERWORT PDLNT01041	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T2T3 S3.2?	**List:** **Code:**	2 121
PINUS CONTORTA SSP BOLANDERI BOLANDER'S BEACH PINE PGPIN04081	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G5T3 S3.2	**List:** **Code:**	1B 123
PINUS EDULIS TWO-NEEDLE PINYON PINE PGPIN040C0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5Q S1.3?	**List:** **Code:**	3 311
PINUS LONGAEVA BRISTLECONE PINE PGPIN04180	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 111
PINUS RADIATA MONTEREY PINE PGPIN040V0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 322
PINUS TORREYANA SSP INSULARIS SANTA ROSA ISL. TORREY PINE PGPIN04151	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1T1 S1.2	**List:** **Code:**	1B 323
PINUS TORREYANA SSP TORREYANA TORREY PINE PGPIN04152	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1T1 S1.2	**List:** **Code:**	1B 323
PIPERIA CANDIDA WHITE-FLOWERED REIN ORCHID PMORC1X050	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 111
PIPERIA MICHAELII PURPLE-FLOWERED PIPERIA PMORC1X041	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3? S3.2	**List:** **Code:**	4 123

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
PIPERIA YADONII YADON'S REIN ORCHID PMORC1X070 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
PIPTATHERUM MICRANTHUM SMALL-FLOWERED RICE GRASS PMPOA4J070 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2S3	**List:** 2 **Code:** 211
PITYOPUS CALIFORNICUS CALIFORNIA PINEFOOT PDMON05010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.2	**List:** 4 **Code:** 121
PLAGIOBOTHRYS CHORISIANUS VAR CHORISIANUS CHORIS'S POPCORN-FLOWER PDBOR0V061 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3T2?Q **State:** S2?	**List:** 3 **Code:** 223
PLAGIOBOTHRYS DIFFUSUS SAN FRANCISCO POPCORN-FLOWER PDBOR0V080 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
PLAGIOBOTHRYS GLABER HAIRLESS POPCORN-FLOWER PDBOR0V0B0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
PLAGIOBOTHRYS GLOMERATUS MAMMOTH POPCORN-FLOWER PDBOR0V1A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G? **State:** S2S3	**List:** 2 **Code:** 221
PLAGIOBOTHRYS GLYPTOCARPUS VAR MODESTUS CEDAR CREST POPCORN-FLOWER PDBOR0V0C2 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G3THQ **State:** SH	**List:** 3 **Code:** 373
PLAGIOBOTHRYS HYSTRICULUS BEARDED POPCORN-FLOWER PDBOR0V0H0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
PLAGIOBOTHRYS LITHOCARYUS MAYACAMAS POPCORN-FLOWER PDBOR0V0P0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** GH **State:** SH	**List:** 1A **Code:** *
PLAGIOBOTHRYS MOLLIS VAR VESTITUS PETALUMA POPCORN-FLOWER PDBOR0V0Q2 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4?TX **State:** SX	**List:** 1A **Code:** *
PLAGIOBOTHRYS MYOSOTOIDES FORGET-ME-NOT POPCORN-FLOWER PDBOR0V0R0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4Q **State:** S3.3	**List:** 4 **Code:** 111
PLAGIOBOTHRYS SALSUS DESERT POPCORN-FLOWER PDBOR0V0X0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3G4 **State:** S1.2?	**List:** 2 **Code:** 321
PLAGIOBOTHRYS STRICTUS CALISTOGA POPCORN-FLOWER PDBOR0V120 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Threatened	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
PLAGIOBOTHRYS UNCINATUS HOOKED POPCORN-FLOWER PDBOR0V170 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
PLATYSTEMON CALIFORNICUS VAR CILIATUS SANTA BARBARA ISLAND CREAM CUPS PDPAP0J022	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G5T1 S1.3	**List:** **Code:**	1B 313
PLEUROPOGON CALIFORNICUS VAR DAVYI DAVY'S SEMAPHORE GRASS PMPOA7Y012	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S3.3	**List:** **Code:**	4 113
PLEUROPOGON HOOVERIANUS NORTH COAST SEMAPHORE GRASS PMPOA7Y031	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Rare	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 323
PLEUROPOGON REFRACTUS NODDING SEMAPHORE GRASS PMPOA7Y032	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.2?	**List:** **Code:**	4 121
POA ABBREVIATA SSP MARSHII MARSH'S BLUE GRASS PMPOA4Z013	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T2 S1.3	**List:** **Code:**	2 311
POA ABBREVIATA SSP PATTERSONII PATTERSON'S BLUE GRASS PMPOA4Z1Y0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5?T5 S1.3	**List:** **Code:**	2 311
POA ATROPURPUREA SAN BERNARDINO BLUE GRASS PMPOA4Z0A0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
POA NAPENSIS NAPA BLUE GRASS PMPOA4Z1R0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
POA PIPERI PIPER'S BLUE GRASS PMPOA4Z200	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 112
POA RHIZOMATA TIMBER BLUE GRASS PMPOA4Z250	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 111
PODISTERA NEVADENSIS SIERRA PODISTERA PDAPI1T030	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.3	**List:** **Code:**	4 123
POGOGYNE ABRAMSII SAN DIEGO MESA MINT PDLAM1K010	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G2 S2.1	**List:** **Code:**	1B 233
POGOGYNE CLAREANA SANTA LUCIA MINT PDLAM1K020	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Endangered	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 323
POGOGYNE DOUGLASII SSP PARVIFLORA DOUGLAS'S POGOGYNE PDLAM1K032	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G?T3?Q S3.2	**List:** **Code:**	3 123
POGOGYNE FLORIBUNDA PROFUSE-FLOWERED POGOGYNE PDLAM1K070	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G3 S3.2	**List:** **Code:**	1B 223

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
POGOGYNE NUDIUSCULA OTAY MESA MINT PDLAM1K040	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G1 S1.1	List: Code:	1B 332
POLEMONIUM CHARTACEUM MASON'S SKY PILOT PDPLM0E060	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.3	List: Code:	1B 312
POLIOMINTHA INCANA FROSTED MINT PDLAM1L020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 SH	List: Code:	1A *
POLYGALA CORNUTA VAR FISHIAE FISH'S MILKWORT PDPGL020B2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T4 S3.3	List: Code:	4 112
POLYGALA HETERORHYNCHA NOTCH-BEAKED MILKWORT PDPGL02270	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3? S1.3	List: Code:	1B 212
POLYGALA SUBSPINOSA SPINY MILKWORT PDPGL021Q0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4? S3.2	List: Code:	2 221
POLYGONUM BIDWELLIAE BIDWELL'S KNOTWEED PDPGN0L0C0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
POLYGONUM HICKMANII SCOTTS VALLEY POLYGONUM PDPGN0L310	Records in NDDB: *Yes*	Federal: State:	Candidate None	Global: State:	G1 S1.1?	List: Code:	
POLYGONUM MARINENSE MARIN KNOTWEED PDPGN0L1C0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1Q S1.1	List: Code:	3 333
POLYGONUM POLYGALOIDES SSP ESOTERICUM MODOC COUNTY KNOTWEED PDPGN0L1Y2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5T1 S1.1	List: Code:	1B 333
POLYSTICHUM KRUCKEBERGII KRUCKEBERG'S SWORD FERN PPDRY0R0C0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
POLYSTICHUM LONCHITIS HOLLY FERN PPDRY0R0F0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S2?	List: Code:	3 ??1
POPULUS ANGUSTIFOLIA NARROW-LEAVED COTTONWOOD PDSAL01020	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2S3	List: Code:	2 321
PORTULACA HALIMOIDES DESERT PORTULACA PDPOR06040	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 121
POTAMOGETON EPIHYDRUS SSP NUTTALLII NUTTALL'S PONDWEED PMPOT03081	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5Q S2.2?	List: Code:	2 221

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
POTAMOGETON FILIFORMIS SLENDER-LEAVED PONDWEED PMPOT03090 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** 2 **Code:** 321
POTAMOGETON FOLIOSUS VAR FIBRILLOSUS FIBROUS PONDWEED PMPOT030B1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T2T3 **State:** S1S2	**List:** 2 **Code:** 311
POTAMOGETON PRAELONGUS WHITE-STEMMED PONDWEED PMPOT030V0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** 2 **Code:** 311
POTAMOGETON ROBBINSII ROBBINS'S PONDWEED PMPOT030Z0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2.3?	**List:** 2 **Code:** 211
POTAMOGETON ZOSTERIFORMIS EEL-GRASS PONDWEED PMPOT03160 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2.2?	**List:** 2 **Code:** 221
POTENTILLA BASALTICA BLACK ROCK POTENTILLA PDROS1B270 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 312
POTENTILLA CONCINNA ALPINE CINQUEFOIL PDROS1B0F0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5? **State:** S1.3	**List:** 2 **Code:** 311
POTENTILLA CRISTAE CRESTED POTENTILLA PDROS1B2F0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 313
POTENTILLA GLANDULOSA SSP EWANII EWAN'S CINQUEFOIL PDROS1B0S3 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T1 **State:** S1.3	**List:** 1B **Code:** 313
POTENTILLA HICKMANII HICKMAN'S CINQUEFOIL PDROS1B0U0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
POTENTILLA MOREFIELDII MOREFIELD'S CINQUEFOIL PDROS1B2R0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 213
POTENTILLA MULTIJUGA BALLONA CINQUEFOIL PDROS1B120 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** GX **State:** SX	**List:** 1A **Code:** *
POTENTILLA NEWBERRYI NEWBERRY'S CINQUEFOIL PDROS1B130 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3G4 **State:** S2.3?	**List:** 2 **Code:** 211
POTENTILLA RIMICOLA CLIFF CINQUEFOIL PDROS1B2G0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3 **State:** S1S2	**List:** 1B **Code:** 212
PROBOSCIDEA ALTHAEIFOLIA DESERT UNICORN-PLANT PDPED06010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5 **State:** S3.3	**List:** 4 **Code:** 111

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
PRUNUS FASCICULATA VAR PUNCTATA SAND ALMOND PDROS1C0E2	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 113
PSEUDOBAHIA BAHIIFOLIA HARTWEG'S GOLDEN SUNBURST PDAST7P010	Records in NDDB: *Yes*	Federal: State:	Endangered Endangered	Global: State:	G2 S2.1	List: Code:	1B 233
PSEUDOBAHIA PEIRSONII SAN JOAQUIN ADOBE SUNBURST PDAST7P030	Records in NDDB: *Yes*	Federal: State:	Threatened Endangered	Global: State:	G2 S2.1	List: Code:	1B 233
PSILOCARPHUS BREVISSIMUS VAR MULTIFLORUS DELTA WOOLLY-MARBLES PDAST7R012	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3 S3.2?	List: Code:	4 123
PSILOCARPHUS ELATIOR TALL WOOLLY-MARBLES PDAST7R020	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4Q S3.3	List: Code:	4 111
PSILOCARPHUS TENELLUS VAR GLOBIFERUS ROUND WOOLLY-MARBLES PDAST7R043	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T4 S3.2	List: Code:	4 121
PSORALIDIUM LANCEOLATUM LANCE-LEAVED SCURF-PEA PDFAB5M030	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1	List: Code:	
PSOROTHAMNUS ARBORESCENS VAR ARBORESCENS MOJAVE INDIGO-BUSH PDFAB3C011	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T3 S3.3	List: Code:	4 111
PUCCINELLIA CALIFORNICA SIERRA NEVADA ALKALI GRASS PMPOA61010	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
PUCCINELLIA HOWELLII HOWELL'S ALKALI GRASS PMPOA531A0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G1 S1.1	List: Code:	1B 333
PUCCINELLIA PARISHII PARISH'S ALKALI GRASS PMPOA530T0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S1.1	List: Code:	1B 332
PUCCINELLIA PUMILA DWARF ALKALI GRASS PMPOA531B0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4? S1.1?	List: Code:	2 321
PYRROCOMA LUCIDA STICKY PYRROCOMA PDASTDT0E0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.2	List: Code:	1B 313
PYRROCOMA RACEMOSA VAR CONGESTA DEL NORTE PYRROCOMA PDASTDT0F4	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T4 S3.3	List: Code:	4 111
PYRROCOMA UNIFLORA VAR GOSSYPINA BEAR VALLEY PYRROCOMA PDASTDT0K1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.2	List: Code:	1B 223

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
QUERCUS DUMOSA NUTTALL'S SCRUB OAK PDFAG050D0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S1.1	**List:** 1B **Code:** 232
QUERCUS ENGELMANNII ENGELMANN OAK PDFAG050K0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
QUERCUS PARVULA VAR PARVULA SANTA CRUZ ISLAND OAK PDFAG051Q1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3 **State:** S3.3	**List:** 4 **Code:** 113
QUERCUS TOMENTELLA ISLAND OAK PDFAG05250 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
RAILLARDELLA PRINGLEI SHOWY RAILLARDELLA PDAST7X030 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
RAILLARDIOPSIS MUIRII MUIR'S RAILLARDELLA PDASTDU010 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S2.3	**List:** 1B **Code:** 213
RAILLARDIOPSIS SCABRIDA SCABRID RAILLARDELLA PDASTDU020 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
RANUNCULUS HYDROCHAROIDES FROG'S-BIT BUTTERCUP PDRAN0L190 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4G5 **State:** SH	**List:** 1A **Code:** *
RANUNCULUS LOBBII LOBB'S AQUATIC BUTTERCUP PDRAN0L1J0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.2	**List:** 4 **Code:** 123
RHUS TRILOBATA VAR SIMPLICIFOLIA SINGLE-LEAVED SKUNKBRUSH PDANA080B5 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T? **State:** S1.3?	**List:** 2 **Code:** 311
RHYNCHOSPORA ALBA WHITE BEAKED-RUSH PMCYP0N010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5 **State:** S3.3	**List:** 4 **Code:** 111
RHYNCHOSPORA CALIFORNICA CALIFORNIA BEAKED-RUSH PMCYP0N060 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
RHYNCHOSPORA GLOBULARIS VAR GLOBULARIS ROUND-HEADED BEAKED-RUSH PMCYP0N0W1 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T5? **State:** S1.1	**List:** 2 **Code:** 331
RIBES AMARUM VAR HOFFMANNII BITTER GOOSEBERRY PDGRO02012 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G?T2T3 **State:** S2S3	**List:** 3 **Code:** ??3
RIBES CANTHARIFORME MORENO CURRANT PDGRO02070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313

Scientific Name, Common Name, Element Code	Listing Status		Rank		CNPS	
RIBES DIVARICATUM VAR PARISHII	**Federal:**	Species of concern	**Global:**	G4T1	**List:**	1B
PARISH'S GOOSEBERRY	**State:**	None	**State:**	S1.1	**Code:**	333
PDGRO020F3 **Records in NDDB:** *Yes*						
RIBES HUDSONIANUM VAR PETIOLARE	**Federal:**	None	**Global:**	G5T3T4	**List:**	2
WESTERN BLACK CURRANT	**State:**	None	**State:**	S1.3	**Code:**	311
PDGRO020N2 **Records in NDDB:** *Yes*						
RIBES LAXIFLORUM	**Federal:**	None	**Global:**	G5	**List:**	4
TRAILING BLACK CURRANT	**State:**	None	**State:**	S3.3	**Code:**	111
PDGRO020V0 **Records in NDDB:** *No*						
RIBES MARSHALLII	**Federal:**	None	**Global:**	G4	**List:**	4
MARSHALL'S GOOSEBERRY	**State:**	None	**State:**	S3.3	**Code:**	112
PDGRO020Z0 **Records in NDDB:** *No*						
RIBES MENZIESII VAR IXODERME	**Federal:**	None	**Global:**	G4T3	**List:**	4
AROMATIC CANYON GOOSEBERRY	**State:**	None	**State:**	S3.2	**Code:**	123
PDGRO02104 **Records in NDDB:** *No*						
RIBES SERICEUM	**Federal:**	None	**Global:**	G3	**List:**	4
SANTA LUCIA GOOSEBERRY	**State:**	None	**State:**	S3.3	**Code:**	113
PDGRO021F0 **Records in NDDB:** *No*						
RIBES THACHERIANUM	**Federal:**	Species of concern	**Global:**	G2	**List:**	1B
SANTA CRUZ ISLAND GOOSEBERRY	**State:**	None	**State:**	S2.2	**Code:**	223
PDGRO02109 **Records in NDDB:** *Yes*						
RIBES TULARENSE	**Federal:**	Species of concern	**Global:**	G2	**List:**	1B
SEQUOIA GOOSEBERRY	**State:**	None	**State:**	S2.2	**Code:**	313
PDGRO021L0 **Records in NDDB:** *Yes*						
RIBES VIBURNIFOLIUM	**Federal:**	None	**Global:**	G3	**List:**	4
SANTA CATALINA ISLAND CURRANT	**State:**	None	**State:**	S3.3	**Code:**	112
PDGRO021P0 **Records in NDDB:** *No*						
RIBES VICTORIS	**Federal:**	None	**Global:**	G3	**List:**	4
VICTOR'S GOOSEBERRY	**State:**	None	**State:**	S3.3	**Code:**	113
PDGRO021Q0 **Records in NDDB:** *No*						
ROMNEYA COULTERI	**Federal:**	None	**Global:**	G3	**List:**	4
COULTER'S MATILIJA POPPY	**State:**	None	**State:**	S3.2	**Code:**	123
PDPAP0L010 **Records in NDDB:** *No*						
RORIPPA COLUMBIAE	**Federal:**	Species of concern	**Global:**	G3	**List:**	1B
COLUMBIA YELLOW CRESS	**State:**	None	**State:**	S1.1	**Code:**	322
PDBRA27060 **Records in NDDB:** *Yes*						
RORIPPA GAMBELII	**Federal:**	Endangered	**Global:**	G1	**List:**	1B
GAMBEL'S WATER CRESS	**State:**	Threatened	**State:**	S1.1	**Code:**	332
PDBRA270V0 **Records in NDDB:** *Yes*						
RORIPPA SUBUMBELLATA	**Federal:**	Candidate	**Global:**	G1	**List:**	1B
TAHOE YELLOW CRESS	**State:**	Endangered	**State:**	S1.1	**Code:**	332
PDBRA270M0 **Records in NDDB:** *Yes*						
ROSA MINUTIFOLIA	**Federal:**	Species of concern	**Global:**	G3	**List:**	2
SMALL-LEAVED ROSE	**State:**	Endangered	**State:**	S1.1	**Code:**	331
PDROS1J1B0 **Records in NDDB:** *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
RUBUS GLAUCIFOLIUS VAR GANDERI CUYAMACA RASPBERRY PDROS1K2N1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1Q S1.2	List: Code:	1B 313
RUBUS NIVALIS SNOW DWARF BRAMBLE PDROS1K4S0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4? S1.3?	List: Code:	2 311
RUMEX VENOSUS WINGED DOCK PDPGN0P1K0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5? S1.3	List: Code:	
RUPERTIA HALLII HALL'S RUPERTIA PDFAB62010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G1 S1.2	List: Code:	1B 323
RUPERTIA RIGIDA PARISH'S RUPERTIA PDFAB62030	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 112
SAGITTARIA SANFORDII SANFORD'S ARROWHEAD PMALI040Q0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S3.2	List: Code:	1B 223
SALIX BEBBIANA GRAY WILLOW PDSAL020E0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2.3?	List: Code:	2 211
SALIX BRACHYCARPA SSP BRACHYCARPA SHORT-FRUITED WILLOW PDSAL020H5	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5 S1.3?	List: Code:	2 311
SALIX DELNORTENSIS DEL NORTE WILLOW PDSAL023F0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 112
SALIX RETICULATA SSP NIVALIS SNOW WILLOW PDSAL022J2	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T? S1.3	List: Code:	2 211
SALVIA BRANDEGEI BRANDEGEE'S SAGE PDLAM1S080	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 222
SALVIA DORRII VAR INCANA FLESHY SAGE PDLAM1S0G8	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5T5Q S1S2	List: Code:	3 ??1
SALVIA EREMOSTACHYA DESERT SAGE PDLAM1S0K0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
SALVIA FUNEREA DEATH VALLEY SAGE PDLAM1S0M0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.3	List: Code:	4 112
SALVIA GREATAE OROCOPIA SAGE PDLAM1S0P0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 213

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
SALVIA MUNZII		Federal:	None	Global:	G3	List:	2
MUNZ'S SAGE		State:	None	State:	S2.2	Code:	221
PDLAM1S140	Records in NDDB: *Yes*						
SANGUISORBA OFFICINALIS		Federal:	None	Global:	G5?	List:	2
GREAT BURNET		State:	None	State:	S2.2	Code:	221
PDROS1L060	Records in NDDB: *Yes*						
SANICULA HOFFMANNII		Federal:	None	Global:	G3	List:	4
HOFFMANN'S SANICLE		State:	None	State:	S3.3	Code:	113
PDAPI1Z090	Records in NDDB: *No*						
SANICULA MARITIMA		Federal:	Species of concern	Global:	G2	List:	1B
ADOBE SANICLE		State:	Rare	State:	S2.2	Code:	333
PDAPI1Z0D0	Records in NDDB: *Yes*						
SANICULA PECKIANA		Federal:	None	Global:	G4	List:	4
PECK'S SANICLE		State:	None	State:	S3.3	Code:	111
PDAPI1Z0E0	Records in NDDB: *No*						
SANICULA SAXATILIS		Federal:	Species of concern	Global:	G2	List:	1B
ROCK SANICLE		State:	Rare	State:	S2.2	Code:	323
PDAPI1Z0H0	Records in NDDB: *Yes*						
SANICULA TRACYI		Federal:	Species of concern	Global:	G3	List:	1B
TRACY'S SANICLE		State:	None	State:	S3.2	Code:	123
PDAPI1Z0K0	Records in NDDB: *Yes*						
SANVITALIA ABERTII		Federal:	None	Global:	G5	List:	2
ABERT'S SANVITALIA		State:	None	State:	S1S2	Code:	321
PDAST89010	Records in NDDB: *Yes*						
SATUREJA CHANDLERI		Federal:	None	Global:	G4	List:	4
SAN MIGUEL SAVORY		State:	None	State:	S3.2?	Code:	122
PDLAM08030	Records in NDDB: *Yes*						
SAUSSUREA AMERICANA		Federal:	None	Global:	G5	List:	2
AMERICAN SAW-WORT		State:	None	State:	S1.2?	Code:	321
PDAST8B020	Records in NDDB: *Yes*						
SAXIFRAGA CESPITOSA		Federal:	None	Global:	G5	List:	2
TUFTED SAXIFRAGE		State:	None	State:	S1.3	Code:	311
PDSAX0U0C0	Records in NDDB: *Yes*						
SAXIFRAGA HOWELLII		Federal:	None	Global:	G4	List:	4
HOWELL'S SAXIFRAGE		State:	None	State:	S3.3	Code:	111
PDSAX0U0T0	Records in NDDB: *No*						
SAXIFRAGA NUTTALLII		Federal:	None	Global:	G4?	List:	2
NUTTALL'S SAXIFRAGE		State:	None	State:	S1.1	Code:	331
PDSAX0U160	Records in NDDB: *Yes*						
SAXIFRAGA RUFIDULA		Federal:	None	Global:	G5?	List:	2
RUSTY SAXIFRAGE		State:	None	State:	S1.3	Code:	311
PDSAX0U1H0	Records in NDDB: *Yes*						
SCHEUCHZERIA PALUSTRIS VAR AMERICANA		Federal:	None	Global:	G5T5	List:	2
AMERICAN SCHEUCHZERIA		State:	None	State:	S1.1	Code:	331
PMSCH02011	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
SCIRPUS CLEMENTIS YOSEMITE BULRUSH PMCYP0Q090	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
SCIRPUS HETEROCHAETUS SLENDER BULRUSH PMCYP0Q0T0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3	List: Code:	2 311
SCIRPUS PUMILUS DWARF BULRUSH PMCYP0Q1B0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S1.2	List: Code:	2 321
SCIRPUS SUBTERMINALIS WATER BULRUSH PMCYP0Q1G0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5 S2S3	List: Code:	2 211
SCLEROCACTUS POLYANCISTRUS MOJAVE FISH-HOOK CACTUS PDCAC0J050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.2	List: Code:	4 122
SCLEROPOGON BREVIFOLIUS BURRO GRASS PMPOA5G010	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3	List: Code:	2 311
SCROPHULARIA ATRATA BLACK-FLOWERED FIGWORT PDSCR1S010	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
SCROPHULARIA VILLOSA SANTA CATALINA FIGWORT PDSCR1S0D0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 323
SCUTELLARIA BOLANDERI SSP AUSTROMONTANA SOUTHERN SKULLCAP PDLAM1U0A1	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4T2 S2.2?	List: Code:	1B 223
SCUTELLARIA GALERICULATA MARSH SKULLCAP PDLAM1U0J0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S2.2?	List: Code:	2 221
SCUTELLARIA HOLMGRENIORUM HOLMGREN'S SKULLCAP PDLAM1U1C0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3Q S2.3	List: Code:	3 312
SCUTELLARIA LATERIFLORA BLUE SKULLCAP PDLAM1U0Q0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.2	List: Code:	2 321
SEDUM ALBOMARGINATUM FEATHER RIVER STONECROP PDCRA0A030	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.2	List: Code:	1B 323
SEDUM DIVERGENS CASCADE STONECROP PDCRA0A0B0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5? S1.3	List: Code:	2 311
SEDUM EASTWOODIAE RED MOUNTAIN STONECROP PDCRA0A1S0	Records in NDDB: *Yes*	Federal: State:	Candidate None	Global: State:	G1 S1.2	List: Code:	1B 323

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
SEDUM LAXUM SSP FLAVIDUM PALE YELLOW STONECROP PDCRA0A0L2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T3Q **State:** S3.3	**List:** 4 **Code:** 113
SEDUM LAXUM SSP HECKNERI HECKNER'S STONECROP PDCRA0A0L3 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3Q **State:** S3.3	**List:** 4 **Code:** 112
SEDUM NIVEUM DAVIDSON'S STONECROP PDCRA0A0R0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
SEDUM OBLANCEOLATUM APPLEGATE STONECROP PDCRA0A0T0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S1.2	**List:** 1B **Code:** 332
SEDUM PARADISUM CANYON CREEK STONECROP PDCRA0A0U3 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 323
SELAGINELLA ASPRELLA BLUISH SPIKE-MOSS PPSEL01060 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5? **State:** S3.3	**List:** 4 **Code:** 112
SELAGINELLA CINERASCENS ASHY SPIKE-MOSS PPSEL01090 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4 **State:** S3.2	**List:** 4 **Code:** 121
SELAGINELLA DENSA VAR SCOPULORUM ROCKY MOUNTAIN SPIKE-MOSS PPSEL010C2 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5T4? **State:** S2S3	**List:** 3 **Code:** ??1
SELAGINELLA EREMOPHILA DESERT SPIKE-MOSS PPSEL010G0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4 **State:** S2.2?	**List:** 2 **Code:** 221
SELAGINELLA LEUCOBRYOIDES MOJAVE SPIKE-MOSS PPSEL010P0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 113
SELINOCARPUS NEVADENSIS DESERT WING-FRUIT PDNYC0F040 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S1.3	**List:** 2 **Code:** 311
SENECIO APHANACTIS RAYLESS RAGWORT PDAST8H060 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G3? **State:** S1.2	**List:** 2 **Code:** 321
SENECIO BERNARDINUS SAN BERNARDINO RAGWORT PDAST8H0E0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2 **State:** S2.2	**List:** 1B **Code:** 223
SENECIO CLEVELANDII VAR CLEVELANDII CLEVELAND'S RAGWORT PDAST8H0R1 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4?T3 **State:** S3.3	**List:** 4 **Code:** 113
SENECIO CLEVELANDII VAR HETEROPHYLLUS RED HILLS RAGWORT PDAST8H0R2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4?T2 **State:** S2.2	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code		Listing Status	Rank	CNPS
SENECIO EURYCEPHALUS VAR LEWISROSEI CUT-LEAVED RAGWORT PDAST8H182	Records in NDDB: *Yes*	Federal: None State: None	Global: G4T2 State: S2.2	List: 1B Code: 323
SENECIO GANDERI GANDER'S RAGWORT PDAST8H1F0	Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G2 State: S2.2	List: 1B Code: 323
SENECIO HYDROPHILOIDES SWEET MARSH RAGWORT PDAST8H400	Records in NDDB: *No*	Federal: None State: None	Global: G5 State: S2S3	List: 3 Code: ??1
SENECIO IONOPHYLLUS TEHACHAPI RAGWORT PDAST8H1T0	Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
SENECIO LAYNEAE LAYNE'S RAGWORT PDAST8H1V0	Records in NDDB: *Yes*	Federal: Threatened State: Rare	Global: G2 State: S2.2	List: 1B Code: 223
SENECIO MACOUNII SISKIYOU MOUNTAINS RAGWORT PDAST8H1Z0	Records in NDDB: *No*	Federal: None State: None	Global: G5 State: S3.3	List: 4 Code: 111
SENECIO PATTERSONENSIS MONO RAGWORT PDAST8H2C0	Records in NDDB: *No*	Federal: None State: None	Global: G3 State: S3.3	List: 4 Code: 113
SENNA COVESII COVES'S CASSIA PDFAB491X0	Records in NDDB: *Yes*	Federal: None State: None	Global: G5? State: S2.2	List: 2 Code: 221
SIBARA FILIFOLIA SANTA CRUZ ISLAND ROCK CRESS PDBRA2A020	Records in NDDB: *Yes*	Federal: Endangered State: None	Global: G1 State: S1.1	List: 1B Code: 333
SIBAROPSIS HAMMITTII HAMMITT'S CLAY-CRESS PDBRA32010	Records in NDDB: *No*	Federal: None State: None	Global: G1G2 State: S1S2	List: Code:
SIDALCEA CALYCOSA SSP RHIZOMATA POINT REYES CHECKERBLOOM PDMAL11012	Records in NDDB: *Yes*	Federal: None State: None	Global: G5T2 State: S2.2	List: 1B Code: 223
SIDALCEA COVILLEI OWENS VALLEY CHECKERBLOOM PDMAL11040	Records in NDDB: *Yes*	Federal: Species of concern State: Endangered	Global: G2 State: S2.1	List: 1B Code: 233
SIDALCEA HICKMANII SSP ANOMALA CUESTA PASS CHECKERBLOOM PDMAL110A1	Records in NDDB: *Yes*	Federal: Species of concern State: Rare	Global: G3T1 State: S1.2	List: 1B Code: 323
SIDALCEA HICKMANII SSP HICKMANII HICKMAN'S CHECKERBLOOM PDMAL110A2	Records in NDDB: *Yes*	Federal: None State: None	Global: G3T2 State: S2.3	List: 1B Code: 213
SIDALCEA HICKMANII SSP PARISHII PARISH'S CHECKERBLOOM PDMAL110A3	Records in NDDB: *Yes*	Federal: Candidate State: Rare	Global: G3T1 State: S1.2	List: 1B Code: 323

Scientific Name, Common Name, Element Code	Records in NDDB	Listing Status: Federal	Listing Status: State	Rank: Global	Rank: State	CNPS List	CNPS Code
SIDALCEA HICKMANII SSP VIRIDIS MARIN CHECKERBLOOM PDMAL110A4	*Yes*	Species of concern	None	G5T2	S2.2?	1B	313
SIDALCEA KECKII KECK'S CHECKERBLOOM PDMAL110D0	*Yes*	Proposed Endangered	None	G1	S1.1	1B	333
SIDALCEA MALACHROIDES MAPLE-LEAVED CHECKERBLOOM PDMAL110E0	*Yes*	None	None	G2?	S2.2	1B	222
SIDALCEA MALVIFLORA SSP PATULA SISKIYOU CHECKERBLOOM PDMAL110F9	*Yes*	Species of concern	None	G5T1	S1.1	1B	322
SIDALCEA NEOMEXICANA SALT SPRING CHECKERBLOOM PDMAL110J0	*Yes*	None	None	G4?	S2S3	2	221
SIDALCEA OREGANA SSP EXIMIA COAST CHECKERBLOOM PDMAL110K9	*Yes*	None	None	G5T1	S1.2	1B	323
SIDALCEA OREGANA SSP HYDROPHILA MARSH CHECKERBLOOM PDMAL110K2	*Yes*	None	None	G5T2	S2?	1B	223
SIDALCEA OREGANA SSP VALIDA KENWOOD MARSH CHECKERBLOOM PDMAL110K5	*Yes*	Endangered	Endangered	G5T1	S1.1	1B	333
SIDALCEA PEDATA BIRD-FOOT CHECKERBLOOM PDMAL110L0	*Yes*	Endangered	Endangered	G1	S1.1	1B	333
SIDALCEA ROBUSTA BUTTE COUNTY CHECKERBLOOM PDMAL110P0	*Yes*	Species of concern	None	G2	S2.2	1B	223
SIDALCEA STIPULARIS SCADDEN FLAT CHECKERBLOOM PDMAL110R0	*Yes*	Species of concern	Endangered	G1	S1.1	1B	333
SILENE CAMPANULATA SSP CAMPANULATA RED MOUNTAIN CATCHFLY PDCAR0U0A2	*Yes*	Species of concern	Endangered	G5T1	S1.2	1B	333
SILENE INVISA CAMOUFLAGE CAMPION PDCAR0U0S0	*No*	None	None	G4	S4.2	4	123
SILENE MARMORENSIS MARBLE MOUNTAIN CAMPION PDCAR0U0Z0	*Yes*	Species of concern	None	G2	S2.2	1B	223
SILENE OCCIDENTALIS SSP LONGISTIPITATA WESTERN CAMPION PDCAR0U161	*No*	Species of concern	None	G4T1Q	S1?	3	??3

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
SILENE SUKSDORFII CASCADE ALPINE CAMPION PDCAR0U1W0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2.3	List: Code:	2 211
SILENE VERECUNDA SSP VERECUNDA SAN FRANCISCO CAMPION PDCAR0U213	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T2 S2.2	List: Code:	1B 323
SMELOWSKIA OVALIS VAR CONGESTA LASSEN PEAK SMELOWSKIA PDBRA2D041	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G5T1 S1.2	List: Code:	1B 323
SMILAX JAMESII ENGLISH PEAK GREENBRIAR PMSMI010D0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G2 S2.3	List: Code:	1B 213
SOLANUM CLOKEYI ISLAND NIGHTSHADE PDSOL0Z281	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
SOLANUM WALLACEI WALLACE'S NIGHTSHADE PDSOL0Z280	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3Q S3.2	List: Code:	4 122
SOLIDAGO GIGANTEA SMOOTH GOLDENROD PDAST8P0Q0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.2?	List: Code:	2 321
SOLIDAGO GUIRADONIS GUIRADO'S GOLDENROD PDAST8P0T0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	4 123
SPARGANIUM NATANS SMALL BUR-REED PMSPA01090	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.3	List: Code:	4 111
SPARTINA GRACILIS ALKALI CORD GRASS PMPOA5S060	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G5 S3.2	List: Code:	4 121
SPHAERALCEA RUSBYI VAR EREMICOLA RUSBY'S DESERT-MALLOW PDMAL140L1	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T1 S1.3	List: Code:	1B 323
SPHENOPHOLIS OBTUSATA PRAIRIE WEDGE GRASS PMPOA5T030	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.2	List: Code:	2 211
STANLEYA VIRIDIFLORA GREEN PRINCE'S PLUME PDBRA2E060	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S2?	List: Code:	
STEBBINSOSERIS DECIPIENS SANTA CRUZ MICROSERIS PDAST6E050	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
STELLARIA LONGIFOLIA LONG-LEAVED STARWORT PDCAR0X0M0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.2	List: Code:	2 321

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
STELLARIA OBTUSA		Federal:	None	Global:	G5	List:	2
OBTUSE STARWORT		State:	None	State:	S2.3?	Code:	311
PDCAR0X0U0	Records in NDDB: *Yes*						
STENOTUS LANUGINOSUS		Federal:	None	Global:	G5	List:	2
WOOLLY STENOTUS		State:	None	State:	S1.2	Code:	321
PDASTCX010	Records in NDDB: *Yes*						
STEPHANOMERIA BLAIRII		Federal:	Species of concern	Global:	G2	List:	1B
BLAIR'S STEPHANOMERIA		State:	None	State:	S2.2	Code:	323
PDAST8U0K0	Records in NDDB: *Yes*						
STREPTANTHUS ALBIDUS SSP ALBIDUS		Federal:	Endangered	Global:	G2T1	List:	1B
METCALF CANYON JEWEL-FLOWER		State:	None	State:	S1.1	Code:	333
PDBRA2G011	Records in NDDB: *Yes*						
STREPTANTHUS ALBIDUS SSP PERAMOENUS		Federal:	Species of concern	Global:	G2T2	List:	1B
MOST BEAUTIFUL JEWEL-FLOWER		State:	None	State:	S2.2	Code:	223
PDBRA2G012	Records in NDDB: *Yes*						
STREPTANTHUS BATRACHOPUS		Federal:	Species of concern	Global:	G1	List:	1B
TAMALPAIS JEWEL-FLOWER		State:	None	State:	S1.2	Code:	313
PDBRA2G050	Records in NDDB: *Yes*						
STREPTANTHUS BERNARDINUS		Federal:	None	Global:	G2	List:	1B
LAGUNA MOUNTAINS JEWEL-FLOWER		State:	None	State:	S2.3	Code:	212
PDBRA2G060	Records in NDDB: *Yes*						
STREPTANTHUS BRACHIATUS SSP BRACHIATUS		Federal:	Species of concern	Global:	G2T1	List:	1B
SOCRATES MINE JEWEL-FLOWER		State:	None	State:	S1.2	Code:	323
PDBRA2G072	Records in NDDB: *Yes*						
STREPTANTHUS BRACHIATUS SSP HOFFMANII		Federal:	Species of concern	Global:	G2T1	List:	1B
FREED'S JEWEL-FLOWER		State:	None	State:	S1.2	Code:	323
PDBRA2G071	Records in NDDB: *Yes*						
STREPTANTHUS CALLISTUS		Federal:	Species of concern	Global:	G1	List:	1B
MT. HAMILTON JEWEL-FLOWER		State:	None	State:	S1.3	Code:	313
PDBRA2G0A0	Records in NDDB: *Yes*						
STREPTANTHUS CAMPESTRIS		Federal:	None	Global:	G2	List:	1B
SOUTHERN JEWEL-FLOWER		State:	None	State:	S2.3	Code:	212
PDBRA2G0B0	Records in NDDB: *Yes*						
STREPTANTHUS CORDATUS VAR PIUTENSIS		Federal:	Species of concern	Global:	G5T1	List:	1B
PIUTE MOUNTAINS JEWEL-FLOWER		State:	None	State:	S1.2	Code:	323
PDBRA2G0D2	Records in NDDB: *Yes*						
STREPTANTHUS DREPANOIDES		Federal:	None	Global:	G3	List:	4
SICKLE-FRUIT JEWEL-FLOWER		State:	None	State:	S3.3	Code:	113
PDBRA2G200	Records in NDDB: *No*						
STREPTANTHUS FARNSWORTHIANUS		Federal:	None	Global:	G3	List:	4
FARNSWORTH'S JEWEL-FLOWER		State:	None	State:	S3.3	Code:	113
PDBRA2G0G0	Records in NDDB: *No*						
STREPTANTHUS FENESTRATUS		Federal:	None	Global:	G2	List:	1B
TEHIPITE VALLEY JEWEL-FLOWER		State:	None	State:	S2.3	Code:	213
PDBRA2G0H0	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
STREPTANTHUS GLANDULOSUS SSP PULCHELLUS MT. TAMALPAIS JEWEL-FLOWER PDBRA2G0J2 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G4T1 **State:** S1.2	**List:** 1B **Code:** 313
STREPTANTHUS GLANDULOSUS VAR HOFFMANII SECUND JEWEL-FLOWER PDBRA2G0J4 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T1Q **State:** S1.3	**List:** 1B **Code:** 313
STREPTANTHUS GRACILIS ALPINE JEWEL-FLOWER PDBRA2G0K0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.3	**List:** 4 **Code:** 113
STREPTANTHUS HISPIDUS MT. DIABLO JEWEL-FLOWER PDBRA2G0M0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.2	**List:** 1B **Code:** 313
STREPTANTHUS HOWELLII HOWELL'S JEWEL-FLOWER PDBRA2G0N0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2 **State:** S1.2	**List:** 1B **Code:** 322
STREPTANTHUS INSIGNIS SSP LYONII ARBURUA RANCH JEWEL-FLOWER PDBRA2G0Q1 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3G4T1 **State:** S1.2	**List:** 1B **Code:** 323
STREPTANTHUS MORRISONII SEE INDIVIDUAL SUBSPECIES! PDBRA2G0S0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2Q **State:** S2	**List:** **Code:**
STREPTANTHUS MORRISONII SSP ELATUS THREE PEAKS JEWEL-FLOWER PDBRA2G0S1 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G2T2 **State:** S2.2	**List:** 1B **Code:** 323
STREPTANTHUS MORRISONII SSP HIRTIFLORUS DORR'S CABIN JEWEL-FLOWER PDBRA2G0S2 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G2T1 **State:** S1.2	**List:** 1B **Code:** 323
STREPTANTHUS MORRISONII SSP KRUCKEBERGII KRUCKEBERG'S JEWEL-FLOWER PDBRA2G0S4 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G2T1 **State:** S1.2	**List:** 1B **Code:** 323
STREPTANTHUS MORRISONII SSP MORRISONII MORRISON'S JEWEL-FLOWER PDBRA2G0S3 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G2T2 **State:** S2.2	**List:** 1B **Code:** 323
STREPTANTHUS NIGER TIBURON JEWEL-FLOWER PDBRA2G0T0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
STREPTANTHUS OLIGANTHUS MASONIC MOUNTAIN JEWEL-FLOWER PDBRA2G0V0 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G3 **State:** S2.2	**List:** 1B **Code:** 222
STREPTANTHUS SP NOV "PIT RIVER" PIT RIVER JEWEL-FLOWER PDBRA2G300 **Records in NDDB:** *No*	**Federal:** Species of concern **State:** None	**Global:** G1? **State:** S1?	**List:** **Code:**
STYLOCLINE CITROLEUM OIL NESTSTRAW PDAST8Y070 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
STYLOCLINE MASONII		Federal:	Species of concern	Global:	G1	List:	1B
MASON'S NESTSTRAW		State:	None	State:	S1.1	Code:	333
PDAST8Y080	Records in NDDB: *Yes*						
STYLOCLINE SONORENSIS		Federal:	None	Global:	G3G5	List:	2
MESQUITE NESTSTRAW		State:	None	State:	SH	Code:	331
PDAST8Y060	Records in NDDB: *Yes*						
SUAEDA CALIFORNICA		Federal:	Endangered	Global:	G1	List:	1B
CALIFORNIA SEABLITE		State:	None	State:	S1.1	Code:	333
PDCHE0P020	Records in NDDB: *Yes*						
SUAEDA ESTEROA		Federal:	None	Global:	G4	List:	4
ESTUARY SEABLITE		State:	None	State:	S2.2	Code:	121
PDCHE0P0D0	Records in NDDB: *No*						
SUAEDA TAXIFOLIA		Federal:	None	Global:	G3?	List:	4
WOOLLY SEABLITE		State:	None	State:	S2S3	Code:	121
PDCHE0P0L0	Records in NDDB: *No*						
SULCARIA ISIDIIFERA		Federal:	Species of concern	Global:	G1	List:	
SPLITTING YARN LICHEN		State:	None	State:	S1.1	Code:	
NLTEST0020	Records in NDDB: *Yes*						
SWALLENIA ALEXANDRAE		Federal:	Endangered	Global:	G1	List:	1B
EUREKA VALLEY DUNE GRASS		State:	Rare	State:	S1.2	Code:	323
PMPOA5Y010	Records in NDDB: *Yes*						
SWERTIA FASTIGIATA		Federal:	None	Global:	G4?	List:	2
CLUSTERED GREEN GENTIAN		State:	None	State:	S2.2	Code:	321
PDGEN05050	Records in NDDB: *Yes*						
SWERTIA NEGLECTA		Federal:	None	Global:	G3	List:	4
PINE GREEN-GENTIAN		State:	None	State:	S3?	Code:	113
PDGEN05080	Records in NDDB: *No*						
SYNTRICHOPAPPUS LEMMONII		Federal:	None	Global:	G3	List:	4
LEMMON'S SYNTRICHOPAPPUS		State:	None	State:	S3.3	Code:	113
PDAST90020	Records in NDDB: *No*						
SYSTENOTHECA VORTRIEDEI		Federal:	None	Global:	G3	List:	4
VORTRIEDE'S SPINEFLOWER		State:	None	State:	S3.3	Code:	113
PDPGN0W010	Records in NDDB: *No*						
TARAXACUM CALIFORNICUM		Federal:	Endangered	Global:	G2	List:	1B
CALIFORNIA DANDELION		State:	None	State:	S2.2	Code:	323
PDAST93050	Records in NDDB: *Yes*						
TAUSCHIA GLAUCA		Federal:	None	Global:	G4	List:	4
GLAUCOUS TAUSCHIA		State:	None	State:	S3.3	Code:	111
PDAPI27020	Records in NDDB: *No*						
TAUSCHIA HOWELLII		Federal:	Species of concern	Global:	G1	List:	1B
HOWELL'S TAUSCHIA		State:	None	State:	S1.3	Code:	312
PDAPI27050	Records in NDDB: *Yes*						
TETRACOCCUS DIOICUS		Federal:	Species of concern	Global:	G3	List:	1B
PARRY'S TETRACOCCUS		State:	None	State:	S2.2	Code:	322
PDEUP1C010	Records in NDDB: *Yes*						

Scientific Name, Common Name, Element Code	Listing Status	Rank	CNPS
TETRACOCCUS ILICIFOLIUS HOLLY-LEAVED TETRACOCCUS PDEUP1C030 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
TETRADYMIA ARGYRAEA STRIPED HORSEBRUSH PDAST95010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4? **State:** S3.3	**List:** 4 **Code:** 111
TETRADYMIA SPINOSA SPINY HORSEBRUSH PDAST95080 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G5 **State:** S1S2	**List:** **Code:**
TEXOSPORIUM SANCTI-JACOBI WOVEN-SPORED LICHEN NLTEST7980 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G2? **State:** S1.1	**List:** **Code:**
THAMNOLIA VERMICULARIS THAMNOLIA LICHEN NLTES43860 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G? **State:** S1.1	**List:** **Code:**
THELYPODIUM BRACHYCARPUM SHORT-PODDED THELYPODIUM PDBRA2N010 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G3 **State:** S3.2	**List:** 4 **Code:** 122
THELYPODIUM HOWELLII SSP HOWELLII HOWELL'S THEYLPODIUM PDBRA2N051 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2?T1 **State:** S1.3?	**List:** **Code:**
THELYPODIUM MILLEFLORUM THOUSAND-FLOWERED THELYPODIUM PDBRA2N0A0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5 **State:** S2.2?	**List:** **Code:**
THELYPODIUM STENOPETALUM SLENDER-PETALED THELYPODIUM PDBRA2N0F0 **Records in NDDB:** *Yes*	**Federal:** Endangered **State:** Endangered	**Global:** G1 **State:** S1.1	**List:** 1B **Code:** 333
THELYPTERIS PUBERULA VAR SONORENSIS SONORAN MAIDEN FERN PPTHE05192 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G5T3T4 **State:** S2.2?	**List:** 2 **Code:** 221
THERMOPSIS CALIFORNICA VAR ARGENTATA SILVERY FALSE LUPINE PDFAB3Z05A **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4T3Q **State:** S3.3	**List:** 4 **Code:** 113
THERMOPSIS CALIFORNICA VAR SEMOTA VELVETY FALSE LUPINE PDFAB3Z053 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** None	**Global:** G4T2Q **State:** S2.2	**List:** 1B **Code:** 223
THERMOPSIS GRACILIS SLENDER FALSE LUPINE PDFAB3Z0C0 **Records in NDDB:** *No*	**Federal:** None **State:** None	**Global:** G4Q **State:** S3.3	**List:** 4 **Code:** 111
THERMOPSIS MACROPHYLLA SANTA YNEZ FALSE LUPINE PDFAB3Z050 **Records in NDDB:** *Yes*	**Federal:** Species of concern **State:** Rare	**Global:** G1 **State:** S1.3	**List:** 1B **Code:** 313
THERMOPSIS ROBUSTA ROBUST FALSE LUPINE PDFAB3Z0D0 **Records in NDDB:** *Yes*	**Federal:** None **State:** None	**Global:** G2Q **State:** S2.2	**List:** 1B **Code:** 223

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
THLASPI CALIFORNICUM		Federal:	Proposed Endangered	Global:	G1	List:	1B
KNEELAND PRAIRIE PENNYCRESS		State:	None	State:	S1.1	Code:	333
PDBRA2P041	Records in NDDB: *Yes*						
THYSANOCARPUS CONCHULIFERUS		Federal:	Endangered	Global:	G1	List:	1B
SANTA CRUZ ISLAND FRINGEPOD		State:	None	State:	S1.2	Code:	323
PDBRA2Q060	Records in NDDB: *Yes*						
TIARELLA TRIFOLIATA VAR TRIFOLIATA		Federal:	None	Global:	G5T5	List:	3
TRIFOLIATE LACEFLOWER		State:	None	State:	S2S3	Code:	??1
PDSAX10031	Records in NDDB: *No*						
TONESTUS EXIMIUS		Federal:	None	Global:	G4	List:	4
TAHOE TONESTUS		State:	None	State:	S3.3	Code:	111
PDASTE0030	Records in NDDB: *No*						
TONESTUS LYALLII		Federal:	None	Global:	G5	List:	2
LYALL'S TONESTUS		State:	None	State:	S1.3?	Code:	311
PDASTE0050	Records in NDDB: *Yes*						
TOWNSENDIA PARRYI		Federal:	None	Global:	G4?	List:	2
PARRY'S TOWNSENDIA		State:	None	State:	S1.3?	Code:	311
PDAST9C0J0	Records in NDDB: *Yes*						
TRACYINA ROSTRATA		Federal:	None	Global:	G1	List:	1B
BEAKED TRACYINA		State:	None	State:	S1.1	Code:	313
PDAST9D010	Records in NDDB: *Yes*						
TRICHOCORONIS WRIGHTII VAR WRIGHTII		Federal:	None	Global:	G5T5?	List:	2
WRIGHT'S TRICHOCORONIS		State:	None	State:	S1.1	Code:	331
PDAST9F031	Records in NDDB: *Yes*						
TRICHOSTEMA AUSTROMONTANUM SSP COMPACTUM		Federal:	Threatened	Global:	G5T1	List:	1B
HIDDEN LAKE BLUECURLS		State:	None	State:	S1.1	Code:	333
PDLAM22022	Records in NDDB: *Yes*						
TRICHOSTEMA MICRANTHUM		Federal:	None	Global:	G4	List:	4
SMALL-FLOWERED BLUECURLS		State:	None	State:	S3.3	Code:	111
PDLAM22080	Records in NDDB: *No*						
TRICHOSTEMA OVATUM		Federal:	None	Global:	G3	List:	4
SAN JOAQUIN BLUECURLS		State:	None	State:	S3.2	Code:	123
PDLAM220A0	Records in NDDB: *No*						
TRICHOSTEMA RUBISEPALUM		Federal:	None	Global:	G3	List:	4
HERNANDEZ BLUECURLS		State:	None	State:	S3.3	Code:	113
PDLAM220C0	Records in NDDB: *No*						
TRIENTALIS ARCTICA		Federal:	None	Global:	G5	List:	2
ARCTIC STARFLOWER		State:	None	State:	S1.2	Code:	321
PDPRI0A030	Records in NDDB: *Yes*						
TRIFOLIUM AMOENUM		Federal:	Endangered	Global:	G1	List:	1B
SHOWY INDIAN CLOVER		State:	None	State:	S1.1	Code:	333
PDFAB40040	Records in NDDB: *Yes*						
TRIFOLIUM BOLANDERI		Federal:	Species of concern	Global:	G3	List:	4
BOLANDER'S CLOVER		State:	None	State:	S3.3	Code:	113
PDFAB400G0	Records in NDDB: *No*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
TRIFOLIUM BUCKWESTIORUM SANTA CRUZ CLOVER PDFAB402W0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
TRIFOLIUM GRACILENTUM VAR PALMERI SOUTHERN ISLAND CLOVER PDFAB40102	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S3.2	**List:** **Code:**	4 122
TRIFOLIUM HOWELLII HOWELL'S CLOVER PDFAB40140	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S3.3	**List:** **Code:**	4 111
TRIFOLIUM JOKERSTII BUTTE COUNTY GOLDEN CLOVER PDFAB40310	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G1 S1.2	**List:** **Code:**	
TRIFOLIUM LEMMONII LEMMON'S CLOVER PDFAB401C0	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4? S3.3	**List:** **Code:**	4 112
TRIFOLIUM MACILENTUM VAR DEDECKERAE DEDECKER'S CLOVER PDFAB400Q0	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G?T2 S2.3	**List:** **Code:**	1B 313
TRIFOLIUM POLYODON PACIFIC GROVE CLOVER PDFAB402H0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern Rare	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
TRIFOLIUM TRICHOCALYX MONTEREY CLOVER PDFAB402J0	**Records in NDDB:** *Yes*	**Federal:** **State:**	Endangered Endangered	**Global:** **State:**	G1 S1.1	**List:** **Code:**	1B 333
TRILLIUM OVATUM SSP OETTINGERI SALMON MOUNTAINS WAKEROBIN PMLIL200M1	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G5T3 S3.2	**List:** **Code:**	4 123
TRIMORPHA ACRIS VAR DEBILIS NORTHERN DAISY PDASTE1012	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G5T4 S2S3	**List:** **Code:**	2 211
TRIPHYSARIA FLORIBUNDA SAN FRANCISCO OWL'S-CLOVER PDSCR2T010	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G2 S2.2	**List:** **Code:**	1B 223
TRIPTEROCALYX CRUX-MALTAE KELLOGG'S SANDVERBENA PDNYC0G020	**Records in NDDB:** *Yes*	**Federal:** **State:**	None None	**Global:** **State:**	G4 S1.2	**List:** **Code:**	
TRITELEIA CLEMENTINA SAN CLEMENTE ISLAND TRITELEIA PMLIL21020	**Records in NDDB:** *Yes*	**Federal:** **State:**	Species of concern None	**Global:** **State:**	G1 S1.2	**List:** **Code:**	1B 323
TRITELEIA CROCEA VAR CROCEA YELLOW TRITELEIA PMLIL21031	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T4 S3.3	**List:** **Code:**	4 112
TRITELEIA CROCEA VAR MODESTA TRINITY MOUNTAINS TRITELEIA PMLIL21032	**Records in NDDB:** *No*	**Federal:** **State:**	None None	**Global:** **State:**	G4T3 S3.3	**List:** **Code:**	4 113

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
TRITELEIA GRANDIFLORA SSP HOWELLII		Federal:	None	Global:	G5T5?	List:	
HOWELL'S TRITELEIA		State:	None	State:	S1.2?	Code:	
PMLIL21080	Records in NDDB: *Yes*						
TRITELEIA HENDERSONII VAR HENDERSONII		Federal:	None	Global:	G?T2?	List:	2
HENDERSON'S TRITELEIA		State:	None	State:	S1.2	Code:	321
PMLIL21073	Records in NDDB: *Yes*						
TRITELEIA IXIOIDES SSP COOKII		Federal:	None	Global:	G5T3	List:	4
COOK'S TRITELEIA		State:	None	State:	S3.3	Code:	113
PMLIL210A2	Records in NDDB: *No*						
TROPIDOCARPUM CAPPARIDEUM		Federal:	Species of concern	Global:	GH	List:	1A
CAPER-FRUITED TROPIDOCARPUM		State:	None	State:	SH	Code:	*
PDBRA2R010	Records in NDDB: *Yes*						
TUCTORIA GREENEI		Federal:	Endangered	Global:	G2	List:	1B
GREENE'S TUCTORIA		State:	Rare	State:	S2.2	Code:	233
PMPOA6N010	Records in NDDB: *Yes*						
TUCTORIA MUCRONATA		Federal:	Endangered	Global:	G1	List:	1B
CRAMPTON'S TUCTORIA		State:	Endangered	State:	S1.1	Code:	333
PMPOA6N020	Records in NDDB: *Yes*						
VACCINIUM COCCINEUM		Federal:	None	Global:	G5Q	List:	3
SISKIYOU MOUNTAINS HUCKLEBERRY		State:	None	State:	S2.2?	Code:	21?
PDERI181N0	Records in NDDB: *No*						
VACCINIUM SCOPARIUM		Federal:	None	Global:	G5	List:	2
LITTLE-LEAVED HUCKLEBERRY		State:	None	State:	S2.2?	Code:	221
PDERI180Y0	Records in NDDB: *Yes*						
VANCOUVERIA CHRYSANTHA		Federal:	None	Global:	G4	List:	4
SISKIYOU INSIDE-OUT-FLOWER		State:	None	State:	S3.3	Code:	212
PDBER09010	Records in NDDB: *No*						
VERATRUM FIMBRIATUM		Federal:	None	Global:	G3	List:	4
FRINGED FALSE HELLEBORE		State:	None	State:	S3.3	Code:	113
PMLIL25030	Records in NDDB: *No*						
VERATRUM INSOLITUM		Federal:	None	Global:	G4	List:	4
SISKIYOU FALSE HELLEBORE		State:	None	State:	S3.3	Code:	111
PMLIL25040	Records in NDDB: *No*						
VERBENA CALIFORNICA		Federal:	Threatened	Global:	G2	List:	1B
CALIFORNIA VERVAIN		State:	Threatened	State:	S2.1	Code:	333
PDVER0N050	Records in NDDB: *Yes*						
VERBESINA DISSITA		Federal:	Threatened	Global:	G3	List:	1B
CROWNBEARD		State:	Threatened	State:	S1.1	Code:	332
PDAST9R050	Records in NDDB: *Yes*						
VERONICA COPELANDII		Federal:	None	Global:	G3	List:	4
COPELAND'S SPEEDWELL		State:	None	State:	S3.3	Code:	113
PDSCR200B0	Records in NDDB: *No*						
VERONICA CUSICKII		Federal:	None	Global:	G5	List:	4
CUSICK'S SPEEDWELL		State:	None	State:	S3.3	Code:	111
PDSCR200C0	Records in NDDB: *No*						

Scientific Name, Common Name, Element Code		Listing Status		Rank		CNPS	
VIGUIERA LACINIATA SAN DIEGO COUNTY VIGUIERA PDAST9T060	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4 S3.2	List: Code:	4 121
VIOLA AUREA GOLDEN VIOLET PDVIO04420	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3G4 S2S3	List: Code:	2 221
VIOLA LANGSDORFII LANGSDORF'S VIOLET PDVIO04100	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4 S1.1	List: Code:	2 331
VIOLA PALUSTRIS MARSH VIOLET PDVIO041G0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1S2	List: Code:	2 321
VIOLA PINETORUM SSP GRISEA GREY-LEAVED VIOLET PDVIO04431	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G4G5T1 S1.3	List: Code:	1B 313
VIOLA PRIMULIFOLIA SSP OCCIDENTALIS WESTERN BOG VIOLET PDVIO040Y2	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G4T2 S2.2	List: Code:	1B 222
VIOLA TOMENTOSA WOOLLY VIOLET PDVIO04280	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G3 S3.2	List: Code:	1B 223
WISLIZENIA REFRACTA SSP REFRACTA JACKASS-CLOVER PDCPP09013	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5T5? S1.2?	List: Code:	2 321
WOODSIA PLUMMERAE PLUMMER'S WOODSIA PPDRY0U0A0	Records in NDDB: *Yes*	Federal: State:	None None	Global: State:	G5 S1.3?	List: Code:	2 311
WYETHIA ELATA HALL'S WYETHIA PDAST9X050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
WYETHIA LONGICAULIS HUMBOLDT COUNTY WYETHIA PDAST9X0A0	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G3 S3.3	List: Code:	4 113
WYETHIA RETICULATA EL DORADO COUNTY MULE EARS PDAST9X0D0	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
XYLORHIZA COGNATA MECCA-ASTER PDASTA1010	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G2 S2.2	List: Code:	1B 223
XYLORHIZA ORCUTTII ORCUTT'S WOODY-ASTER PDASTA1040	Records in NDDB: *Yes*	Federal: State:	Species of concern None	Global: State:	G3 S2.2	List: Code:	1B 222
ZIGADENUS MICRANTHUS VAR FONTANUS SEEP DEATH CAMAS PMLIL28050	Records in NDDB: *No*	Federal: State:	None None	Global: State:	G4T3? S3?	List: Code:	

Appendix 8.6

NOISE MEASUREMENTS

NOISE MEASUREMENT FORM

PROJECT: IEUA PEIR
ENGINEER: T. Luc
DATE: 3/5/02

LOCATION: RP-1 SE CORNER
SITE NO.:

SOUND LEVEL METER: LD 870
MICROPHONE: 1/2"
PRE AMP:
NOTES:

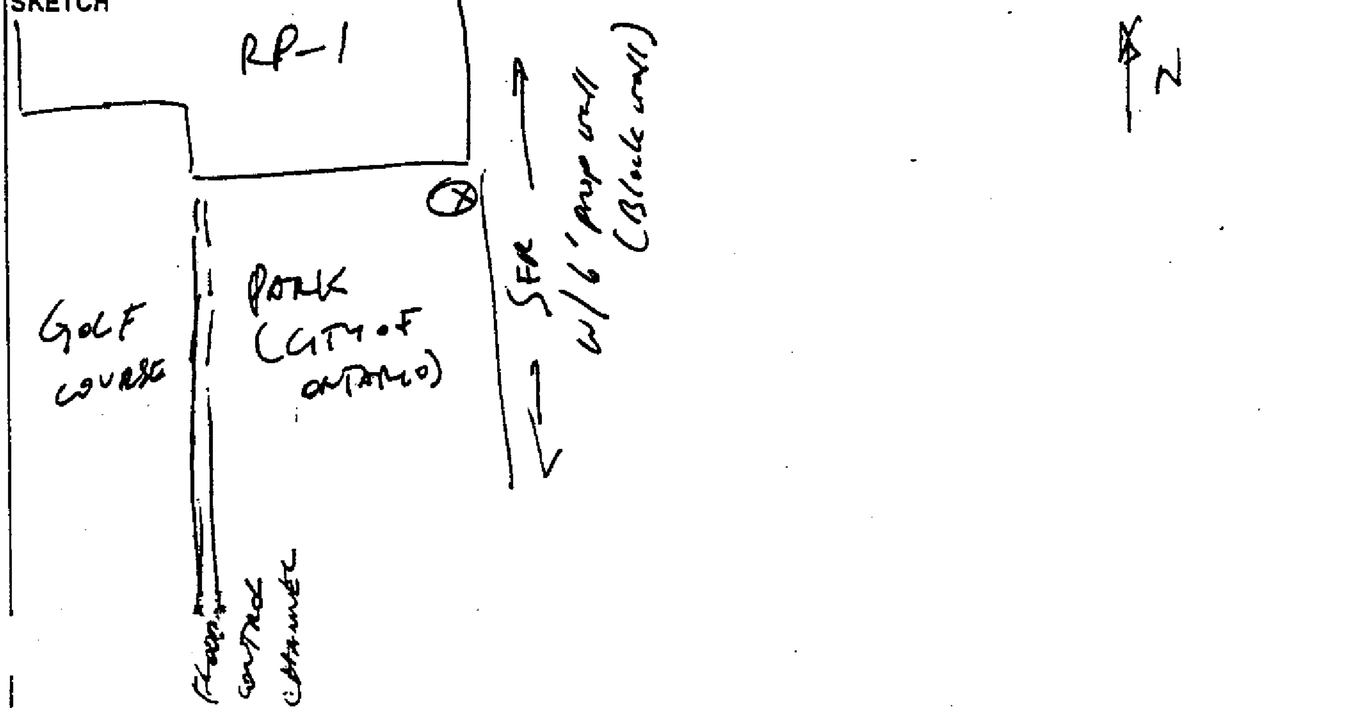
SERIAL #:
SERIAL #:
SERIAL #:

CALIBRATOR: LD-CA 250
CALIBRATION/OFFSET, dB:
TIME:

METER SETTING: A-WTD ; SLOW

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
10:09	10:25	55.3	51.5	47.7	45.9	43.3	41.9	41.2	57.6	48.0	

SKETCH



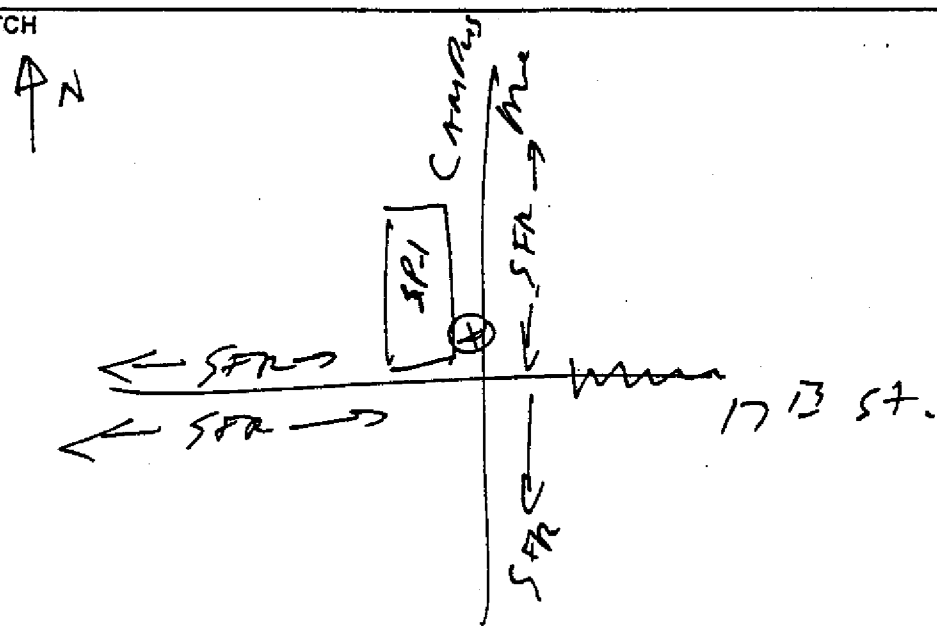
PARSONS ENGINEERING SCIENCE, INC.

NOISE MEASUREMENT FORM

PROJECT: DELA P/ER		ENGINEER: T. Luc	DATE: 3/8/02
LOCATION: SP-1 SITE / Campus Ave @ 17th ST.			SITE NO.: SP-1
SOUND LEVEL METER: LD-870	MICROPHONE: 1/2"	PRE AMP:	NOTES:
SERIAL #:	SERIAL #:	SERIAL #:	
CALIBRATOR: LD-CA250	CALIBRATION/OFFSET, dB:	TIME:	
METER SETTING: A-WTD / SLOW			

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
16:40	16:50	78.9	74.4	72.2	66.9	53.3	49.2	48.5	88.5	71.2	← Traffic on Campus Ave (~45 mph)

SKETCH

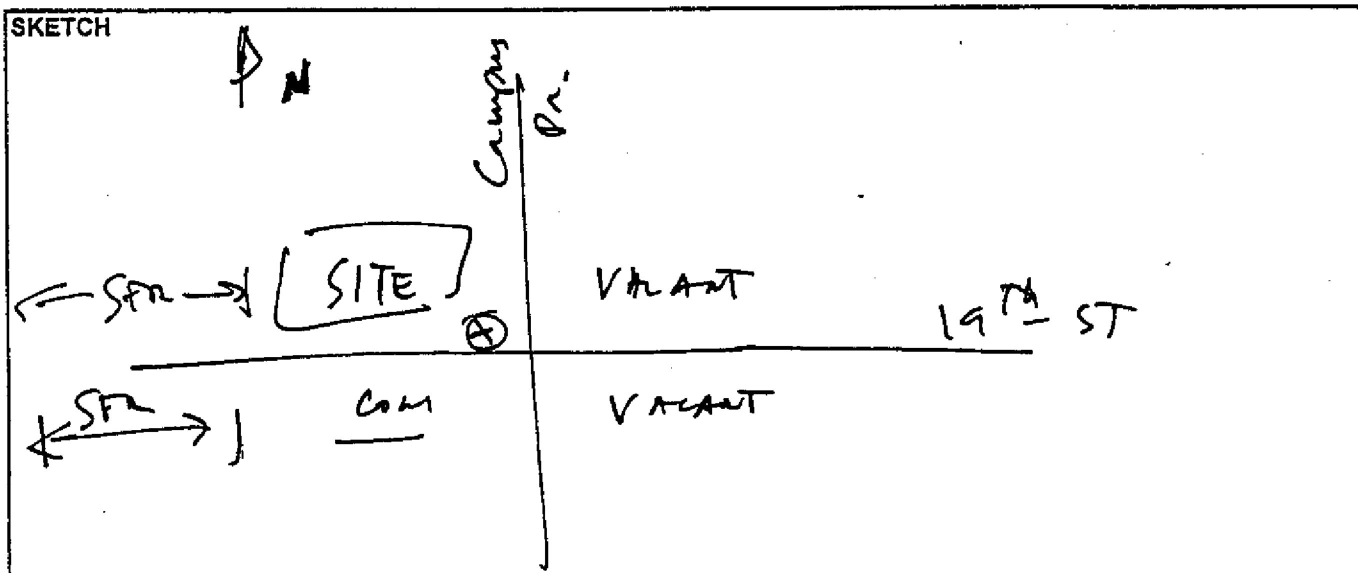


NOISE MEASUREMENT FORM

PROJECT: IEUA P/EIR		ENGINEER: T. Luc	DATE: 3/8/02
LOCATION: SP-2 SITE / 19th + Campus			SITE NO.: SP2
SOUND LEVEL METER: LD 870	MICROPHONE: 1/2"	PRE AMP:	NOTES:
SERIAL #:	SERIAL #:	SERIAL #:	
CALIBRATOR: LD CA 250	CALIBRATION/OFFSET, dB:	TIME:	
METER SETTING: A WTD; SLOW			

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
16:14	16:29	76.8	70.8	68.4	66.0	62.0	58.1	57.9	79.4	68.1	← Traffic on 19th ST. and Campus Ave.

SKETCH



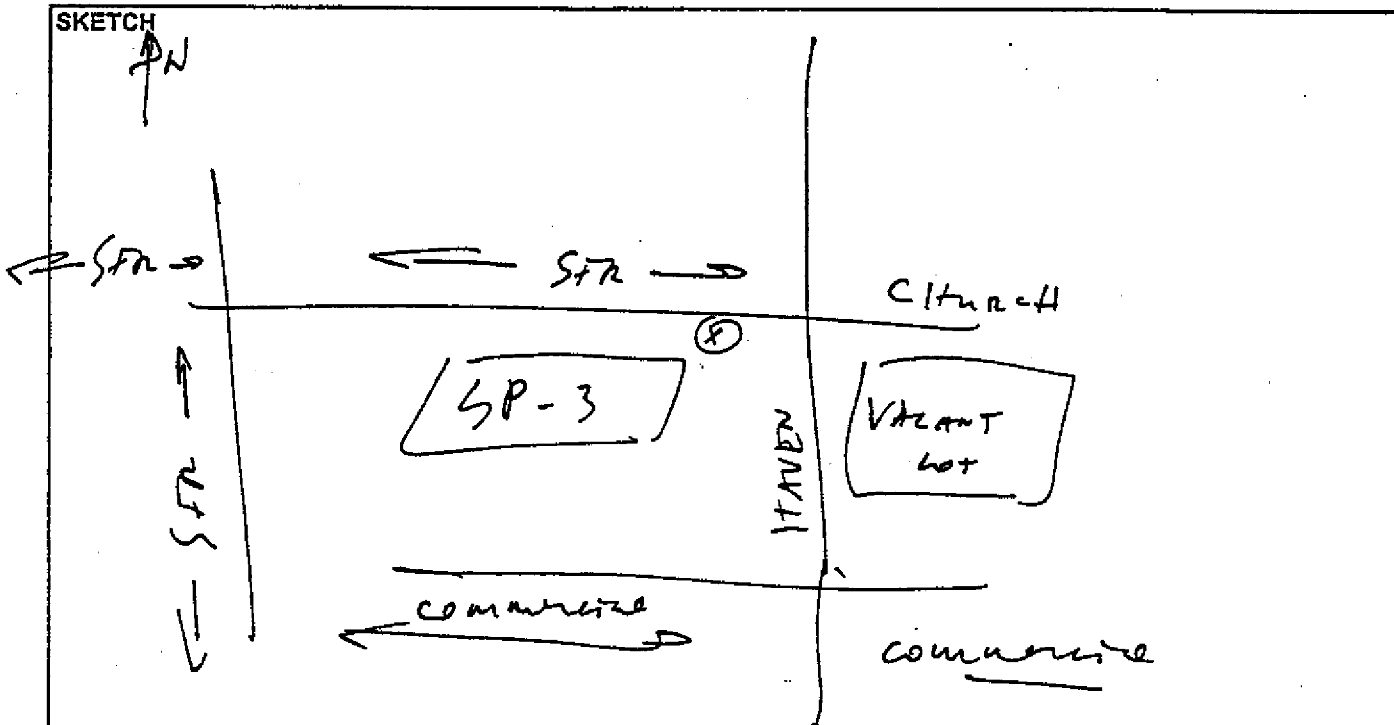
PARSONS ENGINEERING SCIENCE, INC.

NOISE MEASUREMENT FORM

PROJECT: PENA P/E R		ENGINEER: T. Luc		DATE: 3/8/02
LOCATION: SP-3 SITE / Church Rd, W. of Haven Ave				SITE NO.: SP-3
SOUND LEVEL METER: LD 870	MICROPHONE: 1/2"	PRE AMP:	NOTES:	
SERIAL #:	SERIAL #:	SERIAL #:		
CALIBRATOR: LD-CA250	CALIBRATION/OFFSET, dB: 114/114	TIME:		
METER SETTING: A-wtd ; slow				

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
15:30	15:45	76.7	72.5	69.5	66.2	58.1	51.8	50.4	79.1	68.5	← Primary noise source is traffic on Church (2 lane street)

SKETCH



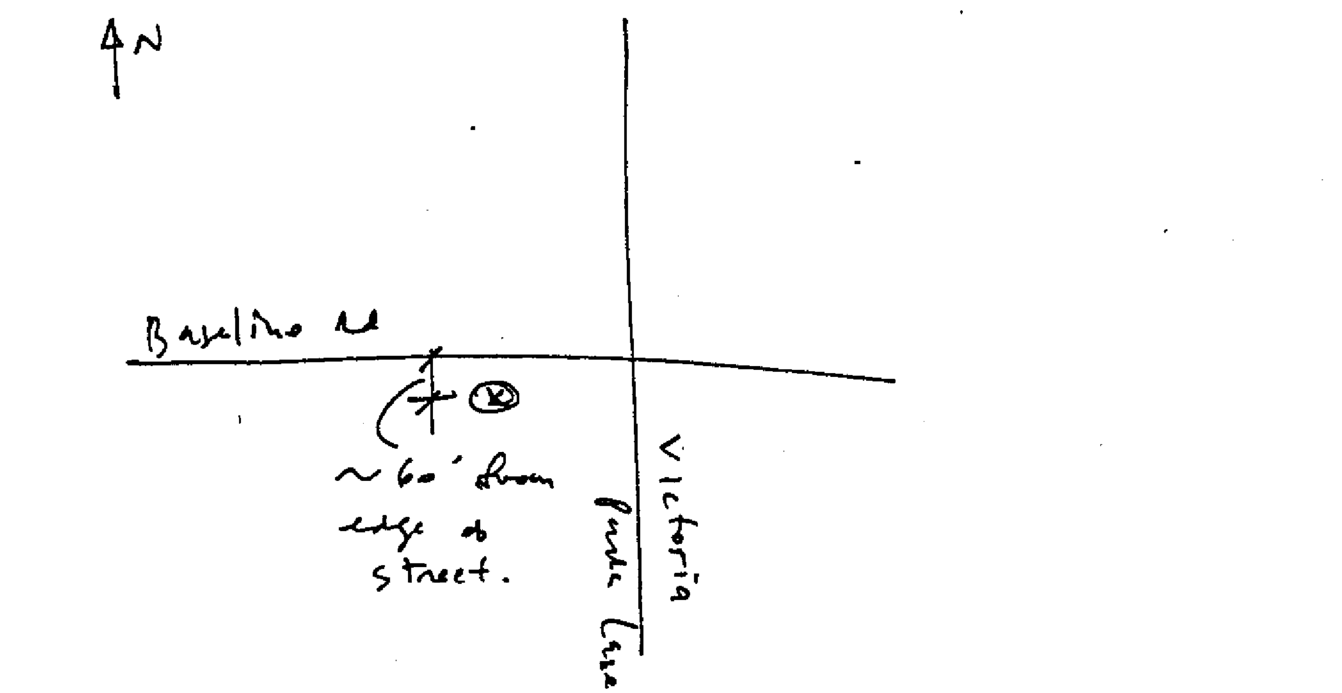
PARSONS ENGINEERING SCIENCE, INC.

NOISE MEASUREMENT FORM

PROJECT: IEUA P/EIR		ENGINEER: T. Luc	DATE: 3/8/02
LOCATION: Potential SP-4 site - Baseline Rd @ Victoria Park Lane			SITE NO.: SP-4
SOUND LEVEL METER: LD 870	MICROPHONE: 1/2"	PRE AMP:	NOTES:
SERIAL #:	SERIAL #:	SERIAL #:	
CALIBRATOR: LD-CA250	CALIBRATION/OFFSET, dB: 114/114	TIME:	
METER SETTING: A-WTD; SLOW			

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
14:40	14:50	73.7	68.8	66.6	64.0	57.3	54.1	53.1	76.6	65.6	← primarily from traffic on Baseline. (~50 mph) when moving.

SKETCH

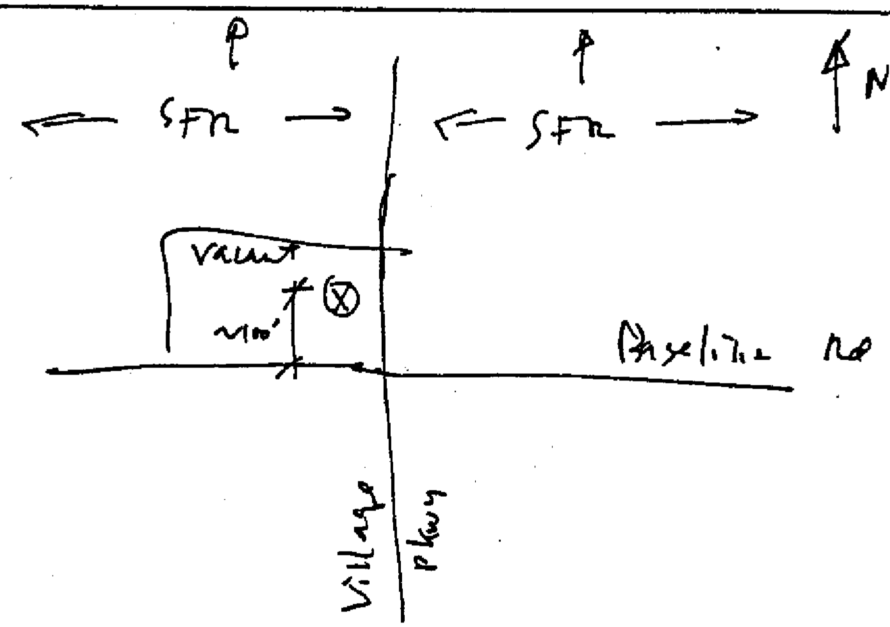


NOISE MEASUREMENT FORM

PROJECT: IEUA 1/EIR		ENGINEER: T-Luc	DATE: 3/8/02
LOCATION: Village Pkwy @ Baseline (Potential SP-8 Site)			SITE NO.:
SOUND LEVEL METER: LD 870	MICROPHONE: 1/2"	PRE AMP:	NOTES:
SERIAL #:	SERIAL #:	SERIAL #:	
CALIBRATOR:	CALIBRATION/OFFSET, dB: 114/114	TIME:	
METER SETTING: A weighted; slow			

TIME START	TIME END	L_1	L_{10}	L_{25}	L_{50}	L_{90}	L_{99}	L_{MIN}	L_{MAX}	L_{eq}	NOTES:
14:10	14:25	68.2	62.8	59.3	55.8	50.1	47.6	46.9	70.6	58.9	Measured at ~5' above ground. Traffic on Baseline + Village Pkwy.

SKETCH



PARSONS ENGINEERING SCIENCE, INC.

Appendix 8.7

WATER QUALITY DATA

8.1.3 Recycled Water Code Regulations

The non-potable use of recycled water is governed by regulations promulgated by the California Department of Health Services (CDHS), Division of Drinking Water and Environmental Health. The current regulations are set forth in Title 22 of the Code of Regulations, Division 4 Environmental Health, Chapter 3 Water Recycling. The "Water Recycling Criteria" were adopted in December 2000, and replace the "Wastewater Reclamation Criteria", that have been in effect since 1978. On April 23, 2001, CDHS published a draft set of recycled water regulations that reflect current CDHS thinking on the use of recycled water to recharge groundwater basins. The draft recharge regulations cover both subsurface injection and surface spreading of recycled water. The treatment requirements of both regulations will be discussed, along with the groundwater modeling requirements being considered in the draft recharge regulations, and the water quality monitoring provisions of both regulations.

8.1.3.1 Regulations and Impacts on Treatment

Existing Title 22 Code of Regulations

The existing regulations specify water quality and treatment requirements for various uses of recycled water. The regulations allow the use of recycled water for irrigation, impoundments, cooling and other purposes. Table 8-1 summarizes the treatment requirements for the allowed recycled water uses specified by the regulations.

Table 8-1

Current Title 22 Recycled Water Treatment Requirements

Regulation Section	Recycled Water Uses		Recycled Water Treatment Requirements			
	General	Specific	Undisinfected Secondary	Disinfected Secondary-23	Disinfected Secondary-2.2	Disinfected Tertiary
60304	Irrigation	Surface Irrigation, Non-Restricted Access				X
		Surface Irrigation, Food Crops			X	X
		Surface Irrigation, Restricted Access		X		X
		Surface Irrigation, Non-Edible Crops	X			X
60305	Impoundments	Non-Restricted Access				X
		Restricted Access			X	X
		Landscape		X		X
60306	Cooling	Misting Type				X
		Non-Misting Type		X		X
60307	Other Purposes	Primary Uses				X
		Secondary Uses		X		X
		Sewer Flushing	X			X

Types of Recycled Water Uses

Surface irrigation with non-restricted access includes the irrigation of food crops (including crops where the recycled water comes into contact with the edible portion of the crop), school yards, parks and playgrounds, residential landscaping, unrestricted access golf courses and other irrigation uses not specifically prohibited by the regulations. Crop irrigation involves the use of recycled water for surface irrigation, where the edible portion of the crop is produced above ground and is not contacted by the recycled water. Surface irrigation with restricted access includes the irrigation of cemeteries, freeway landscaping, restricted access golf courses, ornamental nursery stock, sod farms, pastures and any non-edible vegetation where access is restricted so that the irrigated area cannot be used for a park, playground or school yard. Surface irrigation of non-edible crops includes the irrigation of orchards and vineyards (where the recycled water does not come into contact with the edible portion of the crop), non food-bearing trees, fodder and fiber crops and pasture, seed crops (not eaten by humans) and food crops that undergo commercial pathogen-destroying processing prior to consumption by humans.

The misting type of cooling use includes the use of recycled water for industrial or commercial cooling or air conditioning that involves cooling towers, evaporative condensers, spraying or any mechanism that creates a mist. Non-misting types of cooling include the use of recycled water in cooling towers, evaporative condensers, spraying or any mechanism that do not create a mist.

Under the other use category, the primary recycled water uses include flushing toilets and urinals, priming drain traps; industrial process water (that may come into contact with workers), fire fighting (structural), decorative fountains, commercial laundries, construction backfill compaction (around water pipelines), artificial snow making and commercial car washing. The secondary uses of recycled water include industrial boiler feed, fire fighting (non-structural), construction backfill compaction, soil compaction, dust control, cleaning roadways and sidewalks, and industrial process water (that does not come into contact with workers).

Recycled Water Treatment Provisions

The current Title 22 regulations require four levels of treatment depending on the recycled water use as listed in Table 8-1. Undisinfected secondary recycled water means an oxidized wastewater, in which the organic matter present in the wastewater has been stabilized, is nonputrescible and contains dissolved oxygen.

A disinfected secondary-23 recycled water means a recycled water that is oxidized and disinfected so that the median concentration of total coliform bacteria does not exceed a maximum probable number (MPN) of 23 per 100 millimeters (ml) in any seven day period, and an MPN of 240 per 100 ml in more than one sample during any 30 day period.

A disinfected secondary-2.2 recycled water means a recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected recycled water does not exceed a MPN of 2.2 per 100 ml for any seven day period, and the number of total coliform bacteria does not exceed 23 per 100 ml in more than one sample in any 30 day period.

A disinfected tertiary recycled water, by definition in the regulations, means a filtered and subsequently disinfected wastewater that meets either of the following criteria:

1. Inactivation of bacteria and viruses is accomplished by chlorine disinfection following filtration that provides a CT value of not less than 450 milligram-minutes per liter at all times, with a modal hydraulic contact time of 90 minutes.
2. A disinfection process that, when combined with filtration, accomplishes a 5-log inactivation of bacteria and viruses.

The median concentration of total coliform bacteria measured in the disinfected tertiary recycled water is not to exceed a MPN of 2.2 per 100 ml over a seven day period, and an MPN of 23 per 100 ml in any one sample in any 30 day period. No sample can exceed an MPN of 240 per 100 ml.

The regulations consider a wastewater filtered if it is an oxidized wastewater that is coagulated and passed through either natural undisturbed soils, or a filter media bed that complies with the following requirements:

1. The filtration rate does not exceed 5 gallons per minute per square foot (gpm/sf) of filter media area for mono, dual and mixed media filters, and 2 gpm/sf of filter media area for travelling bridge automatic backwash filters.
2. Turbidity of the filtered wastewater does not exceed an average of 2 nephelometric turbidity unit (NTU) in a 24-hour period; 5 NTU more than 5 percent of the time during a 24-hour period, and 10 NTU at any time.

If the wastewater is passed through a microfiltration, ultrafiltration, nanofiltration or reverse osmosis membrane process, the turbidity of the filtered wastewater cannot exceed 0.2 NTU more than 5 percent of the time in a 24-hour period, or 0.5 NTU at any time.

Draft Title 22 Groundwater Recharge Regulations

The current Title 22 regulations discuss groundwater recharge with reclaimed water in Article 5.1 of Section 60320. The groundwater recharge provisions only allow surface spreading of reclaimed water, and describe how each project will be evaluated by CDHS on case-by-case basis. The draft regulations released by CDHS in April 2001 deal specifically with the recharge of groundwater basins using recycled water. The regulations cover both subsurface injection and surface spreading of recycled water for groundwater basin recharge. Subsurface injection includes both direct injection into the saturated zone of the aquifer and injection into the vadose zone.

Section 60320.010 of the draft regulation establishes the basic wastewater treatment requirements for recycled water used for groundwater recharge projects. The regulations require filtered and disinfected tertiary recycled water, as a minimum, for surface spreading projects. For subsurface injection projects, advanced wastewater treatment using a reverse osmosis process is required. The definitions for filtered and disinfected tertiary recycled water are the same as those in the current Title 22 regulations.

The total nitrogen, regulated contaminant and physical characteristic, and total organic carbon (TOC) provisions in the draft regulations may further influence the level of wastewater treatment needed for regulatory compliance and permitting.

Section 60320.020 describes the total nitrogen control requirements. Total nitrogen is defined in the draft regulations as the summation of ammonia, nitrite, nitrate and organic nitrogen, expressed as nitrogen. It is the intent of the proposed regulations that a maximum total nitrogen concentration be established for recycled water. CDHS has not yet proposed a maximum total nitrogen concentration; however, they have discussed a total nitrogen maximum concentration in the range of 1 mg/L to 10 mg/L. CDHS staff have indicated the total nitrogen maximum concentration will likely established near the 10 mg/L limit. The total nitrogen limit is to be met prior to the recycled water reaching the groundwater table. Therefore nitrogen removal in the soil column during percolation can be taken into account in determining compliance with the maximum concentration limit. Based on current and projected recycled water quality from IEUA's facilities and the estimated nitrogen removal in the soil column, the total nitrogen maximum concentration limit should not limit the amount of recycled water recharged (depending on the wastewater characteristics and the final maximum concentration limit established by CDHS).

Section 60320.030 defines the compliance requirements for recycled water regulated contaminants and physical characteristics. The recycled water must comply with the following water quality criteria, most of which are included in the state's drinking water standards:

1. Primary maximum contaminant levels specified in Chapter 15.
2. Inorganic chemicals in Table 64431-A, except for nitrogen compounds.
3. Radionuclides in Table 4, Section 64443.
4. Organic chemicals in Table 64444-A.
5. Action level for lead in Section 64678, Chapter 15.
6. Regional Water Quality Control Board Water Quality Control Plan water quality objective constituents.
7. Secondary MCLs for the constituents and characteristics set forth in Table 64449-A and B in Chapter 15.
8. Public health goals (PHGs) for regulated compounds.
9. Pending regulations for arsenic, uranium, radon and disinfection by-products.

Section 60320.040 establishes compliance requirements for TOC. The TOC level of the filtered wastewater must not exceed 0.016 g/L for more than two consecutive days. In addition, for surface spreading projects the following criteria are to be met:

1. The TOC level of the recycled water cannot be greater than 0.001 g/L divided by the maximum average recycled water contribution (RWC) for the project specified by CDHS. The RWC represents the fraction of the total applied recharge water that is recycled water. The average RWC cannot exceed 0.5 (i.e., 50 percent), unless CDHS

has approved an alternative maximum average RWC based on demonstration studies and other requirements.

2. If mound monitoring has been approved for the project, then the recycled water TOC level cannot exceed 0.0015 g/L divided by the maximum average RWC specified by CDHS. The applied recycled water TOC level measured in the mound cannot be greater than 0.001 g/L divided by the maximum average RWC specified by CDHS.

If the above criteria cannot be met, then reverse osmosis treatment of the wastewater is required by the regulations.

8.1.3.2 Groundwater Modeling

The draft regulations do not mandate groundwater modeling; however, the regulations contain pathogenic organism control provisions and require specific investigations that may require groundwater modeling to demonstrate compliance with the regulations. Section 60320.010 of the draft regulations establishes the criteria for the control of pathogenic organisms. The criteria are as follows:

1. For surface spreading projects, the applied recycled water must be retained underground for a period of six months prior to extraction for use as a drinking water supply, and cannot be extracted within 500 feet of the point of recharge.
2. For subsurface injection projects, the applied recycled water must be retained underground for a period of nine months prior to extraction for use as a drinking water supply, and cannot be extracted within 2,000 feet of the point of recharge.

The regulations also require the preparation of a project engineering report, described in Section 60320.080 of the draft regulations, that includes a hydrogeologic study. The purpose of the hydrogeologic study is to assess the impacts of the recharge project on the groundwater basin water quality, demonstrate compliance with the pathogenic organism control requirements of Section 60320.010, and define the anticipated average maximum RWC for the project. It is anticipated that groundwater modeling will be required to comply with the engineering report hydrogeologic study requirements. In addition, CDHS may also require tracer studies to validate the projections of the groundwater basin model.

8.1.3.3 Water Quality Monitoring

Both the current Title 22 regulations and the draft recharge regulations contain water quality monitoring provisions. The following sections will discuss the water quality monitoring provisions contained in each regulation.

8.1.3.3.1 Current Title 22 Regulation Water Quality Monitoring

Article 6, Section 60321 of the current Title 22 regulations describe the sampling and analysis requirements for the various levels of recycled water treatment. The regulations require only total coliform bacteria and turbidity monitoring. The monitoring frequency and sampling location for each parameter are summarized in Table 8-2.

Table 8-2

Regulatory Monitoring Requirements

Monitoring Parameter	Sampling Location	Recycled Water Treatment Disinfected Secondary-23	Disinfected Secondary-2.2	Disinfected Tertiary
Total Coliform Bacteria	Disinfected Effluent	Daily	Daily	Daily
Turbidity	Filter Effluent	---	---	Continuous

8.1.3.3.2 Draft Recharge Regulations

The draft regulations require both baseline and operational water quality monitoring to be performed to demonstrate compliance with the regulations. The water quality monitoring includes both the recycled water source for the project and the groundwater. The following sections describe the monitoring requirements for each type of water quality monitoring program.

Baseline Water Quality Monitoring Program

Baseline water quality monitoring should include both the recycled water source for the project and the groundwater. The baseline water quality monitoring requirements for the recycled water source are set forth in the Engineering Report provisions in Section 60320.080 of the regulations. The baseline monitoring program is to be conducted for a period of one year, with quarterly composite or grab samples being collected and analyzed. The collected recycled water samples are to be analyzed for TOC; BOD; suspended solids; total coliform bacteria; total nitrogen; all regulated and unregulated chemicals listed in Sections 64431, 64439, 64441, 64443, 64444, 64449 of Chapter 15 of the Tittle 22 regulations; priority pollutants and chemicals that have state action levels as specified by CDHS, and disinfection by-products.

The draft regulations do not specifically require baseline monitoring of the groundwater; however, it is recommended that baseline groundwater quality be collected to evaluate any impact the operation of the project may have on groundwater basin water quality. The groundwater quality samples should be collected from the closest down gradient existing domestic water supply well to the proposed surface spreading or subsurface injection location. A minimum of one year of groundwater quality data is recommended. The groundwater sample analyses should be the same as that specified for the recycled water source, with the exception of BOD and suspended solids.

Operational Water Quality Monitoring

The draft regulations require that the operational water quality monitoring program for the recharge project be defined in the Engineering Report. The operational water quality monitoring is to include the recycled water source, monitoring wells and the closest down gradient domestic well from the recharge location. Section 60320.070 describes the monitoring well requirements. Monitoring wells are required at locations one-quarter and one-half the distance from the recharge location to the nearest down gradient domestic water supply well. The operational water quality monitoring program requirements are set forth in Table 8-3.

Table 8-3

Operational Water Quality Monitoring Program

	Constituent(s) to be Sampled	Sample Site	Mandatory		Recommended Monitoring Frequency
			Monitoring Frequency	Reporting Frequency	
During Project Operation	Total N	Recycled Water	Weekly	Weekly	
	Total Coliform	Recycled Water	Daily	Weekly	
	Primary Drinking Water Standards for Inorganics, Organics, Radiological, Lead, RWQCB WQO and PHGs	Recycled Water	Quarterly	Yearly Average	
	Secondary Drinking Water Standards	Recycled Water	Yearly	Yearly	
	Total Organic Carbon (TOC)	Recycled Water	Daily	30-Day Running Average	
	Endocrine Disrupting Chemicals	Recycled Water	Yearly	Yearly	
	Unregulated Chemicals & Priority Pollutants	Recycled Water	Quarterly	Quarterly	
	TOC, Total N, Primary Drinking Water Standards for Inorganics and Organics and Total Coliform	Monitoring Wells @ 25% & 50% Nearest to Recharge Basin	Quarterly	Quarterly	
	All Constituents, Except TOC, RWQCB WQO, Endocrine Disrupting Chemicals & DBPs	All Domestic Wells	3 Year Cycle	3 Year Cycle	
	Total N, TOC, Endocrine Disrupting Chemicals, RWQCB WQO & DBPs	Target Domestic Wells (Untreated)			Quarterly

Notes:
1. PHG = Public Health Goal constituents.
2. RWQCB WQO = Regional Water Quality Control Board Water Quality Objectives.
3. DBPs = Disinfection By-Products.

The primary drinking water standards for inorganics includes the compounds listed in Table 64431-A in Chapter 15 of the California Code of Regulations (CCR).

The primary drinking water standards for organics includes the volatile and non-volatile organic compounds listed in Table 64444-A in Chapter 15 of the CCR..

Radiological constituents are to include gross alpha and beta particle activity, combined radium-226 and radium-228, strontium-90, tritium and uranium.

The California Regional Water Quality Control Board, Santa Ana Region has developed a Water Quality Control Plan for the Santa Ana River Basin (8). The plan establishes specific groundwater quality objectives for the Chino I, Chino II and Chino III subbasins of the Chino Basin. All three subbasins have a MUN beneficial use. Accordingly, the water quality objectives include arsenic, total coliform bacteria, barium, boron, chloride, color, cyanide, TDS, fluoride, hardness, MBAS, metals, nitrate, oil and grease, pH, radioneuclides, sodium, sulfate and taste and odor. The metals include cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, selenium and silver.

CDHS has established public health goals (PHGs) for cadmium, chromium, lead, thallium, benzo (a) pyrene, carbofuran, carbon tetrachloride, chlordane, vinyl chloride, dibromochloropropane (DBCP), 1,2-dichloroethane, 1,3-dichloropropene, heptachlor, heptachlor epoxide and lindane.

The secondary drinking water standards include the constituents listed in Table 64449-A and 64449-B in Chapter 15 of the CCR.

The endocrine disrupting chemicals include the pharmaceutically active compounds. Those compounds include estrone, ethinyl estradiol, 17β-estrodoiol and ethinyl estrogen. This initial list of endocrine disrupting chemicals may be expanded by CDHS in the future to include additional compounds of concern.

WE INC.

March 7, 2002

Inland Empire Utility Agency
Attn: Richard Atwater, General Manager
9400 Cherry Avenue, Building A
Fontana, CA 92335

Subject: Estimate of Potential Impact of Legacy TDS and Nitrogen in the Vadose Zone of the Proposed RP3 Recharge Facility

Dear Richard:

The Inland Empire Utilities Agency (IEUA) submitted a Project Authorization Package (PAP) for recharge basins, which included the proposed RP3 recharge facility. The proposed RP3 recharge facility has since been considered for removal from the PAP because of concern about groundwater quality issues resulting from the historical operations of RP3 for disposal of primary-treated effluent from 1958 to 1986. (For clarity, the term "proposed RP3 recharge facility" will be used to denote the proposed project, while "RP3" will refer to the former discharge ponds for Regional Plant 3.) Potential groundwater contamination will be addressed in the Chino Basin Management Zone 3/RP3 Monitoring Program being conducted currently by IEUA and the Chino Basin Watermaster (Watermaster). The work plan (WEI, 2000b) has been approved by the Regional Water Quality Control Board and the studies are ongoing.

The scope of the MZ3/RP3 monitoring program does not include an analysis of potential impacts of legacy salts and nitrogen in the vadose zone underlying the proposed RP3 recharge facility. This letter report presents an estimate of the potential impact of vadose zone total dissolved solids (TDS) and nitrogen on underlying groundwater. Simple analytical techniques are used to assess the potential increases in TDS and nitrogen in water that is ultimately recharged to groundwater beneath the site. Ultimately, the blend of stormwater and imported water used in the future to hydrologically balance Management Zone 3 must be of a quality to protect beneficial uses.

Background - PAP

IEUA submitted a final application for Proposition 13 funding to Santa Ana Watershed Project Authority (SAWPA) that included 20 basins that are proposed to be used for groundwater recharge sites of stormwater, imported water, and recycled water. Tom Dodson, in a letter to Rich Haller/SAWPA, dated November 18, 2001, stated:

> "There are 20 basins (including college Heights quarries as a single "basin" location) identified in the Recharge Master Plan prepared by the Watermaster. Thus, the Initial Study Identified 20 basins for consideration. However, two basins were eliminated from further consideration in the Initial Study. The Turner Basin No. 1 was eliminated because it had already undergone CEQA review with the Chino Basin Conservation District serving as the lead agency. The RP-3 Basin was removed from further consideration because it is a separate project being carried out by the IEUA, but involves construction a new basin (none currently exist) at a location with known groundwater

> contamination. Therefore, it was eliminated because it did not fall within the scope of the OBMP PEIR. Thus, 17 existing basins plus the College Heights quarries constitute the total project approved by the IEUA Board."

A question concerning the "known groundwater contamination" at the proposed RP3 recharge facility was raised by SAWPA, and the proposed RP3 recharge facility was removed from the Project Authorization Package (PAP) until the question could be answered.

Background – MZ3/RP3 Monitoring Program

IEUA developed a work plan for an investigation to characterize groundwater quality in a part of the Chino Basin where groundwater is tributary to wells owned by the Jurupa Community Services District (JCSD) and includes areas that underlie all or part of the Fontana Water Company, Marygold Mutual Water Company, Cucamonga County Water District, and the City of Ontario (hereafter the study area). The Regional Water Quality Control Board (RWQCB) sent a letter to Inland Empire Utilities Agency (IEUA) dated July 13, 2000, that describes their concern that the historical recharge of recycled water at IEUA's Regional Plant No. 3 (RP3) may have caused groundwater contamination at wells downgradient of RP3. In their letter, the RWQCB states that the recently increasing TDS concentrations measured in a monitoring well at the Southridge Middle School (SRMS) may have been caused by recycled water recharge at RP3. The monitoring data that were used by the RWQCB to make this determination are listed in Table 1 of their letter and is included herein as Table 1 and shown in Figure 1. The RWQCB asserts that the groundwater quality impact of recycled water recharge at RP3 has not been characterized nor has the extent of the recycled water plume that originated at RP3. The RWQCB is requiring IEUA to conduct investigations under Water Code Section 13267.

The proposed RP3 recharge facility is located just north of the Jurupa Hills in the south Fontana area and is shown in Figure 2. RP3 provided primary treatment of sewage received from the Fontana area. The proposed RP3 recharge facility is located in Management Zone 3 as defined in the Chino Basin Optimum Basin Management Program (OBMP) (August 1999) and the Phase 2A TIN/TDS Study Completion Report (July 2000). Figure 2 shows the boundaries of the Management Zones in and near the Chino Basin. Figure 3 is a 1999 aerial photograph and shows the location of the proposed RP3 recharge facility and the SRMS well.

The effluent was discharged to groundwater through percolation ponds. RP3 began operation in 1958 discharging about 800 acre-feet per year (acre-ft/yr). RP3 discharge gradually increased over time to about 3,900 acre-ft/yr in 1985. RP3 stopped discharging to groundwater in April, 1986. Table 2 lists the discharge time history at RP3. The TDS and total inorganic nitrogen estimates for RP3 are also included in Table 2. The TDS and nitrogen data shown in Table 2 covers the period 1973 to 1983 and were obtained from IEUA (Mark J. Wildermuth, Water Resources Engineers, 1997a and 1997b). The reported TDS ranged from about 348 to 472 milligrams per liter (mg/L) and averaged about 423 mg/L. Note that this is about 200 mg/L less than the recently observed TDS concentration at SRMS well. The inorganic nitrogen (expressed as nitrogen) ranged from about 26 to 33 mg/L and averaged about 28 mg/L. Virtually all the inorganic nitrogen in the effluent was ammonia and subject to substantial losses upon recharge.

Assumptions for Estimation of Legacy TDS and Nitrogen in the Vadose Zone and Potential Impact to Groundwater

In estimating the legacy TDS and nitrogen concentrations in the vadose zone and their potential impacts to groundwater, certain assumptions were necessary. Conservative assumptions (which would result in higher concentrations of TDS and nitrogen) were used to estimate the worst possible impact from constructing and operating the recharge basins at the former RP3 site. Following is a summary of the assumptions used in the analyses:

- ***Concentrations of Legacy TDS and Nitrogen.*** Operations at RP3 ceased in 1986. The last 16 years of natural recharge would likely have flushed all the residual salts and nitrogen out of the vadose zone and into groundwater. In terms of sorption, TDS and nitrate act as conservative constituents, that is, they show no preferential sorption to soil particles. Constituents that make up TDS sorb and desorb onto soil surfaces in exchange reactions, with the net effect that TDS concentrations of soil water remain relatively unchanged. Nitrate exists as an anion and would not sorb to negatively-charged soil particles. Ammonium ions are cations and would tend to sorb very strongly to clay surfaces. Some ammonium ions are irreversibly bound to clays. Other ammonium ions undergo nitrification (conversion to nitrate) and denitrification (conversion to nitrogen gas) reactions. A conservative assumption is to assume that the TDS and nitrogen concentrations in soil water in 2002 below the proposed RP3 recharge facility is the average of the wastewater percolated over the entire period of operation. In other words, we will assume that TDS and nitrogen concentrations in soil water are 426 and 29 mg/L respectively, although most of the salts and nitrogen would have been flushed since 1986.

- *Field Capacity*. The post-infiltration movement of water in a soil profile is called *redistribution*. Redistribution is a time-varying phenomenon and depends on soil properties, and the thicknesses and relative moisture contents of the wet and dry zones. The flux of water moving during redistribution slows over time for two primary reasons: (i) the suction gradient between the dry and wet zones diminishes as the dry zone gains moisture and the wet zone loses moisture; and (ii) the hydraulic conductivity of the wetted zone decreases with decreasing moisture. The moisture content at the point at which internal drainage has "ceased" has been historically and operationally termed the *field capacity*. Recently, more precise experimental techniques have shown that the field capacity is a somewhat simplistic "attempt to characterize a dynamic process in terms of a single static parameter" (Hillel, 1998). Nonetheless, for the purposes of this analysis the field capacity is a useful parameter for estimating the residual soil moisture in the vadose zone beneath the proposed RP3 recharge facility. Field capacity values vary from 0.1 for a pure sand to 0.25 for a loam to 0.3 for a silt loam to 0.5 for a clay (Saxton *et al.*, 1986). For the purposes of this analysis, field capacities of 0.1, 0.2, and 0.4 were used to provide a range.

- *Recharge Rates*. The recharge rates were obtained from Black & Veatch (2001), *Table 1: Operating Criteria and Recharge Goals for Each Basin*. 1700 acre-ft of stormwater and 4886 acre-ft of imported water were assumed to be recharged on an annual basis, with the recharge occurring in the six-month period between October 15th and April 15th.

- *Concentrations of Recharge Water*. State Water Project (SWP) water will be the imported water source for the proposed RP3 recharge basins. The average TDS and nitrate from the Jensen and Mills Treatment Plants in 2000 were 257 mg/L and 0.3 mg/L, respectively (MWDSC, 2002). (Jensen and Mills Plants use 100 percent SWP water.) The assumed range of TDS was one-half to twice the average; the assumed range of nitrogen was one-tenth to ten times the average.

  Stormwater values are based on the results of samples collected by Watermaster (WEI, 2002). Watermaster staff has been systematically collecting and analyzing surface water samples from 21 recharge basins in Chino Basin since November 1997. A total of 183 water quality samples from the basins were collected and analyzed from November 1997 to March 2001. Watermaster staff collects from one to four sub-samples in the basins, depending on basin configuration and water elevation. These sub-samples are volumetrically composited at the analytical laboratory to provide an estimate of the average water quality recharged at a given point in time at each of the basins. Watermaster staff sample the recharge basins approximately every two weeks during the wet season, as long as there is water in the basin and the basin is accessible and safe for sampling. The basins recharge water from several sources, including: urban dry weather flow; urban stormwater; San Gabriel Mountain stormwater; State Project Water; GE Flatiron Plant remediation water; and IEUA recycled water. A query was developed to determine the mean, first quartile, and second quartile values for basins where the recharge was primarily stormwater. These values were used in the analysis used in this letter report.

  Ranges of TDS and nitrogen concentrations were used in the analyses for both imported water and stormwater:

	Imported Water		Stormwater	
	TDS (mg/L)	Nitrogen (mg/L)	TDS (mg/L)	Nitrogen (mg/L)
Low	129	0.03	66	0.6
Average	257	0.3	108	1
High	514	3	147	1.2

- *Flushing of Salts*. In this analyses, we assume that all of the salt in the residual soil moisture (at field capacity) is mobilized in the first year and the concentration of salt and nitrogen percolating to groundwater is a volume weighted average of the legacy salt in the residual soil moisture and the recharge water – which is in turn the flow weighted average of stormwater and imported water.

- *Nitrogen Loss in Vadose Zone.* Nitrogen undergoes various (often microbially-facilitated) reactions as it passes through the vadose zone. These phenomena are collectively known as the nitrogen cycle and will not be discussed mechanistically herein. However, nitrogen losses during percolation in recharge basins in the Santa Ana River Watershed have been documented (WEI, 1998 and WEI, 2000a). The reported N-loss coefficient ranges reported in WEI, 2000a are:
  - *Constructed wetlands (Hidden Valley Wetlands Enhancement Project).* 50 to 90 percent apparent nitrogen loss. Fifty percent loss was achieved in the water column. Based on the lysimeter and groundwater well data, about 90 percent loss is expected from the influent water to groundwater at the downgradient edge of the site.
  - *Recharge basins (Anaheim Lake).* No apparent losses to the wells that were studied. Anaheim production well A-27 and monitoring well AMD-9/1. This finding contradicts expected losses from literature review and is not corroborated by other wells near the recharge basins. Not enough data exists to make a definitive recommendation on nitrogen loss from recharge basins.
  - *RIX.* 25 to 75 percent apparent nitrogen loss, depending on operations.

  The City of Redlands is conducting careful, scientific studies on nitrogen loss beneath the Redlands Percolation Ponds, which receive about six million gallons per day (MGD) of secondary effluent on about 39 acres. In the two ponds where the experimental parameters are better controlled and understood the N-loss at the 25-foot deep lysimeters are 60 percent and 75 percent. These currently unpublished data will be submitted to the RWQCB in 2002.

  For the purposes of this analysis, the range of N-loss coefficient considered was 25 percent (a N-loss value that is acceptable to the RWQCB without further demonstrations or showings) and 50 percent (a realistic, albeit still conservative value). Nitrogen that percolates to groundwater was assumed to be nitrate.

- ***Dilution in Groundwater.*** For the purposes of this analysis, a groundwater quality model was not developed. Rather, the volume-weighted TDS and nitrate concentrations were calculated for the total mass and volume of (i) recharge water; (ii) water underlying the proposed recharge facility at the beginning of the recharge project; and (iii) water that flows under the site over time. Hydraulic effects such as mounding were ignored. The background TDS and nitrate concentrations were assumed to be 250 mg/L and 4 mg/L based on regional data near the proposed facility (WEI, 2000a). Other groundwater assumptions:
  - The groundwater velocity was assumed to be 365 ft/yr.
  - The porosity was assumed to be 0.3.
  - Depth of saturated zone is 125 feet.
  - The approximate length of the recharge ponds is 2500 feet with a width of 1000 feet (Figure 4). The direction of groundwater flow is approximately east to west.

Estimation of Legacy TDS and Nitrogen in the Vadose Zone and Potential Impact to Groundwater

Based on the aforementioned assumptions, Tables 3 and 4 summarize the estimates of the concentration of TDS and nitrogen that would percolate to groundwater. To reiterate, these assumptions are conservative; and probably represent a worse-case scenario. Each of the four tables (Table 3, Table 4a, Table 4b, and Table 4d) has the same general format, which will be explained for Table 3 as follows. The range of field capacity described in the previous section is shown in the first column. The volume-weighted TDS concentrations of the recharge water are shown in the header of Columns 2 through 4. For example, the volume weighted average TDS of the "medium" TDS range is:

$$[TDS_{ImportedWater} \cdot V_{ImportedWater} + TDS_{Stormwater} \cdot V_{Stormwater}]/[V_{ImportedWater} + V_{Stormwater}] =$$

$$[257 \text{ mg/L} \cdot 4886 \text{ acre-ft/yr} + 108 \text{ mg/L} \cdot 1700 \text{ acre-ft/yr}]/[4886 \text{ acre-ft/yr} + 1700 \text{ acre-ft/yr}] = 219 \text{ mg/L}$$

The values in the unshaded portion of Columns 2 through 4 in Table 3 depict a similar volume-weighted average of the combined recharge water with the residual soil moisture at three different values of field capacity. For example, at the "medium" concentration of TDS in the recharge water and a field capacity of 0.2, the TDS of the percolating water reaching the water table would be 267 mg/L. Columns 5 through 7 are the relative percent differences (RPD) between the concentration of TDS in percolating water combined with the residual soil moisture containing legacy salts and the concentration of the water being recharged. For example, at the "medium" concentration of TDS in the recharge water and a field capacity of 0.2, the RPD would be 20 percent (267 mg/L *versus* 219 mg/L).

The same analyses were conducted for nitrogen. Tables 4a, 4b, and 4c represent 0, 25, and 50 percent nitrogen loss factors, respectively.

TDS and nitrate concentrations in groundwater were estimated using the assumptions discussed above. Three scenarios were chosen:

- low recharge concentration; low field capacity (TDS = 154 mg/L, nitrate-N = 3 mg/L; field capacity = 0.1)
- medium recharge concentration; medium field capacity (TDS = 267 mg/L, nitrate-N = 5 mg/L; field capacity = 0.2)
- high recharge concentration; high field capacity (TDS = 422 mg/L, nitrate-N = 9 mg/L; field capacity = 0.4)

Values were chosen from Table 3 and Table 4b (nitrogen loss coefficient of 25 percent). As discussed previously, the legacy salt and nitrogen are assumed to be flushed out in the first year. Thereafter, the recharge water quality will be the volume-weighted average of imported water and stormwater. In the second scenario listed above, the TDS concentration of the recharge water would be 267 mg/L in the first year and would decrease to 219 mg/L in subsequent years. Likewise, nitrate concentration of the recharge would be 5 mg/L in the first year and less than one in subsequent years.

Because of the volume of recharge and the relatively small cross section of saturated thickness, the mixed water quality in groundwater is dominated by the recharge water quality. The effect of the legacy salt and TDS and nitrogen in the vadose zone would not seen beyond the first few years of recharge operations, if at all.

Based on the expected concentrations of TDS and nitrate in the recharge water at the proposed RP3 recharge facilities (approximately 220 mg/L for TDS and less than 1 for nitrate), the groundwater downgradient of the facility should eventually show improved water quality over background conditions (approximately 250 mg/L for TDS and less than 4 for nitrate).

WE, Inc. is committed to serving IEUA's needs on this important project. If you have any questions, please don't hesitate to call us.

Very truly yours,

Wildermuth Environmental, Inc.

Mark J. Wildermuth

Joseph P. LeClaire

Mark J. Wildermuth, MS, PE
President

Joseph P. LeClaire, PhD
Vice President

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Table 1
Monitoring Data Reported by IEUA to RWQCB for RP3 Monitoring Program
(mg/L)

Date	Well								
	Southridge Middle School			Molly Fillipi Well No. 8			Ted Hunter Well		
	NO3-N	TDS	Cl	NO3-N	TDS	Cl	NO3-N	TDS	Cl
03/16/89	8.5	365	48						
04/24/89				6.8	335	38	10.7	385	57
07/02/89	10.4	355	46	7.1	315	37	7.1	400	59
11/02/89	7.3	363	38	10.4	341	48	14.4	299	58
03/07/90	9.9	373	45	7.0	327	36	14.1	391	54
02/12/91	10.1	360	46	7.4	299	32	12.1	338	51
05/15/91	10.2	365	45	12.2	310	31	7.5	360	50
08/21/91	10.6	370	46	7.8	320	34	9.0	330	50
11/13/91	11.0	354	49	7.9	290	33	8.3	305	53
02/19/92	11.3	380	52	7.8	314	34	10.2	314	56
05/20/92	11.1	370	49	7.9	308	34	9.1	324	52
08/12/92	11.2	382	48	7.8	311	34	8.9	330	50
12/02/92	11.7	386	47	8.0	323	34	9.6	334	50
02/24/93	11.9	377	49	8.1	310	36	12.9	358	57
05/12/93	12.0	393	45	Well Abandoned			11.3	338	46
08/18/93	12.4	395	51				17.4	388	51
03/16/94	13.3	421	48				16.7	398	51
03/10/95	14.2	420	50				19.6	432	53
06/07/95	13.8	413	52				27.5	486	58
09/13/95	14.0	410	56				14.8	386	48
12/19/95	14.6	404	59				24.2	425	50
03/28/96	14.5	425	62				18.7	390	46
07/10/96	14.1	412	72				16.0	374	47
10/16/96	14.3	428	78				16.3	382	43
01/16/97	14.3	472	83				20.2	456	47
04/02/97		510	90					390	39
07/03/97	15.1	544	98				17.1	402	39
10/08/97	15.3	542	106				17.6	384	36
01/13/98	15.4	580	70				23.0	446	55
04/08/98	15.3	578	112				19.5	398	40
07/09/98	15.4	568	111				17.0	394	33
10/07/98	15.4	588	126				17.5	398	37
01/06/99	15.8	550	114				25.1	430	43
04/14/99	15.5	628	121				19.8	404	36
07/14/99	15.9	678	123				18.0	418	32
10/13/99	16.1	568	124				23.7	462	43
01/12/00	16.7	660	113				Dry Well		
04/13/00	16.3	638	116						
Statistics									
Averages									
89 thru 00	13.2	460	73	8.2	316	35	15.7	384	48
89 thru 93	10.6	373	47	8.2	316	35	10.8	346	53
94 thru 00	15.0	520	90				19.6	413	44

Table 2
Recycled Water Discharged to Percolation Ponds at IEUA RP3

Year	Discharge to Ponds (acre-ft/yr)	TDS (mg/L)	Total Inorganic Nitrogen (mg/L)	TDS (ton/yr)	TIN (ton/yr)
1958	800	*439*	*29*	24	32
1959	870	*439*	*29*	26	34
1960	1,010	*439*	*29*	30	40
1961	1,330	*439*	*29*	40	52
1962	1,390	*439*	*29*	41	55
1963	1,640	*439*	*29*	49	65
1964	1,740	*439*	*29*	52	69
1965	2,080	*439*	*29*	62	82
1966	2,430	*439*	*29*	73	96
1967	2,450	*439*	*29*	73	97
1968	2,480	*439*	*29*	74	98
1969	2,500	*439*	*29*	75	99
1970	2,540	*439*	*29*	76	100
1971	2,570	*439*	*29*	77	101
1972	2,590	*439*	*29*	77	102
1973	2,610	472	*29*	84	103
1974	2,630	428	*29*	77	104
1975	2,580	438	26	77	91
1976	2,880	434	26	85	102
1977	2,990	421	33	86	134
1978	3,060	418	26	87	108
1979	3,240	391	32	86	141
1980	3,020	403	27	83	111
1981	3,270	348	28	77	124
1982	3,260	386	27	86	120
1983	3,540	356	26	86	125
1984	3,760	*377*	26	96	133
1985	3,920	*377*	27	100	144
Discharge to percolation ponds ceased February 1986.					
Averages	**2,365**	**426**	**29**		
Totals	**61,500**			**1,760**	**2,384**

Values in italics are estimated.

Source: Nitrogen and TDS Studies, Santa Ana Watershed. Task 2.3 Report - Develop Calibration Data.

Table 3
Estimated TDS of Recharge Water at Water Table Below
Ponds at IEUA RP3

Field Capacity	TDS of Recharged Water			TDS of Recharged Water		
	Low (mg/L)	Medium (mg/L)	High (mg/L)	Low	Medium	High
				(RPD from Baseline)		
	112	219	419	112	219	419
0.1	154	246	420	31%	12%	0%
0.2	186	267	421	49%	20%	0%
0.4	232	298	422	69%	31%	1%

Table 4a
Estimated TIN of Recharge Water at Water Table Below
Ponds at IEUA RP3
(assumes no nitrogen loss in vadose zone)

Field Capacity	TIN of Recharged Water			TIN of Recharged Water		
	Low (mg/L)	Medium (mg/L)	High (mg/L)	Low	Medium	High
				(RPD from Baseline)		
	0.2	0.5	2.5	0.2	0.5	2.5
0.1	4	4	6	182%	160%	82%
0.2	7	7	9	189%	175%	110%
0.4	11	11	13	193%	184%	133%

Table 4b
Estimated TIN of Recharge Water at Water Table Below
Ponds at IEUA RP3
(assumes 25 percent nitrogen loss in vadose zone)

Field Capacity	TIN of Recharged Water			TIN of Recharged Water		
	Low (mg/L)	Medium (mg/L)	High (mg/L)	Low	Medium	High
				(RPD from Baseline)		
	0.2	0.5	2.5	0.2	0.5	2.5
0.1	3	3	5	176%	148%	57%
0.2	5	5	7	186%	167%	89%
0.4	8	9	9	191%	179%	116%

Table 4c
Estimated TIN of Recharge Water at Water Table Below
Ponds at IEUA RP3
(assumes 50 percent nitrogen loss in vadose zone)

Field Capacity	TIN of Recharged Water			TIN of Recharged Water		
	Low (mg/L)	Medium (mg/L)	High (mg/L)	Low	Medium	High
				(RPD from Baseline)		
	0.2	0.5	2.5	0.2	0.5	2.5
0.1	2	2	3	166%	127%	18%
0.2	3	4	4	179%	153%	53%
0.4	6	6	6	187%	169%	85%

Figure 1
TDS Concentration Time History at RP3 Monitoring Wells

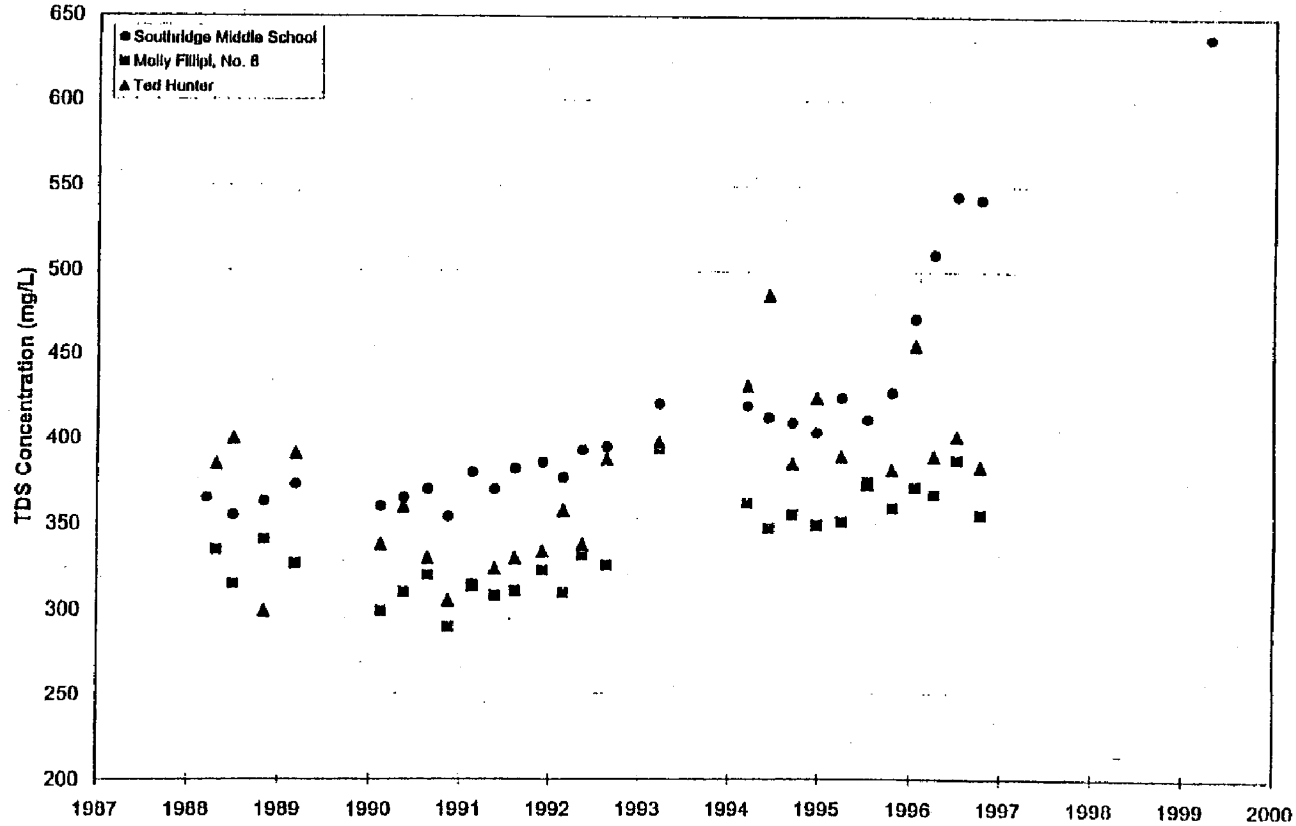
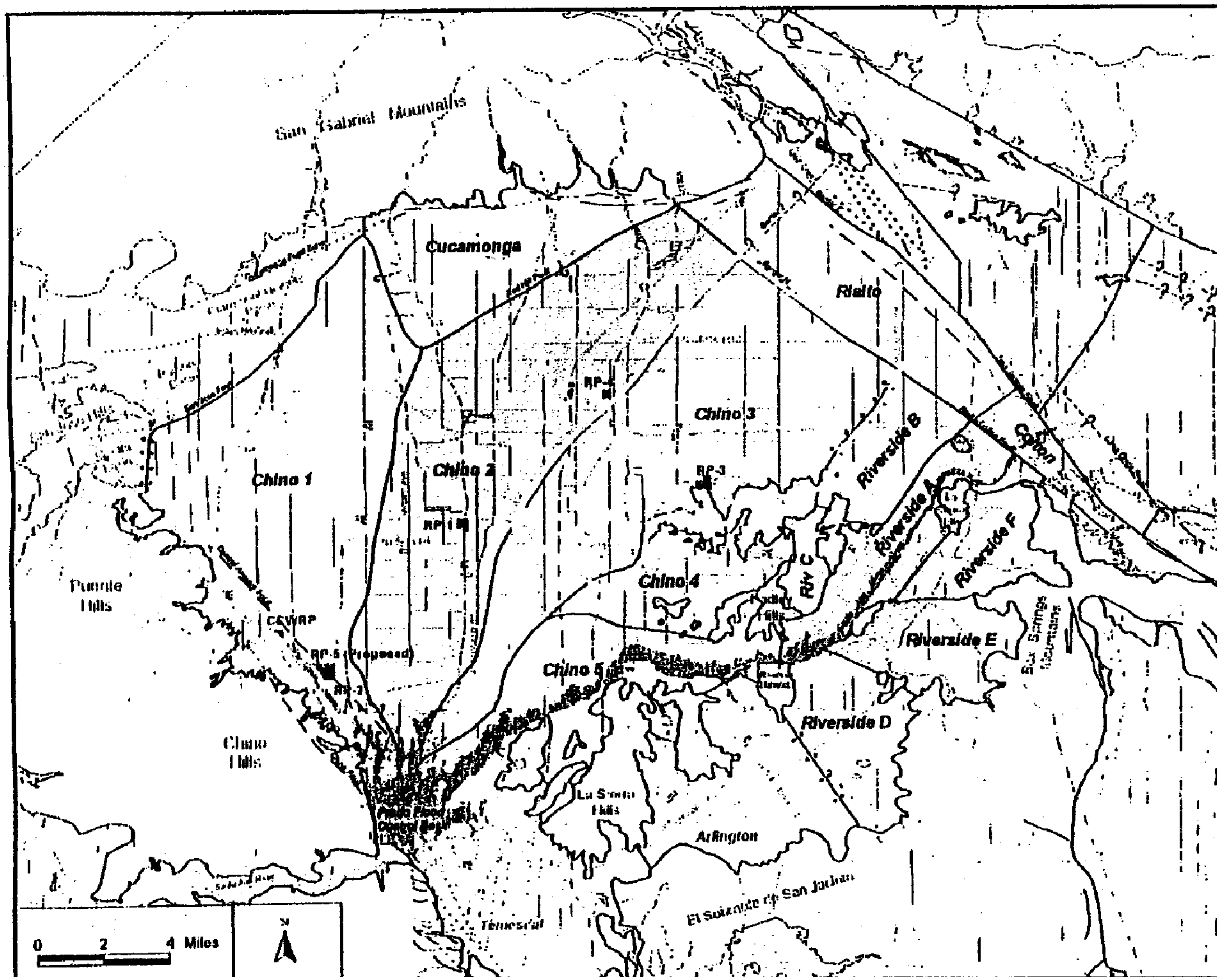


Figure 1.xls -- Chart1
3/7/2002

Wildermuth Environmental



Chino Basin Management Zone 3 Monitoring Program

Legend

Management Zone Boundaries

Other Map Features

Unconsolidated Sediments

Semi-consolidated Sediments

Consolidated Bedrock

Faults

Groundwater Barrier (suspected fault)

Groundwater Divide

Major Roads & Highways

Waterways, Reservoirs & Spreading Grounds

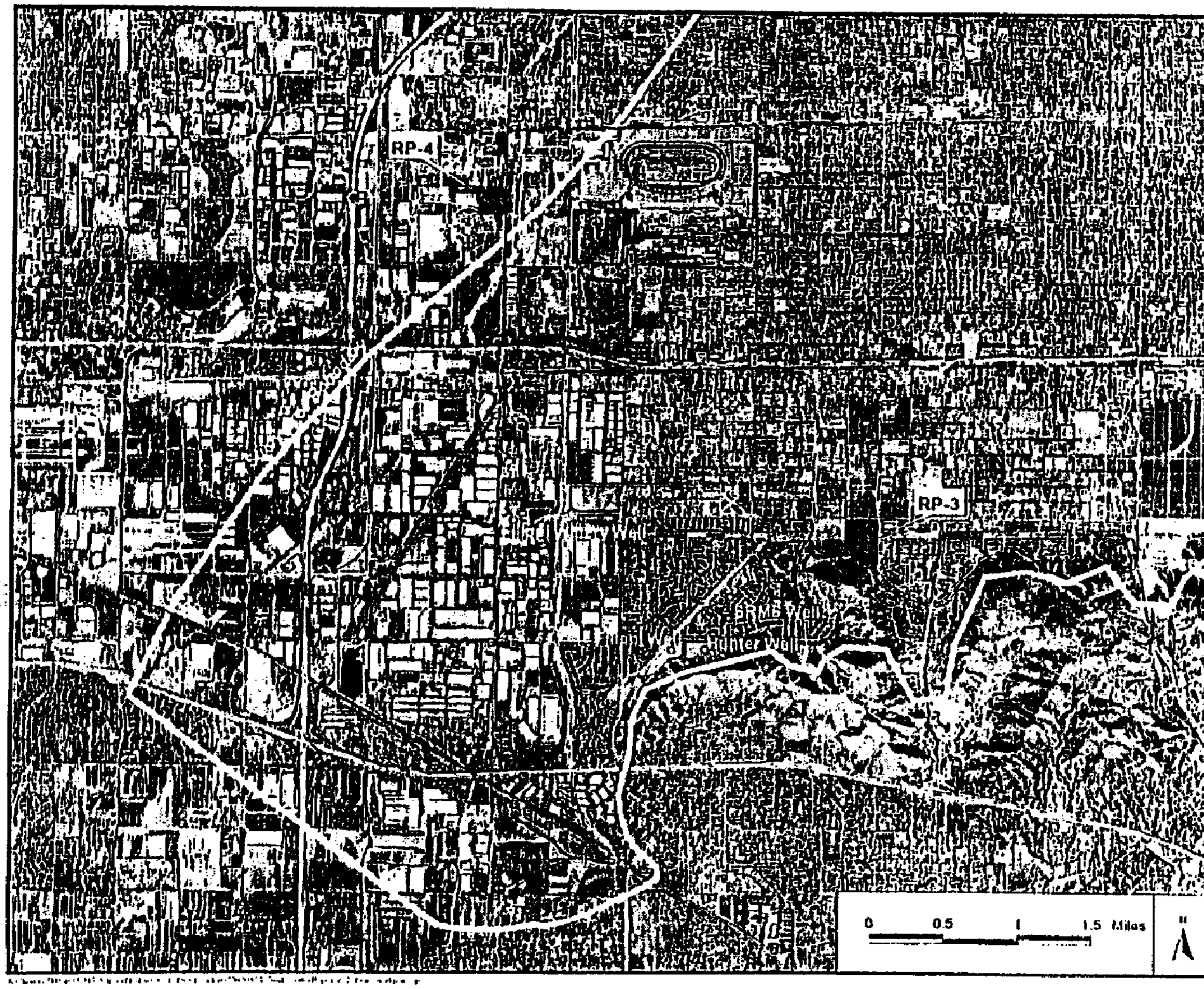
Map Area

Figure 2

Chino Basin Management Zones, Locations of IEUA Regional Plants, and Study Area

WE WILDERMUTH ENVIRONMENTAL, INC.

Prepared by: ACM/APL | Date: March 2002



Chino Basin Management Zone 3
Monitoring Program

Legend

Other Map Features

Waterways, Reservoirs
& Spreading Grounds

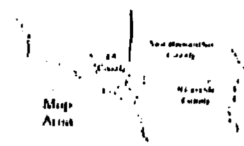
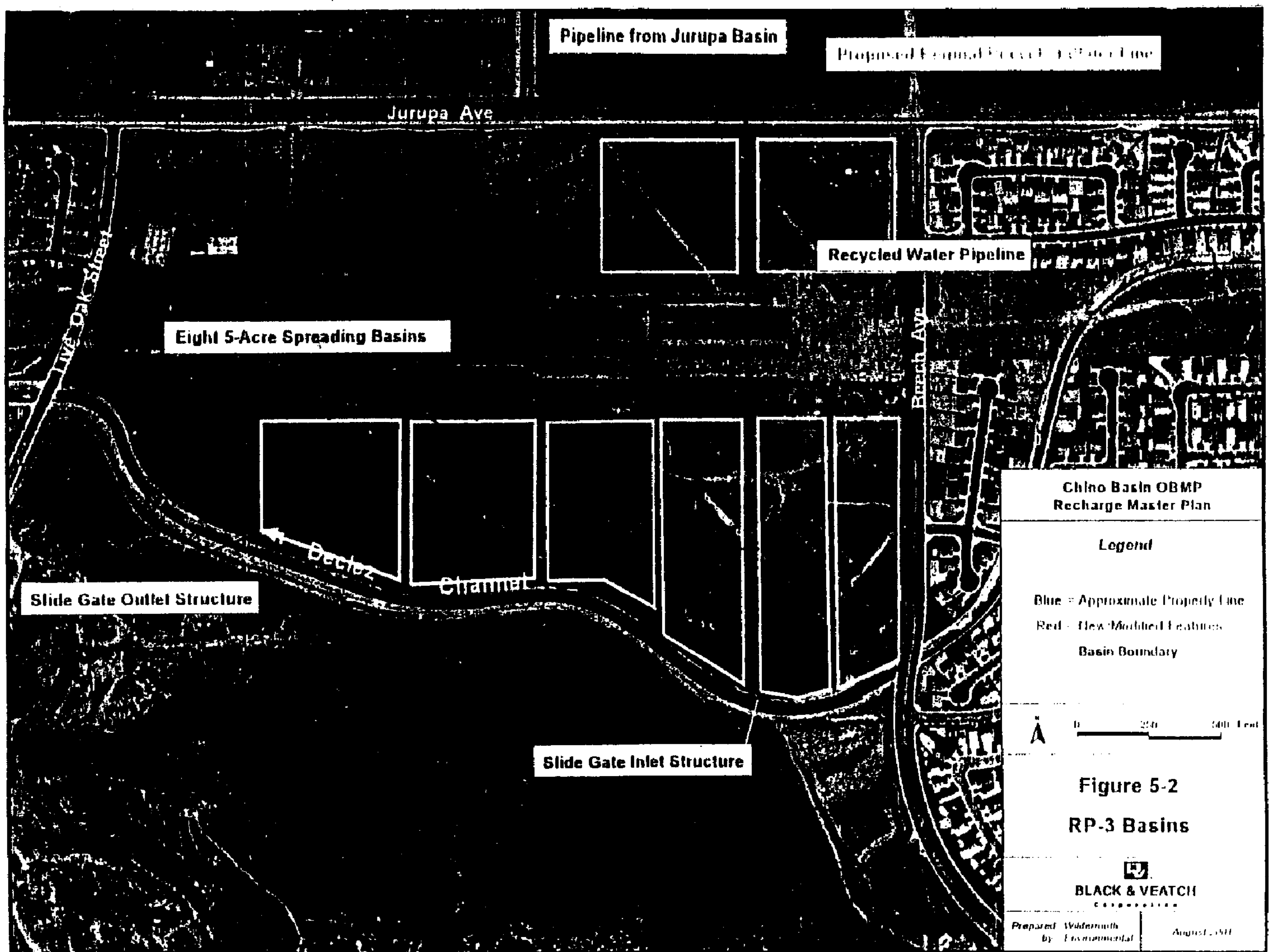


Figure 3

1999 Aerial Photograph
of RP3 Site

WE WILDERMUTH
ENVIRONMENTAL, INC.


Pipeline from Jurupa Basin
Jurupa Ave
Recycled Water Pipeline
Live Oak Street
Eight 5-Acre Spreading Basins
Beech Ave
Declez Channel
Slide Gate Outlet Structure
Slide Gate Inlet Structure
Chino Basin OBMP
Recharge Master Plan
Legend
Basin Boundary
Figure 5-2
RP-3 Basins
BLACK & VEATCH