Recorded in Official Records, Orange County
Tom Daly, County Recorder
* $ R 0 0 0 5 2 6 4 0 9 3 $ *
2969.00
201285001024 11:20 am 10/23/12
242 11 Z02
0.00 50.00 0.00 0.00 0.00 0.00 0.00 0.00

POSTED
OCT 23 2012
TOM DALY, CLERK-RECORDER
By _____ DEPUTY

Notice of Determination

TO:

☒ Office of Planning and Research
For U.S. Mail: P.O. Box 3044, Sacramento, CA 95812-3044
Street Address: 1400 Tenth Street, Sacramento, CA 95814

☒ County Clerk
County of: Orange
Address: 12 Civic Center Plaza, Room 101
Santa Ana, CA 92701

FROM: APPLICANT
Public Agency: Irvine Ranch Water District
Address: 15600 Sand Canyon Avenue
Irvine, California 92618
Contact: Paul Weghorst
Phone: (949) 453-5300
Lead Agency (if different from above): IRVINE RANCH WATER DISTRICT
Address:
Contact:
Phone:

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

State Clearinghouse Number (if submitted to State Clearinghouse): 2011031091

Project Title: Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component

Project Location (include county): 3512 Michelson Drive, Irvine, CA 92612 (Orange County)

Project Description:
The Irvine Ranch Water District (IRWD) as the Lead Agency proposes to modify the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a Biosolids Handling Component that would integrate a new residuals-handling system at MWRP, including biosolids processing, biogas management and energy recovery systems (proposed project). The proposed project would allow IRWD to make efficient and sustainable use of its own renewable resources, by allowing for beneficial use of biosolids and biogases produced during the wastewater treatment process. Under the proposed project, IRWD would discontinue sending residuals to Orange County Sanitation District (OCSD) for treatment and disposal.

The proposed project would process residuals produced at the MWRP and IRWD's Los Alisos Water Recycling Plant (LAWRP). The proposed project includes solids-handling facilities that would thicken, stabilize, dewater, and dry sludge to produce biosolids. Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The biogas would be put to beneficial reuse, including but not limited to providing an energy source for other processes at the MWRP. The proposed project would produce two classes of biosolids, as defined by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill.

This is to advise that the Irvine Ranch Water District (☒ *Lead Agency* or ☐ *Responsible Agency*) has approved the above described project on October 22, 2012 (*Date*) and has made the following determinations regarding the above described projects.

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

FILED
OCT 23 2012
TOM DALY, CLERK-RECORDER
By _____ DEPUTY

Authority cited: Section 21083, Public Resources Code.
Reference: Section 21000-21174, Public Resources Code.

5. A statement of Overriding Considerations [☐ was ☒ was not] adopted for this project.
6. Findings [☒ were ☐ were not] made pursuant to the provisions of CEQA.

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

http://www.irwd.com

Signature (Public Agency) _____ Title: Director of Water Resources

Date: 10/23/12 Date Received filing at OPR: _____

FILED

OCT 23 2012

TOM DALY, CLERK-RECORDER

By _____ DEPUTY

POSTED

OCT 23 2012

TOM DALY, CLERK-RECORDER

By _____ DEPUTY

Authority cited: Section 21083, Public Resources Code.
Reference: Section 21000-21174, Public Resources Code.

MICHELSON WATER RECYCLING PLANT PHASE 2 & 3 CAPACITY EXPANSION PROJECT

Final Supplemental Environmental Impact Report No. 1
SCH# 2011031091

Prepared for
Irvine Ranch Water District

October 2012

ESA

MICHELSON WATER RECYCLING PLANT PHASE 2 & 3 CAPACITY EXPANSION PROJECT

Final Supplemental Environmental Impact Report No. 1
SCH# 2011031091

Prepared for
Irvine Ranch Water District

October 2012

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

210480

TABLE OF CONTENTS

MWRP Phase 2 & 3 Capacity Expansion Project Final Supplemental EIR No. 1

Published in the Draft Supplemental EIR No. 1

CHAPTER 9
Final SEIR Introduction and Requirements

9.0 Introduction

This Final Supplemental Environmental Impact Report (Final SEIR) No. 1 has been prepared in accordance with the California Environmental Quality Act (CEQA) as amended (Public Resources Code Section 21000 et seq.) and *CEQA Guidelines* (California Administrative Code Section 15000 et seq.). The Final SEIR incorporates, by reference, the Draft SEIR prepared by Irvine Ranch Water District (IRWD or District) for the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a Biosolids Handling Component (proposed project) (State Clearinghouse No. 2011031091) as it was originally published and the following chapters, which include revisions made to the Draft SEIR.

9.1 CEQA Requirements

CEQA Guidelines (Section 15132) specify that the Final SEIR shall consist of the following:

- The Draft SEIR or a revision of that draft;
- Comments and recommendations received on the Draft SEIR;
- A list of persons, organizations, and public agencies commenting on the Draft SEIR;
- The response of the Lead Agency to significant environmental points raised in the review and consultation process; and
- Any other information added by the Lead Agency.

This Final SEIR No. 1 for the MWRP Phase 2 and 3 Capacity Expansion Project includes the following chapters as a continuation of those included in the Draft SEIR:

- Chapter 10: The list of persons, organizations, and public agencies commenting on the Draft SIER along with copies of the written and oral comments
- Chapter 11: Written responses to each comment identified in Chapter 10
- Chapter 12: Revisions made to the Draft SEIR in response to comments received or initiated by the Lead Agency

9.2 CEQA Process

9.2.1 Public Participation Process

Notice of Preparation

In accordance with Sections 15063 and 15082 of *CEQA Guidelines*, IRWD, as Lead Agency, prepared and circulated a Notice of Preparation (NOP) (see Draft SEIR **Appendix A**) on March 28, 2011. The NOP was mailed to approximately 53 interested parties, including local, state, and federal agencies. A Notice of Completion (NOC) was also prepared by IRWD and sent to the State Clearinghouse. Copies of the NOP were made available for public review at the Heritage Park Library, Katie Wheeler Library, University Park Library, and IRWD's internet site.

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

The 30-day scoping period, which began with the distribution of the NOP, remained open through April 26, 2011. At the close of the 30-day comment period, it was determined that a supplemental EIR (SEIR) would be prepared as the environmental documentation for the proposed project.

Public Scoping Meeting

CEQA recommends conducting early coordination with the general public, appropriate public agencies, and local jurisdictions to assist in developing the scope of the environmental document. Pursuant to *CEQA Guidelines* Section 15083, a public scoping meeting was held on April 12, 2011 to allow agency consultation and public involvement for the Draft SEIR. Public notices were placed in local newspapers informing the general public of the scoping meeting and the availability of the NOP. The purpose of the meeting was to present to the public the proposed project and its potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed project and the issues to be included in the Draft SEIR.

Notice of Availability of the Draft SEIR

The Notice of Availability (NOA) of the Draft SEIR was posted on July 5, 2012 with the County Clerk in Orange County. The Draft SEIR was circulated to federal, state, and local agencies and interested parties requesting a copy of the Draft SEIR. Copies of the Draft SEIR were made available to the public at the following locations:

- Heritage Park Library – 14361 Yale Avenue, Irvine, CA 92604
- Katie Wheeler Library – 13109 Old Myford Road, Irvine, CA 92602
- University Park Library – 4512 Sandburg Way, Irvine, CA 92612
- IRWD's internet site (www.irwd.com)

The Draft SEIR was circulated for a 45-day public review period from July 3, 2012 through August 16, 2012. In response to requests by interested parties, a Notice of Extension of Review Period was circulated that extended the review period by an additional 15 days, bringing the total review period to 60 days. The extended comment period for the Draft SEIR ended on August 31, 2012. All comments received on the Draft SEIR are addressed in this Response to Comments document (Chapters 10, 11 and 12) which, together with the Draft SEIR and changes and corrections to the Draft SEIR, constitute the Final SEIR.

Public Meeting

During the 60-day review period, IRWD held a public informational meeting on July 24, 2012 at the IRWD Headquarters Boardroom. Attendees were provided an opportunity to express their comments or concerns regarding the contents of the Draft SEIR. No official comments on the Draft SEIR were recorded at the public meeting.

9.2.2 Evaluation and Response to Comments

CEQA Guidelines Section 15088 requires IRWD, as the Lead Agency, to evaluate comments on environmental issues received from parties that have reviewed the Draft SEIR and to prepare a written response. The written responses to commenting public agencies shall be provided at least ten (10) days prior to the certification of the Draft SEIR *(CEQA Guidelines* §15088(b)).

9.2.3 Final EIR Certification and Approval

As the Lead Agency, IRWD has the option to make the Final SEIR available for public review prior to considering the project for approval (*CEQA Guidelines* §15089(b)). Prior to considering the project for approval, IRWD, as the Lead Agency, will review and consider the information presented in the Final SEIR and will certify that the Final SEIR:

(a) has been completed in compliance with CEQA;

(b) has been presented to the Board of Directors as the decision-making body for the Lead Agency, which reviewed and considered it prior to approving the project; and

(c) reflects IRWD's independent judgment and analysis.

Once the Final SEIR is certified, IRWD's Board of Directors may proceed to consider project approval (*CEQA Guidelines* §15090). Prior to approving the proposed project, IRWD must make written findings and adopt statements of overriding considerations for each unmitigated significant environmental effect identified in the Final SEIR in accordance with Sections 15091 and 15093 of the *CEQA Guidelines*.

9.2.4 Notice of Determination

Pursuant to Section 15094 of the *CEQA Guidelines*, IRWD will file a Notice of Determination (NOD) with the Office of Planning and Research and Orange County Clerk-Recorder within five working days of project approval.

CHAPTER 10
Comment Letters

The Draft SEIR for the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project (proposed project) was circulated for public review for 60 days (July 3, 2012 through August 31, 2012). IRWD received 16 comment letters during the public review period, plus the letters of confirmation from the Office of Planning and Research regarding receipt of the Notice of Completion and the time extension for the public comment period. This chapter presents the comment letters, in the order listed in the table below. The letters have been bracketed and numbered; corresponding responses are provided in Chapter 11, Responses to Comments.

TABLE 10-1
COMMENT LETTERS RECEIVED

Comment No.	Commenting Agency / Interested Party	Date of Comment
1	Native American Heritage Commission	July 11, 2012
2	Department of Toxic Substances Control	August 3, 2012
3	Airport Land Use Commission	August 6, 2012
4	University Synagogue (1)	August 7, 2012
5	Department of Transportation	August 13, 2012
6	Orange County Public Works	August 14, 2012
7	LBA Realty	August 14, 2012
8	County of Orange Health Care Agency, Public Health Services	August 15, 2012
9	Orange County Sanitation District	August 15, 2012
10	Department of Resources Recycling and Recovery	August 16, 2012
11	University of California, Irvine	August 16, 2012
12	University Synagogue (2)	August 28, 2012
13	South Coast Air Quality Management District	August 30, 2012
14	City of Irvine – Community Development	August 30, 2012
15	Sea and Sage Audubon	August 30, 2012
16	US Fish and Wildlife Service	September 6, 2012

Comment Letter NAHC

STATE OF CALIFORNIA Edmund G. Brown, Jr., *Governor*

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

July 11, 2012

Mr. Paul Weghorst, Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Re: SCH#2011031011; CEQA Notice of Completion; proposed Mitigated Negative Declaration for the **"Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project: Biosolids Handling Component;"** located Irvine; Orange County, California.

Dear Mr. Weghorst:

The Native American Heritage Commission (NAHC), the State of California 'Trustee Agency' for the protection and preservation of Native American cultural resources pursuant to California Public Resources Code §21070 and affirmed by the Third Appellate Court in the case of EPIC v. Johnson (1985: 170 Cal App. 3rd 604).

This letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and interested Native American individuals as 'consulting parties' under both state and federal law. State law also addresses the freedom of Native American Religious Expression in Public Resources Code §5097.9.

The California Environmental Quality Act (CEQA – CA Public Resources Code 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. The NAHC did conduct a Sacred Lands File (SLF) search within the 'area of potential effect (APE} and Native American cultural resources were not identified in the project area specified. NAHC-1

The NAHC "Sacred Sites,' as defined by the Native American Heritage Commission and the California Legislature in California Public Resources Code §§5097.94(a) and 5097.96. Items in the NAHC Sacred Lands Inventory are confidential and exempt from the Public Records Act pursuant to California Government Code §6254 (r).

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We strongly urge that you

make contact with the list of Native American Contacts on the attached list of Native American contacts, to see if your proposed project might impact Native American cultural resources and to obtain their recommendations concerning the proposed project. Pursuant to CA Public Resources Code § 5097.95, the NAHC requests cooperation from other public agencies in order that the Native American consulting parties be provided pertinent project information. Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). Pursuant to CA Public Resources Code §5097.95, the NAHC requests that pertinent project information be provided consulting tribal parties. The NAHC recommends *avoidance* as defined by CEQA Guidelines §15370(a) to pursuing a project that would damage or destroy Native American cultural resources and Section 2183.2 that requires documentation, data recovery of cultural resources. NAHC-1

Furthermore, the NAHC if the proposed project is under the jurisdiction of the statutes and regulations of the National Environmental Policy Act (e.g. NEPA; 42 U.S.C. 4321-43351). Consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.' NAHC-2

Confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code §6254(r) and may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APEs and possibility threatened by proposed project activity. NAHC-3

Furthermore, Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for inadvertent discovery of human remains mandate the processes to be followed in the event of a discovery of human remains in a project location other than a 'dedicated cemetery'. NAHC-4

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. Regarding tribal consultation, a relationship built around regular meetings and informal involvement with local tribes will lead to more qualitative consultation tribal input on specific projects. NAHC-5

Finally, when Native American cultural sites and/or Native American burial sites are prevalent within the project site, the NAHC recommends 'avoidance' of the site as referenced by CEQA Guidelines Section 15370(a). NAHC-6

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Cc: State Clearinghouse

Attachment: Native American Contact List

Native American Contacts
Orange County
July 11, 2012

Ti'At Society/Inter-Tribal Council of Pimu
Cindi M. Alvitre, Chairwoman-Manisar
3094 Mace Avenue, Apt. B Gabrielino
Costa Mesa, , CA 92626
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano CA 92675 m
chiefdavidbelardes@yahoo.
(949) 493-4933 - home
(949) 293-8522

Juaneno Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street Juaneno
San Juan Capistrano CA 92675-2674
arivera@juaneno.com
(949) 488-3484
(949) 488-3294 - FAX
(530) 354-5876 - cell

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address Gabrielino Tongva
,
tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-761-6417- fax

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 -FAX

Juaneno Band of Mission Indians
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
alfredgcruz@sbcglobal.net
714-998-0721
714-998-0721 - FAX
714-321-1944 - cell

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed sCH#2011031091; CEQA Notice of Completion; Supplemental Environmental Impact Report (SEIR) for the Biosolids Handling and Energy REcovery Facilities Project; located in Irvine; Orange County, California.

Native American Contacts
Orange County
July 11, 2012

Juaneno Band of Mission Indians
Anita Espinoza
1740 Concerto Drive Juaneno
Anaheim , CA 92807
neta777@sbcglobal.net
(714) 779-8832

Gabrielino-Tongva Tribe
Linda Candelaria, Chairwoman
1875 Century Pk East #1500 Gabrielino
Los Angeles , CA 90067
lcandelaria1@gabrielinoTribe.org
626-676-1184- cell
(310) 587-0170 - FAX

United Coalition to Protect Panhe (UCPP)
Rebecca Robles
119 Avenida San Fernando Juaneno
San Clemente CA 92672
rebrobles1@gmail.com
(949) 573-3138

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabrielino
Covina , CA 91723
(626) 926-4131
gabrielenoindians@yahoo.com

Gabrielino-Tongva Tribe
Bernie Acuna
1875 Century Pk East #1500 Gabrielino
Los Angeles , CA 90067
(619) 294-6660-work
(310) 428-5690 - cell
(310) 587-0170 - FAX
bacuna1@gabrieinotribe.org

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry, Representing Tribal Chairperson
4955 Paseo Segovia Juaneno
Irvine , CA 92612
949-293-8522

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed sCH#2011031091; CEQA Notice of Completion; Supplemental Environmental Impact Report (SEIR) for the Biosolids Handling and Energy REcovery Facilities Project; located in Irvine; Orange County, California.

Comment Letter DTSC

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
5796 Corporate Avenue
Cypress, California 90630

Edmund G. Brown Jr.
Governor

August 3, 2012

WATER RESOURCES
AUG 08 2012
IRVINE RANCH
WATER DISTRICT

Mr. Paul Weghorst
Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

NOTICE OF AVAILABILITY OF A DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT NO.1 FOR BIOSOLIDS HANDLING AND ENERGY RECOVERY FACILITIES (BIOSOLIDS HANDLING COMPONENT) PROJECT, (SCH #2011031091), ORANGE COUNTY

Dear Mr. Weghorst:

The Department of Toxic Substances Control (DTSC) has received your submitted Draft Supplemental Environmental Impact Report (SEIR) for the above-mentioned project. The following project description is stated in your document:

"The proposed project would integrate a new residuals-handling system at the Michelson Water Recycling Plant (MWRP), which would include biosolids processing, biogas management, and energy recovery systems. The proposed would process residuals produced at the MWRP and Irvine Ranch Water District (IRWD)'s Los Alisos Water Recycling Plant (LAWRP). The proposed project includes solids-handling facilities that would thicken, stabilize, dewater, and dry sludge to produce biosolids. The proposed project would be constructed onsite at the existing MWRP, which occupies approximately 69 acres and is located at 3512 Michelson Drive, Irvine, California 92612. The proposed Biosolids Handing Component would be constructed within an adjacent area that is disturbed vacant land, currently being used for construction staging for the Phase 2 Capacity Expansion Project. This area is bounded on three sides (generally north, west, and south) by a vegetated earthen berm separating and screening it from San Joaquin Wildlife Sanctuary and its trails, riparian habitat, and ponds. To the east, the project area is bounded by existing MWRP facilities and a concrete-lined storm water drainage swale. The proposed project is subject to the mitigation measures previously adopted by IRWD as part of the MWRP Final Environmental Impact Report."

Based on the review of the submitted document DTSC has the following comments:

1) The SEIR should evaluate whether conditions within the Project area may pose a threat to human health or the environment. Following are the databases of some of the regulatory agencies:

- National Priorities List (NPL): A list maintained by the United States Environmental Protection Agency (U.S.EPA).
- Envirostor (formerly CalSites): A Database primarily used by the California Department of Toxic Substances Control, accessible through DTSC's website (see below).
- Resource Conservation and Recovery Information System (RCRIS): A database of RCRA facilities that is maintained by U.S. EPA.
- Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS): A database of CERCLA sites that is maintained by U.S.EPA.
- Solid Waste Information System (SWIS): A database provided by the California Integrated Waste Management Board which consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations.
- GeoTracker: A List that is maintained by Regional Water Quality Control Boards.
- Local Counties and Cities maintain lists for hazardous substances cleanup sites and leaking underground storage tanks.
- The United States Army Corps of Engineers, 911 Wilshire Boulevard, Los Angeles, California, 90017, (213) 452-3908, maintains a list of Formerly Used Defense Sites (FUDS).

DTSC-1

2) The SEIR should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed Project area that may be contaminated, and the government agency to provide appropriate regulatory oversight. If necessary, DTSC would require an oversight agreement in order to review such documents.

DTSC-2

3) Any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The findings of

DTSC-3

any investigations, including any Phase I or II Environmental Site Assessment Investigations should be summarized in the document. All sampling results in which hazardous substances were found above regulatory standards should be clearly summarized in a table. All closure, certification or remediation approval reports by regulatory agencies should be included in the SEIR. DTSC-3

4) If buildings, other structures, asphalt or concrete-paved surface areas are being planned to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACMs). If other hazardous chemicals, lead-based paints (LPB) or products, mercury or ACMs are identified, proper precautions should be taken during demolition activities. Additionally, the contaminants should be remediated in compliance with California environmental regulations and policies. DTSC-4

5) Future project construction may require soil excavation or filling in certain areas. Sampling may be required. If soil is contaminated, it must be properly disposed and not simply placed in another location onsite. Land Disposal Restrictions (LDRs) may be applicable to such soils. Also, if the project proposes to import soil to backfill the areas excavated, sampling should be conducted to ensure that the imported soil is free of contamination. DTSC-5

6) Human health and the environment of sensitive receptors should be protected during any construction or demolition activities. If necessary, a health risk assessment overseen and approved by the appropriate government agency should be conducted by a qualified health risk assessor to determine if there are, have been, or will be, any releases of hazardous materials that may pose a risk to human health or the environment. DTSC-6

7) If the site was used for agricultural, livestock or related activities, onsite soils and groundwater might contain pesticides, agricultural chemical, organic waste or other related residue. Proper investigation, and remedial actions, if necessary, should be conducted under the oversight of and approved by a government agency at the site prior to construction of the project. DTSC-7

8) If it is determined that hazardous wastes are, or will be, generated by the proposed operations, the wastes must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If it is determined that hazardous wastes will be generated, the facility should also obtain a United States Environmental Protection Agency Identification Number by contacting (800) 618-6942. Certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require authorization from the local Certified Unified Program Agency (CUPA). Information about the requirement for authorization can be obtained by contacting your local CUPA. DTSC-8

9) DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties. For additional information on the EOA or VCA, please see www.dtsc.ca.gov/SiteCleanup/Brownfields, or contact Ms. Maryam Tasnif-Abbasi, DTSC's Voluntary Cleanup Coordinator, at (714) 484-5489. DTSC-9

If you have any questions regarding this letter, please contact Rafiq Ahmed, Project Manager, at rahmed@dtsc.ca.gov, or by phone at (714) 484-5491.

Sincerely,

Rafiq Ahmed
Project Manager
Brownfields and Environmental Restoration Program

cc: Governor's Office of Planning and Research
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
state.clearinghouse@opr.ca.gov.

CEQA Tracking Center
Department of Toxic Substances Control
Office of Environmental Planning and Analysis
P.O. Box 806
Sacramento, California 95812
Attn: Nancy Ritter
nritter@dtsc.ca.gov

CEQA # 3608

Comment Letter ALUC

AIRPORT LAND USE COMMISSION
FOR ORANGE COUNTY

3160 Airway Avenue • Costa Mesa, California 92626 • 949.252.5170 fax: 949.252.6012

August 6, 2012

WATER RESOURCES
AUG 08 2012
IRVINE RANCH
WATER DISTRICT

Paul Weghorst, Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 926187

Subject: Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project
Biosolids Handling Component

Dear Mr. Weghorst:

Thank you for the opportunity to review the proposed Draft Supplemental Environmental Impact Report (Draft SEIR) for the modification of the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project in the context of the Commission's *Airport Environs Land Use Plan for John Wayne Airport (JWA AELUP)* and the *Airport Environs Land Use Plan for Heliports (AELUP for Heliports)*. The project includes a new Biosolids Handling Component. The MWRP is located at 3512 Michelson Drive in the City of Irvine.

As noted in the SEIR, the proposed project would penetrate the Notification Surface for JWA and FAA form 7460-1 was filed for the proposed project. The SEIR also mentions that construction of the proposed project would require use of cranes, lights and other construction equipment that could pose hazards to aircraft operations. Please be aware that a Notice of Proposed Construction or Alteration, FAA form 7460-1 will be required for the crane and other construction equipment. In addition to the results of the FAA Aeronautical Study, we recommend that the SEIR include a description of the proposed project building heights above mean sea level (AMSL) using National Geodetic Vertical Datum of 1929 (NGVD29) or North American Vertical Datum 1988 (NAVD88). This information will assist in determining the project's impact on the Federal Aviation Regulation (FAR) Part 77 Obstruction Imaginary Surfaces for JWA. Please forward a copy of the FAA aeronautical study to our office when available. ALUC-1

In addition, the SEIR should identify if the project allows for heliports as defined in the *AELUP for Heliports*. Should the development of heliports occur within your jurisdiction, proposals to develop new heliports must be submitted through the city to the ALUC for review and action pursuant to Public Utilities Code Section 21661.5. Proposed ALUC-2

Comment Letter ALUC

heliport projects must comply fully with the state permit procedure provided by law and with all conditions of approval imposed or recommended by FAA, by the ALUC for Orange County and by Caltrans/Division of Aeronautics. ALUC-2

Thank you for the opportunity to comment on Draft SEIR. Please contact Lea Choum at (949) 252-5123 or via email at lchoum@ocair.com if you need any additional details or information regarding the future referral of your project.

Sincerely,

Kari A. Rigoni
Executive Officer

August 7, 2012

Pamela Sapato
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619

Dear Pamela,

On behalf of University Synagogue, thank you and your staff for the informative two hour-long presentation and discussion at University Synagogue on July 31, 2012 regarding the draft Environmental Impact Report ("DEIR") for the proposed Irvine Ranch Water District ("IRWD") Biosolids Facility and Process ("Proposed Project"). We appreciate the participation of senior staff, including Greg Heiertz, Steve Malloy, and Shannon Reed. The following sets forth our response and our thoughts as to how we might proceed. They consider and build upon our earlier letter of April 11, 2011.

At the outset, we want you to know that we hold IRWD in high esteem as a respected and trusted pillar of our community. We are aware of your high standing in the circle of public water agencies and know of your commitment to our community – providing safe drinking water, recycling wastewater, managing water quality and run-off, conserving wildlife habitat, providing high quality educational facilities for community use, and, now, furthering community sustainability through the recycling of what has been considered wastes to produce useful soils amendments, energy and other products. We also noted that both Greg and Steve have been with IRWD for more than 30 years, reflecting an organization respected by its employees.

A Reconstructionist Congregation
Andre & Katherine Merage Campus
3400 Michelson, Irvine, California 92612 ✡ Tel: 949-553-3535 ✡ Fax: 949-553-4034
www.universitysynagogue.org
One of 12 "Star" Synagogues Chosen Nationally for the Synaplex Initiative

In this spirit, we have one major concern: odor and the attendant risks to the Synagogue, its members, pre-schoolers and others using our facilities. While we provide several preliminary comments below, in our meeting we discussed the need for additional time beyond August 16th to further review the Proposed Project and respond to the District's request for comments. You mentioned the possibility that while the District would be unlikely to extend the general period for comments to the DEIR, it could agree to welcome our comments after August 16th and respond to them. Accordingly, we request that the District agree to accept and respond to our comments received prior to September 15, 2012. Please let us know if that is acceptable. 1

Our major concern: odor impacts on the Synagogue and its Pre-School.

The DEIR generally describes the Proposed Project, including new facilities, operations and commitments on the part of IRWD to comply with the Rules of the South Coast Air Quality Management District and to prepare an Odor Control Maintenance and Operating Plan to assure that no odors are detectable beyond the boundary of the IRWD property. It also refers to a specific state-of-the-art odor control system, noting that it would be modeled after a system installed by the City of Mesa, Arizona "which has a proven record of zero odors detected at the treatment plant boundary since it was put on-line in 1989".

While the staff assured us that the Proposed Project would preclude odor from being detected beyond the project boundaries, we would appreciate the cooperation of IRWD (and the City of Irvine) in confirming this and better understanding the system, the Operating Plan, and the various back-up and contingency provisions, procedures and staffing. The Synagogue is being assisted in this effort by Lindell Marsh, a member of the Synagogue and an attorney practicing in this area of law and Blake Anderson, former General Manager of the Orange County Sanitation District. It is our understanding that Greg Heiertz and Steve Malloy have already reached out to Blake to provide additional information in this regard. In addition, Joel Belding, Senior Planner, City of Irvine, participated in the discussion. It was suggested that IRWD might underwrite a field trip to investigate and experience the Mesa, Arizona facility, conducting not only a "sniff test", but also discussing the plant experience with staff, adjacent landowners and regulatory agency staff. 2

It is important that in assisting us to understand the Proposed Project you also appreciate the risks to us. The Synagogue includes a membership of over 600 families, a pre-school of 90 children, and other activities within its campus (including outdoor play areas), all located within 1600 feet down-wind of the Proposed Project facility. Odor control is an especially sensitive concern to us because our building (and outdoor play area) is in use seven days a week. On all of those days we have children attending either pre-school, religious school, or religious services. An odor mishap, even one or only a few, of any nature, could have a long-term, deleterious impact on enrollment in our programs, participation in the Synagogue generally, and our overall financial well-being. Odor is not only unpleasant in itself, but communicates the possibility of harmful air quality. Accordingly, we need to know specifically, e.g., what contingency plans will be in effect to address a failure of the system. Should such a mishap occur, will IRWD have insurance or other provisions to compensate us for such losses? 3

To some extent, the 70 foot high egg domes that will be part of the Proposed Project communicate that risk to our members and prospective members, both suggesting the possibility that we have just described and, in the event of an actual odor release, magnifying and reminding us all of the possibility of possible or further odor releases. In this regard, Steve provided a visual model of the project facility from the vantage point of the Synagogue. It was unclear as to whether and to what extent the domes were visible. It is critical that as part of the Proposed Project, provision is made (e.g., with landscaping) so that no part of the new facility is visible from the Synagogue and its environs. 4

More generally, the physical structure of the Proposed Project will have an impact on the physical environment of the Synagogue. Sight of the facility will convey a magnified sense of industrialization of the area. We do not argue with the desirability of further addressing our community's sustainability. That is a good objective, which we support. However, to the extent it economically benefits water users generally while reducing the value of our property, some accommodation should be made. This is particularly important in that we are in the midst of re-financing our facility and our need for a high evaluation is of an immediate and concrete nature. And, the value of the property as of two years ago, when prices were depressed, is known. We do not want to bear the financial burden for a more general public savings from the Proposed Project, that, if distributed over thousands of households, would be minimal. Again, it is important to assure that the facilities constructed are not visable from the Synagogue and its environs. 5

In the sense of community, we look forward to collaborating with you in further exploring our concerns. As set forth above, we would welcome and appreciate IRWD's agreement to accept and respond to our comments to the DEIR provided to you prior to September 15, 2012 and IRWD's willingness to cover our expenses in making a field trip, perhaps with the City representative, to the Mesa, Arizona Biosolids facility. 6

Your response to our concerns and specific requests would be most appreciated. Please let me know if you have any questions.

Sincerely,

Sari Schreiber
President, University Synagogue

Cc: Paul A. Weghorst, Principal Water Resources Manager
Joel Belding, Senior Planner, City of Irvine

Comment Letter CDOT

DEPARTMENT OF TRANSPORTATION
District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612-8894
Tel: (949) 724-2241
Fax: (949) 724-2592

Flex your power!
Be energy efficient!

August 13, 2012

WATER RESOURCES
AUG 15 2012
IRVINE RANCH WATER DISTRICT

Paul Weghorst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

File: IGR/CEQA
SCH#: 2011031091
Log #: 3025
I-405

Subject: Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component

Dear Mr. Weghorst,

Thank you for the opportunity to review and comment on the **Draft Supplemental Environmental Impact Report (SEIR) for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component.** The proposed project would implement modifications to the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a new Biosolids Handling Component. This component would thicken, stabilize, dewater, and dry sludge to produce biosolids, and eliminate the need to export sludge/scum offsite. The proposed project would be constructed onsite at the existing MWRP, within a 4.6-acre rectangular-shaped site adjacent to the Phase 2 Capacity Expansion area. The project site is located at 3512 Michelson Drive in the City of Irvine. The nearest State Route to the project site is I-405.

The Department of Transportation (Department) is a commenting agency on this project and has no comment at this time. However, in the event of any activity in the Department's right-of-way, an encroachment permit will be required. 1

Please continue to keep us informed of this project and any future developments that could potentially impact State transportation facilities. If you have any questions or need to contact us, please do not hesitate to call Marlon Regisford at (949) 724-2241.

Sincerely,

Christopher Herre, Branch Chief
Local Development/Intergovernmental Review

C: Scott Morgan, Office of Planning and Research

Comment Letter OCPW

ORANGE COUNTY
OC PublicWorks
Our Community. Our Commitment.

Jess A. Carbajal, Director
300 N. Flower Street
Santa Ana, CA

P.O. Box 4048
Santa Ana, CA 92702-4048

Telephone: (714) 834-2300
Fax: (714) 834-5188

NCL 12-020

August 14, 2012

Mr. Paul Weghorst, Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

SUBJECT: Notice of Availability of a Draft Supplemental Environmental Impact Report for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosoils Handling Component located in the City of Irvine

Dear Mr. Weghorst:

The County of Orange has reviewed Notice of Availability of a Draft Supplemental Environmental Impact Report for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosoils Handling Component and offers the following comments:

Flood/SARP/Trails

OC Public Works, SARP, Trails reviewed the subject Non County Lead and offers the following:

Page 3.12-3 Harvard Avenue

The paragraph refers to the "Peters Canyon Trail" as being on the east side of the San Diego Creek Channel. The San Diego Creek Class I (paved, off-road) Bikeway is the correct name for this facility. Beginning at the confluence of Peters Canyon Channel and San Diego Creek and extending downstream, the paved bikeway is designated as the San Diego Creek Class I Bikeway. The Peters Canyon Riding and Hiking Trail (a native soil dirt trail) is located on the west side of San Diego Creek Channel. For clarification bikeways have paved (usually asphalt) surfaces while trails are surfaced with native soil or decomposed granite. 1

Page 3.12-3 Bicycle and Pedestrian Transportation 2

Suggested edits are as follows;

Mr. Paul Weghorst
City of Irvine
August 14, 2012

The City of Irvine has an extensive non-motorized system that includes pedestrian walkways, Class I Bikeways and Class II Bike Lanes within open space corridors and along regional flood control facilities. The County of Orange also operates and maintains a separate master-planned system of riding and hiking trails, several of which are found in the City. These trails (the Peters Canyon, Hicks Canyon and Irvine Coast) are used by walkers, joggers, equestrian riders and mountain bicyclists. Class I Bikeways and Class II Bike Lanes, however, comprise the most extensive part of the City's non-motorized circulation network. The City's bicycle network connects with other off-road and on-road bicycle facilities, riding and hiking trails and other types of pathways in adjoining communities and throughout Orange County. The three categories of bikeways, as described in the Caltrans Highway Design Manual, Chapter 1000, are:

Class I: a paved path that is separate from any motor vehicle travel lane; 2
Class II: a restricted lane within the right-of-way of a paved roadway for the exclusive or semi-exclusive use of bicycles; and
Class III: a bikeway that shares the street with motor vehicles or the sidewalk with pedestrians.

The City of Irvine contains 44.5 miles of off-road Class I Bikeways and 282 miles of On-road Bike Lanes The closest bicycle facilities to the project site include a Class I Bikeway along San Diego Creek and Harvard Avenue and University Drive, and Class II Bike Lanes located along Campus Drive, Culver Drive, Carlson Avenue, Michelson Drive, Harvard Avenue, and University Drive (OCTA, 2010).

3.9-1 Recreational Facilities

This section of the document refers to a "bike path" on the east side of San Diego Creek. The correct name for the bike path is the San Diego Creek Class I (paved, off-road) Bikeway. The San Diego Creek Class I Bikeway is a regional, master-planned bikeway, part of a large network of off-highway routes, serving commuter and recreational cyclists and pedestrians. Please use the name "San Diego Creek Class I Bikeway" when referring to this route. 3

Consider similar changes on the following pages:

Page 3.1-1 and 3.1-2 (2 places) under the heading of Project Area
Page 3.1-18 under Impacts Discussion (Scenic Vistas)
Page 3.2-5 under Sensitive Land Uses

3.9-1 Recreational Facilities

Please include a discussion about the Peters Canyon Regional Riding and Hiking Trail in this, and other applicable sections of the SEIR (such as Impacts Discussion and Sensitive Land Uses to name two). In addition to the existing master-planned Class I Bikeway (located on the east levee of the San Diego Creek) there exists a separate riding and hiking trail on the west levee of San Diego Creek Channel. The Peters Canyon Regional Riding and Hiking Trail is a master-planned trail and described in the Recreational Element of the County's General Plan. The trail begins at Irvine Regional Park, and continues south to Upper Newport Bay Nature Preserve. Much of the trail already exists, and is open for public use. Until recently the trail was usable between Michelson and Campus Drive until a portion of this length was paved with asphalt. The Irvine Ranch Water District has indicated that the paved surface is temporary and may later be 4

Mr. Paul Weghorst
City of Irvine
August 14, 2012

removed. Additional impacts to the trail, and the public's use of such, should be discussed as part of the SEIR.

The Peters Canyon Regional Riding and Hiking Trail is almost 12 miles long. The route is surfaced with native soil or decomposed granite. Categorized as a mountain-to-sea riding and hiking trail, the trail is on the west side of the flood control channel from the confluence of Peters Canyon and San Diego Creek to Upper Newport Bay. When complete the trail will serve thousands of residents by connecting neighborhoods, commercial and business areas, and local and regional parks from the coast to the Anaheim foothills. Trails serve walkers, joggers, runners, equestrian riders and mountain bicyclists. Class I Bikeways serve commuter and recreational cyclists and pedestrians. 4

Should you have questions or need additional information please call Jeff Dickman at (714) 647-3937.

County Property Permits:

The project is located close to San Diego Creek, which is part of the OC Flood Control District. If any portion of the project construction or operation affects the flood channel, then the project will require an encroachment permit. 5

2. Noise Element:

Although this project is outside the jurisdiction of the County of Orange Noise Ordinance, the project will produce construction noise, therefore the following standard mitigation measures are recommended: 6

1) All construction vehicles or equipment, fixed or mobile, operated within 1,000' of a dwelling shall be equipped with properly operating and maintained mufflers.
2) Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.

Thank you for the opportunity to review this plan submittal. Please direct any questions regarding this memo to Doug Friedman at (714) 667-8841.

Sincerely,

Michael Balsamo
Manager, OC Community Development
OC Public Works/OC Planning
300 North Flower Street
Santa Ana, California 92702-4048
Michael.Balsamo@ocpw.ocgov.com

cc: Mahrooz Ilkhanipour, County Property Permits
Jeff Dickman, Flood/SARP/Trails

L|B|A REALTY

3333 Michelson Drive, Suite 350 | Irvine, California 92612
949.428.8900 | Fax: 949.851.2321 | www.LBArealty.com

August 14, 2012

Mr. Greg Heiertz
Executive Director of Water Policy
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618
HEIERTZ@irwd.com

RE: Michelson Water Recycling Plant Phases 2 & 3 Capacity Expansion Project & Draft Supplemental Environmental Impact Report

Dear Greg,

Thank you for the reaching out to LBA, the owners of Park Place, and providing us a presentation regarding the Irvine Ranch Water District's proposed treatment plant for recycling water and creating bio-solids. LBA appreciates IRWD taking the time to discuss our issues of concern and questions regarding the project.

Key concerns which affect the Park Place project were adequately addressed with regard to the impact to the Marsh, traffic, truck traffic, odors and hazardous waste releases and potential power outage.

We do however continue to have a concern regarding Aesthetics and the appropriate mitigation of the construction staging site which is adjacent to Michelson Drive. Since the duration of construction and utilization of this site is projected to be approximately 4 years, we request that greater consideration be given to screening this site from views from Park Place. 1

While we understand the challenge of screening views to this site from our buildings and parking structure, we do not believe adequate screening exists today even from street elevations of Michelson. We would like additional mitigation to be proposed which may include temporary fencing and additional landscaping. 2

We would be happy to meet with you to discuss further what some of these alternatives might be.

Please feel free to contact me should you have any questions.

Sincerely,

Eric Brown
LBA Realty - Director, Leasing & Development

CC: Paul Weghorst, IRWD

COUNTY OF ORANGE
HEALTH CARE AGENCY

PUBLIC HEALTH SERVICES
ENVIRONMENTAL HEALTH

MARK A. REFOWITZ
DIRECTOR

DAVID M. SOULELES, MPH
DEPUTY AGENCY DIRECTOR

RICHARD SANCHEZ, REHS, MPH
DIRECTOR
ENVIRONMENTAL HEALTH

MAILING ADDRESS:
1241 E. DYER RD., #120
SANTA ANA, CA 92705-5611

TELEPHONE: (714) 433-6000
FAX: (714) 754-1732
E-MAIL: ehealth@ochca.com

Excellence
Integrity
Service

August 15, 2012

Paul Weghorst
Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Project Title: Biosolids Handling and Energy Recovery Facilities Project

Subject: Draft Supplemental Environmental Impact Report for Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component, Irvine, CA (SCH#2011031091)

Dear Mr. Weghorst:

On July 27, 2012, the Orange County Solid Waste Local Enforcement Agency (LEA) was forwarded a copy of the Draft Supplemental Environmental Impact Report (DSEIR) from California Department of Resources Recycling and Recovery (CalRecyle). The DSEIR was prepared for Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component. The proposed project would thicken, stabilize, dewater, and dry sludge to produce biosolids. Stabilization of sludge is achieved by anaerobic digestion which produces biogas as a byproduct. The anaerobic digestion chamber will be operated at temperatures below 125° Fahrenheit.

Under current regulations, some of the activities describe in the above mentioned document could potentially be regulated by our Agency however, discussions continue between several state agencies to revise current regulations. Until such revisions occur, the following activities could be regulated by the LEA.

- If compostable wastes (material that would typically be received at the site through the sewer system) are added to biosolids undergoing anaerobic digestion at a POTW, the activity shall comply with the Enforcement Agency Notification pursuant to 14 CCR 17859.1. 1

- If transformation of the biosolids is occurring on-site, then the facility is considered a "transformation facility" and is regulated as a "large volume transfer/processing facility" pursuant to 14 CCR 17402(a)(8) and (30) and will require a full solid waste facilities permit pursuant to 14 CCR 17403.7, and must comply with Public Resources Code sections 44016 and 44017. 2

- For activities where anaerobic digestion of other wastes, not including biosolids, is proposed to be conducted at a POTW, these activities may be subject to the requirements for a compostable materials handling activity or transfer station depending on the specifics of the activity as determined by the LEA. 3

The LEA can assist you in complying with the solid waste regulations. For more information or if you have any questions, please contact me at (714) 433-6270 or kcross@ochca.com.

Respectfully Yours,

Kathryn Cross

Kathryn Cross, PG, REHS
Supervising Hazardous Waste Specialist
Solid Waste Local Enforcement Agency
Environmental Health

cc Robert Holmes, CalRecyle-Sacramento
Diane Ohiosumua, CalRecycle-Riverside
Cindy Li, RWQCB-Santa Ana
David Jones, SCAQMD
Anthony Martinez, OC EH

Comment Letter OCSD

Orange County Sanitation District

10844 Ellis Avenue, Fountain Valley, CA 92708
(714) 962-2411 www.ocsewers.com

Serving:

Anaheim
Brea
Buena Park
Cypress
Fountain Valley
Fullerton
Garden Grove
Huntington Beach
Irvine
La Habra
La Palma
Los Alamitos
Newport Beach
Orange
Placentia
Santa Ana
Seal Beach
Stanton
Tustin
Villa Park
Yorba Linda
County of Orange
Costa Mesa Sanitary District
Midway City Sanitary District
Irvine Ranch Water District

August 15, 2012

Paul Weghorst, Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: Draft Supplemental Environmental Impact Report for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component

---

The Orange County Sanitation District (OCSD) has received and reviewed the above referenced Draft Supplemental Environmental Impact Report (SEIR).

As forecasted in our 2009 Facilities Master Plan, OCSD will reach capacity for solids processing treatment in 2016. As such, OCSD fully supports Irvine Ranch Water District's (IRWD) efforts to construct Biosolids handling and energy recovery systems which is consistent with our long-term capital improvement plan. 1

Based on our review of the document, OCSD has the following comments. The Supplemental Environmental Impact Report should:

1. Describe IRWD's plan for seasonal reductions in public demand (i.e. during winter) for Class A pellets and how biosolids product storage would be handled on or offsite, or disposed in the regional sewer. 2

2. Identify all project support facilities that are required from a construction and operational standpoint which may include, but are not limited to: 3
   a. New preliminary treatment systems
   b. Gas compressor systems
   c. Debris removal systems for the centrifuge dewatering operations

Also, two corrections should be noted:

1. Delete the following statement from future environmental documents ~~"...in addition, sending sludge to OCSD or Synagro prevents IRWD from making beneficial use of renewable resource."~~ 4

OCSD's Biosolids Management Program strives for 100 percent biosolids recycling while realizing and balancing a diversification of markets. The SEIR could comment that as a result of this Project, OCSD will manage fewer solids, which will result in less truck traffic. 4

2. Revise language in environmental document "...The resulting Preliminary Evaluation of System-Wide Biosolids Management Alternatives Report (HDR, 2009) concluded that it would be cost-effective for IRWD to implement solids handling at the MWRP rather than continuing to ~~transport~~ '*discharge'* sludge to OCSD." 5

OCSD appreciates the opportunity to review and comment on the proposed project. Should you have any questions or require further information, please call me at 714-593-7119.

Daisy Covarrubias

Daisy Covarrubias, MPA
Senior Staff Analyst

DC:sa
EDMS:003960947/1.8a

Natural Resources Agency Edmund G. Brown, Jr., Governor

CalRecycle

DEPARTMENT OF RESOURCES RECYCLING AND RECOVERY

801 K STREET, MS 19-01, SACRAMENTO, CALIFORNIA 95814 • (916) 322-4027 • WWW.CALRECYCLE.CA.GOV

August 16, 2012

SIR 8.31.12

RECEIVED
AUG 16 2012
STATE CLEARING HOUSE

Mr. Paul Weghorst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92612

Subject: **SCH No. 2011031091:** Draft Supplemental Environmental Impact Report for the Biosolids Handling and Energy Recovery Facilities Project, Irvine Ranch Water District, County of Orange

Dear Mr. Weghorst:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments for this proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

CalRecycle staff has reviewed the environmental document cited above and offers the following project description, analysis and our recommendations for the proposed project based on our understanding of the project. If CalRecycle's project description varies substantially from the project as understood by the Lead Agency, CalRecycle staff requests incorporation of any significant differences in the Final Environmental Impact Report. Significant differences in the project description could qualify as "significant new information" about the project that would require recirculation of the document before certification pursuant to CEQA Section 15088.5.

Project Description

The Irvine Ranch Water District, acting as Lead Agency, prepared a Draft Supplemental Environmental Impact Report (Draft SEIR) for the Biosolids Handling and Energy Recovery Facilities Project. The proposed project is to implement modifications to the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a new Biosolid Handling Component (proposed project). The proposed project would integrate new residuals handling system at the MWRP, which would include biosolids processing, biogas management, and energy recovery systems. The proposed project would process residuals.

Comments

For clarity and convenience, questions and comments that Department staff is seeking a specific response to will be *italicized* so the reader can more easily locate and respond to them.
CalRecycle staff will make statements, which, in their opinion are fact - if these statements are incorrect or unclear please notify CalRecycle staff. The proponent or operator of a proposed project is not given tacit approval of an action or activity if that action or activity is not specifically prohibited in the environmental document.

CalRecycle is the permitting agency for solid waste handling activities and works together with the Orange County Health Care Agency-Department of Environmental Health Services, which is the Local

Enforcement Agency (LEA) for permitting and inspection of solid waste handling operations and facilities.

Solid Waste Facilities Permit
The proposed project is located at a POTW. The proposed project is proposing to use anaerobic digestion for biosolids on-site as a part of the process to treat biosolids.

If a Publicly Operated Treatment Works (POTW) is adding other compostable waste (material that would typically be received at the site through the sewer system) to biosolids undergoing anaerobic digestion at the POTW, the activity would be subject to the CalRecycle's compostable materials handling regulation under Title 14, California Code of Regulations, Section 17859.1. Whether this proposed project falls under the jurisdiction of CalRecycle is the determination of the LEA. The LEA contact is the Orange County Health Care Agency, Environmental Health Division (Kathy Cross – 714.433.6270 or kcross@ochca.com). Refer to the CalRecycle's guidance document on anaerobic digestion for additional information: http://www.calrecycle.ca.gov/Publications/Organics/2009021.pdf 1

Changes are currently being proposed to the compostable materials handling regulations. More details on these proposed changes can be found on the CalRecycle website at:
http://www.calrecycle.ca.gov/Laws/Rulemaking/Compost/default.htm

Conclusion

Thank you for the opportunity to comment on the Supplemental Environmental Impact Report. If you have any questions regarding these comments, please contact me at (951) 782-4168 or via e-mail at dianne.ohiosumua@calrecycle.ca.gov.

Sincerely,

Dianne Ohiosumua
Permitting and Assistance Branch - South
Department of Resources Recycling and Recovery

cc: Virginia Rosales, Supervisor
Permitting and Assistance Branch - South
Department of Resources Recycling and Recovery

Kathleen Cross, Supervisor
County of Orange- Health Care Agency, Public Services
Environmental Health - L1241 e. Dyer Road, #120
Santa Ana, CA 92705

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY · DAVIS · IRVINE · LOS ANGELES · MERCED · RIVERSIDE · SAN DIEGO · SAN FRANCISCO

SANTA BARBARA · SANTA CRUZ

OFFICE OF RESEARCH
NATURAL RESERVE SYSTEM

5171 California Ave., Suite 150
Irvine, CA 92697-3185
(949) 824-0018
Fax (949) 824-3400
http://www.research.uci.edu/

To: Mr. Paul Weghorst, Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Ave, Irvine, CA 92618
Weghorst@irwd.com

From: Dr. Peter Bowler, San Joaquin Marsh Reserve Faculty Director
Dr. William Bretz, San Joaquin Marsh Reserve Manager
University of California Natural Reserve System's San Joaquin Marsh Reserve
Office of Research
University of California
Irvine, CA 92697-1459
pabowler@uci.edu
wlbretz@uci.edu

Re: Comments on the DSEIR for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component

Dear Mr. Weghorst:

The University of California Natural Reserve System's San Joaquin Marsh Reserve is located immediately adjacent to and downstream from IRWD's property surrounding the MWRP. The Marsh Reserve is an academic facility administered by the University of California, Irvine (UCI), and is heavily utilized as an outdoor classroom, laboratory and field station for teaching and research. The University of California Natural Reserve System (UCNRS) is a CEQA-designated Trustee Agency, and is responsible for protecting the natural resources of the Marsh Reserve for the Public Interest, in addition to managing the Reserve for academic and research purposes. The site is owned by the Regents of the University of California and is managed by the UCI's Office of Research. As a state-owned Reserve, the University's San Joaquin Marsh Reserve will be the first non-District property directly impacted if problems occur at MWRP resulting in sewage (or other pollutant) spills into the environment that cannot be contained on site.

In spite of the highest state-of-the art engineering, advanced best management practices, and IRWD's commitment to excellence for its operations at MWRP, technology can fail at times, and stochastic environmental catastrophes can and do occur. Earthquakes that exceed MWRP engineering design expectations, such as the recent Fukushima disaster in Japan, could occur in Southern California. Ongoing global climate change increases the probability of severe flooding on the San Diego Creek watershed that could exceed existing flood protection measures at MWRP. In this regard, all aspects of IRWD's operations at MWRP are a concern for the management of the San Joaquin Marsh Reserve, and the proposed Biosolids Handling Component project adds to these concerns.

We appreciate this opportunity to provide our comments concerning the DSEIR for the Irvine Ranch Water District's Biosolids Handling Component of the MWRP Phase 2 & 3 Capacity Expansion Project.

According to the DSEIR, Chapter 2, page 2-4, "The proposed project would provide a residuals management system at the MWRP with capacity to handle all solids produced based on projected future demand in the IRWD service area, up to 33 million gallons per day at the MWRP and up to 5.5 million gallons per day at the LAWRP.....In addition to processing the sludge produced by the recycled water treatment process at the MWRP, the proposed project would be designed to have capacity to treat digested and dewatered sludge from the LAWRP and potentially other regional wastewater treatment plants."

Table 2-2, page 2-19, Estimate Operational Vehicle Trips, shows that processing the solids from the 5.5 mgd LAWRP would require sludge deliveries from Los Alisos in the District. This table also shows the proposed project would receive an additional 24 sludge deliveries per week trucked from other regional wastewater treatment plants, which is four times greater than the deliveries from LAWRP. Using this factor of 4, it appears that the proposed project is scaled in size to receive the solids from other wastewater treatment plants up to a total capacity of 22 million gallons per day (mgd) [4 X 5.5 mgd = 22 mgd]. 1

It appears that the proposed project is in fact designed to handle all of IRWD's solids from 38.5 mgd of sewage treated at MWRP (33 mgd) and LAWRP (5.5 mgd), as well as the solids generated from another 22 mgd of sewage treated at other regional wastewater treatment plants. Evidently the proposed project has a planned capacity to handle the solids from 60.5 mgd of sewage, which means it is about 1.6 times bigger than is needed for IRWD's total future needs.

The DSEIR contains no discussion about the justifications for a facility that is 60% larger than the District's own future needs. Would the proposed project be feasible if it were smaller sized to meet only the District's internal needs? Is the proposed project dependent in some ways on serving sewage treatment clients outside the District? Does IRWD need to import solids from other sewage treatment plants and earn income from this service to make the project work at the proposed oversized capacity? If the Orange County Sanitation District enlarges its solids processing capacity, will IRWD and OCSD 2

become competitors for available regional sludge? If for some reason IRWD could not import the sludge from 22 mgd of sewage treated outside the District, how would this affect the proposed project? 2

The DSEIR lists the following six objectives for IRWD's proposed project:
1) Allow IRWD to make efficient and sustainable use of its own renewable resources.
2) Increase IRWD's autonomy for residuals management.
3) Allow for beneficial use of the biosolids produced during the treatment process.
4) Allow for beneficial use of biogases produced during anaerobic digestion.
5) Minimize environmental impacts associated with residuals management.
6) Provide residuals management facilities that meet future solids handling needs of the MWRP Phase 2 and 3 Capacity Expansion Project. 3

It seems possible that the proposed project could be 60% smaller, serving only the District's own needs to treat the solids from 38.5 mgd of sewage, and still attain the six stated objectives. If this is not so, the Final SEIR should explain why.

The DSEIR does not explain why it is undesirable, infeasible, or uneconomic for IRWD to partner with the Orange County Sanitation District's program in expanding its solids processing capacity sufficiently to meet IRWD's future needs. From an Orange County or regional perspective, it seems that the only aspect of the six objectives of the proposed project that would not be attained by IRWD partnering with OCSD would be IRWD's interest in increasing its own parochial autonomy (Objective 2).

Efficient and sustainable use of the renewable resources associated with IRWD's sludge could occur at OCSD (Objective 1). Beneficial use of the biosolids produced could occur at OCSD (Objective 3). Beneficial use of biogases produced could occur at OCSD (Objective 4). Environmental impacts associated with residuals management could be minimized with treatment at OCSD (Objective 5). Meeting future solids handling needs of MWRP Phase 2 and 3 Capacity Expansion could occur at OCSD (Objective 6). 4

Alternatives to the proposed project that are considered in the DSEIR are basically rejected for reasons of "institutional constraints regarding implementability, economic viability, and the lack of increased autonomy for IRWD in its residuals management." Unfortunately, the DSEIR does not actually or adequately inform the reader about the specifics of these constraints, so it is not possible to compare the proposed project and the opportunities and/or drawbacks associated with the other alternatives, including IRWD partnering more closely with OCSD to take care of sludge.

The No Project Alternative is identified as the Environmentally Superior Alternative with the least environmental impacts, compared to implementation of the proposed project. The DSEIR states that with the No Project Alternative, however, potential benefits to air quality and traffic associated with the proposed project would not occur because there would be no reduction in operational truck trips, and no reduction in associated air emissions. The DSEIR fails to consider that IRWD could choose to export 5

its LAWRP sludge to OCSD rather than all the way to Arizona; and that a cooperative partnership with OCSD could result in that District developing the process to produce Class A pellets utilized at less distant destinations. The DSEIR also fails to consider that through the No Project Alternative, IRWD could then choose not to develop the 4.6-acre site for the proposed project, but instead could restore that area to an unpaved, undeveloped natural landscape in ways that would eliminate impacts to hydrology and water quality. In fact, the No Project Alternative could become the Environmentally Superior Alternative with less severe and less intense impacts in all respects, if the above considerations were incorporated into IRWD's partnering with OCSD. 5

We recommend that IRWD adopt the No Project Alternative and reject implementation of the Biosolids Handling Component. We recommend that IRWD choose to partner with Orange County Sanitation District in the expansion of its solids processing facilities, and to partner with OCSD to develop more local markets for Class A biosolids pellets that would reduce both Districts' greenhouse gas emissions and carbon footprints. Contingency funding for environmental cleanup should a catastrophe occur must be budgeted for the San Joaquin Marsh Reserve and the Newport Back Bay Ecological Preserve, another state-owned Ecological Preserve immediately downstream. Endangered species issues are present at both sites, including nesting light-footed clapper rails, among others. 6

Please include these comments in the DSEIR record, and the UC Natural Reserve System looks forward to participating fully in further consideration of the Biosolids Handling Component in the SEIR process.

Sincerely,

Peter A. Bowler

Dr. Peter Bowler, Faculty Director
UCNRS San Joaquin Marsh Reserve

William Bretz

Dr. William Bretz, Reserve Manager
UCNRS San Joaquin Marsh Reserve

August 28, 2012

Mr. Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619

Re: Comments of University Synagogue regarding the draft Environmental Impact Report ("DEIR") for the proposed Irvine Ranch Water District ("IRWD") Biosolids Handling and Energy Recovery Project Facilities Project ("Proposed Project").

Dear Mr. Weghorst:

Thank you and your staff for briefing us on the Proposed Project and providing us with the opportunity to comment on the DEIR as set forth below.

Our comments further those set forth in our earlier letters of April 11, 2011 and August 7, 2012 and, in addition to the DEIR, are based on the very informative presentation by your senior staff at the Synagogue on July 31, 2012 and further discussions with your staff.

As I mentioned in my last letter, we hold IRWD in high esteem as a respected and trusted pillar of our community and are aware of your high standing in the circle of public water agencies and know of your commitment to our community – providing safe drinking water, recycling wastewater, managing water quality and run-off, conserving wildlife habitat, providing high quality educational facilities for community use, and, now, furthering community sustainability through the recycling of what has been considered wastes to produce useful soils amendments, energy and other products. Our major concern is odor and the attendant risks to the Synagogue, its members, pre-schoolers and others using our facilities. The DEIR describes the Proposed Project, including new facilities, operations and commitments on the part of IRWD to comply with the Rules of the South Coast Air Quality Management District and assure that no odors are detectable beyond the boundary of the IRWD property. It refers to a specific state-of-the-art odor control system, noting that it would be modeled after a system 1

installed by the City of Mesa, Arizona "which has a proven record of zero odors detected at the treatment plant boundary since it was put on-line in 1989."

While the staff assured us that the Proposed Project would preclude odors from being detected beyond the project boundaries, we expressed our interest in the cooperation of IRWD (and the City of Irvine) in confirming this and better understanding the system, the Operating Plan, and the various back-up and contingency provisions, procedures and staffing. We mentioned that we were being assisted in our efforts by Lindell Marsh, a member of the Synagogue and an attorney practicing in this area of law, and Blake Anderson, former General Manager of the Orange County Sanitation District. It is our understanding that Steve Malloy, Principal Engineer with IRWD, reached out to Blake and provided additional information with respect to the Proposed Project, which we appreciate. In addition, Joel Belding, Senior Planner, City of Irvine, participated in the discussion session. 2

In that session we also discussed the value of having IRWD arrange for two of our members to visit and experience the Mesa, Arizona facility, conducting not only a "sniff test", but also discussing the plant experience with staff, adjacent landowners and regulatory agency staff. Your staff verbally indicated that IRWD could not underwrite the costs of having one or two of our Directors visit the Mesa facility. 3

We have underscored that it is important that IRWD fully appreciate the risks to us from the Proposed Project: the Synagogue includes a membership of over 600 families, a pre-school of 90 children, and conducts other activities within its campus (including outdoor play areas), all located within 1600 feet down-wind of the Proposed Project facility. Odor control is an especially sensitive concern to us because our building (and outdoor play area) is in use seven days a week. On all of those days we have children attending either pre-school, religious school, or religious services. An odor mishap, even one or only a few, of any nature, could have a long-term, deleterious impact on enrollment in our programs, participation in the Synagogue generally, and our overall financial well-being. Odor is not only unpleasant in itself, but communicates the possibility of harmful air quality. Accordingly, we are especially concerned about what contingency plans will be in effect to address a failure of the system. Should such a mishap occur, will IRWD have insurance or other provisions to compensate us for such losses? 4

To some extent, the 70 foot high egg domes that will be part of the Proposed Project communicate that risk to our members and prospective members, both suggesting the possibility that we have just described and, in the event of an actual odor release, magnifying and reminding us all of the possibility of further odor releases and the fear of attendant unhealthful air quality. In this regard, Steve provided a visual model of the project facility from the vantage point of the Synagogue. It was unclear as to whether and to what extent the domes will be visible. It is critical that, as part of the Proposed Project, provision is made (e.g., with landscaping) so that no part of the new facility is visible from the Synagogue and its environs. 5

More generally, the physical structure of the Proposed Project will have an impact on the physical environment of the Synagogue. Sight of the facility will convey a magnified sense of industrialization of the area. We do not argue with the desirability of further addressing our community's sustainability. That is an objective that we support. However, to the extent it economically benefits water users generally while reducing the value of our property, some accommodation should be made. This is particularly important in that we are in the midst of re-financing our facility and our need for a high evaluation is of an immediate and concrete nature. And, the value of the property as of two years ago, when prices were depressed, is known. We do not want to bear the financial burden for a more general public savings from the Proposed Project, that, if distributed over thousands of households, would be minimal. 6

Going forward with the Proposed Project, we suggest and request the following with respect to:

- Order controls, Plans and Procedures
- Landscaping
- The opportunity to further experience and research the Mesa, Arizona facility

Odor Controls, Plans and Procedures.

On Aug 6, 2012, Blake Anderson advised us as follows:

"I have taken a look at the "Process Validation Study" that was recently completed by Black & Veatch Engineers. It followed the "Preliminary Design Report" that was completed last year by HDR Engineers. These are both very well known and respected civil engineering firms that do work all over the US. I know the firms very well and know several of the principals that worked on the studies or signed off on them. They are all top-notch. Both studies deal with the unit processes involved in the digestion, dewatering and handling of the biosolids (aka sludge) that will be produced, delivered, processed and managed at the treatment plant site.

The Process Validation Study took a second look at all of the design assumptions, conducted field visits to wastewater treatment plants in California and Arizona employing similar technologies and developed a set of recommendations that IRWD intends to follow. I can assure you that between the engineering and planning staff at IRWD, B&V and HDR, all of the bases have been covered. This project and this client are high stakes and high profile for the engineering firms and they have provided their very best people in this planning and evaluation process, so far. 7

My overall conclusion is that the engineering is certainly state of the art. The design is conservative and contains some system redundancies that are intended to achieve a high degree of reliability. I have no concerns about what they have proposed in their process designs.

My only lingering question is how well IRWD will be prepared to:

a.) start up systems that are presently not known by the organization or a majority of its operation and maintenance staff, and

b.) provide long-term operational reliability.

Having staff properly trained and ready for these new challenges will be essential for operating them competently. Budgeting, preventive maintenance, monitoring and adequate oversight are absolutely needed to keep the systems running as originally designed. The Process Validation Study acknowledges that the systems are complex. For this reason, IRWD must describe a well-thought out game plan and then make certain all elements are fulfilled.

All of that is certainly possible.

Your most recent draft letter to IRWD touches on our concern about operational effectiveness. I don't think there's more that can be said in the letter in this regard. What will be essential for IRWD to do (and for the Synagogue to monitor) is that "written plan" becomes "institutional intention" becomes "action" becomes "outcome". I have no doubt that IRWD is capable of all of that. 7

One of things that the Synagogue and the closest neighbors could request is the creation of a third-party operational review panel that would function for the life of the project or until IRWD and the community agree that the system is operating well and third-party review is no longer desirable. Two to three independent people would review operational reports, inspect the operational facilities from time-to-time, have unrestricted access to staff and everything else and would report directly to the community of interest. The panel would consist of people with expertise, experience or interest that would make them qualified to provide an informed opinion of how things are going. They would complete short evaluation reports that would be conveyed directly to the community of interest with copies going to IRWD.

I strongly recommend that their opinions and observations be advisory only to the community, the IRWD board and IRWD staff. Governance, budgeting, operational accountability and final decision-making must remain vested and managed by IRWD exclusively and in all respects. The buck stops with them.

But the operational review panel would be free to say what they think to whomever should hear it. The community of interest would have sole authority for determining how long the operational review panel should exist and would also have sole discretionary authority to re-establish the panel if it were to be retired at one point-in-time and they declared necessary to re-establish at another point-in-time."

We embrace Blake's advice and request that IRWD establish a third-party Operational Review Panel, in the form that he suggests. This would go a long way towards providing our community with assurances that our concerns will be addressed over the long term, while lending our support for your Project that will advance your objectives of sustainability (objectives that we share). 7

Landscaping.

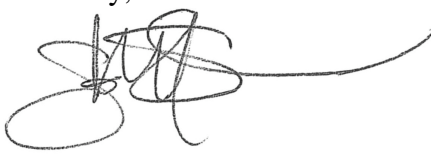
It is important to assure that the facilities constructed are not visible from the Synagogue or its environs. This, we believe, can be accomplished by landscaping – the planting and maintenance of trees and other vegetation. We would welcome working with you on implementing this suggestion. 8

Opportunity to Experience and Research the Mesa, Arizona Facility.

While we acknowledge the verbal "no" to our earlier request, we would welcome and appreciate the opportunity for one or two of our Board members to experience -- the "sniff test" -- and research the Mesa, Arizona facility that is the proto-type for the Proposed Project. It could provide our congregation with significant solace. We also appreciate the arrangements by your staff to allow Blake to follow up by telephone and email with the Mesa facilities staff. Blake has advised us that he will not be able to have those conversations until late September. Accordingly, this letter is subject to further comments following those conversations. 9

In summary, with a sense of community, we look forward to collaborating with you in further exploring and addressing our concerns and your quite commendable efforts. Please let me know if you have any questions or would like to explore them further.

Sincerely,



Sari Schreiber
President, University Synagogue

Cc (via email):
Pamela Sapeto, Consultant to IRWD
Gregory P. Heiertz, Executive Director of Water Policy, IRWD
Steve Malloy, Principal Engineer, IRWD
Joel Belding, Senior Planner, City of Irvine
Blake P. Anderson, Consultant
Lindell L. Marsh, Attorney, Member, University Synagogue
Anita Mishook, Member, University Synagogue

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

E-Mailed: August 30, 2012
Weghorst@irwd.com

August 30, 2012

Mr. Paul Weghorst
Director of Water Resources
Irvine Ranch Water District
15600 San Canyon Ave
Irvine, CA 92618

Review of the Draft Supplemental Environmental Impact Report (Draft SEIR) for the Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project

The South Coast Air Quality Management District (AQMD) staff appreciates the opportunity to comment on the above-mentioned document. The AQMD staff also appreciates that the project proponent consulted with us in a meeting in May 2011 to discuss this project. The following comments are intended to provide guidance to the lead agency and should be incorporated into the Final Environmental Impact Report (Final EIR) as appropriate.

Based on a review of the Draft Supplemental Environmental Impact Report (Draft SEIR) the lead agency has not provided sufficient technical information to determine the potential air quality impacts from the proposed project. Also, the lead agency has provided limited discussion to substantiate the Draft SEIR's treatment of baseline activities. Therefore, the AQMD staff recommends that the lead agency provide additional information in the Final EIR that addresses these concerns. Details regarding these comments are attached to this letter. 1

Pursuant to Public Resources Code Section 21092.5, please provide the SCAQMD with written responses to all comments contained herein prior to the adoption of the Final EIR. Further, staff is available to work with the lead agency to address these issues and any 2

other questions that may arise. Please contact Dan Garcia, Air Quality Specialist CEQA Section, at (909) 396-3304, if you have any questions regarding the enclosed comments. 2

Sincerely,

Ian MacMillan
Program Supervisor, CEQA Inter-Governmental Review
Planning, Rule Development & Area Sources

Attachment

IM:DG

ORC120705-03
Control Number

Peak Daily Operational Emissions

1. In Table 3.2-7 of the Draft SEIR the lead agency presents the project's peak daily operational emissions from the project, however, based on recent information provided in the project's permit application file it is not clear that the Draft SEIR captures the project's potential maximum daily air quality impacts. For example, based on information provided to the AQMD's engineering staff the maximum daily uncontrolled NOx emissions from the project are 66.84 pounds per day (lbs/day). However, the peak daily NOx emissions value reported in Table 3.2-7 is 61 lbs/day from the following emissions sources: dryers, flares, boilers, emergency generators, micro turbines and a thermal oxidizer. The lead agency should ensure that the Draft SEIR discloses the project's maximum daily operational air quality impacts, at a minimum. The Draft SEIR should also discretely identify all of the project's emissions from permitted stationary source equipment, mobile source equipment, and any other sources.

2. Mobile Source Emissions Baseline

   The project's peak daily mobile source emissions reported in Table 3.2-7 and Table 3.6-2 of the Draft SEIR appear to include existing transportation activity associated with the Los Alisos Water Recycling Plant (LAWRP) and the Orange County Sanitation District (OCSD) in the baseline. Based on discussion provided in the Draft SEIR it appears that the lead agency assumed that the proposed project will replace biosolid processing activity that is occurring at OCSD and a facility in Arizona, and that this baseline activity will cease with the project. As a result, the lead agency subtracts the emissions from this baseline activity from the project's emissions. However, the lead agency does not provide the transportation emissions methodology in Appendix C of the Draft SEIR nor does it provide substantial evidence demonstrating that reduced operations at OCSD will not be replaced to maintain existing capacity. As was discussed in the consultation meeting last year, if the baseline emissions are subtracted from project emissions, then a robust description is needed to justify the assumption that baseline emissions will not be continued in the future. Therefore, the lead agency should provide sufficient technical information in the Final EIR to demonstrate that it is appropriate to assume that all baseline activity will cease in the future

3. Permitted Equipment

   AQMD staff may have additional comments on the emissions analysis conducted for air quality permits. These comments will be made as part of the permitting process. Engineering and Compliance staff can be reached at (909) 396-2737 regarding the permit application.

Community Development www.cityofirvine.org

City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 (949) 724-6000

August 30, 2012

Mr. Paul Weghorst
Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Dear Mr. Weghorst:

Subject: Michelson Biosolid Facility Draft Environmental Impact Report

The City of Irvine appreciates the opportunity to review the Draft Environmental Impact Report (DEIR) for the Michelson Water Recycling Plant (MWRP) Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component. Following review of the DEIR for this project, the City has the following comments for your consideration and incorporation into the Final EIR.

3.1 Aesthetics

The City of Irvine requests the inclusion of topographic information to show the heights of the surrounding properties relative to the project site, including building heights to demonstrate the relative height of the proposed biosolids treatment facility. Please also provide a text discussion to describe the quantitative details in the exhibits. 1

Page 3.1-2 of the EIR states in reference to landscaping recently cleared from the adjacent flood control channel that "once this vegetation grows back, it will provide additional screening of the project site..." Please provide details on the types of landscaping within this area and also provide details on Orange County Flood Control District (OCFCD) plans for allowing permanent landscaping within this area. The City also recommends the addition of a Project Design Feature to provide for vegetative screening within or adjacent to the MWRP with the intent being able to provide screening for the new facility from views from Harvard Avenue. 2

3.2 Air Quality

Based on public concern over the potential for offensive odors from the new facility, trucks carrying sludge to the facility, and the lack of any technical analysis in the EIR, the City recommends IRWD prepare an independent third-party assessment of the existing Northwest Water Reclamation Plant (NWRP) in Mesa, Arizona, after which the MWRP expansion is being modeled to assess the potential for odors associated with the project. Within this assessment, please address potential odors from trucks transporting sludge to the facility.

The City suggests using either the Advanced Monitoring Systems (AMS)/Environmental Protection Agency (EPA) Regulatory Model AERMOD dispersion model, or comparable assessment techniques. Based upon the methodology and results, the City may also conduct a peer review of the assessment to evaluate its findings. 3

3.4 Cultural Resources

We request that mitigation measures CUL-4 and CUL-5 be modified with the following language as underlined below:

CUL-4: In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find. <u>The Director of Community Development shall also be notified of the discovery and the determination of the OCC Paleontologist related to recovery, handling and disposition of identified resources.</u>

CUL-5: If human remains are uncovered during project construction, the project proponent shall immediately halt work, contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 4

5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The Director of Community Development shall also be notified of the discovery and the determination of the NAHC related to recovery, handling and disposition of remains and associated artifacts. 4

3.10 Noise

We request that mitigation measure Noise-3 be modified with the following language:

NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate noncompliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds. A copy of the noise survey shall be provided to the Director of Community Development, as well as details of any building or site improvements necessary to correct excess noise levels as well as a schedule for completion of the improvements. 5

3.12 Transportation and Traffic

Please consider revising the traffic analysis to incorporate the following comments:

Page 3.12-11: The report states that the project adds 46-60 daily trips to the surrounding roadway network. Does this include employee trips and truck trips? How many of those daily trips are added during the AM and PM peak periods? Note that traffic impacts within the City of Irvine are identified based on the analysis of AM and PM peak traffic conditions. Please provide additional information clarifying the number and type of trips (employee and/or truck) that the project adds to the AM and PM peak periods (6 – 9 a.m. and 3 – 7 p.m.). Further traffic analysis may be required if these trips occur during the peak periods. 6

Table 3.12-2 (The Existing Level of Service Ratings for Intersections in the Project Area): As documented on page 2-18 of the report, trucks will be taking access to the project from Michelson & Riparian. It would appear that trucks would need to access this intersection via a route from Jamboree & Michelson, Harvard & Michelson or Culver/Michelson. Please add these three intersections within the City of Irvine to the existing LOS table. Please coordinate with Wendy Wang at (949) 724-6425 to obtain the intersection data for these three locations. 7

The City of Irvine looks forward to your responses to these items. We will continue to work with you on the Conditional Use Permit for the expansion project and may have additional questions, comments and corrections on the project. 8

Sincerely,

Joel Belding

Joel Belding
Senior Planner

cc: Eric Tolles, Director of Community Development
Tim Gehrich, Deputy Director of Community Development
Bill Jacobs, Principal Planner
Steve Weiss, Principal Planner

Sea & Sage Audubon

P.O. BOX 5447, IRVINE, CA 92616-5447

August 31, 2012

Paul Weghorst
Director of Water Resources
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

By email to weghorst@irwd.com

Re: Draft Supplemental Environmental Impact Report for Biosolids and Energy Recovery Project

We are writing on behalf of Sea and Sage Audubon Society and the Sea and Sage Audubon Conservation Committee in response to the Draft Supplemental Environmental Impact Report for Biosolids and Energy Recovery Project (DSEIR).

Sea & Sage Audubon Society is an Orange County chapter of the National Audubon Society with over 3,000 members dedicated to the appreciation and protection of birds, other wildlife, and their habitats.

We want to thank IRWD personnel for attending our Conservation Committee meeting on August 7, 2012, and giving us a presentation about the project. Members of our committee are generally of the goals of this project: recovery of energy and mineral value from material that would otherwise largely be disposed of into the environment.

After review of the DSEIR we have found that we have one specific concern regarding a construction-related impact and we request that you address it in preparing a final SEIR.

Visitors to the public trail system adjacent to the project site may be alarmed by the construction if information about the project is not displayed. We encourage IRWD to post signage at locations from which construction will be visible especially in the vicinity of the trail behind the construction site, that explain what the project is. This will forestall some of the concerns that visitors will have and reduce some of the questions that our Audubon House volunteers will encounter from the public. 1

Yours truly,

G. Victor Leipzig, Ph.D.
Co-chair
Conservation Committee

Susan Sheakley
Co-chair
Conservation Committee

From: "<Christine_Medak@fws.gov>" <Christine_Medak@fws.gov>
Date: September 6, 2012 11:19:36 AM PDT
To: "Paul Weghorst" <Weghorst@irwd.com>
Subject: DEIR for Michelson Water Recycling Plant Phase 2 & 3

In Reply Refer To:
FWS-OR-12B0344-12TA0569

Mr. Weghorst,

The U.S. Fish and Wildlife Service was unable to provide comments on the subject DEIR within the allowed public comment period. Although the comment period has concluded, we request your consideration of the following measure to ensure construction of the proposed project does not result in impacts to the federally endangered least Bell's vireo (*Vireo bellii pusillus*, vireo). The vireo consistently nests in the riparian woodland adjacent to the proposed project site during the period between March 15 and September 15. The proposed project is anticipated to be initiated in the winter of 2013 and will be constructed over a period of 36 to 48 months. To ensure impacts to vireo are avoided, mitigation measure BIO-2 will be implemented, which includes surveys for vireo and identifies potential delays in construction and/or the erection of noise barriers to avoid abandonment of active nests as a result of construction noise and disturbance. Because of the high probability of vireo nesting immediately adjacent to the project site, we recommend the installation of a noise barrier prior to the first nesting season following the initiation of construction (i.e., winter of 2013/2014). The noise barrier should be of adequate height, length and materials to maintain ambient noise levels in the adjacent riparian woodland for the duration of the construction period. Assuming construction is initiated in the winter of 2013, the effectiveness of the fencing to reduce noise levels to ambient conditions should be tested with noise monitoring equipment prior to March 15, 2014. Fencing should be maintained in working condition until completion of the project. With this measure in place, and assuming effective noise attenuation, you will avoid the need to conduct vireo monitoring throughout the three or four vireo breeding seasons that may occur within the construction period. 1

We appreciate your coordination on this project. Should you have any questions regarding this message, please feel free to contact me.

Christine L. Medak
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92011
(760) 431-9440 ext. 298
http://www.fws.gov/carlsbad/

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

EDMUND G. BROWN JR.
GOVERNOR

KEN ALEX
DIRECTOR

September 4, 2012

ENGINEERING & PLANNING

SEP 06 2012

IRVINE RANCH WATER DISTRICT

Paul Weghonst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Subject: Biosolids Handling and Energy Recovery Facilities Project
SCH#: 2011031091

Dear Paul Weghonst:

The State Clearinghouse submitted the above named Supplemental EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on August 31, 2012, and the comments from the responding agency (ies) is (are) enclosed. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

> "A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

These comments are forwarded for use in preparing your final environmental document. Should you need more information or clarification of the enclosed comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Enclosures
cc: Resources Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

Comment Letter SCH

SCH#	**2011031091**
Project Title	Biosolids Handling and Energy Recovery Facilities Project
Lead Agency	Irvine Ranch Water District

Type	**SIR** Supplemental EIR
Description	Note: Extended per lead The IRWD proposes to implement modifications to the Michelson Water Recycling Plant Phase 2 and 3 Capacity Expansion Project to include a new Biosolids Handling Component (proposed project). The proposed project would integrate a new residuals-handling system at the MWRP, which would include biosolids processing, biogas management, and energy recovery systems. The proposed project would process residuals.

Lead Agency Contact

Name	Paul Weghonst		
Agency	Irvine Ranch Water District		
Phone	(949) 453-5632	***Fax***	
email			
Address	15600 Sand Canyon Avenue		
City	Irvine	***State*** CA	***Zip*** 92618

Project Location

County	Orange			
City	Irvine			
Region				
Lat / Long	33° 39' 57" N / 117° 50' 24" W			
Cross Streets	Michelson Drive/Carlson Avenue			
Parcel No.				
Township		***Range***	***Section***	***Base***

Proximity to:

Highways	I-405
Airports	John Wayne
Railways	
Waterways	San Diego Creek
Schools	UC Irvine
Land Use	City of Irvine Land Use: Institutional (Public Facilities); City of Irvine Zoning: Institutional

Project Issues	Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Recreation/Parks; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Water Quality; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Reviewing Agencies	Resources Agency; Department of Fish and Game, Region 5; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Resources, Recycling and Recovery; Caltrans, Division of Aeronautics; California Highway Patrol; Caltrans, District 12; CA Department of Public Health; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Board, Region 8; Department of Toxic Substances Control; California Energy Commission; Native American Heritage Commission

Date Received	07/03/2012	***Start of Review***	07/03/2012	***End of Review***	08/31/2012

Note: Blanks in data fields result from insufficient information provided by lead agency.

EDMUND G. BROWN JR.
GOVERNOR

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

KEN ALEX
DIRECTOR

Memorandum

Date: August 16, 2012

To: All Reviewing Agencies

From: Scott Morgan, Director

Re: SCH # 2011031091
Biosolids Handling and Energy Recovery Facilities Project

Pursuant to the attached letter, the Lead Agency has extended the review period for the above referenced project to **August 31, 2012** to accommodate the review process. All other project information remains the same.

cc: Jennifer Jacobus
Irvine Ranch Water District
15600 Sand Canyon Ave
Irvine, CA 92618

ESA

707 Wilshire Boulevard
Suite 1450
Los Angeles, CA 90017
213.599.4300 phone
213.599.4301 fax

www.esassoc.com

transmittal

date August 14, 2012

____ attached ____ via regular mail

____ via messenger __x__ via overnight mail

to State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

project Irvine Ranch Water District, Michelson Water Recycling Plant, Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component (SCH# 2100031091)

items Fifteen (15) copies of Notice of Extension of Review Period for the Draft Supplemental Environmental Impact Report (SEIR)

comments The Draft SEIR for the above-mentioned project was previously submitted to the State Clearinghouse on July 3, 2012, for distribution to appropriate state agencies. Enclosed please find 15 copies of the above-mentioned Notice of Extension of Review Period. Please use the enclosed Notice of Extension to notify state agencies that the public review period for the Draft SEIR has been extended to August 31, 2012. If you have any questions please contact Jennifer Jacobus at (213) 599-4300.

sent by Jennifer Jacobus

cc

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # 2011031091

Project Title: Biosolids Handling and Energy Recovery Facilities Project

Lead Agency: Irvine Ranch Water District
Contact Person: Paul Weghorst
Mailing Address: 15600 Sand Canyon Avenue
Phone: (949) 453-5632
City: Irvine
Zip: 92618
County: Orange

Project Location: County: Orange
City/Nearest Community: Irvine
Cross Streets: Michelson Drive/Carlson Avenue
Zip Code: 92612
Lat. / Long.: 33° 39′ 57″ N/ 117° 50′ 24″ W
Total Acres: 4.6
Assessor's Parcel No.:
Section: Twp.: Range: Base:
Within 2 Miles: State Hwy #: I-405
Waterways: San Diego Creek
Airports: John Wayne Airport
Railways:
Schools: U.C. Irvine

RECEIVED
JUL 03 2012
STATE CLEARING HOUSE

Document Type:

CEQA:
- ☐ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☐ Draft EIR
- ☒ Supplement/Subsequent EIR (Prior SCH No.) 2005051174
- Other

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI
- ☐ Joint Document
- ☐ Final Document
- ☐ Other

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☒ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other

Development Type:

- ☐ Residential: Units Acres
- ☐ Office: Sq.ft. Acres Employees
- ☐ Commercial: Sq.ft. Acres Employees
- ☐ Industrial: Sq.ft. Acres Employees
- ☐ Educational
- ☐ Recreational
- ☐ Water Facilities: Type MGD
- ☐ Transportation: Type
- ☐ Mining: Mineral
- ☒ Power: Type Microturbine MW 1.6
- ☒ Waste Treatment: Type Biosolids Handling MGD 33
- ☐ Hazardous Waste: Type
- ☐ Other:

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☐ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☐ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☐ Minerals
- ☒ Noise
- ☐ Population/Housing Balance
- ☐ Public Services/Facilities
- ☒ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☐ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☐ Vegetation
- ☒ Water Quality
- ☐ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Wildlife
- ☒ Growth Inducing
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other

Present Land Use/Zoning/General Plan Designation:

City of Irvine Land Use: Institutional (Public Facilities); City of Irvine Zoning: Institutional

Project Description: *(please use a separate page if necessary)*

The Irvine Ranch Water District (IRWD) proposes to implement modifications to the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a new Biosolids Handling Component (proposed project). The proposed project would integrate a new residuals-handling system at the MWRP, which would include biosolids processing, biogas management, and energy recovery systems. The proposed project would process residuals

January 2008

State Clearinghouse Contact: (916) 445-0613

State Review Began: 07-03-2012

SCH COMPLIANCE 08-31-2012

Note: Extended per lead

Please note State Clearinghouse Number (SCH#) on all Comments

SCH#: 2011031091

Please forward late comments directly to the Lead Agency

AQMD/APCD 33

(Resources: 07-07)

Project Sent to the following State Agencies

- X Resources
- Boating & Waterways
- Coastal Comm
- Colorado Rvr Bd
- Conservation
- X Fish & Game # 5
- Delta Protection Comm
- Cal Fire
- ✓ Historic Preservation
- X Parks & Rec
- Central Valley Flood Prot.
- Bay Cons & Dev Comm.
- ✓ DWR
- Cal EMA
- ✓ Resources, Recycling and Recovery

Bus Transp Hous
- ✓ Aeronautics
- ✓ CHP
- X Caltrans # 12
- Trans Planning
- Housing & Com Dev
- Food & Agriculture
- ✓ Public Health

State/Consumer Svcs
- General Services

Cal EPA
- ARB: Airport/Energy Projects
- ARB: Transportation Projects
- ✓ ARB: Major Industrial Projects
- SWRCB: Div. Financial Assist.
- SWRCB: Wtr Quality
- SWRCB: Wtr Rights
- X Reg. WQCB # 8
- ✓ Toxic Sub Ctrl-CTC

Yth/Adlt Corrections
- Corrections

Independent Comm
- X Energy Commission
- X NAHC

Public Utilities Comm
- State Lands Comm
- Tahoe Rgl Plan Agency
- Conservancy
- Other:

CHAPTER 11
Responses to Comments

This chapter contains the responses to the comment letters received during the public review period for the Draft SEIR. The comment letters are provided in Chapter 10 (see Table 10-1). The individual comments in each letter have been bracketed and numbered. The responses are provided below and are labeled to correspond to the numbered bracketed comments that appear in the margins of the comment letters.

Where the responses indicate revisions, additions or deletions to the text of the Draft SEIR, the text is indented and additions are indicated in underline and deletions in ~~strikeout~~. All corrections and additions are compiled in Chapter 12.

11.1 Odor Control Master Response

Some comments received on the Draft SEIR related to odor control were duplicative or similar. As a result, a master response has been prepared to comprehensively and efficiently address these multiple comments. Individual responses to each comment as bracketed and numbered in Chapter 10 follow the master response (see Section 11.2 below). The individual responses cross-reference the master response where appropriate and applicable.

Odor Control System Description

Various comments pertain to the potential for the proposed project to create objectionable odors that may be detectable beyond the MWRP boundary. Odor impacts are evaluated in the Draft SEIR and are considered less than significant without mitigation (see Draft SEIR pages 3.2-21 and 3.2-22). As described in the Draft SEIR on pages 2-11 and 2-12, the proposed project includes a highly-reliable, state-of-the-art odor control system with built-in redundancy and back-up power generators to ensure the system would operate at full effectiveness. The odor control system design would remove odorous compounds associated with biosolids treatment beyond detectable levels, including removal of hydrogen sulfide (H2S) and ammonia, which are the compounds primarily associated with nuisance odor (rotten egg smell) at water reclamation facilities. The odor control system would reduce odor to a non-detectable level at the MWRP property boundaries.

The project features that ensure odor control are as follows:

- All biosolids handling equipment would be enclosed within the facility.
- Each piece of equipment would be connected to a very reliable system that vacuums odors off the equipment and sends them to a three-stage wet odor scrubbing system.

- The treatment and combustion of biogas would occur in a completely enclosed environment and odors never would be released into the atmosphere.
- The proposed odor control system would be operated under a regulatory permit by South Coast Air Quality Management District (SCAQMD) and thus would be required to comply with established permit conditions, including a requirement for maintaining control efficiency for hydrogen sulfide removal.

In addition, as explained in the Draft SEIR, IRWD would prepare and implement an Odor Control Maintenance and Monitoring Plan (Plan). The Plan would define a schedule for regular preventative maintenance of the odor control system equipment and back-up generators. The odor control system would be designed to allow any of the three scrubbers to be taken out of service for cleaning while maintaining full operational effectiveness through the remaining two scrubbers. The Plan would also include a schedule for odor monitoring along the IRWD property boundary, and a protocol for handling and resolving odor complaints. The Plan would thereby ensure that the odor control system will preclude detectable odor beyond the MWRP boundary.

Odor Control System Operators

The proposed project includes systems that presently are not in use at other IRWD facilities. All IRWD operators have certification through the state and are required to renew their certification every two years; all operators at the MWRP would have state certification for wastewater treatment plant operations. In accordance with IRWD's standard operating and training procedures, the operators of the proposed project facilities, including the odor control system, would receive extensive training from the equipment manufacturers and process designers and undergo rigorous testing prior to operation of the facility. IRWD operators would receive hands-on cross training from other agencies and experts that manage similar biosolids processes. These procedures would ensure that, from initial start up through the life of the project, IRWD staff are properly trained and ready to operate the new facilities competently, including carrying out preventative maintenance and monitoring activities, such as those defined by the Odor Control Maintenance and Monitoring Plan, to ensure the systems are operated as originally designed. These procedures would ensure long-term operational safety and reliability.

Model System in Mesa, Arizona

The odor control system has been modeled after an odor scrubbing system installed at the City of Mesa's Northwest Water Reclamation Plant, which has a proven record of zero odors detected at the treatment plant boundary since it came on-line in 1989 and started processing biosolids in 2001. The odor control system for the proposed project also has been designed by the same expert engineering firms that designed the system at the Mesa reclamation plant.

The City of Mesa has not had any odor complaints from its neighbors located within a quarter mile of the reclamation plant or any other neighbors. Neighbors include businesses, auto dealerships, recreational facilities (park, golf course), single family homes, and apartment buildings. The Mesa odor control system is so successful that investors are building a major league baseball spring training facility, as well as shops and restaurants, adjacent to the

reclamation plant in place of the park and golf course. The spring training facility will include nine baseball fields and seating for 10,000 spectators. Operation of the Mesa reclamation plant has had no impact on community development in the surrounding area.

The odor control system for IRWD's proposed project includes additional processes that improve upon the Mesa system. Rather than the two-stage odor scrubber system that is installed at the Mesa plant, the proposed odor control system includes a three-stage odor scrubber system, which provides for greater removal of odor-causing compounds and increased reliability of the effectiveness of the system.

Comments on the Draft SEIR include requests for visits to and tours of the Mesa plant in order to conduct a "sniff test" and discuss plant operations with staff and neighbors. The Mesa odor control system has been operating for over ten years and is fully effective. However, touring the Mesa plant would not be directly relevant to the assessment of potential impacts associated with the proposed project, since IRWD's proposed odor control system includes an additional stage of odor scrubbing, which would substantially increase the effectiveness and reliability of the system. In addition, the liquid treatment system at the Mesa plant is different from that at the MWRP. Therefore, a "sniff test" of the Mesa plant would not be representative of the system to be included as part of the proposed project.

Peer Review of Odor Control System Design

Comments on the Draft SEIR from the University Synagogue include the results of a peer review of the Preliminary Design Report and Process Validation Study for the proposed project. Mr. Blake Anderson, former General Manager of Orange County Sanitation District (OCSD), has provided a positive review, confirming that the design of the proposed project is state-of-the-art and that there are no concerns regarding the process designs.

Comments from the City of Irvine request an independent third-party assessment of the odor control system at the Mesa plant to determine the potential for odors associated with the proposed project. Since the proposed odor control system includes an additional stage of odor scrubbing that does not exist at the Mesa plant, it is not directly comparable to the Mesa plant systems. In-lieu of a third-party assessment of the Mesa plant, IRWD retained engineers at Dudek to provide an additional peer review of the proposed project design of the odor control system. This review was conducted by recognized experts in the design, construction and management of wastewater collection, treatment, tertiary reclamation and advanced treatment facilities. A peer review letter was prepared by Dudek and is included as **Appendix E**. This review resulted in the conclusion that "the use of chemical scrubbers for treatment of odorous foul air has been successful in many odor control projects" and that the odor control strategy and specific odor control systems included in the proposed project "are robust and meet or exceed industry standard practices." In addition, it is expected that "the systems will effectively contain, convey and treat the volume and type of odorants that will be produced by the multitude of systems and equipment in the biosolids handling facilities."

Public Outreach

Comments on the Draft SEIR from the University Synagogue include a suggestion that IRWD establish a third-party Operational Review Panel (Panel) that would serve as a liaison between the community and IRWD. The suggested Panel would have the ability to review operational reports, inspect operational facilities and have access to staff, and would complete evaluation reports that would be conveyed to the community.

IRWD's community outreach program already provides for direct communication with the surrounding community. Although not required as mitigation for any particular impact identified in the Draft SEIR, as part of IRWD's ongoing public outreach for the proposed project, IRWD will schedule quarterly community outreach meetings for the duration of project construction and through facility start-up activities. At the community meetings, IRWD will provide updates regarding construction progress, plans for project start-up, overviews of the start-up process, overviews of the Odor Control Maintenance and Monitoring Plan and plans for long-term operations and maintenance of the facilities. In addition IRWD will provide for periodic, independent, third-party technical reviews during construction and start-up of the project. The results of these third-party reviews will be presented at these meetings. IRWD will address issues of concern to the community as well. Once the project is operational, the quarterly outreach meetings will be discontinued and neighbors will be able to contact IRWD's Public Affairs Department with questions, concerns, or complaints. The Public Affairs Department will follow the protocol for handling and resolving complaints as described in the Odor Control Maintenance and Monitoring Plan. The text of the Draft SEIR has been revised as shown below to incorporate the public outreach commitments into the Project Description.

Page 2-15:

2.5.4 Public Outreach

As part of IRWD's ongoing public outreach for the proposed project, IRWD will schedule quarterly community outreach meetings for the duration of project construction and through facility start-up activities. At the community meetings, IRWD will provide updates regarding construction progress, plans for project start-up, overviews of the start-up process, overviews of the Odor Control Maintenance and Monitoring Plan and plans for long-term operations and maintenance of the facilities. In addition IRWD will provide for periodic, independent, third-party technical reviews during construction and start-up of the project. The results of these third-party reviews will be presented at these meetings. IRWD will address issues of concern to the community as well.

Page 2-20:

2.6.5 Community Relations

Once the project is operational, the quarterly outreach meetings, mentioned in Section 2.5.4 above, will be discontinued and neighbors will be able to contact IRWD's Public Affairs Department with questions, concerns, or complaints. The Public Affairs Department will follow the protocol for handling and resolving complaints as described in the Odor Control Maintenance and Monitoring Plan.

11.2 Responses to Individual Comments

Letter 1, Native American Heritage Commission

Comment NAHC-1

The comment states that a NAHC Sacred Lands File search did not identify cultural resources in the project area. The comment also states that early consultation with Native American tribes is the best way to avoid unanticipated discoveries of cultural resources or burial sites once a project is underway. Culturally affiliated tribes and individuals may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). The comment urges contact with the list of Native American Contacts and requests that Native American consulting parties be provided pertinent project information. The NAHC recommends pursuing a project that would avoid damage to Native American cultural resources.

Response to NAHC-1

There are no known Native American cultural resources within the project APE. As part of the cultural resources research methods for the analysis in the Draft SEIR, archival research, historic map and aerial review, and contact with the NAHC was conducted. A records search for the project was conducted on March 15, 2011 at the South Central Coastal Information Center (SCCIC) at the California State University, Fullerton. A Sacred Lands File search with the NAHC was requested on March 8, 2011 and results were prepared by the NAHC on March 18, 2011 indicating Native American resources that were identified within ½ mile of the project area. As noted on page 3.4-7 of the Draft SEIR, contact letters to all individuals and groups indicated by the NAHC with affiliation to the project were prepared and mailed on March 18, 2011. The letters described the project and included a map indicating the location of the project area. Recipients were requested to reply with any information they were able to share about Native American resources that might be affected by the proposed project. To date, two responses were received: Alfred Cruz of the Juaneno Band of Mission Indians and Joyce Perry of the Juaneno Band of Mission Indians, Acjachemen Nation. Mr. Cruz and Ms. Perry requested Native American and archaeological monitoring during construction and all ground-disturbing activities. The Draft SEIR includes mitigation measures that require construction monitoring during ground-disturbing activities for both archaeological (Mitigation Measure CUL-1) and paleontological (Mitigation Measure CUL-3) resources. Mitigation Measure CUL-1 also states that "(d)ue to the sensitivity of

the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area."

Comment NAHC-2

The comment states that consultation with tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of the federal National Environmental Policy Act (NEPA) and Section 106 and 4(f) of the federal National Historic Preservation Act (NHPA) (16 U.S.C. 470 et seq), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 et seq. and NAGPRA (25 U.S.C. 3001- 3013) as appropriate.

Response to NAHC-2

Please refer to **Response to NAHC-1** above. There is no federal nexus at this time for the proposed project, and therefore NEPA and NHPA do not apply.

Comment NAHC-3

The comment states that confidentiality of "historic properties of religious and cultural significance" should also be considered as protected by California Government Code Section 6254(r) and may also be protected under Section 304 of the NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places.

Response to NAHC-3

California Government Code Section 6254(r) exempts from disclosure public records of Native American graves, cemeteries, and sacred places maintained by the NAHC. The project area is highly sensitive for archeological resources as a total of eight archaeological sites and seven isolates have been previously recorded within ½ mile of the project area, as noted in Table 3.4-1 of the Draft SEIR. The exact locations of such sites have not been disclosed to the public in the Draft SEIR to protect confidentiality of protected cultural resources.

Comment NAHC-4

The comment states Public Resources Code Section 5097.98, California Government Code Section 27491 and Health & Safety Code Section 7050.5 provide provisions for accidental discovery of human remains and mandate the processes to be followed in the event of a discovery of any human remains in a project location other than a "dedicated cemetery."

Response to NAHC-4

The proposed project would involve ground-disturbing activities with the possibility that such actions could unearth, expose, or disturb previously unknown human remains interred outside of a formal cemetery. The Draft SEIR includes Mitigation Measure CUL-5, which would ensure impacts to human remains are less than significant. The mitigation measure requires that if human remains are uncovered during project construction, all work shall be stopped, the Orange County Coroner will be contacted, and procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines shall be followed.

Comment NAHC-5

The comment states that to be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors.

Response to NAHC-5

The people and organizations identified by NAHC have been notified of the project as discussed on page 3.4-7 of the Draft SEIR. See **Response to NAHC-2** above.

Comment NAHC-6

The comment states that when Native American cultural sites and/or Native American burial sites are prevalent in the project site, the site should be avoided.

Response to NAHC-6

As stated above, there are no known Native American cultural or burial sites located within the project APE. Mitigation Measures CUL-1 and CUL-2 requires that prior to the start of any earth-moving activity, an archeological monitor would be retained by IRWD to monitor ground-disturbing activities. Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area. In addition, if cultural resources are encountered, construction activities shall be redirected until it can be evaluated by a qualified archeologist. In addition, Mitigation Measure CUL-5 will require that the project adhere to the provision for the discovery of human remains. See **Responses to NAHC-3** and **NAHC-4** above.

Letter 2, Department of Toxic Substances Control

Comment DTSC-1

The comment states that SEIR should evaluate whether conditions within the Project area may pose a threat to human health or the environment. The comment lists databases of associated regulatory agencies.

Response to DTSC-1

A search of Cortese List databases was conducted for locations of hazardous materials sites in the project area and is discussed on page 3.7-3 of the Draft SEIR. Regulatory databases researched included the State water Resources Control Board (SWRCB) Geotracker database for leaking underground fuel tanks (LUFTS) and underground storage tanks (USTs), the SWRCB Spills, Leaks, Investigations, and Cleanup Database (SLIC), and the State of California's Envirostor database maintained by the DTSC.

Comment DTSC-2

The comment states that the SEIR should identify the mechanism to initiate any required investigation and/or remediation for any site within the proposed project area that may be contaminated, and the government agency to provide appropriate regulatory oversight.

Response to DTSC-2

Discussed on page 3.7-3 and 3.7-11 of the Draft SEIR, the proposed project site has previously been listed as a hazardous materials site, with gasoline and diesel listed as potential contaminants of the subsurface soil. Underground storage tanks and associated piping were removed, and tests of soil and groundwater detected minor concentrations of petroleum hydrocarbons that were well below regulatory action levels. The case was closed in 2004. Typically, sites are closed once they have demonstrated there is no significant risk to human health or the environment. Nonetheless, in the event that hazardous materials are discovered during project construction and operation, the appropriate regulatory agency will be notified, and requirements for remediation implemented as necessary.

Comment DTSC-3

The comment states that any environmental investigations, sampling and/or remediation for a site should be conducted under a Workplan approved and overseen by a regulatory agency that has jurisdiction to oversee hazardous substance cleanup. The comment also states that the SEIR should summarize the findings of any investigations including environmental site assessments and a table summarizing all hazardous substances found. All closure, certification or remediation approval reports by regulatory agencies should be included in the SEIR.

Response to DTSC-3

Please refer to **Response to DTSC-2** above. The project site currently has no known releases of hazardous materials that would require investigation, sampling and/or remediation. In the event that hazardous materials contamination is discovered at the project site, IRWD would be required to comply with all federal and state regulations pertaining to abatement or disposal of hazardous materials and wastes to protect public health and the environment. IRWD would contact the appropriate regulatory agencies with jurisdiction over any and all hazardous substances and develop a Workplan if necessary.

Comment DTSC-4

The comment states that if buildings, structures, or other asphalt or concrete-paved surface areas are to be demolished, an investigation should also be conducted for the presence of other hazardous chemicals, mercury, and asbestos containing materials (ACM). The comment also states that proper precautions should be taken during demolition activities if any hazardous chemicals, lead-based paints or products, mercury or ACMs are identified, and the contaminants should be remediated in compliance with California environmental regulations and policies.

Response to DTSC-4

The comment is noted. The proposed project would not require the demolition of any existing buildings or structures.

Comment DTSC-5

The comment states that project construction may require soil excavation or filling that may require sampling. Contaminated must be properly disposed. Land Disposal Restrictions (LDRs) may be applicable to the soils. Imported soils used for backfill should be sampled to ensure the imported soil is free of contamination.

Response to DTSC-5

If contaminated soils are encountered during project construction, IRWD would be required to comply with the U.S. Environmental Protection Agency's (USEPA) LDR Program before disposal of such soils in any landfill. The LDR Program ensures that toxic constituents present in hazardous waste are properly treated before hazardous waste is land disposed. IRWD would ensure that any contaminated soils are treated to the standards required by the LDR Program before being placed in a landfill. The Draft SEIR includes Mitigation Measure HAZ-1 that would ensure that contaminated soils are removed and disposed of in accordance with applicable regulations. Any imported soils used for backfill for the proposed project would be engineered fill, with documented constituents and characteristics, to ensure it is free of contamination.

Comment DTSC-6

The comment states that human health and the environment of sensitive receptors should be protected during construction or demolition activities. The comment also requests that if necessary a health risk assessment overseen by the appropriate government agency and conducted by a qualified health risk assessor be conducted to determine if any potential releases of hazardous materials may pose a health or environmental risk.

Response to DTSC-6

The Draft SEIR determines on page 3.2-18 through 3.2-20 that sensitive receptors would not be adversely affected during project construction due to toxic air contaminants. IRWD has determined that a health risk assessment is not required. All schools are more than one-quarter mile from the project site (Draft SEIR, page 3.7-11). As assessment of risks to the public or environment associated with the routine transport, use, or disposal of hazardous materials is assessed in the Draft SEIR on pages 3.7-11 through 3.7-13. Mitigation Measure HAZ-1 includes Best Management Practices (BMPs) that the construction contractor would be required to implement to prevent the accidental release of hazardous materials during construction.

Comment DTSC-7

The comment states if the site was used for agricultural, livestock or related activities, onsite soils and groundwater may contain pesticides, agricultural chemical, organic waste or other related residue. The comment requests that if necessary, proper investigation and remedial actions be conducted by a government agency prior to project construction.

Response to DTSC-7

The comment is noted. The proposed project is not located on farmland that was once used for agriculture, livestock or related activities.

Comment DTSC-8

The comment states that if hazardous wastes are generated by project operations, waste must be managed in accordance with the California Hazardous Waste Control Law (California Health and Safety Code, Division 20, Chapter 6.5) and the Hazardous Waste Control Regulations (California Code of Regulations, Title 22, Division 4.5). If hazardous wastes will be generated, the facility should obtain a USEPA Identification Number. The comment further states that certain hazardous waste treatment processes or hazardous materials, handling, storage or uses may require

authorization from the local Certified Unified Program Agency (CUPA), and suggests contacting the local CUPA.

Response to DTSC-8

The applicability of the California Hazardous Waste Control Law to the project is acknowledged in the Draft SEIR on pages 3.7-5 and 3.7-6. The applicability of the Unified Program and identification of the Orange County Health Care Agency as the local CUPA can be found in the Draft SEIR on pages 3.7-6 through 3.7-8. The proposed project would not generate hazardous wastes but would require handling, storage, and use of hazardous materials. As such, IRWD would prepare a Risk Management Plan, which would be kept on file with the Orange County Fire Authority and USEPA. IRWD also would prepare a Hazardous Materials Business Plan and Emergency Response Plan, which would be submitted to local health and fires departments.

Comment DTSC-9

The comment states that DTSC can provide cleanup oversight through an Environmental Oversight Agreement (EOA) for government agencies that are not responsible parties, or a Voluntary Cleanup Agreement (VCA) for private parties.

Response to DTSC-9

The comment is noted.

Letter 3, Airport Land Use Commission

Comment ALUC-1

The comment states that a Notice of Proposed Construction or Alteration, FAA Form 7460-1 will be required for the crane and other construction equipment. The comment also recommends that the SEIR include a description of the proposed building heights above mean sea level (AMSL) using National Geodetic Vertical Datum of 1929 (NGVD29) or North American Vertical Datum 1988 (NAVD88), which will assist in determining the project's impact on the Federal Aviation Regulation (FAR) Part 77 Obstruction Imaginary Surfaces for JWA. The comments request a copy of the FAA aeronautical study.

Response to ALUC-1

The general topography of the proposed project is described in page 2-1 of the Draft SEIR. The MWRP property is generally flat varying between 10 and 24 feet above mean sea level (amsl) and is generally recessed below grade from the San Diego Creek but separated by the floodwall. The site of the proposed Biosolids Handling Component gently slopes from east to west with elevations ranging from 16 to 24 feet amsl. The maximum building height for the proposed project would be the Solids Handling Building which would rise to approximately 70 feet above grade. Therefore the maximum potential building height would be 94 feet amsl. IRWD will provide the ALUC with a copy of the FAA aeronautical study.

Comment ALUC-2

The comment states that the SEIR should identify if the project allows for heliports as defined in the AELUP for Heliports. If heliports are developed, proposals to develop new heliports must be

submitted through the city to the ALUC for review and action pursuant to Public Utilities Code Section 21661.5. Heliport projects must comply fully with the state permit procedure provided by law and with all applicable conditions of approval.

Response to ALUC-2

The proposed project does not include the development of a new heliport.

Letter 4, University Synagogue (1)

Comment US(1)-1

The comment states that University Synagogue is primarily concerned with odor and the attendant risks to the Synagogue, its members, and the users of its facilities. It also requests additional time for preparation and submission of comments and requests that the District accept comments from the University Synagogue after August 16, 2012, which was the close of the public review period for the Draft SEIR.

Response to US(1)-1

There would be no risks to the Synagogue, its members, or users due to odor. Please refer to the **Odor Control Master Response**. In addition, IRWD extended the public review period for the Draft SEIR to August 30, 2012, in response to the request by University Synagogue to accept comments beyond August 16, 2012. The additional comment letter submitted by University Synagogue on August 28, 2012, is also included in this Final SEIR (see Letter 12 below).

Comment US(1)-2

The comment discusses the odor control system modeled after one in Mesa, Arizona. The comment requests confirmation that the proposed project "would preclude odor from being detected beyond the project boundaries" and better understanding of the system, Operating Plan, back-up and contingency procedures.

The comment states that a suggestion was made for IRWD to underwrite a field trip to Mesa, Arizona, to "investigate and experience" the facility in Mesa, Arizona, and to conduct a "sniff test" and discuss plant operation with staff, adjacent landowners, and regulatory agency staff.

Response to US(1)-2

The proposed project design, goal, and SCAQMD permits all include requirements for no odor to be detectable at the boundary of the IRWD property. Please refer to the **Odor Control Master Response** for an overview of the system. Also please refer **Appendix E** for the results of a peer review of the proposed odor control system prepared by Dudek.

IRWD has determined that it would not be appropriate to underwrite the suggested field trip. A field trip to the facility in Mesa, Arizona would not be relevant because, as described in the **Odor Control Master Response**, the proposed odor control system has an additional odor scrubber that would render it more effective at controlling odor and allow the system to be maintained at full effectiveness during maintenance activities. A comparison between the two odor control systems

would not be considered an "apples-to-apples" comparison. Please refer to the **Odor Control Master Response**.

Comment US(1)-3

The comment details the membership and facilities of University Synagogue, and reiterates how important odor control is to the Synagogue because a mishap could have long-term deleterious effects on enrollment, participation, and the general financial well-being of the Synagogue.

The comment states that "odor is not only unpleasant in itself but communicates the possibility of harmful air quality." If the system fails, the Synagogue wishes to know what contingency plans will go into effect and how the IRWD will compensate for potential losses.

Response to US(1)-3

As explained in the **Odor Control Master Response**, the design of the odor control system, combined with implementation of the Odor Control Maintenance and Monitoring Plan, would remove the potential for system failure and release of nuisance odors. In the event of a power failure, the proposed odor control system design includes back-up power generators to ensure the odor control system continues to operate at full effectiveness. Please refer to the **Odor Control Master Response**.

The comments related to potential economic impacts to University Synagogue due to potential odors from the proposed project do not directly address the analyses presented in the Draft SEIR and are beyond the scope of CEQA requirements. CEQA requires the lead agency to respond to comments on environmental issues from parties that have reviewed the Draft SEIR (*CEQA Guidelines* §15088(a)). CEQA does not require an analysis of economic impacts (*CEQA Guidelines* §15131). Economic impacts do not constitute significant effects on the environment, unless it can be demonstrated that the economic impacts subsequently have a direct and deleterious effect on the environment, such that the chain of cause and effect can be traced (*CEQA Guidelines* §15131). The proposed project would not result in significant effects due to odor, and therefore no economic impacts would occur as a result.

Comment US(1)-4

The comment states that that the proposed egg-shaped digesters communicate an odor risk. The comment states that IRWD provided a visual model of the project facility from the Synagogue vantage point and that it was unclear as to whether and what extent the domes would be visible. The comment requests that a provision is made (e.g., with landscaping) so that no part of the proposed new facilities are visible from the Synagogue and its grounds.

Response to US(1)-4

Please refer to the **Odor Control Master Response** for discussion regarding potential odor releases. In addition, according to the independent third-party peer review of the odor control system conducted by Dudek (see Appendix E), the egg-shaped digesters have been chosen because, relative to other digester shapes, they would be more efficient at mixing sludge and require less frequent maintenance. As stated in the peer review, "[t]he use of egg shaped digesters is anticipated to introduce an odorless facility" (Dudek, 2012, Appendix E).

As explained in the Draft SEIR, Chapter 3.1 Aesthetics, page 3.1-17, the significance criteria for impacts to aesthetic resources are based on Appendix G of the *CEQA Guidelines.* With respect to scenic views, the *CEQA Guidelines* state that a project would result in a significant impact if it would create a substantial adverse effect on a scenic vista, defined as an expansive view of a highly valued landscape from a particular public vantage point.

The Draft SEIR includes an analysis of visual impacts associated with the proposed project, including visual simulations that show the effect of the proposed project on public views from 11 vantage points located on perimeter roadways. The vantage point locations are shown in Figure 3.1-4 in the Draft SEIR, and the visual simulations that show the views from those vantage points both before and after the proposed facilities are built are included in Figures 3.1-5 through 3.1-15. The visual simulation shown in Figure 3.1-6 illustrates the effect of the proposed project on the view from the parking lot of the University Synagogue. As the Draft SEIR concludes on page 3.1-18, impacts to scenic views would be negligible since the existing views are already dominated by low-lying vegetation that screens existing development and would similarly screen the proposed new facilities, which are barely visible in Figure 3.1-6. Although not necessary to mitigate scenic views from University Synagogue, the proposed project does include a Landscape Plan that would include screenings to soften the appearance of the proposed facilities and ensure that tall landscaping trees are planted along or near the earthen berm that forms the outer perimeter boundary of the project area (Draft SEIR, page 2-12). In addition, IRWD will revegetate the two areas of the MWRP that were impacted during construction of the Phase 2 Capacity Expansion Project, including the boundary of the MWRP along Riparian View. Please refer to **Response to CICD-2** below under Letter 14, City of Irvine – Community Development.

In addition to the visual simulations provided in the Draft SEIR and in response to the comment, IRWD has prepared additional photo simulations to further demonstrate that the proposed project would have a less than significant effect on views from University Synagogue. IRWD has photographed the view of the proposed project site from eight street-level locations along the western University Synagogue property boundary, at locations where the view of the project site is not otherwise completely obscured by the Synagogue's own buildings or vegetative screens. **Exhibit A** includes a key map of the photo points and the correspondingly numbered photo simulations. The photo simulations provide a mark showing the approximate location and maximum height of the proposed solids handling building and methane digesters. The photo simulations provide additional analysis of the potential effects of the proposed structures on scenic views and support the conclusions of the Draft SEIR. **Exhibit A** illustrates that the impacts to scenic views from the University Synagogue property would be negligible since the existing views are already dominated by low-lying vegetation that screens existing development and would similarly screen the proposed new facilities. As the Draft SEIR concludes, impacts would be less than significant.

SOURCE: ESRI, 2011; ESA, 2012.

MWRP Phase 2&3 Capacity Expansion Project Final Supplemental EIR No. 1 . 210480

Exhibit A

Key Map of Photo Simulation View Points

Photo View Point #1

Photo View Point #2

—70' Approximate height of proposed Solids Handling Building

SOURCE: IRWD, 2012.

MWRP Phase 2 & 3 Capacity Expansion Project Final Supplemental EIR No. 1 . 210480

Exhibit A-1

Photo View Points #1 and #2

Photo View Point #3

Photo View Point #4

—70' Approximate height of proposed Solids Handling Building

SOURCE: IRWD, 2012.

MWRP Phase 2 & 3 Capacity Expansion Project Final Supplemental EIR No. 1 . 210480

Exhibit A-2

Photo View Points #3 and #4

Photo View Point #5: The Solids Handling Building would not be visible from this view point.

Photo View Point #6

—70' Approximate height of proposed Solids Handling Building

SOURCE: IRWD, 2012.

MWRP Phase 2 & 3 Capacity Expansion Project Final Supplemental EIR No. 1 . 210480

Exhibit A-3

Photo View Points #5 and #6

Photo View Point #7

Photo View Point #8

—70' Approximate height of proposed Solids Handling Building

SOURCE: IRWD, 2012.

Exhibit A-4
Photo View Points #7 and #8

Comment US(1)-5

The comment expresses concern that the physical environment of University Synagogue will be negatively impacted by the physical presence of the project, conveying a magnified sense of industrialization. The Synagogue supports the increased sustainability for the community that the project will provide, but believes the project will devalue its property. The comment states that the University Synagogue does not wish "to bear the financial burden for a more general public savings from the Proposed Project that, if distributed over thousands of households, would be minimal." The comment once again stresses the importance that the project facility is not visible from the synagogue or its environs.

Response to US(1)-5

The Draft SEIR does not identify any physical environmental effects to the University Synagogue as a result of the proposed project. As stated in **Response to US(1)-4**, the proposed project would not have significant effects on scenic views from the University Synagogue. Therefore, no economic impacts would occur as a result. Currently existing views of the project area are dominated by a backdrop of high-rise buildings and urban development screened by low-lying vegetation that would also screen the proposed new facilities, which would be barely visible as shown in Figure 3.1-6 of the Draft SEIR. The proposed project would neither create nor magnify an appearance of industrialization.

Comment US(1)-6

The comment expresses appreciation for IRWD's willingness to accept and respond to comments provided after the close of the original comment period and to consider underwriting a field trip to the City of Mesa's treatment facility.

Response to US(1)-6

IRWD extended the public review period for the Draft SEIR to August 30, 2012, in response to the request by University Synagogue to accept comments beyond August 16, 2012, which was the close of the original review period. The additional comment letter submitted by University Synagogue on August 28, 2012, is also included in this Final SEIR (see Letter 12 below).

IRWD has determined that it would not be appropriate to underwrite the suggested field trip to the Mesa facility. Please refer to **Response to US(1)-2**.

Letter 5, Department of Transportation

Comment DOT-1

The Department has no comment at this time, but in the event of any activity in the Department's right-of-way, an encroachment permit will be required.

Response to DOT-1

The comment is noted.

Letter 6, Orange County Public Works

Comment OCPW-1

The comment provides clarification about the proper names for the trails and bikeways in and around the project area.

Response to OCPW-1

In response to the comment, the following changes have been made on page 3.12-3 of the Draft SEIR:

> **Harvard Avenue** runs along the eastern boundary of the MWRP site on the east side of San Diego Creek. Between Michelson Drive and University Drive, Harvard Avenue traverses in a northeast/southwest direction and transitions between a two- to four-lane undivided roadway. This roadway is designated as a Commuter Highway in the City of Irvine Master Plan of Arterial highways. The posted speed limit is 50 miles per hour, and there is no on-street parking allowed within this portion of the roadway. Adjacent to the east side of Harvard Avenue along this stretch is the Rancho San Joaquin Golf Course, while the paved San Diego Creek Class I Bikeway ~~Peters Canyon Trail~~ runs adjacent to the west side. A sidewalk is located on the southbound roadway (approximately 5 feet in width) at the beginning of the Harvard Avenue and Michelson Drive intersection, but ends after approximately 700 feet further down Harvard Avenue. The sidewalk continues near the Harvard Avenue and University Drive intersection for approximately 1,300 feet. A bike lane (approximately 7 feet in width) is available on both sides of the roadway.

Comment OCPW-2

The comment suggests detailed edits to page 3.12-5 of the Draft SEIR regarding bikeways, bike paths, and trails.

Response to OCPW-2

In response to the comment, the following changes have been made on page 3.12-5 of the Draft SEIR:

> ***Bicycle and Pedestrian Transportation***
>
> The City of Irvine has an extensive ~~trail~~ non-motorized system that includes pedestrian walkways, Class I Bikeways, and Class II Bike Lanes and bike trails within open space corridors and along regional ~~trails~~ flood control facilities. The County of Orange also operates and maintains a separate master-planned system of riding and hiking trails, several of which are found in the City. These trails (the Peters Canyon, Hicks Canyon and Irvine Coast) are used by walkers, joggers, equestrian riders and mountain bicyclists. Class I Bikeways and Class II Bike Lanes, however, comprise the most extensive part of the City's non-motorized circulation network. The City's bicycle network connects with other off-road and on-road bicycle facilities, riding and hiking trails and other types of pathways in adjoining

communities and throughout Orange County. ~~The County maintains a coordinated system of trails, including bikeways, equestrian trails and hiking trails within the cities. Bikeways comprise the most extensive part of the City's trail network. The biking network in Irvine connects with other trails and paths in adjacent communities and throughout Orange County.~~ The three categories of bikeways as described in the Caltrans Highway Design Manual, Chapter 1000, are:

- Class I: a paved path that is separate from any motor vehicle travel lane;
- Class II: a restricted lane within the right-of-way of a paved roadway for the exclusive or semi-exclusive use of bicycles; and
- Class III: a bikeway that shares the street with motor vehicles or the sidewalk with pedestrians.

The City of Irvine contains 44.5 miles of off-road Class I Bikeways ~~bicycle trails~~ and 282 miles of on-road Bike Lanes ~~bicycle lanes within the City~~. The closest bicycle facilities ~~bike paths~~ to the project site include a Class I Bikeway ~~bike path~~ along San Diego Creek and Harvard Avenue and University Drive, and Class II Bike Lanes ~~Bikeways~~ located along Campus Drive, Culver Drive, Carlson Avenue, Michelson Drive, Harvard Avenue, and University Drive (OCTA, 2010).

Comment OCPW-3

The comment states that the "bike path" described as being on the east side of San Diego Creek should be called the "San Diego Creek Class I Bikeway" and suggests editing the name on pages 3.9-1, 3.1-1, 3.1-2, 3.1-18, and 3.2-5.

Response to OCPW-3

In response to the comment, the following changes have been made to the Draft SEIR:

Page 3.9-2:

The San Diego Creek Class I Bikeway is located ~~A bike path~~ on the east side of San Diego Creek, ~~is~~ approximately 1400 feet or 0.25 miles from the project site. This bike path runs between Harvard Avenue and San Diego Creek.

Page 3.1-1:

The San Diego Creek Class I Bikeway ~~A bike path~~ and the Rancho San Joaquin Golf Course are located across the San Diego Creek to the east of the property. Distant views in the vicinity of the project area include a mixture of residential apartment buildings and commercial developments to the north and south.

Page 3.1-2:

The proposed project could be visible from vantage points that the public has access to in the immediate project vicinity. The project site is visible from the San Diego Creek Class

I Bikeway ~~bike path~~ along San Diego Creek, segments of Harvard Avenue, and the Michelson Drive bridge.

Page 3.1-18:

Scenic views from the San Diego Creek Class I Bikeway ~~San Diego Creek bike path~~ and Harvard Avenue already include the existing MWRP facilities, and some views are partially screened by existing vegetation (see Figures 3.1-7 through 3.1-10).

Page 3.2-5:

The San Diego Creek Class I Bikeway ~~bike path~~ on the east side of San Diego Creek is approximately 1,400 feet or 0.25 miles from the project site.

Comment OCPW-4

The comment requests a discussion about the Peters Canyon Regional Riding and Hiking Trail in Chapter 3.9 and other applicable sections of the SEIR (e.g., Impacts Discussion and Sensitive Land Uses) regarding additional impacts to the trail and the public's use of such.

Response to OCPW-4

In response to the comment, the text of the Draft SEIR has been revised as follows:

Page 3.9-2 under "Recreational Facilities":

Peters Canyon Regional Riding and Hiking Trail is almost 12 miles long. The route is surfaced with native soil or decomposed granite. Categorized as a mountain-to-sea riding and hiking trail, the trail is on the west side of the flood control channel from the confluence of Peters Canyon and San Diego Creek to Upper Newport Bay. When complete the trail will serve thousands of residents by connecting neighborhoods, commercial and business areas, and local and regional parks from the coast to the Anaheim foothills. Trails serve walkers, joggers, runners, equestrian riders and mountain bicyclists. Class I Bikeways serve commuter and recreational cyclists and pedestrians.

Page 3.9-5 under "Physical Deterioration of Recreational Facilities":

In addition, the proposed project would have no additional impact on the portion of the Peters Canyon Regional Riding and Hiking Trail that is located between Michelson and Campus Drive on the west side of the San Diego Creek levee. The proposed project would not affect the temporary roadway located next to the Trail.

Comment OCPW-5

If any portion of the project affects the San Diego Creek, which is a flood channel controlled by the Orange County Flood Control District, the project will require an encroachment permit.

Response to OCPW-5

The proposed project would not have a direct effect on the San Diego Creek. No encroachment permit would be required.

Comment OCPW-6

The comment suggests standard noise mitigation strategies although the project is outside the jurisdiction of the County of Orange Noise Ordinance, including equipping construction vehicles operating within 1,000' of a dwelling with mufflers and locating vehicle stockpiling/staging areas as far from dwellings as is practicable.

Response to OCPW-6

The proposed project would comply with the City of Irvine's Noise Ordinances, as described in the Draft SEIR on pages 3.10-11 through 3.10-13. Mitigation Measure NOISE-1 would be implemented requiring IRWD to use noise control techniques on construction equipment to lessen the potential temporary noise impacts. The staging areas for the proposed project are identified in Figure 2-5 of the Draft SEIR.

Letter 7, LBA Realty

Comment LBAR-1

The comment expresses a continuing concern regarding aesthetics and mitigation of views of the proposed construction staging site adjacent to Michelson Drive. Given the fact that construction is projected to be about four years, LBA Realty requests greater consideration is given to screening this site from view from Park Place.

Response to LBAR-1

As explained in the Draft SEIR, Chapter 3.1 Aesthetics, page 3.1-17, the significance criteria for impacts to aesthetic resources are based on Appendix G of the *CEQA Guidelines.* With respect to scenic views, the *CEQA Guidelines* state that a project would result in a significant impact if it would create a substantial adverse effect on a scenic vista, which is defined as an expansive view of a highly valued landscape from a particular public vantage point. In addition, a project would result in a significant impact if it would degrade the existing visual character or quality of the site and its surroundings.

Currently, existing views of the project area from public vantage points are dominated by a backdrop of high-rise buildings and urban development screened by low-lying vegetation. Elevated views from Park Place are considered to be private views and are not part of the environmental analysis in the Draft SEIR. Utilization of the proposed staging area would not substantially affect scenic views from public vantage points at street level in the project vicinity.

Furthermore, existing screening of the staging area site is adequate as the earthen berm and existing vegetation obscure views of the staging area site from the street level. The berm and vegetative screening would be adequate to continue to obscure views of the staging site during project construction. Utilizing the proposed staging area would not substantially change the

existing visual character or quality of the site or its surroundings when viewed from public vantage points.

Comment LBAR-2

The comment states that existing screening of the staging site is not adequate even from street elevations. The comment requests additional screening of views from Michelson, possibly including temporary fencing or additional landscaping.

Response to LBAR-2

Please refer to **Response to LBAR-1**. When viewed at street level, the equipment and materials to be stored at the proposed staging area would be screened by existing vegetation and an earthen berm, with the exception of oversize equipment such as a drill rig or pile driver. The berm and vegetative screening would be adequate to continue to obscure views of the staging site during project construction. Utilizing the proposed staging area would not substantially change the existing visual character or quality of the site or its surroundings when viewed from public vantage points. In addition, IRWD has received a letter requesting that LBA Realty be allowed to use the subject site for its own construction staging as well.

Letter 8, County of Orange Public Health Services

Comment COPHS-1

The comment states that under current regulations, the proposed project potentially could be regulated by the Orange County Solid Waste Local Enforcement Agency (LEA), although revisions to applicable regulations are pending. The comment states that the addition of compostable wastes (material that would typically be received at the site through the sewer system) to biosolids undergoing anaerobic digestion shall comply with the Enforcement Agency Notification pursuant to 14 CCR 17859.1.

Response to COPHS-1

It is our understanding that several state agencies, including the California Department of Resources Recycling and Recovery (CalRecycle) and the State Water Resources Control Board (SWRCB), are working to resolve policy and regulatory jurisdictional questions whereby a publicly operated treatment works (POTW) that receives specific types of organic solid waste for co-digestion in POTW anaerobic digesters will be excluded from CalRecycle transfer/processing and in-vessel digestion regulations; and the SWRCB will assume jurisdiction through regulation and the NPDES permit process. It is expected that the final regulations and exemption will be in place prior to start-up of the proposed project. Nonetheless, IRWD will obtain any necessary permits and would be required to comply with any applicable solid waste regulations regardless of the outcome of current negotiations and regulatory process.

Comment COPHS-2

The comment states that if on-site transformation of biosolids would occur at the project site, then the facility would be considered a “transformation facility” and would be regulated as a “large volume transfer/processing facility,” requiring a full solid waste facilities permit (14 CCR 17403.7) and must comply with Public Resources Code (PRC) Sections 44016 and 44017.

Response to COPHS-2
Please refer to **Response to COPHS-1**.

Comment COPHS-3
The anaerobic digestion of other wastes (not biosolids) at a publicly operated treatment works (POTW), such as the MWRP, may be subject to the requirements for a compostable-materials handling activity or a transfer station, as determined by the LEA.

Response to COPHS-3
The proposed project would be designed and operated in compliance with all applicable solid waste regulations, including those determined as applicable by the LEA.

Letter 9, Orange County Sanitation District

Comment OCSD-1
OCSD fully supports IRWD's proposed construction of the biosolids handing and energy recovery system, consistent with OCSD's long-term capital improvement plan.

Response to OCSD-1
The comment is noted.

Comment OCSD-2
The comment states the SEIR should describe the IRWD's plan for seasonal reductions in public demand for Class A pellets and how biosolids product storage would be handled on- or off-site or disposed of.

Response to OCSD-2
As described in the Draft SEIR in Chapter 2, Project Description, the proposed project would not include substantial onsite storage of the biosolids end products. The Draft SEIR includes a variety of potential end uses for biosolids, the diversity of which would allow for year-round use and minimize any effects of seasonal demand fluctuations. Initially, IRWD expects that the majority of the Class A pellets produced would be used as biofuel in cement kilns, which would represent a consistent year-round demand. If necessary, landfills represent the contingency outlet for both Class A pellets and Class B cake during periods when other beneficial reuse options may not be available. The proposed project would not result in disposal of biosolids into the regional sewer.

Comment OCSD-3
The SEIR should identify all project support facilities that are required, such as new preliminary treatment systems, gas compressor systems, and debris removal systems.

Response to OCSD-3
All project support facilities are described in the Draft SEIR in Chapter 2, Project Description. The following addresses the facilities specifically mentioned in the comment:

a. New preliminary treatment systems: New headworks are part of the Phase 2 Capacity Expansion Project.

b. Gas compressor systems: Such systems are part of the Biogas Conditioning System (Draft SEIR page 2-10).

c. Debris removal systems: Strained presses would remove debris before entering the thickening centrifuges (Draft SEIR page 2-7).

Comment OCSD-4

The following should be deleted from future environmental documents: "…in addition, sending sludge to OCSD or Synagro prevents IRWD from making beneficial use of renewable resource." The SEIR could comment that OCSD will manage fewer solids, resulting in less traffic, as a result of the project.

Response to OCSD-4

The quoted text is found in the Notice of Preparation that was published prior to preparation of the Draft SEIR. The statement was not intended to suggest that the sludge sent to OCSD is not eventually put to beneficial use. The statement is intended to address IRWD's autonomy over its renewable resources.

In addition, the Draft SEIR does consider that the proposed project would result in fewer truck trips from OCSD's Plant 1 as a result of the proposed project. This effect of the proposed project is included in the analysis of air quality (Chapter 3.2), greenhouse gas emissions (Chapter 3.6), and traffic (Chapter 3.12).

Comment OCSD-5

The comment suggests revision to language in the Draft SEIR that pertains to the conveyance of sludge from the MWRP to OCSD.

Response to OCSD-5

The quoted text is found in the Notice of Preparation. In response to the comment, similar text of the Draft SEIR has been revised as follows:

Page 1-10:

MWRP Phase 2 and 3 Capacity Expansion Project

The Phase 2 and 3 Capacity Expansion Project will expand recycled water production at the MWRP in phases to 28 mgd (Phase 2) and to 33 mgd (Phase 3), to meet projected ultimate demand for non-potable water, enhance water supply reliability by maximizing the use of recycled water in lieu of imported water from the State Water Project and the Colorado River and instead of local groundwater, meet state mandates to reduce urban demand on freshwater supplies, reduce wastewater diverted to regional treatment facilities and optimize water supply, wastewater treatment life cycle and construction cost economics. The Phase 2 and 3 Capacity Expansion Project will provide for tertiary treatment and disinfection of wastewater while continuing to ~~deliver~~ discharge residual

sludge and scum from the water recycling process and any excess raw wastewater through force mains and gravity pipelines to OCSD's Plant 1 in Fountain Valley.

Page 6-6:

Ability to Meet Project Objectives

Under the No Project Alternative, most of the project objectives would not be achieved. There would be no opportunity for IRWD to recapture biogases to implement any energy recovery facilities or allow IRWD to make use of its own renewable resources through the beneficial reuse of biosolids. IRWD's autonomy for residuals management would not be increased as the need to transfer residual solids to OCSD would continue. However, the future solids handling needs of the Phase 2 and 3 Capacity Expansion Project would be met by continuing to ~~send~~ discharge all residuals to OCSD through the existing force main and by OCSD upgrading their facilities. This is the only project objective that would be met under the No Project Alternative. A renewed MOU/agreement with OCSD would be required.

Letter 10, Department of Resources Recycling and Recovery

Comment DRRR-1

The comment states that the proposed project is located at a publicly operated treatment works (POTW). If a POTW adds other compostable waste to biosolids undergoing anaerobic digestion, the activity would be subject to the CalRecycle's compostable materials handling regulation (14 CCR 17859.1). Whether or not this is the case is the determination of the LEA (Orange County Health Care Agency, Environmental Health Division).

Response to DRRR-1

Please refer to **Response to COPHS-1**.

Letter 11, University of California, Irvine

Comment UCI-1

The comment states that it appears that the proposed project is designed to handle all of IRWD's solids as well as solids generated from other wastewater treatment plants and is about 1.6 times bigger than is needed for IRWD's total future needs.

Response to UCI-1

The proposed project is sized to process the residuals produced at the MWRP, up to a capacity of 33 mgd, through the digestion and dewatering process and production of Class B biosolids, as shown in Figure 2-3 of the Draft SEIR. The proposed project includes a dryer to continue processing biosolids produced at the MWRP into Class A pellets. The dryer size is based upon the maximum month digested sludge production at Design Capacity (28 mgd liquid treatment) and average day digested sludge production at Ultimate Capacity (33 mgd liquid treatment). The dryer is sized so that it will run five days per week in either situation – Design Capacity or Ultimate Capacity – allowing for two days of weekly maintenance as recommended by the dryer

manufacturer. However, initially at Start-Up (23.6 mgd liquid treatment), the dryer would only be used about 3.5 days per week during maximum month digested sludge production, and thus there would be excess capacity until influent to the MWRP reached Design Capacity. During the Start-Up period, there would be excess capacity in the dryer, which would allow IRWD to accept and process digested, dewatered sludge from other wastewater treatment plants.

Therefore, the proposed project is not bigger than necessary to meet IRWD's total future needs. The proposed project cannot be smaller sized and still meet IRWD's internal needs. The proposed project does not depend on serving the other wastewater treatment clients or earning income from the service. The proposed project is not dependent on treating digested sludge from other agencies. The proposed project cannot be 60 percent smaller.

Comment UCI-2

The comment states that the Draft SEIR has no discussion about the justifications for a facility that is 60 percent larger than the District's own future needs. The comment states that it seems possible that the project could be 60 percent smaller, serving only the District's own needs and still attain the six objectives listed in the Draft SEIR. If not, the Draft SEIR should explain why.

Response to UCI-2

Please refer to **Response to UCI-1**.

Comment UCI-3

The comment states that it seems possible that the proposed project could be 60 percent smaller, serving only the District's own needs, and still obtain the project objectives.

Response to UCI-3

Please refer to **Response to UCI-1**.

Comment UCI-4

The comment states that the Draft SEIR does not explain why it is undesirable, infeasible, or uneconomic for IRWD to partner with OCSD in expanding its solids processing capacity sufficiently to meet IRWD's future needs. The comment states that only one of the six objectives of the proposed project would not be attained by doing so. The comment states that alternatives to the proposed project are rejected for reasons of "institutional constraints regarding implementability, economic viability, and the lack of increased autonomy for IRWD and its residuals management," and that the Draft SEIR does not provide specifics about the constraints to allow for a comparison to the proposed project.

Response to UCI-4

As described in the Draft SEIR, the No Project Alternative would likely result in IRWD participating in the expansion of OCSD facilities to meet future treatment demands. The ability of the No Project Alternative to meet project objectives is explained in the Draft SEIR on page 6-6. The Draft SEIR compares the relative potential environmental effects of the proposed project and the No Project Alternative. The rejection of the No Project Alternative is not based on desirability, feasibility, or economics.

Three alternatives to the proposed project are analyzed in the Draft SEIR in Section 6.6, starting on page 6-5. These alternatives, which include the No Project Alternative, are compared to the proposed project, and the relative potential environmental effects are evaluated and summarized in Table 6-2 on page 6-13. The alternatives that are considered but eliminated from consideration are described in Section 6.5 of the Draft SEIR, starting on page 6-3. These alternatives are rejected for various reasons, including institutional constraints regarding implementability, economic viability, difficulty obtaining permits, and lack of increased autonomy for IRWD. Such factors may be considered when addressing the feasibility of an alternative, as explained on page 6-1 of the Draft SEIR.

Comment UCI-5

The comment states that No Project Alternative is identified as the Environmentally Superior Alternative and provides alternate possible iterations of the No Project Alternative. The comment states that IRWD could choose not to develop the 4.6-acre site and instead restore it to a natural landscape, eliminating impacts to hydrology and water quality.

Response to UCI-5

The Draft SEIR does not conclude that the No Project Alternative is the environmentally superior alternative. The proposed project and Alternative 1 are concluded to be environmentally equivalent alternatives (see Draft SEIR page 6-14). Regarding the suggested iterations of the No Project Alternative, CEQA does not require a lead agency to consider every conceivable alternative but rather consider a reasonable range of alternatives to foster informed decision-making (see Draft SEIR page 6-1). IRWD has conducted an extensive alternatives screening analysis as described on page 6-3 of the Draft SEIR and has put forth the most feasible alternatives for consideration in the Draft SEIR. The Draft SEIR has not identified any significant and unavoidable impacts to hydrology and water quality, and therefore restoration of the project site as part of an alternative would not serve to lessen any significant impacts of the proposed project, which is the goal of the CEQA alternatives analysis (see Draft SEIR page 6-1).

Comment UCI-6

The comment recommends that IRWD adopt the No Project Alternative and partner with OCSD to expand its solids processing and develop local markets for Class A biosolids pellets. The comment states that contingency funding for environmental cleanup should a catastrophe occur must be budgeted for the San Joaquin Marsh Reserve and the Newport Back Bay Ecological Preserve, both of which are home to endangered species.

Response to UCI-6

The Draft SEIR explains on page 6-14 that IRWD has determined that the proposed project and Alternative 1 are environmentally equivalent alternatives and that IRWD has determined that the proposed project is the preferred alternative. There are no significant impacts identified in the Draft SEIR for which contingency funding for environmental clean-up is required.

Letter 12, University Synagogue (2)

Comment US(2)-1

The comment states that the University Synagogue's major concern is odor and the attendant risks to the synagogue, members, pre-schoolers, and other facilities users.

Response to US(2)-1

There would be no risks to the Synagogue, its members, or users due to odor. Please refer to the **Odor Control Master Response**.

Comment US(2)-2

Though assured that the project would preclude odors from being detected beyond the project's boundaries, the synagogue expressed interest in further confirmation and understanding of the system, its Operating Plan, and various contingency provisions.

Response to US(2)-2

The proposed project design, goal, and the AQMD permits all include requirements for no odor to be detectable at the boundary of the IRWD property. Please refer to the **Odor Control Master Response** for an overview of the system.

Comment US(2)-3

The comment states that University Synagogue has requested for IRWD to underwrite the costs of have one or two Directors from University Synagogue visit the Mesa facility to conduct a "sniff test" and discuss the plant with staff, adjacent landowners, and regulatory agency staff. The comment states the IRWD has declined to underwrite this cost.

Response to US(2)-3

IRWD has determined that it would not be appropriate to underwrite the suggested field trip. IRWD has provided the University Synagogue with contact information for staff at the City of Mesa's treatment facility. Please refer to the **Odor Control Master Response.** Also please refer **Appendix E** for the results of a peer review of the proposed odor control system prepared by Dudek.

Comment US(2)-4

The comment details the membership and facilities of University Synagogue, and reiterates how important odor control is to the synagogue because a mishap could have long-term deleterious effects on enrollment, membership, participation, and the general financial well-being of the Synagogue.

The comment states that "odor is not only unpleasant in itself but communicates the possibility of harmful air quality." If the system fails, the Synagogue wishes to know what contingency plans will go into effect and how the IRWD will compensate for potential losses.

Response to US(2)-4

Please refer to **Response to US(1)-3**.

Comment US(2)-5

The comment states that that the proposed egg-shaped digesters communicate risks associated with odors and unhealthful air quality to current and prospective members of University Synagogue. The comment states that IRWD provided a visual model of the project facility from the Synagogue vantage point and that it was unclear as to whether and what extent the domes would be visible. The comment requests that a provision is made (e.g., with landscaping) so that no part of the proposed new facilities are visible from the Synagogue and its grounds.

Response to US(2)-5

The odor control system would reduce odor to a non-detectable level at the MWRP property boundaries. There would be no health risks to current or prospective members of University Synagogue due to potential odor releases. Additional visual simulation has been provided that shows no significant effect on scenic views from University Synagogue. Please refer to **Response to US(1)-4**.

Comment US(2)-6

The comment expresses concern that the physical environment of University Synagogue will be negatively impacted by the physical presence of the project, conveying a magnified sense of industrialization. The Synagogue supports the increased sustainability for the community that the project will provide, but believes the project will devalue its property. The comment states that the University Synagogue does not wish "to bear the financial burden for a more general public savings from the Proposed Project that, if distributed over thousands of households, would be minimal."

Response to US(2)-6

Please refer to **Response to US(1)-5.**

Comment US(2)-7

The comment includes a quote from Blake Anderson, former General Manager of the Orange County Sanitation District, who has been assisting University Synagogue with understanding the project and odor control system. The quote from Mr. Anderson describes his peer review of the Preliminary Design Report and Process Validation Study prepared by HDR Engineers and Black & Veatch Engineers, respectively. Mr. Anderson concludes that "the engineering is certainly state of the art" and that the design for the proposed project "is conservative and contains some system redundancies that are intended to achieve a high degree of reliability." Mr. Anderson states that "between the engineering and planning staff at IRWD, B&V and HDR, all of the bases have been covered" and that the very best people have been involved in the planning process, so far. Mr. Anderson states that he has "no concerns about what they have proposed in their process designs." The only concerns expressed by Mr. Anderson are regarding how IRWD would be prepared to (a) start up systems that presently are not known by the organization or a majority of its staff, and (b) provide long-term operational reliability. Mr. Anderson states that IRWD is no doubt capable of operating the proposed facilities effectively and having staff properly trained.

Mr. Anderson suggests that the University Synagogue and its neighbors request that IRWD creates a "third-party operational review panel" that would review operational reports, inspect the

proposed facilities sporadically, and have unrestricted access to staff. The review panel would consist of qualified people with expertise, experience or interest. The review panel would complete short evaluation reports that would be conveyed directly to the community of interest. The opinions and observations of the review panel would be advisory only to the community, IRWD board, and IRWD staff. The comment states that the University Synagogue embraces Mr. Anderson's suggestion that IRWD establish such an Operational Review Panel in order to provide assurances that the Synagogue's concerns will be addressed over the long term.

Response to US(2)-7

Please refer to the **Odor Control Master Response**.

Comment US(2)-8

The comment states that the Synagogue would like to implement a landscaping solution to ensure that the project facilities are not visible from Synagogue's property or environs.

Response to US(2)-8

Please refer to **Response to US(1)-4.** Although not necessary to mitigate scenic views from University Synagogue, the proposed project does include a Landscape Plan that would include screenings to soften the appearance of the proposed facilities and ensure that tall landscaping trees are planted along or near the earthen berm that forms the outer perimeter boundary of the project area (Draft SEIR, page 2-12). In addition, IRWD will revegetate the two areas of the MWRP that were impacted during construction of the Phase 2 Capacity Expansion Project, including the boundary of the MWRP along Riparian View. Please refer to **Response to CICD-2** below under Letter 14, City of Irvine – Community Development.

Comment US(2)-9

The comment states that the Synagogue welcomes the opportunity for one or two of its Board members to experience the Mesa plant, while acknowledging the verbal "no" response when the request was first made. The comment also states that the Synagogue appreciates arrangements by IRWD staff to allow Mr. Blake Anderson will follow up with Mesa facilities staff. The Synagogue may submit additional comments after Mr. Anderson speaks with the Mesa staff.

Response to US(2)-9

The comment is noted.

Letter 13, South Coast Air Quality Management District

Comment AQMD-1

The comment states that the lead agency has not provided sufficient technical information to determine the potential air quality impacts from the project. Also, the lead agency has provided limited discussion to substantiate the Draft SEIR's treatment of baseline activities. The South Coast Air Quality Management District (AQMD) requests that the lead agency provide additional information in the Final SEIR to address these concerns.

Response to AQMD-1

Please refer to **Responses to AQMD-3** and **AQMD-4** below.

Comment AWMD-2

The AQMD requests written responses to all comments contained in their letter prior to the adoption of the Final SEIR and states that staff are available to work with the lead agency on any issues or questions.

Response to AQMD-2

IRWD will provide AQMD with written responses to its comments at least ten (10) days prior to consideration of the Final SEIR for certification, as required by CEQA.

Comment AQMD-3

Peak Daily Operational Emissions: The comment states that it is not clear that the project's maximum daily air quality impacts are accurately captured, as reported in Table 3.2-7 of the Draft SEIR. The Draft SEIR should identify all of the project's emissions from permitted stationary source equipment, mobile source equipment, and any other sources.

Response to AQMD-3

The Draft SEIR discloses all of the proposed project's maximum daily operational air quality impacts, including permitted stationary source equipment and mobile source emissions. The on-site emissions provided in Table 3.2-7 of the Draft SEIR, including the reported 61 lbs/day of NOx emissions, are based on the *Draft Standard Evaluation for Permit to Construct* for the proposed project (Environ, 2012, Tables 6a and 6b). The NOx emissions reported by AQMD in the comment (66.84 lbs/day) are not found in the permit application for the proposed project.

Since publication of the Draft SEIR, IRWD has revised the maximum daily air emissions estimates, to more accurately reflect realistic operating conditions for purposes of the CEQA analysis. To reflect these updated emissions estimates, Table 3.2-7 of the Draft EIR has been revised to show maximum daily operational air emissions for the proposed project for two operating scenarios – (1) production of Class A biosolids and (2) production of Class B biosolids. As shown in the revised Table 3.2-7 below, air emissions estimates have decreased compared to the estimates provided in the Draft SEIR. The revised emissions estimates are based on design-level operating conditions and therefore are more precise than those provided in the Draft SEIR.

For on-site emissions, the difference between the two operating scenarios (production of Class A or Class B biosolids) is primarily due to operation of the dryer. When Class A biosolids are being produced the dryer is on, and when Class B biosolids are being produced the dryer is off. The mobile source emissions associated with each operating scenario vary due to relative differences in truck trips associated with hauling biosolids offsite from both the MWRP and LAWRP for disposal or reuse. New employee vehicle trips and chemical deliveries would be the same, regardless of the class of biosolids being produced. Under normal operating conditions when the dryer is on, there would be fewer trucks leaving the MWRP since Class A biosolids would be produced; the Class A pellets have a lesser water content than Class B cake and thus fewer truck trips would be needed to haul away the end product.

With respect to the LAWRP, mobile emissions differ with the operating scenarios due to differences in the end user locations for biosolids. Currently, IRWD contracts with Synagro to haul Class B biosolids produced at the LAWRP to facilities in La Paz, Arizona (Draft SEIR, page 1-10). Under the proposed project, the only modification to the LAWRP operations would be to redirect the truck trips, depending on the operating scenario. There would be no change in the number of truck trips leaving the LAWRP. When the dryer is on at the MWRP and Class A biosolids are being produced, the Class B biosolids from the LAWRP would be trucked to the MWRP for further processing. When the dryer is off at the MWRP, the Class B biosolids from the LAWRP would continue to be trucked elsewhere for disposal, potentially to Arizona, and therefore there would be no change in existing baseline conditions for this operating scenario.

Appendix F provides the supporting calculations and additional details of the assumptions in support of the revised Table 3.2-7. The updated on-site and mobile emissions do not alter the original significance conclusions as reported in the Draft SEIR.

REVISED TABLE 3.2-7
MAXIMUM PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$[a]**
Proposed Project: Class A Biosolids						
On-site Facilities[b]	12.40	49.60	39.51	4.70	20.09	19.77
Mobile Sources[c]	(0.63)	(5.53)	(3.92)	(0.01)	(0.20)	(0.17)
Total Emissions for Class A Biosolids	11.77	44.07	35.59	4.69	19.89	19.60
Proposed Project: Class B Biosolids						
On-site Facilities[b]	4.24	14.71	5.16	3.49	6.22	6.21
Mobile Sources[c]	1.04	6.80	7.31	0.02	0.28	0.23
Total Emissions for Class A Biosolids	5.28	21.51	12.47	3.51	6.50	6.44
Existing OCSD Solids Disposal Trips						
Mobile Sources[d]	6.21	45.91	41.78	0.10	1.80	1.47
Net Project Operational Emissions						
Class A Biosolids	**5.56**	**(1.84)**	**(6.19)**	**4.59**	**18.09**	**18.13**
Class B Biosolids	**(0.93)**	**(24.40)**	**(29.31)**	**3.41**	**4.70**	**4.97**
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Potentially Significant Impact?	No	No	No	No	No	No

NOTE: Emissions would be different during summer and winter. Maximum daily emissions of ROG, and NO_X would be higher during the winter while emissions of CO would be higher in the summer. Maximum emissions are shown for the respective seasons.

[a] The $PM_{2.5}$ emissions were calculated from the PM_{10} emissions based on the recommended $PM_{2.5}$ fractions provided in Appendix A of SCAQMD's *Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds* document.

[b] On-site emissions calculations and assumptions provided in Appendix F.

[c] Mobile source emissions calculations and assumptions provided in Appendix F.

[d] OCSD mobile source emissions estimated for solids disposal trips associated with Class B biosolids.

SOURCE: On-site facility emissions calculations performed by ENVIRON, 2012 (Appendix F); Vehicle trip modeling performed by ESA, 2012 (Appendix F).

Comment AQMD-4

Mobile Source Emissions Baseline: The comment states that the peak daily mobile source emissions reported in Table 3.2-7 of the Draft SEIR accounts for existing transportation activity associated with the LAWRP and OCSD in the baseline. The emissions associated with these baseline activities are subtracted from the project's emissions. The comment requests a robust description of the baseline emissions assumptions and transportation emissions methodology that are part of the analysis of operational air emissions. The comment states that the lead agency should demonstrate that it is appropriate to assume all baseline activity will cease in the future.

Response to AQMD-4

Please refer to **Response to AQMD-3** above for a discussion of baseline mobile emissions associated with operations at the LAWRP.

As described in the Draft SEIR, currently the sludge from the MWRP liquid treatment facility is discharged to OCSD's Plant 1 for processing and disposal. As described in the Draft SEIR, the proposed project would modify the residuals management system at the MWRP such that discharge of sludge to OCSD would be discontinued and residuals produced at the MWRP would be processed onsite at the proposed Biosolids Handling Component. The proposed project effectively would transfer the location of the processing of sludge from OCSD's Plant 1 to the MWRP. The proposed project would eliminate the capacity constraints at OCSD's Plant 1 and would lower the volume of sludge to be processed at Plant 1. Through its own facilities planning process, OCSD has accounted for all current and future wastewater treatment demands within its overall sewer-shed including the contribution from IRWD. Once IRWD stops discharging its sludge to Plant 1, there would be no replacement demands for biosolids processing because all demands for wastewater treatment and associated residuals management within OCSD's sewer-shed are already known and planned for.

Currently, the sludge from the MWRP is processed into Class B biosolids at OCSD's Plant 1 and applied to various beneficial uses as described in Chapter 1 of the Draft SEIR (page 1-14). Currently, OCSD contracts with third party vendors to haul the majority of the Class B biosolids produced at Plant 1 either to Kern County or to Arizona for composting and/or land application as fertilizer. In 2010, biosolids also were hauled offsite to EnerTech in Rialto, CA for processing into a synthetic coal and subsequently used in cement kilns as a fuel source. However, OCSD has recently terminated its contract with EnerTech, and future management of OCSD's biosolids may or may not include this beneficial use.

As a result of the proposed project, OCSD has stated that fewer truck trips from Plant 1 would result (see Letter 9 from OCSD above) due to the reduction in the volume of solids that would be processed at Plant 1 when sludge discharges from IRWD are eliminated. As a result of the proposed project, biosolids reuse and disposal truck trips would originate from the MWRP rather than OCSD's Plant 1. Therefore, the analysis of operational emissions for the proposed project accounts for mobile source emissions associated with these existing truck trips as part of the baseline. Under the proposed project, production of Class B biosolids would result in approximately 46 truck trips per week to haul solids offsite. It is assumed that baseline conditions at OCSD include the same amount of truck trips to haul the Class B biosolids associated with

IRWD's portion of sludge currently processed at Plant 1. Baseline emissions assume that the trucks originating at Plant 1 travel approximately 400 miles round-trip to the end user sites in Arizona. Therefore, the emissions offset for existing OCSD solids disposal truck trips, as shown in Table 3.2-7, represent emissions associated with approximately 46 truck trips per week (approximately 9 per day) hauling Class B biosolids to Arizona for beneficial use. This calculation is provided in Appendix C of the Draft SEIR.

When the proposed project's mobile-source emissions are offset by elimination of certain existing OCSD truck trips that are part of the baseline emissions, there would be a net reduction in mobile-source emissions for all criteria pollutants shown in Table 3.2-7. The existing truck trips associated with disposal and reuse of IRWD's sludge at OCSD's Plant 1 would be eliminated by the proposed project and replaced by fewer trips traveling shorter distances from IRWD's MWRP. This trade-off is accurately described in Table 3.2-7 of the Draft SEIR as revised above, resulting in total project operational emissions that are less than SCAQMD thresholds of significance.

Comment AQMD-5

AQMD staff may have additional comments on emissions analysis that will be made during the air quality permitting process.

Response to AQMD-5

IRWD will work with AQMD to satisfy all requests and respond to all comments during the permitting process for the proposed project.

Letter 14, City of Irvine – Community Development

Comment CICD-1

The City of Irvine requests the inclusion of topographic information showing the heights of the surrounding properties relative to the project site, as well as building heights to illustrate the relative height of the biosolids treatment facility. The city also requests a text discussion of these quantitative details.

Response to CICD-1

Relative building heights are inherent in the visual simulations shown in Figures 3.1-5 through 3.1-15 in the Draft SEIR. In response to the comment, IRWD has prepared additional simulations to illustrate the relative height of the proposed facilities when viewed from the Rancho San Joaquin area. **Exhibit B** shows the approximate location and maximum height of the proposed biosolids handling building (70 feet) when viewed from the Rancho San Joaquin Golf Course and Irvine Historical Society to the east. The project site is located in a topographic depression relative to these visual vantage points. Therefore, the proposed 70-foot structure would not alter the existing skyline and would blend into the visual landscape of urban development, proportionate to surrounding buildings. **Exhibit B** supports the conclusions of the Draft SEIR that although the proposed project would introduce a new feature into the visual landscape, the effects of the proposed project on scenic views and visual character would be less than significant.

SOURCE: IRWD, 2012.

Exhibit B-1
Photo Simulation:
View from Irvine Historical
Society Parking Lot

SOURCE: IRWD, 2012.

Exhibit B-2
Photo Simulation:
View from Rancho San Joaquin
Golf Course Club House

SOURCE: IRWD, 2012.

Exhibit B-3
Photo Simulation:
View from Rancho San Joaquin Golf Course
South of Historical Society

Comment CICD-2

The City requests details on the types of landscaping recently cleared from the adjacent flood control channel and the plans for allowing permanent landscaping of this area. The City recommends a new Project Design Feature of vegetative screening of the facility from Harvard Ave.

Response to CICD-2

The Draft SEIR makes incidental mention of the vegetation recently cleared from San Diego Creek by Orange County Flood Control District (OCFCD). Maintenance and management of San Diego Creek is within the jurisdiction of OCFCD. Any regrowth of this vegetation would be controlled by OCFCD and would not be necessary to mitigate any project impacts.

The proposed project includes development and implementation of a Landscape Plan that would screen and soften the appearance of project facilities (see Draft SEIR, page 2-12). The Landscape Plan would include tall landscaping trees planted along or near the earthen berm that forms the outer perimeter boundary of the project area. In addition, IRWD will reestablish vegetation in the two areas of the MWRP that were impacted during construction of the Phase 2 Capacity Expansion Project. The boundary of the Biosolids Handling Component site, which is shown in green in **Exhibit C-1**, is currently being replanted with a dense planting of Canary Island pines, sycamore trees and toyons. The boundary of the MWRP along Riparian View, which his shown in yellow in **Exhibit C-1**, will be replanted with dense, fast-growing, evergreen vegetation that will provide maximum screening potential of the MWRP facilities when viewed from Harvard Avenue. In both areas, preconstruction conditions will be reestablished after replanting. Preconstruction conditions along Riparian View are shown in **Exhibit C-2**. Although not required as a mitigation measure for the proposed Biosolids Handling Component, the restoration planting is an environmental commitment for the Phase 2 and 3 Capacity Expansion Project.

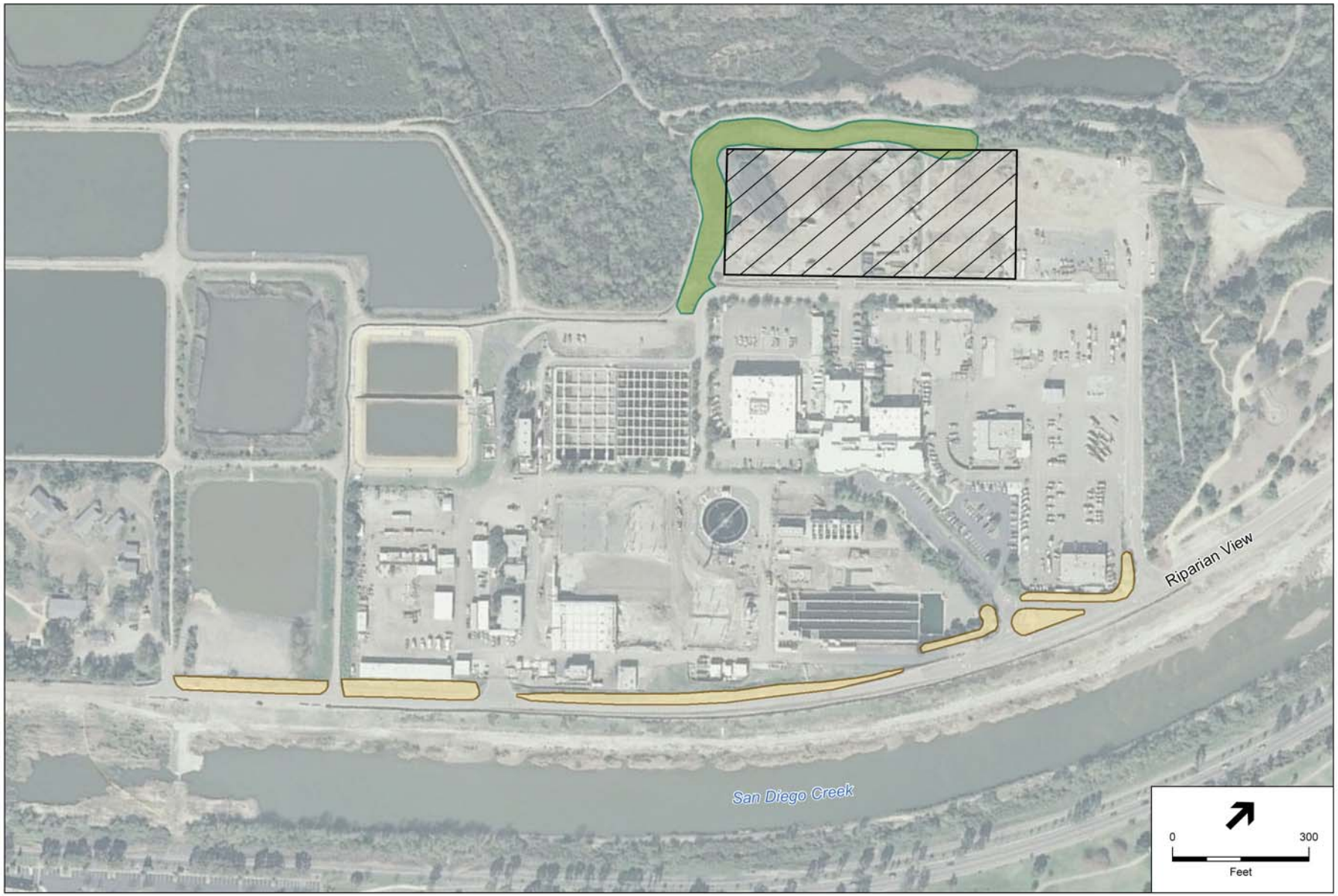
Comment CICD-3

The City of Irvine requests an independent third-party assessment of the Northwest Water Reclamation Plan in Mesa, Arizona, after which the MWRP odor control system is being modeled to assess the potential for odors. The City also requests an assessment of the potential odors associated with trucks transporting sludge to the MWRP. The City suggests using the AERMOD dispersion model or comparative techniques.

Response to CICD-3

Please refer to the **Odor Control Master Response** for the results of an independent third-party assessment of the MWRP odor control system as designed.

Sludge (digested and dewatered Class B cake) would be transported by truck to the MWRP from the LAWRP and potentially other wastewater treatment plants. Photos of typical trucks that would be used to transport sludge are shown in **Exhibit D**. To contain any odors during transport, the trucks would have a sealed cover. The rear gate on the truck has a gasket to seal in any liquids so that the truck would not leak while in transport. Although the AERMOD dispersion model can be adapted to evaluate odor, IRWD has determined such modeling is not required since the inherent design of trucks transporting sludge is adequate to contain odor.



SOURCE: ESRI, 2011; ESA, 2012.

MWRP Phase 2&3 Capacity Expansion Project Final Supplemental EIR No. 1 . 210480

Exhibit C-1

MWRP Phase 2 Revegetation Map

SOURCE: IRWD, 2012.

Exhibit C-2
Preconstruction Conditions Along Riparian View

SOURCE: IRWD, 2012.

Exhibit D
Typical Sludge Hauling Truck

For the proposed project, the truck bed would only be opened when the truck is inside the solids receiving bays within the Solids Handling Building as described in the Draft SEIR (page 2-7). After the truck pulls in, the roll-up doors to the receiving bay would be closed and the room would be put under a negative pressure by fans that direct all the room air to the odor control system.

Comment CICD-4

The City requests that mitigation measures for cultural resources be revised to include a requirement for the City's Director of Community Development to be contacted in the event of a discovery of paleontological resources or human remains.

Response to CICD-4

In response to the comment the text of the Draft SEIR has been revised as follows:

Page 3.4-17:

> **CUL-4:** In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find. The Director of Community Development at the City of Irvine shall also be notified of the discovery and the determination of the OCC Paleontologist related to recovery, handling, and disposition of identified resources.

Page 3.4-18:

> **CUL-5*:*** If human remains are uncovered during project construction, the project proponent shall immediately halt work, contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The Director of Community Development at the City of Irvine shall also be notified of the discovery and the determination of the NAHC related to recovery, handling, and disposition of remains and associated artifacts.

Comment CICD-5

The City requests that IRWD provide a copy of the post-construction noise survey to the City's Director of Community Development, along with any site improvements necessary to correct for any excess noise levels.

Response to CICD-5

In response to the comment the text of the Draft SEIR has been revised as follows:

Page 3.10-15:

> **NOISE-3:** IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate non-compliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds. A copy of the noise survey shall be provided to the Director of Community Development at the City of Irvine, as well as information on site improvements necessary to correct excess noise levels as well as a schedule for completion of the improvements.

Comment CICD-6

The comment requests additional information about the number and types of trips that the project will add to the AM and PM peak traffic periods (6-9 AM, 3-7 PM); further traffic analysis may be required if the stated 40-60 daily trips occur during peak periods.

Response to CICD-6

The 46-60 daily trips include trips made by 10 additional employees (20 daily trips, or 10 round trips). Some of these trips will occur during peak AM and PM periods while others will occur off peak, including weekends. Operational schedules will include shift work to support the project facilities being staffed 24 hours per day, 7 days per week. The remainder of the trips is delivery, trucking, etc., and will occur throughout the day, with a fraction possibly falling during peak hours.

Comment CICD-7

The comment requests the following intersections to be added to Table 3.12-2 in the Draft SEIR: Jamboree & Michelson, Harvard & Michelson, and Culver & Michelson.

Response to CICD-7

In response to the comment, the requested intersections have been added to Table 3.12-2 as shown below. The additional information does not change the results of the analysis of traffic impacts provided in the Draft SEIR. Nonetheless, for clarity and completeness, the text on page 3.12-12 of the Draft SEIR has been revised as follows:

> The closest intersections that are monitored for LOS in the CMP are the I-405 Northbound and Southbound ramps at Jamboree Road (Table 3.12-2). The City of Irvine has provided information on LOS ratings for intersections closer to the project site, including Jamboree Road / Michelson, Harvard Avenue / Michelson Drive and Culver Drive / Michelson Drive~~(There are no LOS ratings for Culver Drive.)~~ These intersections currently operate at LOS ~~C and~~ D during the P.M. peak period~~, depending on time of day~~. It is likely that operational vehicles accessing the project site would pass through these intersections. However, given the typical daily number of vehicles traveling on ~~I-405 and~~ Jamboree Road, Harvard Avenue, Culver Drive,

and Michelson Drive in the vicinity of these intersections, the proposed project would not introduce enough vehicles to affect LOS. ~~I-405 has an ADT of 603,000 in the segments just north and south of Jamboree Road.~~ Jamboree Road has an ADT of 141,000 in the segments just east and west of I-405. Culver Drive and Harvard Drive between University Drive and I-405 have ADTs of 89,000 and 17,000, respectively. Michelson Drive between Culver Drive and Jamboree Road has an ADT of 29,000. Assuming all operational vehicles for the proposed project pass through ~~this~~ these intersections, an addition of 20 to 36 trips per day during the A.M. or P.M peak period would not substantially affect traffic volume or LOS. Impacts would be less than significant.

TABLE 3.12-2
EXISTING LEVEL OF SERVICE RATINGS FOR INTERSECTIONS IN THE PROJECT AREA

Intersection	LOS A.M. / P.M.
I-405 NB Ramps / Jamboree Road	C / D
I-405 SB Ramps / Jamboree Road	D / D
MacArthur Boulevard / Jamboree Road	A / C
Laguna Canyon Rd / SR-73 NB Ramps	E / D
Laguna Canyon Rd / SR-73 SB Ramps	A / A
Jamboree Road / Michelson Drive	C / D
Harvard Avenue / Michelson Drive	B / D
Culver Drive / Michelson Drive	A / D

LOS = Level of Service. LOS is based on peak-hour traffic counts during A.M. (6:00 to 9:00) and P.M. (3:00 to 7:00) periods and volume to capacity ratios.

SOURCE: Orange County Transportation Authority, CMP, 2011. Pers. Comm. W. Wang, City of Irvine, 2012.

Letter 15, Sea and Sage Audubon

Comment SSA-1

The comment states that visitors to the public trail system adjacent to the project site may be alarmed by project construction if information about the project is not displayed. The comment requests IRWD to post signage at locations from which construction will be visible – especially in the vicinity of the trail behind the project site – that explain what the construction is, in order to reduce visitor concerns as well questions that Audubon House volunteers will encounter from the public.

Response to SSA-1

In response to the comment, the text of the Project Description in the Draft SEIR has been revised as follows:

Page 2-24:

Public Health and Safety

- In the event that grading, construction, or operation of the proposed facilities encounter hazardous waste, IRWD will ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Orange County Department of Environmental Health.
- IRWD shall close the surrounding Sanctuary hiking trails as necessary during project construction to protect public health and safety.
- IRWD shall post signage at Sanctuary hiking trail locations from which construction will be highly visible, explaining the nature of construction to alleviate visitor concerns and to protect public health and safety.

Letter 16, US Fish and Wildlife Service

Comment USFWS-1

Although the comment period has closed, USFWS requests consideration of a measure to ensure project construction does not result in impacts to the federally endangered least Bell's vireo, which nests in the riparian woodland adjacent to the project site. USFWS recommends the installation of a noise barrier of adequate height, length, and materials to maintain ambient noise levels prior to the first nesting season following the initiation of construction. Fencing should be maintained in working condition until project completion. This will avoid the need to conduct vireo monitoring throughout the construction period.

Response to USFWS-1

In response to the comment, the following has been added to Mitigation Measure BIO-2:

> **BIO-2:** If initiation of ground-disturbing construction activities must occur during the specific nesting season of least Bell's vireo and southwestern willow flycatcher (March 15 through September 15), impacts to these species would be avoided through implementation of one of the ~~three~~ four of the following measures. Implementation of one of the measures below would reduce impacts to less than significant levels.
>
> 1. Conduct surveys to determine the presence or absence of least Bell's vireo or southwestern willow flycatcher in suitable habitat within 500 feet of the project area in accordance with USFWS protocols (USFWS 1999, 2000). If neither species is detected by these surveys, construction may proceed without additional mitigation.
> 2. If protocol surveys detect the presence of either species, delay construction within a distance of occupied territory determined by a qualified biologist until after the least Bell's vireo and/or southwestern willow flycatcher have migrated from the site. If nesting is detected, delay construction within a distance determined by a qualified biologist until the biologist determines that the young have fledged the nests and/or the nests are no longer active.

3. If protocol surveys detect the active nests of either species, noise barriers may be erected to reduce sound levels at nest sites to reduce the "no construction" buffer distance around the nest as determined by a qualified biologist. If noise barriers are utilized, a qualified biologist shall conduct monitoring of noise levels at the nest sites to determine if construction noise has the potential to affect nesting behavior. If construction activities are determined to affect nesting behavior of least Bell's vireo and/or southwestern willow flycatcher, the biological monitor shall halt construction-related activities that may impact the nests until the juveniles have fledged and/or the nests are no longer active.
4. Erect noise barriers prior to the first nesting season (starting March 15th) following the initiation of construction. The noise barrier shall be of adequate height, length and materials to maintain ambient noise levels in the adjacent riparian woodland for the duration of the construction period. The effectiveness of the barriers to reduce noise levels to ambient conditions shall be tested with noise monitoring equipment prior to the first nesting season. Barriers shall be maintained in working condition until completion of the project.

CHAPTER 12
Corrections and Additions to the Draft SEIR

This chapter contains a compilation of revisions made to the text of the Draft SEIR by the Lead Agency, in response to the comments received during the 60-day public review period. All revisions are previously introduced in Chapter 11 of this Final SEIR but are summarized here for convenience of the reader.

The revisions appear as indented text. Where the responses indicate additions or deletions to the text of the Draft SEIR, additions are indicated in underline and deletions in ~~strikeout.~~

Page 1-10:

MWRP Phase 2 and 3 Capacity Expansion Project

The Phase 2 and 3 Capacity Expansion Project will expand recycled water production at the MWRP in phases to 28 mgd (Phase 2) and to 33 mgd (Phase 3), to meet projected ultimate demand for non-potable water, enhance water supply reliability by maximizing the use of recycled water in lieu of imported water from the State Water Project and the Colorado River and instead of local groundwater, meet state mandates to reduce urban demand on freshwater supplies, reduce wastewater diverted to regional treatment facilities and optimize water supply, wastewater treatment life cycle and construction cost economics. The Phase 2 and 3 Capacity Expansion Project will provide for tertiary treatment and disinfection of wastewater while continuing to ~~deliver~~ discharge residual sludge and scum from the water recycling process and any excess raw wastewater through force mains and gravity pipelines to OCSD's Plant 1 in Fountain Valley.

Page 2-24:

Public Health and Safety

- In the event that grading, construction, or operation of the proposed facilities encounter hazardous waste, IRWD will ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Orange County Department of Environmental Health.
- IRWD shall close the surrounding Sanctuary hiking trails as necessary during project construction to protect public health and safety.

- IRWD shall post signage at Sanctuary hiking trail locations from which construction will be highly visible, explaining the nature of construction to alleviate visitor concerns and to protect public health and safety.

Page 3.1-1:

The San Diego Creek Class I Bikeway ~~A bike path~~ and the Rancho San Joaquin Golf Course are located across the San Diego Creek to the east of the property. Distant views in the vicinity of the project area include a mixture of residential apartment buildings and commercial developments to the north and south.

Page 3.1-2:

The proposed project could be visible from vantage points that the public has access to in the immediate project vicinity. The project site is visible from the San Diego Creek Class I Bikeway ~~bike path~~ along San Diego Creek, segments of Harvard Avenue, and the Michelson Drive bridge.

Page 3.1-18:

Scenic views from the San Diego Creek Class I Bikeway ~~San Diego Creek bike path~~ and Harvard Avenue already include the existing MWRP facilities, and some views are partially screened by existing vegetation (see Figures 3.1-7 through 3.1-10).

Page 3.2-5:

The San Diego Creek Class I Bikeway ~~bike path~~ on the east side of San Diego Creek is approximately 1,400 feet or 0.25 miles from the project site.

Page 3.2-17

REVISED TABLE 3.2-7
MAXIMUM PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$[a]**
Proposed Project: Class A Biosolids						
On-site Facilities[b]	12.40	49.60	39.51	4.70	20.09	19.77
Mobile Sources[c]	(0.63)	(5.53)	(3.92)	(0.01)	(0.20)	(0.17)
Total Emissions for Class A Biosolids	11.77	44.07	35.59	4.69	19.89	19.60
Proposed Project: Class B Biosolids						
On-site Facilities[b]	4.24	14.71	5.16	3.49	6.22	6.21
Mobile Sources[c]	1.04	6.80	7.31	0.02	0.28	0.23
Total Emissions for Class A Biosolids	5.28	21.51	12.47	3.51	6.50	6.44
Existing OCSD Solids Disposal Trips						
Mobile Sources[d]	6.21	45.91	41.78	0.10	1.80	1.47
Net Project Operational Emissions						
Class A Biosolids	**5.56**	**(1.84)**	**(6.19)**	**4.59**	**18.09**	**18.13**
Class B Biosolids	**(0.93)**	**(24.40)**	**(29.31)**	**3.41**	**4.70**	**4.97**
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Potentially Significant Impact?	No	No	No	No	No	No

NOTE: Emissions would be different during summer and winter. Maximum daily emissions of ROG, and NO_X would be higher during the winter while emissions of CO would be higher in the summer. Maximum emissions are shown for the respective seasons.

[a] The $PM_{2.5}$ emissions were calculated from the PM_{10} emissions based on the recommended $PM_{2.5}$ fractions provided in Appendix A of SCAQMD's *Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds* document.

[b] On-site emissions calculations and assumptions provided in Appendix F.

[c] Mobile source emissions calculations and assumptions provided in Appendix F.

[d] OCSD mobile source emissions estimated for solids disposal trips associated with Class B biosolids.

SOURCE: On-site facility emissions calculations performed by ENVIRON, 2012 (Appendix F); Vehicle trip modeling performed by ESA, 2012 (Appendix F).

Page 3.3-13:

BIO-2: If initiation of ground-disturbing construction activities must occur during the specific nesting season of least Bell's vireo and southwestern willow flycatcher (March 15 through September 15), impacts to these species would be avoided through implementation of one of the ~~three~~ four of the following measures. Implementation of one of the measures below would reduce impacts to less than significant levels.

1. Conduct surveys to determine the presence or absence of least Bell's vireo or southwestern willow flycatcher in suitable habitat within 500 feet of the project area in accordance with USFWS protocols (USFWS 1999, 2000). If neither species

is detected by these surveys, construction may proceed without additional mitigation.

2. If protocol surveys detect the presence of either species, delay construction within a distance of occupied territory determined by a qualified biologist until after the least Bell's vireo and/or southwestern willow flycatcher have migrated from the site. If nesting is detected, delay construction within a distance determined by a qualified biologist until the biologist determines that the young have fledged the nests and/or the nests are no longer active.
3. If protocol surveys detect the active nests of either species, noise barriers may be erected to reduce sound levels at nest sites to reduce the "no construction" buffer distance around the nest as determined by a qualified biologist. If noise barriers are utilized, a qualified biologist shall conduct monitoring of noise levels at the nest sites to determine if construction noise has the potential to affect nesting behavior. If construction activities are determined to affect nesting behavior of least Bell's vireo and/or southwestern willow flycatcher, the biological monitor shall halt construction-related activities that may impact the nests until the juveniles have fledged and/or the nests are no longer active.
4. Erect noise barriers prior to the first nesting season (starting March 15th) following the initiation of construction. The noise barrier shall be of adequate height, length and materials to maintain ambient noise levels in the adjacent riparian woodland for the duration of the construction period. The effectiveness of the barriers to reduce noise levels to ambient conditions shall be tested with noise monitoring equipment prior to the first nesting season. Barriers shall be maintained in working condition until completion of the project.

Page 3.4-17:

CUL-4: In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find. The Director of Community Development of the City of Irvine shall also be notified of the discovery and the determination of the OCC Paleontologist related to recovery, handling, and disposition of identified resources.

Page 3.4-18:

CUL-5*:* If human remains are uncovered during project construction, the project proponent shall immediately halt work, contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are

located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The Director of Community Development of the City of Irvine shall also be notified of the discovery and the determination of the NAHC related to recovery, handling, and disposition of remains and associated artifacts.

Page 3.9-2:

The San Diego Creek Class I Bikeway is located ~~A bike path~~ on the east side of San Diego Creek, ~~is~~ approximately 1400 feet or 0.25 miles from the project site. This bike path runs between Harvard Avenue and San Diego Creek.

Page 3.9-2 under "Recreational Facilities":

Peters Canyon Regional Riding and Hiking Trail is almost 12 miles long. The route is surfaced with native soil or decomposed granite. Categorized as a mountain-to-sea riding and hiking trail, the trail is on the west side of the flood control channel from the confluence of Peters Canyon and San Diego Creek to Upper Newport Bay. When complete the trail will serve thousands of residents by connecting neighborhoods, commercial and business areas, and local and regional parks from the coast to the Anaheim foothills. Trails serve walkers, joggers, runners, equestrian riders and mountain bicyclists. Class I Bikeways serve commuter and recreational cyclists and pedestrians.

Page 3.9-5 under "Physical Deterioration of Recreational Facilities":

In addition, the proposed project would have no additional impact on the portion of the Peters Canyon Regional Riding and Hiking Trail that is located between Michelson and Campus Drive on the west side of the San Diego Creek levee. The proposed project would not affect the temporary roadway located next to the Trail.

Page 3.10-15:

NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate non-compliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds. A copy of the noise survey shall be provided to the Director of Community Development of the City of Irvine, as well as information on site improvements necessary to correct excess noise levels as well as a schedule for completion of the improvements.

Page 3.12-3:

Harvard Avenue runs along the eastern boundary of the MWRP site on the east side of San Diego Creek. Between Michelson Drive and University Drive, Harvard Avenue traverses in a northeast/southwest direction and transitions between a two- to four-lane

undivided roadway. This roadway is designated as a Commuter Highway in the City of Irvine Master Plan of Arterial highways. The posted speed limit is 50 miles per hour, and there is no on-street parking allowed within this portion of the roadway. Adjacent to the east side of Harvard Avenue along this stretch is the Rancho San Joaquin Golf Course, while the paved San Diego Creek Class I Bikeway ~~Peters Canyon Trail~~ runs adjacent to the west side. A sidewalk is located on the southbound roadway (approximately 5 feet in width) at the beginning of the Harvard Avenue and Michelson Drive intersection, but ends after approximately 700 feet further down Harvard Avenue. The sidewalk continues near the Harvard Avenue and University Drive intersection for approximately 1,300 feet. A bike lane (approximately 7 feet in width) is available on both sides of the roadway.

Page 3.12-5:

REVISED TABLE 3.12-2
EXISTING LEVEL OF SERVICE RATINGS FOR INTERSECTIONS IN THE PROJECT AREA

Intersection	LOS A.M. / P.M.
I-405 NB Ramps / Jamboree Road	C / D
I-405 SB Ramps / Jamboree Road	D / D
MacArthur Boulevard / Jamboree Road	A / C
Laguna Canyon Rd / SR-73 NB Ramps	E / D
Laguna Canyon Rd / SR-73 SB Ramps	A / A
Jamboree Road / Michelson Drive	C / D
Harvard Avenue / Michelson Drive	B / D
Culver Drive / Michelson Drive	A / D

LOS = Level of Service. LOS is based on peak-hour traffic counts during A.M. (6:00 to 9:00) and P.M. (3:00 to 7:00) periods and volume to capacity ratios.

SOURCE: Orange County Transportation Authority, CMP, 2011. Pers. Comm. W. Wang, City of Irvine, 2012.

Bicycle and Pedestrian Transportation

The City of Irvine has an extensive ~~trail~~ non-motorized system that includes pedestrian walkways, Class I Bikeways, and Class II Bike Lanes and bike trails within open space corridors and along regional ~~trails~~ flood control facilities. The County of Orange also operates and maintains a separate master-planned system of riding and hiking trails, several of which are found in the City. These trails (the Peters Canyon, Hicks Canyon and Irvine Coast) are used by walkers, joggers, equestrian riders and mountain bicyclists. Class I Bikeways and Class II Bike Lanes, however, comprise the most extensive part of the City's non-motorized circulation network. The City's bicycle network connects with other off-road and on-road bicycle facilities, riding and hiking trails and other types of pathways in adjoining communities and throughout Orange County. ~~The County maintains a coordinated system of trails, including bikeways, equestrian trails and hiking trails within the~~

~~cities. Bikeways comprise the most extensive part of the City's trail network. The biking network in Irvine connects with other trails and paths in adjacent communities and throughout Orange County.~~ The three categories of bikeways as described in the Caltrans Highway Design Manual, Chapter 1000, are:

- Class I: a paved path that is separate from any motor vehicle travel lane;
- Class II: a restricted lane within the right-of-way of a paved roadway for the exclusive or semi-exclusive use of bicycles; and
- Class III: a bikeway that shares the street with motor vehicles or the sidewalk with pedestrians.

The City of Irvine contains 44.5 miles of off-road Class I Bikeways ~~bicycle trails~~ and 282 miles of on-road Bike Lanes ~~bicycle lanes within the City~~. The closest bicycle facilities ~~bike paths~~ to the project site include a Class I Bikeway ~~bike path~~ along San Diego Creek and Harvard Avenue and University Drive, and Class II Bike Lanes ~~Bikeways~~ located along Campus Drive, Culver Drive, Carlson Avenue, Michelson Drive, Harvard Avenue, and University Drive (OCTA, 2010).

Page 3.12-12:

The closest intersections that are monitored for LOS in the CMP are the I-405 Northbound and Southbound ramps at Jamboree Road (Table 3.12-2). The City of Irvine has provided information on LOS ratings for intersections closer to the project site, including Jamboree Road / Michelson, Harvard Avenue / Michelson Drive and Culver Drive / Michelson Drive~~(There are no LOS ratings for Culver Drive.)~~ These intersections currently operate at LOS ~~C and~~ D during the P.M. peak period~~, depending on time of day~~. It is likely that operational vehicles accessing the project site would pass through these intersections. However, given the typical daily number of vehicles traveling on ~~I-405 and~~ Jamboree Road, Harvard Avenue, Culver Drive, and Michelson Drive in the vicinity of these intersections, the proposed project would not introduce enough vehicles to affect LOS. ~~I-405 has an ADT of 603,000 in the segments just north and south of Jamboree Road.~~ Jamboree Road has an ADT of 141,000 in the segments just east and west of I-405. Culver Drive and Harvard Drive between University Drive and I-405 have ADTs of 89,000 and 17,000, respectively. Michelson Drive between Culver Drive and Jamboree Road has an ADT of 29,000. Assuming all operational vehicles for the proposed project pass through ~~this~~ these intersections, an addition of 20 to 36 trips per day during the A.M. or P.M peak period would not substantially affect traffic volume or LOS. Impacts would be less than significant.

Page 6-6:

Ability to Meet Project Objectives

Under the No Project Alternative, most of the project objectives would not be achieved. There would be no opportunity for IRWD to recapture biogases to implement any energy

recovery facilities or allow IRWD to make use of its own renewable resources through the beneficial reuse of biosolids. IRWD's autonomy for residuals management would not be increased as the need to transfer residual solids to OCSD would continue. However, the future solids handling needs of the Phase 2 and 3 Capacity Expansion Project would be met by continuing to ~~send~~ discharge all residuals to OCSD through the existing force main and by OCSD upgrading their facilities. This is the only project objective that would be met under the No Project Alternative. A renewed MOU/agreement with OCSD would be required.

Appendix E

Peer Review Comment Letter for Odor Control System

ESA

DUDEK
31878 CAMINO CAPISTRANO, SUITE 200
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

October 5, 2012 7036-3

Mr. Paul Weghorst, P.E.
Irvine Ranch Water District
15600 Sand Canyon Ave.
Irvine, CA 92619-1799

Subject: ***Peer Review Comment Letter for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities Odor Control Systems***

Dear Mr. Weghorst:

At the request of Irvine Ranch Water District, Dudek conducted a peer review of the design for the proposed Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities. Our peer review focused on the proposed facilities, the proposed odor control strategies and specific systems (which included our assessment of the anticipated effectiveness and reliability of the system), and the odor mitigation features of the proposed equipment.

Currently, the biosolids generated by the wastewater treatment processes at the Michelson Water Recycling Plant (MWRP) are delivered to the Orange County Sanitation District for treatment and disposal. However, such practice of biosolids disposal will cease by the year 2016 and the biosolids will be processed by a new biosolids and energy recovery project at MWRP. Control of the odor that may be emitted by the various project facilities is a major concern to the Irvine Ranch Water District (IRWD).

Summarized herein is our review team and our review.

REVIEW TEAM INTRODUCTIONS

Our review was substantially performed by Mr. Louis Yu, P.E. and Mr. Wyatt Troxel, Grade V Operator. A brief bio of these team members is as follows:

Mr. Yu is a professional engineer specializing in the engineering of municipal water and wastewater facilities throughout California. His 45 years of engineering experience encompasses the planning, design and construction management of wastewater treatment plants, wastewater collection systems as well as pump stations. Mr. Yu earned a Bachelor's of Science and Master's Degrees in Civil Engineering from the University of Notre Dame.

Mr. Troxel has over 40 years of active process management experience throughout California. He is well recognized throughout the U.S. for his leadership and acumen in troubleshooting and optimization of activated sludge and related systems. He has been a certified WWTP operator for over 35 years, receiving his Grade IV Operator Certificate in California in 1974, and Grade V Operator Certificate in 1985. He is a recognized expert in biological treatment, systemic assessment of wastewater collection, tertiary disinfection, and advanced treatment facilities. Mr. Troxel earned a Bachelor's of Science degree in Biological Sciences, Aquatic Microbiology, Limnology from the University of California, Riverside.

DESIGN DOCUMENTS REVIEWED

The design of the odor control systems are presented in a number of reports, drawings and specifications prepared by Black and Veatch for IRWD's Biosolids and Energy Recovery Facilities Project as follows:

- Report of Special Study: Vapor Phase Odor Control, June 24, 2011
- Basis of Design Report, dated July 22, 2011
- Technical Specifications, Division 11: Mechanical, Plumbing and HVAC, date April 30, 2010
- Reviewed pertinent sections of the Drawings Vol. 3A: Civil, Architectural and Structural, date April 30, 2010
- Reviewed pertinent sections of the Drawings Vol. 3B: Mechanical, Plumbing and HVAC, date April 30, 2010
- Reviewed pertinent sections of the Drawings Vol. 3DS3-3D: Instrumentation, date April 30, 2010
- Draft Appendix 17335-A-6000, Software Control Block Description

Our review was based on the descriptions of the odor control system as presented in these documents and a review of relevant design criteria and odor control strategies presented by the design engineer at a workshop on October 4, 2012.

OVERVIEW OF PROPOSED BIOSOLIDS AND ENERGY RECOVERY FACILITIES

The biosolids facilities are designed not only to treat the sludge generated at MWRP, but also have the capability to treat fats, oil and grease (FOG), as well as dewatered sludge cake from the Los Alisos Water Reclamation Plant (LAWRP). MWRP produced sludge will be thickened by centrifuges before it is pumped to the anaerobic sludge digestion system. The thickened sludge, together with the imported FOG, will first be processed in the acid phase digesters, and the discharge from the acid phase digesters will then be processed by the methane phase digesters. Digested sludge will be temporarily stored in the sludge holding tanks and then

pumped up to several centrifuges for dewatering. Dewatered sludge cake can be delivered to the wet material bins, from which it will be pumped to the sludge cake dryer, or delivered to the sludge cake storage hopper for hauling to offsite disposal. The biosolids facilities will also be designed to receive sludge cakes imported by truck from LAWRP. Cake from the trucks is first off-loaded into cake receiving bins and then the imported cake is conveyed to the wet material bins and then to the sludge cake dryer. Dried sludge in the form of pellets from the sludge dryer will be delivered to two, parallel pellet storage hoppers for collection by the hauling trucks.

Centrate from the digested sludge goes directly back to the MWRP Nitrification/denitrification (NdN) process train or Membrane Bio-Reactor (MBR) aeration basins for treatment. The treated centrate will then be returned to the treatment plant's primary sedimentation tanks or to the anoxic zone of the NdN process. Digester gas from the acid phase digesters will be delivered to the methane phase digesters to mix with digested gas being produced there. All of the digester gas will be conditioned and then used to fuel microturbines, hot water boilers for digester heating, for the sludge cake dryer, or directed to the enclosed gas burner.

While the sludge digesters, FOG receiving station, chemical storage facilities and the centrate treatment units are located outdoors, all of the other solids processing facilities are housed in a new Solids Handling Building. For odor control, the odor producing facilities, such as centrifuges, storage bins, screw conveyors, and hoppers will be enclosed and ducted to the odor control system. Also the cake receiving bay and the cake/pellet load-out bay will be ducted to the same odor control system. A network of ducting will be provided to collect the foul air from these facilities to an odor removal wet scrubber outside of the building. The odor removal scrubber will be a 3-stage chemical scrubber using sodium hypochlorite, sodium hydroxide and/or sulfuric acid for removal of the odorous compounds in the foul air.

DISCUSSION

The designer's odor control strategy is to positively seal all equipment, tanks, bins, and spaces that may contain odorous products and to maintain these spaces under negative pressure such that the foul air is prohibited from escaping to atmosphere. All areas exposed to malodourous products are properly sealed and ventilated to the odor control system. This approach has been successfully implemented at many similar facilities. Specific findings resulting from our review are summarized as follows:

1. The odor sources inside the Solids Handling Building are to be covered or enclosed in isolated rooms to minimize the quantity of foul air to be treated. A ducting system is provided to withdraw the foul air from the various odor sources to the chemical scrubber. According to the reports, the odor sources in this building are to be ventilated with an air change rate of 12 per hour and to create a slightly negative pressure inside the enclosure of the odor source necessary to remove/convey the foul

air for treatment. This ventilation method meets the requirements of NFPA, and it has been successfully implemented in other similar projects to prevent odor from leaking out to the atmosphere while continuously purging the air space inside the odor source.

2. Referring to the schematic diagram of the foul air collection system shown in P&ID I6001, the total foul air flow from the various odor sources to the odor removal scrubber amounts to 40,785 cubic feet per minute (cfm) when the foul air from the two cake receiving bins is shut off. According to the draft control strategy and in discussions with the design engineer, when the door of one of the sealed subgrade cake receiving bins is opened, foul air withdrawal from this bin will start and foul air from one of the truck bays will dampen to maintain a nearly constant foul air flow to the scrubber. This directs the air from the cake receiving bay through the cake receiving bin thereby ensuring that any odors from the imported cake are fully captured. This arrangement is preferable because it permits the use of the same foul air fan and scrubber to accommodate alternate modes of foul air withdrawal without the need for variable speed controls, more complicated control instrumentation, or additional scrubber capacity.

3. In addition to the solids processing facilities, certain "clean" areas are provided in the second floor of the Solids Handing Building. These areas include the control, electrical and lunch rooms, as well as the toilets and stairwells. While these areas are separated from the rest of the building, they are still connected to the foul air producing areas through access doors. Our review confirms that to prevent the odorous and corrosive foul air from leaking into the "clean" areas, these areas will be ventilated to provide a positive pressure to prevent intrusion of the odorous atmosphere into the clean areas.

4. Our review confirmed that all the odor generating areas will be ventilated to create a negative pressure in these areas to remain completely contained and treated to eliminate the odor.

5. The odor removal scrubber is a 3-stage system with the interconnecting ducting arranged in a manner that the three stages can be operated in series or operated with anyone of the stages bypassed for cleaning or other maintenance activities. The scrubber is also designed to use three types of chemicals such that the operator may select to use sodium hypochlorite and sodium hydroxide for removal of odorous organic compounds and hydrogen sulfide in subsequent stages, and sulfuric acid in the third stage if it's necessary for ammonia removal. Our review confirms that this meets standards of practice in the wastewater industry and is an appropriate odor control strategy for this application.

6. The off gas from the sludge dryer will be treated separately from the odor control system discussed above. As shown in the drawings, after exiting the furnace, the gas will

be cooled by the condenser, passed through a Venturi scrubber where it will be scrubbed with sulfuric acid for ammonia removal, and cleaned of its organic compounds by a regenerative thermal oxidizer (RTO). This is a process that has proven effective in other installations, including sludge dryers.

7. Outside of the Solids Handling Building, a ducting system has been provided to withdraw the foul air from the FOG storage tanks in the receiving station and convey it for elimination by the odor control system.

OTHER CONSIDERATIONS

There are many effective methods, processes, and equipment to treat biosolids effectively and mitigate odors. Both the District and the design engineer conveyed the importance of selecting advantageous processes and equipment to mitigate and treat odors. To further reinforce the decision to utilize the selected biosolids treatment and handling processes, and equipment, both the District and the design engineer visited many similar and alternate facilities. The advantages and disadvantages of all the equipment and processes were chronicled and refined to reinforce the decision to utilize the proposed equipment and processes. We would like to highlight several reasons why the proposed equipment and processes were selected as follows:

Egg shaped digesters are more costly to construct than pancake digesters, but they were selected because they are more efficient at mixing sludge and require less frequent maintenance and cleaning. The use of egg shaped digesters is anticipated to introduce an odorless facility.

Biogas produced from the digesters are captured and contained in a closed piping system that is connected to the digesters and the biogas treatment systems. The biogas treatment systems are comprised of iron sponges and siloxanes are removed with a granular activated carbon system. The biogas is then used to fuel the microturbines decreasing energy demands.

Should the microturbines be off-line and there are no other beneficial uses of the biogas available such as the boilers or the dryer, the digester gas is routed via the biogas piping system to the Mentron Barber enclosed burner system. This type of burner features a high-efficiency enclosed (no off-gassing) burner that significantly reduces NOX emissions.

The District has taken measures to provide enhanced training to operations staff as part of this project. This will provide operators with additional comfort and reliability in operating the biosolids handling and odor control systems equipment. The biosolids facilities will be staffed 24 hours per day, 7 days per week.

Odors in the form of off-gases from the FOG receiving station are vented and collected into the odor control system. This feature further enhances the MWRP's odor control system.

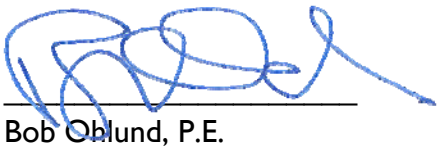
Odors collected from the combustible gases generated from the sludge dryer are collected and treated with sulfuric acid to minimize and mitigate the release of NOX.

The design includes many examples of multiple or standby units to provide more reliability should one unit fail. Examples are 3 acid digesters, 3 methane digesters, 2 sludge storage tanks, 1 standby thickening centrifuge, 1 standby dewatering centrifuge, 3 odor control scrubbers, 2 SBR centrate tanks, 2 cake receiving bins, 3 wet material bins, redundant screw conveyors, 2 boilers, and many other standby pieces of equipment on smaller systems.

CONCLUSION

In summary, the use of chemical scrubbers for treatment of odorous foul air has been successful in many odor control projects. It is our opinion that the odor control strategy and the specific odor control systems included in the MWRP Biosolids and Energy Recovery Project are robust and meet or exceed industry standard practices. We fully expect that the systems will effectively contain, convey and treat the volume and type of odorants that will be produced by the multitude of systems and equipment in the biosolids handling facilities.

Sincerely,



Bob Ohlund, P.E.
Vice President

Appendix F
Air Emissions Calculations

ESA

MAXIMUM DAILY MOBILE-SOURCE OPERATIONAL EMISSIONS

	Class A Biosolids				Class B Biosolids			
Criteria Pollutant	**MWRP Biosolids + Employees**	**LAWRP Biosolids**	**Chemical Delivery**	**Total**	**MWRP Biosolids + Employees**	**LAWRP Biosolids**	**Chemical Delivery**	**Total**
ROG	0.27	(1.18)	0.28	(0.63)	0.76	-	0.28	1.04
NOx	1.15	(8.74)	2.06	(5.53)	4.75	-	2.06	6.80
CO	2.16	(7.95)	1.87	(3.92)	5.44	-	1.87	7.31
SOx	0.00	(0.02)	0.00	(0.01)	0.01	-	0.00	0.02
PM10	0.06	(0.34)	0.08	(0.20)	0.20	-	0.08	0.28
PM2.5	0.05	(0.28)	0.07	(0.17)	0.16	-	0.07	0.23

MWRP-related Mobile Emisions - Class B Biosolids

Daily Employee Trips:	10
Daily Biosolids Truck Trips:	9
Employee Roundtrip Miles:	20
Biosolids Truck Roundtrip Miles:	40

Project Worker Trip Emissions:

ROG	0.13271
NOx	0.120375
CO	1.228215
SOx	0.002141
PM10	0.018518
PM2.5	0.01203

Project Delivery Truck Emissions:

ROG	0.626006
NOx	4.626095
CO	4.210002
SOx	0.009869
PM10	0.181107
PM2.5	0.148566

Total Proposed Project Mobile Emissions

ROG	**0.758715**
NOx	**4.74647**
CO	**5.438218**
SOx	**0.01201**
PM10	**0.199625**
PM2.5	**0.160596**

MWRP-related Mobile Emisions - Class A Biosolids

Daily Worker Trips:	10
Daily Delivery Truck Trips:	2
Worker Roundtrip Miles:	20
Delivery Truck Roundtrip Miles:	40

Project Worker Trip Emissions:

ROG	0.13271
NOx	0.120375
CO	1.228215
SOx	0.002141
PM10	0.018518
PM2.5	0.01203

Project Delivery Truck Emissions:

ROG	0.139112
NOx	1.028021
CO	0.935556
SOx	0.002193
PM10	0.040246
PM2.5	0.033015

Total Proposed Project Mobile Emissions

ROG	**0.271822**
NOx	**1.148396**
CO	**2.163772**
SOx	**0.004334**
PM10	**0.058764**
PM2.5	**0.045045**

Assumptions:

10 new employees = 10 daily worker roundtrips.
When dryer is off, Class B disposal requires 46 truck trips per week rountrip, or approximately 9 daily.
When dryer is on, Class A disposal required 11 truck trips per week, or approximately 2 daily.
Class A or Class B biosolids would be delivered to landfill approx. 20 miles from MWRP (40 mi roundtrip).
Estimate local employees travel 20 miles round trip.

LAWRP-related Mobile Emisions - Class B To La Paz, Arizona (dryer off)

Daily Biosolids Truck Trips:	2	
Biosolids Truck Roundtrip Miles:	360	within SCAB

Project Delivery Truck Emissions:

ROG	1.252012
NOx	9.252189
CO	8.420004
SOx	0.019738
PM10	0.362214
PM2.5	0.297133

LAWRP-related Mobile Emisions - Class B To MWRP (dryer on)

Daily Biosolids Truck Trips:	2	
Biosolids Truck Roundtrip Miles:	20	within SCAB

Project Delivery Truck Emissions:

ROG	0.069556
NOx	0.514011
CO	0.467778
SOx	0.001097
PM10	0.020123
PM2.5	0.016507

Net Decrease in Project Mobile Emissions.

ROG	**-1.18246**
NOx	**-8.73818**
CO	**-7.95223**
SOx	**-0.01864**
PM10	**-0.34209**
PM2.5	**-0.28063**

Assumptions:

Under the project, the number of trucks leaving LAWRP to haul Class B biosolids does not change (approximately 6 per week).
Class B biosolids are hauled from LAWRP using 2 trucks 3 times per week.
When dryer is on, trucks will haul Class B biosolids from LAWRP to MWRP instead of La Paz, Arizona, resulting in fewer miles traveled.
When dryer is off, trucks will contine to haul Class B biosolids to Arizona resulting in no change from existing conditions.
For truck trips to La Paz, Arizona, existing round-trip miles within the South Coast air basin = 360 miles.
Round-trip miles between the LAWRP and MWRP = 20 miles.

Chemical Delivery Emisions - Baseline

Daily Delivery Truck Trips:	2
Delivery Truck Roundtrip Miles:	40

Project Delivery Truck Emissions:

ROG	0.139112
NOx	1.028021
CO	0.935556
SOx	0.002193
PM10	0.040246
PM2.5	0.033015

Chemical Delivery Emisions - Project

Daily Delivery Truck Trips:	6
Delivery Truck Roundtrip Miles:	40

Project Delivery Truck Emissions:

ROG	0.417337
NOx	3.084063
CO	2.806668
SOx	0.006579
PM10	0.120738
PM2.5	0.099044

Net Increase in Project Mobile Emissions

ROG	**0.278225**
NOx	**2.056042**
CO	**1.871112**
SOx	**0.004386**
PM10	**0.080492**
PM2.5	**0.066029**

Assumptions:

Baseline conditions include 2 deliveries per week of ferrous chloride.
Ferrous chloride no longer required once sludge discharges to OCSD are discontinued.
Six weekly chemical deliveries associated with the project would be offset by decrease in two ferrous chloride deliveries.
Chemical deliveries are the same regardless of class of biosolids being produced.

Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:

Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2015**

All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	**0.00614108**
NOx	**0.00060188**
ROG	**0.00066355**
SOx	**0.00001070**
PM10	**0.00009259**
PM2.5	**0.00006015**
CO2	**1.10192837**
CH4	**0.00005923**

Delivery Trucks (pounds/mile)	
CO	**0.01169445**
NOx	**0.01285026**
ROG	**0.00173890**
SOx	**0.00002741**
PM10	**0.00050307**
PM2.5	**0.00041268**
CO2	**2.81247685**
CH4	**0.00008076**

Table 1: Peak Day NO_x Emissions - Class A Pellets
Irvine Ranch Water District (IRWD)
Irvine, California

Equipment	6 MT Operating Producing Class A Pellets Excess Biogas to Burner								
	# Units	Biogas (Mscf/day)	Natural Gas (Mscf/day)	NO_x (lbs/day)	CO (lbs/day)	SO_x (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	VOC (lbs/day)
Dryer	1	0	348	33.84	33.84	1.20	13.45	13.45	8.06
RTO	1	0	14.40	1.05	0.50	0.01	0.11	0.11	0.10
Microturbines	6	864.00	0	14.40	5.04	3.37	6.22	6.21	3.01
Boilers	2	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Emergency Generator (Testing)	1	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Burner	1	35.62	0	0.31	0.12	0.12	0.00	0.00	0.07
Sludge Thickening	--	--	--	--	--	--	--	--	0.58
Digested Sludge Dewatering	--	--	--	--	--	--	--	--	0.58
Cake and Pellet Loading/Unloading	--	--	--	--	--	--	0.31	0.01	0.00
Total:		**899.62**	**362.62**	**49.60**	**39.51**	**4.70**	**20.09**	**19.77**	**12.40**

Class A Pellet Production - Assumptions

1. The dryer emissions are based on lb/hr emission factors provided by Andritz. Unit would operate 24 hr/day. Note that the emissions listed in the table above include non-combustion emissions from the drying of the biosolids and the separation of the dried biosolids from the air stream at the dryer outlet.
2. The RTO will be operating as an air pollution control system when the dryer is operating. Unit would operate 24 hr/day. The natural gas emission factors for VOC, CO, PM_{10}, and SO_x are based on the default emission factors in SCAQMD's online AER Help and Support document, "Default Emission Factors for External Combustion Equipment for Forms B1 and B1U". The NO_x emission factor is based on the Rule 1147 NO_x limit of 60 ppm at 3% O_2, for thermal oxidizers operating at temperatures ≥1200°F.

$$NOx\ emission\ factor = \frac{60\ ppm}{1{,}000{,}000} \times 8{,}710 \frac{scf}{MMBtu} \times 1{,}000 \frac{MMBtu}{MMscf} \times \frac{lb-mol}{385\ scf} \times 46 \frac{lb}{lb-mol} \times \frac{20.9}{20.9-3}$$

3. The microturbine emission factor is based on a 0.4 lb/MWh emission factor provided by the manufacturer's specifications. Unit would operate 24 hr/day. Each MT would operate on 144 Mscf/day of biogas. The microturbines are assumed to have a total 1.5 MW generating capacity.
4. The boilers would not be operating when producing Class A pellets.
5. Testing of the emergency generator would not take place when producing Class A pellets and the dryer is on.
6. Excess biogas that is not combusted in the MTs will be sent to the burner. Only a small amount of excess biogas is expected (13,000,000 scf/yr / 365 day/yr = 35,600 scf/day), which can be combusted in approximately 30 minutes/day.
7. The sludge thickening emissions were calculated based on VOC emission factors (3.70×10^{-6} lb/gal for sludge dewatering centrifuges, 0.451 lb/lb in wastewater for flow equalization, primary effluent) and assuming a wastewater VOC concentration of 89 ug/L, as found in the 1993 JEIP report. The total sludge throughput used in the calculation was 1.60 million gallons per day. Unit would operate 24 hr/day.

$$VOC\ emissions\ (flow\ equalization) = 89 \frac{\mu g\ VOC\ in\ wastewater}{L\ wastewater} \times \frac{g}{1{,}000{,}000\ \mu g} \times \frac{lb}{454\ g} \times 3.785 \frac{L}{gal} \times 0.451 \frac{lb\ VOC}{lb\ VOC\ in\ wastewater} \times 1.60 \frac{million\ gal}{day} \times 1{,}000{,}000 \frac{gal}{million\ gal}$$

8. The digested sludge dewatering emissions were calculated based on VOC emission factors (3.70×10^{-6} lb/gal for sludge dewatering centrifuges, 1.70×10^{-9} lb/lb solids for sludge conveyors, 0.451 lb/lb in wastewater for flow equalization, primary effluent) and assuming a wastewater VOC concentration of 89 ug/L, as found in the 1993 JEIP report. The total sludge throughput used in the calculation was 1.60 million gallons per day. Unit would operate 24 hr/day.

$$VOC\ emissions\ (conveyors) = 1.70 \times 10^{-9} \frac{lb\ VOC}{lb\ solids} \times 167 \frac{dry\ tons}{week} \times \frac{week}{5\ days} \times 2{,}000 \frac{lb}{ton}$$

9. The VOC emissions from cake loading were calculated based on a VOC emission factor of 1.40×10^{-9} lb/lb dry biosolids, as found in the 1993 JEIP report, and assuming 62.5 dry tons/week sludge would be trucked in. The emissions from the Class A Pellet storage silos were calculated based on emission factor of 0.0063 lb PM_{10}/ton, as found in Table 9.9.1-1 of AP-42. The amount of Class A pellets produced were estimated based on a total sludge throughput of 230 dry tons/week through the dryer and a pellet solids content of 92%.

10. The $PM_{2.5}$ emissions were estimated based on the following $PM_{2.5}$ fractions as indicated in Appendix A to the Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds from SCAQMD's website:
- 100% of the PM_{10} is $PM_{2.5}$ for the dryer, RTO, and boilers, based on the category labeled EXTERNAL COMBUSTION GASEOUS FUEL-EXCEPT PETROLEUM AND INDUSTRIAL PROCESS HEATERS
- 99.8% for the microturbines, based on the category labeled INTERNAL COMBUSTION GASEOUS FUEL
- 100% for the flare, based on the category labeled INCINERATOR, AFTERBURNER, FLARES GASEOUS FUEL
- 97.6% for the emergency generator, based on the category labeled INTERNAL COMBUSTION DISTILLATE AND DIESEL-ELECTRIC GENERATION
- 3.4% could possibly be used for the drying system polycyclone and the storage silos, based on the category labeled FOOD AND AGRICULTURE GRAIN ELEVATORS (a similar category to the one used to calculate PM_{10} for these equipment).

Summary of Combustion Emission Factors

Equipment	Fuel Type	NO_x (lbs/MMscf)	CO (lbs/MMscf)	SO_x (lbs/MMscf)	PM_{10} (lbs/MMscf)	$PM_{2.5}$ (lbs/MMscf)	VOC (lbs/MMscf)	Notes
Dryer	Natural Gas	97.18	97.18	3.45	38.60	38.60	22.74	1.41 lb/hr NO_x, 1.41 lb/hr CO, 0.05 lb/hr SO_x, 0.56 lb/hr PM_{10}, 0.33 lb/hr VOC as provided by Andritz
RTO	Natural Gas	72.91	35.00	0.60	7.50	7.50	7.00	
Microturbines	Biogas	16.67	5.83	3.9	7.2	7.19	3.48	
	Natural Gas			3.47	6.73	6.72	2.14	
Boilers	Biogas	See note	84	0.6	7.6	7.6	5.5	The NO_x emission factor would be weighted according to the proportion of natural gas and biogas combusted in the boiler, as indicated in Rule 1146.
	Natural Gas		84	0.6	7.6	7.6	5.5	
Burner	Biogas	8.59	3.49	3.33	0.00	0.00	1.99	
	Natural Gas	130	35	0.6	7.5	7.5	7	For pilot burner only

ENVIRON

Table 2: Peak Day NO_x Emissions - Class B Bio-Solids
Irvine Ranch Water District (IRWD)
Irvine, California

Equipment	6 MT Operating Producing Class B Bio-Solids Excess Biogas to Burner								
	# Units	Biogas (Mscf/day)	Natural Gas (Mscf/day)	NO_x (lbs/day)	CO (lbs/day)	SO_x (lbs/day)	PM_{10} (lbs/day)	$PM_{2.5}$ (lbs/day)	VOC (lbs/day)
Dryer	1	0	0	0.00	0.00	0.00	0.00	0.00	0.00
RTO	1	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Microturbines	6	864.00	0	14.40	5.04	3.37	6.22	6.21	3.01
Boilers	2	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Emergency Generator (Testing)	1	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Burner	1	35.62	0	0.31	0.12	0.12	0.00	0.00	0.07
Sludge Thickening	--	--	--	--	--	--	--	--	0.58
Digested Sludge Dewatering	--	--	--	--	--	--	--	--	0.58
Cake and Pellet Loading/Unloading	--	--	--	--	--	--	0.00	0.00	0.00
Total:		**899.62**	**0.00**	**14.71**	**5.16**	**3.49**	**6.22**	**6.21**	**4.24**

Class B Bio-Solids Production - Assumptions

1. The dryer would not operate when producing Class B Bio-Solids.
2. The RTO will not be operating when the dryer is down.
3. The microturbine emission factor is based on a 0.4 lb/MWh emission factor provided by the manufacturer's specifications. Unit would operate 24 hr/day. Each MT would operate on 144 Mscf/day of biogas. The microturbines are assumed to have a total 1.5 MW generating capacity.
4. The boilers would not be operating when producing Class B Bio-Solids.
5. Testing of the emergency generator would not be operating when producing Class B Bio-Solids.
6. Excess Biogas that is not combusted in the MTs will be sent to the burner. Only a small amount of excess biogas is expected (13,000,000 scf/yr / 365 day/yr = 35,600 scf/day), which can be
7. The sludge thickening emissions were calculated based on VOC emission factors (3.70 x 10^{-6} lb/gal for sludge dewatering centrifuges, 0.451 lb/lb in wastewater for flow equalization, primary effluent) and assuming a wastewater VOC concentration of 89 ug/L, as found in the 1993 JEIP report. The total sludge throughput used in the calculation was 1.60 million gallons per day. Unit would operate 24 hr/day.

$$VOC\ emissions\ (flow\ equalization) = 89\frac{\mu g\ VOC\ in\ wastewater}{L\ wastewater} \times \frac{g}{1{,}000{,}000\ \mu g} \times \frac{lb}{454\ g} \times 3.785\frac{L}{gal} \times 0.451\frac{lb\ VOC}{lb\ VOC\ in\ wastewater} \times 1.60\frac{million\ gal}{day} \times 1{,}000{,}000\frac{gal}{million\ gal}$$

8. The digested sludge dewatering emissions were calculated based on VOC emission factors (3.70 x 10^{-6} lb/gal for sludge dewatering centrifuges, 1.70 x 10^{-9} lb/lb solids for sludge conveyors, 0.451 lb/lb in wastewater for flow equalization, primary effluent) and assuming a wastewater VOC concentration of 89 ug/L, as found in the 1993 JEIP report. The total sludge throughput used in the calculation was 1.60 million gallons per day. Unit would operate 24 hr/day.

$$VOC\ emissions\ (conveyors) = 1.70 \times 10^{-9}\frac{lb\ VOC}{lb\ solids} \times 167\frac{dry\ tons}{week} \times \frac{week}{5\ days} \times 2{,}000\frac{lb}{ton}$$

9. The VOC emissions from cake unloading were calculated based on a VOC emission factor of 1.40 x 10^{-9} lb/lb dry biosolids, as found in the 1993 JEIP report, and assuming 167 dry tons/week sludge would be processed by IRWD to produce Class B bio-solids. Because the dryer would not operate when producing Class B bio-solids, no Class A pellets would be produced, and therefore, there would be no PM_{10} emissions from the Class A pellet storage silos.

10. The $PM_{2.5}$ emissions were estimated based on the following $PM_{2.5}$ fractions as indicated in Appendix A to the Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds from SCAQMD's website:
- 100% of the PM_{10} is $PM_{2.5}$ for the dryer, RTO, and boilers, based on the category labeled EXTERNAL COMBUSTION GASEOUS FUEL-EXCEPT PETROLEUM AND INDUSTRIAL PROCESS HEATERS
- 99.8% for the microturbines, based on the category labeled INTERNAL COMBUSTION GASEOUS FUEL
- 100% for the flare, based on the category labeled INCINERATOR, AFTERBURNER, FLARES GASEOUS FUEL
- 97.6% for the emergency generator, based on the category labeled INTERNAL COMBUSTION DISTILLATE AND DIESEL-ELECTRIC GENERATION
- 3.4% could possibly be used for the drying system polycyclone and the storage silos, based on the category labeled FOOD AND AGRICULTURE GRAIN ELEVATORS (a similar category to the one used to calculate PM_{10} for these equipment).

Summary of Combustion Emission Factors

Equipment	Fuel Type	NO_x (lbs/MMscf)	CO (lbs/MMscf)	SO_x (lbs/MMscf)	PM_{10} (lbs/MMscf)	$PM_{2.5}$ (lbs/MMscf)	VOC (lbs/MMscf)	Notes
Dryer	Natural Gas	97.18	97.18	3.45	38.60	38.60	22.74	1.41 lb/hr NO_x, 1.41 lb/hr CO, 0.05 lb/hr SO_x, 0.56 lb/hr PM_{10}, 0.33 lb/hr VOC as provided by
RTO	Natural Gas	72.91	35.00	0.60	7.50	7.50	7.00	
Microturbines	Biogas	16.67	5.83	3.9	7.2	7.19	3.48	
	Natural Gas			3.47	6.73	6.72	2.14	
Boilers	Biogas	See note	84	0.6	7.6	7.6	5.5	The NO_x emission factor would be weighted according to the proportion of natural gas and biogas combusted in the boiler, as indicated in Rule 1146.
	Natural Gas		84	0.6	7.6	7.6	5.5	
Burner	Biogas	8.59	3.49	3.33	0.00	0.00	1.99	
	Natural Gas	130	35	0.6	7.5	7.5	7	For pilot burner only

ENVIRON

MICHELSON WATER RECYCLING PLANT PHASE 2 & 3 CAPACITY EXPANSION PROJECT

Draft Supplemental Environmental Impact Report No. 1
SCH# 2011031091

Prepared for
Irvine Ranch Water District

July 2012

MICHELSON WATER RECYCLING PLANT PHASE 2 & 3 CAPACITY EXPANSION PROJECT

Draft Supplemental Environmental Impact Report No. 1
SCH# 2011031091

Prepared for
Irvine Ranch Water District

July 2012

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

210480

TABLE OF CONTENTS

MWRP Phase 2 & 3 Capacity Expansion Project Draft Supplemental EIR No. 1

Page

Page

Appendices

Page

Figures

Page

Tables

EXECUTIVE SUMMARY

ES.1 Introduction

The Irvine Ranch Water District (IRWD or District) has prepared this Draft Supplemental Environmental Impact Report (Draft SEIR) to provide the IRWD Board of Directors with the potential environmental impacts associated with modification of the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project, which would include a new Biosolids Handling Component (proposed project). The MWRP is located at 3512 Michelson Drive in the City of Irvine. This Draft SEIR has been prepared pursuant to the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387 (January 1, 2012).

The proposed project would integrate a new residuals-handling system at the MWRP, which would include biosolids processing, biogas management, and energy recovery systems. The proposed project would process residuals produced at the MWRP and IRWD's Los Alisos Water Recycling Plant (LAWRP). Currently, residuals of the wastewater treatment process (sludge/scum) are conveyed via pipeline from the MWRP to the Orange County Sanitation District (OCSD) in Fountain Valley for processing and reuse or disposal. Residuals from the LAWRP in the City of Lake Forest are conveyed by truck to Arizona for processing and reuse or disposal. The residuals-management process at both treatment plants remains unaltered under the Phase 2 and 3 Capacity Expansion Project as previously described. Now, with implementation of the proposed Biosolids Handling Component, IRWD would modify the Phase 2 and 3 Capacity Expansion Project to include facilities that provide complete residuals management onsite at the MWRP. The exportation of sludge/scum from the MWRP to OCSD and from the LAWRP to Arizona would be discontinued.

The Phase 2 and 3 Capacity Expansion Project, which is currently being constructed, will expand recycled water production at the MWRP in phases to 28 million gallons per day (mgd) (Phase 2) and to 33 mgd (Phase 3), to meet projected ultimate demand for non-potable water, enhance water supply reliability, meet state law mandates to reduce urban demand on freshwater supplies, reduce wastewater diverted to regional treatment facilities, and optimize water supply. The proposed project's new facilities would produce both Class A and Class B biosolids. Biosolids are non-hazardous, nutrient-rich, organic materials resulting from the biological treatment of domestic sewage. Biosolids are renewable resources that can be recycled for beneficial use, such as fertilizer. Class A biosolids are suitable for use by the general public, while Class B biosolids are suitable for commercial or agricultural uses. The new proposed facilities would thicken, stabilize, and dewater sludge to produce Class B biosolids and would also include a dryer to

produce Class A biosolids. The proposed project would process all sludge and scum produced at the MWRP at ultimate demand (33 mgd), and it also would have capacity to process sludge from the LAWRP, and potentially other regional wastewater treatment plants. The stabilization of biosolids would be achieved using anaerobic digestion, which would generate biogas that also could be put to beneficial reuse, such as providing an energy source for other processes at the MWRP.

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

For a full description of the proposed project, its impacts, and alternatives, please refer to Chapters 1 through 6 of this Draft SEIR.

ES.2 Background

IRWD provides drinking water, sewage collection and treatment, recycled water, and urban runoff treatment to central Orange County, California. The IRWD service area encompasses approximately 181 square miles. The District serves the City of Irvine and portions of the cities of Costa Mesa, Lake Forest, Newport Beach, Tustin, Santa Ana, Orange, and portions of unincorporated Orange County.

IRWD's sanitary sewer system collects all wastewater coming from homes and businesses within its service area. Sewage is conveyed to two treatment plants, the MWRP and the LAWRP, through more than 800 miles of sewer distribution pipelines. On an average daily dry weather day, the MWRP treats up to 18 million gallons of wastewater and the LAWRP treats up to 5.5 mgd. IRWD was the first water district in the state to receive an unrestricted use permit from the State for its recycled water. This unrestricted use permit allows this water to be used for any purpose except drinking. A majority of recycled water is used for landscape irrigation in parks, golf courses, school grounds, city street medians, homeowner associations, and other public areas. Recycled water is also used for toilet flushing and cooling towers in more than 40 office buildings and for industrial uses such as carpet dyeing and concrete making.

As discussed previously, the proposed project is a modification to the Phase 2 and 3 Capacity Expansion Project. The Phase 2 Capacity Expansion is currently under construction and is expected to be completed in early 2013. There is no schedule for implementation of Phase 3 Capacity Expansion at this time. Phase 3 would be implemented in the future as increases in recycled water demand dictate the need for further capacity expansion. The Final EIR for the Phase 2 and 3 Capacity Expansion Project was certified by IRWD’s Board of Directors in February 2006 (State Clearinghouse No. 2005051174). Subsequent Addenda Nos. 1, 2, and 3 to the Final EIR were adopted in 2008, 2009, and 2010, respectively. Addendum No. 1 addresses potential flooding risks through planned flood protection facilities; Addendum 2 addresses minor modifications to the design and alignment of the flood protection improvements addressed in Addendum 1, along with improvements to the access road between Campus Park Drive and the

San Joaquin Marsh Campus; Addendum No. 3 addresses modifications to the flood channel access road. Collectively these documents are referred to as the "MWRP Final EIR."

This Draft SEIR addresses the environmental effects of implementing the proposed project in light of the previous environmental review in the MWRP Final EIR as provided for under CEQA Guidelines Sections 15162 and 15163. Specifically, the Draft SEIR evaluates whether the proposed project would result in new significant environmental effects not previously addressed in the MWRP Final EIR or result in a substantial increase in the severity of previously identified significant environmental effects consistent with CEQA Guidelines Section 15162(a)(1).

ES.3 Project Objectives

The OCSD estimates it will reach maximum capacity at its solids handling facilities by 2016 and will need to make significant capital investments to expand its solids processing facilities. In anticipation of the OCSD solids handling facilities reaching maximum capacity, IRWD is proposing the Biosolids Handling Component of the MWRP Phase 2 and 3 Capacity Expansion Project. IRWD's objectives for the proposed project consist of the following:

- Allow IRWD to make efficient and sustainable use of its own renewable resources.
- Increase IRWD's autonomy for residuals management.
- Allow for beneficial use of the biosolids produced during the treatment process.
- Allow for beneficial use of biogases produced during anaerobic digestion.
- Minimize environmental impacts associated with residuals management.
- Provide residuals management facilities that meet future solids handling needs of the MWRP Phase 2 and 3 Capacity Expansion Project.

ES.4 Project Description

The proposed project would construct new biosolids processing, biogas management, and energy recovery systems at the MWRP. Construction of proposed project facilities would provide complete residuals management onsite at the MWRP, and IRWD would no longer export sludge/scum from the MWRP to OCSD's plant in Fountain Valley and from the LAWRP to Arizona. The proposed Biosolids Handling Component would be constructed on disturbed vacant land, currently being used for construction staging for the Phase 2 Capacity Expansion Project.

In addition to processing the sludge produced by the recycled water treatment process at the MWRP, the proposed project would be designed to have capacity to treat digested and dewatered sludge from the LAWRP and potentially other regional wastewater treatment plants. The sludge generated at the MWRP would be conveyed to the new facilities through new onsite piping, while the sludge from the LAWRP would be transported to the proposed facilities by truck.

The project components are briefly described below. For a more detailed discussion of the project components, please refer to Chapter 2.0, Project Description.

Solids Handling Building

The Solids Handling Building would house the solids processing facilities, which includes thickening, dewatering, and drying the biosolids. The Solids Handling Building also includes a load-out bay for trucks to export treated biosolids offsite and sludge receiving facilities for incoming trucks to offload digested and dewatered sludge from the LAWRP and other regional treatment facilities.

Anaerobic Digestion System

Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The objective of anaerobic digestion is to convert thickened sludge to a more organically stable form of biosolids and to reduce the volume of biosolids. The organic mass of sludge fed to digesters is biologically consumed and converted to biogas and biosolids. The digestion system for the proposed project would consist of a Fat, Oil and Grease (FOG) receiving station; acid digesters; methane digesters; digested sludge holding tanks (DSHTs); a digester heating system, and biogas management facilities. The FOG receiving station also would be capable of accepting processed food waste.

Biogas Management System

The primary purpose of the Biogas Management System is to optimize the reuse of biogas produced in the digesters. Biogas would be used for power-generating equipment such as microturbines; to fuel the dryer (if operating) or boilers; or transferred to a clean enclosed burner.

ES.5 Project Alternatives

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

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

The two alternatives analyzed in this SEIR, in addition to the No Project Alternative, are summarized below and are examined in greater detail in Chapter 6. The alternatives are analyzed even though the proposed project would not result in any significant effects.

No Project Alternative

Under the No Project Alternative, IRWD would not implement the proposed Biosolids Handling Component of the MWRP Phase 2 and 3 Capacity Expansion Project. That portion of the MWRP site would remain unchanged and the transfer of residual solids to OCSD would continue through the existing force main. The solids management strategy at the LAWRP also would not change. Sludge from the LAWRP would continue to be trucked to Arizona. Under the No Project Alternative, OCSD would continue to process all solids at Plant 1 and haul the resulting biosolids to private vendor reuse and disposal facilities. OCSD would continue to capture methane gas during the anaerobic digestion process and generate electricity using power engine-generator units at its Central Power Generation Facility. Under the No Project Alternative, IRWD would participate in the expansion of OCSD facilities to meet future treatment demands.

Under the No Project Alternative, most of the project objectives would not be achieved, however non-significant impacts to air quality, biological resources, cultural resources, aesthetics, and noise associated with the proposed project would be avoided. Under the No Project Alternative, capacity constraints at OCSD Plant 1 would require construction of new digestion and dewatering facilities at Plant 1 to keep up with future increases in biosolids to be sent by IRWD (and other upstream agencies). OCSD would continue to truck out IRWD's digested Class-B biosolids to disposal/reuse sites, which are farther away from OCSD Plant 1 than the end user sites proposed for the Class A solids to be trucked from the MWRP under the proposed project, and IRWD would continue to truck LAWRP solids to Arizona. As a result, any potential benefit to regional roadway traffic and air quality due to a reduction in truck trips required to haul Class A pellets rather than Class B biosolids would not be realized. Nonetheless, overall the No Project Alternative would have fewer environmental impacts relative to the proposed project.

Alternative 1: Private Partner for Class B Processing

Alternative 1 would include onsite thickening, digestion and dewatering of all MWRP sludge, similar to the proposed project, yielding Class B biosolids. However, there would be no onsite dryer at the MWRP and no production of Class A biosolids. Biogases generated during digestion would be captured and used in an energy recovery system, similar to the proposed project. IRWD would contract with private partners to haul dewatered Class B biosolids offsite for further processing and reuse. The sludge generated at the LAWRP would not be sent to the MWRP and would continue to be hauled offsite for processing and reuse or disposal, similar to existing conditions. Under Alternative 1, the transfer of residual solids to OCSD would be discontinued, similar to the proposed project.

Alternative 1 would meet all of the project objectives. When compared to the proposed project, Alternative 1 would result in relatively greater impacts to the environment related to air quality, and traffic and fewer impacts to aesthetics and GHG emissions.

Alternative 2: Onsite Dryer/Combustion

Alternative 2 would require IRWD to build onsite facilities for thickening and dewatering of all MWRP sludge. In addition, a third-party contract vendor would independently build and operate onsite a system to combust and dry the dewatered cake. Dewatered cake would be 40 percent solids. One third of the cake would be burned and turned into ash. The burning process would generate heat to dry the remaining two thirds of the dewatered cake. Under Alternative 2, the end product would be both ash and dried sludge. Ash would be hauled to a landfill for disposal and dried sludge hauled offsite for beneficial use as a fertilizer or an e-fuel. The combustion process would be an energy efficient process that recovers energy from the high temperature exhaust. However, Alternative 2 would not include an energy recovery system to convert biogas to energy like the proposed project. Alternative 2 would require IRWD to provide an electrical supply of approximately 464 kilowatt hours (kWh) per day to the contract vendor. All facilities would be located within the MWRP property. The need to transfer sludge to OCSD also would be eliminated.

Alternative 2 would not meet all of the goals of the project. As compared to the proposed project, Alternative 2 would result in greater impacts to the environment related to air quality and hazardous materials. Alternative 2 would result in lesser impacts to aesthetics, GHGs, hydrology (drainage/runoff), land use planning, and utilities and energy.

Summary of Alternatives Analysis

The alternatives evaluated in Chapter 6 of this Draft SEIR present a tradeoff between achieving project objectives and impacting the environment. The No Project Alternative would not meet all of the project objectives. The No Project Alternative would avoid non-significant impacts associated with the proposed project while also preventing any benefits from the proposed project from being realized. Alternative 1 would meet all of the project objectives and would result in fewer impacts to aesthetics due to the elimination of the Solids Handling Building, fewer impacts to GHG emissions due to a more complete offset in energy use by the alternative energy system and a smaller electricity demand due to elimination of the dryer, but greater impacts to air emissions, traffic, and circulation system performance due to the greater number of haul trucks required to haul Class B biosolids offsite and for greater distances relative to Class A biosolids.

Alternative 2 would meet some but not all of the project objectives and would result in increased impacts to air quality and risks associated with hazardous materials due to the implementation of the onsite combustion facilities. Alternative 2 would lessen impacts associated with facility footprint and building size, including aesthetics, runoff from impervious surfaces, land use planning (zoning code height limitations), and electricity demand. Alternative 2 also would lessen impacts associated with GHGs.

Environmentally Superior Alternative

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

The No Project Alternative would result in the least environmental impacts because there would be less severe or less intense physical changes to most of the environmental resources than otherwise would result with implementation of the proposed project. However, under the No Project Alternative, potential benefits to air quality and traffic associated with the proposed project also would not be realized. Under the No Project Alternative, there would be no reduction in operational truck trips because Class A pellets would not be produced and Class B biosolids would continue to be hauled offsite from OCSD Plant 1 and the LAWRP. As a result, air emissions associated with operational truck trips would not be lessened.

In accordance with CEQA, an environmentally superior alternative shall be identified among the other project alternatives. The proposed project would have no significant and unavoidable impacts, and thus the selection of the environmentally superior alternative is not based on identification of an alternative that would serve to avoid such an impact. Alternative 2 would not meet all of the project objectives and thus would not be selected as the environmentally superior alternative.

A comparison of the proposed project to Alternative 1 presents tradeoffs in impacts associated with the varying components of each alternative project. Alternative 1 would lessen impacts to aesthetics due to elimination of the Solids Handling Building and lessen impacts to GHG emissions due to elimination of the dryer and associated indirect GHG emissions associated energy consumption to operate the dryer. However, Alternative 1 would increase impacts to air quality and traffic due to more operational truck trips associated with hauling Class B biosolids instead of Class A biosolids.

IRWD has determined that the proposed project and Alternative 1 are environmentally equivalent alternatives. Alternative 1 is not environmentally superior because the potential decrease in impacts to energy use and indirect GHG emissions when compared to the proposed project do not necessarily outweigh the increase in potential environmental impacts to local/regional air quality and traffic due to operational truck trips. IRWD has determined that the proposed project is the preferred alternative because it would provide a valuable benefit of potential *local* reuse opportunities associated with production of Class A biosolids.

ES.6 Summary of Impacts

Table ES-1, at the end of this chapter, presents a summary of the impacts and mitigation measures identified for the proposed project. A complete discussion of impacts is presented in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, Chapter 4, Cumulative Impacts, and Chapter 5, Growth Inducement. The level of significance for each impact is determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less than significant impacts would not exceed the thresholds. **Table ES-1** indicates the measures that would be implemented to avoid, minimize, or otherwise reduce significant impacts to a less than significant level.

The proposed project is subject to the mitigation measures previously adopted by IRWD as part of the MWRP Final EIR. When appropriate and applicable, mitigation measures from this previous document are identified to mitigate impacts associated with the proposed project. Additional mitigation measures also are included when necessary.

ES.7 Areas of Known Controversy

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

On March 28, 2011, a Notice of Preparation (NOP) for the proposed project was distributed by the IRWD to the State Clearinghouse, interested agencies, and the public. Responses to the NOP were received by the following agencies: South Coast Air Quality Management District, University Synagogue, Airport Land Use Commission, Orange County Public Works, City of Irvine, LBA Realty, Orange County Fire Authority, Orange County Sanitation District, and University of California Natural Reserve System. Comments from the public also were received during a public scoping meeting held on April 12, 2011.

Key environmental concerns raised by these organizations and the public included: (1) potential operational impacts to aesthetics, noise, odor, traffic, and water quality of nearby residents and land users; (2) Hazardous risks on the surrounding community associated with production and transport of Class A and B biosolids, and production, storage and use of biogas; and (3) potential adverse effects on the San Joaquin Freshwater Marsh Reserve. This SEIR addresses each of the aforementioned areas of concern or controversy in detail in Chapters 3 and 4.

ES.8 Organization of this EIR

This Draft SEIR has been organized into the following chapters:

ES. Executive Summary. This chapter summarizes the contents of the Draft EIR.

1. **Introduction and Project Background.** This chapter discusses the CEQA process and the purpose of the EIR, and background information for the proposed project.
2. **Project Description.** This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
3. **Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology, Soils and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Planning and Recreation; Noise; Utilities and Energy; and Transportation and Traffic. Measures to mitigate the impacts of the proposed project are presented for each resource area where significant potential impacts have been identified.

4. **Cumulative Impacts.** This chapter describes the potential impacts of the proposed project when considered together with other related projects in the project area.

5. **Growth Inducement.** This chapter evaluates the potential for the proposed project to induce population growth and result in secondary environmental effects due to such growth.

6. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered. The relative environmental impacts of the alternatives are compared to those of the proposed project, and an analysis of the environmentally-superior alternative is presented.

7. **Report Preparers.** This chapter identifies those involved in preparing this Draft SEIR, including persons and organizations consulted.

8. **Acronyms.**

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
3.1 Aesthetics		
Impact 3.1-1: The proposed project would introduce new contrasting features into the visual landscape.	**AES-1:** The IRWD shall select paint color schemes that blend in with the color palette of the surrounding landscape and built environment.	Less than significant with mitigation.
Impact 3.1-2: The proposed project would introduce new contrasting features visible from scenic roadways designated by the City of Irvine.	None required. See page 3.1-19 for analysis.	Less than significant.
Impact 3.1-3: The proposed project could affect the visual character of the project site and its surroundings.	None required. See page 3.1-19 for analysis.	Less than significant.
Impact 3.1-4: The proposed project would introduce new sources of light that could affect day or nighttime views in the area.	**AES-2:** Temporary construction lighting shall be shielded and directed downward to minimize offsite light spill and minimize effects to nighttime views while maintaining requirements for worker safety.	Less than significant with mitigation.
3.2 Air Quality		
Impact 3.2-1: The proposed project could conflict with or obstruct implementation of the applicable air quality plan.	None required. See page 3.2-13 for analysis.	Less than significant.
Impact 3.2-2: The proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation during its construction and operation.	None required. See page 3.2-14 for analysis.	Less than significant.
Impact 3.2-3: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard.	None required. See page 3.2-18 for analysis.	Less than significant.
Impact 3.2-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations.	None required. See page 3.2-18 for analysis.	Less than significant.
Impact 3.2-5: The project could create objectionable odors affecting a substantial number of people.	None required. See page 3.2-20 for analysis.	Less than significant.
3.3 Biological Resources		
Impact 3.3-1: The proposed project could have an indirect adverse effect on a species identified as a candidate, sensitive, or special-status species in the NCCP, or regulations, or by the CDFG or USFWS.	**BIO-1:** Construction activities shall be managed to avoid impacts to nesting birds and active nests. Initiation of ground-disturbing activities shall be avoided between February 1 and August 15, the general nesting bird season, to avoid significant impacts to nesting birds adjacent to the project site. If ground disturbance is initiated during this time period, then alternatively, impacts may	Less than significant with mitigation.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
	also be avoided by: 1. conducting a survey during the breeding season to determine presence or absence of nests within a radius of the construction site specified by a qualified biologist; 2. avoiding impact to trees with occupied nests until juveniles have fledged and nests are no longer active or the nest has failed; and 3. establishing a disturbance-free buffer zone around nest sites, which would be determined by a qualified biologist. **BIO-2:** If initiation of ground-disturbing construction activities must occur during the specific nesting season of least Bell's vireo and southwestern willow flycatcher (March 15 through September 15), impacts to these species would be avoided through implementation of one of the three of the following measures. Implementation of one of the measures below would reduce impacts to less than significant levels: 1. Conduct surveys to determine the presence or absence of least Bell's vireo or southwestern willow flycatcher in suitable habitat within the project area in accordance with USFWS protocols (USFWS 1999, 2000). If neither species is detected by these surveys, construction may proceed without additional mitigation. 2. If protocol surveys detect the presence of either species, delay construction within a distance determined by a qualified biologist to be appropriate of occupied territory until after the least Bell's vireo and/or southwestern willow flycatcher have migrated from the site. If nesting is detected, delay construction within a distance determined by a qualified biologist until the biologist determines that the young have fledged the nests and/or the nests are no longer active. 3. If protocol surveys detect the active nests of either species, noise barriers may be erected to reduce sound levels at nest sites to reduce the "no construction" buffer distance around the nest as determined by a qualified biologist. If noise barriers are utilized, a qualified biologist shall conduct monitoring of noise levels at the nest sites to determine if construction noise has the potential to affect nesting behavior. If construction activities are determined to affect nesting behavior of least Bell's vireo and/or southwestern	

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
	willow flycatcher, the biological monitor shall halt construction-related activities that may impact the nests until the juveniles have fledged and/or the nests are no longer active.	
Impact 3.3-2: The proposed project could have an indirect adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS.	**BIO-3:** Temporary impacts to sensitive natural communities resulting from project construction or use of access road and staging areas shall be revegetated and restored to preconstruction conditions. Additionally, the boundaries of sensitive habitats along access roads, staging areas, and work areas shall be protected with Best Management Practices (BMPs) such as orange safety fencing, silt fencing, sandbags or similar where necessary. The site shall be inspected by a project biologist when necessary to ensure BMPs are implemented to protect sensitive natural communities where appropriate.	Less than significant with mitigation.
Impact 3.3-3: The proposed project could have an indirect adverse effect on wetlands, riparian habitats, and other jurisdictional features.	Implement **Mitigation Measure BIO-3**.	Less than significant with mitigation.
Impact 3.3-4: The proposed project could interfere with the movement of native resident or migratory wildlife species or impede the use of native wildlife nursery sites.	**BIO-4:** If construction occurs during nighttime hours and lighting is required, then lighting shall be shielded and directed away from San Joaquin Wildlife Sanctuary and Marsh and San Diego Creek, while maintaining sufficient lighting to ensure worker safety.	Less than significant with mitigation.
3.4 Cultural Resources		
Impact 3.4-1 Project construction could affect an archaeological resource.	**CUL-1:** Prior to the start of any earth-moving activity, an archaeological monitor shall be retained. The archaeological monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The qualified archaeologist shall determine the areas where excavation would exceed the depth of artificial fill based on the project design and grading plans. The qualified archaeologist shall consult with IRWD to determine the initial duration and timing of monitoring in these areas. Based on observations of soil stratigraphy or other factors, the level of monitoring may be reduced as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of	Less than significant with mitigation.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
	the find so that the find can be evaluated. Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area. **CUL-2:** During construction of all project components, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with IRWD and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologist determines work can resume in the vicinity of the find.	
Impact 3.4-2: Implementation of the proposed project could adversely affect paleontological resources.	**CUL-3:** Prior to the start of any earth moving activities, an Orange County Certified (OCC) Paleontologist shall be retained. Based on geotechnical findings and the construction design plans, the OCC Paleontologist shall determine areas where excavation would exceed eight (8) feet bgs or the depth of artificial fill. The OCC Paleontologist shall consult with IRWD to determine the duration and timing of monitoring in these areas. All required paleontological resources monitoring shall be performed by qualified paleontological monitors. In the event fossils are exposed during earth moving, the monitor shall have the authority to halt or redirect construction activities to other work areas so the find can be evaluated. **CUL-4:** In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find.	Less than significant with mitigation.
Impact 3.4-3: Implementation of the proposed project could result in the disturbance of human remains.	**CUL-5*:*** If human remains are uncovered during project construction, the project proponent shall immediately halt work,	Less than significant with mitigation.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
	contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.	
3.5 Geology, Soils, and Mineral Resources		
Impact 3.5-1: Implementation of the proposed project could expose people and structures to seismic ground shaking.	None required. See page 3.5-11 for analysis.	Less than significant.
Impact 3.5-2: Implementation of the proposed project could result in soil erosion.	None required. See page 3.5-12 for analysis.	Less than significant.
Impact 3.5-3: The proposed project would introduce new structures onto soils that may be unstable and potentially result in lateral spreading, subsidence, liquefaction, or collapse.	None required. See page 3.5-13 for analysis.	Less than significant.
Impact 3.5-4: The proposed project may be located on expansive soils.	None required. See page 3.5-14 for analysis.	Less than significant.
3.6 Greenhouse Gas Emissions		
Impact 3.6-1: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.	None required. See page 3.6-17 for analysis.	Less than significant.
Impact 3.6-2: The proposed project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.	None required. See page 3.6-19 for analysis.	Less than significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
3.7 Hazards and Hazardous Materials		
Impact 3.7-1: Operation of the proposed project could create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials.	None required. See page 3.7-12 for analysis.	Less than significant.
Impact 3.7-2: The proposed project could create a significant hazard to the public or to the environmental through reasonably foreseeable upset and accident conditions involving the release of hazardous materials.	**HAZ-1**: IRWD shall require the construction contractor to include the following BMPs in the SWPPP that would prevent the accidental release of hazardous materials. The plan shall include, but not be limited to, the following BMPs: • Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction. • During routine maintenance of construction equipment, properly contain and remove grease and oils. • Properly dispose of discarded containers of fuels and other chemicals. • In the event of a petroleum product spill, the contractor shall contain the spill and clean up the contaminated area in compliance with regulations with DTSC and RWQCB approval. Contaminated soils shall be removed and disposed of in accordance with applicable regulations. **HAZ-2**: During project construction, hazardous materials shall not be disposed of or released onto the ground, into the air, into the underlying groundwater, or any surface water. Totally enclosed containment shall be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products and other potentially hazardous materials, shall be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials. **HAZ-3:** A hazardous substance management, handling, storage, disposal, and emergency response plan shall be prepared and implemented by the construction contractor. **HAZ-4**: During construction and operation of the proposed project, hazardous materials spill kits shall be maintained onsite for small spills.	Less than significant with mitigation.
Impact 3.7-3: The proposed project is located within the notification area of John Wayne Airport and could result in a hazard or obstruction to navigable airspace that would result in a	None required. See page 3.7-15 for analysis.	Less than significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
safety hazard for people residing or working in the project area.		
3.8 Hydrology and Water Quality		
Impact 3.8-1: The construction and operation of proposed new facilities could introduce pollutants to surface waters and groundwater and violate water quality standards or waste discharge requirements.	**HYDRO-1**: IRWD shall update the Storm Water Pollution Prevention Plan for the MWRP to include the proposed Biosolids Handling Component. The revised SWPPP shall include BMPs that would reduce potential impacts to water quality due to accidental releases of pollutants from the proposed facilities. BMPs would include both non-structural measures (e.g., preventative maintenance and inspection schedules, spill response and clean-up procedures, material handling and storage procedures, employee training, etc.) and structural measures (e.g., sediment control and erosion control devices, runoff and run-on control devices, retention ponds, secondary containment structures, treatment, etc.).	Less than significant with mitigation.
Impact 3.8-2: The proposed beneficial reuse of biosolids could violate water quality standards and waste discharge requirements.	None required. See page 3.8-15 for analysis.	Less than significant.
Impact 3.8-3: The proposed project could affect groundwater levels in the shallow aquifer beneath the project site.	None required. See page 3.8-16 for analysis.	Less than significant.
Impact 3.8-4: The proposed project would alter the existing drainage pattern of the project site and increase the rate and amount of surface runoff.	None required. See page 3.8-17 for analysis.	Less than significant.
Impact 3.8-5: The proposed project would build new structures that could be subject to flooding due to a 100-year flood event.	None required. See page 3.8-18 for analysis.	Less than significant.
3.9 Land Use, Planning, and Recreation		
Impact 3.9-1: Implementation of the proposed project could have an environmental effect due to conflict with the City of Irvine zoning ordinance due to building height limitations.	None required. See page 3.9-6 for analysis.	Less than significant.
3.10 Noise		
Impact 3.10-1: Construction of the proposed project could result in a temporary increase in ambient noise levels in excess of standards established by the City of Irvine Noise Ordinance.	**NOISE-1:** To reduce daytime noise impacts due to construction activities, IRWD shall require construction contractors to implement the following measures: • Construction activities shall be in compliance with the applicable City of Irvine Noise Ordinances, or as otherwise	Less than significant with mitigation.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
	permitted by the City. • Equipment and trucks used for project construction shall use noise control techniques. • A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to respond to the noise complaints. All signs posted at the construction site shall list the telephone number and email address for the noise disturbance coordinator. **NOISE-2:** IRWD shall secure a temporary waiver from the City of Irvine for construction activities that occur outside of the exempted construction hours stipulated in the City of Irvine Noise Ordinance.	
Impact 3.10-2: Proposed project construction could result in the exposure of persons to, or generation of, ground-borne vibration or ground-borne noise levels.	None required. See page 3.10-13 for analysis.	Less than significant.
Impact 3.10-3: Project operation could result in a permanent increase in ambient noise levels in the project vicinity in excess of standards established by the City of Irvine Noise Ordinance.	**NOISE-3:** IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate non-compliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds.	Less than significant with mitigation.
3.11 Utilities and Energy		
Impact 3.11-1: The proposed project would require an agreement with Orange County Sanitation District to maintain an emergency connection between the MWRP and Plant 1 and ensure adequate capacity to serve the project.	None required. See page 3.11-7 for analysis.	Less than significant.
Impact 3.11-2: The proposed project would require the use of a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs.	None required. See page 3.11-8 for analysis.	Less than significant.
Impact 3.11-3: The proposed project would result in an increase in energy consumption at the MWRP and require new energy	None required. See page 3.11-9 for analysis.	Less than significant.

TABLE ES-1 (continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE IRWD BIOSOLIDS HANDLING COMPONENT
MWRP PHASE 2 AND 3 CAPACITY EXPANSION PROJECT

Impacts	Mitigation Measures	Significance Level
infrastructure at the MWRP.		
3.12 Transportation and Traffic		
Impact 3.12-1: Operation of the proposed project would introduce potential onsite hazards associated with vehicle movements.	None required. See page 3.12-10 for analysis.	Less than significant.
Impact 3.12-2: Construction and operation of the proposed project would introduce vehicles to local roadways that could affect performance of the circulation system.	None required. See page 3.12-10 for analysis.	Less than significant.
Impact 3.12-3: Operation of the proposed project would introduce additional vehicles to local roadways that could affect level of service standards included in the Orange County Congestion Management Program.	None required. See page 3.12-12 for analysis.	Less than significant.

CHAPTER 1
Introduction and Project Background

1.0 Introduction

Irvine Ranch Water District (IRWD or District), as the Lead Agency pursuant to the California Environmental Quality Act (CEQA), is proposing to modify the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project to include a Biosolids Handling Component (proposed project). The MWRP is located at 3512 Michelson Drive in the City of Irvine. The proposed project would integrate a new residuals-handling system at the MWRP, which would include biosolids processing, biogas management, and energy recovery systems. The proposed project would process residuals produced at the MWRP and IRWD's Los Alisos Water Recycling Plant (LAWRP).

Residuals are the solid byproducts of the wastewater treatment process that include screenings (inorganic objects like gravel and plastics screened from influent wastewater), sludge, and scum. Currently, screenings are not removed at the MWRP. Screenings are currently ground-up and allowed to collect with the sludge and scum. The residuals are conveyed via pipeline from the MWRP to the Orange County Sanitation District (OCSD) in Fountain Valley for processing and reuse or disposal. Residuals from the LAWRP in the City of Lake Forest are conveyed by truck to Arizona for processing and reuse or disposal. The residuals-management process at both treatment plants remains unaltered under the Phase 2 and 3 Capacity Expansion Project. Now, with implementation of the proposed Biosolids Handling Component, IRWD would modify the Phase 2 and 3 Capacity Expansion Project to include facilities that provide complete residuals management onsite at the MWRP. The exportation of residuals from the MWRP to OCSD and from the LAWRP to Arizona would be discontinued.

The proposed project's new facilities would thicken, stabilize, and dewater sludge to produce Class B biosolids. The proposed project would also include a dryer to produce Class A biosolids. Biosolids are nutrient-rich organic materials resulting from the biological treatment of domestic sewage. Biosolids are non-hazardous, renewable resources that can be recycled for beneficial use, such as fertilizer. The proposed project would process all sludge and scum produced at the MWRP and also would have capacity to process sludge from IRWD's Los Alisos Water Recycling Plant (LAWRP), and potentially other wastewater treatment plants. The stabilization of biosolids would be achieved using anaerobic digestion, which would generate biogas. Biogas is comprised of methane (CH_4), carbon dioxide (CO_2), hydrogen sulfide (H_2S), moisture, volatile organic compounds, and siloxanes. Biogas is a renewable fuel that can be put to beneficial reuse, such as providing an energy source for other processes at the MWRP. Biogas qualifies for renewable energy subsidies in California.

1.1 Previous Documentation

The Final EIR for the Phase 2 and 3 Capacity Expansion Project was certified by IRWD's Board of Directors in February 2006 (State Clearinghouse No. 2005051174). The Phase 2 Capacity Expansion will increase the recycled water treatment capacity at the MWRP to 28 million gallons per day (mgd) and is currently under construction. The Phase 3 Capacity Expansion will increase the recycled water treatment capacity at the MWRP to 33 mgd, and currently there is no schedule for implementation of Phase 3. Subsequent Addenda Nos. 1, 2, and 3 to the Final EIR were adopted in 2008, 2009, and 2010, respectively. Addendum No. 1 addresses potential flooding risks through planned flood protection facilities; Addendum No. 2 addresses minor modifications to the design and alignment of the flood protection improvements addressed in Addendum 1, along with improvements to the access road between Campus Park Drive and the San Joaquin Marsh Campus; Addendum No. 3 addresses modifications to the flood channel access road. Collectively these documents are referred to as the "MWRP Final EIR." The flood protection and road improvements addressed in the Addenda are under construction as part of the Phase 2 Capacity Expansion.

1.2 CEQA Approach: Supplemental EIR

The proposed project is considered to be a new component of the Phase 2 and 3 Capacity Expansion Project evaluated in the MWRP Final EIR. Therefore, in accordance with CEQA, it is appropriate to evaluate the environmental impacts of the proposed project in a subsequent or supplemental EIR. Once an EIR has been certified, CEQA allows for a subsequent or supplemental EIR to be prepared when certain conditions have been met. A subsequent EIR is prepared when the lead agency determines one or more of the following:

(1) Substantial changes are proposed in the project, or substantial changes occur with respect to the circumstances under which the project is undertaken, which require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects (CEQA Guidelines §15162(a)(1), (2));

(2) 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, shows any of the following:

   a. The project will have one or more significant effects not discussed in the previous EIR;

   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 (*CEQA Guidelines* §15162(a)(3)).

If one or more of the conditions described above for a subsequent EIR exist, but only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation, then the lead agency may prepare a supplement to an EIR, rather than a subsequent EIR (*CEQA Guidelines* §15163(a)). The IRWD is the Lead Agency for the proposed project. (The City of Irvine is a responsible agency). The IRWD has determined that the proposed project meets the conditions for a supplemental EIR. 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 (*CEQA Guidelines* §15163(c)). A supplement to an EIR may be circulated by itself without recirculating the previous draft or final EIR (*CEQA Guidelines* §15163(d)). When IRWD's Board of Directors decides whether to approve the inclusion of the proposed Biosolids Handling Component into the Phase 2 and 3 Capacity Expansion Project, IRWD will consider this Supplemental EIR together with the previously-approved MWRP Final EIR.

1.3 Purpose of the EIR

IRWD has prepared this Draft Supplemental Environmental Impact Report (Draft SEIR) assessing potential adverse effects on the local and regional environment associated with construction and operation of the proposed project. This Draft SEIR has been prepared pursuant to the California Environmental Quality Act of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the *CEQA Guidelines* in the Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387 (January 1, 2012).

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

1.4 CEQA Process

1.4.1 Public Scoping

Notice of Preparation

In accordance with Sections 15063 and 15082 of *CEQA Guidelines*, IRWD, as Lead Agency, prepared and circulated a Notice of Preparation (NOP) (see **Appendix A**) on March 28, 2011. The NOP was mailed to approximately 53 interested parties, including local, state, and federal agencies. A Notice of Completion (NOC) was also prepared by IRWD and sent to the State

Clearinghouse. Copies of the NOP were made available for public review at the Heritage Park Library, Katie Wheeler Library, University Park Library, and IRWD's internet site.

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

The 30-day project scoping period, which began with the distribution of the NOP, remained open through April 26, 2011. At the close of the 30-day comment period, it was determined that a supplemental EIR would be prepared as the environmental documentation for the proposed project.

Public Scoping Meeting

CEQA recommends conducting early coordination with the general public, appropriate public agencies, and local jurisdictions to assist in developing the scope of the environmental document. Pursuant to *CEQA Guidelines* Section15083, a public scoping meeting was held on April 12, 2011 to allow agency consultation and public involvement for the Draft SEIR. Public notices were placed in local newspapers informing the general public of the scoping meeting and the availability of the NOP. The purpose of the meeting was to present to the public the proposed project and its potential environmental impacts. Attendees were provided an opportunity to voice comments or concerns regarding potential effects of the proposed project and the issues to be included in the Draft SEIR.

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

1.4.2 Draft Supplemental EIR

In accordance with *CEQA Guidelines* Section 15063, an Initial Study was prepared for the proposed project (see **Appendix B)**. The results of the Initial Study suggested that overall the proposed project may have a significant effect on the environment, and an EIR should be prepared. In accordance with the purpose of the Initial Study, the results also identified effects that were determined not to be significant, allowing for this Draft SEIR to focus on effects that may be significant (*CEQA Guidelines*, §15063(c)). It was determined in the Initial Study that the proposed project would have no impact to the following resources, and as such these resources are not included in the Draft SEIR.

- Agriculture and Forestry Resources
- Mineral Resources

- Public Services
- Population and Housing

The Initial Study determined that the proposed project could have an effect on the following resources and that additional analysis would be provided in an EIR to make a final determination of the level of significance of any potential impacts:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use, Planning, and Recreation
- Noise
- Utilities and Energy
- Transportation and Traffic

This Draft SEIR contains a description of the proposed project, description of the baseline environmental setting for each resource listed above, identification of project impacts, and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives.

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

Significant and Unavoidable: mitigation might be recommended but impacts are still significant.

Less than Significant with Mitigation: potentially significant impact but mitigated to a less-than-significant level;

Less than Significant: mitigation is not required under CEQA but may be recommended; or

No Impact: impacts would not occur or project has features that prevent impacts**.**

The proposed project is subject to the mitigation measures previously adopted by IRWD as part of the MWRP Final EIR. When appropriate and applicable, mitigation measures from this previous document are identified to mitigate impacts associated with the proposed project. Additional mitigation measures also are included when necessary.

CEQA requires that a lead agency avoid, or substantially lessen significant impacts where feasible (*CEQA Guidelines* §15091 and §15092). If such a reduction is not possible, a lead agency must adopt Findings and a Statement of Overriding Considerations. As defined in *CEQA Guidelines* Section15093, a Statement of Overriding Considerations balances the benefits of a project against its unavoidable environmental consequences.

1.4.3 Public Review

This document is being circulated to local, state and federal agencies, and to interested organizations and individuals who may wish to review and comment on the Draft SEIR. Publication of this Draft SEIR marks the beginning of a 45 day public review period, during which written comments may be submitted at any time. Written comments on the Draft SEIR must be received at the following address prior to the end of the 45-day review period.

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

During the 45-day review period, IRWD will hold one public informational meeting on the Draft EIR. The meeting will be held as follows:

DATE:	July 24, 2012
TIME:	5:30 PM doors open / 6:30 PM presentation begins
LOCATION:	IRWD Headquarters Boardroom 15600 Sand Canyon Ave, Irvine, CA

1.4.4 Final Environmental Impact Report

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

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

1.4.5 Mitigation Monitoring and Reporting Program

State law requires lead agencies to adopt a mitigation monitoring and reporting program for those changes to the project that have been adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. The *CEQA Guidelines* do not require

that the specific reporting or monitoring program be included in the EIR. Throughout this Draft SEIR, however, proposed mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring program. Additionally, the proposed project is subject to the mitigation measures previously adopted by IRWD as part of the MWRP Final EIR. When appropriate and applicable, mitigation measures from this previous document are identified to mitigate impacts associated with the proposed project. All adopted measures will be included in a MMRP to verify compliance. The MMRP may be included as an attachment to the Final SEIR.

1.5 Organization of this EIR

The chapters of this Draft SEIR are as follows:

ES. Executive Summary. This chapter summarizes the contents of the Draft EIR.

1. **Introduction and Project Background.** This chapter discusses the CEQA process and the purpose of the EIR, and background information for the proposed project.
2. **Project Description.** This chapter provides an overview of the proposed project, describes the need for and objectives of the proposed project, and provides detail on the characteristics of the proposed project.
3. **Environmental Setting, Impacts and Mitigation Measures.** This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology, Soils and Seismicity; Greenhouse Gas Emissions; Hazards and Hazardous Materials, Hydrology and Water Quality, Land Use, Planning and Recreation; Noise; Utilities and Energy; and Transportation and Traffic. Measures to mitigate the impacts of the proposed project are presented for each resource area where significant potential impacts have been identified.
4. **Cumulative Impacts.** This chapter describes the potential impacts of the proposed project when considered together with other related projects in the project area.
5. **Growth Inducement.** This chapter evaluates the potential for the proposed project to induce population growth and result in secondary environmental effects due to such growth.
6. **Alternatives Analysis.** This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered. The relative environmental impacts of the alternatives are compared to those of the proposed project, and an analysis of the environmentally-superior alternative is presented.
7. **Report Preparers.** This chapter identifies those involved in preparing this Draft SEIR, including persons and organizations consulted.
8. **Acronyms.**

1.6 Project Background, Context, and Baseline

The purpose of this section is to provide a brief description of IRWD, its existing wastewater treatment facilities, and its relationship to other regional wastewater treatment facilities, particularly those operated by OCSD. The proposed project effectively will transfer processes associated with residuals handling and treatment from OCSD's Plant 1 to IRWD's MWRP and from LAWRP's offsite disposal location to the MWRP. The following information is provided to establish the baseline conditions of existing systems, which serve as the foundation for the determination of project impacts in this Draft SEIR.

1.6.1 Irvine Ranch Water District

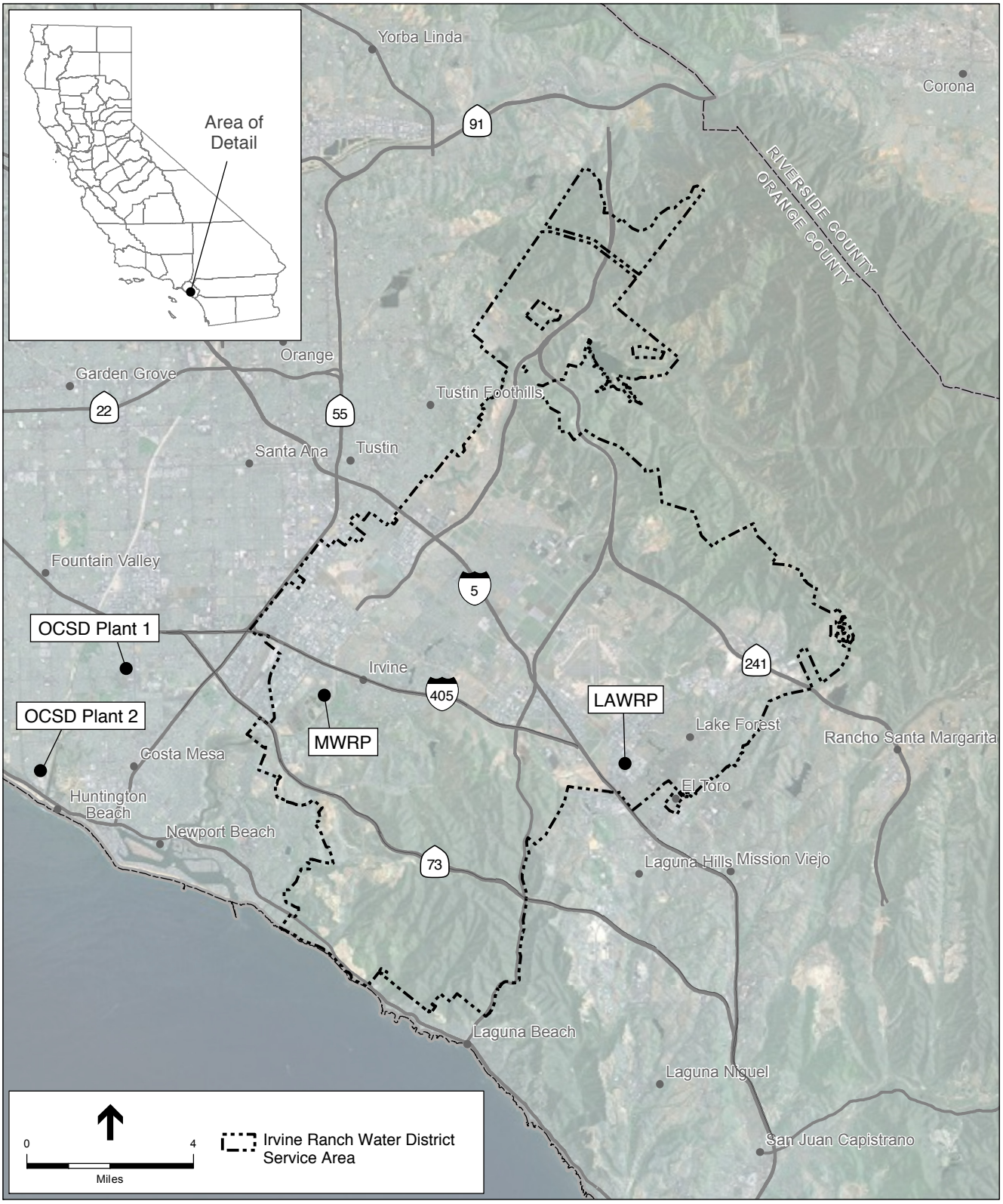
The IRWD Service Area (**Figure 1-1)** provides drinking water, sewage collection and treatment, recycled water, and urban runoff treatment to Central Orange County, California. IRWD encompasses nearly 181 square miles extending from the Pacific coast to the foothills. The District serves the City of Irvine and portions of the cities of Costa Mesa, Lake Forest, Newport Beach, Tustin, Santa Ana, Orange, and unincorporated Orange County.

IRWD's sanitary sewer system collects all wastewater coming from homes and businesses within IRWD's service area. Sewage is conveyed to two treatment plants through more than 800 miles of sewer distribution pipelines. On an average daily dry weather basis, the MWRP in the City of Irvine treats up to 18 million gallons of wastewater per day while the LAWRP in the City of Lake Forest treats up to 5.5 million gallons per day.

IRWD's water recycling plants treat incoming wastewater to Title 22 tertiary treatment standards for use as recycled water. IRWD was the first water district in the state to receive an unrestricted use permit from the state for its recycled water, which means that this water can be used for any purpose except drinking. The majority of recycled water is used for landscape irrigation in parks, golf courses, school grounds, city street medians, homeowner associations, and other public areas. Recycled water is also used for toilet flushing and cooling towers in more than 40 office buildings and for industrial uses such as carpet dyeing and concrete making. IRWD maintains a completely separate recycled water pipeline system, also known as purple pipe, of more than 400 miles serving more than 4,500 metered connections.

Michelson Water Recycling Plant

The MWRP is located at 3512 Michelson Drive in the City of Irvine, in Orange County, California (**Figure 1-2**), and is formerly known as the Michelson Water Reclamation Plant. The MWRP was initially completed in 1967 with a rated capacity of 2 mgd. The MWRP was expanded in 1979 to 15 mgd and to comply with Title 22, California Code of Regulations tertiary treatment regulations. Smaller modifications and upgrades made in 1996 and 2008 resulted in an expansion of capacity to 18 mgd. Most tertiary-treated recycled water produced at the MWRP is conveyed through IRWD's recycled water distribution system and sold to customers. When public consumptive demands are low, tertiary-treated recycled water is discharged to the ocean through the OCSD's outfall facilities.



SOURCE: i-cubed, 1999; ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 1-1
IRWD Service Area

The MWRP uses a typical treatment process that begins when wastewater enters the site at its headworks and leaves the site as recycled water. This process is illustrated in **Figure 1-3**. Currently, all sludge generated at the MWRP is conveyed through pipes to OCSD's Plant 1 for processing and reuse or disposal. IRWD is one of many tributary systems that send wastewater or sludge to OCSD Plant 1. As described below, at Plant 1, sludge enters the liquid treatment system and then is digested and dewatered to produce biosolids that are 25 percent solids. The MWRP accounts for approximately 22,000 wet tons per year or 60 wet tons per day of the biosolids produced at Plant 1 (Blue Source, 2010). This is equivalent to approximately 16.2 percent of total biosolids processed and produced at Plant 1 during 2010.

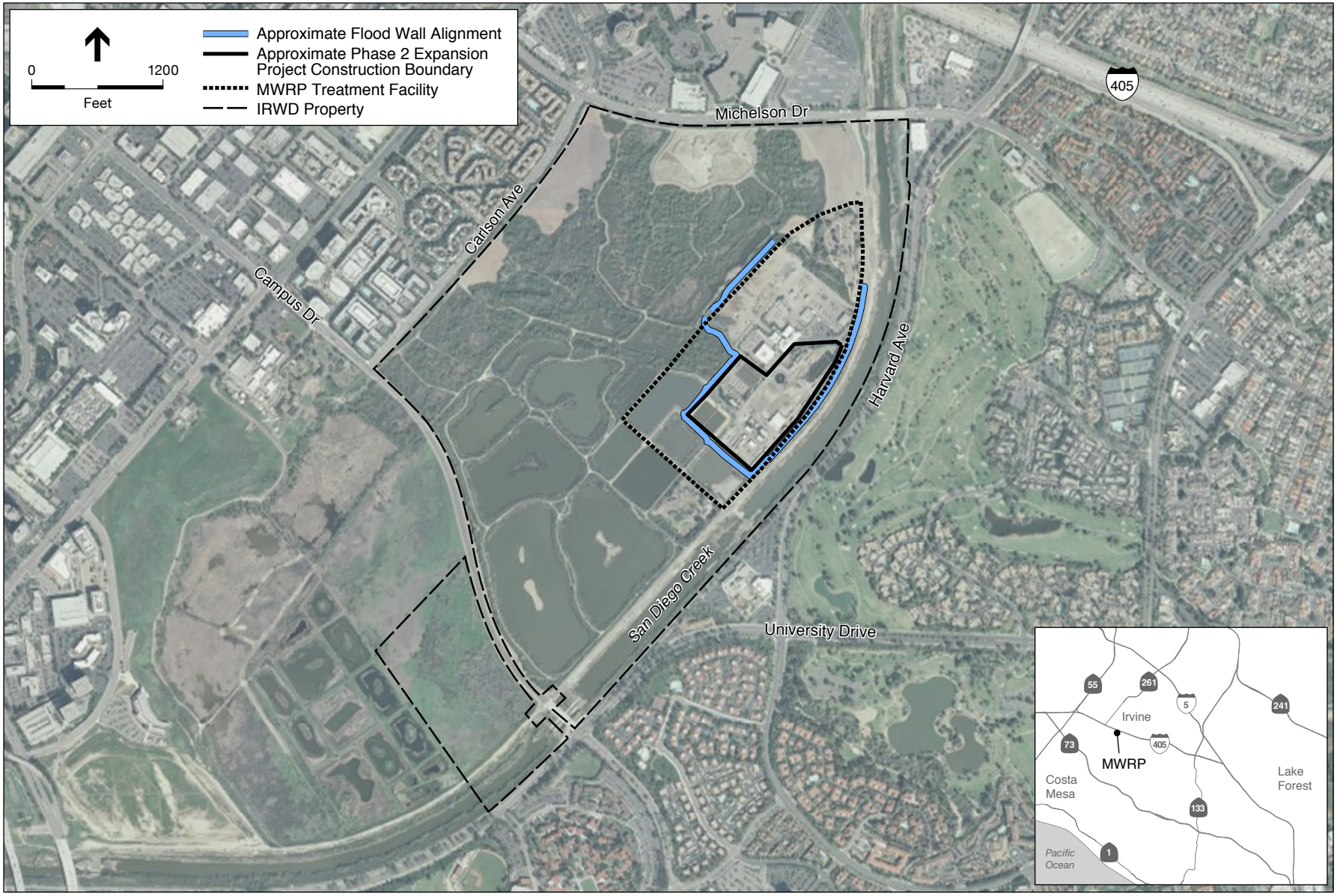
In previous years, all residuals were processed by IRWD onsite at the MWRP. However, this was discontinued in the 1980s when IRWD entered into a series of agreements with OCSD for access to OCSD's regional treatment facilities. Under the agreements, OCSD would accept delivery of raw wastewater that is excess to IRWD's needs for producing recycled water as well as residuals from the wastewater reclaimed by IRWD. As a result, an 18-inch export pressure pipeline and a 27-inch gravity pipeline were built to convey primary effluent and residuals from the MWRP to OCSD Plant 1 via the Main Street interceptor and lift station.

Los Alisos Water Recycling Plant

The LAWRP is located on Muirlands Boulevard between Bake Parkway and Aspen Street in the City of Lake Forest (Figure 1-1). For the sludge generated at the LAWRP, currently, IRWD contracts with Synagro to haul solids offsite to their facilities in La Paz, Arizona, and process them for reuse or disposal.

MWRP Phase 2 and 3 Capacity Expansion Project

The Phase 2 and 3 Capacity Expansion Project will expand recycled water production at the MWRP in phases to 28 mgd (Phase 2) and to 33 mgd (Phase 3), to meet projected ultimate demand for non-potable water, enhance water supply reliability by maximizing the use of recycled water in lieu of imported water from the State Water Project and the Colorado River and instead of local groundwater, meet state mandates to reduce urban demand on freshwater supplies, reduce wastewater diverted to regional treatment facilities and optimize water supply, wastewater treatment life cycle and construction cost economics. The Phase 2 and 3 Capacity Expansion Project will provide for tertiary treatment and disinfection of wastewater while continuing to deliver residual sludge and scum from the water recycling process and any excess raw wastewater through force mains and gravity pipelines to OCSD's Plant 1 in Fountain Valley.

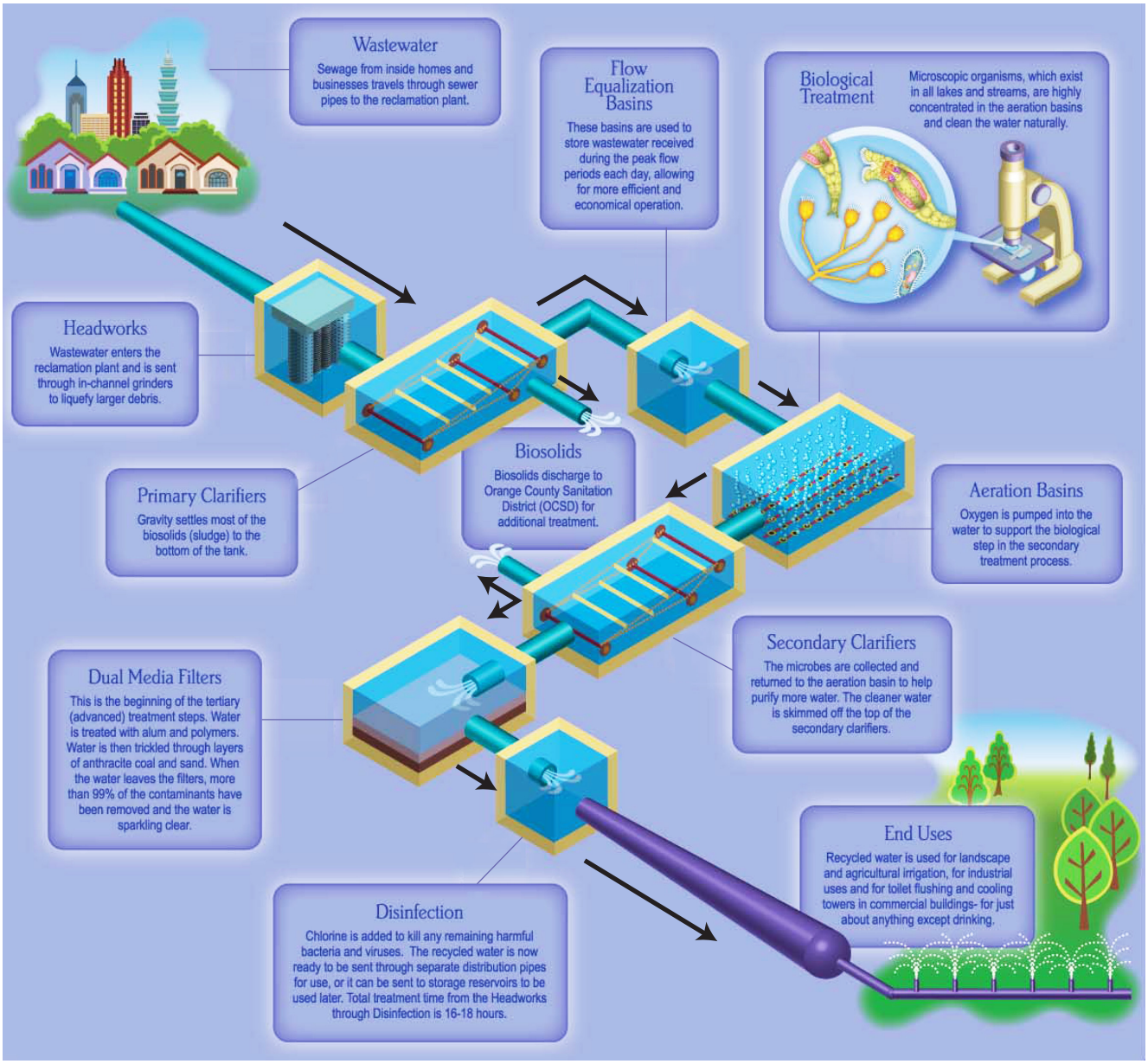


SOURCE: ICF Jones & Stokes, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 1-2

Michelson Water Recycling Plant



SOURCE: Irvine Ranch Water District, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 1-3
MWRP Recycled Water Treatment Process

The Phase 2 Capacity Expansion that started construction in September 2009 currently is under construction at the MWRP and due to be completed in early 2013. Phase 2 includes installation of a new headworks facility, primary clarifiers, electrical buildings, ultra-violet disinfection facility, membrane bioreactor, a high rate clarifier, and modification of the influent trunk sewer lines. Phase 2 also includes new 600-horsepower pumps to supplement the existing plant's ability to pump recycled water into the recycled water distribution system. Phase 2 does not include improvements or changes to the residuals management system. Phase 2 is designed to continue the existing process of transferring residual sludge and scum to OCSD.

Because of excess vegetation growth in San Diego Creek that has diminished the creek's flow capacity, Phase 2 includes construction of a flood wall along the boundary of the MWRP to provide flood protection to the MWRP from overflow in the San Diego creek and marsh area during a 200-year storm event (Figure 1-2). The flood wall meets Orange County, Army Corps of Engineers, and Federal Emergency Management Agency criteria. The height of the flood wall will range from four to 10 feet, depending on location and topography. The flood wall construction will be completed in 2012. While under construction, the MWRP is still operational.

Proposed Modification

The proposed project would modify the residuals management system associated with the Phase 2 and 3 Capacity Expansion Project by adding the proposed Biosolids Handling Component onsite at the MWRP. The proposed project would be accommodated within the boundaries of the existing MWRP site, adjacent to the facilities used to produce disinfected tertiary-treated recycled water. As described in detail in Chapter 2, the proposed project would discontinue the export of residual sludge and scum to OCSD and build new facilities to revert back to a complete residuals management system onsite.

In addition to processing the residuals produced at the MWRP, the proposed project also would have capacity to process sludge from the LAWRP and potentially other regional wastewater treatment plants. Therefore, the proposed project would discontinue the exportation of residuals from the LAWRP to Arizona.

1.6.2 Orange County Sanitation District

OCSD is a special district formed for the collection, processing and disposal or reuse of treated wastewater and solids. This is done in accordance with the requirements set forth in the National Pollutant Discharge Elimination System (NPDES) Permit No. CA0110604 (OCSD, 2011). OCSD serves a population of approximately 2.5 million people living in a 471 square-mile area that encompasses the majority of metropolitan north and central Orange County, including IRWD. OCSD operates and maintains two wastewater treatment plants, Plant 1 located in Fountain Valley (Figure 1-1) and Plant 2 located in Huntington Beach.

IRWD owns capacity in the OCSD facilities based on its tributary flows. Currently, primary sludge, primary scum, and waste activated sludge are pumped from the MWRP through the residuals force main and flow through other pipes for treatment at OCSD's Plant 1.

During 2010, OCSD treated an average daily sewage influent flow of 208 mgd and produced approximately 250,000 wet tons of biosolids, for an average of 685 wet tons per day of biosolids (25% solids), of which approximately 370 wet tons per day were produced at Plant 1 (OCSD, 2011). The solids treatment process at Plant 1 includes anaerobic digestion and dewatering. As a result, Plant 1 produces Class B biosolids that can be beneficially reused for land application as a soil amendment, composted into fertilizer, processed into an e-fuel, or disposed in a landfill. (See Section 1.6.3 below for an explanation of biosolids classifications.) Methane gas is captured during the anaerobic digestion process and used at OCSD's Central Power Generation Facility to power engine-generator units that produce electricity, which is then used to operate both treatment plants.

Biosolids produced during 2010 at Plant 1 were managed (hauled offsite for processing) by three biosolids management contractors: Tule Ranch, Synagro, and EnerTech. None of the landfill backup facilities were utilized in 2010 for biosolids disposal, nor have been utilized since 2007 (OCSD, 2011) The Plant 1 biosolids management contractors and the percentage of their receipt of Plant 1 biosolids is described below:

Tule Ranch: Approximately six percent (6%) of all the biosolids produced by OCSD in 2010 were trucked to Tule Ranch in Yuma, AZ for direct land application as a soil amendment.

Synagro: Approximately 45 percent (45%) of biosolids were trucked to Synagro in Kern County, CA for composting; two percent (2%) of biosolids were trucked to Synagro in La Paz County, AZ also for composting.

EnerTech: Approximately 14 percent (14%) of biosolids were trucked to EnerTech in Rialto, CA for conversion to a certified renewable energy pellet, or synthetic coal, which is burned in local cement kilns. Approximately 33 percent (33%) of biosolids were trucked to EnerTech in Yuma, AZ for direct land application as a soil amendment.

1.6.3 Biosolids Overview

IRWD's biosolids management program must comply with the federal biosolids regulations that are contained in Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503) as Standards for the Use or Disposal of Sewage Sludge. Known as the Part 503 Rule, or Part 503, these regulations govern the use and disposal of biosolids. As required by the Clean Water Act Amendments of 1987, the United States Environmental Protection Agency (USEPA) was required to develop Part 503 to protect public health and the environment from any reasonably anticipated adverse effects of certain pollutants that might be present in biosolids. Biosolids are defined by the USEPA as a "primarily organic solid product produced by wastewater treatment processes than can be beneficially recycled" (USEPA, 1994).

Biosolids can be beneficially reused as fertilizer for crops (land application) or disposed either in a surface landfill or biosolids incinerator (USEPA, 1994). Part 503 classifies biosolids by pathogen concentration levels as Class A, Class B, or sub-Class B biosolids.

- Class A Biosolids are biosolids in which the pathogens are reduced below current detectable levels. Biosolids that are to be given away or used by the general public must meet Class A biosolids criteria.
- Class B Biosolids are biosolids in which the pathogens and vectors are reduced to levels that are unlikely to pose a threat to public health and the environment under specific use conditions. Class B biosolids cannot be sold or given away in bags or other containers or applied to lawns or home gardens.
- Sub-Class B biosolids do not meet adequate pathogen reduction requirements.

Biosolids are considered non-hazardous as long as listed substances are not present in amounts deemed hazardous in Title 22 of the California Code of Regulations, Chapter 11, Article 5, which defines hazardous waste. Biosolids produced by OCSD are non-hazardous (OCSD, 2011). Biosolids to be produced by the proposed project would also be considered non-hazardous.

References – Introduction and Background

Blue Source, 2010. *Appendix K: MWRP Biosolids Master Plan: Carbon Footprint Analysis*. In: *Irvine Ranch Water District, Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Michelson Water Recycling Plant Biosolids Management Plan*, Draft Report. Project No. 96342, IRWD Project No. 20759, Prepared by HDR in association with Carollo. December 2010.

Dudek & Associates, Inc., Michelson Water Reclamation Plant Phase 2 and 3 Capacity Expansion Project, Final Environmental Impact Report, SCH No. 2005051174, Prepared for Irvine Ranch Water District, February 2006.

Orange County Sanitation District, *Biosolids Management Compliance Report, Year 2010, EPA 40 CFR Part 503*, 2011. Available online: http://www.ocsd.com/Modules/ShowDocument.aspx?documentid=12969; accessed May 24, 2011.

SWRCB, 2011. Biosolids Program, http://www.waterboards.ca.gov/water_issues/programs/biosolids/index.shtml, accessed May 25, 2011.

U.S. Environmental Protection Agency (USEPA), 1994. *A Plain English Guide to the EPA Part 503 Biosolids Rule.* Office of Wastewater Management, Washington, DC. EPA/832/ R-93/003, September 1994.

U.S. Environmental Protection Agency (USEPA), 2009. *Targeted National Sewage Sludge Survey Overview Report*. Office of Water (4301T). EPA-822-R-08-014, January 2009.

CHAPTER 2
Project Description

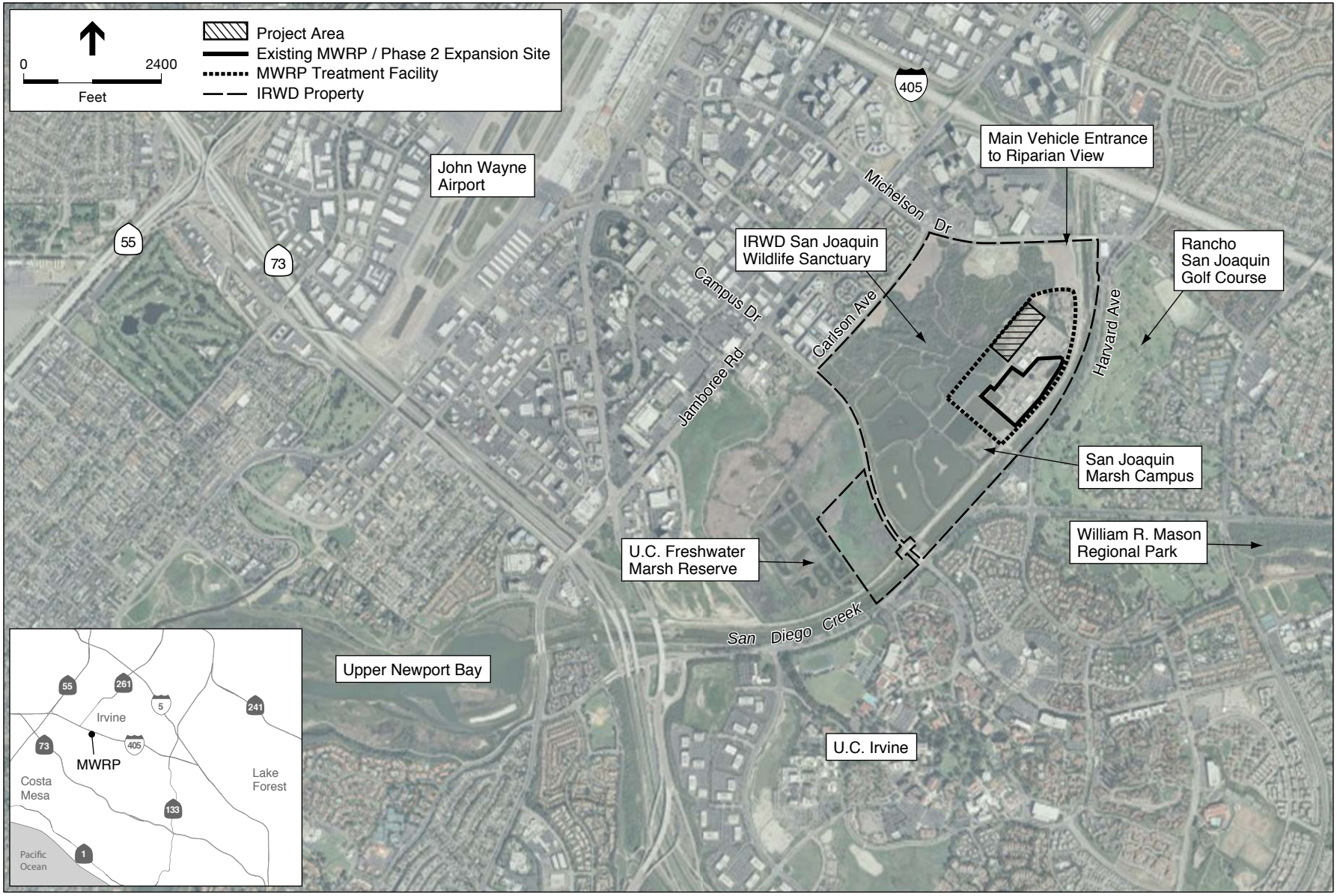
2.1 Project Location

The proposed project would be constructed onsite at the existing MWRP, which occupies approximately 69 acres and is located at 3512 Michelson Drive, Irvine, CA 92612. The proposed project would be constructed within a 4.6-acre rectangular-shaped site adjacent to the Phase 2 Capacity Expansion area as shown in **Figure 2-1**, with minor alterations in the existing areas of the MWRP. The MWRP is part of a larger property owned by IRWD, which is approximately 452 acres and generally bounded by Michelson Drive, Carlson Avenue, Harvard Avenue, University Drive, Campus Drive, and the San Diego Creek, as shown. Approximately 300 acres of the IRWD property constitute the San Joaquin Wildlife Sanctuary. Within a two-mile radius of the project site are a mixture of residential land uses, as well as recreational, conservation/open space, commercial and industrial park uses; John Wayne Airport; University of California at Irvine; U.C. Freshwater Marsh Reserve; William R. Mason Regional Park; and Rancho San Joaquin Golf Course.

2.2 Existing Conditions at MWRP

The Phase 2 Capacity Expansion currently is under construction at the MWRP and is expected to be completed in early 2013. The proposed Biosolids Handling Component would be constructed within an adjacent area that is disturbed vacant land, currently being used for construction staging for the Phase 2 Capacity Expansion Project (see **Figure 2-1**). This area is bounded on three sides (generally north, west, and south) by a vegetated earthen berm separating and screening it from San Joaquin Wildlife Sanctuary and its trails, riparian habitat, and ponds. The proposed project would be contained within the existing boundaries of the MWRP treatment facility and would not directly impact the Sanctuary. To the east, the project area is bounded by existing MWRP facilities and a concrete-lined storm water drainage swale.

The MWRP property is generally flat, varying between 10 and 24 feet above mean sea level (amsl) and is generally recessed below grade from San Diego Creek but separated by the floodwall. The site of the proposed Biosolids Handling Component gently slopes from east to west with elevations ranging from 16 to 24 feet amsl. The site consists of undocumented fill material up to a depth of 12 feet below the existing ground surface (NMG Geotechnical Inc., 2011).



SOURCE: ESA; GlobeXplorer, 2011.

Figure 2-1
Michelson Water Recycling Plant and Vicinity

Access to the site is provided by IRWD's private roadway, Riparian View, via Michelson Drive. The southeastern portion of the facility is located along a 15- 20-foot tall embankment that overlooks the creek. The MWRP has an existing groundwater dewatering system that consists of nine active shallow groundwater wells that convey water through an interconnected system of pipelines that collectively discharge to either the San Joaquin Marsh or to San Diego Creek. As part of the Phase 2 and 3 Capacity Expansion Project, as described in the MWRP Final EIR, two new dewatering wells, a French drain system, and interconnecting piping will be installed.

The MWRP property is designated by the City of Irvine General Plan Land Use Element as *Institutional (Public Facilities)* and zoned as *Institutional*. The neighboring Sanctuary is designated as *Conservative Open Space (Preservation)* and zoned as *Conservation/Open Space Reserve*. The neighboring San Diego Creek also is designated as *Conservative Open Space (Preservation)* but is zoned as *Recreation*. The MWRP property is located in the City's Planning Area 23 (PA23) (San Joaquin Marsh), a zoning district that allows open space reserve, recreation along the creek, and institutional uses. PA23 also allows residential development (maximum of 1,000 units) along the western and northern edges of the marsh, along a segment of Carlson Avenue and a segment of Michelson Drive, within a few hundred feet of the project area.

The IRWD property includes the San Joaquin Wildlife Sanctuary, which is open to the public. The Sanctuary contains reconstructed riparian habitat and ponds and over 11 miles of nature trails (see **Figure 2-1**). Within the Sanctuary, the San Joaquin Marsh Campus includes the Audubon House, the Duck Club, and other structures. The Audubon House is operated by the local Sea and Sage Chapter of the National Audubon Society. The Duck Club is a meeting room facility offered to non-profit organizations. Near the Audubon House and Duck Club is the caretaker's house, which is a private residence occupied by an IRWD employee.

2.3 Purpose and Objectives

By 2016, OCSD anticipates that it will reach maximum capacity at its solids handling facilities and will need to make significant capital investments to expand its solids processing facilities. IRWD is proposing the Biosolids Handling Component of the MWRP Phase 2 and 3 Capacity Expansion Project instead of contributing to the expansion of OCSD facilities. IRWD's objectives for the proposed project consist of the following:

- Allow IRWD to make efficient and sustainable use of its own renewable resources.
- Increase IRWD's autonomy for residuals management.
- Allow for beneficial use of the biosolids produced during the treatment process.
- Allow for beneficial use of biogases produced during anaerobic digestion.
- Minimize environmental impacts associated with residuals management.
- Provide residuals management facilities that meet future solids handling needs of the MWRP Phase 2 and 3 Capacity Expansion Project.

2.4 Description of Project Modifications

The proposed project would provide a residuals management system at the MWRP with capacity to handle all solids produced based on projected future demand in the IRWD service area, up to 33 mgd at the MWRP and up to 5.5 mgd at the LAWRP. The proposed project would construct new biosolids processing, biogas management, and energy recovery systems at the MWRP. The approximate locations and components of the project to be constructed at the MWRP are shown in **Figure 2-2.** The final locations and project components would be determined during the final design process. A simple process flow diagram is provided in **Figure 2-3**. The proposed project includes solids-handling facilities that would thicken, stabilize, dewater, and dry sludge to produce biosolids. Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The biogas would be put to beneficial reuse, including but not limited to providing an energy source for other processes at the MWRP. In addition to sludge, fats, oil and greases (FOG) associated with restaurant waste could be added to the digesters to increase biogas production. Currently, the majority of FOG generated in Orange County, including IRWD's service area, is transported to OCSD for processing and disposal. The proposed project would allow diversion of a portion of this FOG to the MWRP.

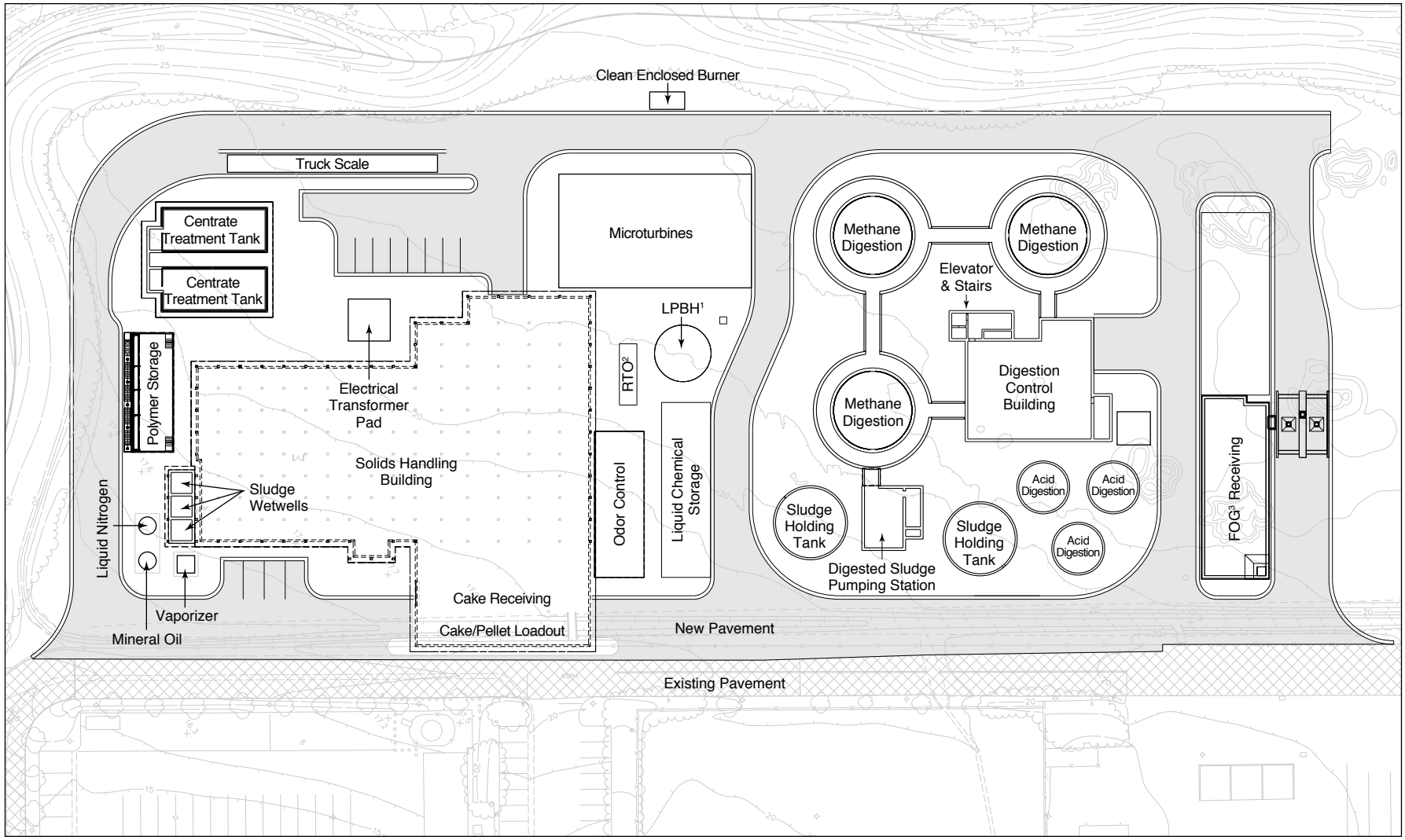
Digested sludge would be dewatered to produce Class B biosolids or would be dried in a rotary drum dryer to produce pelletized Class A biosolids. All biosolids would be hauled offsite for beneficial reuse or disposal using trucks. The new facilities to be constructed at the proposed MWRP are described further below.

In addition to processing the sludge produced by the recycled water treatment process at the MWRP, the proposed project would be designed to have capacity to treat digested and dewatered sludge from the LAWRP and potentially other regional wastewater treatment plants. The sludge generated at the MWRP would be conveyed to the new facilities through new onsite piping, while the sludge from the LAWRP would be transported to the proposed facilities by truck.

The proposed project would also include gas and electric utility connections along the MWRP access road at the east side of the MWRP. Other minor alterations within the MWRP treatment facility area may occur to facilitate the construction and operation of the proposed project.

2.4.1 Solids Handling Building

The Solids Handling Building (**Figure 2-2**) would house the solids processing facilities described below, including thickening, dewatering, and drying processes, as well as a load-out bay to export treated biosolids offsite. It would also have sludge receiving facilities for trucks to offload digested and dewatered sludge from the LAWRP and potentially other treatment plants. The Solids Handling Building would have two interior levels and a footprint that is approximately 28,800 square feet. The building height would vary, with the highest point approximately 70 feet above grade. Exhaust stacks will extend 10 feet above the roof line. The exterior walls would be a combination of cast-in-place concrete, concrete block, and metal panels. From a distance, the Solids Handling Building would have the appearance of a contemporary commercial building.



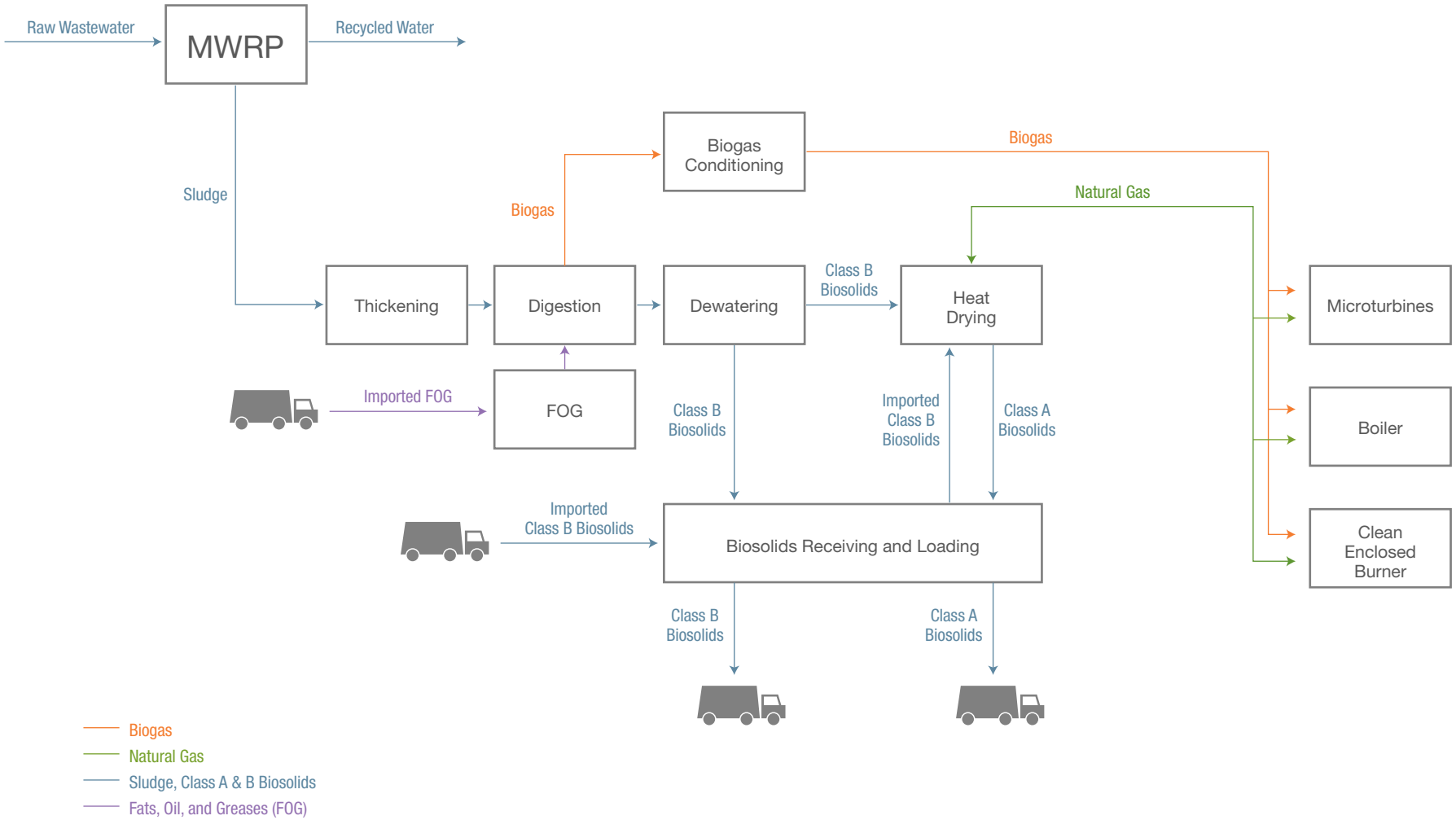
0 80
Feet

[1] Low Pressure Biogas Holder
[2] Regenerative Thermal Oxidizer
[3] Fats, Oil, Grease

SOURCE: Black & Veatch, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 2-2
Preliminary Site Layout



SOURCE: ESA; Environ, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 2-3

Project Process Flow Diagram

Figure 2-4 provides a visual simulation of the Solids Handling Building. Subject to final design, the following components of the proposed project would be associated with the Solids Handling Building:

Thickening. Primary sludge (PS) and waste activated sludge (WAS) would be conveyed through pipes from the MWRP liquid treatment processes to the Solids Handling Building and fed to thickening centrifuges. Thickened sludge would be pumped to the anaerobic digestion system for stabilization (see Section 2.4.2 below).

Dewatering and Cake Storage. Stabilized digested sludge would be conveyed to the dewatering centrifuge system. Dewatered sludge, called cake, would be considered Class B biosolids. The Class B cake either would be pumped to the dryer or conveyed to load-out silos for hauling offsite for reuse or disposal.

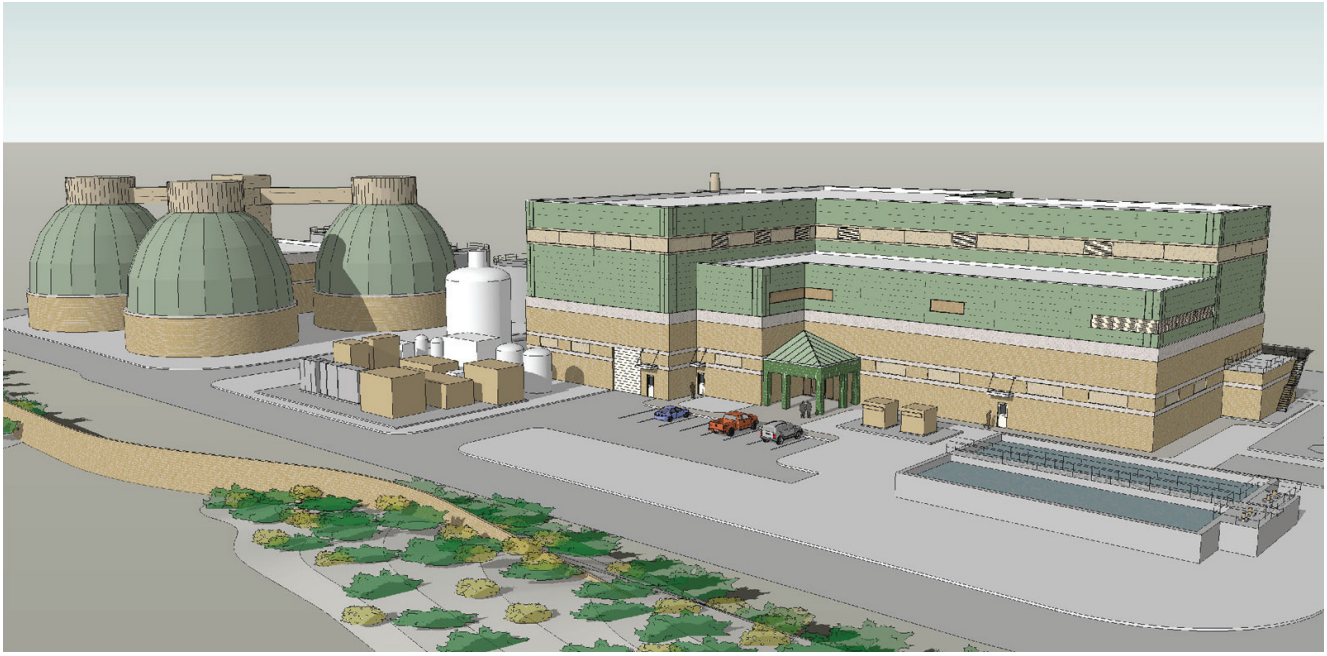
Centrate Treatment. The dewatering centrifuges produce a liquid centrate that contains high concentrations of ammonia. This sidestream needs to be equalized and treated before returning it to the MWRP liquid treatment facilities. The centrate treatment system would utilize an aeration system that allows biological oxidation of the ammonia to nitrite and nitrate prior to reintroduction of the centrate to the MWRP liquid treatment process.

Polymer Systems. Commonly-used wastewater polymer would be used in both the thickening and dewatering systems. Polymers are not classified as hazardous materials under Title 40 of the Code of Federal Regulations or Title 22 of the California Code of Regulations.

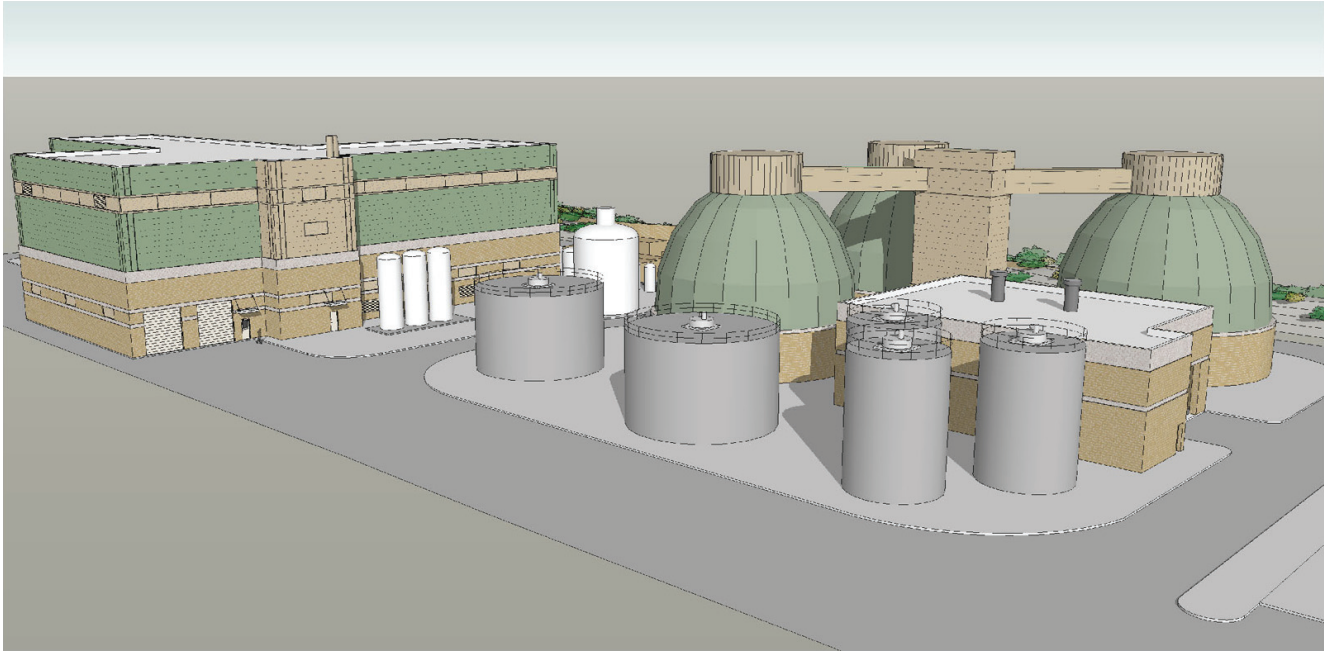
Drying. The dryer room would contain a rotary drum dryer to convert the Class B cake to dried Class A pellets. Truck access to the dryer room for equipment maintenance would be provided through a roll-up door.

Cake/Pellet Loadout. Truck load-out bays would be constructed within the Solids Handling Building on the south side. Class B cake and Class A pellets would be transferred to vehicles at the truck load-out bays for offsite transport. A Class-B cake silo and truck loading system would allow bypass of the dryer during periods of prolonged dryer maintenance or allow alternate uses of Class B cake. Class-A pellet storage and load-out bins also would be located in the truck load-out bays.

Solids Receiving. The solids receiving bays would be constructed within the Solids Handling Building for receiving truck loads of digested and dewatered sludge from LAWRP and/or other treatment facilities. The sludge would be pumped to the dryer along with sludge produced at MWRP.



View Looking East



View Looking West

SOURCE: Black & Veatch, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 2-4

Preliminary Visual Simulations

2.4.2 Anaerobic Digestion System

The objective of anaerobic digestion is to convert thickened sludge to a more organically stable form of biosolids and to reduce the volume of biosolids. The organic mass of sludge fed to digesters is biologically consumed and converted to biogas and biosolids. The digestion system for the proposed project would consist of a FOG receiving station; acid digesters; methane digesters; digested sludge holding tanks (DSHTs); digester heating facilities, and biogas management facilities (See Section 2.4.3 below).

FOG. The FOG receiving station would include a truck unloading area and holding tanks. FOG would be pumped to the acid or methane digesters.

Acid Digesters. Thickened sludge and FOG would be pumped to the acid digesters. The acid digesters each would be approximately 32 feet in diameter with a height of approximately 35 feet. The acid digesters would be constructed on engineered foundations that would ensure stable structures. The acid digestion heating system and sludge transfer pumps would be housed in the Digester Control Building. The acid digestion system would be completely contained to prevent any odor from escaping. The acid digesters would produce acid gas, which would be odorous but routed either to a clean enclosed burner (see Section 2.4.3 below) or the methane digesters. The Digester Control Building footprint is approximately 85 feet by 77 feet.

Methane Digesters. Acid sludge would be pumped to the methane digesters. The egg-shaped methane digesters each would be approximately 73 feet in diameter with a maximum height of 68 feet above grade. The methane digesters would be constructed on engineered foundations that would ensure stable structures. Part of each digester would be constructed underground. The methane digestion heating system and recirculation pumps would be housed in the Digester Control Building. The methane digesters would produce a biogas comprised of methane, carbon dioxide, hydrogen sulfide, moisture, volatile organic compounds, and siloxanes. The methane digestion system would be completely contained to prevent any odor from escaping. The biogas generated by the methane digestion process would flow continuously out of the methane digesters to the Biogas Management System (see Section 2.4.3 below).

Digested Sludge Holding Tanks (DSHTs). Sludge would overflow by gravity from the methane digesters into the DSHTs. The DSHTs would be completely enclosed.

Digester Heating System. The primary purpose of the digester heating system is to maintain the temperature of the sludge in the acid and methane digesters at an optimum temperature (up to 125°F). To efficiently achieve this objective, the proposed system would recover waste heat from other processes (e.g., the dryer) and generate additional heat with boilers when waste heat is not sufficient to meet demands. The boilers would provide supplemental heat when the dryer is not operating and during cold winter periods. The boilers would be fueled by biogas from the methane digesters or natural gas when there is insufficient biogas available.

The boilers would be housed in a building constructed on an engineered foundation, with a footprint of approximately 6,500 sf and a height of approximately 30 feet above grade. The

building would have reinforced concrete masonry unit (CMU) walls and would provide a high level of security and sound attenuation. The boiler building would incorporate the same aesthetic qualities of the other new buildings associated with the proposed project.

2.4.3 Biogas Management System

The primary purpose of the Biogas Management System is to optimize the reuse of biogas produced in the digesters. The biogas would be comprised of methane (CH_4), carbon dioxide (CO_2), hydrogen sulfide (H_2S), moisture, volatile organic compounds (VOCs), and siloxanes. The methane in the biogas could be combusted to generate heat, such as in the boilers or the dryer. Biogas also could be used in a microturbine to generate electricity. Waste heat generated by the combustion of biogas in a microturbine also could be recovered and put to use in the digestion process. The components of the biogas that are not used would be removed and disposed using a Biogas Conditioning System described below.

The components of the Biogas Management System are described below. All equipment would be installed outdoors on concrete slabs at grade founded on compacted structural backfill. Screen walls and/or landscape screens would be used to minimize aesthetic impacts associated with the Biogas Management System by creating a visual barrier from offsite vantage points.

Low-Pressure Biogas Holding Tank. Biogas production tends to vary diurnally and seasonally. A biogas holding tank would be installed as short-term equalization storage to smooth out fluctuations that otherwise would occur in operation of equipment that utilize biogas, such as the dryer, boilers, clean enclosed burner, or microturbines. The holding tank would provide a minimal amount of storage, as the biogas would normally be fully utilized; the utilization capacity of the project facilities exceeds total anticipated biogas production. The holding tank would have a diameter of approximately 25 feet and a height of approximately 38 feet. The biogas would be stored at low pressure, approximately 0.4 pounds per square inch (psi), which is considerably less than the 5 to 10 psi used in the natural gas distribution system that exists throughout the area.

Biogas Conditioning System. The conditioning system would treat biogas to remove moisture, H_2S, VOCs, and siloxanes, as well as adjust the temperature and pressure of the biogas to meet the different specifications of the microturbines, boilers, and dryer. Biogas conditioning is necessary to maximize operational efficiency of the equipment using biogas as fuel or to generate electricity. Biogas constituents would be adsorbed onto removal media within enclosed stainless steel containers. When the media is fully utilized, it is removed and disposed of in compliance with applicable regulations and permits. Multiple media containers would be arranged in series to provide redundancy and allow the system to operate while media are being replaced.

Microturbines. Microturbines would be installed to generate electricity from the biogas produced from the methane digesters. Electricity generated from the microturbines would be used to supplement and offset energy requirements of the MWRP liquid treatment facility.

Microturbines with a total capacity of up to 1600 kilowatts (kW) would be installed to utilize the biogas. Natural gas would be blended with biogas to run the microturbines.

Clean Enclosed Burners. Biogas from the acid digesters and methane digesters would be combusted in separate burners or a combined burner. Bekaert Clean Enclosed Burners (CEB) or an equivalent product would be used for both biogas burners; the CEB has been tested locally and approved by the South Coast Air Quality Management District (SCAQMD). The CEBs would have no noticeable flame or odor. The biogas from the methane digesters would be used to operate other project facilities or generate electricity first, but when biogas is not fully utilized as such, it would be combusted in the CEB. The CEB would operate when necessary and come on automatically to safely burn excess biogas. The CEB would be sized to burn total anticipated biogas flow if necessary. Excess biogas may be combusted in the CEB under the following conditions, assuming no other reuse opportunities are available at the time:

- The dryer is out of service during warm weather (two to three days per week).
- The microturbines are shut down (one to two weeks annually for maintenance).
- Digester start-up.
- Other times as needed.

2.4.4 Odor Control

The purpose of the odor control system is to avoid the release of odor from the project site. Potential odors could include nuisance odors emanating from the emissions of organic and inorganic compounds of sulfur including hydrogen sulfide (H_2S), mercaptans, ammonia, amines, and organic fatty acids. The proposed project would install a highly-reliable, state-of-the-art odor control system with built-in redundancy and back-up power generators. The proposed system would be modeled after one installed by the City of Mesa, Arizona, at its Northwest Water Reclamation Plant, which has a proven record of zero odors detected at the treatment plant boundary since it was put on-line in 1989.

The odor control system would collect foul air from all odor sources including individual pieces of equipment and the truck load-out/receiving bays and treated using a three stage odor scrubber system. The foul air collection and treatment system would be designed to allow any of the three scrubbers to be taken out of service for cleaning while maintaining continued operation through the remaining two scrubbers. The system would use sulfuric acid, sodium hydroxide (caustic), and sodium hypochlorite solutions to oxidize and treat the odorous compounds. Blow down (spent chemicals) from the three stage odor control system would drain to a sanitary sewer pump station and pumped to the MWRP headworks, where they would be neutralized during the treatment process.

IRWD also would prepare and implement an Odor Control Maintenance and Monitoring Plan that would define a schedule for regular preventative maintenance of the odor control system equipment and back-up generators, a schedule for odor monitoring along the IRWD property

boundary, and a protocol for handling and resolving odor complaints. The Plan would eliminate the possibility of system failure.

2.4.5 Architecture and Design Features

Structure and Building Design

The proposed new buildings and structures would incorporate the colors and materials of the surrounding area where feasible. The materials used would reflect the size, function and occupancy requirements of the facility. Foundations would be engineered to ensure stable structures.

Storm Water Management Facilities

The proposed project would include modifications and improvements to accommodate the new site drainage pattern. New storm water facilities would be built that tie into the existing onsite storm water system. Storm water facilities would collect and contain all storm water runoff onsite. Storm water from the project site would be captured and pumped to existing long-term storage ponds onsite at the MWRP (i.e., Pond C) and then returned to the MWRP for treatment. The storm water collection system would include an emergency overflow that could convey runoff from the project site to the existing storm water system serving other areas of the MWRP. An emergency overflow to the marsh system also would be included. The existing concrete-lined storm water drainage ditch along the southern boundary of the project area would be replaced with a new storm drain pipe as part of the proposed project.

Landscaping

During the design phase of the proposed project, a Landscape Plan would be developed that will include screenings to soften the appearance of the proposed facilities. If not already put in place when the project is implemented, tall landscaping trees would be planted along or near the earthen berm that forms the outer perimeter boundary of the project area.

Noise

The proposed project would be designed to adhere to the City of Irvine's Municipal Code, which provides maximum noise thresholds at the MWRP property line (Title 6, Division 8, Chapter 2). Noise thresholds apply collectively to noise generated together by all equipment onsite at the MWRP, including existing equipment and future equipment associated with the Phase 2 and 3 Capacity Expansion Project, which includes the proposed project. At the boundary between the IRWD property and properties categorized as Noise Zone 1 (residential, church, school, hospital, and library properties), the A-weighted sound pressure level of 50 dBA would not be exceeded; at the boundary with properties categorized as Noise Zone 2 (institutional and professional office properties), 55 dBA would not be exceeded. The ambient Community Noise Equivalent Levels (CNEL) will not exceed 65 dBA at the adjacent golf course, wildlife sanctuary and preservation land. Noise mitigation strategies would include both architectural and equipment considerations

to mitigate the outdoor environmental noise issues as necessary to meet the established project acoustical design criteria (Black & Veatch, 2010b). Noise control would be provided in the centrifuge room and dryer room in the Solids Handling Building, the Digester Control Building, and in other areas with significant noise generation. Noise modeling would be conducted during final project design to identify noise abatement measures to reduce noise to acceptable levels.

Lighting and Security

The primary purpose of facility lighting would be to provide a safe and secure working environment for staff and the facilities. The lighting system would be designed to minimize offsite impacts, including to the San Joaquin Marsh and neighboring residential land uses, consistent with existing facilities. External security lighting would be directed downward to limit off-site light spill. Horizontal baffles or cutoffs may be used to direct the light toward the ground and limit horizontal travel. Low-intensity lighting would be provided along parking areas and walkways. The project area would require the expansion of existing MWRP security measures that include perimeter fencing and possibly closed-circuit television cameras.

Heating, Ventilation and Air Conditioning

Heating, ventilation and air conditioning (HVAC) equipment would be provided for all operator, electrical and control spaces to maintain a comfortable indoor temperature, cool electrical rooms, keep out odor and dust, and minimize corrosion. Methane gas detectors would be included.

2.5 Project Construction

Construction of the proposed project would take approximately 36 to 48 months and is expected to begin in Winter 2013. Construction of all project facilities would be initiated simultaneously, with some constraints noted below. Construction would be initiated once the perimeter flood wall is complete and the contractor for the Phase 2 Capacity Expansion has demobilized from the project site. Construction of the Biosolids Handling Component would not overlap with current Phase 2 Capacity Expansion construction. There is no schedule for implementation of the Phase 3 Capacity Expansion. Periodic updates regarding construction progress and schedule would be posted on the IRWD web site (www.irwd.com).

2.5.1 Construction Methods and Equipment

Construction for all facilities would involve site clearing and grading, excavation for new pipeline connections and structural foundation installation, grading for building pads, construction of aboveground buildings, and equipment installation and connection. Construction would conclude with final finish grading, site restoration, and landscaping. Piles would be required for the Solids Handling Building, the acid digesters, the Digester Control Building, the methane digesters, and other miscellaneous structures to provide structural support. Installation of the piles, which would require pile drivers, would occur intermittently throughout the project construction period. Notice of pile driving activities would be available through the construction updates on the IRWD web

site. Prior to initiating construction of the digester facilities, the concrete-lined drainage ditch on the southern boundary of the project area would need to be replaced with a pipeline to maintain function of the existing storm drain system to continue to serve other areas of the IRWD Operations Center and MWRP.

Dewatering would be required for the duration of construction during the excavation phase. Depth to groundwater at the project site is between five and 10 feet (NMG Geotechnical Inc., 2011). Excavation depth would be at least 35 feet for the methane digesters, 25 feet for the Solids Handling Building and Digester Control Building, and approximately five feet for other building foundations. The top layer of fill that is present at the project site (up to 12 feet deep) could be excavated and reused as backfill to provide an engineered fill blanket (NMG Geotechnical Inc., 2011). The native soils below the fill would not be suitable for backfill; if excavated, these soils would either be hauled offsite and disposed in accordance with all solid waste regulation or used as fill for another project. Importation of concrete could require up to 25 truck trips per day for a limited number of days during a large concrete pour. Hauling and delivery of other construction-related materials would require up to 10 truck trips per day for the duration of construction.

Project construction for each phase would involve the use of a wide variety of heavy construction equipment and hazardous materials onsite. The majority of the equipment and vehicles would be associated with the intensive earthwork, structural and paving phases of construction. Large construction equipment, including earthmovers, cranes, rollers, fuelers, concrete mixers, water trucks, and delivery trucks would be used during the construction phase of the project. In addition, gasoline, diesel fuel, lubricating oil, grease, solvents, caulking, paint, and welding gases may be used at the site. In general, small amounts of these materials would be onsite at any one time. No acutely hazardous materials would be used onsite during construction of the project. There would be between 20 and 120 workers onsite per day depending on work activities, which would vary from day to day. All construction equipment, vehicles, personnel, and materials staging areas would be accommodated with the boundaries of the IRWD property.

2.5.2 Construction Site Access

In general, main access to the MWRP is from Riparian View and other local and regional roadways, such as Michelson Drive, Culver Drive, Jamboree Road, and I-405. Riparian View is a two-lane paved road with a total width of approximately 30 feet. Construction vehicles servicing the proposed project would access the site primarily via Jamboree Road or Culver Drive, then Michelson Drive, and Riparian View. Vehicles used for operational activities would use the same roadways for site access. Primary access to the MWRP from Riparian View would be through Gate No. 2, which is the first entrance point nearest to Michelson Drive (**Figure 2-5)**. From Gate No. 2, vehicles would travel north and then west using onsite access roads to the proposed project site (Black & Veatch, 2011).

Vehicles may also access the site using the dirt road through the marsh from Gate 13 (**Figure 2-5**). The temporary access road that provides public access to the San Joaquin Marsh Campus from Campus Drive would stay in place for the duration of the proposed project. This temporary access

road was included as part of the Phase 2 and 3 Capacity Expansion Project to ensure safe access to the San Joaquin Marsh Campus during construction of the Phase 2 Capacity Expansion (MWRP Final EIR, Addenda Nos. 2 and 3). IRWD would submit to the City of Irvine a request for a time extension for temporary use of this public access road through the end of the construction period.

2.5.3 Construction Staging Areas

Construction of the proposed project would require approximately 14.2 acres for construction staging and laydown areas. All staging areas would be located within IRWD property as shown in **Figure 2-5**. The contractor would maintain the construction staging areas per the requirements of the Storm Water Pollution Prevention Plan prepared for the proposed project and would restore staging areas to pre-construction conditions or as otherwise required by IRWD.

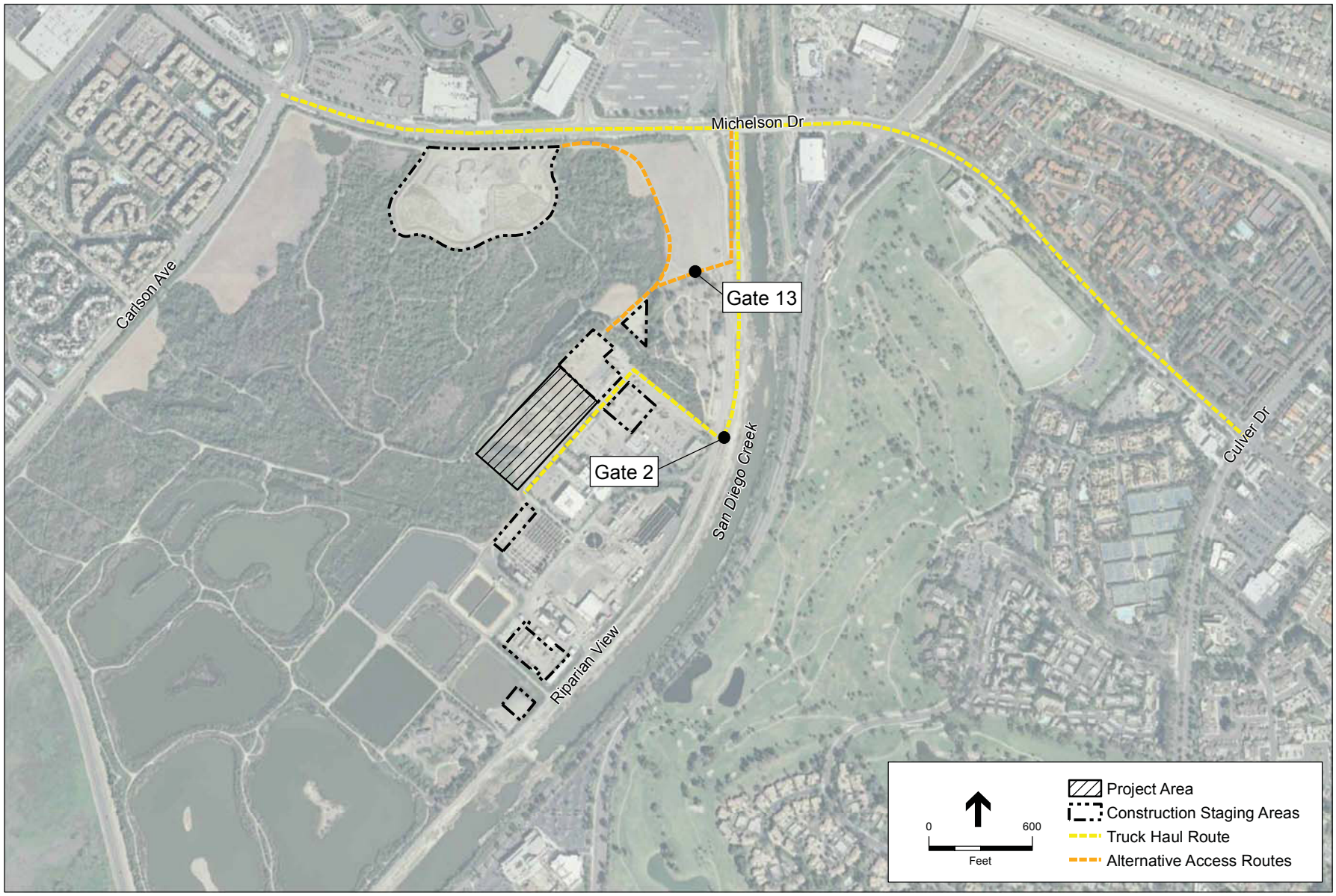
2.6 Project Operation and Maintenance

2.6.1 Hazards and Hazardous Materials

Chemicals and Hazardous Materials

Operation of the proposed project would involve onsite chemical use and storage. Chemicals would be stored in aboveground tanks, some of which would be in outdoor areas adjacent to the Solids Handling Building. Storage tanks would be sized to provide capacity from one week to one month depending on the chemicals. Containment would be provided for each storage tank in the event of an accidental spill. The containment areas would be sized to accommodate storage tank volumes.

An estimated inventory of chemicals that would be stored and used at the project site is provided in **Table 2-1**. Estimated delivery frequency for each chemical also is provided. Of the chemicals listed, three are already used onsite at the MWRP: ferric chloride, sodium hydroxide, and sodium hypochlorite.



SOURCE: HDR; Carollo, 2010.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 2-5

Construction Staging Areas and Site Access

TABLE 2-1
ESTIMATED CHEMICAL INVENTORY, STORAGE, AND DELIVERY FREQUENCY
BIOSOLIDS HANDLING COMPONENT

Chemical	CAS No.	Storage (gallons)	Delivery Frequency (truck trips)
Ferric Chloride	7705-08-0	7,000	1 per week
Liquid Nitrogen	7727-37-9	6,000	1 per month
Sodium Hypochlorite	7681-52-9	8,500	1 per week
Sodium Hydroxide (caustic)	1310-73-2	660	1 per week
Sulfuric Acid	7664-93-9	660	1 per week
Mineral Oil	8042-47-5	6,500	1 per month
Polymer			1 per week

SOURCE: HDR/Carollo, 2010; Black & Veatch, 2012.

Operational Safety and Layout

Onsite at the MWRP, the proposed project would be designed to facilitate operation and maintenance activities while providing a safe working environment and allowing for adequate emergency access. The proposed project would incorporate several design features, operational safeguards, and equipment redundancy that address public and worker safety issues. Although not required by any Federal or State regulation, IRWD participated in an extensive Hazard and Operability (Hazop) workshop and prepared a Hazop Study to address safety issues associated with the proposed project.

The Hazop Study examined the process and design features for all equipment including thickening and dewatering, anaerobic digestion, chemical systems, sludge drying, biogas handling and power generation. Design features identified in the Hazop Study would be implemented as part of the proposed project, such as instrumentation, computerized alarms, safety interlocks, explosion prevention equipment, and equipment redundancy. The Study also identified operational safeguards such as standard operating procedures, training, inspections, and preventative maintenance that would be implemented.

The onsite access roads would be designed to accommodate emergency vehicles serving the site, allowing for unimpeded access to areas such as chemical storage and biogas storage areas. The turning radii of tractor trailers and tanker trucks used for the basis of design of the facilities layout would meet requirements for fire trucks expected to serve the site. In addition, the layout of facilities would be designed to avoid hazards associated with truck deliveries and hauling. Areas designated for loading and unloading of solids would be segregated from chemical delivery and storage areas. The solids receiving and load-out bays would be located along different roadways than that used for chemical truck unloading stations. Loading and unloading stations would not obstruct through-traffic on access roads.

Biogas Safety

The proposed project would store biogas in the low-pressure biogas holding tank. The tank would provide short-term equalization storage to smooth out operational fluctuations in equipment that utilize the biogas. All biogas facilities would be designed in conformance with the National Fire Protection Association (NFPA) Code 820: Standard for Fire Protection for Wastewater Treatment and Collection Systems. The code is structured to minimize fire and explosion hazards through design criteria and built-in safety features. For example, the proposed project would be designed with safety devices that would help prevent a fire or explosion. The project would include pressure monitoring devices that would sound an alarm to alert staff to changes in operational conditions and pressure relief valves that would allow for the automatic release of biogas if safety thresholds are exceeded. Relief valves would be located away from plant staff and the public. As an extra measure of safety, there would be emergency pressure relief manholes installed in case pressure/vacuum relief valves fail for any reason. Also, the biogas conditioning system where biogas is processed would be self contained, disconnected from any other building space, and built to meet strict safety code requirements.

In addition, as part of the proposed project, IRWD would develop and implement a Biogas Handling System Maintenance and Monitoring Plan to further minimize potential hazards associated with generation and use of biogas. The Plan would incorporate recommendations from the Hazop Study. The Plan would ensure that biogas facilities, equipment, and safety devices are adequately maintained and monitored, such as pressure monitoring devices, pressure relief valves, and alarms that alert staff of potential issues in a timely fashion to avoid potential hazards.

2.6.2 Operational Vehicles

Similar to construction site access (Section 2.5.2 above), primary access to the project site for operational vehicles would be from Michelson Drive using Riparian View. Truck deliveries would be required to access Riparian View from the northbound Michelson Drive left hand turn lane. The left turnout lane can serve up to approximately five 60-foot tractor trailers. The proposed project would require up to 10 additional IRWD full-time employees for operation and maintenance of new facilities. These new employees would be located onsite at the MWRP, resulting in 10 additional daily round-trip commutes to and from the site (50 round-trip commutes per week). The proposed project includes onsite parking facilities to accommodate these employee vehicles and any additional service vehicles.

Operation of the proposed project would involve deliveries of chemicals, digested sludge, and other organic materials such as FOG to the MWRP. An estimate of the weekly vehicle trips associated with operation of the proposed project is provided in **Table 2-2**. As described previously, digested sludge would be trucked to the MWRP for processing from the LAWRP and potentially other wastewater treatment facilities. OCSD Plant 1 has FOG receiving facilities. The proposed project would provide additional FOG receiving facilities. Operation of the proposed project also would involve transport of pelletized Class A biosolids or Class B biosolids from the MWRP to end users (see Section 2.6.4 below). The number of truck trips associated with load-out of end-product biosolids depends on the class of biosolids being produced on a given day or week. As explained

below in Section 2.6.4, Class B biosolids are approximately 23 percent solids concentration by weight, while Class A pelletized biosolids are approximately 93 percent solids concentration by weight. As such, when exporting the same quantity of solids on a dry basis, the number of trucks required to haul Class B biosolids is more than four times the number of trucks required to haul Class A pellets.

2.6.3 Energy Use

Operation of the proposed project would result in a net increase in energy consumption, requiring approximately 22 million kilowatt hours (kWh) per year to run the Biosolids Handling Component facilities (Black & Veatch, 2011c). The proposed microturbines would generate electricity that could be used to operate the MWRP liquid treatment facilities. This would result in an overall offset in the increased energy demand at the MWRP (approximately 12.6 million kWh per year) and result in a net increase of approximately 9.4 million kWh per year. Southern California Edison (SCE) currently supplies electricity to the MWRP. Upon completion of the Phase 2 Capacity Expansion, SCE will serve the MWRP liquid treatment facilities via two transformers. These two transformers would not have sufficient capacity for the total demand loads of the MWRP liquid treatment facilities and the proposed project when the proposed project comes online. As a result, SCE has agreed that a third transformer would need to be installed onsite at the MWRP to service the proposed project.

TABLE 2-2
ESTIMATED OPERATIONAL VEHICLE TRIPS
(AVERAGE ROUND TRIPS [a])

Operations Associated with Vehicle Trips	Class B Biosolids	Class A Biosolids
Chemical Deliveries	6 per week	6 per week
LAWRP Sludge Deliveries to MWRP	6 per week	6 per week
Other Sludge Deliveries to MWRP	24 per week	24 per week
FOG Deliveries to MWRP	20 per week	20 per week
Class A or B Biosolids Deliveries to End Users	46 per week	11 per week
Employee Commuter Trips	50 per week	50 per week
TOTAL AVERAGE PER WEEK:	**152 per week**	**117 per week**
TOTAL AVERAGE PER DAY:	**30 per day**	**23 per day**

a Estimates assume a 5-day week.

SOURCE: Black & Veatch, May 2011; ESA, 2012.

Operation of the proposed project would require natural gas for digester heating, dryer operation, and other facilities. Overall, an estimated 11,820 thousand standard cubic feet per year (Mscf/year) of natural gas would be consumed to operate the proposed project at design capacity under normal operating conditions, in addition to the estimated 315,400 Mscf/year of biogas produced by the digesters at ultimate capacity that also would be used directly to operate project facilities (ENVIRON, 2012).

2.6.4 Biosolids Production and End Use

The proposed project would produce two forms of biosolids: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill. Reuse and disposal of all biosolids would be in accordance with federal state and local regulations, including 40 CFR Part 503, Standards for the Use or Disposal of Sewage Sludge. **Table 2-3** provides the expected characteristics of the Class A pellets and Class B cake that would be produced at the MWRP. It is expected that at start-up in 2015, the proposed project would produce 150 dry tons per week (dtpw) Class A pellets or 70 wet tons per day (wtpd) of Class B cake. By 2025, the proposed project would produce 299 dtpw of Class A pellets or 92 wtpd of Class B cake.

TABLE 2-3
ESTIMATED PROJECTED BIOSOLIDS PRODUCT CHARACTERISTICS UNDER NORMAL OPERATING CONDITIONS

	Class A pellets	Class B cake
Total Solids	93 percent	23 percent
Start-up Production (2015)	150 dry tons per week	0 tons
Average Design Condition Production (2025)	299 dry tons per week	0 tons
Annual Production (2015)	7,500 dry tons	980 dry tons*
Annual Production (2025)	12,325 dry tons	1,900 dry tons*
Heat content	4,000–5,000 Btu/lb	
Nitrogen (N4)	4%	4%
Phosphorus (P4)	2%	2%
Potassium (K4)	0.4%	0.4%

NOTE: Production estimates assume that dryers will only operate up to five days per week, making daily production of approximately 15 dry tons per day in 2015, but weekly average of 11 dry tons per day.

* Assumes dryer is not operating two weeks out of the year

SOURCE: Black & Veatch, Special Study H, 2010.

Both Class A pellets and Class B cake would be distributed to end users in bulk. The potential disposal and reuse options for biosolids fall into one of three categories as described below: (1) fertilizer, (2) biofuel, or (3) landfill disposal. Given the projected nitrogen content of the Class A pellets, it is assumed that the pellets would be used instead of, or blended with, conventional fertilizer. **Table 2-4** indicates the potential end use options for either Class A or Class B biosolids.

TABLE 2-4
BENEFICIAL REUSE APPLICATIONS FOR CLASS A AND CLASS B BIOSOLIDS

Beneficial Use Option	Class A pellets	Class B cake
Contract Agriculture	X	X
Specialty Agriculture	X	
Golf Courses/Turf Management	X	
Local Municipal Applications	X	
Research and Demonstration Projects	X	
Full-Service Contractors	X	X
Biofuel	X	X
Landfill Disposal	X	X

Fertilizer

Specialty Agriculture. Specialty agriculture includes sod farms, flower gardens, fruit orchards, and nurseries. Specialty agricultural operations could utilize Class A pellets. Local potential specialty agriculture end users include avocado growers, sod farms, and tree nurseries.

Golf Courses and Turf Management. Orange County has more than 40 golf courses and San Diego County has more than 200 golf courses. Potential golf course end users would include public, private, and military golf courses and the entities that manage such facilities. The golf course industry already uses Milorganite®, which is a product similar to the proposed Class A pellets to be produced at the MWRP.

Local Municipal Applications. The IRWD service area includes several communities that manage park lands, playing fields, and other facilities where the Class A pellets could potentially be used as fertilizer. Potential end users include the City of Irvine and University of California-Irvine.

Research and Demonstration Opportunities. Biosolids would be made available to university and/or extension researchers to develop trials that demonstrate the efficacy of the IRWD Class A pellet product compared to other fertilizer products and to establish application rates and programs for various commercial purposes. Other potential end users, including specialty agriculture and golf courses, may require such demonstration projects prior to agreeing to utilize the Class A pellets.

Contract Agriculture. Contract agriculture includes farms that grow commodity crops, such as barley and oats, produce grass for hay or pasturing, and corn for silage. Substantial agricultural lands exist in San Diego, Imperial, San Bernardino and Riverside counties. Class A pellets could be applied at these agricultural lands, or in addition, both Class A and Class B biosolids could be shipped to Arizona for land application purposes.

Full-Service Biosolids Contractors. Full-service biosolids contractors provide a suite of management services for their customers, handling all aspects of biosolids reuse and disposal. Services by such firms include transport, composting, heat drying, land application, disposal, and incineration. Three firms have expressed interest in contracting with IRWD to handle the Class A and/or Class B biosolids to be produced by the proposed project: Liberty Recycling, Synagro, and Solid Solutions.

Biofuel

An emerging use for heat-dried biosolids, such as the Class A pellets, is as a renewable fuel resource. Class A pellets could be incinerated to fuel industrial facilities, such as a cement plant. Eight cement manufacturing facilities are located within 200 miles of the MWRP. Potentially, 100 percent of all Class A pellets produced at the MWRP could be utilized at these facilities (Black & Veatch, 2010).

In addition, Liberty Recycling in Kern County is developing a sustainable energy facility (Liberty Energy Center) that would use biosolids and other biomass as a fuel source for the production of electricity to power its adjacent composting facility. The facility could accept 100 percent of both the Class A and Class B biosolids produced at the MWRP (Black & Veatch, 2010).

Landfill Disposal

Landfills represent a contingency outlet for Class A pellets and Class B cake during periods when other beneficial reuse options may not be available or when the dryer is out of service for routine maintenance. Landfills could provide a year-round disposal outlet for 100 percent of the biosolids associated with the proposed project. Due to regulatory restrictions for Class B biosolids, landfill disposal would require a minimum Class III sanitary landfill. Potential landfills identified for disposal of biosolids include: Simi Valley Landfill in Los Angeles County (90 miles one-way from MWRP), Otay Annex Landfill in San Diego County (90 miles one-way from MWRP), and Prima Deschecha Landfill in San Juan Capistrano (20 miles one-way from MWRP).

2.7 Environmental Commitments

In the MWRP Final EIR, the project description of the Phase 2 and 3 Capacity Expansion Project includes environmental commitments intended to avoid or reduce potential environmental impacts associated with construction and operation. Some environmental commitments would apply to the proposed project as a modification to the Phase 2 and 3 Capacity Expansion Project. The following measures are applicable to the proposed Biosolids Handling Component:

General

During Construction, IRWD will implement the following general measures to restore all disturbed areas:

- All waste material will be disposed offsite at an approved location.
- Nighttime lighting of construction equipment will be discouraged; if required, it will be shielded from local residences.
- IRWD will set up a phone line for residences to report problems and disturbances during construction and operation.

Geotechnical

- Design and construction of the proposed project will be implemented under the direct supervision of a geotechnical engineer or engineering geologist as prescribed by the California Board of Consumer Affairs. These professionals shall be licensed in California by the California Board of Consumer Affairs.

Water Quality

- During construction, IRWD will comply with the current California Regional Water Quality Control Board (RWQCB) National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering (Order Number 2009-0009-DWQ as amended by 2010-0014-DWQ or current permit) and submit a Notice of Intent to comply with the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). In compliance with the RWQCB requirements and NPDES General Construction Permit, a Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented that includes Best Management Practices for storm water pollution control, as well as an Erosion Control Plan and Hazardous Substance Control and Emergency Response Plan for quick and safe cleanup of accidental spills.
- To avoid duplicative regulation between the SWRCB, RWQCB, and CalRecycle, a standard provision NPDES permit enforced by the RWQCB would require that publically-owned treatment works (POTWs) develop and implement standard operating procedures for waste fats, oils, and grease acceptance and digestion operations. A blanket exemption by CalRecycle would be beneficial to the project and regulation. However, this recommended NPDES permit standard provision has only been proposed and is not yet accepted or approved.
- During the construction phase of this project, erosion and sediment control will be provided in graded areas in compliance with the limits established in the sediment total maximum daily loads (TMDL) established by the Santa Ana RWQCB to ensure sediment does not reach the San Diego Creek. Erosion control measures will include erosion

blankets, soil bindings, vegetation and other measures that will prevent the dislodging of soil particles from the ground surface. Containment and sediment control will also be employed within equipment staging areas, equipment cleaning areas, and other areas that may discharge contaminants.

- If applicable, the proposed project will comply with water quality standards of Title 22, the RWQCB Basin Plan, and the MWRP site-specific waste discharge requirements (WDRs) and NPDES permit.

Air Quality

- IRWD will comply with the SCAQMD Rule 403 to reduce fugitive dust emissions.
- IRWD will prepare and implement an Odor Control Maintenance and Monitoring Plan to ensure no odors are detectable at the property boundary. All odor control equipment will meet the requirements of the SCAQMD.

Noise

- Most construction activities will be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday and 9:00 a.m. and 6:00 p.m. on Saturday in compliance with the City of Irvine's allowable construction time limits. If nighttime construction outside of these hours is required, IRWD shall obtain a work hour variance that must be issued and approved by the City of Irvine.

Public Health and Safety

- In the event that grading, construction, or operation of the proposed facilities encounter hazardous waste, IRWD will ensure compliance with the State of California CCR Title 23 Health and Safety Regulations as managed by the Orange County Department of Environmental Health.
- IRWD shall close the surrounding Sanctuary hiking trails as necessary during project construction to protect public health and safety.

Traffic

- Truck hauling operations will comply with local City and County designated and restricted routes.

2.8 Project Approvals

IRWD intends to use this Draft SEIR to consider implementation of the proposed project. As Lead Agency, IRWD may use this Draft SEIR to approve the proposed project, make Findings regarding identified impacts, and if necessary, adopt a Statement of Overriding Considerations regarding these impacts. Responsible Agencies having discretionary approval over components of the project include OCSD and the City of Irvine. IRWD and the Responsible Agencies would use the analysis contained within this Draft SEIR to support the acquisition of the following regulatory permits or approvals:

- City of Irvine: Encroachment Permit; Noise Waiver; Traffic/Hauling Permit; Conditional Use Permit; Request for Public Access for San Joaquin Marsh access road; Extra Large Legal Size Transportation Permit
- County of Orange: NPDES Stormwater Permit/Orange County Stormwater Program, Water Quality Management Plan
- Orange County Fire Authority: Fire Master Plan; Chemical Classification; Chemical Tank Plans; Sprinklers; Hazardous Materials Permits
- Orange County Sanitation District: Revised Memorandum of Understanding
- South Coast Air Quality Management District (SCAQMD): Permits to Construct/Operate
- Santa Ana Regional Water Quality Control Board (SARWQCB): Construction Dewatering Discharge; Storm Water Discharge (construction)
- State Water Resources Control Board (SWRCB): Notice of Intent to comply with NPDES General Construction Permit; Storm Water Pollution Prevention Plan (SWPPP)
- U.S. Environmental Protection Agency (USEPA): 40 CFR Part 503 NPDES Permit (Biosolids)

References – Project Description

Black & Veatch, 2010. *MWRP Biosolids and Energy Recovery Facilities, Special Study H: Biosolids Marketing Plan*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, November 2010.

Black & Veatch, 2010b. *MWRP Biosolids and Energy Recovery Facilities, Special Study C: Noise Emissions*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, November 2, 2010.

Black & Veatch, 2011. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Roadway Design*. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, May 2011.

Black & Veatch, 2011b. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Stormwater Design*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, June 2011.

Black & Veatch, 2011c. Technical Memorandum. From: Dan Buhrmaster, Bruce Chow, and Trish Scanlan (B&V); To: Carl Spangenberg (IRWD). June 16, 2011.

Blue Source, 2010. *Appendix K: MWRP Biosolids Master Plan: Carbon Footprint Analysis*. In: *Irvine Ranch Water District, Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Michelson Water Recycling Plant Biosolids Management Plan*, Draft Report. Project No. 96342, IRWD Project No. 20759, Prepared by HDR in association with Carollo. December 2010.

ENVIRON, 2012. *Standard Evaluation for Permit to Construct*, Draft Report. Prepared.for Irvine Ranch Water District, Project No. 05-24406A, March 2012.

HDR Engineering, Inc./Carollo, 2010. *MWRP Biosolids and Energy Recovery Facilities Preliminary Design Report*. Final Report. Prepared for Irvine Ranch Water District, Project No. 96342, IRWD Project No. 20847, September, 2010.

HDR Engineering, Inc./Carollo, 2010. *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report; Michelson Water Recycling Plant Biosolids Management Plan*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 96342, IRWD Project No. 20847, December, 2010.

NMG Geotechnical Inc., Report of Geotechnical Exploration and Design Recommendations for the Proposed Irvine Ranch Water District Biosolids and Energy Recovery Center, Michelson Water Reclamation Plant, City of Irvine, CA. Prepared for Black and Veatch, February 24, 2011.

CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

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

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Seismicity
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use, Planning, and Recreation
- Noise
- Utilities and Energy
- Transportation and Traffic

An Initial Study was completed in accordance with *CEQA Guidelines* Section 15063; the Initial Study is included as **Appendix B**. The results of the Initial Study suggested that overall the proposed project may have a significant effect on the environment, and an EIR should be prepared. In accordance with the purpose of the Initial Study, the results also identified effects that were determined not to be significant, allowing for this Draft SEIR to focus on effects that may be significant (*CEQA Guidelines*, Section 15063(c)). It was determined in the Initial Study that the proposed project would have no impact to the following resources, and as such these resources are not included in the Draft SEIR.

- Agriculture and Forestry Resources
- Mineral Resources
- Public Services
- Population and Housing

The cumulative environmental effects associated with the proposed project are discussed separately in **Chapter 4, Cumulative Impacts**. The potential for the proposed project to induce population growth is discussed in **Chapter 5, Growth Inducement**.

Format of the Environmental Analysis

The environmental analysis in Chapter 3 includes discussion of potential construction and operational impacts associated with the proposed facilities. Each environmental resource section includes the following subsections: Environmental Setting; Regulatory Framework; Impacts and Mitigation Measures; and References.

Environmental Setting

According to Section 15125(a) of the *CEQA Guidelines*, an EIR must include a description of the existing physical environmental conditions in the vicinity of the proposed project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the NOP is published. The NOP for the proposed project was published in October 2010 (see **Appendix A**), which is considered the baseline for the analysis contained in this Draft SEIR.

Regulatory Framework

The Regulatory Framework provides a summary of regulations, plans, policies, and laws that are relevant to each issue area at the federal, state, and local levels.

Impacts and Mitigation Measures

The Impacts and Mitigation Measures subsection describes the potential environmental impacts of the proposed project and, based upon the thresholds of significance, concludes whether the environmental impacts would be considered significant, potentially significant, or less than significant. Each resource that is analyzed is divided into issues, based on potential impacts. Each issue is addressed in its own subsection and mitigation measures are also included and discussed when applicable.

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

Significant and Unavoidable: mitigation might be recommended but impacts are still significant.

Less than Significant with Mitigation: potentially significant impact but mitigated to a less-than-significant level;

Less than Significant: mitigation is not required under CEQA but may be recommended; or

No Impact: impacts would not occur or project has features that prevent impacts**.**

The proposed project is subject to the mitigation measures previously adopted by IRWD as part of the MWRP Final EIR. When appropriate and applicable, mitigation measures from this previous document are identified to mitigate impacts associated with the proposed project. Additional mitigation measures also are included when necessary.

References

Sources relied upon for each environmental topic analyzed in this document are provided at the end of each section.

3.1 Aesthetics

This chapter addresses the potential impacts of the proposed project to aesthetic resources in the project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. It includes a description of the environmental setting to establish baseline conditions for aesthetic resources, a summary of the regulations related to aesthetic resources, and an evaluation of the project's potential effects on scenic vistas, scenic resources, visual character, and light and glare.

3.1.1 Environmental Setting

Regional Setting

Visual resources consist of natural landscapes and scenic views, including landforms, vegetation, and water features, as well as unique elements of the built environment. The proposed project would be located in a portion of Orange County where the generally-flat topography provides minimal scenic views from public vantage points. The general aesthetic and visual character of the project area consists of an expansive urbanized landscape with limited views of the surrounding Santa Ana Mountain range. The urbanized aesthetic and visual character of the region is defined by the development within Irvine and the surrounding cities of Lake Forest, Laguna Beach, Newport Beach, Santa Ana, and along the San Joaquin Hills. The built environment is dominated by low-lying residential, industrial and commercial buildings with local views of the surrounding panoramas of the Santa Ana Mountains.

Major roadway corridors in the project vicinity include the San Diego Freeway (Interstate 405 or I-405) and the San Joaquin Hills Highway/Transportation Corridor (State Route 73 or SR-73).

Project Area

The proposed project would be located entirely within the boundaries of the existing MWRP. The project site is surrounded by various land uses that include open space, recreation, residential, commercial, and industrial uses. Immediately adjacent to the west and north of the project site is the IRWD-owned San Joaquin Wildlife Sanctuary, including reconstructed riparian habitat, storage ponds and nature trails. A bike path and the Rancho San Joaquin Golf Course are located across the San Diego Creek to the east of the property. Distant views in the vicinity of the project area include a mixture of residential apartment buildings and commercial developments to the north and south.

The project site currently is a disturbed lot that is being used as construction staging for the Phase 2 Capacity Expansion (see **Figure 3.1-1**). The project site is bounded on three sides by a vegetated earthen berm and flood wall. This earthen berm separates and partially screens the project site from view along some segments of neighboring Sanctuary trails (see **Figure 3.1-2**). The MWRP in general is obscured from local views due to the mature landscaping around the perimeter of the property and the mature vegetation of the Sanctuary. As part of the Phase 2 and 3 Capacity Expansion Project a flood wall has been constructed on portions of the earthen berms

surrounding the project site (see **Figure 3.1-3**). The berms range from 12 feet to 20 feet. The flood wall provides between four and 10 additional feet of screening of the project site from adjacent public vantage points. The earthen berm will be revegetated after construction of the flood wall.

Currently, facilities associated with the MWRP liquid-only treatment facilities are approximately 25 to 30 feet above grade. The profiles of facilities included as part of the Phase 2 and 3 Capacity Expansion Project would be similar to those currently onsite at the MWRP. Comparatively, the Solids Handling Building would encompass approximately 28,800 square feet with the highest point of the building being approximately 70 feet above grade. The methane digesters would be approximately 68 feet above grade. The digesters would have an egg-shape structural design that aesthetically reduces views of piping equipment in addition to providing noise and odor control advantages. Figure 2-3 in Chapter 2, Project Description provides three-dimensional renderings of the proposed facilities and layout.

The proposed project could be visible from vantage points that the public has access to in the immediate project vicinity. The project site is visible from the bike path along San Diego Creek, segments of Harvard Avenue, and the Michelson Drive bridge. The project site is intermittently visible from certain locations along University Drive and the Campus Drive bridge. The project site is primarily obscured from view along Campus Drive, Carlson Drive and Michelson Drive. Photographs have been taken at eye level at 11 public vantage points on surrounding streets looking toward the project site. The vantage point locations are identified in the key map shown in **Figure 3.1-4**. The photographs showing existing views at each vantage point are provided in **Figure 3.1-5** through **Figure 3.1-15**. The proposed project has been rendered into each photograph to provide a visual simulation of the potential impact of the project on public views. The visual simulations are coupled with each original photograph to provide a comparison of scenic views and visual character before and after the project is built.

The 11 vantage points represent areas along the surrounding roadways where the project site is most visible at street level. During field surveys, these vantage points were selected with the intention of finding viewpoints that would have the most unobscured view of the project site, particularly along Carlson Avenue. Therefore, the visual simulations present a worst-case scenario of the potential effect of the project on scenic views and visual character. In addition, Orange County Flood Control District (OCFCD) recently removed substantial amounts of vegetation from San Diego Creek as part of routine maintenance operations. Once this vegetation grows back, it will provide additional screening of the project site once again, when viewed from vantage points along the San Diego Creek bike path and Harvard Avenue.

SOURCE: ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-1

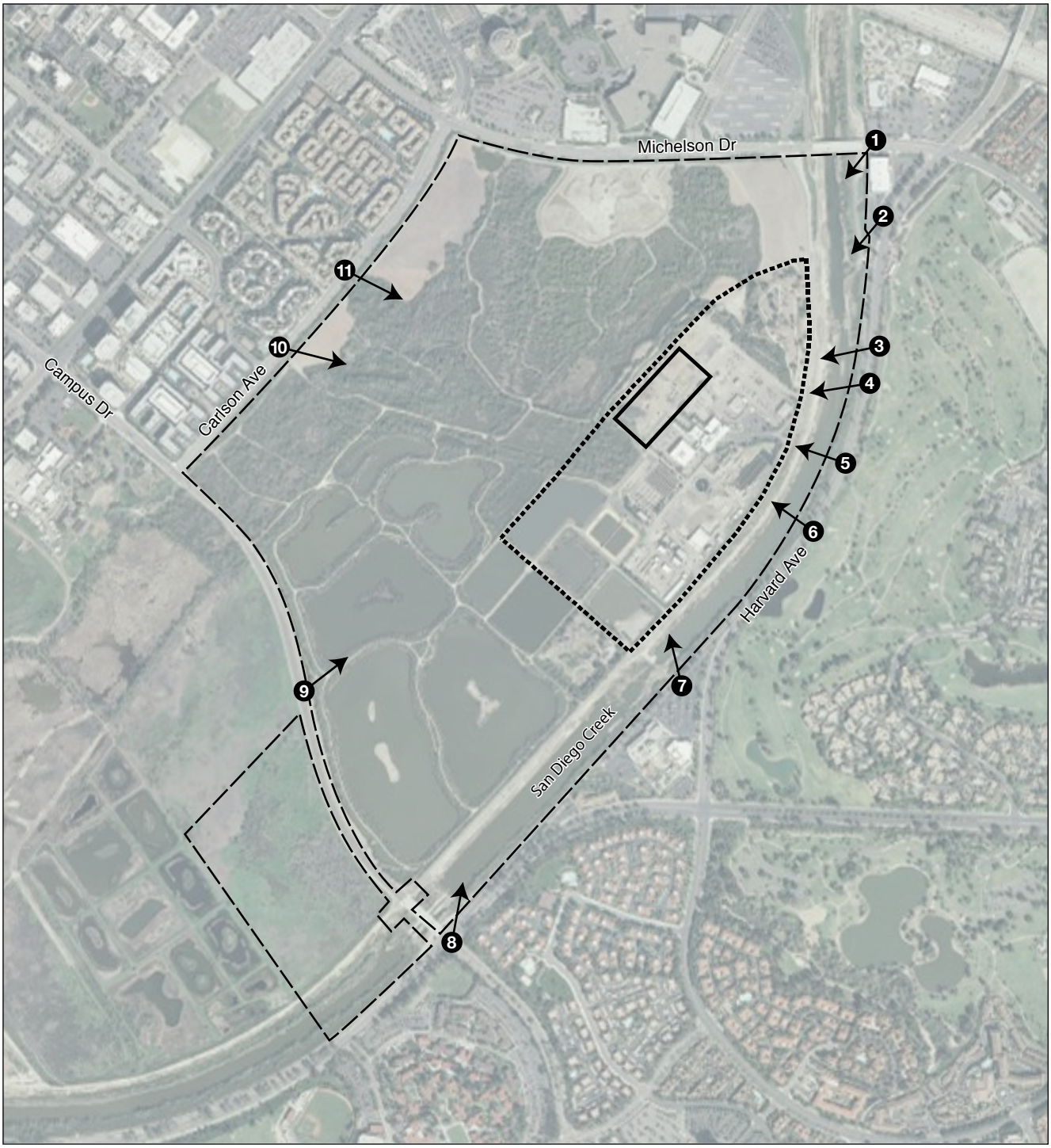
Project Site Existing Conditions

Figure 3.1-2: View of Sanctuary Trail

Figure 3.1-3: View of Flood Wall and Berm

SOURCE: Black & Veatch, 2012.

Figures 3.1-2 and 3.1-3



Biosolids Handling and Energy Recovery Facilities
MWRP Treatment Facility
IRWD Property
Vantage Point Location

0 1000
Feet

SOURCE: Black & Veatch; ESA, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-4
Vantage Point Locations

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-5

Vantage Point 1: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-6

Vantage Point 2: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-7

Vantage Point 3: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-8

Vantage Point 4: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-9

Vantage Point 5: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-10

Vantage Point 6: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-11

Vantage Point 7: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-12

Vantage Point 8: Visual Simulation

Existing Conditions

Visual Simulation: proposed project facilities completely obscured by vegetation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-13

Vantage Point 9: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-14

Vantage Point 10: Visual Simulation

Existing Conditions

Visual Simulation

SOURCE: Black & Veatch, 2012.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.1-15

Vantage Point 11: Visual Simulation

3.1.2 Regulatory Framework

State

State Scenic Highway Program

In 1963, the California legislature created the Scenic Highway Program to protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. A highway is designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. When a city or county nominates an eligible scenic highway for official designation, it defines the scenic corridor, which is land generally adjacent to and visible to a motorist on the highway. There are no officially-designated State scenic highways or eligible State scenic highways within the project area (Caltrans, 2011).

Local

City of Irvine Scenic Highways

The Land Use element of the City of Irvine General Plan (1999) seeks to protect and enhance the quality of life in the City. The Land Use element of the General Plan includes City-designated scenic highways and major views in Figure A-4. University Drive, Interstate 405 (I-405), and Culver Drive are City-designated scenic highways located in the project vicinity. In addition, the intersection of University Avenue and Harvard Avenue is considered a major view, looking in a southeast direction. Currently, existing project facilities are not visible from these three City-designated scenic highways due to screening by mature landscaping. Views of the MWRP site are dominated by background high-rise buildings that define the scenic viewsheds. In addition, the MWRP site is not visible from the City-designated major view at the intersection of University Drive and Harvard Avenue.

3.1.3 Impacts and Mitigation Measures

Significance Criteria

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

- Create a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

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

Impacts Discussion

Scenic Vistas

Impact 3.1-1: The proposed project would introduce new contrasting features into the visual landscape. (Less than Significant with Mitigation)

A scenic vista is defined as an expansive view of a highly valued landscape from a particular public vantage point. The City of Irvine General Plan (1999) does not identify scenic vistas in the vicinity of the project site. The proposed project also would not be visible from the major view point identified at the intersection of University Drive and Harvard Avenue. However, the proposed facilities and construction equipment would introduce new contrasting features into the visual landscape that would be visible from other surrounding streets and public vantage points as illustrated in the visual simulations shown in Figures 3.1-5 through 3.1-15. Impacts to scenic views would be negligible as existing views are either already dominated by a backdrop of high-rise buildings (e.g., Figures 3.1-11 and 3.1-12), or existing MWRP buildings (e.g., Figures 3.1-9 and 3.1-10), or low-lying vegetation that screens existing development (e.g., Figures 3.1-5, 3.1-6, 3.1-7, and 3.1-8). The proposed facilities would mostly be screened by existing vegetation from Carlson Avenue and would introduce a relatively small contrasting feature into scenic views visible from two relatively small breaks in vegetation (see Figure 3.1-14 and 3.1-15). Scenic views from the San Diego Creek bike path and Harvard Avenue already include the existing MWRP facilities, and some views are partially screened by existing vegetation (see Figures 3.1-7 through 3.1-10). OCFCD recently cleared vegetation from the creek as part of routine maintenance operations. This vegetation will provide additional screening when the vegetation regrows from vantage points along the bike path and Harvard Avenue. Scenic views from some vantage points, such as Campus Drive, do not include visibility of the project site at all due to topography (see Figure 3.1-13). Impacts would be considered less than significant. Nonetheless, in order to ensure consistency with the scenic views in the project area, implementation of Mitigation Measure AES-1 would require IRWD to select paint color schemes that blend in with the color palette of the surrounding landscape and built environment. The effectiveness of this mitigation measure is illustrated in the visual simulations.

Mitigation Measures

> **AES-1**: The IRWD shall select paint color schemes that blend in with the color palette of the surrounding landscape and built environment.

Significance after mitigation: Less than significant.

Scenic Highway Corridors and Scenic Resources

Impact 3.1-2: The proposed project would introduce new contrasting features visible from scenic roadways designated by the City of Irvine. (Less than Significant)

There are no officially-designated State scenic highways or eligible State scenic highways within the project area (Caltrans, 2011). Accordingly, there are no associated state scenic corridors in the vicinity of the proposed project, which are defined as the land generally adjacent to and visible by motorists from a scenic highway. Therefore, the proposed project would not impact scenic resources within a State scenic highway corridor, which may include rock outcroppings, trees, or historic buildings. There would be no impact.

The City of Irvine General Plan (1999) designates University Drive as a Rural or Natural Character roadway, and I-405 and Culver Drive as Urban Character roadways. The proposed project would not be visible from University Drive, I-405, or Culver Drive. There would be no impact.

The proposed project would have no other effects on scenic resources, such as trees, rock outcropping, or historic buildings. There are no historic buildings at the project site. The installation of the flood wall and construction of the proposed Biosolids Handling Component would result in the removal of some ornamental trees around the perimeter of the project site. However, the proposed project includes a Landscape Plan, which would detail the planting of tall landscaping trees along or near the earthen berm that forms the outer perimeter boundary of the project area (see Chapter 2, Project Description). There would be no other impacts to scenic resources.

Mitigation Measures

None required.

Visual Character

Impact 3.1-3: The proposed project could affect the visual character of the project site and its surroundings. (Less than Significant)

Construction activities would result in short-term impacts to aesthetic resources. The use of tall pieces of equipment, such as cranes, that would be visible from distant public vantage points in the project vicinity would constitute negative aesthetic elements in the existing visual landscape. However, these effects would be temporary and would not have a long-term effect on the existing visual character of the project site and surrounding area. In addition, the project site currently is occupied as construction staging for the Phase 2 Capacity Expansion. Consequently, construction of the proposed project would create similar temporary conditions as the existing construction activities at the MWRP property and would not result in substantial impacts to the visual character of the site.

The proposed project includes permanent aboveground facilities, the operation of which would alter the visual character of the project site as viewed from neighboring public vantage points. The existing visual character of the site is defined by vacant land on an industrial property and a floodwall (Figures 3.1-1 and 3.1-3). The project site is part of the MWRP facility, which is developed as an industrial treatment facility. The existing berm, floodwall, and landscaping currently partially screen views of the site, and the proposed project includes development and implementation of a Landscape Plan that would include screenings to soften the appearance of the proposed facilities. In addition, the proposed new buildings and structures would incorporate the colors and materials of the surrounding area where feasible. The proposed facilities would be industrial facilities similar to those already onsite at the MWRP and similar to those under construction as part of the Phase 2 Capacity Expansion. As a result, impacts to visual character of the project site would be considered less than signficiant.

Mitigation Measures

None required.

Light and Glare

Impact 3.1-4: The proposed project would introduce new sources of light that could affect day or nighttime views in the area. (Less than Significant with Mitigation)

The proposed project would be located on the existing MWRP property. Proposed aboveground facilities would not include large uninterrupted expanses of glass or other highly-reflective construction material that would create substantial sources of glare. Impacts associated with glare would be less than significant.

Construction of the proposed project may require temporary security lighting and construction lighting if activities carry into nighttime hours. Any nighttime construction could introduce new sources of light into the nighttime sky. An environmental commitment incorporated into the project description (see Chapter 2) discourages nighttime lighting of construction equipment but if required would be shielded from local residences. With implementation of Mitigation Measure AES-2, construction lighting would be shielded and directed downward to avoid light spill into surrounding light-sensitive land uses while maintaining requirements for worker safety. Impacts associated with construction lighting would be less than significant with mitigation.

The proposed project also would include new permanent indoor lighting and outdoor security lighting. As described in Chapter 2, Project Description, the lighting system would be designed to minimize offsite impacts, including to the San Joaquin Marsh and neighboring residential land uses. External security lighting would be directed downward to limit offsite light spill. Horizontal baffles or cutoffs may be used to direct the light toward the ground and limit horizontal travel. Low-intensity lighting would be provided along parking areas and walkways. As such, operational impacts associated with permanent lighting would be considered less than significant.

Mitigation Measures

AES-2: Temporary construction lighting shall be shielded and directed downward to minimize offsite light spill and minimize effects to nighttime views while maintaining requirements for worker safety.

Significance after Mitigation: Less than significant.

References – Aesthetics

California Department of Transportation (Caltrans), Eligible and Officially Designated Routes, accessed at http://www.dot.ca.gov/hq/LandArch/scenic/cahisys.htm, March 11, 2011.

California Department of Transportation (Caltrans), Officially Designated State Scenic Highways, accessed at http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm, March 11, 2011.

City of Irvine, General Plan, adopted 1999.

3.2 Air Quality

This chapter addresses the potential impacts of the proposed project to air quality in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This chapter provides an overview of the existing air quality at the project site and surrounding region, the regulatory framework, an analysis of potential impacts to air quality that would result from implementation of the project, and identification of mitigation measures.

3.2.1 Environmental Setting

Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The project site is located in the City of Irvine in Orange County and within the boundaries of the South Coast Air Basin (Basin). The Basin consists of all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin, which is a subregion of the South Coast Air Quality Management District's (SCAQMD) jurisdiction, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The topography and climate of southern California combine to make the Basin an area of high air pollution potential. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation. Furthermore, sunlight triggers the photochemical reactions which produce ozone. The region experiences more days of sunlight than any other major urban area in the nation except Phoenix (SCAQMD, 2007a). Based on data collected between 2005 to 2007 from the Costa Mesa meteorological station, which is the station nearest to the project site, winds generally blow with the highest frequency from the west-southwest direction and has an average speed of 1.06 meter per second (m/s).

Project Area Setting

Existing Air Quality

The SCAQMD monitors air quality conditions at 38 locations throughout the Basin. The project site is located in the Central Coastal Orange County Air Monitoring Subregion. There are no monitoring stations located within this subregion. Air quality in the project area can be characterized by ambient air quality data collected at the closest monitoring stations in Costa Mesa and Mission Viejo. The Costa Mesa monitoring station (2850 Mesa Verde Drive East), located approximately nine miles North West of the project site, monitors the ambient concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO2), and sulfur dioxide (SO2). The Mission Viejo monitoring station (26081 Via Pera), located approximately 12 miles

south of the project site, monitors ozone, CO, coarse particulate matter (PM10) and fine particulate matter (PM2.5) data. Historical data from the Costa Mesa and Mission Viejo Monitoring Station for the most recent three years (2008 – 2010) are shown in **Table 3.2-1**.

TABLE 3.2-1
AIR QUALITY DATA SUMMARY (2008 – 2010)

		Monitoring Data by Year		
Pollutant	**Standard[a]**	**2008**	**2009**	**2010**
Ozone – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		0.094	0.087	0.069
Days over State Standard	0.09 ppm	0	0	0
Highest 8 Hour Average (ppm)		0.079	0.072	0.058
Days over National Standard	0.075 ppm	3	0	0
Days over State Standard	0.070 ppm	5	3	0
Carbon Monoxide – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		3	3	–
Days over National Standard	35 ppm	0	0	–
Days over State Standard	20 ppm	0	0	–
Highest 8 Hour Average (ppm)		1.97	2.16	2.09
Days over National Standard	9 ppm	0	0	0
Days over State Standard	9.0 ppm	0	0	0
Nitrogen Dioxide – Costa Mesa Monitoring Station				
Highest 1 Hour Average (ppm)		0.081	0.065	0.070
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)		0.013	0.013	–
Days over National Standard	0.053 ppm	0	0	–
Days over State Standard	0.030 ppm	0	0	–
Sulfur Dioxide – Costa Mesa Monitoring Station				
Highest 24 Hour Average (ppm)		0.003	0.004	0.002
Days over State Standard	0.04 ppm	0	0	0
Particulate Matter (PM_{10}) - Mission Viejo Monitoring Station				
Highest 24 Hour Average ($\mu g/m^3$)[b]		42.0	56.0	34.0
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	0	1	0
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	22.6	23.6	18.1
Particulate Matter ($PM_{2.5}$) - Mission Viejo Monitoring Station				
Highest 24 Hour Average ($\mu g/m^3$)[b]		32.6	39.2	–
Days over National Standard (measured)[c]	35 $\mu g/m^3$	0	1	0
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	10.3	9.4	–

NOTES:
ppm = parts per million; μg/m3 = micrograms per cubic meter.
– = No data available.
[a] Generally, state standards and national standards are not to be exceeded more than once per year.
[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.
[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

SOURCE: CARB, 2011.

Criteria Air Pollutants

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

Ozone

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

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

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

Carbon Monoxide (CO)

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

Particulate Matter (PM_{10} and $PM_{2.5}$)

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high

particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. The California Air Resources Board (CARB) has estimated that achieving the ambient air quality standards for PM_{10} could reduce premature mortality rates by 6,500 cases per year (CARB, 2002). Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air, such as fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust; and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. PM_{10} can remain in the atmosphere for up to seven days before gravitational settling, rainout, and washout remove it.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NO_X, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur dioxide (SO_2)

SO_2 is a combustion product of sulfur or sulfur-containing fuels such as coal, diesel, and biogas. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain. SO_2 is a major component of the group of gaseous sulfurous compounds commonly referred to as sulfur oxides (SO_X).

Odorous Emissions

Offensive odors are unpleasant and can lead to public distress generating citizen complaints to local governments. Although unpleasant, offensive odors rarely cause physical harm. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source, wind speed, direction, and the sensitivity of receptors.

Sensitive Land Uses

Land uses such as schools, children’s daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition,

residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation.

The project site is located adjacent to the San Joaquin Wildlife Sanctuary, which includes the Audubon House and 11 miles of trails that IRWD makes available for public use. As stated in Chapter 2, IRWD would close its Sanctuary trails as necessary during project construction to protect public health and safety. The bike path on the east side of San Diego Creek is approximately 1,400 feet or 0.25 miles from the project site. The nearest school is a preschool located at University Synagogue located approximately 0.32 miles northeast at the intersection of Michelson and Harvard. The nearest residential areas are located approximately 0.40 miles southeast and 0.50 miles west of the project site. The San Joaquin Marsh Campus caretaker's house is located approximately 0.30 miles south.

3.2.2 Regulatory Framework and Air Quality Standards

Federal

The federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to identify National Ambient Air Quality Standards (NAAQS or national standards) to protect public health and welfare. National standards have been established for ozone, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead. **Table 3.2-2** shows current national and state ambient air quality standards and provides a brief discussion of the related health effects and principal sources for each pollutant.

Pursuant to the 1990 Federal Clean Air Act Amendments (FCAAA), the USEPA classifies air basins (or portions thereof) as "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the NAAQS have been achieved. The FCAA requires each state to prepare an air quality control plan referred to as the State Implementation Plan (SIP). The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The USEPA has responsibility to review all state SIPs to determine if they conform to the mandates of the FCAAA and will achieve air quality goals when implemented.

If the USEPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan (FIP) for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin. The FCAAA added requirements for states containing areas that violate the NAAQS to revise their SIPs to incorporate additional control measures to reduce air pollution.

TABLE 3.2-2
STATE AND NATIONAL CRITERIA AIR POLLUTANT STANDARDS, EFFECTS, AND SOURCES

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation and difficulties in breathing. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NOx) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	1 hour Annual Avg.	0.18 ppm 0.030 ppm	0.100 ppm 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	75 ppb 0.5 ppm 0.14 ppm	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM_{10})	24 hours Annual Avg.	50 $\mu g/m^3$ 20 $\mu g/m^3$	150 $\mu g/m^3$ ---	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
Fine Particulate Matter ($PM_{2.5}$)	24 hours Annual Avg.	--- 12 $\mu g/m^3$	35 $\mu g/m^3$ 15 $\mu g/m^3$	Increases respiratory disease, Lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including nitrogen oxides, sulfur oxides, and organics.
Lead	Monthly Avg. Quarterly Rolling 3-Month Average	1.5 $\mu g/m^3$ --- ---	--- 1.5 $\mu g/m^3$ 0.15 $\mu g/m^3$	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction.	Present source: Lead smelters, battery manufacturing & recycling facilities, deterioration of lead paint. Past source: combustion of leaded gasoline.
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations).	Geothermal Power Plants, Petroleum Production and refining.
Sulfates	24 hour	25 $\mu g/m^3$	No National Standard	Breathing difficulties, aggravates asthma, reduced visibility.	Produced by the reaction in the air of SO_2.
Vinyl Chloride	24 hour	0.01 ppm	No National Standard	Central nervous system effects, such as dizziness, drowsiness, and headaches, liver damage, cancer, angiosarcoma.	Detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, discourages tourism.	See $PM_{2.5}$.

NOTE: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
SOURCE: California Air Resources Board, 2010. *Ambient Air Quality Standards,* available at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf Standards last updated September 8, 2010.
California Air Resources Board, 2001. *ARB Fact Sheet: Air Pollution Sources, Effects and Control,* http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm, page last updated December 2009.

Regulation of Toxic Air Contaminants (TACs), termed Hazardous Air Pollutants (HAPs) under federal regulations, is achieved through federal, State and local controls on individual sources. The 1977 Clean Air Act Amendments required the USEPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at low concentrations. According to *The California Almanac of Emissions and Air Quality*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM).

State

CARB, a department of the California Environmental Protection Agency, oversees air quality planning and control throughout California. CARB is responsible for coordination and oversight of state and local air pollution control programs in California and for implementation of the California Clean Air Act (CCAA). The CCAA, which was adopted in 1988, requires CARB to establish the California Ambient Air Quality Standards (CAAQS). CARB has established CAAQS for sulfates, hydrogen sulfide, vinyl chloride, visibility-reducing particulate matter, and the above-mentioned criteria air pollutants. Applicable CAAQS are shown in **Table 3.2-2**. Under the CCAA, areas have been designated as attainment or nonattainment with respect to the state standards. **Table 3.2-3** summarizes the attainment status of the Basin with respect to national and state standards.

TABLE 3.2-3
SOUTH COAST AIR BASIN ATTAINMENT STATUS

	Designation/Classification	
Pollutant	**Federal Standards**	**State Standards**
Ozone – one hour	No Federal Standard [a]	Nonattainment (Extreme)
Ozone – eight hour	Nonattainment (Extreme)	Nonattainment [b]
PM_{10}	Nonattainment (Serious)	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Maintenance	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Nonattainment
Sulfur Dioxide	Unclassified	Attainment
Lead	No Designation	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

[a] Federal One Hour Ozone National Ambient Air Quality Standard was revoked on June 15, 2005
[b] The State 8-hour ozone standard was approved by the CARB on April 28, 2005, and became effective May 17, 2006.
SOURCES: USEPA, 2011. *The Green Book Nonattainment Areas for Criteria Pollutants.* http://www.epa.gov/oaqps001/greenbk/, page updated 2011.
California Air Resources Board, 2010. *Area Designation Maps,* http://www.arb.ca.gov/desig/adm/adm.htm, page updated 2010.

The CCAA requires all local air districts in the state to endeavor to achieve and maintain the CAAQS by the earliest practical date. The act specifies that local air districts shall focus particular attention on reducing the emissions from transportation and area-wide emission sources, and provides districts with the authority to regulate indirect sources.

Among CARB's other responsibilities are overseeing compliance by local air districts with California and federal laws; approving local air quality plans; submitting SIPs to USEPA; monitoring air quality; determining and updating area designations and maps; and setting emissions standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels.

Toxic Air Contaminants

Air quality regulations also focus on TACs, which are air pollutants that may cause or contribute to an increase in mortality or serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

In general, for those TACs that may cause cancer, there is no concentration that does not present some risk. In other words, there is no safe level of exposure. This contrasts with the criteria air pollutants, for which acceptable levels of exposure can be determined and for which the ambient standards have been established. Instead, USEPA and CARB regulate HAPs and TACs, respectively, through statutes and regulations that generally require the use of maximum achievable control technology (MACT) or best available control technology (BACT) for toxics and to limit emissions. These statutes and regulations, in conjunction with additional rules set forth by the districts, establish the regulatory framework for TACs.

TACs in California are regulated primarily through the Tanner Air Toxics Act (Assembly Bill [AB] 1807 [Chapter 1047, Statutes of 1983]) and the Air Toxics Hot Spots Information and Assessment Act (Hot Spots Act) (AB 2588 [Chapter 1252, Statutes of 1987]). AB 1807 sets forth a formal procedure for CARB to designate substances as TACs. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TACs and adopted USEPA's list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an airborne toxics control measure (ATCM) for sources that emit that particular TAC. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate BACT to minimize emissions.

The Hot Spots Act requires existing facilities emitting toxic substances above a specified level to prepare a toxic-emission inventory, prepare a risk assessment if emissions are significant, notify the public of significant risk levels, and prepare and implement risk reduction measures.

CARB published the *Air Quality and Land Use Handbook: A Community Health Perspective* (Handbook), which provides guidance concerning land use compatibility with TAC sources

(CARB, 2005). Although it is not a law or adopted policy, the Handbook offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, dry cleaners, gasoline stations, and industrial facilities, to help keep children and other sensitive populations out of harm's way.

Local

South Coast Air Quality Management District

The 1977 Lewis Air Quality Management Act created the SCAQMD to coordinate air quality planning efforts throughout southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, SCAQMD is the agency principally responsible for comprehensive air pollution control in the region. Specifically, SCAQMD is responsible for monitoring air quality, as well as planning, implementing, and enforcing programs designed to attain and maintain State and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary sources, area sources, point sources, and certain mobile source emissions. SCAQMD is also responsible for establishing stationary source permitting requirements and for ensuring that new, modified, or relocated stationary sources do not create net emission increases.

SCAQMD attains and maintains air quality conditions in the Basin, a 6,600-square-mile coastal plain bounded by the Pacific Ocean to the southwest and the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east. The Basin includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties.

Air Quality Management Plan

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

The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The purpose of the 2007 AQMP for the Basin is to set forth a comprehensive program that will lead the region into compliance with federal 8-hour ozone and $PM_{2.5}$ air quality standards. CARB adopted the State Strategy for the 2007 SIP, and the 2007 AQMP as part of the SIP on September 27, 2007.

On November 28, 2007, CARB submitted a SIP revision to USEPA for ozone, $PM_{2.5}$, CO, and NO_2 in the Basin; this revision is identified as the 2007 South Coast SIP. The 2007 AQMP/2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the Basin by 2014, and attainment of the federal 8 hour ozone standard by 2023. The SIP also includes a request of reclassification of the ozone attainment designation from “severe” to “extreme.” USEPA proposed to approve the 2007 AQMP in September 2011 (USEPA, 2011a). On December 15, 2011, USEPA approved California's plan to attain the 1997 8-hour ozone NAAQS of 0.08 parts per million (ppm) in the South Coast extreme ozone nonattainment area. The plan consists of the ozone-related portions of SCAQMD’s 2007 AQMP and related portions of ARB's 2007 State Strategy (USEPA, 2011b).

As a result of state and local control strategies, the Basin has not exceeded the federal CO standard since 2002. In March 2005, SCAQMD adopted a CO Redesignation Request and Maintenance Plan that provides for maintenance of the federal CO air quality standard until at least 2015 and commits to revising the Redesignation Request and Maintenance Plan in 2013 to ensure maintenance through 2025 (SCAQMD, 2005). SCAQMD also adopted a CO emissions budget that covers 2005 through 2015. On February 24, 2006, ARB transmitted the Redesignation Request and Maintenance Plan (including the CO budgets) to USEPA for approval. On June 11, 2007, USEPA redesignated the Basin as attainment for the federal CO standard and approved the maintenance plan amendment to the SIP for the Basin (Federal Register, 2007).

SCAQMD Rules and Regulations

All projects are subject to SCAQMD rules and regulations in effect at the time of construction. Specific rules applicable to the construction anticipated under the proposed project would include the following:

Rule 401 – Visible Emissions. A person shall not discharge into the atmosphere from any single source of emission whatsoever any air contaminant for a period or periods aggregating more than three minutes in any 1 hour that is as dark or darker in shade as that designated No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines.

Rule 402 – Nuisance. A person shall not discharge from any source whatsoever such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule do not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

Rule 403 – Fugitive Dust. This rule is intended to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 applies to any activity or human-made condition capable of generating fugitive dust.

Rule 1113 – Architectural Coatings. No person shall apply or solicit the application of any architectural coating within the SCAQMD with VOC content in excess of the values specified in a table incorporated in the Rule.

Toxic Air Contaminants

At the local level, air pollution control or management districts may adopt and enforce ARB control measures. Under SCAQMD Regulation XIV (Toxics and Other Non-Criteria Pollutants), and in particular Rule 1401 (New Source Review), all sources that possess the potential to emit TACs are required to obtain permits from SCAQMD. Permits may be granted to these operations if they are constructed and operated in accordance with applicable regulations, including new source review standards and air toxics control measures. SCAQMD limits emissions and public exposure to TACs through a number of programs. SCAQMD prioritizes TAC-emitting stationary sources based on the quantity and toxicity of the TAC emissions and the proximity of the facilities to sensitive receptors.

County of Orange General Plan

The Resources Element, one of nine elements of the General Plan, contains official County policies on the conservation and management of resources. Air Resources are one of the categories included in the Resources Element. For each resource component, specific goals, objectives and policies are identified. In addition, each component includes implementation programs to address identified constraints. Relevant air quality goals objectives and policies in the General Plan are:

Goal 1: Promote optimum sustainable environmental quality standards for air resources.

Objective 1.1: To the extent feasible, attainment of federal and state air quality standards by the year 2007.

Policy 1: To develop and support programs which improve air quality or reduce air pollutant emissions.

3.2.3 Impacts and Mitigation Measures

Significance Criteria

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

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any nonattainment pollutant for which the project is non-attainment under an applicable federal or state ambient air

quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);

- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people

As stated in Appendix G, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the above determinations. SCAQMD has established thresholds, as shown in **Table 3.2-4**.

TABLE 3.2-4
SCAQMD SIGNIFICANCE THRESHOLDS

Pollutant	Regional Construction Emissions	Operational Emissions
NO_x	100 lbs/day	55 lbs/day
VOC (ROG)	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
CO	550 lbs/day	550 lbs/day
SO_X	150 lbs/day	150 lbs/day

lbs/day = pounds per day
SOURCE: SCAQMD, 2011. *SCAQMD Air Quality Significance Thresholds*. Updated March 2011.

Construction

The proposed project would result in a significant construction air quality impact if emissions from the proposed project exceed the significance thresholds presented in Table 3.2-4.

Operations

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

- Emissions exceed the significance thresholds set forth in Table 3.2-4.
- The proposed project would not be compatible with SCAQMD air quality goals and policies.
- The proposed project would generate significant emissions of TACs.

Methodology

Construction Impacts

Regional construction emissions assuming a worst-case scenario were developed and analyzed for the proposed project. Maximum daily construction emissions for the proposed project were

estimated using the SCAQMD-recommended California Emissions Estimator Model (CalEEMod) (Version 2011.1.1). CalEEMod is designed to model construction and operational emissions for land use development projects based on building size, land use and type, and disturbed acreage, and allows for the input of project-specific information. CalEEMod modeling data is provided in **Appendix C** of this document. Regional emissions were compared to the SCAQMD regional thresholds to determine project impact significance.

Operational Impacts

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors would occur from vehicle trips (i.e., worker and delivery trips) associated with the proposed project as well as operation of the on-site biosolids processing facilities. The mobile-source emissions were quantified using emission factors from CARB's EMFAC model for on-road mobile sources provided by SCAQMD. Mass mobile-source emissions were modeled based on the net increase in daily vehicle trips that would result from full buildout of the proposed project. The emissions associated with operation of the on-site biosolids processing facilities that were calculated in the project's *Standard Evaluation for Permit to Construct* document prepared by ENVIRON were also accounted for in this analysis. Predicted long-term operational emissions were compared with applicable SCAQMD thresholds for determination of significance.

Impacts Discussion

Consistency with Air Quality Management Plans

Impact 3.2-1: The proposed project could conflict with or obstruct implementation of the applicable air quality plan. (Less than Significant)

In preparation of the AQMP, SCAQMD and SCAG use land use designations contained in General Plan documents to forecast, inventory, and allocate regional emissions from land use and development-related sources. For purposes of analyzing consistency with the AQMP, if a proposed project would have density and vehicle trip generation substantially greater than anticipated in the General Plan, then the proposed project would conflict with the AQMP. Based on SCAQMD guidance, the analysis of a project's consistency with the AQMP entails an examination of the project's development density and associated vehicle trips. Emissions projections in the AQMP are developed based on the land use designations and development densities included for all anticipated future development in the General Plan documents for areas under SCAQMD's jurisdiction. If a proposed project is consistent with the density in the General Plan, it means that the project's emissions were analyzed accurately in the AQMP. On the other hand, if a project proposes development of a higher density (and associated trip generation), its emissions would have been understated in the AQMP. Therefore, the project would conflict with the emissions projections that the AQMP is based on. If a project's density is consistent with the General Plan, its emissions would be consistent with the assumptions in the AQMP, and the project would not conflict with SCAQMD's attainment plans.

The project site is designated as Public Facilities by the City of Irvine General Plan (1999). The Public Facilities category is intended for government, public, and community owned facilities, with typical uses that include utilities. The proposed facilities would be constructed entirely within the MWRP property and would be compatible with the existing land use designation. The proposed project is consistent with the site's designated use. The proposed project does not include residential development or large, local, or regional employment centers that would result in significant population or employment growth. The Orange County Sanitation District (OCSD) anticipates that it will reach maximum capacity at its existing solids handling facilities. IRWD is proposing the Biosolids Handling Component of the MWRP Phase 2 and 3 Capacity Expansion Project instead of contributing to the expansion of OCSD facilities. The project is intended to enable IRWD to become self sufficient in residuals management to meet its solids handling needs. Consequently, implementation of the proposed project would be consistent with AQMP attainment forecasts. Therefore, the project's impact would be less than significant.

Mitigation Measures

None required.

Violation of an Air Quality Standard

Impact 3.2-2: The proposed project could violate an air quality standard or contribute substantially to an existing or projected air quality violation during its construction and operation. (Less than Significant)

Construction

Project construction activities for all facilities would involve site clearing and grading, excavation for new pipeline connections and structural foundation installation, grading for building pads, construction of aboveground buildings, and equipment installation and connection. Construction would conclude with final finish grading, site restoration, and landscaping. Construction activities would generate dust during soil disturbance, equipment exhaust from off-road equipment, and exhaust from on-road trucks and construction worker vehicles. Project construction is anticipated to take at least approximately 36 months, starting in early 2013. Construction-related emissions were conservatively estimated using CalEEMod V. 2011.1 developed by SCAQMD. The model was setup based on project details provided in Chapter 2, Project Description. Model default data was used where project-specific data was not available. A worst-case scenario assumption of daily disturbance footprints and equipment utilization was made. The project area encompasses a total of 4.6 acres. In addition, construction of the proposed project would require approximately 14.2 acres for construction staging and laydown areas. The project would include the excavation of approximately 51,000 cubic yards of soil. Approximately 55,000 cubic yards of material would be exported offsite while approximately 11,000 cubic yards of backfill material would be imported to the site. It was assumed that all material import and export would occur during the excavation phase.

Importation of concrete could require up to 25 truck trips per day for a limited number of days during a large concrete pour. Hauling and delivery of other construction-related materials would require no more than 10 truck trips per day on average for the duration of construction. Project construction for each phase would involve the use of a wide variety of heavy construction equipment onsite. The majority of the equipment and vehicles would be associated with the intensive earthwork, structural and paving phases of construction. Large construction equipment, including earthmovers, cranes, rollers, fuelers, concrete mixers, water trucks, and delivery trucks would be used during the construction phase of the project. There would be between 20 and 120 workers onsite per day depending on work activities, which would vary from day to day. All construction equipment, vehicles, personnel, and materials staging areas would be accommodated with the boundaries of the IRWD property.

It is mandatory for all construction projects in the Basin to comply with SCAQMD Rule 403 for controlling fugitive dust. Incorporating Rule 403 into the proposed project would reduce regional respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) emissions from construction activities. Specific Rule 403 control requirements include, but are not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, reestablishing ground cover as quickly as possible, utilizing a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the proposed project site, covering all trucks hauling soil with a fabric cover and maintaining a freeboard height of 12 inches, and maintaining effective cover over exposed areas. Compliance with Rule 403 was accounted for in the construction emissions modeling. Site watering and application of soil binders would reduce the particulate matter from becoming airborne, while washing of transport vehicle tires and undercarriages would reduce re-entrainment of construction dust onto the local roadway network.

Maximum daily construction-related regional emissions for the proposed project are presented in **Table 3.2-5** (refer to Appendix C for a detailed summary of the CalEEMod modeling assumptions, inputs, and outputs). As shown, the maximum daily construction emissions generated by the proposed project over the course of the construction schedule would not exceed SCAQMD's daily significance thresholds for any of the criteria pollutants. As emissions of all the pollutants would be below SCAQMD's applicable thresholds, regional construction impacts would be less than significant.

Operation

Operational emissions for the proposed project would be generated from on-road vehicular traffic consistent with regular operations and maintenance functions. The proposed project anticipates up to 10 additional IRWD full-time employees for operation and maintenance of the new facilities. These employees would be located onsite at the MWRP and would result in 10 additional round trip commutes to and from the project site daily. On-site parking facilities would be available. In addition, project operation and maintenance would involve deliveries of chemicals, digested sludge, and other organic materials such as FOG to the MWRP. With regards to biosolids, the proposed project would deliver either pelletized Class A biosolids or Class B biosolids from the MWRP to end users. Given that Class B biosolids are approximately 23 percent solids

TABLE 3.2-5
MAXIMUM DAILY EMISSIONS FROM PROJECT CONSTRUCTION (POUNDS PER DAY)

	Estimated Maximum Daily Emissions (lbs/day)					
Year	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
2013	10.73	86.69	64.20	0.14	30.18	6.95
2014	5.34	29.45	33.30	0.07	5.66	1.89
2015	4.20	21.74	27.06	0.06	5.37	1.73
Maximum Regional Daily Emissions	**10.73**	**86.69**	**64.20**	**0.14**	**30.18**	**6.95**
Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Significant Impact?	No	No	No	No	No	No

NOTE:
Project construction emissions estimates for off-road equipment were made using CalEEMod Version 2011.1.1. See **Appendix C** for more information.

Regulatory dust control measures associated with SCAQMD Rule 403 have been accounted for in the construction emissions.

Fugitive PM_{10} emissions include a 91% reduction associated with covering all haul trucks during the excavation phase with fabric cover and maintaining a freeboard height of 12 inches (SCAQMD, 2007b).

Maximum daily emissions in 2013 would occur when the excavation phase occurs.

SOURCE: ESA, 2012.

concentration by weight and Class A pelletized biosolids are approximately 93 percent solids concentration by weight, the number of trucks required to haul Class B biosolids would be more than four times the number of trucks required to haul Class A pellets. As such, the number of truck trips associated with load-out of end-product biosolids depends on the class of biosolids being produced on a given day or week. **Table 3.2-6** describes the estimated weekly and daily operational vehicle trips associated with project operations for the two classes of biosolids that would be produced.

TABLE 3.2-6
ESTIMATED OPERATIONAL VEHICLE TRIPS
(AVERAGE ROUND TRIPS[A])

Operations Associated with Vehicle Trips	Class B Biosolids	Class A Biosolids
Chemical Deliveries	6 per week	6 per week
LAWRP Sludge Deliveries to MWRP	6 per week	6 per week
Other Sludge Deliveries to MWRP	24 per week	24 per week
FOG Deliveries to MWRP	20 per week	20 per week
Class A or B Biosolids Deliveries to End Users	46 per week	11 per week
Employee Commuter Trips	50 per week	50 per week
TOTAL AVERAGE PER WEEK:	**152 per week**	**117 per week**
TOTAL AVERAGE PER DAY:	**30 per day**	**23 per day**

NOTES: (A) Estimates assume a 5-day week.

SOURCE: ESA, 2012; Black & Veatch, May 2011.

In addition to the emissions generated from on-road vehicular traffic, emissions of pollutants from operation of the new biosolids processing, biogas management, and energy recovery systems associated with the proposed project would also occur. **Table 3.2-7** presents the maximum daily operational emissions generated by the proposed project's on-site facilities as well as operational vehicle trips. Based on the proposed project's *Standard Evaluation for Permit to Construct* document prepared by ENVIRON (2012), the project's operational emissions were analyzed under two scenarios: 1) Normal Operations and 2) Microturbines as primary Use. The highest emissions for each of the criteria pollutants from these two scenarios are shown in Table 3.2-7, which serves to present the maximum (worst-case) emissions associated with operation of the project's on-site facilities. Additionally, as a conservative analysis, the operational vehicle trip emissions associated with the delivery of Class B biosolids for the proposed project, which are greater than those for Class A biosolids, are used in Table 3.2-7.

TABLE 3.2-7
MAXIMUM PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**ROG**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$[a]**
Proposed Project						
On-site Facilities[b]	14.00	61.00	65.00	40.00	20.00	19.99
Mobile Sources[c]	2.95	20.94	20.17	0.05	0.83	0.68
Total Emissions	16.95	81.94	85.17	40.05	20.83	20.67
Existing OCSD Solids Disposal Trips						
Mobile Sources[d]	6.21	45.91	41.78	0.10	1.80	1.47
Net Project Operational Emissions	**10.74**	**36.03**	**43.39**	**39.95**	**19.03**	**19.20**
Regional Significance Threshold	*55*	*55*	*550*	*150*	*100*	*55*
Significant Impact?	No	No	No	No	No	No

NOTE: Emissions would be different during summer and winter. Maximum daily emissions of ROG, and NO_X would be higher during the winter while emissions of CO would be higher in the summer. Maximum emissions are shown for the respective seasons.

[a] The $PM_{2.5}$ emissions were calculated from the PM_{10} emissions based on the recommended $PM_{2.5}$ fractions provided in Appendix A of SCAQMD's *Final Methodology to Calculate $PM_{2.5}$ and $PM_{2.5}$ Significance Thresholds* document.

[b] The emissions associated with the on-site biosolids processing facilities at MWRP are taken from the project's *Standard Evaluation for Permit to Construct* document prepared by ENVIRON (2012).

[c] As a conservative analysis, the operational vehicle trip emissions associated with the delivery of Class B biosolids for the proposed project, which are greater than those for Class A biosolids, are used in this table..

[d] OCSD mobile source emissions estimated for solids disposal trips associated with Class B biosolids.

SOURCE: On-site facility emissions calculations performed by ENVIRON, 2012; Vehicle trip modeling performed by ESA, 2012.

As shown in **Table 3.2-7**, the net operational emissions generated by the proposed project would not exceed the SCAQMD's daily significance thresholds for any of the criteria pollutants. It should be noted that for the purposes of conducting a conservative analysis, only the mobile emissions associated with solids disposal trips at OCSD were included in Table 3.2-7 to account for an emissions offset. Thus, should the operational emissions associated with the on-site solids processing facilities at OCSD be accounted for, the operational emissions of the proposed project

would be further reduced. Overall, impacts resulting from operation of the proposed project would be less than significant.

Mitigation Measures

None required.

Cumulative Air Emissions

Impact 3.2-3: The proposed project could result in a cumulatively considerable net increase of any criteria pollutant under an applicable federal or state ambient air quality standard. (Less than Significant)

Due to the non-attainment of ozone, PM_{10}, and $PM_{2.5}$ in the Basin, the generation of daily construction and operational emissions associated with cumulative development could result in a cumulative significant impact associated with the cumulative net increase of any criteria pollutant for which the region is in non-attainment. According to the SCAQMD, if an individual project results in air emissions of criteria pollutants (VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in non-attainment under an applicable federal or state ambient air quality standard. As discussed previously, and shown in Tables 3.2-5 and 3.2-7, the construction and operational emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any of the criteria pollutants. As such, the daily construction and operational emissions associated with the criteria pollutants generated by the proposed project would not be cumulatively considerable. Therefore, the cumulative impact of the proposed project for the construction and operational emissions would be less than significant.

Mitigation Measures

None required.

Effects on Sensitive Receptors

Impact 3.2-4: The proposed project could expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive to poor air quality than the general public because the population groups associated with these uses have increased susceptibility to respiratory distress. In addition, residential uses are considered more sensitive to air quality conditions than commercial and industrial uses, because people generally spend longer periods of time at their residences,

resulting in greater exposure to ambient air quality conditions. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution, even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation.

As previously discussed, the project site is located adjacent to the San Joaquin Wildlife Sanctuary, which includes the Audubon House and other public facilities. There are 11 miles of trails within the Sanctuary that are open to the public daily from dawn to dusk. However, as stated in Chapter 2, IRWD would close its Sanctuary trails as necessary during project construction to protect public health and safety. The bike path on the east side of San Diego Creek is approximately 1,400 feet or 0.25 miles from the project site. The nearest school is a preschool located at University Synagogue located approximately 0.32 miles northeast at the intersection of Michelson and Harvard. The nearest residential areas are located approximately 0.40 miles southeast and 0.50 miles west of the project site. The San Joaquin Marsh Campus caretaker's house is located approximately 0.30 miles south. Given that all the identified nearest sensitive receptors are located well beyond 1,000 feet from the project site, the criteria pollutant emissions generated by onsite diesel equipment at the project site during construction would be sufficiently diluted such that adverse, localized air quality impacts would not occur at these off-site receptors. However, an analysis of the potential air quality impacts from CO concentrations generated by construction and operational vehicles offsite on the local roadways and TACs generated during project construction are provided below.

Carbon Monoxide

As described in Section 3.12, Transportation and Traffic, the proposed project would be expected to generate a maximum 155 round trips per day or 310 total vehicle trips per day during construction and 23 to 30 round trips per day or 46 to 60 additional vehicle trips per day on local roadways during operations. Relative to the numbers of vehicles that travel on local roadways during weekdays, these additional vehicle trips would not affect performance of the circulation system. Due to the existing levels of traffic on the local roadways, short-term construction and long-term operation of the proposed project would not create traffic congestion that would create substantial CO hot spots. In addition, the highest amount of CO produced by construction would be approximately 64 lbs/day, which is approximately 12 percent of the SCAQMD threshold of 550 lbs/day; therefore local construction CO concentrations are considered to be less-than-significant. Proposed project vehicle trips could also affect CO concentrations along the roadway network. However, as explained above, air quality impacts associated with exhaust emitted for the anticipated vehicle trips required for construction and routine operations, inspection, and maintenance would be less than significant. Consequently, the proposed project's operational contribution to local CO concentrations is considered to be less than significant, and no mitigation is required.

Toxic Air Contaminants

The TAC dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the proposed project.

SCAQMD does not require formal health risk assessments to be completed for construction-related emissions of TACs. Nonetheless, construction-related emissions of TAC have been evaluated. Project construction would result in short-term emissions of diesel PM, which is a TAC. Diesel PM emissions from diesel engine exhaust is, for the most part, entirely composed of $PM_{2.5}$. The exhaust of off-road heavy-duty diesel equipment would emit $PM_{2.5}$ during the various construction activities associated with the proposed project such as site clearing and grading, excavation for new pipeline connections and structural foundation installation, grading for building pads, construction of aboveground buildings, and equipment installation and connection. Given a construction schedule of 36 months, and maximum estimated $PM_{2.5}$ emissions of approximately 7 pounds per day (see **Table 3.2-5**), the proposed project would be well below the significance threshold of 55 pounds per day and would not result in a long-term (i.e., 70 years) substantial source of TAC emissions. This impact would be less than significant, and no mitigation is required.

During project operations, the new facility components such as the biosolids dewatering and drying systems, drying systems air pollution control system, boilers, microturbines, CEB, and diesel-fueled emergency generator would release small amounts of TAC emissions. However, operation of the on-site equipment associated with proposed project would require the issuance of a permit from SCAQMD, and all equipment would be subject to and required to comply with SCAQMD Rules 1401 (New Source Review of Toxic Air Contaminants) and 1470 (Requirements for Stationary Diesel-Fueled Internal Combustion and Other Compression Ignition Engines). Given the types and sizes of facility systems that would be installed as part of the proposed project, it has been determined that all of the project facilities would comply with all Rule 1401 requirements. In addition, it was determined that the diesel-fueled emergency generator would also be operated in compliance with Rule 1470, including meeting the required emissions limits (ENVIRON, 2012). Thus, impacts related to the release of TAC emissions during project operation would be less than significant. No mitigation is required.

Mitigation Measures

None required.

Odor Impacts

Impact 3.2-5: The project could create objectionable odors affecting a substantial number of people. (Less than significant)

Construction

Project construction activities could generate airborne odors associated with construction vehicles such as diesel exhaust. However, these emissions would only occur within and immediately around the project site and would be limited to a finite period of time. Therefore, impacts related to the creation of odors during construction would be less than significant.

Operation

The operation of the proposed project could include nuisance odors emanating from the emissions of organic and inorganic compounds of sulfur including hydrogen sulfide (H_2S), mercaptans, ammonia, amines, and organic fatty acids. Certain project components, such as the acid and methane digesters, would be completely contained to prevent any odor from escaping. In addition, to avoid the release of odor from the project site during normal operation and during power outages, a highly-reliable state-of-the-art odor control system with built-in redundancy and back-up power generators would be installed at initial start-up of the project facilities. Foul air would be collected from all odor sources including the truck loadout/receiving bays and treated using a three-stage odor scrubber system. The foul air collection and treatment system would be designed to allow any of the three scrubbers to be taken out of service for cleaning while maintaining 100 percent operational efficiency through the remaining two scrubbers. The system would use sulfuric acid, sodium hydroxide (caustic), and sodium hypochlorite solutions to oxidize and treat the odorous compounds. Blow down (spent chemicals) from the three-stage odor control system would drain to a sanitary sewer pump station and would be pumped to the MWRP headworks, where the spent chemicals would be neutralized during the treatment process. As with the other various operating units associated with the proposed project, the proposed odor control system would be operating under a regulatory permit by SCAQMD and thus would be required to comply with the established permit conditions. One of the permit conditions for the odor control system is to maintain a minimum overall control efficiency of 99.75 percent for H_2S. The goal of the odor control system is to reduce odor levels to a near non-detectable level at the MWRP property boundaries.

IRWD also would prepare and implement an Odor Control Maintenance and Monitoring Plan that would define a schedule for regular preventative maintenance of the odor control system equipment and back-up generators, a schedule for odor monitoring along the IRWD property boundary, and a protocol for handling and resolving odor complaints. The Plan would minimize the possibility of system failure. With installation of the odor control system and Odor Control Maintenance and Monitoring Plan, objectionable odors from project facilities would be neutralized. Impacts related to odor emissions would be less than significant. No further mitigation would be required.

The delivery of biosolids to and from the MWRP also introduces the potential for odorous emissions to be released. Trucks that are delivering biosolids to and from the MWRP would comply with all state requirements and regulations and would be either enclosed or covered. By transporting biosolids in either enclosed or covered vehicles, the potential for odorous emissions would be reduced. Impacts would be less than significant, and no further mitigation is required.

Mitigation Measures

None required.

References – Air Quality

California Air Resources Board (CARB). 2005. *Air Quality and Land Use Handbook: A Community Health Perspective.* Available at http://www.arb.ca.gov/ch/handbook.pdf. April.

CARB. 2000. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles.* Stationary Source Division – Mobile Source Control Division, Available online at: http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf. October.

CARB. 2002. Public Hearing to Consider Amendments to the Ambient Air Quality Standards for Particulate Matter and Sulfates. May 3.

CARB, iADAM Air Quality Data Statistics, Available online at: http://www.arb.ca.gov/adam/, Accessed July 2011.

ENVIRON. 2012. Standard Evaluation for Permit to Construct, Irvine Ranch Water District (IRWD), March.

Federal Register. 2007. Vol. 72, No. 91 Rules and Regulations, Pages 26718-26721. May 11.

SCAQMD. 2005. Carbon Monoxide Redesignation Request and Maintenance Plan. February.

SCAQMD. 2007a. *Final 2007 Air Quality Management Plan*, Available online at: http://www.aqmd.gov/aqmp/07aqmp/aqmp/Complete_Document.pdf. June.

SCAQMD. 2007b. Table XI-A Mitigation Measure Examples: Fugitive Dust From Construction & Demolition, Available online at: http://www.aqmd.gov/ceqa/handbook/mitigation/fugitive/MM_fugitive.html. April.

SCAQMD. 2006. Final –Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds. October.

U.S. Environmental Protection Agency (USEPA). 2011a. *Approval of Air Quality Implementation Plans; California; South Coast; Attainment Plan for 1997 8-hour Ozone Standard.* Available at http://www.epa.gov/region9/air/actions/pdf/ca/fr-notice-8-hour-south-coast-ozone-09-07-2011-signed.pdf. Accessed September 2011.

USEPA. 2011b. *Approval of Air Quality Implementation Plans; California; South Coast; Attainment Plan for 1997 8-hour Ozone Standards.* Available at http://www.epa.gov/region9/air/actions/pdf/ca/final-south-coast-8-hr-ozone-12-2011.pdf. Accessed February 2012.

3.3 Biological Resources

This chapter addresses the potential impacts of the proposed project to biological resources in the project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter describes the environmental setting for biological resources, the applicable regulatory framework, potential impacts of the proposed project, and mitigation measures to reduce those impacts to a level of less than significant.

3.3.1 Environmental Setting

Methodology

The proposed project as defined in Chapter 2 was evaluated for its potential to support special-status species and habitats that are known to occur or are expected to occur in the region. Vegetation types and wildlife habitats were characterized on the basis of accepted classification systems. The following sources were consulted for information on biological resources in and around the project site:

- California Department of Fish and Game's (CDFG) California Natural Diversity Database (CNDDB) and the California Native Plant Society (CNPS) Electronic Inventory (CNPS, 2011) record search for USGS 7.5-minute topographic quadrangle maps: Newport Beach, Laguna Beach, San Juan Capistrano, El Toro, Black Star Canyon, Orange, Anaheim, and Tustin (CDFG, 2011);
- The San Joaquin Wildlife Sanctuary (Irvine, CA), 2011 avian census report (via the Orange County Chapter of the National Audubon Society);
- CDFG's Natural Community Conservation Planning (NCCP) program for Orange County (Central/Coastal);
- Various literature references specific to descriptions of the habitats, vegetation types, and special-status species occurring in the project region including previous EIRs prepared or contracted by ESA (see References).
- The Draft EIR for the MWRP Phase 2 and 3 Capacity Expansion Project prepared by Dudek and Associates, Inc. in November 2005.
- The Biological Resources Technical Report for MWRP Phase 2 and 3 Capacity Expansion Project prepared by Dudek and Associates, Inc. in October 2005.

The CNDDB lists historical and recently recorded occurrences of both special-status plant and wildlife species and the CNPS database lists historical and recent occurrences of rare and special-status plant species. ESA queried these sources for special-status species records in the Tustin, US Geological Survey (USGS) 7.5-minute quadrangle and the seven other adjacent surrounding quadrangles mentioned above. The results of the database queries are included in **Appendix D**.

The potential for special-status species to occur within the project area is based on the proximity of the project site to previously recorded occurrences in the CNDDB and CNPS database, onsite

vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges of special-status plant and wildlife species known to occur in the region.

For the purposes of this report, taxonomy and nomenclature for wildlife generally follows Stebbins (2003) for amphibians and reptiles, Peterson (1990) for birds, and Peterson (2006) for mammals. Plant taxonomy follows Hickman (1993) or current scientific journals for scientific and common names. Habitats in the study area were classified into vegetation types based on the Holland Code (Holland 1986, revised by Oberbauer 1996) and Keeler-Wolf and Sawyer (1995).

Regional Setting

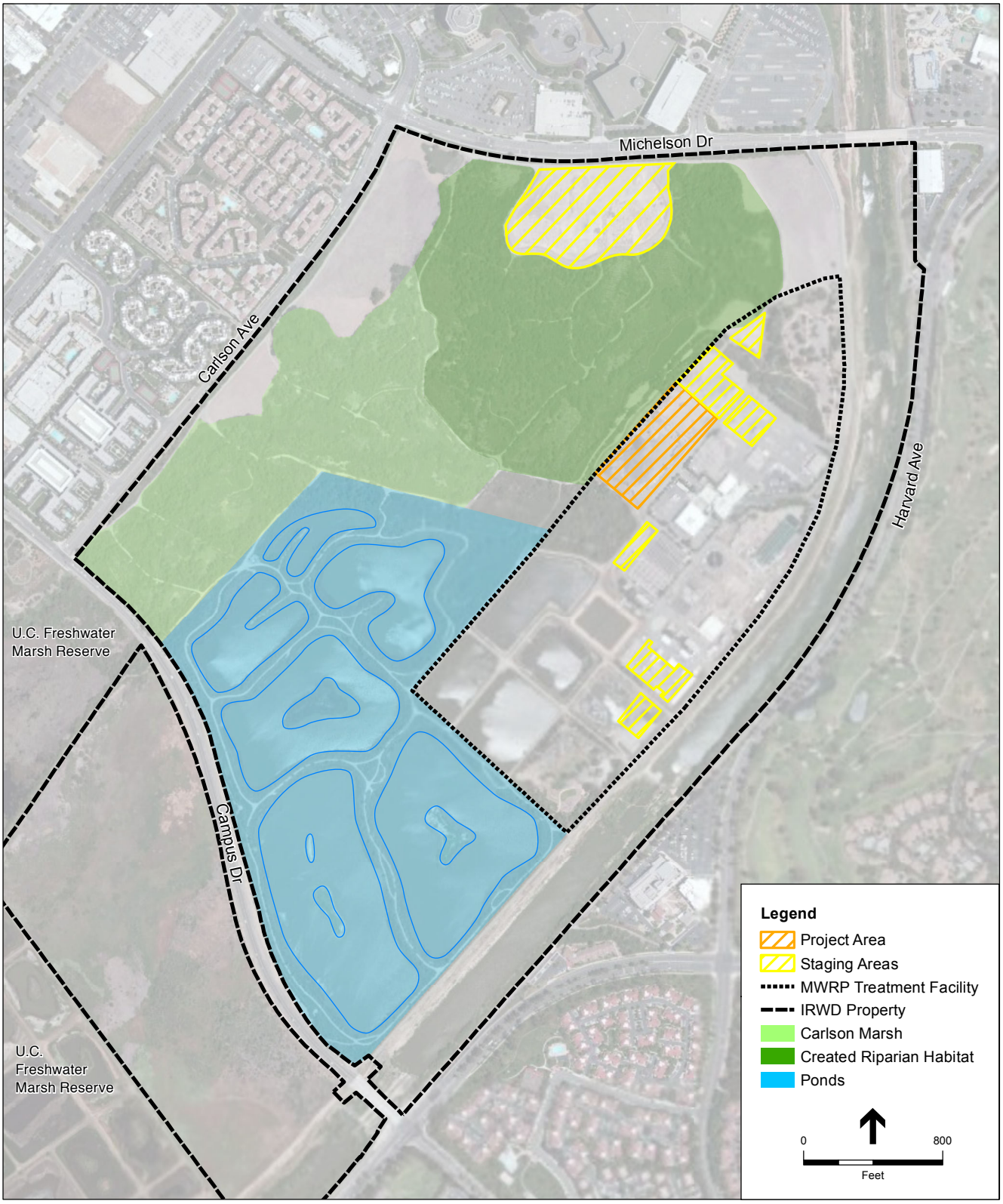
The MWRP is located in the City of Irvine northeast of Upper Newport Bay in Orange County, California. The climate in the region can be characterized as Mediterranean, with an average high and low temperature of 75.4° F and 49.4° F, respectively. Annual precipitation averages 12.86", with 10.74" accumulating from November to March (WRCC, 2011). The project area lies within the Newport Bay Watershed, which drains approximately 152.02 square miles of southern Orange County to the Pacific Ocean.

Local Setting

The project site is located at the MWRP. The proposed project would be constructed within a 4.6-acre rectangular-shaped area that is disturbed vacant land, currently being used for construction staging for the Phase 2 Capacity Expansion (**Figure 3.3-1**). The project site is bounded on three sides (generally north, west, and south) by an earthen berm and flood wall, vegetated with ornamental plants, that separates and screens it from San Joaquin Marsh trails, riparian habitat, and ponds. The proposed project would be contained within the existing boundaries of the MWRP treatment facility and would not directly impact the San Joaquin Wildlife Sanctuary and Marsh. To the east, the project area is immediately bounded by existing MWRP facilities and a concrete-lined storm water drainage swale. San Diego Creek is further to the south and east.

San Joaquin Wildlife Sanctuary

The San Joaquin Wildlife Sanctuary is immediately adjacent to the project site. The Sanctuary comprises three habitat areas: Carlson Marsh, which is an area of mature riparian vegetation in the west; a wetlands mitigation site in the northern part of the site that includes created riparian habitat; and ponds in the southern portion (see Figure 3.3-1). The Sanctuary is located on IRWD property and has been restored by IRWD with the intent of restoring and preserving wildlife habitat and providing public education. The Sanctuary occupies approximately 300 acres of freshwater wetlands and is open to the public.



SOURCE: ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.3-1

San Joaquin Wildlife Sanctuary

San Diego Creek Watershed

The MWRP is within the San Diego Creek Watershed, which covers 112.2 square miles in central Orange County. The San Diego Creek extends approximately 14 miles from the Newport Bay to its headwaters and is differentiated into two reaches (1 and 2) for the purpose of defining specific beneficial uses and corresponding water quality objectives established by the Regional Water Quality Control Board (RWQCB 1995). Reach 2 is upstream of Reach 1, and is intermittent. Reach 2 flows from the headwaters of San Diego Creek to Jeffrey Road, from which Reach 1 flows until it reaches Upper Newport Bay. The project site is located along Reach 1.

San Diego Creek has been placed on the US Environmental Protection Agency Section 303(d) list of impaired waters. Based on that listing, total maximum daily loads (TMDLs) of sediments, nutrients, pathogens and toxics entering waters of the creek and bay were established. (Refer to Chapter 3.8, Hydrology and Water Quality for additional discussion.)

The UC San Joaquin Freshwater Marsh Reserve is located southwest of the project site, and occupies approximately 202 acres, including a portion of San Diego Creek on the southern boundary of the reserve. The University purchased the reserve in 1969. Six acres of marsh were created as part of the Hoag Hospital Mitigation site and 46 acres of marsh were restored in 1998 by the California Coastal Conservancy. The remaining 150 acres consists of seasonal cattail wetlands.

Upper Newport Bay Nature Preserve and Ecological Reserve are located approximately 1.25 miles downstream of the San Joaquin Freshwater Marsh Reserve and occupies approximately 1,000 acres of open space. Upper Newport Bay Nature Preserve includes approximately 140 acres and is comprised of bluffs surrounding the Ecological Reserve, which includes approximately 752 acres. Upper Newport Bay Nature Preserve was established as a California Department of Fish and Game reserve in 1975 and the Ecological Reserve was established in 1989 by the County of Orange. The bluffs in the Nature Preserve are composed primarily of grasslands and coastal sage scrub. Three sensitive species are known to occur in the bluffs: San Diego cactus wren, coastal California Gnatcatcher, and burrowing owl. The coastal wetlands in the Ecological Reserve are among the largest in southern California and are popular with bird watchers.

Upper Newport Bay includes six vegetation types: open water, mudflat, salt marsh, freshwater marsh/pond, riparian and upland. Seven sensitive species are known to occur in the Bay: saltmarsh bird’s beak, black rail, California least tern, Belding’s savannah sparrow, peregrine falcon, brown pelican and light-footed clapper rail. In 2011, the light-footed clapper rail was observed nesting and breeding in the University of California’s San Joaquin Marsh Reserve, east of Upper Newport Bay and southwest of the project site (Personal communication, W. Bretz, June 17, 2011). During the winter bird migration months, it is estimated that up to 35,000 birds

use the Bay. Upper Newport Bay is among the few pristine estuaries remaining in Southern California.[1]

Upper Newport Bay provides recreation and wildlife viewing opportunities for the public: hikers, bicyclists, joggers, horseback riders, kayakers, educators and birders comprise the one million annual visitors. The Upper Newport Bay Ecological Reserve and Nature Preserve are protected and managed to prevent the loss and degradation of habitat and provide viable habitat for sensitive species.[2]

Plant Communities and Habitat Types

The project site and staging areas are devoid of vegetation and contain no plant communities or habitat types. As previously mapped in Figure 4.3-2 in the Draft EIR for the MWRP Phase 2 and 3 Capacity Expansion Project, up to eight different habitats are located adjacent to the project site and staging areas, generally to the north, west, and south (Dudek, 2005). Ornamental vegetation exists around the border of the project site and some staging areas, forming a boundary or buffer between the MWRP and the Sanctuary. Beyond the ornamental boundary, adjacent habitats include southern black willow forest, southern black willow scrub, mule fat scrub, southern willow scrub, freshwater marsh, riparian herb, and open water.

General Wildlife

Amphibians and Reptiles

Due to access restrictions on the MWRP property and a lack of suitable habitat onsite, no amphibians or reptiles are expected to occur on the project site or staging areas. Species recorded in the adjacent UC San Joaquin Freshwater Marsh Reserve and that have the potential to occur in the Sanctuary include Pacific slender salamander (*Batrachoseps pacificus*), Pacific treefrog (*Hyla regilla*), western toad (*Bufo boreas*), western pond turtle (*Emys marmorata*), western fence lizard (*Sceloporous occidentalis*), side-blotched lizard (*Uta stansburiana*), California kingsnake (*Lampropeltis getula*), gopher snake (*Pituophis melanoleucus*), and southern alligator lizard (*Elgaria multicarinatus*).

Birds

Due to the lack of suitable habitat onsite and the current construction-related activities onsite, no birds are expected to occur at the project site or staging areas. The adjacent Sanctuary attracts a large number and variety of birds throughout the year. Common aquatic birds recorded in the vicinity of the project site include double-crested cormorant (*Phalacrocorax auritus*), black-crowned night heron (*Nycticorax nycticorax*), black-necked stilt (*Himantopus mexicanus*), northern shoveler (*Anas clypeata*), mallard (*Anas platyrhynchos*), ruddy duck (*Oxyura jamaicensis*), American coot (*Fulica americana*), killdeer (*Charadrius vociferus*), and long-billed dowitcher (*Limnodromus scolopaceus*). Common riparian birds recorded include common yellowthroat, (*Geothlypis trichas*), marsh wren (*Cistothorus palustris*), brown-headed cowbird (*Molothrus ater*), black-headed grosbeak (*Pheucticus melanocephalus*), and black phoebe

1 http://www.ocparks.com/uppernewportbay/, accessed March 30, 20011
2 http://www.ocparks.com/uppernewportbay/, accessed March 30, 2011

(*Sayornis nigricans*). Birds of upland areas include relatively common species such as spotted towhee (*Pipilo maculatus*), Anna's hummingbird (*Calypte anna*), house wren (*Troglodytes aedon*), song sparrow (*Melospiza melodia*), tree swallow (*Tachycineta bicolor*), bushtit (*Psaltriparus minimus*), California thrasher (*Toxostoma redivivum*), red-winged blackbird (*Agelaius* phoeniceus), and house finch (*Carpodacus mexicanus*). Raptors recorded in the vicinity of the project site include turkey vulture (*Cathartes aura*), osprey (*Pandion haliaetus*), Cooper's hawk (*Accipiter cooperii*), and red-tailed hawk (*Buteo jamaicensis*) (Sea and Sage Audubon, 2011).

Mammals

Due to the lack of suitable habitat onsite and the current construction-related activities onsite, no mammals are expected to regularly use the project site or staging areas. A number of common mammals are expected to occur in the vicinity of the project site, including brush rabbit (*Sylvilagus bachmani*), California ground squirrel (*Spermophilus beecheyi*), coyote (*Canis latrans*), common raccoon (*Procyon lotor*), and skunk (likely *Mephitis mephitis*). Other species likely to occur in the vicinity of the project site include California vole (*Microtus californicus*), longtail weasel (*Mustela frenata*), gray fox (*Urocyon cinereoargenteus*), and bobcat (*Lynx rufus*). Additionally, large numbers of bat species are known to forage over the Sanctuary ponds.

Wildlife Movement Corridors

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

Habitat linkages are smaller areas that reduce the adverse effects of habitat fragmentation by providing a potential route for gene flow and long-term dispersal of plants and animals. Linkages may also serve as primary habitat for smaller animals, such as reptiles and amphibians. Habitat linkages may be either continuous habitat or discrete habitat islands that function as stepping stones for dispersal.

The project site is a vacant lot that is currently utilized for construction staging. The project site contains no habitat and has no value as a wildlife movement corridor or habitat linkage. The open space areas surrounding the MWRP are linked to the Nature Reserve of Orange County (NROC) that extends southwest to Proposed Reserve areas, which extend south to Upper Newport Bay and eastward through the San Joaquin Hills. The San Joaquin Marsh connects to another non-reserve open space area to the east (via the intersection of University and Culver Avenues). This open space extends to the east through William Mason Regional Park, which links to Sand Canyon Reservoir Golf Course Special Linkage and then to the Subarea Plan Proposed Reserve. Thus, areas surrounding the project site are part of a regional habitat linkage.

Sensitive Natural Communities

Sensitive habitats include: (a) areas of special concern to resource agencies, (b) areas protected under CEQA, (c) areas designated as sensitive natural communities by CDFG, (d) areas outlined in Section 1600 of the California Fish and Game Code, (e) areas regulated under Section 404 of the federal Clean Water Act (CWA), and (f) areas protected under local regulations and policies such as the NCCP. There are no sensitive habitats within the proposed project site. Sensitive habitats do occur in the adjacent Sanctuary and has the potential to support special-status species. Such habitats include southern black willow forest, southern black willow scrub, mule fat scrub, southern willow scrub and freshwater marsh.

Special-Status Species

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

- Plants or animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
- Plants or animals that are candidates for possible future listing as threatened or endangered under the federal ESA (61 FR 40, February 28, 1996);
- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA (14 California Code of Regulations [CCR] 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
- Plants that meet the definitions of rare and endangered under CEQA (*CEQA Guidelines*, Section 15380);
- Plants considered under the CNPS to be “rare, threatened or endangered in California” (Lists 1A, 1B, and 2 in CNPS 2008);
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in CNPS 2008), which may be included as special-status species on the basis of local significance or recent biological information; and
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

- Plants or animals covered by a locally or state adopted species conservation plan, including sensitive plants and animals and narrow endemic plants that have reasonable potential to occur on-site.

The project site is a vacant lot currently being used for construction staging and has no habitat currently available to support special-status species. A CNDDB and CNPS database search has identified special-status species recorded in the project region. (See **Appendix D** for results of database queries). Monthly bird counts by the Sea and Sage Audubon Society for the neighboring San Joaquin Wildlife Sanctuary also were reviewed (Sea and Sage Audubon, 2011). Based on the ranges and habitat requirements of species with known occurrences or potential to occur in the region, the following special-status species have a moderate to high potential to occur in natural habitats adjacent to the project site and staging areas:

- great blue heron *(Ardea herodias)*
- Cooper's hawk *(Accipiter cooperii)*
- white-tailed kite *(Elanus leucurus)*
- southwestern willow flycatcher *(Empidonax traillii extimus)*
- American peregrine falcon *(Falco peregrinus anatum)*
- yellow-breasted chat *(Icteria virens)*
- least Bell's vireo *(Vireo bellii pusillus)*
- light-footed clapper rail *(Rallus longirostris levipes)*
- coyote *(Canis latrans)*
- gray fox *(Urocyon cinereoargentus)*

3.3.2 Regulatory Framework

Federal

Federal Endangered Species Act

The U.S. Fish and Wildlife Service (USFWS) in the Department of the Interior, has responsibility for administration of the federal ESA. The ESA provides broad protection for species of fish, wildlife and plants that are listed as threatened or endangered in the U.S. or elsewhere. The federal ESA has four major components: 1) provisions are made for listing species, 2) requirements for federal agency consultation with USFWS or National Marine Fisheries Service (NMFS), 3) prohibitions against "taking" of listed species, and 4) the provisions for permits that allow incidental "take" of listed species for otherwise lawful activities. The ESA also requires the preparation of recovery plans and the designation of critical habitat for listed species.

The Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711) makes it unlawful to possess, buy, sell, purchase, barter or "take" any migratory bird listed in Title 50 of the Code of Federal Regulations Part 10. "Take" is defined as possession or destruction of migratory birds,

their nests or eggs. Disturbances that cause nest abandonment and/or loss of reproductive effort or the loss of habitats upon which these birds depend may be a violation of the MBTA.

Clean Water Act Section 404

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

The USACE and U.S. Environmental Protection Agency (USEPA) issued a set of guidance documents detailing the process for determining CWA jurisdiction following the U.S. Supreme Court’s decision in *Rapanos v. United States* and *Carabell v. United States* (herein referred to simply as “Rapanos”). The USEPA and USACE issued a summary memorandum of the guidance for implementing the Supreme Court’s decision in Rapanos that addresses the jurisdiction over waters of the United States under the Clean Water Act. The guidance documents describe the relevant data to be collected for evaluation by the USEPA and the USACE to determine CWA jurisdiction over project sites and to complete the “significant nexus test” as detailed in the guidelines and the USACE-approved Jurisdictional Determination Form.

State

California Endangered Species Act

The California Endangered Species Act (CESA) is similar to the main provisions of the federal ESA and is administered by the CDFG. Unlike its federal counterpart, CESA applies the take prohibitions to not only listed threatened and endangered species, but also to state candidate species for listing. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species, which have the same protection as listed species. Under CESA the term "endangered species" is defined as a species of plant, fish, or wildlife, which is "in serious danger of becoming extinct throughout all, or a significant portion of its range" and is limited to species or subspecies native to California.

California Department of Fish and Game Code

Under the CESA, the CDFG is responsible for maintaining a list of threatened and endangered species (California Fish and Game Code 2070), candidate species, and species of special concern. Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state listed endangered or threatened species may be present on the project region and determine whether the proposed project would have a

potentially significant impact on such species. In addition, the CDFG encourages informal consultation on any proposed project that may impact a candidate species. If there were project-related impacts to species on the CESA threatened and endangered list, they would be considered "significant." Impacts to "species of concern" would be considered "significant" under certain circumstances, discussed below.

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

Fully-Protected Species

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

Bird and Nest Protection

Section 3503 of the California Fish and Game Code prohibits the killing of birds or the destruction of bird nests. Birds of prey are protected in California under the State Fish and Game Code, Section 3503.5 (1992). Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Project impacts to these species would not be considered "significant" in this EIR unless they are known or have a high potential to nest on the site or rely on it for primary foraging.

Section 1600 Streambed Alteration Agreement

Jurisdictional authority of the CDFG over the bed, bank, or channel of a river, stream, or lake is established under Section 1600 et. seq. of the California Fish and Game Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream. The California Fish and Game Code stipulates that it is unlawful to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake resulting in a substantial effect on a fish or wildlife resource without notifying the CDFG and completing the Streambed Alteration Agreement process.

Local

Orange County Natural Community Conservation Plan

The NCCP Act of 2003 provides for regional planning to conserve listed and candidate species, their habitats, and natural communities through habitat-based conservation measures while allowing economic growth and development. The initial application of the NCCP Act was in coastal sage scrub habitat in southern California, home to the California gnatcatcher; it has subsequently been applied to the CAL-FED Bay Delta project and others in northern California.

The Southern California Coastal Sage Scrub NCCP region consists of 11 sub-regions, which may be further divided into subareas corresponding to the boundaries of participating jurisdictions or landowners. In each sub-region and subarea, landowners, environmental organizations, and local agencies participate in a collaborative planning to develop a conservation plan acceptable to USFWS and CDFG. The NCCP conservation requires threat impacts be mitigated to a level that contributes to the recovery of listed species, rather than just avoiding jeopardy.

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

NCCP Subarea Plan

The NCCP for the Central and Coastal subregion (Subarea Plan) was adopted in July 1996, establishing the 37,380-acre Nature Reserve of Orange County (NROC). Twelve major vegetation types are preserved by the Subarea Plan, in return for authorization of incidental "take" (*i.e.*, harass, harm, pursue, hunt, shoot, wound, kill trap, capture, or collect) of 39 species of sensitive plants and wildlife within the remaining portions of the 208,000 acre planning area. In addition to the NROC, the Subarea Plan designates Special Linkages and Existing Use Areas, with certain usage restrictions. Signatories of the Subarea Plan, including IRWD, agree to abide by its restrictions (County of Orange 1995a).

The project site is not a part of the NROC. The adjacent Sanctuary and San Diego Creek are mapped as Non-reserve Open Space (County of Orange 1995b).

3.3.3 Impacts and Mitigation Measures

Significance Criteria

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

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

Impacts Discussion

Local Biological Resource Policies

The proposed project would be developed entirely within the existing footprint of the MWRP and within previously disturbed land devoid of vegetation. No acquisition or alteration of additional land would be necessary. The proposed project would not result in the removal of any trees and would not be subject to any local tree preservation policies or ordinance. There would be no impact.

Conflicts with Orange County NCCP

The project site is not part of the NROC as designated by Subarea Plan NCCP. The adjacent San Joaquin Wildlife Sanctuary and San Diego Creek are mapped as Non-reserve Open Space. All project facilities would be located entirely within previously disturbed or developed areas within the existing MWRP site. As a result, implementation of these facilities would not directly impact the ability of the local jurisdictions to implement the NCCP. The proposed project is consistent with provisions of the Subarea Plan and does not interfere with the existing regional resource plan. The proposed project would not conflict with the Orange County NCCP; therefore, no impacts would occur.

Special-Status Species

Impact 3.3-1: The proposed project could have an indirect adverse effect on a species identified as a candidate, sensitive, or special-status species in the NCCP, or regulations, or by the CDFG or USFWS. (Less than Significant with Mitigation)

As shown in Figure 3.3-1, the proposed project would be developed entirely within the existing footprint of the MWRP. The project site is disturbed land devoid of vegetation that is currently being used for construction staging for the Phase 2 Capacity Expansion. No acquisition or alteration of additional land would be necessary. The project site and staging areas do not include habitat suitable for any special-status species. Therefore, no direct or permanent impacts to sensitive plant or animal species, or sensitive plant communities, would result from the proposed project.

While no sensitive species are expected to occur at the project site, the following species have been documented, or have a moderate or high potential to occur, in adjacent natural habitats within the Sanctuary and could be indirectly affected by lighting, noise, and other construction-related activities:

- great blue heron (*Ardea herodias*)
- Cooper's hawk *(Accipiter cooperii)*
- white-tailed kite (*Elanus leucurus*)
- southwestern willow flycatcher (*Empidonax traillii extimus*)
- American peregrine falcon (*Falco peregrinus anatum*)
- yellow-breasted chat (*Icteria virens*)
- least Bell's vireo (*Vireo bellii pusillus*)
- light-footed clapper rail (*Rallus longirostris levipes*)
- Coyote (*Canis latrans*)
- gray fox (*Urocyon cinereoargentus*)

Implementation of Mitigation Measures BIO-1 and BIO-2 would reduce potentially-significant indirect impacts due to construction activities to special-status bird species in adjacent habitat to less than significant. Wide ranging and mobile mammal species such as coyote and fox are expected to be able to avoid the work areas during project construction.

Mitigation Measures

BIO-1: Construction activities shall be managed to avoid impacts to nesting birds and active nests. Initiation of ground-disturbing activities shall be avoided between February 1 and August 15, the general nesting bird season, to avoid significant impacts to nesting birds adjacent to the project site. If ground disturbance is initiated during this time period, then alternatively, impacts may also be avoided by:

1. conducting a survey during the breeding season to determine presence or absence of nests within a radius of the construction site specified by a qualified biologist;
2. avoiding impact to trees with occupied nests until juveniles have fledged and nests are no longer active or the nest has failed; and
3. establishing a disturbance-free buffer zone around nest sites, which would be determined by a qualified biologist.

BIO-2: If initiation of ground-disturbing construction activities must occur during the specific nesting season of least Bell's vireo and southwestern willow flycatcher (March 15

through September 15), impacts to these species would be avoided through implementation of one of the three of the following measures. Implementation of one of the measures below would reduce impacts to less than significant levels.

1. Conduct surveys to determine the presence or absence of least Bell's vireo or southwestern willow flycatcher in suitable habitat within 500 feet of the project area in accordance with USFWS protocols (USFWS 1999, 2000). If neither species is detected by these surveys, construction may proceed without additional mitigation.
2. If protocol surveys detect the presence of either species, delay construction within a distance of occupied territory determined by a qualified biologist until after the least Bell's vireo and/or southwestern willow flycatcher have migrated from the site. If nesting is detected, delay construction within a distance determined by a qualified biologist until the biologist determines that the young have fledged the nests and/or the nests are no longer active.
3. If protocol surveys detect the active nests of either species, noise barriers may be erected to reduce sound levels at nest sites to reduce the "no construction" buffer distance around the nest as determined by a qualified biologist. If noise barriers are utilized, a qualified biologist shall conduct monitoring of noise levels at the nest sites to determine if construction noise has the potential to affect nesting behavior. If construction activities are determined to affect nesting behavior of least Bell's vireo and/or southwestern willow flycatcher, the biological monitor shall halt construction-related activities that may impact the nests until the juveniles have fledged and/or the nests are no longer active.

Significance after Mitigation: Less than significant.

Riparian Habitat, Natural Communities, Wetlands

Impact 3.3-2: The proposed project could have an indirect adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS. (Less than Significant with Mitigation)

There are no sensitive natural communities within the boundaries of the project site or staging areas. Therefore, no direct impacts to riparian, wetland, or other sensitive communities would occur as a result of the proposed project.

Sensitive natural communities adjacent to the project site include southern black willow forest, southern black willow scrub, mule fat scrub, southern willow scrub, and freshwater marsh. Project site access roads are adjacent to these communities at the northern end of the project area, particularly the access road that connects to the northern-most staging area. Access is expected to follow existing roads and impacts to sensitive native habitats along the access corridor are not anticipated. Nonetheless, any impacts to nearby sensitive communities, including to wetlands or scrub, shall be mitigated should they occur. Implementation of Mitigation Measure BIO-3 would ensure that impacts to riparian habitat or other sensitive natural communities would be less than significant.

Mitigation Measures

BIO-3: Temporary impacts to sensitive natural communities resulting from project construction or use of access road and staging areas shall be revegetated and restored to preconstruction conditions. Additionally, the boundaries of sensitive habitats along access roads, staging areas, and work areas shall be protected with Best Management Practices (BMPs) such as orange safety fencing, silt fencing, sandbags or similar where necessary. The site shall be inspected by a project biologist when necessary to ensure BMPs are implemented to protect sensitive natural communities where appropriate.

Significance after Mitigation: Less than significant.

Impact 3.3-3: The proposed project could have an indirect adverse effect on wetlands, riparian habitats, and other jurisdictional features. (Less than Significant with Mitigation)

The proposed project would occur entirely on previously-disturbed lands that are considered urban/developed or disturbed habitat and would not directly impact adjacent natural communities, including riparian or wetland habitats as defined by Section 404 of the Clean Water Act. Riparian communities, wetlands, and open water bodies associated with the San Diego Creek adjacent to the project site contain features regulated by the CDFG and USFWS (as well as by the USACE and RWQCB) and that are covered under the Orange County NCCP. However, impacts are not expected to occur to CDFG (or USACE) jurisdictional features or to other regulated communities during project construction or operation. The Biosolids Handling Component site is set back from the creek by about 950 feet and the runoff from the site would not drain to the creek as project features would capture all runoff for treatment at the MWRP.

Also, as described above, the proposed project could have indirect effects to wetland and riparian areas in the San Joaquin Wildlife Sanctuary that are adjacent to staging areas and associated access roads, particularly the access road that connects to the northern-most staging area. Implementation of Mitigation Measure BIO-3 would ensure that impacts to riparian, wetland, or other adjacent jurisdictional features would be less than significant.

Mitigation Measures

Implementation of **Mitigation Measure BIO-3**.

Significance after Mitigation: Less than significant.

Wildlife Corridors and Movement

Impact 3.3-4: The proposed project could interfere with the movement of native resident or migratory wildlife species or impede the use of native wildlife nursery sites. (Less than Significant with Mitigation)

In the event that project construction requires nighttime activities, associated nighttime lighting and noise would have the potential to impact wildlife in the adjacent Sanctuary, causing nocturnal wildlife to avoid moving through the area. Implementation of Mitigation Measure BIO-4 would reduce indirect construction-related impacts to wildlife activities and movement to less than significant levels.

Once new facilities are constructed, new operational facility lighting would be installed. Operations of the biosolids facilities would occur 24 hours a day seven days per week. As described in Chapter 2, Project Description, the lighting system would be designed to minimize offsite impacts, including to the Sanctuary and neighboring residential land uses. External security lighting would be directed downward to limit offsite light spill. Horizontal baffles or cutoffs may be used to direct the light toward the ground and limit horizontal travel. Low-intensity lighting would be provided along parking areas and walkways. Impacts associated with operational nighttime lighting would be considered less than significant.

Mitigation Measures

The following mitigation measure was included in the previous MWRP Final EIR as BIO-3 and is applicable to the proposed project. Any modifications to the previous measure have been underlined.

> **BIO-4:** (Previously BIO-3): If construction occurs during nighttime hours <u>and lighting is required, then</u> lighting shall be shielded and directed away from San Joaquin Wildlife Sanctuary and Marsh and San Diego Creek, while maintaining sufficient lighting to ensure worker safety.

Significance after Mitigation: Less than significant.

References –Biological Resources

Bretz, William L., San Joaquin Marsh Reserve Staff Manager, Univeristy of California Natural Reserve System, Personal communication (e-mail) with Ian Swift at Irvine Ranch Water District, Subject: Clapper rails in San Joaquin Marsh, June 17, 2011.

California Department of Fish and Game (CDFG). 2008a. California Natural Diversity Database (CNDDB) Rarefind computer program (Version 3.1.0). California Department of Fish and Game, Biogeographic Data Branch. Sacramento, CA.

California Native Plant Society (CNPS). 2008. Inventory of Rare and Endangered Plants. California Native Plant Society, Sacramento, California. http://www.cnps.org/inventory.

Holland, Robert F., PhD. Preliminary Descriptions of the Terrestrial Natural Communities of California. Department of Fish and Game. Sacramento, California, September 1986.

Orange, County of. 1995a. Natural Community Conservation Plan / Habitat Conservation Plan. County of Orange, Central & Coastal Subregion. Parts I & II. NCCP/HCP. December 7.

Orange, County of. 1995b. Natural Community Conservation Plan / Habitat Conservation Plan. County of Orange, Central & Coastal Subregion. Map Section (Figures 1 through 73). December 7.

Sea and Sage Audubon Society. 2011. Sea & Sage Bird Counts accessed at http://www.seaandsageaudubon.org/birdcounts.htm. Updated March 5, 2011.

Terrestrial Vegetation Communities in San Diego County Based on Holland's Descriptions, Suggested by Thomas Oberbauer (revised February 1996).

U.S. Fish and Wildlife Service (USFWS). 1999. Least Bell's vireo survey guidelines. April 8. Carlsbad, California. 3 pp.

U.S. Fish and Wildlife Service (USFWS). 2000. Southwestern Willow Flycatcher Protocol Revision 2000. July 11. 3 pp.

WRCC, 2011: Period of Record Monthly Climate Summary for Tustin Irvine Ranch (049087). Accessed at http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca9087.

3.4 Cultural Resources

This chapter addresses the potential impacts of the proposed project to cultural resources in the project vicinity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter is based on the report *IRWD Biosolids Handling and Energy Recovery Facilities Project Draft Phase I Cultural Resources Study*, prepared by ESA, 2011.

Cultural resources are defined as prehistoric and historic sites, structures, districts, and landscapes, or any other physical evidence associated with human activity considered important to a culture, a subculture, or a community for scientific, traditional, religious or any other reason. Under CEQA, paleontological resources, although not associated with past human activity, are grouped within cultural resources. For the purposes of this analysis, cultural resources may be categorized into four groups: archaeological resources, historic resources, including architectural/engineering resources, contemporary Native American resources, and paleontological resources.

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

Historic resources include standing structures, infrastructure, and landscapes of historic or aesthetic significance that are generally 50 years of age or older. In California, historic resources considered for protection tend to focus on architectural sites dating from the Spanish Period (1529-1822) through the early years of the Depression (1929-1930), although there has been recent attention paid to World War II (WWII) and Post War era facilities. Earlier historic resources are often associated with archaeological deposits of the same age. Some resources, however, may have achieved significance within the past 50 years if they meet the criteria for exceptional significance.

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

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in

this section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

3.4.1 Environmental Setting

Natural Setting

The Project is situated on the Tustin Plain landform with an elevation of approximately 45 feet amsl. The sediment that underlies the Tustin Plain has been divided into two general units with the younger unconsolidated alluvium overlying older semi-consolidated alluvium. These sediments are underlain by consolidated sedimentary bedrock. The combined thickness of younger and older alluvium in the western portion of the Tustin Plain is between 1,100 and 1,400 feet (Aron, 2009).

The topography of Orange County includes a combination of mountains, hills, flatlands, and shorelines. Orange County lies predominantly on an alluvial plain, which is generally less than 300 feet in elevation in the west and central section. The western portion of the County is made up of a series of broad sloping plains (Downey and Tustin Plains) formed from alluvium transported from the mountains by the Santa Ana River, Santiago Creek, and other local streams. Several low-lying mesas interrupt the plains along the northern coast. Orange County is semi-enclosed by the Puente and Chino Hills to the north, the San Joaquin Hills to the south, and the Santiago Foothills and the Santa Ana Mountains to the east. The Puente and Chino Hills, which identify the northern limit of the plains, extend for 22 miles and reach a peak height of 7,780 feet. To the east and southeast of the plains are the Santa Ana Mountains, which have a peak height of 5,691 feet.

Prehistoric Setting

The prehistory of the region has been summarized within four major horizons or cultural periods: Early, Millingstone, Intermediate, and Late Prehistoric (Wallace, 1955; Warren, 1968). The Early period covers the interval from the first presence of humans in southern California until post-glacial times. Occupation of the southern California mainland dates to approximately 10,000 years before present (BP). The first inhabitants were likely maritime adapted groups, exploiting the marine resources of the region. Upper Newport Bay and the San Joaquin Marsh, which was a saltwater marsh for most of prehistory, would have provided abundant marine resources and were a focus of prehistoric settlement. A ring of archaeological sites, dating to all periods, ring Upper Newport Bay and the San Joaquin Marsh. Site CA-ORA-64, located near the head of Newport Bay, is one of the few Orange County sites that contain an Early period component. The component dates to about 9,500 BP and exhibits evidence of a diverse

subsistence strategy including shellfish collecting, fishing, and bird procurement (Cleland et al., 2007).

The Early period is followed by the Millingstone period, which dates to between approximately 8,000 to 3,000 BP. The transition from the Early period to the Millingstone period is marked by an increased emphasis on the processing of seeds and edible plants. The increased utilization of seeds is evident by the high frequencies of handstones (manos) and milling slabs (metates). Around 5,000 BP, mortar and pestles appear in the archaeological record. Mortars and pestles suggest the exploitation of acorns (Vellanoweth and Altschul, 2002).

Millingstone period sites in Orange County generally date to between 8,000 and 4,000 BP. Archaeological evidence suggests a low, stable population centered on semi-permanent residential bases. These sites are located along coastal marine terraces, near the shoreline, bays, and estuaries. Satellite camps were used to take advantage of seasonally available resources. Marine resources were supplemented by seeds and small terrestrial mammals. Later Millingstone period sites indicate a growing reliance on shellfish (Cleland et al., 2007).

The Intermediate period dates to between 3,000 to 1,500 BP. Archaeological sites indicate a broader economic base, with increased reliance on hunting and marine resources. An expanded inventory of milling equipment is found at sites dated to this period. Intermediate period sites are characterized by a sharp increase in the mortar and pestle and small projectile points (Cleland et al., 2007).

The number of Intermediate period sites in Orange County declined over time, particularly around Newport Bay. Climate changes and drier conditions led to the congregation of populations near freshwater sources. Settlement patterns indicate greater sedentism, with reduced exploitation of seasonal resources and a lack of satellite camps. Coastal terrace sites are not reoccupied during this time period. These shifts in settlement and subsistence strategies led to growing population densities, resource intensification, higher reliance on labor-intensive technologies, such as the circular fishhook, and more abundant and diverse hunting equipment. Rises in disease and inter-personal violence, visible in the archaeological record, may be due to the increased population densities (Cleland et al., 2007). Site CA-ORA-119a, located about 1/3-mile south of the project area, spans the Millingstone, Intermediate, and Late Prehistoric periods. During the Intermediate Period, the site was a multi-season residential base (Peterson and Mason, 2002).

The Late Prehistoric period began around 1,500 BP and lasted until Spanish contact in 1769. The Late Prehistoric period resulted in the concentration of larger populations in settlements and communities, greater utilization of available food resources, and the development of regional subcultures (Cleland et al., 2007). Artifacts from this period include milling implements, as well as bone and shell tools and ornaments.

Newport Bay and the San Joaquin Hills, abandoned during the early Intermediate period, were reoccupied during the Late Prehistoric period. Village sites were located in areas with a multitude of resources. Small collector groups moved between a small number of these permanent

settlements (Cleland et al., 2007). Site CA-ORA-111, located about ¼-mile to the east of the project area, was occupied during the Late Prehistoric and early Historic periods.

Ethnographic Setting

The Project is located in a region traditionally occupied by the Takic-speaking Gabrielino Indians. Prior to European colonization, the Gabrielino occupied a diverse area that included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers; the Los Angeles basin; and the islands of San Clemente, San Nicolas, and Santa Catalina.

The Gabrielino Indians were hunter-gatherers and lived in permanent communities located near the presence of a stable food supply and some measure of protection from flooding. Community populations generally ranged from 50-100 inhabitants, although larger settlements may have existed. The Gabrielino are estimated to have had a population numbering around 5,000 in the pre-contact period (Kroeber, 1925).

The nearest ethnographic village to the project area was *Kengaa* or *Genga*, possibly located on Upper Newport Bay. Sites CA-ORA-111 and CA-ORA-119a, located less than ½-mile from the project area, have both been posited as possible locations for Kengaa (McCawley, 1996); however, other theories place the location of Kengaa near the Santa Ana River on the western Newport Mesa, possibly at CA-ORA-58 (Koerper and Hedges, 1996). The village may have been occupied as late as 1830, according to records from Mission San Juan Capistrano (McCawley, 1996).

Beginning with the Mission Period, Native Americans suffered severe depopulation and their traditional culture was radically altered. Nonetheless, Gabrielino descendants still reside in the greater Los Angeles and Orange County areas and maintain an active interest in their heritage resources.

Historic Setting

Spanish Era (1769-1821)

The first European exploration of Orange County began in 1769 when the Gaspar de Portolá expedition passed through on its way from San Diego to the San Francisco Bay area. A permanent Spanish presence was established with the founding of Mission San Juan Capistrano in 1776 (Hoover et al, 2002). The mission was founded to break the long journey from Mission San Diego to Mission San Gabriel (near Los Angeles). A large, ornate church was constructed at the mission between 1797 and 1806, but was destroyed only six years later in an earthquake. The church was not rebuilt.

In an effort to promote Spanish settlement of Alta California, Spain granted several large land concessions from 1784 to 1821. At that time, Spain retained title to the land; individual ownership of lands in Alta California was not granted. The part of Orange County that would become the cities of Tustin and Irvine began as a Spanish land concession. Permission for

settlement and cattle grazing of Rancho Santiago de Santa Ana was granted to Antonio Yorba and his nephew Juan Pablo Peralta by Jose Joaquin de Arrillago, Spanish Governor of Alta California, on July 1, 1810. The total land concession comprised 17 leagues (62,516 acres) (Logan, 1990; Sherman Library, 2009).

Mexican Era (1821-1846)

In 1821, Mexico won its independence from Spain. Mexico continued to promote settlement of California with the issuance of land grants. In 1833, Mexico secularized the missions, reclaiming the majority of mission lands and redistributing them as land grants. The area that would become southern Irvine was part of Rancho San Joaquin, granted in 1837 to Jose Sepulveda by Governor Alvarado (Starr, 2007). The area that would become northern Irvine was part of Rancho Lomas de Santiago, granted in 1846 to Teodosio Yorba (Logan, 1990). The area that would become Tustin remained part of the Santiago de Santa Ana rancho.

Ranchos continued to be used for cattle grazing by settlers. Hides and tallow from cattle became a major export for Californios (Hispanic Californians), many of whom became wealthy and prominent members of society. These Californios led generally easy lives, leaving the hard work to vaqueros (Hispanic cowhands) and Indian laborers.

American Era (1846 to present)

Mexico ceded California to the United States as part of the Treaty of Guadalupe Hildalgo, which ended the Mexican-American War (1846-1848). The treaty also recognized right of Mexican citizens to retain ownership of land granted to them by Spanish or Mexican authorities. However, the claimant was required to prove their right to the land before a patent was given. The process was lengthy and costly, and generally resulted in the claimant losing at least a portion of their land to attorney’s fees and other costs associated with proving ownership (Starr, 2007).

The Gold Rush (1849-1855) saw the first big influx of American settlers to California. Most of these settlers were men hoping to strike it rich in the gold fields. The increasing population provided an additional outlet for the Californios’ cattle (Bancroft, 1890). As demand increased, the price of beef skyrocketed and Californios reaped the benefits.

The culmination of the Gold Rush, followed by devastating floods in 1861 and 1862 and droughts in 1863 and 1864, led to the rapid decline of the cattle industry (Bancroft, 1890). Many Californios lost their lands during this period, and former ranchos were subsequently divided and sold for agriculture and residential settlement.

Following the admission of California into the United States in 1850, the region of modern day Orange County was originally part of Los Angeles County. Orange County was established in 1889, with the City of Santa Ana as County Seat (Armor, 1921).

History of the Project Area and Vicinity

The project area is located within the former Rancho San Joaquin, the Mexican land grant granted to Don Jose Sepulveda in 1837. By 1864, Sepulveda was heavily in debt, and sold his 50,000-acre rancho to James Irvine, Llewellyn Bixby, and Benjamin and Thomas Flint. Two years later, the new owners also acquired the neighboring 47,000 acres of Rancho Lomas de Santiago. The Irvine, Flint, and Bixby properties primarily supported sheep grazing, although some tenant farming occurred. In 1878, James Irvine became the sole owner of the 110,000-acre property. Irvine constructed a small two-story frame house on Rancho San Joaquin, near Sepulveda's old compound (Liebeck, 1990).

Irvine died in 1886, at which time his son, James Irvine, Jr., inherited the property. The younger Irvine incorporated the ranch into The Irvine Company in 1894 and began focusing on field crops, olive, and citrus orchards (City of Irvine, 2011). In 1913, the Frances Mutual Water District was formed in order to improve the supply of water on the Irvine Ranch. The Water District drilled 1,200 wells in the Santa Ana Basin, established an extensive reservoir and dam system, and constructed canals and irrigation pipelines to deliver water to the agricultural fields. However, by the 1940s, it was apparent that the ranch operations would require more water than their water system could supply. In 1955, the Irvine Company negotiated a deal with the Metropolitan Water District to import water from the Colorado River into Santiago Lake. IRWD was formed in 1961 (Liebeck, 1990). The IRWD initially served primarily agricultural customers. When the IRWD was authorized to collect, treat, and dispose of sewage, planning began for the Michelson Reclamation Plant (now known as the MWRP) (IRWD, 2011). The MWRP was constructed in 1967 and expanded in 1979.

In 1959, the Irvine Company granted the University of California 1,000 acres for the construction of a new campus. The Irvine Company and the University's consulting architect, William Pereira, created a master plan for a community of 50,000 people around the University. Soon thereafter, industrial and business parks were established in the area. The City of Irvine incorporated in 1971, and by 1999 the city had a population of 134,000 and covered 43 square miles (City of Irvine, 2011).

Research Methods and Results

Archival Research

A records search for the Project was conducted on March 15, 2011 at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The records search included a review of all recorded archaeological sites within a 1/2-mile radius of the project area, as well as a review of cultural resource reports on file. In addition, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register, the National Register, and the California State Historic Resources Inventory (HRI) listings were reviewed for properties within or adjacent to the project area.

The records search indicated that a total of 56 cultural resources studies have been conducted within a 1/2-mile radius of the Area of Potential Effects (APE). Of these 56 studies, six included

portions of the project area. The entire project area appears to have been included in past cultural resources studies.

A total of eight archaeological sites and seven isolated artifacts have been previously recorded within ½ mile of the project area (**Table 3.4-1**). Seven of the archaeological sites are prehistoric habitation sites, and one archaeological site is a historic-era trash deposit. Of the isolates, five are historic and two are prehistoric in age. In addition, two California Points of Historical Interest are located within ½ mile of the project area; one is a historic-era structure (Rancho San Joaquin Headquarters), the other the foundation of the San Joaquin adobe. None of these resources are located within the project area. The nearest resource (P-30-100167, a prehistoric isolate) is mapped about 200 feet northwest of the project area. The nearest archaeological site (CA-ORA-197, a prehistoric habitation site) is mapped approximately 250 feet east of the project area.

Historic Map and Aerial Review

Historic topographic maps (1896 and 1901 Santa Ana 15-minute and 1902 Corona 30-minute USGS topographic maps) and aerial photographs (1946, 1952, 1972, 1980; historicaerials.com) were reviewed. The 1896 and 1901 Santa Ana 15-minute and 1902 Corona maps depict the project area as being in a marsh. The 1901 and 1902 maps depict a road running northwest to southeast through the southern extent of the project area. The project area appears generally vacant until 1972, when the Michelson Reclamation Plant is visible. By 1980, the plant had expanded to near its current boundaries. The main project area, where the biosolids facilities are to be built, appears to have been vacant throughout its history.

Native American Contact

A Sacred Lands File search with the Native American Heritage Commission (NAHC) was requested on March 8, 2011. Sacred Lands File search results prepared by the NAHC on March 18, 2011, indicated that Native American resources were identified within ½-mile of the project area.

Contact letters to all individuals and groups indicated by the NAHC as having affiliation with the project area were prepared and mailed on March 18, 2011. The letters described the Project and included a map indicating the location of the project area. Recipients were requested to reply with any information they are able to share about Native American resources that might be affected by the Project. To date, two responses have been received. Alfred Cruz, of the Juaneno Band of Mission Indians, called to request more information regarding the project. Mr. Cruz stated that there were many burials in that area, and since it was located along the San Diego Creek, the area should be considered sensitive. He recommended archaeological and Native American monitoring during construction. Joyce Perry, of the Juaneno Band of Mission Indians, Acjachemen Nation, responded via phone message that there are sites known in that area and that she has concerns about the project. She requested that a Native American and archaeological monitor be present during all ground disturbing activities.

TABLE 3.4-1
PREVIOUSLY RECORDED CULTURAL RESOURCES WITHIN 1/2 MILE OF THE PROJECT AREA

Permanent Trinomial (CA-ORA-)	P-Number (P-30-)	Other Designation	Description	Date Recorded
111	-	Irvine Mound #1	Prehistoric habitation site in three loci. With midden, shellfish, lithics, burials. Locus 1 is located at the same site as the San Joaquin Rancho Adobe (P-30-162289).	1930s
115	-	-	Prehistoric site with midden and shell	1963, updated 1976, 1985
119	-	-	Prehistoric site with midden and shell, in 5 loci	1963
120	-	-	Prehistoric site with midden, shell, groundstone	1963
121	-	-	Prehistoric site with midden, shell, groundstone, lithics, and burials	1963, updated 1985, 1991, 1996, 1998
196	-	-	Prehistoric and historic-era site on a small knoll overlooking the San Joaquin Marsh, with shell, groundstone, lithics, and burials; historic pottery, glass, brick, adobe, and foundations. May be site of former residence of Don Jose Sepulveda. The site has been subject to numerous episodes of archaeological testing and was determined eligible for listing in the CRHR by IRWD in 2000 (Peterson and Mason, 2002).	1967, updated 1993, 1996
197	-	-	Prehistoric site on a small knoll overlooking the San Joaquin Marsh. Data recovery was performed at the site in 1976. The site was determined eligible for listing in the CRHR by IRWD in 2000 (Peterson and Mason, 2002)..	1967
1488H	001488	-	Historic-era trash deposit with glass, ceramics, bone, metal, shell, structural debris, agricultural machinery and a foundation pad	1997
-	100161	-	Historic isolate – ceramic fragment	1997
-	100162	-	Prehistoric isolate – sandstone mano	1997
-	100163	-	Historic isolate – ceramic fragment	1997
-	100164	-	Historic isolate – ceramic fragment	1997
-	100165	-	Historic isolate – ceramic fragment and bone fragment	1997
-	100166	-	Isolate – tooth fragment and bone fragment	1997
-	100167	-	Prehistoric isolate – broken sandstone mano	1997
-	162289	California Point of Historic Interest Ora-016	"Foundations of the San Joaquin Adobe". Consists of the remains of a mid-19th century adobe structure interpreted as being the second adobe of Jose Sepulveda.	1983
-	162290	California Point of Historic Interest Ora-017	"Rancho San Joaquin Headquarters". Wood-frame house built in 1868 by James Irvine	unknown

SOURCE: SCCIC, 2011

Site Visit

The project area and three staging areas were surveyed on March 23, 2011. A fourth staging area was surveyed on June 16, 2011. All unpaved portions of the project area were systematically surveyed in 50-foot (15-meter) transects. Portions of the project area that were paved, or where the ground was otherwise obscured, were subject to a reconnaissance-level survey.

The main project area and adjacent proposed staging area are currently in use as construction staging for current MWRP expansion activities. Much of this area was obscured by staged equipment, materials, and soil. In addition, recent rains had left those portions of the ground that were not obscured by staged materials muddy and occasionally covered by puddles of water. In total, about 50 percent of the main project area and adjacent proposed staging area was able to be systematically surveyed. The two other staging areas were currently in use as a parking lot and as a maintenance yard. Both staging areas were paved either with cement or gravel, and no ground surface was visible. Therefore, these staging areas were given only a reconnaissance-level survey. No cultural resources were recorded during the survey.

Paleontological Records Search

A paleontological records search was performed by Dr. Sam McLeod of the Natural History Museum of Los Angeles County on March 24, 2011. The results of the records search indicated that the project area is underlain by recent Quaternary Alluvium. While significant vertebrate fossils are unlikely to be contained in the uppermost layers, deeper excavations into older Quaternary alluvium retain the potential to uncover fossil vertebrates.

While no fossil localities have been previously recorded within the project area, several fossil localities had been recorded nearby in the same type of sediments that underlie the project area. The nearby fossil recoveries were associated with Quaternary Alluvium just southwest of the project area near Macarthur Boulevard, including a number of Quaternary vertebrate fossils (McLeod, 2011).

3.4.2 Regulatory Framework

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

Federal

National Register of Historic Places

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

To be eligible for listing in the National Register, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must meet one or more of the following four established criteria (U.S. Department of the Interior, 1995):

A. Are associated with events that have made a significant contribution to the broad patterns of our history;

B. Are associated with the lives of persons significant in our past;

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

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

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

State

The State implements the NHPA through its statewide comprehensive cultural resources surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions.

California Register of Historical Resources

The California Register is "an authoritative listing and guide to be used by State and local agencies, private groups, and citizens in identifying the existing historical resources of the State and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code § 5024.1[a]). The criteria for eligibility for the California Register are based upon National Register criteria (California Public Resources Code § 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register.

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

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

A resource eligible for the California Register must meet one of the criteria of significance described above, and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register;
- California Registered Historical Landmarks from No. 770 onward; and,
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5 (those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register);

- Individual historical resources;
- Historical resources contributing to historic districts; and,
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State and is codified at PRC Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on historical or archaeological resources.

Under CEQA (Section 21084.1), a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. The *CEQA Guidelines* (Section 15064.5) recognize that an historical resource includes: (1) a resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the CRHR; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The fact that a resource does not meet the three criteria outlined above does not preclude the lead agency from determining that the resource may be an historical resource as defined in PRC Sections 5020.1(j) or 5024.1.

If a lead agency determines that an archaeological site is a historical resource, the provisions of Section 21084.1 of CEQA and Section 15064.5 of the *CEQA Guidelines* apply. If a project may cause a substantial adverse change (defined as physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired) in the significance of an historical resource, the lead agency must identify potentially feasible measures to mitigate these effects (*CEQA Guidelines* Sections 15064.5(b)(1), 15064.5(b)(4)).

If an archaeological site does not meet the criteria for a historical resource contained in the *CEQA Guidelines*, then the site may be treated in accordance with the provisions of Section 21083, which is a unique archaeological resource. As defined in Section 21083.2 of CEQA a "unique" archaeological resource is an archaeological artifact, object, or site, about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information;

- Has a special and particular quality such as being the oldest of its type or the best available example of its type; or,
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If an archaeological site meets the criteria for a unique archaeological resource as defined in Section 21083.2, then the site is to be treated in accordance with the provisions of Section 21083.2, which state that if the lead agency determines that a project would have a significant effect on unique archaeological resources, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place (Section 21083.1(a)). If preservation in place is not feasible, mitigation measures shall be required.

The *CEQA Guidelines* note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment (*CEQA Guidelines* Section 15064.5(c)(4)).

Local

Irvine General Plan

The City of Irvine General Plan includes a Cultural Resources Element, which establishes a process for the early identification, consideration, and where appropriate, preservation of historical, archaeological, and paleontological resources. The Cultural Resources Element contains goals and policies requiring archaeological and paleontological surveys in sensitive areas.

Paleontological Resources

Federal

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

State

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

Local

Irvine General Plan

The City of Irvine General Plan includes a Cultural Resources Element, which establishes a process for the early identification, consideration, and where appropriate, preservation of historical, archaeological, and paleontological resources (see above).

Professional Standards

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

3.4.3 Impacts and Mitigation Measures

Significance Criteria

CEQA Guidelines

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

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

Impacts Discussion

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

Historical Resources

No archaeological or built architectural cultural resources either listed on or eligible for the National Register, California Register, or local register are known to be located within the project

site or would be impacted by the proposed project. Therefore, there would be no impact to known historical resources as a result of project implementation.

Archaeological Resources

Impact 3.4-1: Project construction could affect an archaeological resource. (Less than Significant with Mitigation)

About half of the main project area was not able to be systematically surveyed due to the ground surface being obscured by water and staged equipment, materials, and soils. It is recommended that prior to the start of any ground-disturbing activities associated with the implementation of the proposed project, and after the ground surface is cleared of staged equipment and other obstructions, the unsurveyed portion of the project area be systematically surveyed by a qualified archaeologist (defined as one meeting the Secretary of the Interior's Qualification Standards).

The project area is highly sensitive for archaeological resources. A total of eight archaeological sites and seven isolates have been previously recorded within ½ mile of the project area. Seven of the archaeological sites are prehistoric habitation sites, and one archaeological site is a historic-era trash deposit. Three of the archaeological sites contain human burials. Of the isolates, five are historic and two are prehistoric in age. In addition, two California Points of Historical Interest are located within ½ mile of the project area; one is a historic-era structure (Rancho San Joaquin Headquarters, the other the foundations of the San Joaquin adobe. None of these resources are located within the project area. The nearest resource (P-30-100167, a prehistoric isolate) is mapped about 180 feet northwest of the project area. The nearest archaeological site (CA-ORA-197, a prehistoric habitation site) is mapped approximately 250 feet east of the project area.

The large number of archaeological sites in close proximity to the project area, its location along a permanent water source, and its location within the resource procurement area of the prehistoric habitation sites that ring the San Joaquin Marsh, indicate that the project area is highly sensitive for archaeological resources, particularly for prehistoric archaeological resources. In addition, two Native American representatives with knowledge of the area expressed their concern about the project and its possible impact on archaeological and Native American resources, specifically burials.

Although much of the surface of the project area has been previously disturbed, this does not significantly reduce the potential of the project to impact archaeological resources. The MWRP was constructed in 1967; however, the project area appears to have remained undeveloped. The geotechnical report prepared for the project indicates that the top 1 to 12 feet of soil are undocumented artificial fill, and that beneath that is a 25 to 40-foot thick layer of native marsh deposits and alluvium, described as fine highly organic clays and silts (NGM, 2011). Therefore, although the project area has been disturbed potentially to a depth of 12 feet below ground surface (bgs), undisturbed native soil is present beneath the fill layer.

Excavation for the proposed project would extend at least 35 feet for the methane digesters and 25 feet for the Solids Handling Building and Digester Control Building. Therefore, excavation would extend beneath the disturbed layer of artificial fill and into undisturbed native alluvium (NGM, 2011). Because of the archaeological sensitivity of the area, and since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface. With the implementation of **Mitigation Measures CUL-1** and **CUL-2**, impacts to archaeological resources would be reduced to less than significant.

Mitigation Measures

CUL-1: Prior to the start of any earth-moving activity, an archaeological monitor shall be retained. The archaeological monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The qualified archaeologist shall determine the areas where excavation would exceed the depth of artificial fill based on the project design and grading plans. The qualified archaeologist shall consult with IRWD to determine the initial duration and timing of monitoring in these areas. Based on observations of soil stratigraphy or other factors, the level of monitoring may be reduced as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated.

Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area.

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

Significance after Mitigation: Less than significant

Paleontological Resources

Impact 3.4-2: Implementation of the proposed project could adversely affect paleontological resources. (Less than Significant with Mitigation)

While no fossil localities have been previously recorded within the project area, several fossil localities had been recorded nearby in the same type of sediments that underlie the project area.

The nearby fossil recoveries were associated with Quaternary Alluvium just southwest of the project area near Macarthur Boulevard, including a number of Quaternary vertebrate fossils (McLeod, 2011).

In addition, a mammoth tooth was discovered during construction monitoring along Riparian View, just north of the project area (Peterson and Mason, 2002). Fossils have also been recovered from depths of 8 to 25 feet bgs within the Irvine Business Complex, immediately north of the project area (Gust and Scott, 2009).

The majority of the project area appears to be underlain by younger Quaternary Alluvium. While significant vertebrate fossils are unlikely to be contained in the uppermost layers and artificial fill, deeper excavations into the underlying older Quaternary Alluvium retain the potential to uncover fossil vertebrates. While the depth of the younger alluvium beneath the project area is unknown, thickness of Quaternary younger alluvial sediments varies in the Santa Ana and Tustin area from a few inches to up to 30 feet. Excavation for the proposed project would extend up to 35 feet bgs, and fossils have been recovered from depths of 8 to 25 feet bgs immediately north of the project area. Therefore, there exists the possibility that paleontological resources may be impacted by the project. A Qualified Orange County Paleontologist should be retained to prepare a Paleontological Resources Mitigation and Monitoring plan for areas in which construction excavations would exceed a depth of 8 feet or the depth of artificial fill. This is because significant fossils have been discovered in older alluvium that has been unearthed at such depths elsewhere on the Tustin Plain. With the implementation of **Mitigation Measures CUL-3** and **CUL-4**, impacts to paleontological resources would be reduced to less than significant.

Mitigation Measures

CUL-3: Prior to the start of any earth moving activities, an Orange County Certified (OCC) Paleontologist shall be retained. Based on geotechnical findings and the construction design plans, the OCC Paleontologist shall determine areas where excavation would exceed eight (8) feet bgs or the depth of artificial fill. The OCC Paleontologist shall consult with IRWD to determine the duration and timing of monitoring in these areas. All required paleontological resources monitoring shall be performed by qualified paleontological monitors. In the event fossils are exposed during earth moving, the monitor shall have the authority to halt or redirect construction activities to other work areas so the find can be evaluated.

CUL-4: In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find.

Significance after Mitigation: Less than significant

Human Remains

Impact 3.4-4: Implementation of the proposed project could result in the disturbance of human remains (Less than Significant with Mitigation).

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

Mitigation Measures

> **CUL-5*:*** If human remains are uncovered during project construction, the project proponent shall immediately halt work, contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains.

Significance after Mitigation: Less than significant

References – Cultural Resources

Armor, Samuel, *History of Orange County, California : with biographical sketches of the leading men and women of the county who have been identified with its earliest growth and development from the early days to the present*. Los Angeles, Historic Record Co, 1921.

Aron, Geraldine, *Paleontological Resources Assessment Sensitivity Report for the Irvine Ranch Water District Tustin Wells 1, 21 and 22 Project, Tustin, Orange County, California*, prepared by Paleo Solutions for IRWD, December, 2009.

Bancroft, Hubert Howe, *The Works of Hubert Howe Bancroft, Vol. XXIV, History of California, Vol. VII, 1860-1890*, The History Company Publishers, San Francisco, CA, 1890.

City of Irvine, History of the City, http://www.cityofirvine.org/about/history.asp, accessed April 13, 2011.

Cleland, J.H., A.L. York, and L.M. Willey, *Piecing Together the Prehistory of Landing Hill: A Place Remembered*, EDAW Cultural Publications No. 3, San Diego, CA, 2007.

Hoover, M. B., H. E. Rensch, E. G. Rensch, W. N. Abeloe, *Historic Spots in California.* Revised by Douglas E. Kyle. Palo Alto, CA: Stanford University Press, 2002.

IRWD, IRWD: In the Beginning, http://www.irwd.com/news-bureau/news-releases/archive/irwd-in-the-beginning.html, February 2, 2011, accessed May 4, 2011.

Koerper, Henry C., and Ken Hedges, Patayan Anthropomorphic Figurines from an Orange County Site, *Journal of California and Great Basin Anthropology* 18(2):204-220, 1996.

Kroeber, A. L., *Handbook of Indians of California*. Dover Publications, Inc., New York, 1925

Liebeck, Judy, *Irvine: A History of Innovation and Growth*, Pioneer Publications, Houston, Texas, 1990. Available online at http://www.irvineranchhistory.com/ranch_history.html, accessed April 13, 2011.

Logan, Dan, Land of Memories: Glimpses of Old Ranchos Survive, *Los Angeles Times*, May 3, 1990.

NGM Geotechnical, Incorporated, *Report of Geotechnical Exploration and Design Recommendations for the Proposed Irvine Ranch Water District Biosolids and Energy Recovery Center, Michelson Water Reclamation Plant, City of Irvine, California*, prepared for Black and Veatch, February 24, 2011.

Peterson, Patricia A., and Roger D. Mason, *Cultural Resources Monitoring Report for the Riparian View and Duck Club Road Improvements Projects, San Joaquin Marsh Area, Orange County, California*, Prepared by Chambers Group for IRWD, July 2002.

Sherman Library, Joe and Ramona Miller California Land Grant Collection, 1810-1957: Finding Aid, electronic document accessed online at http://www.slgardens.org/ on January 25, 2009.

Starr, Kevin, *California: A History*, Modern Library, 2007.

U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation,* National Park Service, Washington, DC., 1995.

Vellanoweth, R.L. and J.H. Altschul, Antiquarians, Culture Historians, and Scientists: The Archaeology of the Bight, in *Islanders and Mainlanders: Prehistoric Context for the Southern California Bight*, edited by J.H. Altschul and D.G. Grenda, pp. 85-111, SRI Press, Tucson, 2002.

Wallace, William J., A Suggested Chronology for southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11(3); 214-230, 1955.

Warren, Claude, "Cultural Tradition and Ecological Adaptation on the Southern California Coast", In *Archaic Prehistory in the Western United States*, edited by C. Irwin-Williams, pp 1-14, Eastern New Mexico University Contributions in Anthropology, 1(3), 1968.

3.5 Geology, Soils, and Seismicity

This chapter addresses the potential impacts of the proposed project associated with geology, soils, and seismicity in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter evaluates whether construction and operation of the proposed project would result in potential adverse impacts related to local geology, existing soil conditions, or seismicity.

3.5.1 Environmental Setting

Regional Setting

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

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

Local Setting

The MWRP site is located in the City of Irvine within the coastal lowlands of the Los Angeles Basin. The site falls within the central lowland of the Tustin Plain where it transitions to the northeastern portion of the Newport Mesa within the Peninsular Range geomorphic province. The project site lies adjacent to the marshland area of San Diego Creek, a major tributary to the Newport Back Bay. The north-facing flanks of the San Joaquin Hills are located just to the south. Mapping by the California Department of Mines and Geology, indicates the site is underlain by Quaternary-age alluvial deposits up to 100 feet thick, which overlies Tertiary-age sedimentary bedrock. The regression and transgression of sea level along with regional faulting and the meandering nature of San Diego Creek have all contributed to a wide range of depositional environments at the site. The site has changed over time from a water lagoon to near shore shallow marine and terrestrial environments with meandering streams. (NMG, 2011)

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

Peat deposits typically develop in shallow swamp and marsh areas and can be found at the upper end of Newport Bay. The soils that form on the surface of marsh areas are generally of high organic content (from decaying vegetation), soft, and odiferous. Peat layers form from accumulations of decomposed or partially decomposed aquatic plants in shallow swamp and marsh areas. Peat is normally spongy, relatively light, weak, and highly compressible. Similar soil conditions occur at the project site as noted below.

Topography

The ground surface in the vicinity of the proposed project is generally of low relief with few slopes. The MWRP site is a depressed, relatively flat area with elevation ranging between approximately 10 to 15 feet above mean sea level (amsl). The eastern levee separates the MWRP from the San Diego Creek Channel. Surface drainage consists of sheet flow runoff of incident rainfall and irrigation derived primarily within the parcel boundaries and adjacent areas.

Soils

The upper one to twelve feet of the entire site contains undocumented fill (Afu). The undocumented fill material consisted of dark brown to black and yellowish gray to brown sandy clay/clayey sands and sandy silts with scattered construction debris including asphalt and concrete fragments, pipe fragments, wire, plastic and wood debris. The undocumented fill is generally loose in the upper few feet and within local layers at depth, and is dry to wet. (NMG, 2011)

There are near-surface alluvial deposits (Qal) located at the upper 35 to 45 feet. The alluvial deposits (Qal) consist of fine-grained highly organic clays and peats, fine-grained overbank deposits. The soil on site is dominated by fine-grained organic silts and clays with layers of peat deposited during a shallow lagoon/marsh environment. This fine-grained alluvium generally consists of bluish gray to black and gray silt, clay and peat which is soft, wet and locally plastic. (NMG, 2011)

At a depth of 35 to 45 feet below ground surface (bgs), coarse-grained material consisting of layers of sands and gravels occur throughout the project ite. These layers were likely deposited during meanders of the creek system and locally during flooding events. This coarse-grained alluvium generally consists of grayish brown and bluish gray silty sands, sand and gravel which is dense, wet, and slightly friable and micaceous. (NMG, 2011)

Seismicity

The project site is located in the highly seismic Southern California region where a large number of earthquakes are recorded each year. Thus, seismic hazards at the site are consequences of ground shaking caused by events on nearby or distant, active or potentially-active faults. The project site is not located within a fault-rupture hazard zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act (NMG, 2011). There are no active faults mapped at the surface of the project site, and no evidence of active faulting (NMG, 2011). The three closest major active faults to the site are: (1) the San Joaquin Hills Thrust Fault, located approximately 1.7 miles below the site; (2) the Newport-Inglewood Fault, located approximately 6.5 miles southwest of

the site; and (3) the Newport-Inglewood Offshore Fault, located approximately 6.8 miles southwest of the site (NMG, 2011) (**Figure 3.5-1**).

The controlling fault for the proposed project is the San Joaquin Hills Thrust Fault. (NMG, 2011) Because the fault is blind, it does not reach the surface, thus it does not pose a significant rupture hazard. During the past decade, researchers have speculated that low-angle thrust faults, like the San Joaquin Hills blind thrust fault, may be present beneath the Los Angeles basin and are capable of producing moderate to large earthquakes.

Richter magnitude (M), is a measure of the size of an earthquake as recorded by a seismograph, the standard instrument that records ground shaking. The reported Richter magnitude for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically, with each whole number step representing a tenfold increase in the amplitude of the recorded seismic waves. Earthquake magnitudes are also measured by their moment magnitude (Mw), which is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the movement or displacement across a fault (CGS, 2002).The Newport-Inglewood fault is a 75 kilometer right-lateral, local reverse slip associated with fault steps. Surface trace is discontinuous in the Los Angeles Basin, but the fault zone can easily be identified by the existence of a chain of low hills extending from Culver City to Signal Hill. South of Signal Hill, it roughly parallels the coastline until just south of Newport Bay, where it heads offshore and becomes the Newport-Inglewood-Rose Canyon fault zone. The Newport-Inglewood fault zone was responsible for both the 1933 Long Beach Earthquake (magnitude M6.3) and the 1920 Inglewood Earthquake (estimated magnitude M4.9).

Seismic Hazards

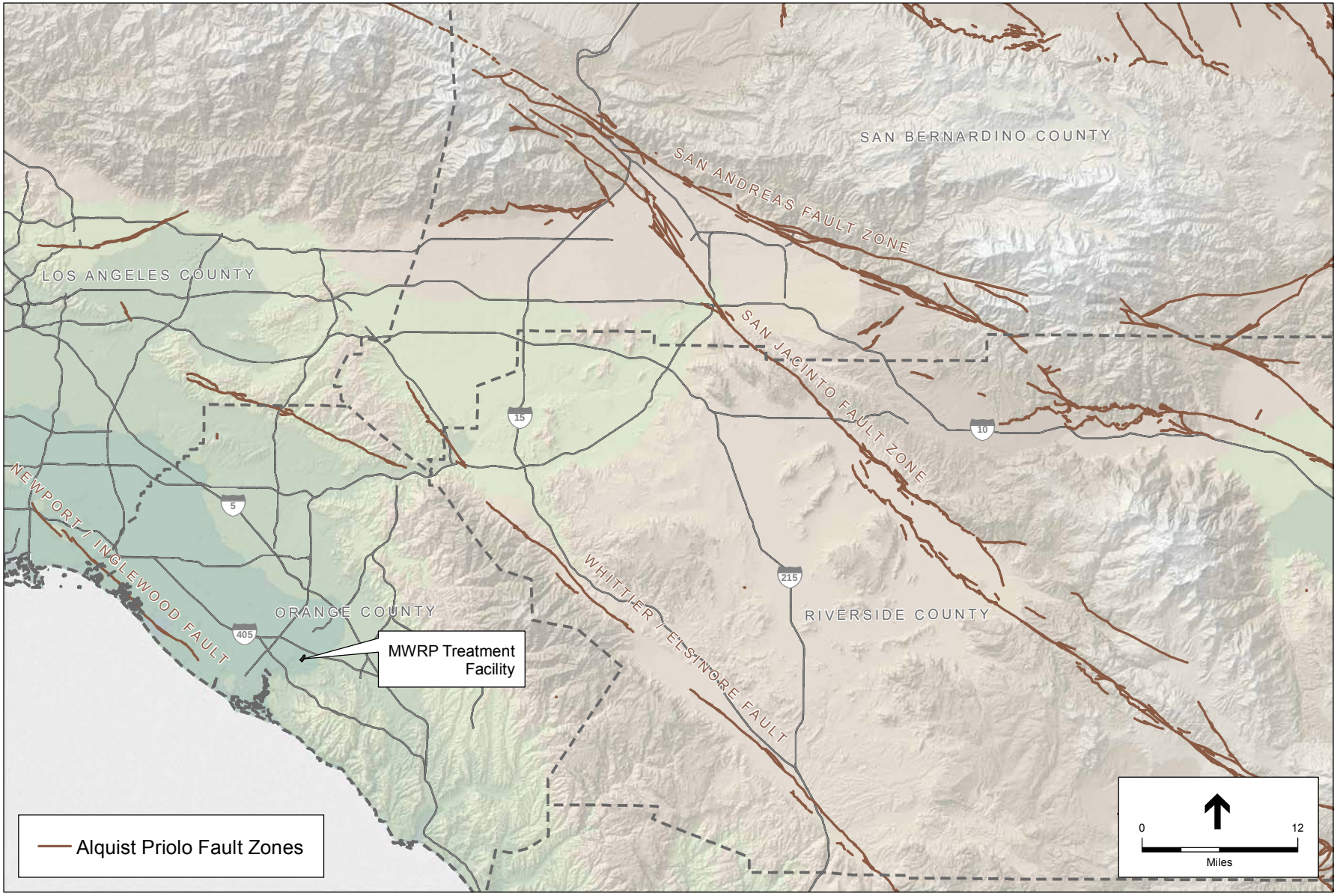
Surface Fault Rupture

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

The project site is not located within an Alquist-Priolo Earthquake Fault Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project site (Figure 3.5-1). There is no documented damage at the existing MWRP associated with previous earthquakes and seismically-induced ground rupture.

Ground Shaking

The project area is subject to seismic ground shaking. Ground shaking intensity varies depending on the overall earthquake magnitude, distance to the fault, focus of earthquake energy, and type of geologic materials underlying an area. The Modified Mercalli Intensity (MMI) scale (**Table 3.5-1**) is commonly used to express earthquake effects due to ground shaking because it expresses ground shaking relative to actual physical effects observed by people during a seismic



SOURCE: USGS; ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.5-1

Principal Faults in the Project Area

TABLE 3.5-1
MODIFIED MERCALLI INTENSITY SCALE (ABRIDGED)

Intensity Value	Intensity Description	Average Peak Acceleration(g)[a]
I	Not felt except by very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.014 g
III	Felt quite noticeably indoors; especially on upper floors of buildings, but many people do not recognize it as an earthquake.	< 0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound.	0.014–0.039 g
V	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned.	0.039–0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; minor fallen plaster or damaged chimneys. Damage slight.	0.092–0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken.	0.18–0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, and walls.	0.34–0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse.	0.65–1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

[a] g is gravity = 980 centimeters per second squared. Acceleration is scaled against acceleration due to gravity or the acceleration with which a ball falls if released at rest in a vacuum (1.0 g). Acceleration of 1.0 g is equivalent to a car traveling 100 meters (328 feet) from rest in 4.5 seconds.

SOURCE: Bolt, 1988

event. MMI values range from I (earthquake not felt) through a scale of increasing intensities to XII (nearly total damage). Earthquakes on the various active and potentially active fault systems near the proposed project sites can produce a wide range of ground shaking intensities. Geologists and engineers attempt to predict earthquake ground acceleration at sites to improve the structural design of buildings so that the building can withstand the earthquake motion and not collapse. A probabilistic seismic hazard assessment describes seismic hazard from earthquakes that geologists and seismologists agree could occur. The analysis takes into consideration the uncertainties in the size and location of earthquakes and the resulting ground motions that can affect a particular site.

The California Geological Survey (CGS) Probabilistic Seismic Hazard Assessment for California determined that a ground acceleration (g) 0.384 has a 10 percent probability of being exceeded in the project area within 50 years (1 in 475 chance annually) (CGS, 2010). Ground acceleration is measured in "g", where 1 g corresponds to the vertical acceleration force due to gravity. As shown in Table 3.5-1, a ground acceleration of 0.384 g corresponds to a MMI value of VIII, where damage would be slight in specially designed structures.

Liquefaction

Soil liquefaction is a phenomenon primarily associated with saturated, cohesionless soil layers located close to the ground surface. During liquefaction, soils lose strength and ground failure may occur. Secondary ground failures associated with liquefaction include lateral spreading or flowing of stream banks or fills, sand boils, and subsidence. Soils that are most susceptible to liquefaction are clean, loose, uniformly graded, saturated, fine-grained sand that occur close to the ground surface, usually at depths of less than 50 feet. According to the California Department of Conservation (DOC), California Geological Survey, the project site is located in an area that is considered susceptible to liquefaction (DOC, 2001) (**Figure 3.5-2**). The City of Irvine General Plan Seismic Element (2005, Figure D-3) indicates that the project area is located in Seismic Response Area 1 (SRA-1). The predominant characteristics of SRA-1 include potential or loose soils and/or high groundwater. SRA-1 has a greater potential for ground failure in the form of liquefaction in relation to other seismic response areas. Although, the General Plan Seismic Element acknowledges that liquefaction is not expected to occur for all earthquakes over the whole of SRA-1.

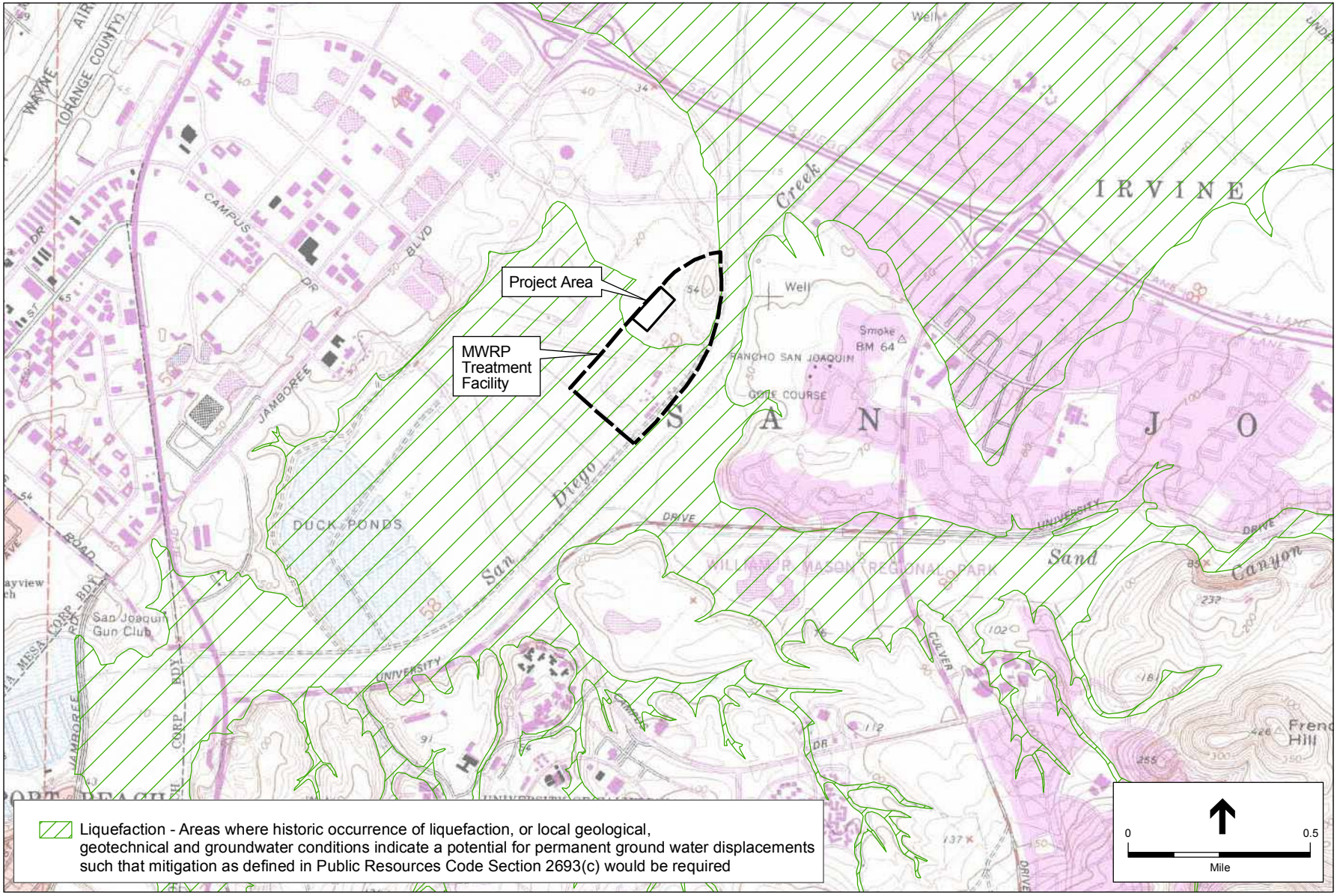
Seismically Induced Landslides

A landslide is a mass of rock, soil, and debris displaced down-slope by sliding, flowing, or falling. The susceptibility of land (slope) failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. Factors that decrease resistance to movement in a slope include pore water pressure, material changes, and structure. Removing the lower portion (the toe) of a slope decreases or eliminates the support that opposes lateral motion in a slope. Shaking during an earthquake may lead materials in a slope to lose cohesion and collapse. According to the DOC, the project site is not located in an area that is considered susceptible to an earthquake-induced landslide (DOC, 2001; NMG, 2011)

Geologic Hazards

Landslides and Slope Failure

Ground failure is dependent on the slope and geology as well as the amount of rainfall, excavation, or seismic activities. A slope failure is a mass of rock, soil, and debris displaced down a slope by sliding, flowing, or falling. Steep slopes and downslope creep of surface materials characterize landslide-susceptible areas. Surface elevations surrounding and including the proposed project site have comparatively low relief. For this reason, there is no expected risk of landslide or slope failure at the project site.



SOURCE: USGS; ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.5-2
Liquefaction Map

Expansive Soils

Expansive soils are clay-bearing fine-grained soils that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. The type and percentage of clay in the soil primarily determine the behavior of the soil with water content. Changes in the water content of an expansive soil can result in severe distress to structures constructed upon the soil. Under the undocumented fill at the site, soils consist of fine-grained organic silts and clays which likely would have expansive soil properties.

Erosion

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

Subsidence

Settlement of the ground surface can occur under static conditions (i.e., due to gravity or groundwater removal) but can also be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur from rapid rearrangement, compaction, and settling of subsurface materials (particularly loose, non-compacted, and variable sandy sediments). Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different rates). In addition, areas are susceptible to differential settlement if underlain by compressible sediments, such as poorly engineered artificial fill or poorly graded gravels. Given the soils properties of the project site, potential ground subsidence of 0.2 to 0.3 feet could occur (NMG, 2011).

3.5.2 Regulatory Framework

State

California Building Code (CBC)

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The CBC is based on the International Building Code. The 2010 CBC is based on the 2009 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments which are based on reference standards obtained from various

technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

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

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The act directs the Department of Conservation to identify and map areas prone to the earthquake hazards of liquefaction, earthquake-induced landslides, and amplified groundshaking. For structures intended for human occupancy, the act requires site-specific geotechnical investigations to identify potential seismic hazards and formulate mitigation measures prior to permitting most developments designed for human occupancy within the Zones of Required Investigation. According to the Seismic Hazard Zones map for the Tustin Quadrangle where the MWRP is located, the project site is located in a zone of required investigation due to liquefaction potential (DOC, 2001). Special Publication 117 (SP 117) is provided by CGS to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investiation (CGS, 2008).

Local

City of Irvine General Plan

The City of Irvine General Plan Seismic Element contains the following policies related to geology, soils, and seismicity that are applicable to the Project. The proposed project is located in Seismsic Response Area 1:

Policies

D-2a) Use Figure D-3 during development review to minimize the effects of environmental hazards as follows:

For development in Seismic Response Areas 1, 2, 3, and 4: Concurrent with submittal of applications for concept plans and zone changes, as well as the preparation of environmental impact reports, preliminary geotechnical reports are required for the following uses:

1. All planning area level proposals
2. Community/regional level shopping centers
3. Major commercial/office centers
4. Major public facilities
5. Major public utilities
6. Major transportation linkages
7. Any facility critical to emergency response (i.e. hospitals, police and fire stations, municipal government centers, transportation linkages, and designated emergency centers).
8. Major industrial development (applies to SRA 1 only)

If a detailed geotechnical report confirms the existence of a seismic hazard, the City has the option to require special earthquake resistant design features or use limitations as appropriate to the specific case.

D-1.b) Incorporate the Seismic Land Use Compatibility Matrix Table D-1 requirements into the environmental impact review process.

D-2g) Require a detailed geotechnical and soils study as needed, in accordance with the requirements of the City's Subdivision Ordinance, before approving development.

D-2i) Ensure that the most recent adopted seismic standards are used for new construction.

3.5.3 Impacts and Mitigation Measures

Significance Criteria

In accordance with Appendix G of the *State CEQA Guidelines*, a geologic or seismic impact is considered significant if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction; or
  - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in onsite or offsite landslide, lateral spreading, subsidence (i.e., settlement), liquefaction, or collapse;

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Impacts Discussion

Surface Fault Rupture

The Alquist-Priolo Earthquake Fault Zoning Act, signed into law in December of 1972, requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults (DOC, 2011). The project site is not located within a fault-rupture hazard zone as defined by the Alquist-Priolo Earthquake Fault Zoning Act. There are no active faults mapped at the surface at the project site, and no evidence of active faulting was observed during site exploration or prior explorations by NMG and others (NMG, 2011). Therefore, the proposed project would not adversely affect people or structures due to surface fault rupture. There would be no impact.

Soil Suitability for Septic System

The proposed project does not include use of on-site septic systems. Therefore, no impact would occur related to soil suitability for septic systems.

Landslides

The proposed project is located on nearly flat terrain, and is not identified on any California Geological Survey Seismic Hazard Zone maps as being potentially susceptible to earthquake-induced landslides (DOC, 2001). No impacts are expected related to landslides.

Ground Shaking

Impact 3.5-1: Implementation of the proposed project could expose people and structures to seismic ground shaking. (Less than Significant)

The proposed project is located in a seismically active area that has the potential to experience strong ground shaking. The closest faults to the project site are the San Joaquin Hills Thrust Fault, a blind fault located approximately 1.7 miles below the site; (2) the Newport-Inglewood Fault, located approximately 6.5 miles southwest of the site; and (3) the Newport-Inglewood Offshore Fault, located approximately 6.8 miles southwest of the site (NMG, 2011) (see Figure 3.5-1). The Newport-Inglewood fault is considered an active fault and thus requires special near-source factors to be incorporated into buildings developed within approximately six miles of the fault. A major earthquake associated with any of these faults could result in moderate to severe ground shaking in the project area and would be a potential hazard to the proposed project. Damage to buildings and infrastructure associated with the proposed project, both above and belowground, could be expected as a result of ground shaking during a seismic event.

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

Mitigation Measures

None required.

Soil Erosion

Impact 3.5-2: Implementation of the proposed project could result in soil erosion. (Less than Significant)

Construction activity associated with the proposed project has the potential to result in minor wind and water-driven erosion of soils. Excavation and/or grading for the proposed project would have the potential to result in erosion during construction activities as bare soils are exposed to wind or rain. The proposed project includes environmental commitments that would mitigate for potential impacts associated with soil erosion (see Chapter 2). As required by state law, IRWD would be required to submit a Notice of Intent to comply with the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit). (See Chapter 3.8, Hydrology and Water Quality, for more information.) In compliance with this discharge permit, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented, including an Erosion Control Plan to minimize soil erosion during construction and prevent soil from washing off the construction site into storm drains and adjacent natural habitats. In addition, the proposed project would be required to comply with the SCAQMD Rule 403 to reduce fugitive dust emissions. Dust control measures would reduce the potential for the proposed project to generate construction-related, wind-induced soil erosion impacts. Impacts to soil erosion would be less than significant during construction.

Upon completion of construction, the project site would be surfaced with asphalt and/or concrete, thus minimizing the potential for wind or water induced erosion. Nonetheless, any eroded soils that may wash offsite with storm water runoff would be captured and conveyed to the MWRP for treatment and would not flow into the surrounding marsh or San Diego Creek. Impacts to soil erosion would be less than significant during project operation.

Mitigation Measures

None required.

Unstable Soil, Liquefaction, Landslide

Impact 3.5-3: The proposed project would introduce new structures onto soils that may be unstable and potentially result in lateral spreading, subsidence, liquefaction, or collapse. (Less than Significant)

The proposed project is not located in an area that is considered susceptible to landslides. According to the DOC, the project site is located in a zone of required investigation due to liquefaction potential (DOC, 2001). According to the City of Irvine General Plan Seismic Element (2005), the proposed project is located in SRA-1 which indicates a potential for ground failure in the form of liquefaction due to seismic activity. Due to the shallow groundwater table at the project site, instability may be created during excavation dewatering and could potentially affect existing and/or proposed structures. Once constructed, proposed facilities also could be affected by unstable soils in the event of strong ground shaking that leads to liquefaction, subsidence, and/or lateral spreading. Lateral spreading is the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and 3 percent and commonly displaces the surface by several meters to tens of meters. Lateral spreading typically develops on ground underlain by liquefiable soils or where free-face conditions can develop in a liquefiable soil.

According to the geotechnical investigation prepared for the project, the site's liquefaction potential was based on prior and recent subsurface data. The study found there are localized thin granular layers that are liquefiable. These layers were found at depths of 10 to 20 feet and 32 to 48 feet below the existing ground surface. The shallower layers are thinner and have lesser liquefaction potential. In general, the liquefiable soil appears to be thin, local layers that are not continuous over long distances (NMG, 2011). The estimated settlement that would occur only during the design earthquake event is on the order of ¼ to 1 inch. Liquefaction-caused surface manifestation is considered low based on the minor thickness of the liquefiable layers and the significant thickness of the nonliquefiable surface cover. Impacts associated liquefaction and landslides are considered less than significant.

In addition, the peat soils that underlay the project site do not offer lateral support and have potential to compress and cause differential settlement (Black & Veatch, 2012). As described above, the CBC (CCR Title 24) provides engineering design criteria for grading, foundations, retaining walls, and structures within zones of seismic activity. In accordance with the CBC, the proposed project design includes a mass pile foundation to mitigate for potential effects due to settlement and subsidence. Impacts associated with subsidence are considered less than significant.

Mitigation Measures

None required.

Expansive Soil

Impact 3.5-4: The proposed project may be located on expansive soils. (Less than Significant)

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

The geotechnical investigation conducted for the project site concluded that the expansion and collapsible potential of the soil at the MWRP are considerably low (NMG, 2011). The geotechnical report recommends a combination of presaturation of subgrade soils, reinforcement, moisture barriers/drains, and a sub layer of granular material. The proposed project would incorporate such design features to reduce potential impacts to new structures associated with expansive soil properties. Impacts would be less than significant.

Mitigation Measures

None required.

References – Geology, Soils and Seismicity

Black & Veatch, 2012. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Foundation Design and Alternatives Evaluation*. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, April 2012.

California Geological Survey (CGS), *California Geomorphic Provinces*, Note 36, 2002.

California Geological Survey (CGS), *Alquist-Priolo Earthquake Fault Zones – Earthquake Fault Zones Affecting Counties*, accessed June, 2010.

City of Irvine, General Plan, adopted 1999.

California Department of Conservation (DOC), Division of Mines and Geology, 2001. Seismic Hazards Zones, Tustin Quadrangle, Official Revised Map Released January 17, 2001. Available online: http://gmw.consrv.ca.gov/shmp/download/pdf/ozn_tus.pdf.

California Department of Conservation (DOC), California Geological Survey – Alquist-Priolo Earthquake Fault Zones, 2011. Available online at http://www.consrv.ca.gov/CGS/rghm/ap/Pages/index.aspx.

California Geological Survey (CGS), *How Earthquakes Are Measured*, CGS Note 32, 2002.

Dudek & Associates, Inc. Michelson Water Reclamation Plant Phase 2 and 3 Capacity Expansion Project Draft EIR. November 2005.

Bryant, W.A., and Hart, E.W., Special Publication 42: *Fault-Rupture Hazard Zones in California: Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones* Maps,Interim Revision 2007, California Department of Conservation, California Geological Survey.

NMG, *Report of Geotechnical Exploration and Design Recommendations for the Proposed Irvine Ranch Water District Biosolids and Energy Recovery Center, Michelson Water Reclamation Plan*, February 2011

Oakeshott, G.B. 1978. *California's Changing Landscapes, A Guide to the Geology of the States*, 2nd Edition. McGraw-Hill Book Company, San Francisco.

Seismic Hazards Zonation Program, 2009. California Department of Conservation. Found online at: http://gmw.consrv.ca.gov/shmp/html/pdf_maps_so.html.

3.6 Greenhouse Gas Emissions

This section provides a discussion of global climate change, existing regulations pertaining to global climate change, and potential greenhouse gas (GHG) emissions resulting from development of the proposed project. The methods of analyzing emissions described in this section are consistent with the recommendations of the South Coast Air Quality Management District (SCAQMD).

3.6.1 Environmental Setting

Affected Environment

Climate

Climate is the accumulation of daily and seasonal weather events over a long period of time, whereas weather is defined as the condition of the atmosphere at any particular time and place (Ahrens, 2003). The project area is located in the South Coast Basin (Basin) with a distinctive climate determined by its terrain and geographic location. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climate is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds. The Plan area is in a climatic zone characterized as dry summer subtropical or Mediterranean.

Climate Change Overview

Various gases in the earth's atmosphere, classified as GHGs, play a critical role in determining its surface temperature. Solar radiation enters earth's atmosphere from space, and a portion of the radiation is absorbed by the earth's surface. Earth re-radiates this energy back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. Greenhouse gases, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation (that otherwise would have escaped back into space) is now retained in the atmosphere, and results in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), chlorofluorocarbons (CFCs), and sulfur hexafluoride (SF_6). Much of the scientific literature suggests that human-caused emissions of these GHGs in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to a trend of unnatural warming of earth's climate, known as global climate change or global warming. While there is some debate regarding this issue, it is unlikely that global climate change of the past 50 years can be explained without contribution from human activities (IPCC, 2007).

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one year to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. Of the total annual human-caused CO_2 emissions, approximately 54 percent is sequestered through ocean uptake, uptake by northern hemisphere forest regrowth, and other terrestrial sinks within one year, whereas the remaining 46 percent of human-caused CO_2 emissions remains stored in the atmosphere (Seinfeld and Pandis, 1998).

Similarly, impacts of GHGs are borne globally, as opposed to localized air quality effects of criteria air pollutants and toxic air contaminants. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, it is clear that the quantity is enormous, and no single project would measurably contribute to a noticeable incremental change in the global average temperature, or to global, local, or micro climates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

Greenhouse Gas Emission Sources

According to much of the scientific literature on this topic, emissions of GHGs contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, utility, residential, commercial, and agricultural sectors (CARB, 2010). In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CARB, 2010). Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, and are two of the most common processes of CO_2 sequestration.

California is the 12th to 16th largest emitter of CO_2 in the world (CEC, 2006). California produced 478 million gross metric tons of CO_2 equivalent (CO_2e) in 2008 (CARB, 2010). CO_2e is a measurement used to account for the fact that different GHGs have different potential to retain infrared radiation in the atmosphere and contribute to the greenhouse effect. Expressing emissions in CO_2e takes the contributions to the greenhouse effect of all GHG emissions and converts them to the equivalent effect that would occur if only CO_2 were being emitted. This measurement, known as the global warming potential of a GHG, is dependent on the lifetime, or persistence, of the gas molecule in the atmosphere. For example, as described in Appendix C, Calculation References, of the General Reporting Protocol of the California Climate Action Registry (CCAR, 2009), one ton of CH_4 has the same contribution to the greenhouse effect as approximately 21 tons of CO_2. Therefore, CH_4 is a much more potent GHG than CO_2.

Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2008, accounting for 37 percent of total GHG emissions in the state (CARB, 2010). This sector was followed by the electric power sector (including both in-state and out-of-state sources) (25 percent) and the industrial sector (20 percent) (CARB, 2010).

3.6.2 Regulatory Framework

Federal

The federal Clean Air Act (FCAA) requires the U.S. Environmental Protection Agency (USEPA) to define national ambient air quality standards to protect public health and welfare in the U.S. While the FCAA did not originally regulate GHG emissions, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency* determined that GHGs are pollutants that can be regulated under the FCAA. Currently, there are no federal regulations that establish ambient air quality standards for GHGs.

On December 7, 2009, USEPA adopted its Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding). The Endangerment Finding is based on Section 202(a) of the CAA, which states that the administrator (of USEPA) should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The rule addresses Section 202(a) in two distinct findings. The first addresses whether the concentrations of the six key GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and, therefore, contribute to the threat of climate change.

The administrator of USEPA found that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wild fires, droughts, sea level rise, higher intensity storms) are a threat to the public health and welfare. Therefore, GHGs were found to endanger the public health and welfare of current and future generations.

The administrator of USEPA also found that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. USEPA's final findings respond to the 2007 U.S. Supreme Court decision that GHGs fit within the CAA definition of air pollutants. The findings do not in and of themselves impose any emission reduction requirements but, rather, allow USEPA to finalize the GHG standards

proposed earlier in 2009 for new light-duty vehicles as part of the joint rulemaking with the Department of Transportation.

Specific GHG regulations that the USEPA has adopted to-date are as follows:

40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule. This rule requires mandatory reporting of GHG emissions for facilities that emit more than 25,000 metric tons of CO_2e emissions per year (USEPA, 2011). Additionally, reporting of emissions is required for owners of SF6- and PFC-insulted equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds. The proposed project would not be expected to trigger GHG reporting according to the rule; however, GHG emissions of the project are quantified in this EIR.

40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule. USEPA recently mandated to apply Prevention of Significant Deterioration (PSD) requirements to facilities whose stationary source CO_2e emissions exceed 75,000 tons per year (USEPA, 2010). The project would not be expected to trigger PSD permitting as required by this regulation; however, GHG emissions of the project are quantified in this EIR.

State

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California. Various statewide and local initiatives to reduce the state's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is under way, and there is a real potential for severe adverse environmental, social, and economic effects in the long term. Because every nation emits GHGs and therefore makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required to reduce the rate of GHG emissions to a level that can help to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, California has passed laws directing CARB to develop actions to reduce GHG emissions, and several state legislative actions related to climate change and GHG emissions have come into play in the past decade.

Assembly Bill 1493 (Pavley)

In 2002, then-Governor Gray Davis signed AB 1493. AB 1493 requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of greenhouse gases emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, in 2004 CARB approved amendments to the California Code of Regulations (CCR) adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1) require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily for the transportation of persons), beginning with the 2009 model year. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for the 2016 model year are approximately 37% lower than the limits for the first year of the regulations, the 2009 model year. For light-duty trucks with LVW of 3,751 pounds to gross vehicle weight (GVW) of 8,500 pounds, as well as medium-duty passenger vehicles, GHG emissions would be reduced approximately 24% between 2009 and 2016.

On September 15, 2009, USEPA and the Department of Transportation's National Highway Safety Administration (NHTSA) proposed a national program to reduce GHG emissions and improve fuel economy for new cars and trucks sold in the United States. The combined EPA and NHTSA standards that make up the proposed national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of CO_2 per mile, equivalent to 35.5 miles per gallon (MPG) if the automobile industry were to meet this CO_2 level solely through fuel economy improvements. Under the proposed national program, automobile manufacturers would be able to build a single light-duty national fleet that satisfies all requirements under both the national program and the standards of California and other states, while ensuring that consumers still have a full range of vehicle choices. In order to promote the adoption of the national program, CARB has adopted amendments to the GHG emissions standards for new passenger vehicles from 2009 through 2016.

Executive Order S-3-05

Executive Order S-03-05, which was signed by then-Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total GHG emission targets. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80% below the 1990 level by 2050.

The Executive Order directed the Secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The Secretary will also submit biannual reports to the governor and state legislature describing progress made toward reaching the emission targets, impacts of global warming on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of CalEPA created the California Climate Action Team (CCAT) made up of members from various state agencies and commissions. CCAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of

California businesses, local government, and community actions, as well as through state incentive and regulatory programs.

Assembly Bill 32 (AB 32)

In September 2006, then-Governor Schwarzenegger signed the California Global Warming Solutions Act (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. According to CARB's Scoping Plan, the 2020 target of 427 million metric tons (MMT) CO_2e requires the reduction of 169 $MMTCO_2e$, or approximately 28.4 percent, from the state's projected 2020 business-as-usual (BAU) emissions level of 596 $MMTCO_2e$. However, ARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. In August 2011, the Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 $MMTCO_2e$, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by CARB (CARB, 2011a).

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities. CPUC adopted a GHG Emissions Performance Standard in January 2007. The California Energy Commission (CEC) adopted consistent regulations for implementing and enforcing SB 1368 for the state's publicly-owned utilities in August 2007. These standards cannot exceed the

GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Executive Order S-1-07

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

On April 23, 2009 CARB approved the proposed regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 MMT in 2020. The LCFS is designed to reduce California's dependence on petroleum, create a lasting market for clean transportation technology, and stimulate the production and use of alternative, low-carbon fuels in California. The LCFS is designed to provide a durable framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet each year beginning in 2011. One standard is established for gasoline and the alternative fuels that can replace it. A second similar standard is set for diesel fuel and its replacements.

The standards are "back-loaded;" that is, there are more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the LCFS will be based on a combination of strategies involving lower carbon fuels and more efficient, advanced-technology vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity are also low carbon fuels and result in significant reductions of GHGs when used in fuel cell or electric vehicles due to significant vehicle power train efficiency improvements over conventionally-fueled vehicles. As such, these fuels are included in the LCFS as low carbon options. Other fuels may be used to meet the standards and are subject to meeting existing requirements for transportation fuels.

Senate Bill 97

SB 97, signed August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. The bill directs the California Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency, guidelines for the feasible

mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the CEQA Guidelines for GHG emissions, as required by SB 97. On February 16, 2010, the Office of Administrative Law approved the amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The amendments became effective on March 18, 2010.

Senate Bills 1078 and 107 and Executive Order S-14-08

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010. In November 2008, Governor Schwarzenegger signed Executive Order S-14-08, which expands the State's Renewables Energy Standard to 33 percent renewable power by 2020. In April 2011, Governor Jerry Brown signed SB 2X, that created a legislative mandate codifying the 33 percent Renewables Portfolio Standard into law.

CARB Early Action Measures

In June 2007, CARB directed staff to pursue 37 early actions for reducing GHG emissions under AB 32. The broad spectrum of strategies to be developed – including a LCFS, regulations for refrigerants with high GWP, guidance and protocols for local governments to facilitate GHG reductions, and green ports – reflects the government’s responsive actions to immediately address GHGs.

In addition to approving the 37 GHG reduction strategies, CARB directed staff to further evaluate early action recommendations made at the June 2007 meeting, and to report back to CARB within six months. CARB’s approach suggested a desire to try to pursue greater GHG emissions reductions in California in the near-term. CARB staff evaluated all recommendations submitted by several stakeholders and several internally-generated staff ideas, and published a draft list of early action measures in September 2007. The list was expanded to 44 measures in October 2007 (CARB, 2007). The Board has also identified nine Discrete Early Action measures to date, including potential regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations, and other sources.

CARB Climate Change Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap of CARB’s plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008a). CARB’s Scoping Plan contains the main strategies California will implement to reduce CO_2e emissions by 169 MMT, or approximately 28.3 percent, from the state’s projected 2020 emissions level of 596 MMT of CO_2e under a BAU scenario. In August 2011, the Scoping Plan was re-approved by the Board and includes the Final Supplement to the Scoping Plan Functional Equivalent Document. This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light

of the current economic forecasts. Considering the updated 2020 BAU estimate of 507 $MMTCO_2e$, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020. The document also excludes one measure identified in the 2008 Scoping Plan that has been adopted and one measure that is no longer under consideration by CARB, 2011b).

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors, i.e. transportation, electrical power, commercial and residential, industrial etc. CARB used three-year average emissions, by sector, for 2002-2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32.

CARB's Scoping Plan also breaks down the amount of GHG emissions reductions CARB recommends for each emissions sector of the state's GHG inventory. CARB's Scoping Plan calls for the largest reductions in GHG emissions to be achieved by implementing the following measures and standards:

- Improved emissions standards for light-duty vehicles (estimated reductions of 31.7 MMT CO_2e);
- The LCFS (15.0 MMT CO_2e);
- Energy efficiency measures in buildings and appliances, and the widespread development of combined heat and power systems (26.3 MMT CO_2e); and
- A renewable portfolio standard for electricity production (21.3 MMT CO_2e).

CARB has identified a GHG reduction target of 5 MMT (of the 174 MMT total) for local land use changes (Table 2 of CARB's Scoping Plan), by Implementation of Reduction Strategy T-3 regarding Regional Transportation-Related GHG Targets. Additional land use reductions may be achieved as SB 375 is implemented. CARB's Scoping Plan states that successful implementation of the plan relies on local governments' land use, planning, and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. CARB further acknowledges that decisions on how land is used will have large effects on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emission sectors. CARB's Scoping Plan does not include any direct discussion about GHG emissions generated by construction activity.

CARB's Scoping Plan expands the list of nine Discrete Early Action Measures to a list of 39 Recommended Actions contained in Appendices C and E of CARB's Scoping Plan. These measures are presented in **Table 3.6-1**.

TABLE 3.6-1
LIST OF RECOMMENDED ACTIONS BY SECTOR

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
Transportation		
T-1	Pavley I and II – Light Duty Vehicle Greenhouse Gas Standards	31.7
T-2	Low Carbon Fuel Standard (Discrete Early Action)	15
T-3[1]	Regional Transportation-Related Greenhouse Gas Targets	5
T-4	Vehicle Efficiency Measures	4.5
T-5	Ship Electrification at Ports (Discrete Early Action)	0.2
T-6	Goods Movement Efficiency Measures. • Ship Electrification at Ports • System-Wide Efficiency Improvements	3.5
T-7	Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)	0.93
T-8	Medium- and Heavy-Duty Vehicle Hybridization	0.5
T-9	High Speed Rail	1
Electricity and Natural Gas		
E-1	Energy Efficiency (32,000 GWh of Reduced Demand) • Increased Utility Energy Efficiency Programs • More Stringent Building & Appliance Standards Additional Efficiency and Conservation Programs	15.2
E-2	Increase Combined Heat and Power Use by 30,000 GWh (Net reductions include avoided transmission line loss)	6.7
E-3	Renewables Portfolio Standard (33% by 2020)	21.3
E-4	Million Solar Roofs (including California Solar Initiative, New Solar Homes Partnership and solar programs of publicly owned utilities) • Target of 3000 MW Total Installation by 2020	2.1
CR-1	Energy Efficiency (800 Million Therms Reduced Consumptions) • Utility Energy Efficiency Programs • Building and Appliance Standards • Additional Efficiency and Conservation Programs	4.3
CR-2	Solar Water Heating (AB 1470 goal)	0.1
Green Buildings		
GB-1	Green Buildings	26
Water		
W-1	Water Use Efficiency	1.4†
W-2	Water Recycling	0.3†
W-3	Water System Energy Efficiency	2.0†
W-4	Reuse Urban Runoff	0.2†
W-5	Increase Renewable Energy Production	0.9†
W-6	Public Goods Charge (Water)	TBD†
Industry		
I-1	Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	TBD
I-2	Oil and Gas Extraction GHG Emission Reduction	0.2
I-3	GHG Leak Reduction from Oil and Gas Transmission	0.9
I-4	Refinery Flare Recovery Process Improvements	0.3
I-5	Removal of Methane Exemption from Existing Refinery Regulations	0.01
Recycling and Water Management		
RW-1	Landfill Methane Control (Discrete Early Action)	1

TABLE 3.6-1
LIST OF RECOMMENDED ACTIONS BY SECTOR

Measure No.	Measure Description	GHG Reductions (Annual Million Metric Tons CO_2e)
RW-2	Additional Reductions in Landfill Methane • Increase the Efficiency of Landfill Methane Capture	TBD†
RW-3	High Recycling/Zero Water • Commercial Recycling • Increase Production and Markets for Compost • Anaerobic Digestion • Extended Producer Responsibility • Environmentally Preferable Purchasing	9†
Forests		
F-1	Sustainable Forest Target	5
High Global Warming Potential (GWP) Gases		
H-1	Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Services (Discrete Early Action)	0.26
H-2	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3
H-3	Reduction of Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)	0.15
H-4	Limit High GWP Use in Consumer Products Discrete Early Action (Adopted June 2008)	0.25
H-5	High GWP Reductions from Mobile Sources • Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems • Air Conditioner Refrigerant Leak Test During Vehicle Smog Check • Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers • Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	3.3
H-6	High GWP Reductions from Stationary Sources • High GWP Stationary Equipment Refrigerant Management Program: o Refrigerant Tracking/Reporting/Repair Deposit Program o Specifications for Commercial and Industrial Refrigeration Systems • Foam Recovery and Destruction Program • SF Leak Reduction and Recycling in Electrical Applications • Alternative Suppressants in Fire Protection Systems • Residential Refrigeration Early Retirement Program	10.9
H-7	Mitigation Fee on High GWP Gases	5
Agriculture		
A-1	Methane Capture at Large Dairies	1.0†

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

OPR's 2008 Technical Advisory

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The advisory provided OPR's perspective on the emerging role of CEQA in addressing climate change and greenhouse gas emissions, while recognizing that approaches and methodologies for calculating greenhouse gas emissions and addressing environmental impacts through CEQA review are rapidly evolving. The advisory recognized that OPR would develop amendments to the *State CEQA Guidelines* pursuant to SB 97 as was done in 2010. The Natural Resources

Agency would then adopt these amendments. The technical advisory pointed out that neither CEQA nor the *CEQA Guidelines* prescribe quantitative thresholds of significance or particular methodologies for performing an impact analysis by stating, "This is left to lead agency judgment and discretion, based upon factual data and guidance from regulatory agencies and other sources where available and applicable" (OPR, 2008). This deference to lead agencies was memorialized in the *CEQA Guidelines* Section 15064.4 as discussed below. OPR recommended, at the time, that "the global nature of climate change warrants investigation of a statewide threshold of significance for GHG emissions" (OPR, 2008).

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

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

CEQA Guidelines Revisions

The passing of SB 97 in 2007 by the State Legislature required an amendment of the CEQA Guidelines to incorporate analysis of, and mitigation for, GHG emissions from projects subject to CEQA. The California Natural Resources Agency adopted these amendments on December 30, 2009. They took effect on March 18, 2010, after review by the Office of Administrative Law and filing with the Secretary of State for inclusion in the California Code of Regulations.

The CEQA Guidelines revisions include a new section (Sec. 15064.4) that specifically addresses the potential significance of GHG emissions. Section 15064.4 calls for a "good-faith effort" to "describe, calculate or estimate" GHG emissions. Section 15064.4 further states that the analysis of the significance of any GHG impacts should include consideration of the extent to which the project would increase or reduce GHG emissions; exceed a locally applicable threshold of significance; and comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions." The new

guidelines also state that a project may be found to have a less-than-significant impact on GHG emissions if it complies with an adopted plan that includes specific measures to sufficiently reduce GHG emissions (Sec. 15064(h)(3)). Importantly, however, the CEQA Guidelines do not require or recommend a specific analytical methodology or provide quantitative criteria for determining the significance of GHG emissions.

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

(a) The determination of the significance of GHG emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based on available information, to describe, calculate or estimate the amount of GHG emissions resulting from a project. A lead agency shall have discretion to determine, in the context of a particular project, whether to:

  (1) Use a model or methodology to quantify GHG emissions resulting from a project, and which model or methodology to use. The lead agency has discretion to select the model it considers most appropriate provided it supports its decision with substantial evidence. The lead agency should explain the limitations of the particular model or methodology selected for use; and/or

  (2) Rely on a qualitative analysis or performance based standards.

(b) A lead agency may consider the following when assessing the significance of impacts from GHG emissions on the environment:

  (1) The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;

  (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; and

  (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of GHG emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

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

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

Finally, the Amendments add a new set of environmental checklist questions (VII. Greenhouse Gas Emissions) to the *State CEQA Guidelines* Appendix G, which are provided below in Section 3.6.3, under Significance Criteria.

CARB Draft GHG Significance Thresholds

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

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

For industrial projects, CARB recommends that projects below the industrial screening level (7,000 metric tons/year CO_2e not including traffic emissions) can be found to be less than significant. For residential and commercial projects, CARB staff's objective is to develop a threshold on performance standards that will substantially reduce the GHG emissions from new projects and streamline the permitting of carbon efficient projects. Performance standards will address the five major emission sub-sources for the sector: energy use, transportation, water use, waste, and construction. Projects may alternatively incorporate mitigation equivalent to these performance standards, such as measures from green building rating systems.

Local

City of Irvine General Plan

The Energy Element of the City of Irvine General Plan serves to provide a basis for long-range energy planning in the City. Within the Energy Element, specific objectives and policies are identified. Objectives and policies related to GHG reduction that are applicable to the proposed project include:

Objective I-1: Maximize energy efficiency through land use and transportation planning.

Policy (e): Facilitate the participation of facilities in the following conservation programs where cost effective:

- Cogeneration (process heat/steam/electricity).
- Reclaiming waste products (biomass, solid waste, waste water).
- Recycling (aluminum, paper, glass, and steel).
- Carpooling.
- Mass transportation.

Policy (i): Monitor the federal, state, regional, other local governments, the utility companies, Irvine Ranch Water District (IRWD), and other private and public agencies energy programs and regulations and:

- Explore opportunities and limitations on use of renewable sources.
- Obtain information and technical assistance for energy programs.
- Implement federal and state energy programs.
- Support continuation of tax credits for alternative renewable sources and conservation measures.
- Allocate available federal funds and grants such as Community Development Block Grant (CDBG) for energy programs for low income and senior housing development.
- Inform developers and the general public of recent available energy programs, regulations, technical, and economic data (e.g., cost effectiveness).

South Coast Air Quality Management District (SCAQMD) GHG Thresholds of Significance

As an interim method for determining significance under CEQA until statewide significance thresholds are established, SCAQMD developed a draft tiered flowchart in 2008 for determining significance thresholds for GHGs and CEQA for industrial projects where SCAQMD is acting as the lead agency. In December 2008, SCAQMD adopted a 10,000 $MTCO_2e$/year for industrial facilities, but only with respect to projects where SCAQMD is the lead agency (SCAQMD, 2008). SCAQMD has not adopted a threshold for residential or commercial projects at the time of this writing.

The SCAQMD flowchart uses a tiered approach in which a proposed project is deemed to have a less than significant impact related to GHG emissions when any of the following conditions are met:

- GHG emissions are within GHG budgets in an approved regional plan;

- Incremental increases in GHG emissions due to the project are below the defined Significance Screening Levels, or Mitigated to Less than the Significance Screening Level;
- Performance standards are met by incorporating project design features and/or implementing emission; and
- Carbon offsets are made to achieve target significance screening level.

3.6.3 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the *CEQA Guidelines*, a project would have a significant effect on greenhouse gas emissions if it would:

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

As noted above, the increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction and operation of the proposed project would incrementally contribute to GHG emissions along with past, present and future activities. As such, impacts of GHG emissions are analyzed here on a cumulative basis.

Methodology

This section describes the methodologies and assumptions used for identifying and analyzing the proposed project's emissions of GHGs. The discussion describes the methods and assumptions used to conduct the analysis. The analysis of emissions of GHGs associated with the proposed project is considered on a cumulative basis.

SCAQMD has not formally adopted a significance threshold for GHG emissions generated by a proposed project (for which SCAQMD is not the lead agency), or a uniform methodology for analyzing impacts related to GHG emissions on global climate change. Similarly, the City has not adopted any significance criteria or guidelines for GHG analysis. However, in the absence of any industry-wide accepted standards, the SCAQMD's significance threshold of 10,000 MT/year CO_2e for projects in which it is the lead agency is the most relevant air district-adopted GHG significance threshold that can be used as a benchmark for the proposed project. Thus, it is reasonable, for the purposes of this analysis, to utilize SCAQMD's GHG significance threshold of 10,000 MT/year CO_2e as a benchmark to evaluate the potential GHG impact of the project. It should be noted that the SCAQMD's adopted GHG significance threshold of 10,000 MT/year CO_2e for industrial projects is intended for long-term operational GHG emissions. However, the SCAQMD has developed guidance for the determination of the significance of GHG construction emissions that recommends that total emissions from construction be amortized over 30 years and added to operational emissions and then compared to the threshold. Pursuant to full disclosure

and according to OPR's CEQA Guidelines that state, "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project," the construction and operational emissions associated with the project have been quantified using methods described below.

Construction-related GHG emissions were estimated using a similar methodology to that described for criteria air pollutants in Section 3.02, *Air Quality*, of this Draft SEIR. SCAQMD recommends the use of CalEEMod model for estimating construction and operational emissions associated with land use projects. CalEEMod incorporates the most recent (2007) versions of the EMFAC and Off-Road models developed by ARB. CalEEMod estimates the emissions of CO_2, CH_4, and N_2O associated with construction-related GHG sources such as off-road construction equipment, material delivery trucks, soil haul trucks, and construction worker vehicles. Based on SCAQMD's recommended methodology, the proposed project's total construction GHG emissions were amortized over a 30-year period and added to the proposed project's annual operational emission estimates.

Operational emissions of GHGs associated with the proposed project would be emitted by direct and indirect sources. Direct sources include emissions from vehicle trips (i.e., solids hauling and disposal trips) and the project's biosolids process-related facility components, such as boilers, microturbines, drying system, CEB, etc. Indirect sources include off-site emissions occurring as a result of the proposed project's operations, such as electricity consumption to operate the project's facilities. It should be noted that the key purpose of the proposed project is to provide a residuals management system at MWRP with sufficient capacity to handle all solids produced based on the projected future demands in the IRWD service area. As the proposed project would allow IRWD to perform its own solids processing operations at MWRP rather than send its raw sludge to OCSD for solids processing, the baseline GHG emissions that are currently being generated from OCSD's treatment and handling of MWRP's raw sludge would be replaced by those generated under the proposed project. Thus, for the purpose of this analysis, the overall net difference in GHG emissions associated with the proposed project is calculated relative to baseline GHG emissions. The net difference in GHG emissions is considered to be the effect of the proposed project, which is evaluated against the 10,000 MT/year CO_2e threshold to determine the level of significance of the proposed project. The calculations of baseline GHG emissions, project GHG emissions, and the net change in GHG emissions have been prepared by Black & Veatch and are included in **Appendix C** of this Draft SEIR.

Aside from evaluating the proposed project's GHG impact quantitatively, significance is also assessed by determining whether the proposed project is consistent with or obstructs the Recommended Actions identified by ARB's Scoping Plan.

Impacts Discussion

Generation of GHG

Impact 3.6-1: The proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (Less than Significant).

The proposed project consists of the construction of new biosolids processing, biogas management, and energy recovery systems at the MWRP. Construction emissions were estimated using the same assumptions and methodology as the air quality analysis included in Chapter 3.2, Air Quality. Total GHG emissions over the duration of the project's entire construction period would be approximately 1,781 metric tons of CO_2e (see **Appendix C**). The worst-case emissions associated with project construction determined that emissions would equal to approximately 59 metric tons of CO_2e per year after amortization over 30 years per SCAQMD methodology.

The proposed project's operational GHG emissions would result from mobile source emissions (e.g., chemical deliveries, biosolids haul trips, employee commuter trips; see Table 2-2) and energy use (electricity and natural gas) to operate the new IRWD facilities. Currently, similar direct and indirect sources of GHG emissions are being generated at OCSD's facilities from the treatment and handling of raw sludge that is pumped from MWRP. These are considered the baseline GHG emissions. Given that the proposed project would now allow for solids processing operations to occur at MWRP rather than at OCSD, the GHG emissions that would be generated by the proposed project would replace the existing baseline GHG emissions that are associated with OCSD's treatment and handling of the raw sludge that it currently receives from MWRP. **Table 3.6-2** presents the total net GHG emissions that would be generated by the proposed project relative to baseline GHG emissions.

TABLE 3.6-2
NET GREENHOUSE GAS EMISSIONS – PROPOSED PROJECT

Emission Source	Net GHG Emissions CO2e (MT/yr)
Construction	
Total	1,781
Construction (Amortized over 30 years)	59
Operation[a]	
Mobile Sources	(1,113)
Natural Gas Consumption	3,711
Electricity Consumption	(1,750)
Total Net Project Emissions (MT/yr)	**907**

NOTES: CO_2e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix C for construction and mobile source GHG emissions calculation details.

[a] The operational emissions represent the net GHG emissions that would occur from the proposed project, which accounts for the GHG emission offsets that would occur from the replacement of the solids processing operations currently occurring at OCSD for MWRP's raw sludge.

SOURCE: ESA 2012; Black & Veatch, 2012.

As shown, the proposed project would result in a relative increase in GHG emissions associated with natural gas consumption and a relative decrease in GHG emissions associated with mobile sources and electricity consumption. A sum of both construction and operational GHG emissions associated with the proposed project would result in a total net increase of approximately 907 MT/year of CO_2e. As such, the GHG emissions generated by the proposed project would not exceed the 10,000 MT/year CO_2e benchmark. Thus, impacts associated with direct and indirect

emissions of GHGs by the proposed project would be less than significant. No mitigation is required.

Mitigation Measures

None required.

GHG Plans and Policies

Impact 3.6-2: The proposed project could conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs. (Less than Significant)

In accordance with AB 32, CARB produced the *Scoping Plan* which developed a list of early actions that would begin sharply reducing GHG emissions, assemble an inventory of historic emissions, and establishing the 2020 emissions limit. As previously discussed, the proposed project's aggregated annual construction and operational emissions would not exceed the 10,000 MT/year CO_2e benchmark. Specifically, a total net increase of approximately 907 MT/year of CO_2e would occur under the proposed project. As part of the proposed project's biogas management system, biogas that is produced by the proposed digesters after treatment of thickened sludge, fats, oil, and greases would also be optimally reused for either cogeneration in the microturbines, to fuel the dryer (if operating) or boilers, or transferred to a CEB. Additionally, the biogas produced could also be sold back to the natural gas provider (Southern California Gas). By using sewage sludge that is already being produced at MWRP and LAWRP as the raw material in its energy production line, the proposed project avoids the GHG emissions that would otherwise need to occur from the extraction and refinement of more traditional fuel sources. Furthermore, the microturbines at MWRP would serve to generate electricity from the biogas produced from the methane digesters, which in turn would be used to supplement and offset energy requirements of the MWRP liquid treatment facility. Overall, given that the proposed project would be designed with biogas management and energy recovery systems, the proposed project would not pose any apparent conflict with the CARB Scoping Plan Recommended Actions listed in **Table 3.6-1**. The proposed project would support Recommended Action W-5 for the Water Sector to increase renewable energy production. Therefore, the proposed project would be consistent with the Recommended Actions under the CARB Scoping Plan. Impacts would be less than significant, and no mitigation is required.

Furthermore, taking into consideration the potential effects associated with the beneficial use of biosolids produced by the proposed project, GHG emissions could be reduced further. A comparison of GHG emissions was done for the proposed project versus baseline conditions, using certain assumptions for operational and management parameters in the first year of project operation. Assumptions included the amount of biosolids expected to be produced and handled either at OCSD or at MWRP and the ultimate fate of the biosolids. Currently under baseline conditions, OCSD contracts with third party vendors to haul the majority of the Class B biosolids

produced at Plant 1 out of state for composting and/or land application as fertilizer (see Chapter 1 for additional information). A small portion of OCSD's biosolids (approximately 14%) have been hauled offsite to EnerTech in Rialto, CA for processing into a synthetic coal and subsequent use in cement kilns as a fuel source. OCSD has recently terminated its contract with EnerTech, and thus future management of OCSD's biosolids may or may not include this beneficial use. However, for the first-year analysis it was assumed that OCSD would not send any biosolids to EnerTech for processing. Under the proposed project, it was assumed that 95 percent of Class A pellets would be used as biofuel in cement kilns and five percent would be land applied as fertilizer. As described in Chapter 2, Project Description, up to 100 percent of the Class A pellets produced at the MWRP could be used by cement kilns as a fuel source partially offsetting the cement kiln operator's need to import a nonrenewable fuel source such as coal. Under such operating conditions where the proposed project would include the beneficial use of biosolids as a renewable fuel source, the proposed project would result in a net decrease in GHG emissions relative to baseline conditions. As shown in the analysis provided in Appendix C, the offset in GHG emissions associated with use of Class A pellets as a renewable fuel is greater than the offset associated with use of Class B biosolids for land application.

Mitigation Measures

None required.

References – Greenhouse Gas Emissions

Ahrens, D.C. 2003. *Meteorology Today: An Introduction to Weather, Climate, and the Environment.* Brooks Cole, Inc. Pacific Grove, CA.

California Air Resources Board (CARB). 2007. *Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California Recommended for Board Consideration*, Available online at: http://www.arb.ca.gov/cc/ccea/meetings/ea_final_report.pdf, October.

CARB. 2008a. *Climate Change Scoping Plan*, Available online at: http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf, December.

CARB. 2008b. *Preliminary Draft Staff Proposal on Recommended Approaches for setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act*, October.

CARB. 2010. *California Greenhouse Gas Inventory for 2000-2008 — by IPCC Category*. Available at http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_ipcc_00-08_all_2010-05-12.pdf. Accessed September 2011.

CARB. 2011a. *Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document.* Available at http://www.arb.ca.gov/cc/scopingplan/document/final_supplement_to_sp_fed.pdf. August 19.

California Climate Action Registry (CCAR). 2009. California Climate Action Registry General Reporting Protocol, Version 3.1. Los Angeles, CA. Available at http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf. January.

California Energy Commission (CEC). 2006. *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004.* (Final Staff Report). Publication CEC-600-2006-013-SF. Available at http://www.climatechange.ca.gov/inventory/index.html. December.

ENVIRON. 2012. *Standard Evaluation for Permit to Construct, Irvine Ranch Water District (IRWD),* January.

Governor's Office of Planning and Research (OPR). 2008. *Technical Advisory, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, June 19.

Intergovernmental Panel on Climate Change (IPCC). 2007. *Climate Change 2007, Working Group III Report, Mitigation of Climate Change.* Geneva, Switzerland.

Seinfeld, John H., and Spyros N. Pandis. 1998. *Atmospheric Chemistry and Physics: From Air Pollution to Climate Change.*

South Coast Air Quality Management District (SCAQMD). 2008. *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold*, October.

U.S. Environmental Protection Agency (USEPA). 2011. Mandatory Reporting of Greenhouse Gases (40 CFR part 98)- Fact Sheet. Accessed at http://www.epa.gov/climatechange/emissions/downloads09/FactSheet.pdf. Accessed July 2011.

USEPA. 2010. Final Rule: Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule – Fact Sheet. Available at: http://www.epa.gov/NSR/documents/20100413fs.pdf. Accessed July 2011.

3.7 Hazards and Hazardous Materials

This chapter addresses the potential impacts of the proposed project associated with hazards and hazardous materials in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines.* This chapter assesses potential impacts that could arise as a result of the proposed project associated with hazardous materials use, discovery of hazardous materials in the subsurface, and hazards associated with wildfires and airports. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material that would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment.

3.7.1 Environmental Setting

Definitions

The California Code of Regulations (CCR) defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed (CCR, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10). Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal.

Hazardous materials and hazardous wastes are classified according to four properties: toxicity, ignitability, corrosivity, and reactivity (CCR, Title 22, Chapter 11, Article 3). Factors that influence the health effects of exposure to a hazardous material include the dose to which the person is exposed, the frequency of exposure, the exposure pathway, and individual susceptibility. In some cases, past industrial or commercial land uses on a site can result in spills or leaks of hazardous materials and petroleum to the ground, resulting in soil and groundwater contamination. Federal and state laws require that soils having concentrations of contaminants such as lead, gasoline, or industrial solvents that are higher than certain acceptable levels must be handled and disposed as hazardous waste during excavation, transportation, and disposal. The CCR, Title 22, §66261.20-24 contains technical descriptions of characteristics that would cause a soil to be classified as a hazardous waste.

Project Site

The project site would be located within the boundaries of the existing MWRP site. **Table 3.7-1** presents a summary of the inventory of hazardous substances currently used at the MWRP and plant treatment process and maintenance activities. These substances are listed in the facility's Hazardous Materials Business Plan, which presents information to the local emergency responder (in this case the Orange County Fire Authority) regarding the inventory and location of hazardous materials on site. A number of hazardous materials used in the maintenance and repair shop

consist of small quantities of off-the-shelf substances that do not represent a significant risk to human health or the environment.

TABLE 3.7-1
EXISTING HAZARDOUS MATERIALS INVENTORY
(INCLUDING PHASE 2 CAPACITY EXPANSION PROJECT)

Chemical/Product	Estimated Average Daily Storage (in gallons)
Sodium Hypochlorite	Up to 62,000
Methanol	Up to 10,000
Sodium Hydroxide	Up to 7,000
Ferrous Chloride	Up to 10,000
Aluminum Sulfate	Up to 22,000
Magnesium Hydroxide	Up to 15,000
Citric Acid	Up to 350
Emulsion Polymer	Up to 1,000
Lubricant Oils	Up to 1,200

SOURCE: IRWD, 2012.

IRWD has implemented a Process Safety Management (PSM) plan and a Risk Management Plan (RMP) for the materials stored at MWRP in accordance with the requirements of OSHA 1910.119, the Federal Clean Air Act (40 CFR 68), and the California Accidental Release Program (Cal-ARP). The PSM and RMP, under the approval of the Orange County Fire Authority, cover the bulk storage of hazardous materials and include programs to reduce the probability of an accidental release, and to mitigate impacts in the event of an accidental release. The RMP addresses the potential offsite consequences associated with a worst-case release of chlorine. The worst-case release, in accordance with regulatory guidance, must evaluate release of the entire contents of the largest vessel containing the acutely hazardous material within a 10- minute period, and does not account for any controls designed to reduce the hazard.

The amounts of hazardous wastes generated at the facility are minor and are generally confined to waste oils and paints. The MWRP disposes of these wastes in accordance with California regulations, which require that oily wastes be collected for either recycling or disposal at a Class I hazardous waste landfill.

Sensitive Receptors

The project site is located adjacent to the San Joaquin Wildlife Sanctuary, which includes the Audubon House and other public facilities There are also 11 miles of trails within the Sanctuary that are open to the public daily from dawn to dusk. The trails adjacent to the project site would be closed during construction as necessary to protect public health and safety. The bike path on the east side of San Diego Creek is approximately 1400 feet or 0.25 miles from the project site. The nearest school is a preschool located at University Synagogue located approximately

0.4 miles northeast at the intersection of Michelson and Harvard. The nearest residential areas are located approximately 0.40 miles southeast and 0.50 miles west of the project site. The San Joaquin Marsh Campus caretaker's house is located approximately 0.30 miles south.

Transportation of Hazardous Materials

Transportation of hazardous materials is regulated by the U.S. Department of Transportation's Office of Hazardous Materials Safety (OHM). The OHM formulates, issues, and revises hazardous materials regulations under the Federal Hazardous Materials Transportation Law. The hazardous materials regulations cover hazardous materials definitions and classifications, hazard communications, shipper and carrier operations, training and security requirements, and packaging and container specifications. The hazardous materials transportation regulations are codified in 49 CFR Parts 100-185.

The hazardous materials transportation regulations require carriers transporting hazardous materials to receive required training in the handling and transportation of hazardous materials. Training requirements include pre-trip safety inspections, use of vehicle controls and equipment including emergency equipment, procedures for safe operation of the transport vehicle, training on the properties of the hazardous material being transported, and loading and unloading procedures. All drivers must possess a commercial driver's license as required by 49 CFR Part 383. Vehicles transporting hazardous materials must be properly placarded. In addition, the carrier is responsible for the safe unloading of hazardous materials at the site, and operators must follow specific procedures during unloading to minimize the potential for an accidental release of hazardous materials.

Contaminated Soils

Various land uses within the vicinity of the project site includes past and present usage, storage and disposal of hazardous materials. For this analysis, a limited survey of regulatory agency records was conducted for the project site and surrounding areas. Regulatory databases, provided by numerous federal, state, and local agencies, included the SWRCB Geotracker database for leaking underground fuel tanks (LUFTs) and USTs, the SWRCB Spills, Leaks, Investigations, and Cleanup Database (SLIC), and the State of California's Envirostor database maintained by the California Department of Toxic Substances Control (DTSC) (SWRCB, 2011; DTSC, 2011).

The project site was listed twice in the Geotracker database with gasoline and diesel listed as potential contaminants of the subsurface soil. The first listing involves a case that was opened in 1999 and subsequently closed with no further action required in 2000. The other database listing related to the removal of two underground storage tanks (one 5,000 gasoline and one 10,000 gallon tank) and associated piping in 2003. Samples of underlying soil and groundwater were collected and analyzed to determine whether any petroleum hydrocarbons had been released. No petroleum hydrocarbons were detected in the groundwater and only minor concentrations in the soil that were well below regulatory action levels. The case was closed in 2004. Typically, sites are closed once they have demonstrated that based on existing site use, the levels of existing contamination present no significant risk to human health or the environment.

The only other sites listed in either database within a quarter mile of the project site was a LUFT site (Fluor Technology at 3333 Michelson) and a SLIC site (Rancho San Joaquin Golf Course) in the Geotracker database. According to the database summary for the Fluor site, a gasoline release was reported in 1986 and after subsequent remediation efforts the case was closed in 1994. The golf course has a reported release of vinyl chloride, a highly soluble solvent that is requiring active remediation of the underlying groundwater. The release was discovered in 2007.

Airport Hazards

The nearest airport to the project site is John Wayne International Airport (JWA), located approximately 1.75 miles to the west. The project site is located within the Airport Influence Area (AIA) for JWA as defined by the Airport Environs Land Use Plan (Orange County Airport Land Use Commission, 2008).

Areas of Fire Hazard

The MWRP is located generally in a developed urbanized area although immediately adjacent to the vegetated open space of the San Joaquin Wildlife Sanctuary and the San Diego Creek. The project site is not located in a high fire hazard zone, according to the City of Irvine General Plan Safety Element (2005, Figure J-2).

3.7.2 Regulatory Framework

Federal

Occupational Safety and Health Administration

The Occupational Safety and Health Administration (OSHA) was created by the Occupational Safety and Health Act, passed by congress in 1970. The Act was created to ensure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance. OSHA is part of the United States Department of Labor. The administrator for OSHA is the Assistant Secretary of Labor for Occupational Safety and Health. OSHA's administrator answers to the Secretary of Labor, who is a member of the cabinet of the President of the United States.

Resource Conservation and Recovery Act

The Federal Toxic Substances Control Act (1976) and the Resource Conservation and Recovery Act of 1976 (RCRA) established a program administered by the U.S. Environmental Protection Agency (USEPA) for the regulation of the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which affirmed and extended the “cradle to grave” system of regulating hazardous wastes. The use of certain techniques for the disposal of some hazardous wastes was specifically prohibited by HSWA.

Toxic Substance Control Act

The Toxic Substances Control Act of 1976 provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. Certain substances are generally excluded from TSCA, including, among others, food, drugs, cosmetics and pesticides. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

CERCLA

CERCLA, commonly known as Superfund, was enacted by Congress on December 11, 1980. This law provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA established requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous waste at these sites; and established a trust fund to provide for clean up when no responsible party could be identified. CERCLA also enabled the revision of the National Contingency Plan (NCP). The NCP provided the guidelines and procedures needed to respond to releases and threatened releases of hazardous substances, pollutants or contaminants. The NCP also established the National Priorities List (NPL), which is a list of contaminated sites warranting further investigation by the U.S. EPA. CERCLA was amended by the Superfund Amendments and Reauthorization Act (SARA) on October 17, 1986.

Federal Aviation Administration

The Federal Aviation Administration (FAA) is the branch of the U.S. Department of Transportation with regulatory responsibility for civil aviation. The FAA is responsible for establishing policies and regulations to ensure the safety of the traveling public. The FAA oversees airports that are open to the public or airports that receive federal funding. A sponsor proposing any type of construction or alteration of a structure that may affect the National Airspace System (NAS) is required under the provisions of Title 14 Code of Federal Regulations (14 CFR) Part 77 to notify the FAA by completing the Notice of Proposed Construction or Alteration form (FAA Form 7460-1).

State

California Code of Regulations

The CCR is the official compilation and publication of the regulations adopted, amended or repealed by state agencies pursuant to the Administrative Procedure Act (APA). Properly adopted regulations that have been filed with the Secretary of State have the force of law.

The CCR is compiled into Titles and organized into Divisions containing the regulations of state agencies. Many of the regulations that pertain to hazardous materials are found in Title 22 (Social Security) Divisions 4 (Environmental Health) and 4.5 (Environmental Health Standards for the Management of Hazardous Waste).

California Hazardous Waste Control Law

The California Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency (Cal/EPA) to regulate hazardous wastes. The HWCL is generally more stringent than RCRA. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as US EPA has determined the state program is at least as stringent as Federal RCRA requirements. California's hazardous waste program has been federally approved. The HWCL lists 791 chemicals and about 300 common materials that may be hazardous; establishes criteria for identifying, packaging and labeling hazardous wastes; prescribes management controls; establishes permit requirements for treatment, storage, disposal and transportation; and identifies some wastes that cannot be disposed of in landfills.

California Hazardous Materials Release Response Plans and Inventory Law

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires preparation of Hazardous Materials Business Plans and disclosure of hazardous materials inventories. A business plan includes information such as an inventory of hazardous materials handled, facility floor plans showing where hazardous materials are stored, an Emergency Response Plan (ERP), and a Site Safety Plan with provisions for employee training in safety and emergency response procedures including an annual refresher course (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, the Cal/EPA, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. The laws and regulations are administered locally by the Orange County Fire Authority.

California Occupational Safety and Health Administration

The California Occupational Safety and Health Administration (Cal/OSHA) is the primary agency responsible for worker safety in the handling and use of chemicals in the work place. Cal/OSHA standards are generally more stringent than federal regulations. The employer is required to monitor worker exposure to listed hazardous substances and notify workers of exposure (8 CCR Sections 337-340). The regulations specify requirements for employee training, availability of safety equipment, accident prevention programs, and hazardous substance exposure warnings.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In 1994, the Legislature created a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program to consolidate and coordinate the activities of six separate hazardous materials programs under one agency, a Certified Unified Program Agency (CUPA). The intent has been to simplify the hazardous materials regulatory environment and provide a single point of contact for businesses to address inspection, permitting, billing, and enforcement issues.

Department of Toxic Substance Control

Under the California Hazardous Waste Control Act, California Health and Safety Code, Division 20, Chapter 6.5, Sections 25100, et seq., the Cal/EPA, DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste in California. Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as US EPA has determined the state program is at least as stringent as Federal RCRA requirements. California's hazardous waste program has been federally approved. Thus, in California, DTSC enforces hazardous waste regulatory requirements. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

DTSC is also the administering agency for the California Hazardous Substance Account Act, California Health and Safety Code, Division 20, Chapter 6.8, Sections 25300 et seq., also known as the State Superfund law, providing for the investigation and remediation of hazardous substances pursuant to State law.

DTSC maintains a Hazardous Waste and Substances Site List for site cleanup. This list is commonly referred to as the Cortese List. Government Code Section 65962.5 requires the CalEPA to update the Cortese List at least annually. DTSC is responsible for a portion of the information contained in the Cortese List. Other State and local government agencies are required to provide additional hazardous material release information for the Cortese List.

California Accidental Release Prevention Program

California has developed an emergency response plan to coordinate emergency services provided by Federal, State, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Emergency Management Agency (EMA), which coordinates the responses of other agencies, including Cal EPA, CHP, the Department of Fish and Game, the RWQCB, and the local fire department. The Orange County Fire Authority provides first response capabilities, if needed, for hazardous materials emergencies within the project area.

EMA is also the State administering agency for the California Accidental Release Prevention Program (CalARP) and California's Hazardous Materials Release, Response and Inventory Law (California's Business Plan Law). State and Federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and in the event that such materials are accidentally released, to prevent or to mitigate injury to human health or the environment. These laws require hazardous materials users to prepare written plans, such as Hazard Communication Plans and Hazardous Materials Management Plans. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely. Primary responsibility for enforcement of these laws has generally been delegated to local agencies.

Caltrans Division of Aeronautics

The State Aeronautics Act, Public Utilities Code (PUC) Section 21001 et. Seq., provides the foundation for the California Department of Transportation (Caltrans) aviation policies. The Division of Aeronautics issues permits for and annually inspects public-use airports throughout the State, and provides grants and loans for safety, maintenance and capital improvement projects at airports. To foster compatible land use around airports, the Division of Aeronautics administers noise regulation and land use planning laws and encourages environmental mitigation measures to lessen noise, air pollution, and other impacts caused by aviation.

The State Aeronautics Act requires local jurisdictions that operate public airports to establish Airport Land Use Commissions (ALUCs) or an equivalent designated body to protect the public health, safety, and welfare. The ALUC or equivalent is responsible for promoting the orderly expansion of airports and adoption of land use measures by local public agencies to minimize exposure to excessive noise and safety hazards near airports. Each ALUC or equivalent designated body is responsible for preparing and maintaining an Airport Land Use Compatibility Plan (ALUCP) that identifies compatible land uses near each public use airport within its jurisdiction. The ALUCP must provide policies for reviewing certain types of development that occur near airports. State law requires consistency between airport land use compatibility plans and any associated general plans. Caltrans is responsible for the review and approval of all ALUCPs within the State of California.

Local

Orange County Fire Authority

The Orange County Fire Authority (OCFA) is the administering agency (AA) for the CalARP regulation for the City of Irvine. OCFA's CalARP activities are coordinated with the Orange County Health Care Agency (HCA). HCA is the CUPA for local implementation of CalARP and several other hazardous materials and hazardous waste programs. The OCFA is responsible for regulating hazardous materials business plans and chemical inventory, hazardous waste permitting, underground storage tanks, and risk management plans. The goal of OCFA is to protect human health and the environment by ensuring that hazardous materials, hazardous waste, medical waste, and underground storage tanks are properly managed.

Orange County Airport Land Use Commission (ALUC)

The State Aeronautics Act of the California Public Utilities Code establishes statewide requirements for airport land use compatibility planning and requires nearly every county to create an ALUC or alternative designated body to implement these requirements. Orange County has established a county-wide ALUC, which is charged with the responsibility of preparing and implementing airport land use plans for all airports within its jurisdiction. Orange County has prepared the Airport Environs Land Use Plan (AELUP) for John Wayne Airport (Orange County ALUC, 2008), which is located approximately 1.75 miles west of the project site.

An airport land use plan provides for the orderly growth of an airport and the area surrounding the airport. Its primary function is to safeguard the general welfare of people and property within the airport vicinity and the public in general. An airport land use plan provides specific policies and procedures for proposed changes in land use within the Airport Influence Area (AIA) to ensure compliance with four types of compatibility concerns:

- Exposure to aircraft noise;
- Land use safety with respect to both people and property on the ground and air travelers;
- Airspace protection; and
- General concerns related to aircraft overflights.

The AIA for the John Wayne Airport (JWA) is identified in the AELUP as the geographic area that could be affected by present or forecasted aircraft operations and the area in which new land uses or changes in land uses could cause adverse effects to flight operations and safety. Proposals for development within the AIA are reviewed for their consistency with compatibility criteria.

The proposed project is not located within the AIA for nuisance noise as defined by the 60 dB CNEL contour line. The proposed project also is not located within any runway safety zones or runway protection zones. The proposed project site is located within the Federal Aviation Regulation (FAR) Part 77 Notification Area and Obstruction Imaginary Surfaces for JWA. Any type of construction or alteration that is more than 200 feet above the ground surface must file a Notice of Proposed Construction or Alteration (Form 7460-1) with the FAA. In addition, any construction or alteration that exceeds an imaginary surface extending outward and upward at a 100:1 slope for a horizontal distance of 20,000 feet from the nearest point of the nearest runway also must file FAA Form 7460-1 (CFR Title 14, Part 77, Section 77.9).

City of Irvine Municipal Code Hazardous Materials

Division 17 of the Municipal Code for the City of Irvine applies to the use and storage of hazardous materials within the City. The Municipal Code requires that businesses that use or handle hazardous materials provide an inventory and disclosure for the Orange County Fire Authority in the case of the need for emergency response. Section 4-17-105 provides the requirements for the disclosure as follows:

> Sec. 4-17-105 – Filing of a hazardous material disclosure form.
>
> A. Any person who uses or handles a hazardous material must semiannually, during the months of January and July, submit a completed disclosure form to the Orange County Fire Department.
>
> B. Any person who, during the calendar year, for the first time becomes a user or handler of any hazardous material must submit a completed disclosure form to the Orange County Fire Department within 30 days of becoming a user or handler. Thereafter any such user or handler shall comply with the provisions of section 4-17-105A.
>
> C. The Orange County Fire Department may, upon 30 days' written notice, require the submittal of a disclosure form of any user or handler.

D. Any person required to submit a disclosure form pursuant to this section shall file with the Fire Department of Orange County an updated disclosure form within 15 days of any of the following:

1. A change in business address.
2. A change in business ownership.
3. A change of business name.
4. Cessation of business operations.
5. The use or handling of a previously undisclosed hazardous material.
6. A significant change in the use or handling of a hazardous material for which disclosure has been previously made.

(Code 1976, §IV. O-105; Ord. No. 86-5, §1, 2-25-86)

3.7.3 Impacts and Mitigation Measures

Significance Criteria

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

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

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

Biosolids are considered non-hazardous as long as listed substances are not present in amounts deemed hazardous in Title 22 of the California Code of Regulations, Chapter 11, Article 5, which defines hazardous waste.

Impacts Discussion

Hazardous Emissions in the Vicinity of Schools

The proposed project is not located within a quarter mile of a school. As such, there would be no impacts related to emissions of hazardous materials to schools within a quarter mile.

Hazardous Materials Sites

As described above in the Setting section, the proposed project site has previously been listed as a site of a hazardous materials list. However, the resulting contamination was characterized and cleaned up to the satisfaction of the overseeing agency and subsequently the case was closed. Therefore, there would be no impact related to this criterion.

Emergency Plan

The proposed project would provide additional capabilities to existing operations through the addition of new facilities. These new facilities would be incorporated into existing emergency plans for the facility, including the Hazardous Materials Business Plan and ERP, PSM, and RMP. The new facilities would not involve any permanent road closures or interfere with any existing emergency plans or evacuation routes for the surrounding area. Therefore, there would be no impact related to emergency plans or evacuation routes.

Wildland Fires

The proposed project site is generally located within an urbanized area although the San Joaquin Marsh area is adjacent to the facility. However, the project site is not located in a high fire hazard zone, according to the City of Irvine General Plan Safety Element (2005, Figure J-2). The proposed project improvements would comply with local fire code requirements and would not otherwise be at risk of wildland fires. Therefore, there would be no impact related to wildland fires.

Routine Transport, Use or Disposal of Hazardous Materials

Impact 3.7-1: Operation of the proposed project could create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials. (Less than Significant)

The proposed project would require an increase in the handling and storage of hazardous materials in accordance with the type and quantities indicated in Table 2-1 in the Project Description (Chapter 2). These new and increased quantities of hazardous materials would be required to comply with existing regulatory standards with respect to the storage and handling of hazardous materials including compliance with the existing Hazardous Materials Business Plan and PSM and RMP requirements as managed and overseen by the OCFA. These requirements include such safety measures as ensuring the use of appropriate storage vessels, secondary containment features, safety labeling, readily available spill absorbent materials, and training of site workers to respond to any accidental release. As described in Chapter 2, Project Description, the project design includes secondary containment for each chemical storage tank to prevent accidental release of stored hazardous materials and leak detection monitors to alert staff about potential hazardous materials releases. Adherence to these requirements would ensure that impacts to the environment and public/worker health and safety due to release of hazardous materials during project operation would be less than significant.

In addition, the proposed project would store biogas in the low-pressure biogas holding tank. The tank would provide short-term equalization storage to smooth out operational fluctuations in equipment that utilize biogas. The holding tank would provide a minimal amount of storage since the biogas normally would be fully utilized and biogas production would be less than the utilization capacity of the project facilities. The CEB would operate as necessary and come on automatically to burn any excess biogas when otherwise not fully utilized. Prior to using or burning biogas, the components of biogas that are not utilized would be removed and disposed. The media used in the conditioning system to adsorb biogas constituents, such as H_2S, VOCs, and siloxanes, would be disposed of in accordance with applicable regulations and permits.

Biogas has the potential to be either flammable or explosive; however, the proposed project incorporates various design features, operational safeguards, and equipment redundancy to ensure public and worker safety and minimize the potential for such hazards to occur. All biogas facilities would be designed in conformance with the NFPA Code 820: Standard for Fire Protection for Wastewater Treatment and Collection Systems. The code is structured to minimize fire and explosion hazards through design criteria and built-in safety features. For example, the proposed project would be designed with safety devices that would help prevent a fire or explosion. The project would include pressure monitoring devices that would sound an alarm to alert staff to changes in operational conditions and pressure relief valves that would allow for the automatic release of biogas if safety thresholds are exceeded. Relief valves would be located away from plant staff and the public. As an extra measure of safety, there would be emergency pressure relief manholes installed in case pressure/vacuum relief valves fail for any reason. Also, the biogas conditioning system where biogas is processed would be self-contained, disconnected from any other building space, and built to meet strict safety code requirements.

In addition, as part of the proposed project, IRWD would develop and implement a Biogas Handling System Maintenance and Monitoring Plan to further minimize potential hazards associated with generation and use of biogas. The Plan would incorporate recommendations from the Hazop Study, which identified standard operating procedures, staff training, inspections, and

preventative maintenance to be implemented. The Plan would ensure that biogas facilities, equipment, and safety devices are adequately maintained and monitored, such as pressure monitoring devices, pressure relief valves, and alarms that alert staff of potential issues in a timely fashion to avoid potential hazardous conditions.

In the event of a fire or explosion, IRWD would implement procedures in its ERP and Site Safety Plan, site-specific emergency plans that would be updated to include the proposed new facilities and submitted to the OCFA as part of the Hazardous Materials Business Plan for the MWRP. The ERP and Site Safety Plan procedures are designed to ensure fire-related risks to workers, the public, and the environment are minimized.

Biosolids are considered non-hazardous as long as listed substances are not present in amounts deemed hazardous in Title 22 of the California Code of Regulations, Chapter 11, Article 5, which defines hazardous waste. The Class A and Class B biosolids that would be produced at the MWRP would be considered non-hazardous, and as such, there would be no impacts to the public or environment through their routine transport, use, or disposal.

Mitigation Measures

None required.

Accidental Upset of Hazardous Materials

Impact 3.7-2: The proposed project could create a significant hazard to the public or to the environmental through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. (Less than Significant with Mitigation)

During the construction phase of the proposed project, gasoline, diesel fuel, lubricating oil, grease, solvents, caulking, paint, and welding gases may be used at the site. In general, small amounts of these materials would be onsite at any one time. No acutely hazardous materials would be used onsite during construction of the project. The materials handled would not pose a significant risk to offsite residents or workers. However, spills of hazardous materials during construction activities could potentially cause soil or groundwater contamination or affect the health and safety of onsite construction workers.

The DTSC has no regulations regarding handling procedures for hazardous materials during construction. Rather, the best management practices (BMPs) identified in Mitigation Measure HAZ-1 shall be included in the Storm Water Pollution Prevention Plan (SWPPP) that would be required for the proposed project, to prevent accidental release of hazardous materials into the environment that could affect soils or contaminate groundwater. (See Chapter 3.8 for additional information about the SWPPP.) Cal/OSHA also would require IRWD or its contractors to prepare and implement a Construction Safety Plan, which would include such items as construction worker training, availability of safety equipment, an accident prevention program, and hazardous substance exposure warning protocols. In addition, implementation of Mitigation Measures

HAZ-2, HAZ-3, and HAZ-4 would further reduce potentially significant impacts associated with hazardous substance spills during construction to less than significant levels.

During operation of the proposed project, there would be an increase in the type and volume of hazardous materials delivered to the site. This increase in delivery could potentially result in the increased potential for accidental upset conditions that result in the exposure of hazardous materials to workers, the public, and/or the environment. According to the report, "Comparative Risks of Hazardous and Non-Hazardous Materials Truck Shipment Accidents/Incidents," (Battelle, 2001), the hazardous materials transport accident rate per mile is estimated at 0.507 in a million for all types of hazardous materials, including leak enroute incidents. The route from the San Diego Freeway (I-405) to the MWRP is approximately one mile each way; thus the probability of hazardous material incident occurring on this route is 0.507 in a million for each hazardous material delivery. This is a very low probability of an incident. Thus, despite the increased frequency of deliveries that will be required by the new facilities, impacts associated with hazardous materials handling and deliveries do not represent a significant change from current operations and would not occur within one-quarter mile of an existing or proposed school. In addition, the spill kit requirements outlined in Mitigation Measure HAZ-4 would provide a means of limiting adverse effects in the event of accidental release. Therefore, public health and safety impacts due to increased delivery of hazardous materials would be less than significant.

Biosolids are considered non-hazardous as long as listed substances are not present in amounts deemed hazardous in Title 22 of the California Code of Regulations, Chapter 11, Article 5, which defines hazardous waste. The Class A and Class B biosolids that would be produced at the MWRP would be considered non-hazardous, and as such, there would be no impacts to the public or environment due to accidental upset conditions that may result in the release of biosolids during offsite transport.

Mitigation Measures

Mitigation Measures HAZ-2 through HAZ-4 were included in the previous MWRP Final EIR as HAZ-1b through HAZ-1d and are applicable to the proposed project. Any modifications to the previous measures have been underlined.

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

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

approval. Contaminated soils shall be removed and disposed of in accordance with applicable regulations.

HAZ-2 (Previously HAZ-1b): During project construction, hazardous materials shall not be disposed of or released onto the ground, into the air, into the underlying groundwater, or any surface water. Totally enclosed containment shall be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products and other potentially hazardous materials, shall be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.

HAZ-3 (Previously HAZ-1c): A hazardous substance management, handling, storage, disposal, and emergency response plan shall be prepared and implemented by the construction contractor.

HAZ-4 (Previously HAZ-1d): During construction and operation of the proposed project, hazardous materials spill kits shall be maintained onsite for small spills.

Significance after Mitigation: Less than significant.

Airport Hazards

Impact 3.7-3: The proposed project is located within the notification area of John Wayne Airport and could result in a hazard or obstruction to navigable airspace that would result in a safety hazard for people residing or working in the project area. (Less than Significant)

The proposed project site is located within the FAR Part 77 Notification Area and Obstruction Imaginary Surfaces area for JWA. ESA contacted the Orange County ALUC regarding the potential for the proposed project to penetrate the FAR Part 77 Notification Surface and Obstruction Imaginary Surfaces. The ALUC recommended utilizing the FAA online Notice Criteria Tool to make such a determination. 1 The Notice Criteria Tool determined that IRWD would be required to file Form 7460-1 for the proposed project. A project that penetrates the Notification Surface or the Obstruction Imaginary Surfaces is not necessarily incompatible, but rather means the FAA must be notified. The FAA conducts an aeronautical study, if necessary, to determine if construction or operation of a project is a hazard or obstruction to protected airspace.

Construction of the proposed project would require the use of cranes and lights and other construction equipment that could pose hazards to aircraft operations. If the FAA determines that construction of the proposed project would result in a potential hazard or obstruction, the FAA may require IRWD to prepare and implement an airport construction safety plan that would identify best management practices, such as lighting and flagging requirements, air traffic control communication requirements, equipment staging area requirements, personal safety equipment requirements for construction workers, and appropriate notification to aviators. The safety plan would be approved by airport staff and IRWD.

---

1 FAA Notice Criteria Tool available at: https://oeaaa.faa.gov/oeaaa/external/gisTools/noNoticeRequiredTool.jsp.

If the FAA determines that permanent structures or other operational features of the proposed project would result in a potential hazard or obstruction to protected airspace, then IRWD would consult with JWA staff and the FAA to identify appropriate steps to adjust project plans or include appropriate markings to identify hazards to aviators pursuant to FAA Part 7460. With implementation of this required process, safety hazards for people residing or working in the project area would be less than significant.

Mitigation Measures

None required.

References – Hazards and Hazardous Materials

Battelle, *Comparative Risks of Hazardous and Non-Hazardous Materials Truck Shipment Accidents/Incidents.* Prepared for Federal Motor Carrier Safety Administration, March 2001.

City of Irvine, *City of Irvine General Plan, Safety Element*, Figure J-2 Fire Hazard Areas, December 2005.

Department of Toxic Substances Control (DTSC), *DTSC's Envirostor Database*, http://www.envirostor.dtsc.ca.gov/public/map.asp?global_id=&x=-119.1357421875&y=37.82280243352756&zl=5&ms=640,480&mt=m&findaddress=True&city=IRVINE&zip=&county=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&corrective_action=true&tiered_permit=true&permit_site=true&permit_and_ca_site=true, accessed March 24, 2011.

Orange County Airport Land Use Commission, *Airport Environs Land Use Plan for John Wayne Airport*, Amended April 17, 2008.

State Water Resources Control Board (SWRCB), *Geotracker*, http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T0605902264&assigned_name=MAINSITE, accessed March 24, 2011.

3.8 Hydrology and Water Quality

This chapter addresses the potential impacts of the proposed project to hydrology and water quality in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This chapter describes local surface water and groundwater resources and discusses regional water quality issues. This chapter also evaluates the proposed project's potential impacts on water resources in the project area.

3.8.1 Environmental Setting

Regional Setting

The project area is part of the Santa Ana River hydrological unit (Lower Santa Ana River hydrologic area) and the subarea known as the East Coastal Plain as described in the 1995 Water Quality Control Plan for the Santa Ana Region. Within this subarea, the project area is considered part of the San Diego Creek Watershed which encompasses 112.2 square miles in central Orange County. The San Diego Creek Watershed includes portions of the cities of Costa Mesa, Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin. As the main tributary, San Diego Creek drains into Upper Newport Bay, a coastal estuary. Smaller tributaries include Serrano Creek, Borrego Canyon Wash, Agua Chinon Wash, Bee Canyon Wash, Peters Canyon Wash, Sand Canyon Wash, Bonita Canyon Creek, and the Santa Ana Delhi Channel. Newport Bay consists of two distinct bodies of water –Lower Newport Bay and Upper Newport Bay. The Newport Bay watershed is fed by the San Diego Creek, Santa Ana River Channel, Santa Isabel Channel and Bonita Creek.

The project site is located in the Irvine Pressure groundwater sub-basin of the Irvine Management Zone, which is a consolidated groundwater management zone comprised of the Irvine Forebay I, Irvine Forebay II, and Irvine Pressure groundwater basins. The Santa Ana Regional Water Quality Control Board (RWQCB) amalgamated the three basins into one management zone under Resolution No. R8-2004-0001 (Dudek, 2005). The Irvine Management Zone is bounded by the San Joaquin Hills to the south and the foothills of the Santa Ana Mountains to the northeast. These mountains are composed of marine and non-marine sedimentary bedrock. The Irvine Management Zone is defined by the unconsolidated alluvium-bedrock contact in these portions of the management zone.

The Irvine Management Zone is divided into three groundwater aquifers referred to as the shallow, principal, and deep aquifers. The shallow aquifer is unconfined and is of poor quality and generally not used for municipal supply. Groundwater flow direction can vary locally due to variations in climate and groundwater production patterns; however, the prevailing flow direction remains westward (Wildermuth 2000). The depth to groundwater in the basin is known to vary based on the permeability characteristics of the subsurface soils, irrigation, groundwater pumping, and groundwater recharge.

Project Area

Surface Water

The project site is located along the westerly bank of the San Diego Creek. As the main drainage for the watershed, the San Diego Creek provides approximately 90 percent of the sediment delivered to Newport Bay. In total, the San Diego Creek extends approximately 14 miles from the Newport Bay to its headwaters and is differentiated into two reaches (1 and 2) for the purpose of defining specific beneficial uses and corresponding water quality objectives.

Reach 2, located upstream of Reach 1, flows from the headwaters of San Diego Creek to Jeffery Road, from which Reach 1 comprises the remaining run until it reaches Upper Newport Bay. The project site is located along Reach 1. Stream flow in Reach 2 is intermittent, while stream flow in Reach 1 is perennial. Mean daily flow rates in Reach 1 at Campus Drive near the project site from July 2002 to June 2003 varied from a low of 4 cubic feet per second (cfs) in November 2002 to a high of 1820 cfs in March 2003 with the higher flows coinciding with the winter wet season.

Surface Water Quality

San Diego Creek has been placed on the U.S. Environmental Protection Agency (USEPA) Section 303(d) list of impaired waters (SWRCB, 2010). Based on that listing, total maximum daily loads (TMDLs) of sediments, nutrients, pathogens and toxics entering waters of the creek and bay were established. In accordance with the nutrient TMDL, a Regional Monitoring Program was initiated in 2000.

Flooding

Flooding is inundation of normally dry land as a result of rapid accumulation of storm water runoff or rise in the level of surface waters. Flooding becomes a hazard when the flow of water exposes people or structures to a significant risk of loss, injury, or death. Flooding generally occurs due to excess runoff due to heavy snowmelt or rainfall, but it can also result from the interaction with natural hazards, such as tsunamis, seiches, or failure of dams.

The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping (FIRM) program, designates areas where flooding could occur during a 1% annual chance (known as a 100-year flood) or a 0.2% annual chance (500 year) flood events. The MWRP is located along the westerly bank of the San Diego Creek and is protected from flooding by the San Diego Creek Channel. The San Diego Creek Channel is a 100-year flood control facility under the maintenance of the Orange County Flood Control District (OCFCD) and is the primary regional flood control facility serving the San Diego Creek watershed. The MWRP is located in a 100-year flood zone, designated as Zone A on the FIRM map for the project area (Map Number 06059C0287J, December 3, 2009).

The San Diego Creek itself also is identified by FEMA as an area that is in the 100-year floodplain. The San Diego Creek at Culver Drive has a Standard Project Flood (SPF) peak discharge value of 21,000 cfs. The SPF normally has a frequency of between 200 years and

500 years, but can be between 100 years and 1,000 years. The channel is designed for the Standard Project Flood as required by the Army Corps of Engineers. Hydraulic modeling conducted by the Army Corps of Engineers estimated that the 100-year frequency event is contained within the channel for the reach adjacent to the MWRP. However, according to the Army Corps of Engineers, the 200-year and 500-year frequency event breaks out of the channel between the confluence of San Diego Creek and Peters Canyon Wash to Newport Bay. A 15-20 foot high levee along the southeastern extremity of the plant separates the site from the San Diego Creek and may contain floods greater than the 100-year event frequency.

In 2003, IRWD was notified by OCFCD that at that time the San Diego Creek channel may not have been able to convey the 100-year flood due to sediment and vegetation accumulation in the stream channel adjacent to MWRP. The County of Orange Board of Supervisors declared an emergency and directed OCFCD to remove vegetation and sediment to restore the channel's capacity. A large part of the vegetation and a portion of the sediment was removed, but complete removal was stopped in March 2004 by the audible appearance of least Bell's vireo and OCFCD's inability to obtain necessary permits for the portion of the work downstream of Campus Drive. Following litigation and subsequent negotiations in 2006, permits were issued by the U.S. Army Corps of Engineers, USFWS, RWQCB and CDFG to authorize vegetation and sediment removal along the San Diego Creek Channel from Campus Drive to approximately 1,000 feet downstream of Michelson Drive, and 1,000 feet downstream of Michelson Drive to I-405. After the maintenance was completed in 2007, a DEIR was prepared for the San Diego Creek Channel Programmatic Operations and Maintenance Project in 2008 to restore and maintain the 100-year flood conveyance capacity in the reach of San Diego Creek Channel from I-405 to the Upper Newport Bay (OCRDMD, 2008).

OCFCD as owner/operator is currently responsible for maintenance of the San Diego Creek Channel to contain the 100-year flood. As such, OCFCD has full authority and responsibility for long-term operation and maintenance of the San Diego Creek Channel and has committed to the restoration of the Lower San Diego Creek Channel Sections and In-Line Channel Sediment Basins (Jamboree Road to I-405) which would restore the San Diego Creek Channel between Jamboree Road and the I-405 to contain a 100-year flood.

At this time, due to the environmental regulatory requirements needed, it is not certain when OCFCD's goal and effort for restoring the San Diego Creek to contain the 100-year flood will be achieved. As such, IRWD determined that in addition to the protection that will eventually be afforded by OCFCD's restoration and maintenance, installation of facility-specific permanent flood protection facilities would be prudent. As part of the MWRP Phase 2 and 3 Capacity Expansion Project, IRWD currently is implementing the following permanent flood protection facilities:

- Permanent flood walls around the MWRP that will provide an estimated 200-year flood protection.
- Permanent berm around the University Lift Station to provide increased flood protection.

The flood walls and other flood protection facilities are being constructed in conjunction with the Phase 2 Capacity Expansion at the MWRP. IRWD has submitted a request to FEMA to consider removing the MWRP, including the proposed project area, from the Zone A Special Flood Hazard Area since the flood protection facilities effectively remove the MWRP from the 100-year flood zone. In September 2010, FEMA responded with a Conditional Letter of Map Revision (CLOMR), indicating that a revision of the FIRM map is warranted once appropriate documentation that the flood protection facilities have been built is provided to FEMA. Completion of the flood walls is anticipated in October 2012. IRWD then will obtain a Letter of Map Revision (LOMR) from FEMA.

Groundwater

Depth to groundwater below the existing MWRP ranges between six and 20 feet. Piezometers installed onsite indicate that the water table fluctuates seasonally by as much as 11 feet with high levels measured during the winter months and low levels measured during summer and autumn months. Groundwater is relatively shallow, currently ranging from 5 to 10 feet below existing ground surface. (NMG, 2011) Several types of structures will be constructed below grade including digester tanks 30 feet below grade, the digester control facility basement 16 feet below grade, and centrate treatment tanks 15 feet below grade. As currently planned, portions of these structures may be below the water table. Construction dewatering of some type will likely be necessary during construction. Water extracted from the dewatering wells is discharged to San Diego Creek at a point adjacent to the MWRP in accordance with an NPDES permit.

The existing MWRP also contains a series of constructed ponds as part of a constructed wetlands habitat and mitigation area in the San Joaquin Marsh. The ponds are located between the MWRP and Campus Drive. The ponds receive water via a pump station located approximately 500 feet downstream from the MWRP in San Diego Creek. Water from San Diego Creek is pumped into Pond A, which then flows successively to Pond B, Pond 1, Pond 2, Pond 3, Pond 4 and Pond 5 by gravity as each pond is lower in elevation than the preceding one. These ponds provide recharge of the underlying shallow aquifer.

Currently, the dewatering program at the MWRP that is needed to protect the facilities has no discernible effect on groundwater levels in the San Joaquin Marsh. The water levels in the marsh mitigation area fluctuate more than water levels near the plant and appear to be influenced by surface water runoff that is directed to that area from the developed areas north of Michelson Drive and west of Carlson Avenue. Water levels adjacent to the ponds are influenced by infiltration from the ponds and fluctuate substantially less than water levels observed in piezometers more distant from the ponds.

3.8.2 Regulatory Framework

Federal

Clean Water Act

The Federal Water Pollution Control Act or Clean Water Act (CWA) serves to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. In 1972 the CWA was amended and the national pollutant discharge elimination system (NPDES) was created. NPDES requires a permit for discharge of pollutants from industrial sources and publicly owned treatment works into navigable waters. The discharge must meet applicable requirements, which are outlined in the CWA and which reflect the need to meet federal effluent limitations and state water quality standards.

Section 303(d) of the CWA states that each State shall identify those waters within its boundaries for which the effluent limitations required by section 301(b)(1)(A) and section 301 (b)(1)(B) are not stringent enough to implement any water quality standard applicable to such waters. The State shall establish a priority ranking for such waters, taking into account the severity of the pollution and the uses to be made of such water.

The 2010 USEPA 303(d) list classifies Reach 1 of the San Diego Creek as impaired by fecal coliform, nutrients, sedimentation/siltation, selenium, toxaphene, and pesticides in Reach 1 (SWRCB, 2010). The USEPA has approved TMDLs for nutrients, pesticides, and sediment. TMDLs are under development for fecal coliform, selenium, and toxaphene. The area affected is approximately 8 miles for Reach 1, from Jeffrey Road to Upper Newport Bay.

Title 40 Code of Federal Regulations Part 503

IRWD's biosolids management program must comply with the federal biosolids regulations that are contained in Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503) as Standards for the Use or Disposal of Sewage Sludge. Known as the Part 503 Rule, or Part 503, these regulations govern the use and disposal of biosolids. As required by the Clean Water Act Amendments of 1987, the USEPA was required to develop Part 503 to protect public health and the environment from any reasonably anticipated adverse effects of certain pollutants that might be present in biosolids. Biosolids are defined by the USEPA as a "primarily organic solid product produced by wastewater treatment processes than can be beneficially recycled" (USEPA, 1994).

Biosolids can be beneficially reused as fertilizer for crops (land application) or disposed either in a surface landfill or biosolids incinerator (USEPA, 1994). Part 503 permits are issued by the USEPA and are required for all biosolids generators and treatment works treating domestic sewage, which would include IRWD once the proposed project is implemented. Part 503 requirements can be incorporated into the NPDES permits that also are issued to publicly-owned treatment works, such as the MWRP.

Part 503 classifies biosolids by pathogen concentration levels as Class A, Class B, or sub-Class B biosolids.

- Class A Biosolids are biosolids in which the pathogens are reduced below current detectable levels. Biosolids that are to be given away or used by the general public must meet Class A biosolids criteria.
- Class B Biosolids are biosolids in which the pathogens and vectors are reduced to levels that are unlikely to pose a threat to public health and the environment under specific use conditions. Class B biosolids cannot be sold or given away in bags or other containers or applied to lawns or home gardens.
- Sub-Class B biosolids do not meet adequate pathogen reduction requirements.

Biosolids that are to be land applied must contain metal concentrations that are below certain limits established in Part 503 Table 1. Biosolids are classified as exceptional quality (EQ) biosolids if metal concentrations are below limits established in Part 503 Table 3, a lower set of thresholds. Part 503 allows for EQ biosolids to be applied to land without regard to annual or cumulative loading limits. Part 503 requires monitoring and annual reporting of pollutants concentrations in biosolids to be land applied. Depending on pollutant concentrations, annual and/or cumulative loading rates also may be monitored and reported at application sites, and application rates may be specified for biosolids to be sold or given away in bags or other containers.

National Pollutant Discharge Elimination System (NPDES) Permit

IRWD currently holds a NPDES Permit (No. CA8000326) for the MWRP, which was reissued by the Santa Ana RWQCB on November 30, 2007 (Order R8-2007-0003) and expires on November 1, 2012. Waste Discharge Requirements (WDRs), a Monitoring and Reporting Program (M&RP), Storm Water Pollution Prevention Plan (SWPPP) Requirements, and Stormwater Monitoring and Reporting Requirements (Stormwater M&RPs) were issued jointly with the NPDES Permit.

The NPDES Permit includes a description of the facility's treatment processes, influent and effluent flow averages and capacities, and effluent and receiving water limitations and specifications. The NPDES Permit also notes that tertiary treated wastewater from MWRP is to be either directly recycled to customers or discharged to dedicated recycled water storage reservoirs (Rattlesnake, Sand Canyon, or San Joaquin reservoirs) prior to reuse within IRWD's service area. During dry weather, all of the wastewater treated by IRWD is recycled. However, during periods of low demand for recycled water, wastewater that is not needed for recycling (direct use or storage) is diverted to the Orange County Sanitation District (OCSD) facilities for treatment and ocean disposal. The current NPDES Permit prohibits the direct discharge of tertiary wastewater to surface waters, except for the reservoirs.

In addition to the discharge of recycled water, the current NPDES Permit also identifies discharge points for dewatered groundwater and emergency storm water flows. There are single but separate discharges points for groundwater and storm water into both the San Diego Creek (Reach 1) and San Joaquin Freshwater Marsh. The M&RP specifies monitoring requirements for groundwater dewatering discharges including monitoring locations, parameters to monitor (such as pH and TSS), constituents to sample for (such as nitrates and petroleum hydrocarbons) and

sampling frequency (e.g. daily, quarterly). The SWPPP Requirements include identification of potential pollutant sources and appropriate corresponding BMPs, both structural and non-structural. The NPDES Permit requires IRWD to revise the SWPPP prior to any changes in industrial activities, including development of a new area of the MWRP that would be exposed to storm water. The Stormwater M&RPs requires storm water discharge visual observations, storm water sampling and analysis, and requirements for establishing a monitoring schedule and maintaining monitoring records. The SWPPP and Stormwater M&RPs would be updated upon completion of the proposed project.

The NPDES Permit also includes Regional Board biosolids requirements in addition to USEPA Part 503 requirements. IRWD is required to report any change in the use or disposal practices of biosolids to the RWQCB at least 90 days in advance of the change. The M&RP stipulates that IRWD shall maintain a permanent log of all solids hauled away from the MWRP for use/disposal elsewhere and shall provide a monthly summary of the volume, type, use, and the destination.

The RWQCB Municipal Separate Storm Sewer System (MS4) permit is a general NPDES permit for Orange County, including the San Diego Creek Watershed. The Drainage Area Management Plan (DAMP) is a guidance document for the implementation of the Countywide NPDES permit. Although these documents apply to the San Diego Creek Watershed, the MWRP has a site specific NPDES permit and WDRs and therefore these documents do not apply to the MWRP.

Furthermore, to avoid duplicative regulation between the SWRCB, RQWB, and CalRecycle, a standard provision NPDES permits, enforced by the RWQB, would require that publically-owned treatment works (POTWs) develop and implement standard operating procedures for waste fats, oils, and grease acceptance and digestion operations. A blanket exemption by CalRecycle would be beneficial to the project and regulation. However, this recommended NPDES permit standard provision has only been proposed and is not yet accepted or approved.

Federal Emergency Management Agency

Under Executive Order 11988, the Federal Emergency Management Agency (FEMA) is responsible for the management and mapping of areas subject to flooding during a 100-year flood event (i.e., one percent chance of occurring in a given year). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year flood plain.

In 1968, the United States Congress passed into law the National Flood Insurance Act, which created the National Flood Insurance Program (NFIP). The NFIP is a federal program enabling property owners to purchase insurance protection against losses from flooding. Participation in the NFIP is based on an agreement between local communities and the Federal Government which states that if a community will adopt and enforce a floodplain management ordinance to reduce future flood risks to new and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses.

As previously mentioned, FEMA has provided IRWD with a CLOMR that indicates the proposed project area would be removed from the Zone A Special Flood Hazard Area since the flood wall would remove the MWRP from the 100-year flood zone. A revision of the FIRM map is warranted once appropriate documentation that the flood protection facilities have been built is provided to FEMA. Completion of the flood walls is anticipated in October 2012. IRWD then will obtain a LOMR from FEMA.

Communities have the primary responsibility for regulating development and construction in floodplains and do so through a range of techniques that can include land use plans and policies, zoning, subdivision, and sanitary ordinances, single purpose floodplain management ordinances, and building codes and standards.

Communities that participate in the NFIP must adopt and enforce floodplain management requirements that meet or exceed minimum criteria established by FEMA, which administers the program. Communities meet this requirement by either adopting a single purpose floodplain management ordinance or by incorporating NFIP floodplain management requirements into their other land use measures and building codes. Many States and communities have adopted floodplain management requirements that go beyond NFIP minimum criteria.

State

Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) provides the basis for water quality regulation within California. This act establishes the authority of the SWRCB and the nine RWQCBs. The SWRCB administers water rights, water pollution control, and water quality functions throughout the state, while the RWQCBs conduct planning, permitting, and enforcement activities. The project area lies within the jurisdiction of the Santa Ana RWQCB. The Santa Ana RWQCB regulates discharges including storm water discharges to waters of the state through the issuance of WDRs.

SWRCB Anti-Degradation Policy

The SWRCB Resolution No. 82-16 “Statement of Policy with Respect to Maintaining High Quality Water in California” is California’s implementation of the Clean Water Act (40 CFR 131.6; 131.12(a)). The non-degradation policy states that the disposal of wastes into state waters shall be regulated to achieve the highest water quality consistent with maximum benefit to the people of the state and to promote the peace, health, safety, and welfare of the people of the state. The non-degradation policy requires the continued maintenance of existing high quality water unless there is a demonstration that: (1) allowing some degradation is consistent with the maximum benefit to the people of the state; and (2) that such degradation would not unreasonably affect existing or potential beneficial use. The policy requires a constituent-by-constituent comparison to determine water quality changes for the proposed project.

Santa Ana River Basin Water Quality Control Plan

The SWRCB and the SARWQCB share the responsibility, under the Porter-Cologne Act, to formulate and adopt water policies and plans and to adopt and implement measures to fulfill CWA requirements. The SARWQCB has prepared the Santa Ana River Basin Water Quality Control Plan (Basin Plan) (2008) that identifies beneficial uses for the major creeks, rivers, estuaries, and bays in the project area as shown in **Table 3.8-1**. **Table 3.8-2** defines the identified beneficial uses.

TABLE 3.8-1
BENEFICIAL USE DESIGNATIONS FOR WATER BODIES IN THE PROJECT AREA

Waterbody	MUN	NAV	GWR	REC I	REC II	WARM	COMM	BIOL	WILD	RARE	SPWN	MAR	SHEL	EST
Newport Bay - Lower	+	X		X	X		X		X	X	X	X	X	
Newport Bay – Upper	+			X	X		X	X	X	X	X	X	X	X
San Diego Creek, Reach 1	+			X	X	X			X					
San Diego Creek, Reach 2	+		I	I	I	I			I					

X = Present or potential beneficial uses
I = Intermediate beneficial uses
+ = Excerpted from municipal drinking water source (MUN) designation.

SOURCE: Santa Ana Region Basin Plan, Updated February 2008

NPDES General Construction Permit for Storm Water Runoff

Construction activities disturbing one acre or more of land are subject to the permitting requirements of the NPDES General Construction Activity Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit. On September 2, 2009, the SWRCB adopted a new General Construction Permit for Discharges of Storm Water Associated with Construction Activities that became effective on July 1, 2010. The new permit requires a risk-based permitting approach, dependent upon the likely level of risk imparted by a project. The new permit also contains several additional compliance items, including (1) additional mandatory Best Management Practices (BMPs) to reduce erosion and sedimentation, which may include incorporation of vegetated swales, setbacks and buffers, rooftop and impervious surface disconnection, bioretention cells, rain gardens, rain cisterns, implementation of pollution/sediment/spill control plans, training, and other structural and non-structural actions; (2) sampling and monitoring for non-visible pollutants; (3) effluent monitoring and annual compliance reports; (4) development and adherence to a Rain Event Action Plan; (5) requirements for the post-construction period; (6) numeric action levels and effluent limits for

TABLE 3.8-2
DEFINITIONS OF BENEFICIAL USES OF SURFACE WATERS

Beneficial Use	Description
Municipal and Domestic Supply (MUN)	Waters are used for community, military, municipal or individual water supply systems. These uses may include, but are not limited to, drinking water supply.
Navigation (NAV)	Waters are used for shipping, travel or other transportation by private, commercial or military vessels.
Groundwater Recharge (GWR)	Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting saltwater intrusion into freshwater aquifers.
Preservation of Rare and Endangered Species (RARE)	Uses of waters that support habitats necessary for the survival and successful maintenance of plant or animal species established under state and/or federal law as rare, threatened, or endangered.
Water Contact Recreation (REC I)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, and use of natural hot springs.
Non-Contact Water Recreation (REC II)	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Commercial and Sport Fishing (COMM)	Commercial and sportfishing waters are used for commercial or recreational collection of fish or other organisms, including those collected for bait. These uses may include, but are not limited to, uses involving organisms intended for human consumption.
Preservation of Biological Habitats of Special Significance (BIOL)	Waters support designated areas or habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance (ASBS), where the preservation and enhancement of natural resources requires special protection.
Spawning, Reproduction and Development (SPWN)	Waters support high quality aquatic habitats necessary for reproduction and early development of fish and wildlife.
Marine Habitat (MAR)	Waters support marine ecosystems that include, but are not limited to, preservation and enhancement of marine habitats, vegetation (*e.g.,* kelp), fish and shellfish and wildlife (*e.g.,* marine mammals and shorebirds).
Shellfish Harvesting (SHEL)	Waters support habitats necessary for shellfish (*e.g.,* clams, oysters, limpets, abalone, shrimp, crab, lobster, sea urchins and mussels) collected for human consumption, commercial or sport purposes.
Estuarine Habitat (EST)	Waters support estuarine ecosystems, which may include, but are not limited to, preservation and enhancement of estuarine habitats, vegetation, fish, and shellfish, and wildlife, such as waterfowl, shorebirds, and marine mammals.

SOURCE: SARWQCB Basin Plan, 2008.

pH and turbidity; (7) monitoring of soil characteristics on site; and (8) mandatory training under a specific curriculum. Under the revised permit, BMPs will be incorporated into the compliance action and monitoring requirements for each development site, as compared to the existing permit, where specific BMPs are implemented via a SWPPP. Under the updated permit a SWPPP would be reviewed by the RWQCB. However, additional monitoring, reporting, and training requirements for management of storm water pollutants will also be implemented, unless the new permit is challenged and set aside prior to its implementation.

California Water Code Section 13274

In California, the application or beneficial reuse of biosolids must comply with the California Water Code (Section 13274) in addition to meeting the requirements specified in Part 503. To satisfy the CWC requirements, in July 2004, the SWRCB adopted Water Quality Order No. 2004-0012-DWQ (General Order) for general WDRs for the discharge of biosolids to land for use in agriculture, silviculture, horticulture, and reclamation activities. The General Order applies to both the biosolids generators and appliers (SWRCB, 2011). California does not have delegated authority to implement the Part 503 Rule; therefore, the General Order does not replace the Part 503 Rule.

The biosolids material covered under the General Order includes Class A biosolids, Class B biosolids, and large-scale application of EQ biosolids. The Class A and Class B biosolids to be produced at the MWRP would be covered under the General Order.

Local

City of Irvine Hydrology Manual

The Design Manual and Standard Plans were prepared to provide guidance to engineers preparing improvement plans for the City of Irvine. Drainage design requirements are required to be in accordance with the latest edition of the Hydrology Manual published by the Orange County Flood Control District and the Orange County Local Drainage Manual published by the County of Orange Environmental Management Agency. Design calculations and flow maps for all contributory areas are then submitted with the plans for approval by the City of Irvine. Drainage systems shall be designed along with site grading to insure all building pads are a minimum of one-foot above the elevation of the theoretical 100-year storm flow.

City of Irvine General Plan

The following objectives and policies from the City of Irvine's General Plan are applicable to the proposed project:

Objective J-3: Insurance Programs: Qualify for the National Flood and other disaster insurance programs.

> **Policy (a):** Support legislation and tax measures which tie disaster insurance and tax rates to hazard reduction measures.

3.8.3 Impacts and Mitigation Measures

Significance Criteria

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

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river in a manner that would result in substantial erosion or siltation;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in onsite or offsite flooding;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

A discussion of the impacts and mitigation measures for the proposed project are presented below.

Impacts Discussion

Erosion and Siltation

The proposed project would not alter the course of a stream or river. The proposed project would have no direct effect on the nearby San Diego Creek and therefore would not alter the existing drainage pattern of the creek or result in substantial erosion or siltation. The proposed project would alter the drainage pattern of the project site itself. However, the project site would be

covered by impermeable surfaces, and all storm water would be captured onsite. Therefore, there would be no erosion or siltation due to changes in the drainage pattern at the project site.

Dam or Levee Failure

There are dams and reservoirs located on tributaries to San Diego Creek, such as Peters Canyon Reservoir along Peters Canyon Wash, or otherwise within the watershed, such as Rattlesnake Reservoir, Syphon Reservoir, Sand Canyon Reservoir, and San Joaquin Reservoir. However, the MWRP is not located within the inundation area for any reservoirs in the event of dam failure at these reservoirs. In addition, there are levees located along the San Diego Creek Channel protecting the MWRP from the flood control channel. The levees are maintained by OCFCD. Stability of the levees was reviewed by FEMA and recertified for 100-year flood protection when the CLOMR was issued in September 2010. In addition, the flood wall that IRWD is building around the MWRP would protect the proposed project from a 200-year flood when considered together with the creek levee. Therefore, the proposed project would not expose people or structures to any addidtional risk of loss, injury or death involving flooding due to failure of a dam or levee. There would be no impact.

Seiche, Tsunami, Mudflow

The proposed project site is not located adjacent to any enclosed body of water that would be considered susceptible to seiche waves. The storage ponds at the site may be subject to some level of agitation during a significant seismic event, however they are not of substantive size that would be expected to cause any significant injury or damage. The proposed project site is also located well inland such that it would not be susceptible to tsunami waves. The proposed project site is also located in a relatively flat area that would not be susceptible to mudflows. Therefore, there would be no impact.

Water Quality Standards and WDRs

Impact 3.8-1: The construction and operation of proposed new facilities could introduce pollutants to surface waters and groundwater and violate water quality standards or waste discharge requirements. (Less than Significant with Mitigation)

Construction of the proposed project would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities onsite. In the absence of proper controls, these construction activities could result in accidental spills or disposal of potentially harmful materials used during construction that could wash into and pollute surface waters or groundwater. Materials that could potentially contaminate the construction area from a spill or leak include diesel fuel, gasoline, lubrication oil, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and other fluids. The proposed project includes environmental commitments to reduce impacts during construction due to accidental spills of hazardous materials (see Chapter 2, Section 2.6). These commitments specifically require the implementation of a SWPPP that includes BMPs for storm water pollution control. BMPs typically include water bars, silt fences and staked straw bales. The commitments also include development of and adherence to a Hazardous Substance Control and Emergency

Response Plan for quick and safe cleanup of accidental spills occurring during construction. Implementation of these measures would protect both surface and groundwater quality in the project area from accidental spills of hazardous materials occurring during construction, and therefore, this impact is considered less than significant.

During operation of the proposed project, accidental spills could occur as a result of equipment malfunction, accidental release of materials from the anaerobic digesters, or spills associated with the handling of chemicals used during the solids treatment process. Without mitigation, such spills or accidental releases could drain into surface waters or infiltrate to groundwater, either directly or during storm water runoff events, resulting in degradation of surface water or groundwater quality. The project design includes a storm water runoff collection system that would capture all runoff from the project site and convey it to the MWRP for treatment. Therefore, it is unlikely that accidental release of pollutants from the project site would occur. Nonetheless, the project facilities currently operate under a NPDES Permit (No. CA8000326), which include WDRs, the M&RP, SWPPP Requirements and Stormwater M&RPs. As part of these permitting requirements the facility implements BMPs stipulated in the SWPPP to minimize the potential for accidental spills as well as spill response measures in the event that a spill does occur. In accordance with Mitigation Measure HYDRO-1, the SWPPP for the MWRP would be updated to include the proposed facilities as part of this project to reduce the potential for accidental releases to impact water quality to less than significant levels.

Mitigation Measures

> **HYDRO-1**: IRWD shall update the Storm Water Pollution Prevention Plan for the MWRP to include the proposed Biosolids Handling Component. The revised SWPPP shall include BMPs that would reduce potential impacts to water quality due to accidental releases of pollutants from the proposed facilities. BMPs would include both non-structural measures (e.g., preventative maintenance and inspection schedules, spill response and clean-up procedures, material handling and storage procedures, employee training, etc.) and structural measures (e.g., sediment control and erosion control devices, runoff and run-on control devices, retention ponds, secondary containment structures, treatment, etc.).

Significance after Mitigation: Less than significant.

Impact 3.8-2: The proposed beneficial reuse of biosolids could violate water quality standards and waste discharge requirements. (Less than Significant)

The Class A pellets and Class B cake to be produced by the proposed project could contain pollutants that during land application could potentially either leach into storm water runoff or underlying groundwater aquifers. The type and concentration of pollutants in residual biosolids can vary substantially depending upon the feedstock, digestion processes, and application practices. In general, biosolids are expected to contain substantial amounts of organic matter, as well as salt, nutrients, and in some cases, heavy metals, pathogens, and toxic organic/inorganic pollutants. Part 503 permits are issued by the USEPA and are required for all biosolids generators and

treatment works treating domestic sewage, which would include IRWD once the proposed project is implemented. Part 503 requirements can be incorporated into the NPDES permits that also are issued to publicly-owned treatment works, such as the MWRP. The NPDES Permit for the MWRP currently includes USEPA Part 503 requirements in addition to Regional Board biosolids requirements. IRWD is required to report any change in the use or disposal practices of biosolids to the RWQCB at least 90 days in advance of the change. In addition, the Stormwater M&RP in the current NPDES permit stipulates that IRWD shall maintain a permanent log of all solids hauled away from the MWRP for use/disposal elsewhere and shall provide a monthly summary of the volume, type, use, and the destination. IRWD is renewing the NPDES permit for the MWRP; the new permit would include new Part 503 requirements that would reflect proposed changes in the processing, disposal and beneficial use of biosolids to be produced at the MWRP.

The disposal or beneficial use of the biosolids produced at the MWRP would be in accordance with the allowable uses as stipulated in Part 503. Part 503 classifies biosolids into Class A, Class B, and Sub-class B based on pathogen levels, pollutant concentrations, and vector attraction limits. Part 503 permits include sampling and analysis requirements for the treatment facility prior to release of the materials. Part 503 permits also require biosolids generators to conduct regular monitoring and reporting of the concentration of certain constituents, particularly metals, in order for biosolids to be land applied. IRWD would be required to adhere to all terms and conditions associated with Part 503 in their new NPDES permit, which would result in a less than significant impact to water quality due to subsequent disposal or beneficial use of biosolids produced at the MWRP.

Under the Clean Water Act, Section 405(d)(2)(C), the USEPA is required to conduct a review of the Part 503 standards not less than every two years for purposes of identifying and regulating new pollutants that may be present in biosolids at levels of concern for public health and the environment, where sufficient data exist. Currently, USEPA is evaluating and conducting exposure and hazard assessments for nine new pollutants, including barium, beryllium, manganese, silver, fluoranthene, pyrene, 4-chloroaniline, nitrate and nitrite (USEPA, 2009). In addition, the USEPA has recently sampled and tested sewage sludge from 74 randomly selected publically-owned treatment works in 35 states to test for various new compounds that may be present and identify concentrations. The compounds tested included phosphorus, metals, flame retardants, pharmaceuticals, steroids, and hormones. Survey results are still being analyzed. As scientific data is reviewed, the Part 503 numeric criteria will be revised to reflect any conclusive findings of the biennial review in order to maintain protection of human health, water quality, and the environment. IRWD would be required to comply with any new sampling, monitoring, and reporting criteria for new compounds in the future in accordance with Part 503. To date, there is no documented scientific evidence that sewage sludge regulations have failed to protect public health or the environment.

In addition to Part 503, IRWD would be required to comply with the SWRCB adopted Water Quality Order No. 2004-0012-DWQ (General Order) for general WDRs for the discharge of biosolids to land. The General Order primarily applies to appliers of biosolids but also applies to the generator of biosolids. SWRCB has evaluated the conditions of the General Order in

accordance with CEQA and have determined that projects that meet the conditions for approval under the General Order would have no significant impacts to the environment. The General Order requires each applier to prepare and submit a Notice of Intent (NOI) for the area in which the biosolids are to be applied. The NOI identifies the generator of the biosolids and the Part 503 monitoring report from the generator. The RWQCB issues a Notice of Applicability under the general WDRs along with discharge monitoring requirements. IRWD would be required to comply with any monitoring or reporting requirements of the WDRs. As a result, impacts to water quality would be less than significant.

Mitigation Measures

None required.

Groundwater Levels

Impact 3.8-3: The proposed project could affect groundwater levels in the shallow aquifer beneath the project site. (Less than Significant)

During the course of project construction, shallow groundwater may be encountered in excavations. Common practices employed include temporarily dewatering the excavation in order to complete the intended construction. Any construction dewatering would be discharged into San Diego Creek in accordance with the MWRP existing NPDES permit for groundwater discharges. Temporary construction dewatering would have no lasting effect on groundwater levels beneath the project site, would not affect the principal aquifer, and would not deplete groundwater supplies.

The shallow groundwater at the MWRP is currently dewatered intermittently as part of normal plant operations. If the proposed project requires additional dewatering at the project site beyond what is currently part of MWRP operations, groundwater would be lowered through the existing well system. If changes to operational dewatering and groundwater pumping is required, then IRWD would be required to update their existing NPDES permit to allow continued discharge into the San Diego Creek. Dewatering activities at the MWRP only affect the shallow aquifer beneath the site and have no affect on the principal aquifer. There would be no depletion of groundwater supplies.

The proposed project would result in a net increase of impervious surfaces which would reduce the amount of precipitation that infiltrates and recharges the shallow groundwater aquifer. Currently, storm water runoff either infiltrates into the underlying shallow groundwater or is collected by the existing concrete-lined swale that leads to the existing storm water collection system at the MWRP. The proposed project would include a new separate storm water collection system for the project site to prevent runoff from leaving the site. The amount of infiltration that would be reduced through the introduction of new impervious surfaces would not substantially affect groundwater levels beneath the site and would have no effect on the principal aquifer or the

depletion of groundwater supplies. Impacts to groundwater recharge and groundwater levels would be less than significant.

Mitigation Measures

None required.

Storm Water Runoff

Impact 3.8-4: The proposed project would alter the existing drainage pattern of the project site and increase the rate and amount of surface runoff. (Less than Significant)

Currently, storm water runoff from the Biosolids Handling Component project site is either captured by the existing open storm channel, flows into the neighboring Sanctuary and Marsh, or when runoff exceeds the capacity of the channel, feeds into the existing MWRP storm water collection system. The proposed project would increase the impermeable surface coverage at the project site and build new aboveground structures, which would increase storm water runoff from the site. The proposed project includes a new separate storm water collection system that would collect and contain all runoff from the project site, with a capacity designed to handle a 100-year storm event, which is estimated to be about 41 cfs. This collection system would include modifications to the existing storm water drainage ditch by having it partially replaced by construction of the proposed project facilities. A 36-inch storm water discharge pipeline would be constructed from the west end of the remaining section of the concrete ditch to the new storm water pump station that would be located at the southwest corner of the project site. The new storm water system improvements would be capable of conveying storm water flow in excess of the 100-year peak runoff flow of approximately 41 cfs to the proposed new pump station, which would convey flows to the long-term storage ponds (Pond C) for eventual filtration and disinfection treatment onsite at the MWRP (Black & Veatch, 2011).

In the event that runoff exceeds capacity of this new collection system during a storm event, runoff from the project site would overflow into the existing storm water collection system for the rest of the MWRP and either be stored for later treatment or overflow as an emergency discharge into the San Diego Creek. The existing NPDES permit for the MWRP allows for such emergency discharge into San Diego Creek via two discharge points. The San Diego Creek is designed for a Standard Project Flood peak discharge of 21,000 cfs and thus would have capacity to handle any slight increase in storm water discharge that may be attributable to runoff from the project site. Therefore, the proposed project would not cause significant onsite or offsite flooding due to an increase in storm water runoff.

In addition, the potential for the proposed project to introduce new sources of polluted runoff would not be significant because runoff from the project site would be captured and treated the majority of the time, with the exception of very large storm events when untreated runoff may be part of emergency discharges from the MWRP into the San Diego Creek. IRWD would be

required to amend the NPDES permit for the MWRP to include the proposed project and to allow for the additional discharge. Such emergency discharges would be infrequent and occur during large storm events that result in very high flows within the creek channel. As such, potential pollutants from the project site that may be introduced into the San Diego Creek via storm water runoff would be highly diluted in the high flows and would represent an incremental increase in potential pollutant discharges from the MWRP that would not be considered to have a significant effect to water quality.

Mitigation Measures

None required.

Flood Hazards

Impact 3.8-5: The proposed project would build new structures that could be subject to flooding due to a 100-year flood event. (Less than Significant)

The proposed project site is located along the westerly bank of the San Diego Creek and is protected from flooding by the San Diego Creek Channel. The San Diego Creek Channel is a 100-year flood control facility under the maintenance of the OCFCD and is the primary regional flood control facility serving the San Diego Creek watershed. The MWRP and project site are located in the 100-year flood plain according to the latest FEMA FIRM map for the project area (Map Number 06059C0287J, December 3, 2009).

The flood storage capacity within the San Diego Creek Channel has been reduced in recent years due to sediment and vegetation accumulation in the channel. As such, OCFCD has committed to the restoration of the Lower San Diego Creek Channel Sections and In-Line Channel Sediment Basins (Jamboree Road to I-405) which would restore the San Diego Creek Channel between Jamboree Road and the I-405 to a 100-year flood control facility, which would continue to provide protection to the MWRP and the project site. In the interim, prior to completion of the flood capacity improvements proposed by OCFCD, IRWD has committed to the construction of flood protection measures to ensure protection against flooding at the MWRP, including construction of a permanent flood wall around the MWRP that, when combined with San Diego Creek restoration, will provide protection from a 200-year flood. Completion of the flood wall is anticipated in October 2012. With implementation of the flood wall, the proposed project would not introduce new structures into an area subject to flooding due to a 100-year storm event. FEMA also has issued a CLOMR confirming that the flood wall would remove the MWRP and proposed project from the 100-year flood zone. The LOMR would be issued by FEMA once the flood wall is complete. Impacts would be less than significant.

In addition, the proposed project does include the construction of any residential units. As such, there would be no impacts related to the placement of housing in a 100-year flood zone.

Mitigation Measures

None required.

References – Hydrology and Water Quality

Black and Veatch, *Irvine Ranch Water District, MWRP Biosolids and Energy Recovery Facilities, Special Study: Stormwater Design,* June 2011.

County of Orange Resources and Development Management Department, *Draft EIR San Diego Creek Channel Programmatic Operations and Maintenance Project*, June 2008, Page 2-3.

NMG, *Report of Geotechnical Exploration and Design Recommendations for the Proposed Irvine Ranch Water District Biosolids and Energy Recovery Center, Michelson Water Reclamation Plan*, February 2011

Santa Ana Regional Water Quality Control Board (SARWQCB), 2006 CWA Section 303(d) List of Water Quality Limited Segments Requiring TMDLs, USEPA Approval Date: June 28, 2007.

Santa Ana Regional Water Quality Control Board (SARWQCB), Santa Ana River Basin Water Quality Control Plan (Basin Plan), Updated February 2008.

State Water Resources Control Board (SWRCB), 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report) Statewide: California 2010 303(d) List of Water Quality Limited Segments. Available online: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml. Adopted August 4, 2010.

SWRCB, 2011. Biosolids Program, http://www.waterboards.ca.gov/water_issues/programs/biosolids/index.shtml, accessed May 25, 2011.

U.S. Environmental Protection Agency (USEPA), 1994. *A Plain English Guide to the EPA Part 503 Biosolids Rule.* Office of Wastewater Management, Washington, DC. EPA/832/ R-93/003, September 1994.

U.S. Environmental Protection Agency (USEPA), 2009. *Targeted National Sewage Sludge Survey Overview Report*. Office of Water (4301T). EPA-822-R-08-014, January 2009.

3.9 Land Use, Planning, and Recreation

This chapter addresses the potential impacts of the proposed project to land use, planning and recreation in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This chapter describes the existing land uses and recreational resources in the vicinity of the proposed project and evaluates potential impacts associated with implementation of the proposed project. This chapter describes the regulations that govern land use and recreational lands, including zoning ordinances and general plan policies.

3.9.1 Environmental Setting

Regional Setting

Orange County encompasses approximately 798 square miles that stretches 40 miles along the coastline of the Pacific Ocean and extends 20 miles inland (Orange County, 2005). Adjacent counties include Los Angeles County to the north and northwest, San Bernardino County to the northeast, Riverside County to the east, and San Diego County to the southeast. Orange County includes 34 cities and has a population of over 3 million residents (Orange County, 2008). The diverse combination of mountains, hills, flatlands and shoreline characterizes the natural setting of Orange County.

Project Area

General Plan Land Use and Zoning

The proposed project would be constructed on the existing MWRP property located in the City of Irvine. The City of Irvine General Plan (1999) identifies the land use designation for the MWRP and project site as *Institutional (Public Facilities)*. The land use designation for the neighboring Sanctuary is *Conservative Open Space (Preservation)*. The Public Facilities category is intended for government, public, and community owned facilities, with typical uses including post offices, libraries, museums, fire and police facilities, places of worship, and utilities.

The zoning designation for the MWRP property and project site is *Institutional*. Treatment of wastewater is an allowable use under this designation in addition to other approved uses such as libraries, fire facilities, police stations, and utilities. The zoning designation for the neighboring Sanctuary is *Conservation/Open Space Reserve*, which is consistent with the current use of the area as IRWD's San Joaquin Wildlife Sanctuary. The MWRP property is located in the City's Planning Area 23 (PA23) (San Joaquin Marsh), a zoning district that allows open space reserve, recreation along the creek, and institutional uses. PA23 also allows residential development (maximum of 1,000 units) along the western and northern edges of the marsh, along a segment of Carlson Avenue and a segment of Michelson Drive, within a few hundred feet of the project area. The proposed project is not subject to City building regulations, per Government Code Section 53091. However, proposed facilities are subject to the City's zoning code requirements.

Surrounding Land Uses

The majority of surrounding land uses within a 0.5 mile radius of the project site is conservation/open space reserves, recreational, commercial and industrial. The nearest school is a preschool located at University Synagogue located approximately 0.32 miles northeast at the intersection of Michelson and Harvard. The nearest residential areas are located approximately 0.40 miles southeast and 0.50 miles west of the project site. The San Joaquin Marsh Campus caretaker's house is located approximately 0.30 miles south. The John Wayne Airport (JWA) is located approximately 1.75 miles west.

Recreational Facilities

Recreational facilities in the vicinity of the project site include the 300-acre San Joaquin Wildlife Sanctuary, which is owned and operated by IRWD and is free and open to the public. The Sanctuary contains 11 miles of nature trails, the closest of which is immediately west of the project site on the other side of the vegetated berm and flood wall. The trail is approximately 50 feet from the project site. This and other trails within the Sanctuary would be closed to the public as necessary during project construction to protect public health and safety. Other recreational facilities within the Sanctuary include the Audubon House, providing tours of the marsh and other resources of the Sanctuary to the public, and the Duck Club meeting room facility offered to non-profit organizations for use free of charge.

A bike path on the east side of San Diego Creek is approximately 1400 feet or 0.25 miles from the project site. This bike path runs between Harvard Avenue and San Diego Creek. The Rancho San Joaquin Golf Course is identified as a "Public Golf Course" recreational facility in Figure K-1 of the Parks and Recreation Element of the City of Irvine General Plan (1999). Rancho San Joaquin Golf Course is located east the project site, on the opposite side of San Diego Creek, east of Harvard Avenue

3.9.2 Regulatory Framework

Regional

Orange County Natural Community Conservation Plan (NCCP)

The Orange County Natural Community Conservation Plan/Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion (Subarea Plan) was adopted in July 1996, establishing a 37,380 acre reserve system, called the Natural Reserve of Orange County (NROC). The NCCP/HCP was prepared in cooperation with CDFG and USFWS. The intent of the NCCP/HCP program is to provide long-term, regional protection of natural vegetation and wildlife diversity, while allowing compatible land use and appropriate development and growth. The NCCP/HCP is accomplished with the institution of a subregional Habitat Reserve System, and implemented through a coordinated program to manage biological resources within the habitat preserve. Proposed facilities would be constructed within the existing MWRP property, which is not located within the NROC.

Orange County Airport Land Use Commissions

As discussed in Chapter 3.7, Hazards and Hazardous Materials, the State Aeronautics Act of the California Public Utilities Code establishes statewide requirements for airport land use compatibility planning and requires nearly every county to create an ALUC or alternative designated body to implement these requirements. Orange County has established a county-wide ALUC, which is charged with the responsibility of preparing and implementing airport land use plans for all airports within its jurisdiction. Orange County has prepared the Airport Environs Land Use Plan (AELUP) for JWA (Orange County ALUC, 2008), which is located approximately 1.75 miles west of the project site.

An airport land use plan provides for the orderly growth of an airport and the area surrounding the airport. State law requires consistency between airport land use plans and any associated general plans. Its primary function is to safeguard the general welfare of people and property within the airport vicinity and the public in general. An airport land use plan provides specific policies and procedures for proposed changes in land use within the Airport Influence Area (AIA) to ensure compliance with four types of compatibility concerns:

- Exposure to aircraft noise;
- Land use safety with respect to both people and property on the ground and air travelers;
- Airspace protection; and
- General concerns related to aircraft overflights.

The AIA for JWA is identified in the AELUP as the geographic area that could be affected by present or forecasted aircraft operations and the area in which new land uses or changes in land uses could cause adverse effects to flight operations and safety. Proposals for development within the AIA are reviewed for their consistency with compatibility criteria.

Local

City of Irvine General Plan

Land Use Element

Objective A-4 Balanced Land Uses

Policy (a) - Ensure that land uses enable the City to provide necessary municipal services by:

- Establishing development intensity for the institutional designation in addition to the development intensity allowed in the adopted land use category. This policy applies to those institutional uses which support the surrounding land uses. Included institutional uses are public schools, libraries, museums, places of worship, day care and child care centers, police and fire stations, institutional-related housing and not-for-profit housing.

City of Irvine Zoning Code

The City of Irvine Zoning Code governs the allowable development among different land uses and ensures consistency with policies identified in the general plan. The zoning code is intended

to carry out the policies of the general plan while promoting compatibility between the natural and built environment. The project site is within the zoning district code 6.1 (Institutional). The following policies relate to the Institutional zoning designation:

Sec. 3-37-37. - 6.1 Institutional.

A. Intent. This category applies to land for public and quasi-public facilities such as churches, schools or utilities.

C. Conditional uses: 14..Utility building and facility.

D. Minimum site size: 0.25 acre

E. Maximum site coverage: 50%

F. Maximum building height: 50 feet

G. Minimum site landscaping: 15%

3.9.3 Impacts and Mitigation Measures

Significance Criteria

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

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Impacts Discussion

Dividing an Established Community

The proposed project includes construction of non-linear facilities that would be contained within the existing boundaries of the MWRP property. The proposed project does not involve activities

or facilities that would create a physical separation of an established community. Therefore, no impacts would occur.

Physical Deterioration of Recreational Facilities

Approximately 300-acres of the IRWD property are dedicated as the San Joaquin Wildlife Sanctuary. San Joaquin Wildlife Sanctuary is adjacent to the project site where proposed facilities would be constructed. Construction of the proposed project would not disrupt the use of most of the nature trails within the Sanctuary. The trail immediately adjacent to the project site may have restricted access during project construction. However, the nature trails are on IRWD private property and public use is subject to IRWD discretion. Limited access to the trail would not result in a substantial increase in use of other recreational facilities such that physical deterioration of those facilities would occur. There would be no impact.

Construction or Expansion of Recreational Facilities

Implementation of the proposed project does not include construction or expansion of any recreational facilities. Therefore, there would be no adverse physical effects to the environment due to construction or expansion of recreational facilities.

Habitat Conservation Plan or Natural Community Conservation Plan

Proposed facilities would be constructed within the existing MWRP property, which is not located within the NROC. No construction would occur outside of the MWRP property and would not disturb resources within the San Joaquin March and San Diego Creek adjacent to the project site area, which are mapped as Non-Reserve Open Space in the Subarea Plan (County of Orange, 1995). Implementation of the proposed project would not conflict with the provisions of the NCCP and would be consistent with the Subarea Plan, as required by all signatories participating in the NCCP, including IRWD. For these reasons, there would be no conflicts and no impacts associated with these plans and policies.

Conflict with Land Use Plans, Policies or Zoning Ordinance

Airport Environs Land Use Plan

The proposed project would be located within the AIA of the JWA, as described in the AELUP. The project site is located within the FAR Part 77 Notification Surface and Obstruction Imaginary Surfaces areas and thus would be required to file Form 7460-1 with the FAA. (See additional discussion in Chapter 3.7, Hazards and Hazardous Materials.) A project that penetrates the Notification Surface or the Obstruction Imaginary Surfaces is not necessarily incompatible, but rather means the FAA must be notified of project construction. State law requires consistency between airport land use plans and any associated general plans. The proposed project would be compatible with the City of Irvine General Plan land use designation for the project site, which is Institutional (Public Facilities). This land use category allows for public uses and utilities. Therefore, the proposed project would be considered to be compatible with the AELUP.

City of Irvine Zoning Ordinance

Impact 3.9-1: Implementation of the proposed project could have an environmental effect due to conflict with the City of Irvine zoning ordinance due to building height limitations. (Less than significant)

The project site is designated as Public Facilities by the City of Irvine General Plan (1999). The Public Facilities category is intended for government, public, and community owned facilities, with typical uses that include utilities. The proposed facilities would be constructed entirely within the MWRP property and would be compatible with the existing land use designation. The proposed project would be consistent with the City's Land Use policies.

The City of Irvine Zoning Code designates the project site as Institutional. The proposed Solids Handling Building would require a facility height of up to 70 feet and the methane digesters would be have a maximum height of approximately 68 feet. This height requirement would exceed the City's maximum building height policy of 50 feet as outlined under Section 3-37-37, 6.1-Institutional, of the City of Irvine Zoning Code. There would be no significant environmental effects resulting from this inconsistency with the zoning code. As evaluated in Chapter 3.1 Aesthetics, there would be no significant impacts to scenic views or visual character due to the height and visibility of these facilities. Based on recent correspondence with the City of Irvine Planning Department, IRWD has applied for a conditional use permit (CUP) to address the proposed building height inconsistency. This Draft SEIR and the subsequent Final SEIR will be used by the Irvine Planning Commission during the CUP approval process. Upon approval of the CUP, the District would be required to conform to any associated conditions to maintain allowable use. Impacts would be less than significant. No mitigation is required.

Mitigation Measures

None required.

References – Land Use, Planning and Recreation

City of Irvine, General Plan, adopted 1999.

City of Irvine, Zoning Code, available online at: http://library.municode.com/index.aspx?clientId=13239&stateId=5&stateName=California, accessed March 31, 2011.

County of Orange, General Plan, Housing Element, adopted December 2008.

County of Orange, General Plan, Resources Element, 2005.

County of Orange, Natural Community Conservation Plan/Habitat Conservation Plan, 1995.

3.10 Noise

This chapter addresses the potential impacts of the proposed project associated with noise and vibration in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This chapter provides an overview of the existing noise environment at the proposed project site and surrounding area, the regulatory framework, an analysis of potential noise impacts that would result from implementation of the proposed project, and mitigation measures where appropriate.

3.10.1 Environmental Setting

Noise Principles and Descriptors

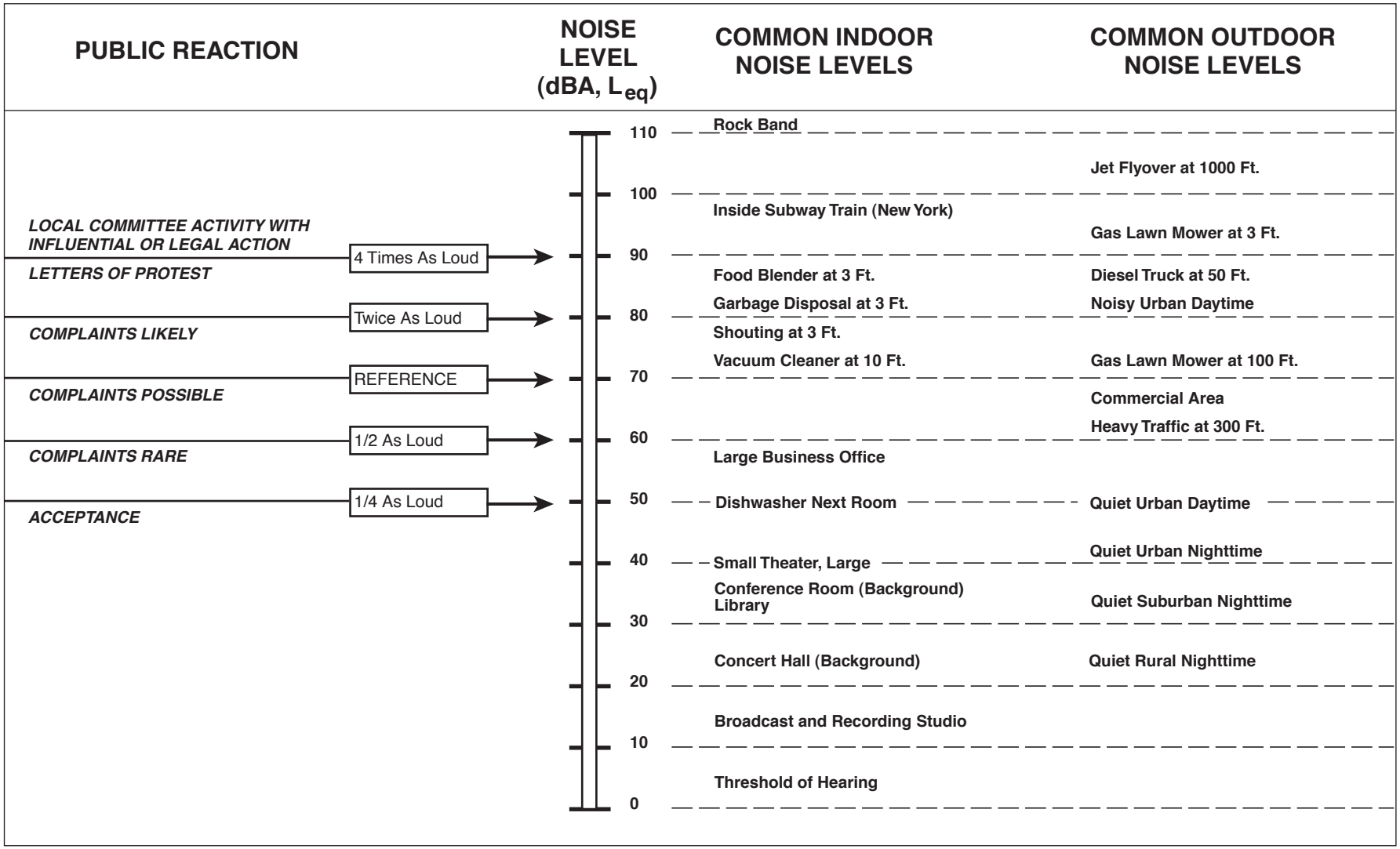
Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 3.10-1**.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in **Figure 3.10-1** are representative of measured noise at a given instant in time, however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to



SOURCE: ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project . 210480

Figure 3.10-1
Effects of Noise on People

the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable.

The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

Leq	the equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The Leq is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
Lmax	the instantaneous maximum noise level for a specified period of time.
L50	the noise level that is equaled or exceeded 50 percent of the specified time period. The L50 represents the median sound level.
L90	the noise level that is equaled or exceeded 90 percent of the specified time period. The L90 is sometimes used to represent the background sound level.
Ldn	24-hour day and night A-weighted noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 PM and 7:00 AM is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
CNEL	similar to the Ldn, the Community Noise Equivalent Level (CNEL) adds a 5-dBA penalty during the evening hours between 7:00 PM and 10:00 PM in addition to a 10-dBA penalty between the hours of 10:00 PM and 7:00 AM

As a general rule, in areas where the noise environment is dominated by traffic, the Leq during the peak-hour is generally equivalent to the Ldn at that location (within +/- 2 dBA) (Caltrans, 1998).

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- subjective effects of annoyance, nuisance, dissatisfaction;
- interference with activities such as speech, sleep, learning; and
- physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- outside of the laboratory, a 3 dBA change is considered a just-perceivable difference;
- a change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- a 10 dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion; hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) *Transit Noise and Vibration Impact Assessment* (FTA, 2006), ground-borne vibration can be a concern for nearby neighbors of a

transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA, 2006).

Existing Local Noise Environment

The proposed project would be located at the existing MWRP. The existing noise environment is influenced by current operations at the MWRP, traffic on local roadways, I-405, and the air traffic at the John Wayne International Airport. An ambient sound level survey at the proposed project site was conducted for a 25-hour period from September 15 to September 16, 2010 by Black & Veatch (Black & Veatch, 2012). The hourly ambient daytime sound level at the project site ranged from 46 to 49 dBA L90; the hourly ambient nighttime sound level at the project site ranged from 43 to 49 dBA L90. Thus during the course of the 25-hour survey period, 90 percent of the time the noise level equaled or exceeded 43 to 49 dBA during each one-hour period. These L90 noise ranges would be considered the background sound level at the project site. Discreet noise events occasionally caused higher sound levels. The measurements included existing operations at the MWRP (at 18 mgd capacity) and ongoing Phase 2 Capacity Expansion construction activities.

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others because of the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. The nearest sensitive receptors to the proposed project site are the caretaker's house at the Marsh Campus approximately 0.30 miles (1,500 feet) to the southwest. The nearest school is a preschool located at University Synagogue located approximately 0.32 miles (1,700 feet) northeast of the project site at the intersection of Michelson and Harvard. The nearest residential areas are located approximately 0.40 miles (2,100 feet) southeast and 0.50 miles (2,600 feet) west of the project site.

The nearest sensitive receptors to construction staging areas are the caretaker's house at the Marsh Campus approximately 500 feet to the south west; Bethel Korean Church located approximately 0.2 miles (1,000 feet) to the south, and residences located approximately 0.23 miles (1,200 feet) to the east.

During the ambient sound level survey, noise measurements were also recorded at the boundary of the IRWD property with the most sensitive noise zones, including residential properties and churches. At the boundary of the IRWD property near residential receptors along Carlson Avenue to the west, the hourly daytime/nighttime sound level ranged from 44 to 46/37 to 43 dBA L90. At the boundary of the IRWD property at the Marsh Campus, also near residential receptors to the east, the hourly daytime/nighttime sound level ranged from 41 to 47/40 to 50 dBA L90. At the northeast boundary of the IRWD property across the San Diego Creek from the University Synagogue, the hourly daytime/nighttime sound level ranged from 44 to 47/43 to 49 dBA L90. During the ambient sound level survey, the existing MWRP was not audible at the property boundary except during the quietest nighttime house when the MWRP was only faintly audible (Black & Veatch, 2012).

3.10.2 Regulatory Framework

Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

In California most cities and counties have adopted noise ordinances, which serve as enforcement mechanisms for controlling noise, and general plan noise elements, which are used as planning guidelines to ensure that long-term noise generated by a source is compatible with adjacent land uses. The California Department of Health Services' Office of Noise Control studied the correlation of noise levels and their effects on various land uses and published land use compatibility guidelines

for the noise elements of local general plans. The guidelines are the basis for most noise element land use compatibility guidelines in California.

The land use compatibility for community noise environment chart identifies the normally acceptable range for several different land uses, as shown in **Figure 3.10-2**. Persons in low-density residential settings are most sensitive to noise intrusion, with noise levels of 60 dBA CNEL and below considered "acceptable". For land uses such as schools, libraries, churches, hospitals, and parks, acceptable noise levels go up to 70 dBA CNEL.

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB at 15 meters. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of Day-night Average Sound Level (DNL) 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

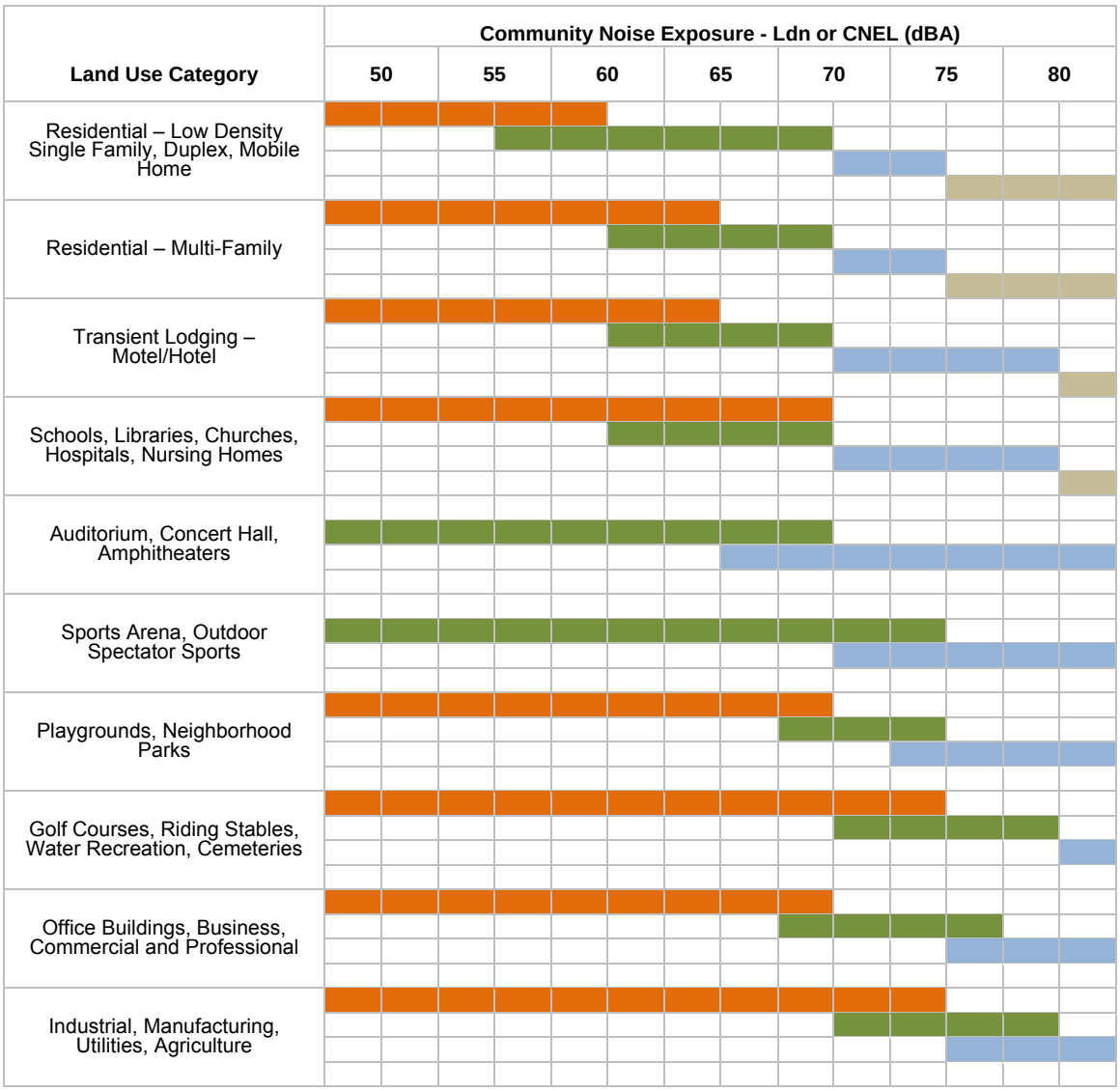
Local

City of Irvine Municipal Code

The proposed project is located in the City of Irvine. **Table 3.10-1** describes the noise level limits in the City of Irvine Noise Ordinance.

The properties surrounding the MWRP are primarily within the Noise Zone 1 designation, with the exception of professional office land uses to the north that are designated as Noise Zone 2 and a small commercial area to the northwest that is designated as Noise Zone 3.

Exemptions to noise and vibration thresholds include construction activities between 7:00 am and 7:00 pm Monday through Friday, and between 9:00 am and 6:00 pm and Saturday (Municipal Code Section 6-8-205). There is no specific limit on construction noise levels. No construction activities are allowed outside these hours or on Sundays or federal holidays unless a temporary waiver is requested and granted by the City of Irvine Chief Building Official.



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*.

MWRP Phase 2 & 3 Capacity Expansion Project 210480

Figure 3.10-2
Land Use Compatibility for Community Noise Environment

TABLE 3.10-1
CITY OF IRVINE NOISE ORDINANCE MAXIMUM PERMISSIBLE NOISE LEVELS

			Permissible Noise Level (dBA) for a Period Not Exceeding				
Noise Zone		**Time Period**	**30 min**	**15 min**	**5 min**	**1 min**	**0 min**
1. Hospitals, libraries, churches, schools, and residential properties.	Exterior	7 am to 10 pm	55	60	65	70	75
		10 pm to 7 am	50	55	60	65	70
	Interior	7 am to 10 pm	-	-	55	60	65
		10 pm to 7 am	-	-	45	50	55
2. Professional office and public institutional properties.	Exterior	Anytime	55	60	65	70	75
	Interior	Anytime	-	-	55	60	65
3. All commercial properties excluding professional office properties	Exterior	Anytime	60	65	70	75	80
	Interior	Anytime	-	-	55	60	65
All industrial Properties	Exterior	Anytime	70	75	80	85	90
	Interior	Anytime	-	-	55	60	65

SOURCE: City of Irvine Noise Ordinance Chapter 2, Division 8, Title 6, Municipal and Zoning Code

3.10.3 Impacts and Mitigation Measures

Significance Criteria

An impact related to noise would be considered significant if it would result in any of the following, which are adapted from Appendix G of the CEQA *Guidelines*:

- Exposure of persons to or generation of noise levels in excess of standards established in any applicable plan or noise ordinance, or applicable standards of other agencies;
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels existing without the project;
- Exposure of people residing or working in the project area to excessive noise levels, for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport; or

- Expose people residing or working in the project area to excessive noise levels if the project is located in the vicinity of a private airstrip.

Methodology

Noise impacts are assessed based on a comparative analysis of the noise levels resulting from the proposed project and the noise levels under existing conditions.

Construction Noise and Vibration

Analysis of temporary construction noise effects is based on typical construction phases, published or previously measured decibel levels of construction equipment and attenuation of those noise levels due to distances, presence of any barriers between the construction activity and the sensitive receptors near the sources of construction noise, and time of day and expected duration of construction activity. Typically, most jurisdictions in California with Noise Ordinances exempt construction noise when it occurs during daytime hours. Noise impacts from short-term construction activities could exceed noise thresholds and could result in a significant construction impact if short-term construction activity occurred outside of the daytime hours permitted by local noise ordinances.

Vibration from construction is evaluated for potential impacts at sensitive receptors. Typical activities evaluated for potential building damage due to construction vibration include demolition, pile driving, and drilling or excavation in close proximity to structures. The ground-borne vibration is also evaluated for perception to eliminate annoyance. Vibration propagates according to the following expression, based on point sources with normal propagation conditions:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

Where PPV (equip) is the peak particle velocity in inches per second of the equipment adjusted for distance, PPV (ref) is the reference vibration level in inches per second at 25 feet, and D is the distance from the equipment to the receiver. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration and is often used in monitoring vibration because it is related to the stresses experienced by structures.

To determine the potential for annoyance, the RMS vibration level (L_v) at any distance (D) is estimated based on the following equation:

$$L_v(D) = L_v(25\text{ ft}) - 30\log(D/25)$$

Stationary Noise

Operational noise impacts would be considered potentially significant if off-site noise levels at residences, churches, hospitals, or schools from stationary non-transportation sources exceed 55 dBA between the hours of 7:00 am to 10:00 pm, or 50 dBA between the hours of 10:00 pm and 7:00 am, as depicted in Table 3.10-1.

Impacts Discussion

Noise Levels Near Airports

The proposed project is approximately one and a half miles from John Wayne International Airport. However, the proposed project lies outside the airport's 60 dBA noise contour (Orange County ALUC, 2008). Therefore the proposed project facilities would not be subjected to excessive noise levels, and exposure of MWRP employees to airport noise would be a less than significant impact.

Construction Noise

Impact 3.10-1: Construction of the proposed project could result in a temporary increase in ambient noise levels in excess of standards established by the City of Irvine Noise Ordinance. (Less than Significant with Mitigation)

Noise levels associated with the construction of the proposed project would fluctuate depending on the particular type, number, and duration of uses of various pieces of construction equipment. **Tables 3.10-2** and **3.10-3** show typical noise levels during different construction stages and those produced by various types of construction equipment. The loudest construction equipment used onsite would be a pile driver. As shown in Table 3.10-3 below, pile driver noise levels are 101 dBA at 50 feet. Construction of the proposed project would require pile driving for the solids handling building, the acid digesters, methane digesters, and other proposed structures. The nearest sensitive receptors to the project site are the caretaker's house at the Marsh Campus approximately 1,500 feet to the southwest, University synagogue located approximately 1,700 feet to the northeast, and residences located approximately 2,100 feet to the southeast. Assuming an attenuation rate of 7.5 dBA per doubling of distance, the closest receptor at 1,500 feet would experience noise levels of approximately 64 dBA Leq during pile driving activities. A receptor at 1,700 feet would experience noise levels of approximately 63 dBA Leq during pile driving activities. Other sensitive receptors located further away from construction would be exposed to construction noise at incrementally lower levels.

TABLE 3.10-2
TYPICAL NOISE LEVELS FROM CONSTRUCTION ACTIVITIES

Construction Phase	Noise Level[a] (dBA, Leq)
Ground clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, 1971; Cunniff, 1977.

TABLE 3.10-3
TYPICAL NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level[a] (dBA, Leq at 50 Feet)
Dump truck	88
Portable air compressor	81
Concrete mixer (truck)	85
Scraper	88
Jackhammer	88
Dozer	87
Paver	89
Generator	76
Backhoe	85
Pile Driver	101

a Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: Bolt, Baranek, and Newman, 1971; Cunniff, 1977.

The Sanctuary trails around the project site are private trails on property owned by IRWD that would be closed during construction in the interest of public safety. This would eliminate exposure of any recreational users on the trails to construction noise in excess of ordinance levels.

The City of Irvine Noise Ordinance allows construction activities to occur between 7:00 am and 7:00 pm, Monday through Friday, and 9:00 am to 6:00 pm on Saturdays. Construction noise is exempt from the City's noise thresholds during these time periods (Municipal Code Section 6-8-205). There is no specific limit on construction noise levels. No construction activities are allowed outside these hours or on Sunday or federal holidays unless a temporary waiver is requested and granted by the City of Irvine Chief Building Official. Mitigation Measure NOISE-1 limits project construction activity to these hours. If project construction requires activities outside of these restricted hours, such as during nighttime hours, IRWD would be required to request and be granted a temporary waiver by the City of Irvine Chief Building Official. Mitigation Measure NOISE-2 would ensure that IRWD secures noise waivers from the City prior to construction activities that occur outside of the exempted construction hours stipulated in the City of Irvine Noise Ordinance.

In addition, Mitigation Measure NOISE-1 requires the use of noise control techniques on construction equipment to lessen the potential temporary noise impacts. Mitigation Measure NOISE-1 also requires IRWD to establish a noise disturbance coordinator that would be responsible for responding to any local complaints about construction noise. With implementation of these mitigation measures, impacts would be less than significant.

Mitigation Measures

NOISE-1: To reduce daytime noise impacts due to construction activities, IRWD shall require construction contractors to implement the following measures:

- Construction activities shall be in compliance with the applicable City of Irvine Noise Ordinances, or as otherwise permitted by the City.
- Equipment and trucks used for project construction shall use noise control techniques.
- A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to respond to the noise complaints. All signs posted at the construction site shall list the telephone number and email address for the noise disturbance coordinator.

NOISE-2: IRWD shall secure a temporary waiver from the City of Irvine for construction activities that occur outside of the exempted construction hours stipulated in the City of Irvine Noise Ordinance.

Significance after Mitigation: Less than significant.

Ground-borne Vibration

Impact 3.10-2: Proposed project construction could result in the exposure of persons to, or generation of, ground-borne vibration or ground-borne noise levels. (Less than Significant)

Vibration associated with noise, which takes the form of oscillatory motion, can be described in terms of acceleration, velocity, and displacement. There are several different methods that are used to quantify vibration. The PPV is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The RMS amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. The FTA's threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to ground-borne vibration is 80 RMS (FTA, 2006). Construction of the proposed project would require pile driving for the solids handling building, the acid digesters, the methane digesters, and other proposed structures. Notice of pile driving activities would be available through the periodic construction updates on the IRWD web site. As shown in **Table 3.10-4** below, pile driving generates vibration levels of up to 0.644 PPV or 104 RMS at a distance of 25 feet. The nearest sensitive receptors to pile driving activities are approximately 1,400 feet to the south west. At this distance the nearest sensitive receptor would be exposed to vibration levels of approximately 0.002 PPV and 52 RMS. These levels would not exceed FTA standards. Therefore vibration impacts from construction would be less than significant.

Mitigation Measures

None required.

TABLE 3.10-4
VIBRATION FROM CONSTRUCTION EQUIPMENT

Construction Equipment	PPV at 25 feet (inches/second)[a]	RMS at 25 feet (VDB)[b]
Loaded Trucks	0.076	86
Caisson Drilling	0.089	87
Large Bulldozer	0.089	87
Jackhammer	0.035	79
Pile Driver	0.644	104

a. Buildings can be exposed to ground-borne vibration levels of 0.2 PPV without experiencing structural damage.
b. The human annoyance response level is 80 RMS.

SOURCE: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

Operational Noise

Impact 3.10-3: Project operation could result in a permanent increase in ambient noise levels in the project vicinity in excess of standards established by the City of Irvine Noise Ordinance. (Less than Significant with Mitigation)

Proposed project operations that would generate noise include vehicle trips and the operation of certain mechanical equipment such as the dryer, boilers, pumps, motors, and ventilation system components. Operational vehicle trip increases would be minimal and would not generate a substantial increase in noise along local roadways. However, operation of proposed mechanical equipment generally would be continuous over daytime and nighttime hours and could increase ambient noise levels in the project vicinity.

The proposed project would be designed to adhere to the City of Irvine's Noise Ordinance (Table 3.10-1). The Irvine Noise Ordinance establishes sound level limits for properties within designated noise zones according to the time of day and the duration of sound. The properties surrounding the IRWD property are primarily within the Noise Zone 1, which is the most sensitive noise zone and includes residential properties and other land uses such as churches. Given the continuous operational nature of the MWRP, the proposed project would be required to meet the applicable daytime and nighttime limits established in the Irvine Noise Ordinance. The results of the ambient sound level survey conducted at the IRWD property in 2010 indicate that both daytime and nighttime baseline sound levels currently are below the limits established in the Noise Ordinance. The survey measurements included existing operations at the MWRP (at 18 mgd capacity) and ongoing Phase 2 Capacity Expansion construction activities.

As described in Chapter 2, Project Description, the outdoor operational noise associated with the proposed project would be combined with the sound levels of the existing MWRP and the Phase 2 Capacity Expansion facilities, including sound-attenuating abilities of the flood wall. The proposed project would be designed such that all operational noise from the MWRP facilities,

including the proposed project, would not exceed the A-weighted sound pressure level of 50 dBA at the boundary between the MWRP and properties categorized as Noise Zone 1 (residential, church, school, hospital, and library properties); at the boundary with properties categorized as Noise Zone 2 (institutional and professional office properties), 55 dBA would not be exceeded. Noise mitigation strategies would include both architectural and equipment considerations to mitigate the outdoor environmental noise issues as necessary to meet the established project acoustical design criteria (Black & Veatch, 2012). Noise control would be provided in the centrifuge room and dryer room in the Solids Handling Building and in other areas with significant noise generation. Noise modeling has been conducted during final project design to identify noise abatement measures to reduce noise to acceptable levels.

In addition to meeting the sound level limits in the Irvine Noise Ordinance, the noise modeling results indicate that all operational noise from the MWRP facilities, including the proposed project, would result in an increase in ambient noise that is less than 5 dBA at surrounding sensitive receptors (Black & Veatch, 2012). A change in noise level of at least 5 dBA is required before any noticeable change in human response would be expected.

Mitigation Measure NOISE-3 would require IRWD to conduct a post-construction noise survey at the IRWD property boundary to ensure that the cumulative operational noise associated with operation of the proposed project, together with the existing facilities, Phase 2 Capacity Expansion facilities, and flood wall, does not exceed thresholds established in the Irvine Noise Ordinance. Impacts would be less than significant with mitigation.

Mitigation Measures

> **NOISE-3:** IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate non-compliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds.

Significance after Mitigation: Less than significant.

References – Noise

Black & Veatch, 2012. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Noise Emissions*. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, March 2012.

Bolt, Baranek, and Newman, Noise from Construction Equipment and Operations, Building Equipment, and home appliances. 1971

City of Irvine, City of Irvine Municipal Code, updated July 27, 2010.

Cunniff, Environmental Noise Pollution, 1977.

Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

Orange County Airport Land Use Commission (ALUC), 2008. *Airport Environs Land Use Plan for John Wayne Airport*. Amended April 17, 2008.

3.11 Utilities and Energy

This chapter addresses the potential impacts of the proposed project to utilities and energy resources in accordance with the significance criteria established in Appendices F and G of the *CEQA Guidelines*. This chapter discusses existing utilities and energy systems that could be affected by the proposed project. This chapter presents the associated regulatory framework and provides an analysis of potential impacts to utilities and energy systems that would result from the proposed project. Public utilities necessary or affected by the proposed project include: water, wastewater, storm water, solid waste, electricity, and natural gas.

3.11.1 Environmental Setting

Water and Wastewater Facilities

The proposed project would be located within IRWD's service area, which provides drinking water, sewage collection and treatment, recycled water, and urban runoff treatment within its service area. Thirty-five percent of IRWD's drinking water supply is imported from Metropolitan Water District, which as a water wholesaler obtains supplies from the Colorado River and State Water Project. IRWD obtains 65 percent of its drinking water supplies from the local groundwater basin, which is managed by Orange County Water District.

IRWD's sanitary sewer system collects all wastewater coming from homes and businesses within the IRWD service area. Sewage is conveyed to two treatment plants through more than 800 miles of sewer distribution pipelines. The MWRP treats up to 18 mgd of wastewater while the LAWRP in Lake Forest treats up to 5.5 mgd. These two water reclamation plants treat incoming wastewater to tertiary treatment standards for use as recycled water. The majority of recycled water is used for landscape irrigation in parks, golf courses, school grounds, city street medians, homeowner associations, and other public areas. Recycled water is also used for toilet flushing and cooling towers in more than 40 office buildings and for industrial uses such as carpet dyeing and concrete making. IRWD maintains a completely separate recycled water pipeline system, also known as purple pipe, of more than 400 miles serving more than 4,500 metered connections. The MWRP Phase 2 Capacity Expansion Project is currently underway and expected to be completed in 2012. When completed, the MWRP would have capacity to produce 28 mgd of recycled water.

Storm Water

The Orange County Flood Control District manages storm water in the project area and is responsible for providing services in planning, development, operation and maintenance of flood control facilities on a county-wide basis. The project site is currently unpaved; rainfall on the site either percolates into the groundwater or runoff is captured in the concrete storm water channel that runs along the site's eastern boundary. The channel directs storm water to a small holding pond in the southern part of the site, from which storm water is conveyed to the neighboring marsh via an overflow pipe (Black & Veatch, 2011).

Solid Waste Management

The Orange County Waste & Recycling Department (OC Waste & Recycling) operates three Class III landfills, Frank K. Bowerman, Prima Deshecha, and Olinda Alpha, all of which accept non-hazardous construction-related solid waste. The Prima Deschecha Landfill in San Juan Capistrano (approximately 20 miles from MWRP) also could accept biosolids. The Prima Deshecha Landfill is permitted to accept up to 4,000 tpd of waste and spans an area of approximately 1,530 acres. The landfill is scheduled to close in 2067 (OC Waste & Recycling, 2011).

Waste Management, Inc. operates the Simi Valley Landfill in Los Angeles County (90 miles from MWRP), and Allied Waste Industries, Inc. operates the Otay Annex Landfill in San Diego County (90 miles from MWRP). These two landfills also meet the minimum Class III sanitary level requirements and could accept biosolids.

Simi Valley Landfill serves the Ventura and Los Angeles County areas, accepting up to 3,000 tpd of refuse and approximately 6,250 tpd of recyclable materials. Simi Valley Landfill is scheduled to close by 2027. In April 2007, Waste Management proposed plans for expanding the Simi Valley Landfill, which includes plans to increase the footprint from 185 acres to 371 acres and changing the portion of trash intake from 3,000 tpd to 6,000 tpd. The expansion is necessary to keep up with the volume of trash being generated in the service areas (WM, 2011).

Otay Annex Landfill is approximately 464 acres and has a maximum permitted capacity of 5,830 tpd of solid waste. The landfill is estimated to close in 2021 (CalRecycle, 2011).

Electricity

Southern California Edison (SCE) currently supplies electricity to the MWRP. A subsidiary of Edison International, SCE has 5,000 megawatts of generating capacity from interests in nuclear, hydroelectric, and fossil-fueled power plants (City of Irvine, 1999). Individual businesses and communities within the service areas are able to have contracts with independent power generators, as allowed by the deregulation of the electric power industry.

Natural Gas

Southern California Gas Company currently supplies natural gas to the MWRP. A subsidiary of Sempra Energy, the utility annually delivers approximately one trillion cubic feet of gas. Similar to electricity, gas customers in the project area have the option of purchasing their natural gas from a private gas supplier (City of Lake Forest, 2006).

3.11.2 Regulatory Framework

Federal

Title 40 of the Code of Federal Regulations Part 503

The federal biosolids regulations are contained in Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503) as Standards for the Use or Disposal of Sewage Sludge. Known as the Part 503 Rule, or Part 503, these regulations govern the use and disposal of biosolids. Part 503 established requirements for the final use or disposal of biosolids when biosolids are:

- Applied to land to condition the soil or fertilize crops or other vegetation;
- Placed on a surface disposal site for final disposal; or
- Fired in a biosolids incinerator (USEPA, 1994).

Part 503 permits are issued by the USEPA and are required for all biosolids generators. Part 503 requirements can be incorporated into the National Pollutant Discharge Elimination System (NPDES) permits that also are issued to publicly-owned treatment works.

State

California Energy Action Plan II

The California Energy Action Plan II is the state's principal energy planning and policy document (California Energy Commission, 2005, 2008). The plan identifies state-wide energy goals, describes a coordinated implementation plan for state energy policies, and identifies specific action areas to ensure that California's energy is adequate, affordable, technologically advanced, and environmentally sound. In accordance with this plan, the first priority actions to address California's increasing energy demands are energy efficiency and demand response (i.e., reduction of customer energy usage during peak periods in order to address system reliability and support the best use of energy infrastructure). Additional priorities include the use of renewable sources of power and distributed generation (i.e., the use of relatively small power plants near or at centers of high demand). To the extent that these actions are unable to satisfy the increasing energy and capacity needs, clean and efficient fossil-fired generation is supported.

In 2002, California established its Renewable Portfolio Standard program,[1] with the goal of increasing the percentage of renewable energy in the state's electricity mix to 20 percent by 2017. The California Energy Commission subsequently accelerated that goal to 2010, and further recommended increasing the target to 33 percent by 2020. Because much of electricity demand growth is expected to be met by increases in natural-gas-fired generation, reducing consumption of electricity and diversifying electricity generation resources are significant elements of plans to reduce natural gas demand.

[1] The Renewable Portfolio Standard is a flexible, market-driven policy to ensure that the public benefits of wind, solar, biomass, and geothermal energy continue to be realized as electricity markets become more competitive. The policy ensures that a minimum amount of renewable energy is included in the portfolio of electricity resources serving a state or country. By increasing the required minimum amount over time, the Renewable Portfolio Standard puts the electricity industry on a path toward increasing sustainability.

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (PRC, Division 30), enacted through AB 939 and modified by subsequent legislation, required all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000 (PRC Section 41780). The state determines compliance with this mandate to "divert" 50 percent of generated waste (which includes both disposed and diverted waste) through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a "base year" waste generation rate against which future diversion is measured.

Local

The City of Irvine General Plan (1999) contains a Public Facilities and Services element that provides policies and criteria for the development of various types of community facilities, their relationship to one another, and their location to the need and desires of the community. The General Plan also contains an Energy element that provides a basis for long-range energy planning and outlines objectives that promote efficient energy consumption by the City and its residents, businesses, and industries. The following objectives and policies are relevant to the proposed project:

The City of Irvine General Plan

Public Facilities and Services Element

Objective G-4 Maintenance and Rehabilitation

> Policy (e): Rehabilitate public facilities using technologies, methods and materials which result in energy and water savings, and cost effective long term maintenance programs.

Energy Element

Objective I-1 Energy Conservation

> Policy (e): Facilitate the participation of industries in the following conservation programs where cost effective:
>
> - Cogeneration (process heat/steam/electricity)
> - Reclaiming waste products (biomass, solid waste, waste water)
> - Recycling (aluminum, paper, glass and steel)
> - Carpooling
> - Mass Transportation
>
> Policy (i): Monitor the federal, state, regional, other local governments, the utility companies, Irvine Ranch Water District (IRWD), and other private and public agencies energy programs and regulations and:
>
> - Explore opportunities and limitation on use of renewable sources.

- Obtain information and technical assistance for energy programs.
- Support continuation of tax credits for alternative renewable sources and conservation measures.
- Allocate available federal funds and grants such as Community Development Block Grant (CDBG) for energy programs for low income and senior housing development.
- Inform developers and the general public of recent available energy programs, regulations, technical, and economic data (e.g., cost effectiveness).

3.11.3 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of impacts related to utilities and energy are based on Appendix G of the *CEQA Guidelines*. The proposed project would result in a significant impact 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 water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require new or expanded water supply resources or entitlements;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the projects projected demand in addition to the provider's existing commitments;
- Be served by a landfill with insufficient permitted capacity to accommodate the project solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste;
- Result in a substantial increase in overall or per capita energy consumption;
- Result in wasteful or unnecessary consumption of energy;
- Require or result in the construction of new sources of energy supplies or additional energy infrastructure capacity the construction of which could cause significant environmental effects; or
- Conflict with applicable energy efficiency policies or standards.

Impacts Discussion

Wastewater Treatment Requirements

The proposed project would relocate the solids handling process associated with the MWRP operations from the OCSD Plant 1 to an onsite system at the MWRP. The proposed project would allow for the continued beneficial use of biosolids, a valuable renewable resource that can be used as fertilizer, among other things. The proposed project would be subject to the Regional Water Quality Control Board (RWQCB) Water Quality Order No. 2004-0012-DWQ (General Order) that outlines conditions for general waste discharge requirements (WDRs) for the discharge of biosolids to land for use in agriculture, silviculture, horticulture, and reclamation activities. The Class A and Class B biosolids to be produced by the proposed project and their intended beneficial uses would be in accordance with this General Order. The proposed project would not exceed wastewater treatment requirements of the applicable RWQCB.

In addition, the proposed project includes processes that would extract water from the solids, producing a liquid centrate that contains high concentrations of ammonia. The centrate would be equalized and treated to remove ammonia, then recycled back through the MWRP liquid treatment process. The proposed project would not affect the quality of recycled water produced at the MWRP. As a result, the proposed project would not exceed reclaimed water treatment requirements of the RWQCB. There would be no impact.

Expansion of Water or Wastewater Treatment Facilities

Implementation of the proposed project would involve the construction of new solids handling facilities, biogas management, and energy recovery facilities at the existing MWRP property. The proposed project involves construction and operation of facilities to handle biosolids produced as a byproduct of the wastewater treatment system at the MWRP. The proposed project would be designed with capacity to serve the liquid treatment system at the MWRP once the Phase 2 Capacity Expansion is complete (28 mgd). The proposed project would have minor requirements for potable water in employee facilities such as restrooms and minor requirements for non-potable (recycled) water that would be supplied directly by the MWRP treatment system. There would be no requirement for expansion of water or wastewater treatment facilities to serve the proposed project. There would be no impact.

Water Supply

The proposed project would not require new or expanded water entitlements. Water needs during project construction would be relatively minor and temporary with existing water resources anticipated to sufficiently meet those needs. For example, recycled water produced at the MWRP could be used for construction-related activities such as dust suppression. Operation of the proposed project would result in minor requirements for potable water in employee facilities such as restrooms. Operation of the proposed project would have minor requirements for non-potable (recycled) water that would be supplied directly by the MWRP treatment system, for activities such as landscape irrigation. No new water entitlements would be required, and no impacts would occur.

Storm Water Facilities

The proposed project includes a new onsite storm water collection system for the purpose of accommodating the altered drainage pattern of the project site. The storm water collection system would be separate from the existing MWRP storm water collection system. Features such as curbs, gutters, and drainage swales would be designed to collect and contain all storm water runoff onsite. Storm water runoff from the project site would be captured and pumped to existing long-term storage ponds onsite at the MWRP (i.e. Pond C) and then returned to the MWRP system for treatment. The storm water collection system would include an emergency overflow that would convey runoff from the project site to the existing storm water collection system serving other areas of the MWRP. Operation of the proposed project would not require Orange County Flood Control District to construct new storm water facilities. There would be no impact.

Solid Waste Regulations

Construction of the proposed project would generate solid waste, including excavated soils and construction debris, which would be disposed in an appropriate landfill in the project vicinity. All three Orange County landfills (Frank K. Bowerman, Prima Deshecha, and Olinda Alpha) have Class III status indicating that non-hazardous construction-related solid waste would be accepted.

Operation of the proposed project may require disposal of Class A and B biosolids, which would be disposed appropriately at a Class III sanitary landfill, such as Prima Deshecha, Simi Valley, or Otay Annex landfill. The proposed project would be in compliance with all federal, state, and local statutes and regulations related to solid waste.

Energy Efficiency Policies

One of the primary benefits of the proposed project includes the capturing and use of biogas to directly power some new facilities and also provide onsite generation of electricity to partially offset the power use at the MWRP. The proposed project would make beneficial use of a renewable resource and environmentally-friendly fuel in the form of biogas. As a result, the proposed project would support the goals and policies of the City of Irvine General Plan for conserving energy, reclaiming waste products, and using renewable energy sources. The proposed project also would support the goals of the California Energy Commission's (CEC) California Energy Action Plan II to increase the percentage of renewable energy in the state's electricity mix to 33 percent by 2020. There would be no conflict with any energy efficiency policies or standards.

Wastewater Treatment Capacity

Impact 3.11-1: The proposed project would require an agreement with Orange County Sanitation District to maintain an emergency connection between the MWRP and Plant 1 and ensure adequate capacity to serve the project. (Less than Significant)

As a component of the MWRP Phase 2 and 3 Capacity Expansion Project, the proposed project would be sized to handle solids generated at the MWRP with a treatment capacity of 33 mgd.

Implementation of the proposed project would allow IRWD to treat biosolids produced at the MWRP onsite instead of directing all solids to OCSD Plant 1.

Currently, primary sludge, primary scum, and waste activated sludge are pumped from the MWRP through the residuals force main for treatment at OCSD's Plant 1. These systems are being modified and expanded as part of the MWRP Phase 2 Capacity Expansion. Although IRWD would stop sending sludge through this force main pipeline to OCSD, IRWD would maintain the pipeline connection to OCSD as an emergency treatment system backup in the event of an outage of the proposed biosolids handling facilities at the MWRP. Emergency discharge of solids is permitted by an existing agreement with OCSD. The existing pipeline would have adequate capacity to serve emergency discharges. Impacts would be less than significant; no mitigation is required.

Mitigation Measures

None required.

Landfill Capacity

Impact 3.11-2: The proposed project would require the use of a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

Construction of the proposed project would require excavation and grading for installation of the proposed facilities, which would generate solid waste and spoil soils that would require disposal in a local landfill with adequate, available capacity. Local landfills in the project vicinity, such as the Frank K. Bowerman Landfill, Olinda Alpha Landfill, and Prima Deshecha Landfill, have sufficient capacity to accommodate the solid waste disposal needs of the proposed project. The Frank K. Bowerman Landfill is the closest to the project site. This landfill currently serves the solid waste disposal needs during the ongoing construction of the MWRP Phase 2 Capacity Expansion. This landfill is approximately 725 acres and is permitted to receive a daily maximum of 11,500 tpd of commercial waste, including construction debris. This landfill is not expected to close until 2053. Impacts to landfill capacity due to project construction would be less than significant.

Operation the proposed project would generate Class A and Class B biosolids that may be disposed in a landfill in the event that other planned beneficial uses are not available. Landfills provide a year-round disposal outlet for 100 percent of the biosolids associated with the proposed project. Landfills serving the proposed project would require a minimum Class III sanitary level to accommodate Class B biosolids. Three potential landfills have been identified for disposal of biosolids of this level for compliance and given the regulatory restrictions for Class B biosolids disposal: Prima Deshecha Landfill in San Juan Capistrano (approximately 20 miles from MWRP), Simi Valley Landfill in Los Angeles County (approximately 90 miles from MWRP),

and Otay Annex Landfill in San Diego County (approximately 90 miles from MWRP). Otay Annex Landfill is expected to close in 2021 and Simi Valley Landfill is expected to close in 2027, after which Prima Deshecha Landfill, which is scheduled to close in approximately 2067, would be available serve the project. Impacts to landfill capacity would be less than significant.

Mitigation Measures

None required.

Energy Consumption and Supplies

Impact 3.11-3: The proposed project would result in an increase in energy consumption at the MWRP and require new energy infrastructure at the MWRP. (Less than Significant)

MWRP facilities are currently powered using electricity obtained from the regional grid distributed by SCE. Construction activities would require connections to existing power sources, which would slightly increase short-term electricity demand onsite. Most of the construction activities would involve excavation, grading, and drilling, which would be serviced by diesel fuels, not electricity. Construction activities would not result in a substantial increase in energy consumption or wasteful energy consumption or the need for new energy infrastructure at the MWRP.

Operation of the proposed project would result in a net increase in electricity consumption, requiring approximately 22 million kWH per year to run the Biosolids Handling Component facilities. The proposed microturbines would generate electricity that could be used to operate the MWRP liquid treatment facilities. This would result in an overall offset in the increased electricity demand at the MWRP and result in a net increase of 9.4 million kWH per year. Operation of the proposed project also would require natural gas for digester heating, dryer operation, and other facilities. Overall, an estimated 127 to 11,820 Mscf/year of natural gas would be consumed per year to operate the proposed project, in addition to the estimated 315,400 Mscf/year of biogas produced by the digesters that also would be used directly to operate project facilities.

Although energy consumption at the MWRP would increase, the proposed project would process biosolids that currently are treated at OCSD Plant 1. Thus the proposed project would effectively relocate the existing energy consumption from OCSD Plant 1 to the MWRP. As a result, energy consumption would be neither wasteful nor unnecessary and would not be considered a substantial increase when considered on a regional basis. Impacts would be less than significant.

Upon completion of the Phase 2 Capacity Expansion, SCE will serve the MWRP liquid treatment facilities via two transformers. The two transformers would not have sufficient capacity for the total demand loads of the MWRP liquid treatment facilities and the proposed project when the proposed project comes online. As a result, SCE has agreed that a new transformer would need to be installed onsite at the MWRP to service the proposed project. Construction of the transformer

would occur simultaneously during construction of other project components at the MWRP. No new offsite energy infrastructure would be required to service the proposed project. There would be no significant environmental effects associated with the additional transformer. Impacts would be less than significant.

Mitigation Measures

None required.

References – Utilities and Energy

Black & Veatch, 2010. *MWRP Biosolids and Energy Recovery Facilities, Special Study H: Biosolids Marketing Plan*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, November 2010.

Black & Veatch, 2011. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Stormwater*. Draft Report. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, February 2011.

Blue Source, 2010. *Appendix K: MWRP Biosolids Master Plan: Carbon Footprint Analysis*. In: *Irvine Ranch Water District, Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Michelson Water Recycling Plant Biosolids Management Plan*, Draft Report. Project No. 96342, IRWD Project No. 20759, Prepared by HDR in association with Carollo. December 2010.

California Energy Commission, *Energy Action Plan II, Implementation Roadmap for Energy Policies*, Prepared by State of California, Energy Commission and Public Utilities Commission, September 21, 2005.

California Energy Commission, *2008 Energy Action Plan Update*, Prepared by State of California, Energy Commission and Public Utilities Commission, February 2008.

California Department of Resources Recycling and Recovery (CalRecycle), Solid Waste Information System (SWIS) database search: Otay Landfill, available online at: http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx, accessed June 3, 2011.

City of Irvine, General Plan, adopted 1999.

City of Irvine, Police Department, available online at: www.ci.irvine.ca.us/ipd/, accessed April 1, 2011.

Dudek & Associates, Inc. (Dudek), *Irvine Ranch Water District (IRWD) Michelson Water Reclamation Plant (MWRP) Phase 2 & 3 Capacity Expansion Project Final EIR*, prepared for IRWD, February 2006.

HDR Engineering, Inc. (HDR), in association with Carollo, *MWRP Biosolids and Energy Recovery Facilities Preliminary Design Report*, September 2010.

ENVIRON, 2012. *Standard Evaluation for Permit to Construct*, Draft Report. Prepared for Irvine Ranch Water District, Project No. 05-24406A, March 2012.

Irvine Ranch Water District, Facilities: Michelson Recycled Water Plant (MWRP), available online at: www.irwd.com/your-water/facilities-construction/michelson-water-recycling-plant1.html, accessed April 6, 2011.

Irvine Unified School District (IUSD), District boundary map powered by Google, last updated October 8, 2009 by IUSD, available online at: http://maps.google.com/maps/ms?hl=en&ie=UTF8&om=1&msa=0&z=12&msid=103390000879676890410.00046b13f50f02cb64891, accessed April 4, 2011.

Orange County Fire Authority (OCFA), Fire Station #4, available online at: www.ocfa.org/Menu/Departments/Operations/StationList.aspx, accessed April 2, 2011.

Orange County Waste & Recycling (OC Waste & Recycling), Landfill Information, available online at: http://egov.ocgov.com/ocgov/Info%20OC/Departments%20&%20Agencies/OC%20Waste%20&%20Recycling, accessed June 3, 2011.

US Environmental Protection Agency (USEPA), 1994. *A Plain English Guide to the EPA Part 503 Biosolids Rule.* Office of Wastewater Management, Washington, DC. EPA/832/R-93/003, September 1994.

Waste Management, Inc. (WM), Simi Valley Landfill, available online at: http://www.keepingventuracountyclean.com/simivalleylandfill.html, accessed on June 3, 2011.

3.12 Transportation and Traffic

This chapter addresses the potential impacts of the proposed project to transportation and traffic in accordance with the significance criteria established in Appendix G of the *CEQA Guidelines*. This chapter addresses potential traffic and circulation impacts on the basis of information supplied by the Orange County Transportation Authority (OCTA), the City of Irvine General Plan and EIR, the County of Orange General Plan, and the City of Irvine's Municipal Code.

3.12.1 Environmental Setting

Regional Setting

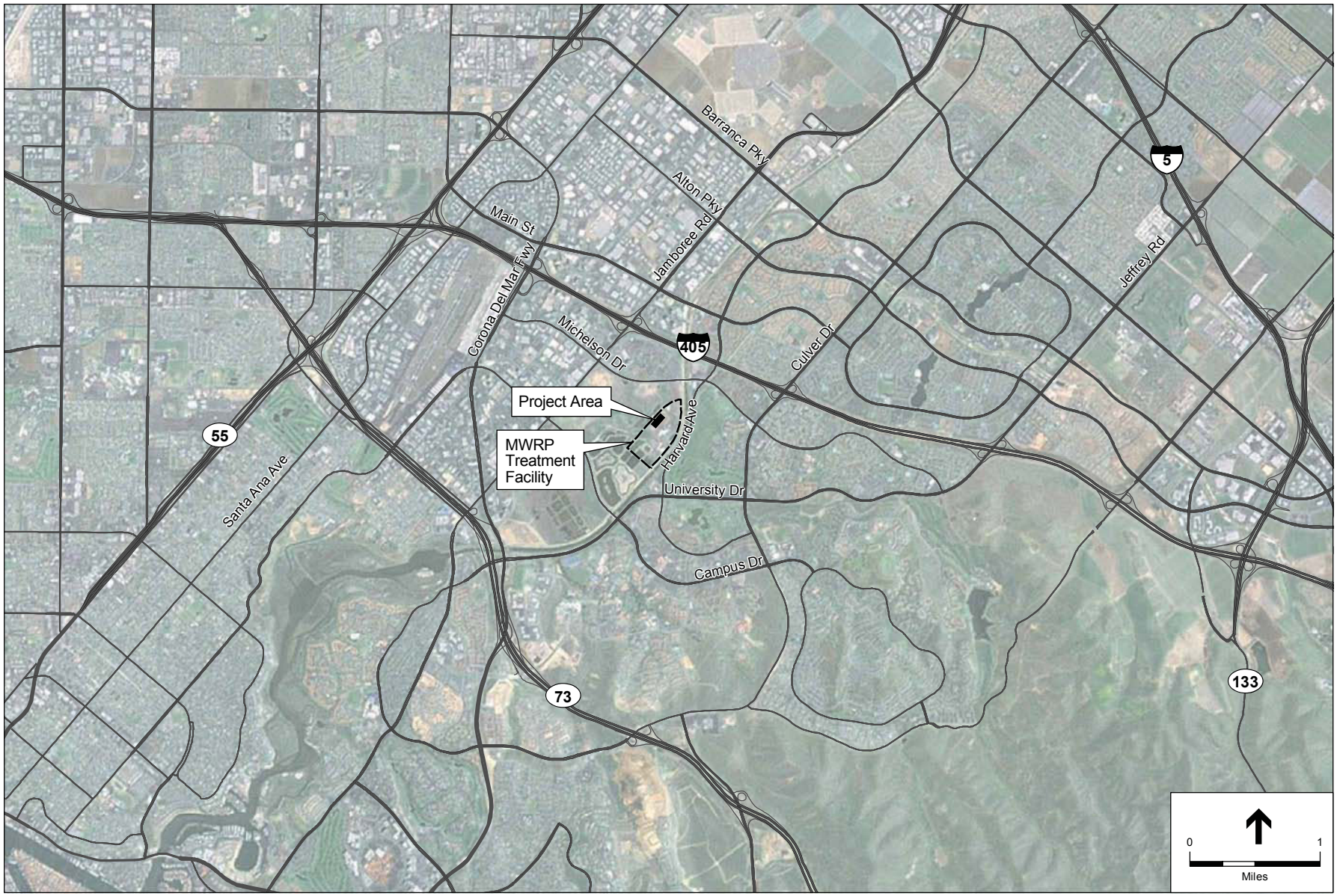
The proposed project is located within the City of Irvine in Orange County, California. The regional transportation system is comprised of an interconnected network of roadways, local transit systems, and pedestrian and bicycle facilities. Freeways and toll roads in the general vicinity of the project site include the San Diego Freeway (Interstate 405) to the north, the Laguna Freeway (State Route 133) to the southeast, the San Joaquin Hills Transportation Corridor (State Route 73) to the southwest, and the Costa Mesa Freeway (State Route 55) to the west. Major arterials include University Drive to the south of the project site, Michelson Drive directly to the north, Culver Drive to the east, and Jamboree Road to the west (City of Irvine, 2005). A series of major arterial roads within the community connect to collector roads that function to link neighboring land uses. **Figure 3.12-1** shows regional highways and arterial roads in the vicinity of the proposed project.

Interstate 405 (I-405) is a major north-south Interstate Highway that provides regional access to the project area, running along western Orange County in the vicinity of the proposed project , I-405 has an on- and off-ramp at Jamboree Road approximately 0.75 miles northwest of the project site and at Culver Drive approximately 0.75 miles northeast of the project site.

State Route 133 (SR-133) is north-south state highway that provides regional access to the project area, running along western Orange County in the vicinity of the proposed project. SR-133 connects the I-405 and SR-73 approximately 4.5 miles east of the project site.

State Route 73 (SR-73) is an east-west state highway providing regional access to the project area on the southeast end of Irvine. SR-73 begins in San Juan Capistrano at an interchange with Interstate 5 and heads northwest into the Laguna Niguel before the tolled portion of the highway begins. SR-73 straddles the border between Irvine and Newport Beach to the south, and provides easy access to the project site at the MacArthur Blvd Exit.

State Route 55 (SR-55) is an 18-mile long north-south highway that provides regional access to the project area, running between Newport Beach and Anaheim to the west of the proposed project. SR-55 connects to the I-405 and SR-73 approximately two miles west of the project site.



SOURCE: Aerials Express, 2010. ESA, 2011.

Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project. 210480

Figure 3.12-1

Regional Roadways in Project Vicinity

Local Roadways

The project site is located south of Michelson Drive and north of Campus Drive in the City of Irvine. Various roadways surrounding the project site provide local access as identified in **Figure 3.12-1**. The following roadways provide both local access to the site and connect to the regional arterials and highways described above:

Culver Drive is designated as a Major Highway in the City of Irvine Master Plan of Arterial Highways. This six-lane divided roadway traverses in a north-south direction near the project area. The posted speed limit on Culver Drive is 45 miles per hour. Notable features along Culver Drive include public sidewalks and bike lanes on both the northbound and southbound sides of the roadway.

Jamboree Road is designated as a Major Highway in the City of Irvine Master Plan of Arterial Highways. Within the project area, this six-lane roadway traverses in a northeast/southwest direction and is one of the major roads in Orange County, running from just west of Irvine Lake, all the way south to the Pacific Coast Highway.

University Drive is designated as a Major Highway in the project area, and is adjacent to the other project area roadways from Campus Drive to Harvard Avenue. This four- to six-lane roadway traverses in an east/west direction. The posted speed limit on University Drive ranges between 50 and 55 miles per hour. Notable features along University Drive include a public sidewalk on the westbound side of the roadway, and bike lanes on both the westbound and eastbound sides. There is no on-street parking allowed on University Drive.

Michelson Drive is designated as Commuter Highway in the project area. This roadway traverses in an east/west direction and transitions between two- and four-lanes. The posted speed limit on Michelson Drive between Harvard Avenue and Jamboree Road, which runs adjacent to the east of the project site, is 45 miles per hour. On-street parking is prohibited on this portion of Michelson Drive. Notable features along Michelson Drive include public sidewalks and bike lanes on both eastbound and westbound sides of the roadway.

Harvard Avenue runs along the eastern boundary of the MWRP site on the east side of San Diego Creek. Between Michelson Drive and University Drive, Harvard Avenue traverses in a northeast/southwest direction and transitions between a two- to four-lane undivided roadway. This roadway is designated as a Commuter Highway in the City of Irvine Master Plan of Arterial highways. The posted speed limit is 50 miles per hour, and there is no on-street parking allowed within this portion of the roadway. Adjacent to the east side of Harvard Avenue along this stretch is the Rancho San Joaquin Golf Course, while the paved Peters Canyon Trail runs adjacent to the west side. A sidewalk is located on the southbound roadway (approximately 5 feet in width) at the beginning of the Harvard Avenue and Michelson Drive intersection, but ends after approximately 700 feet further down Harvard Avenue. The sidewalk continues near the Harvard Avenue and University Drive intersection for approximately 1,300 feet. A bike lane (approximately 7 feet in width) is available on both sides of the roadway.

Traffic Volumes and Levels of Service

Orange County Transportation Authority (OCTA) collects information on average daily traffic counts on arterial roadways and freeways from the County, the 34 cities within the County, and the California Department of Transportation (Caltrans) on an annual basis. OCTA reviews the traffic volumes and adjusts the data as necessary to reflect weekday traffic. This information is published on an annual basis on a Traffic Flow Map (OCTA, 2010) that shows Average Daily Traffic (ADT) in thousands of vehicles per day. ADT for the major arterial roadways and freeways in the immediate vicinity of the proposed project is shown below in **Table 3.12-1**.

TABLE 3.12-1
EXISTING ROADWAY VOLUMES IN THE PROJECT AREA
(000s of vehicles per day)

Roadway Segment	ADT
Culver Drive (Between University Drive and I-405)	89,000
Harvard Drive (Between University Drive and I-405)	17,000
Jamboree Road (Between SR-73 and I-405)	157,000
University Drive (Between Culver Drive and SR-73)	49,000
Michelson Drive (Between Culver Drive and Jamboree)	29,000
Campus Drive (Between University Drive and Jamboree)	18,000
I-405 (Between SR-55 and SR-133)	1,748,000
SR-73 (Between SR-55 and SR-133)	415,000
SR-55 (Between I-405 and SR-73)	148,000
SR-133 (Between I-405 and SR-73)	113,000

ADT = Average Daily Traffic
SOURCE: Orange County Transportation Authority, 2010.

OCTA also monitors the level of service at highway intersections throughout the County. Through the Congestion Management Plan, OCTA rates the level of service (LOS) for designated highway system intersections based on capacity utilization and peak-hour traffic counts during the A.M. (6:00 to 9:00) and P.M. (3:00 to 7:00). LOS ratings are utilized to describe traffic operations with a scale ranging from LOS A to LOS F. LOS A indicates very good, free flow traffic conditions where LOS F indicates very poor, forced flow conditions. The closest intersections to the project site with LOS ratings are shown in **Table 3.12-2**.

Public Transportation

The City of Irvine is served by Metrolink train service and OCTA bus service. Metrolink is a commuter rail service operated by the Southern California Regional Rail Authority. Multiple stops during the morning and evening commuting period are provided at stations located in Irvine, Laguna Niguel, Tustin and San Juan Capistrano. The nearest train station to the project site is the Tustin Metrolink, approximately 3.5 miles to the northeast, within the City of Irvine.

TABLE 3.12-2
EXISTING LEVEL OF SERVICE RATINGS FOR INTERSECTIONS IN THE PROJECT AREA

Intersection	LOS A.M. / P.M.
I-405 NB Ramps / Jamboree Road	C / D
I-405 SB Ramps / Jamboree Road	D / D
MacArthur Boulevard / Jamboree Road	A / C
Laguna Canyon Rd / SR-73 NB Ramps	E / D
Laguna Canyon Rd / SR-73 SB Ramps	A / A

LOS = Level of Service. LOS is based on peak-hour traffic counts during A.M. (6:00 to 9:00) and P.M. (3:00 to 7:00) periods and volume to capacity ratios.

SOURCE: Orange County Transportation Authority, CMP, 2011.

Most major streets within Irvine have bus service available. Streets that contain bus routes in the vicinity of the project site include Campus Drive (bus route 59), Culver Drive (bus routes 79, 175), Michelson Drive and Jamboree (bus routes 178, 212, 213), and Harvard Ave (bus route 473) (OCTA, 2011).

Bicycle and Pedestrian Transportation

The City of Irvine has an extensive trail system that includes pedestrian and bike trails within open space corridors and along regional trails. The County maintains a coordinated system of trails, including bikeways, equestrian trails and hiking trails within the cities. Bikeways comprise the most extensive part of the City's trail network. The biking network in Irvine connects with other trails and paths in adjacent communities and throughout Orange County. The three categories of bikeways are:

- Class I: a paved path that is separate from any motor vehicle travel lane;
- Class II: a restricted lane within the right-of-way of a paved roadway for the exclusive or semi-exclusive use of bicycles; and
- Class III: a bikeway that shares the street with motor vehicles or the sidewalk with pedestrians.

The City of Irvine contains 44.5 miles of off-road bicycle trails and 282 miles of on-road bicycle lanes within the City. The closest bike paths to the project site include a Class I bike path along San Diego Creek and Harvard Avenue and University Drive, and Class II Bikeways located along Campus Drive, Culver Drive, Carlson Avenue, Michelson Drive, Harvard Avenue, and University Drive (OCTA, 2010).

3.12.2 Regulatory Framework

The development and regulation of the transportation network in the vicinity of the proposed project primarily involves state and local jurisdictions. All roads within the project area are under

the jurisdiction of state and local agencies. Applicable state and local laws and regulations related to traffic and transportation issues are discussed below.

State

California Department of Transportation (Caltrans)

Caltrans manages interregional transportation, including management and construction of the California highway system. In addition, Caltrans is responsible for permitting and regulation of the use of state roadways. The project area includes four roadways that fall under Caltrans' jurisdiction: I-405, I-73, I-55, I-133.

Caltrans' construction practices require temporary traffic control planning "during any time the normal function of a roadway is suspended" (FHWA, 2003). In addition, Caltrans requires that permits be obtained for transportation of oversized loads and licenses be obtained for transportation of certain materials.

Local

Orange County Congestion Management Plan

The OCTA is the County's Congestion Management Agency. The OCTA is responsible for developing the Orange County Congestion Management Program (CMP). The purpose of the CMP is to develop a coordinated approach to managing and decreasing traffic congestion by linking the various transportation, land use and air quality planning program throughout Orange County. LOS standards for roadways that are part of the Orange County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. The CMP requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System. Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be three percent or more of the existing CMP highway system facilities' capacity. The CMP Highway System includes specific roadways, which include State Highways and Super Streets, which are now known as Smart Streets, and CMP arterial monitoring locations/intersections. The CMP Highway System arterial in the vicinity of the proposed project include Jamboree Boulevard. The CMP arterial monitoring locations/intersections in the vicinity of the project area include Jamboree Road/MacArthur Boulevard, Jamboree Road/I-405 Southbound, and Jamboree Road/I-405 Northbound.

Orange County Commuter Bikeways Strategic Plan

The OCTA adopted the 2009 Commuter Bikeways Strategic Plan (CBSP) on May 22, 2009 to encourage the enhancement of Orange County's regional bikeways network, in order to make bicycle commuting a more viable and attractive travel option. The CBSP is intended to create a comprehensive blueprint of the existing bikeways in the county, as well as propose new facilities to complete a network of bikeways. The CBSP identifies one Class I bikeway along Harvard Avenue, and Class II bikeways on Campus Drive, Michelson Drive, Carlson Avenue, and Harvard Avenue. The projects described in the CBSP are a compilation of projects planned by

Orange County Cities and the County of Orange. The CBSP is a long range, financially unconstrained planning document.

Southern California Association of Governments

On May 8, 2008, the Southern California Association of Governments (SCAG) adopted its 2008 Regional Transportation Plan (RTP). The 2008 RTP presents the transportation vision for the SCAG region through the year 2035 and provides a long-term investment framework for addressing the region's transportation and related challenges. The RTP focuses on maintaining and improving the transportation system through a balanced approach and considers system preservation, operation, and management, improved coordination between land-use decisions and transportation investments, and strategic expansion of the system to accommodate future growth.

City of Irvine Municipal Code

Section 6-3-565 of the City of Irvine's Municipal Code designates streets and portions of streets within the City as truck routes. In the project vicinity, truck routes are designated on Jamboree Boulevard (from Warner Avenue to MacArthur Boulevard).

Pursuant to Section 5-10-203 of the City of Irvine Municipal Code, under Chapter 2 Encroachment Regulations, the proposed project would be subject to obtaining a Traffic/Hauling permit from the Chief Building Official, unless explicitly exempted by conditions outlined under Section 5-10-204, "Exemptions from Permit Requirements". The proposed project would include construction activities that may cause, place or maintain an encroachment in a public street, which warrants the above mentioned permit and approval from the City.

Section 5-10-246 of the City's Municipal Code outlines restrictions and procedures for Construction Traffic Control. Notably, all detours caused by project construction within the City streets shall have a detour plan approved by the City prior to construction. Detours shall be defined as the closure of any part of the traveled right-of-way.

Chapter 5, Vehicular Traffic, Parking Regulations, Section 6-3-569 of the City's Municipal Code, outlines permit conditions and procedures for project construction vehicles exceeding allowable load restrictions. The Extra Large Legal Size Transportation Permit, in accordance with California Vehicle Code Sections 35780 and 35784, must be approved by the Director of Public Works to authorize operation of a vehicle exceeding the maximum load on restricted use roadways. The permit may be for such lengths of time, up to a 12 months, and for such number of operations, limited or unlimited, as the Director of Public Works may deem advisable.

Section 6-3-567(A) of the City's Municipal Code outlines the restricted use of certain streets for vehicles in excess of 14,000 pounds gross weight. Culver Drive, from the Santa Ana Freeway (I-5) to the northerly limits of the City, is designated as a restricted use roadway. This portion of Culver Drive would not be affected or used during project construction.

Section 6-3-567(B) of the City's Municipal Code outlines the restricted use of certain streets for vehicles in excess of 6,000 pound gross weight. Culver Drive, from Michelson Drive to Bonita

Canyon Road, which is east of the project site, is designated as a restricted use roadway. This portion of Culver Drive would not be affected or used during project construction. Furthermore, University Drive, from Ridgeline Drive to Harvard Avenue, is also a restricted use roadway. This portion would not be affected or used during project construction.

3.12.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this EIR and consistent with Appendix G of the *CEQA Guidelines*, a project that would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system is considered to have a significant impact on the environment. Specifically, the project would have a potentially significant impact if it would:

- Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Impacts Discussion

Public Transportation

The project area includes public transit systems, such as bus routes, rail systems, and bike paths. Construction of the proposed project would result in additional vehicles on local and regional roadways due to both project construction and operation. However, all construction equipment, vehicles, personnel and material staging areas, and future employee parking would be accommodated within IRWD property boundaries. Thus the proposed project would not affect roadways or require lane closures and correspondingly would not affect bus or bike routes, bus stops, or rail lines. There would be no impact to public transportation systems, facilities, or access points. There also would be no conflict with the adopted OCTA Commuter Bikeways Strategic

Plan or other policies, plans, or programs that pertain to public transit, bicycle, or pedestrian facilities. There would be no effect to the safety or performance of public transportation facilities.

Air Traffic Patterns

The nearest airport to the project site is John Wayne Airport (JWA), located approximately 1.75 miles to the west. The proposed project would not directly affect air traffic patterns or levels. Thus, there would be no impact to public safety associated with air traffic patterns.

Emergency Access

The project site is located approximately 1.1 miles from Orange County Fire Station #14, which is located at 2 California Avenue in the City of Irvine (OCFA, 2011). Since no alteration to roadways or lane closures would occur, implementation of the proposed project would not impede traffic in the project area and would not create obstacles to emergency service providers. There would be no impact.

Onsite at the MWRP, the roadways associated with the proposed project would be designed to accommodate emergency vehicles serving the site. Roadway alignments and dimensions would allow for unimpeded access by emergency vehicles, particularly to areas of high risk such as chemical storage and biogas storage areas. The turning radii of tractor trailers and tanker trucks used for the basis of design of the facilities layout would meet requirements for fire trucks expected to serve the site. The solids receiving and load-out bays would be located along different roadways than that used for chemical truck unloading stations. All loading and unloading stations also would not obstruct any road to through traffic. Overall, the proposed project would be designed to allow for adequate emergency access.

Incompatible Use

Construction and operation of the proposed project would result in the addition of large trucks to local roadways for deliveries of materials and chemicals and hauling away of construction-related debris and end-product biosolids. In Chapter 2, Project Description, the proposed project includes a commitment for all truck hauling operations to comply with local City and County designated and restricted routes. All large truck deliveries during construction and operation of the proposed project would use roadways that allow for particular vehicle size in accordance with Section 6-3-565 of the City of Irvine's Municipal Code. These roadways, for example, include Michelson Drive, which is the public roadway serving the main point of entrance to the project site for both construction and operational vehicles. In addition, any vehicles utilizing roadways under the jurisdiction of Caltrans (e.g., I-405) would be required to obtain appropriate permits, or otherwise comply with regulations pertaining to, the transportation of oversized loads and certain regulated materials. There would be no impact to roadway hazards due to incompatible use.

Hazards Associated with Design Features

Impact 3.12-1: Operation of the proposed project would introduce potential onsite hazards associated with vehicle movements. (Less than Significant)

Operation of the proposed project would require trucks to deliver and haul away solids and chemicals. Such vehicle movements could result in potential hazards to worker safety or the environment if vehicle collisions were to occur. Onsite at the MWRP, the proposed facilities would be designed to ensure worker safety. The layout of facilities would be designed to avoid hazards associated with truck deliveries and hauling. Areas designated for loading and unloading of solids would be segregated from chemical delivery and storage areas to ensure vehicles could avoid passing of chemical delivery trucks. Also, onsite roadways would be designed to eliminate the need for any tractor trailer or tanker truck to backup. Restricting trucks to only forward movement through loading and unloading stations would provide a safe working environment and eliminate any potential hazards associated with trucks backing up. The project design would reduce potential hazards associated with onsite vehicles to less than significant levels.

Consistency with Regulations for Circulation System Performance

Impact 3.12-2: Construction and operation of the proposed project would introduce vehicles to local roadways that could affect performance of the circulation system. (Less than Significant)

Local Roadways

Construction and operation of the proposed project would increase the number of vehicles using local roadways on a daily basis and could affect performance of the circulation system. Construction of the proposed project is expected to last approximately 36 to 48 months, beginning in Winter 2013. The primary impacts from the movement of construction vehicles would include short-term and intermittent impacts on roadway capacities due to slower moving vehicles. Traffic-generating construction activities would consist of the daily arrival and departure of constructions workers, trucks hauling equipment and materials to the construction site, the hauling of excavated soils, and importing of new fill and concrete. Trucks leaving roadways onto construction sites would slow traffic and could result in hazards to fast moving traffic.

During any given work day, between 20 to 120 workers would be required onsite for construction. The total number of workers would vary depending on the construction schedule developed by the construction contractors. Importation of concrete could require up to 25 truck trips per day for a limited number of days during a large concrete pour. Hauling and delivery of other construction-related materials would require no more than 10 truck trips per day for the duration of construction. Thus, during construction the number of daily round trips would not be expected to exceed 155 trips per day, or 310 total vehicle trips per day. Relative to the numbers of vehicles that travel on local roadways during weekdays as shown in Table 3.12-1, an additional 310 vehicle trips would not affect performance of the circulation system. Workers and haul/delivery trips are likely to use main arterial roadways with existing daily roadway volumes ranging from 1,748,000 ADT to 29,000 ADT, such as I-405 (1,748,000 ADT), Jamboree Road (157,000 ADT), Culver Drive (89,000 ADT), and Michelson Drive (29,000 ADT). An additional 310 vehicle trips would represent a temporary increase of 1.1 percent in ADT on Michelson Drive, 0.2 percent on Jamboree

Road, 0.35 percent for Culver Drive, and 0.02 percent on I-405. This would be considered a less than significant impact on local circulation system performance.

Operation of the proposed project would introduce additional vehicles to local roadways, approximately 117 to 152 average round trips per week (see Table 2-2, Chapter 2, Project Description), depending on whether Class A pellets or Class B cake is being produced. Class B biosolids are approximately 23 percent solids concentration by weight, while Class A pelletized biosolids are approximately 93 percent solids concentration by weight. As such, the number of trucks required to haul Class B dewatered sludge (46 trips per week) is more than four times the number of truck required to haul Class A pellets (11 trips per week). Nonetheless, considering a five-day week, operational vehicle trips would equal 23 to 30 round trips per day, which would add 46 to 60 additional vehicle trips per day on local roadways. Compared to the existing ADTs for the surrounding roadways such as Michelson Drive (29,000 ADT), Jamboree Boulevard (157,000 ADT), University Drive (49,000 ADT), Culver Drive (89,000 ADT), and Campus Drive (18,000 ADT), the increased traffic volume that would result from operating the proposed project would not have a significant impact on local circulation system performance.

Regional Roadways

On a regional basis, operation of the proposed project has the potential to result in a reduction in truck traffic on state freeways associated with the hauling and disposal of biosolids. OCSD Plant 1 is approximately six miles west of the MWRP and thus trucks hauling biosolids from Plant 1 likely utilize similar regional truck routes as expected for the proposed project. The proposed project would produce Class A pelletized biosolids that have a 93-percent solids concentration when the dryer is operating and Class B biosolids that have a 23-percent solids concentration when the dryer is not operating. Currently, the Class B biosolids produced at OCSD Plant 1 have a 25-percent solids concentration. On a relative basis, the number of trucks required to haul Class B biosolids is more than four times the number of trucks required to haul Class A pellets. Therefore, when the dryer is operating, the proposed project would produce end-product biosolids that have a smaller volume and thus require fewer truck trips to haul offsite. The proposed project would effectively transfer the processing location of IRWD's biosolids from Plant 1 to the MWRP. In comparison to baseline conditions, the proposed project would reduce the number of trucks on regional roadways, such as I-405, when the dryer is operating and the MWRP is producing Class A pellets. When the dryer is not operating, the proposed project would result in no change in the baseline conditions of trucks on regional roadways. The proposed project would reduce the number of trucks on roadways that connect southern California to Arizona, as the proposed project would eliminate some trucks hauling solids from OCSD to end users in Arizona. The proposed project would have a less than significant effect on the regional circulation system.

Mitigation Measures

None required.

Congestion Management Program / LOS Standard

Impact 3.12-3: Operation of the proposed project would introduce additional vehicles to local roadways that could affect level of service standards included in the Orange County Congestion Management Program. (Less than Significant)

Level of service standards for roadways that are part of the Orange County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. The Orange County CMP states that if a project generating 1,600 or more trips/day will directly access, or is in close proximity to, a CMP Highway System link, a CMP traffic impact analysis is required. Since operation of the proposed project is expected to add 46 to 60 additional vehicle trips per day on local roadways, no CMP traffic impact analysis is required for the proposed project.

The closest intersections that are monitored for LOS in the CMP are the I-405 Northbound and Southbound ramps at Jamboree Road (Table 3.12-2). (There are no LOS ratings for Culver Drive.) These intersections currently operate at LOS C and D, depending on time of day. It is likely that operational vehicles accessing the project site would pass through these intersections. However, given the typical daily number of vehicles traveling on I-405 and Jamboree Road in the vicinity of these intersections, the proposed project would not introduce enough vehicles to affect LOS. I-405 has an ADT of 603,000 in the segments just north and south of Jamboree Road. Jamboree Road has an ADT of 141,000 in the segments just east and west of I-405. Assuming all operational vehicles for the proposed project pass through this intersection, an addition of 20 to 36 trips per day would not substantially affect traffic volume or LOS. Impacts would be less than significant.

Mitigation Measures

None required.

References – Transportation and Traffic

American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, 5th Edition, 2004.

Black & Veatch, 2011. *MWRP Biosolids and Energy Recovery Facilities, Special Study: Roadway Design*. Prepared for Irvine Ranch Water District, Project No. 168980, IRWD Project No. 20847, May 2011.

City of Irvine, *General Plan Circulation Element*, December 2005

Federal Highway Administration (FHWA), *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways*, U.S. Department of Transportation, Office of Highway Safety, November 2003

Orange County Fire Authority, March 2011, Available online at: http://www.ocfa.org/_uploads/maps/stationlocator-map.html

Orange County Transportation Authority (OCTA), *2011 Orange County Congestion Management Program*, August 18, 2011.

Orange County Transportation Authority (OCTA), *Traffic Flow Map*, 2010.

Orange County Transportation Authority (OCTA), *Bus System Map*, effective June 12, 2011. Available online at: http://www.octa.net/bus-system-map.aspx

Orange County Transportation Authority (OCTA), *Busways Map*, 2009. Available online at: http://www.octa.net/BikewaysMap.aspx

CHAPTER 4
Cumulative Impacts

4.1 CEQA Analysis Requirements

A cumulative impact is created as a result of the combination of the project evaluated in an EIR together with other projects causing related impacts. The *CEQA Guidelines* require that EIRs discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects (*CEQA Guidelines* Section 15130(a), 15065(a)(3)). According to *CEQA Guidelines* §15130(a) and (b), the purpose of this section is to provide a discussion of significant cumulative impacts which reflects "the severity of the impacts and their likelihood of occurrence." The *CEQA Guidelines* indicate that the discussion of cumulative impacts should include:

- Either: (A), a list of past, present, and probable future projects producing related or cumulative impacts; or (B), a summary of projections contained in an adopted general plan or similar document, or in an adopted or certified environmental document, which described or evaluated conditions contributing to a cumulative impact;
- A discussion of the geographic scope of the area affected by the cumulative effect;
- A summary of expected environmental effects to be produced by these projects; and,
- Reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

This analysis of cumulative effects evaluates the potential environmental effects of concurrent implementation of the proposed project together with other spatially and temporally proximate projects. As such this analysis relies on a list of projects that have the potential to contribute to cumulative impacts in the project area.

4.2 Geographic Scope

Cumulative impacts are assessed for related projects within a similar geographic area. This geographic area may vary, depending upon the issue area discussed and the geographic extent of the potential impact. For example the geographic area associated with construction noise impacts is limited to areas directly adjacent to construction sites, whereas the geographic area that is affected by construction-related air emissions may include the larger airshed. Construction impacts associated with increased noise, dust, erosion, and access limitations tend to be localized

and could be exacerbated if other development or improvement projects are occurring within the same or adjacent locations as the proposed project.

Geographically, the proposed project is located in south central Orange County, approximately 5.5 miles from the Pacific Ocean. For the purposes of this analysis, related projects within a two-mile radius around the project site were considered when evaluating potential cumulative impacts due to construction of the proposed project. Projects in and around IRWD's service area were considered when evaluating potential cumulative impacts due to operation of the proposed project. The projects determined to be relevant to the analysis of cumulative impacts for the proposed project are listed in **Table 4-1**.

4.3 Project Timing

As noted above, projects considered in this analysis include those that have recently been completed, are currently under construction, or are in planning. Schedule is particularly relevant to the consideration of cumulative construction-related impacts, since construction impacts tend to be relatively short-term. However, for future projects, construction schedules are often broadly estimated and can be subject to change. Although the timing of the future projects listed in Table 4-1 are likely to fluctuate due to schedule changes or other unknown factors, this analysis assumes these projects would be implemented concurrently with construction of the proposed project between 2013 and 2015. Similarly, this analysis assumes that related projects would operate concurrently with the proposed project, starting in 2015.

4.4 Types of Projects Considered

As described in Chapter 3 of this EIR, the impacts associated with implementation of the proposed project are both short-term impacts related to construction and long-term impacts related to project operation. The proposed project could contribute to short-term cumulative effects when considered in combination with impacts of other construction projects, which may include development projects, roadway projects, and other public works and utility projects**.** For this analysis, other past, present, and reasonably-foreseeable future construction projects, particularly other infrastructure, commercial, civic, and residential development projects within a two-mile radius of the project site have been identified (Table 4-1).

Operation of the proposed project could contribute to long-term cumulative effects when considered in combination with impacts of other wastewater utility projects in and around IRWD's service area and potentially greater Orange County, particularly other biosolids projects or waste-to-energy projects. For this analysis other related past, present, and reasonably-foreseeable future wastewater projects have been identified (Table 4-1).

4.5 List of Cumulative Projects

Table 4-1 lists current and proposed projects that are included in the analysis of cumulative effects, which focuses on whether the proposed project would incrementally contribute to

potential cumulative impacts associated with the related projects. In addition to the projects listed in **Table 4-1**, development that has not been identified as of this time could occur in the project area, as planned by the City of Irvine, City of Costa Mesa, and City of Newport Beach.

TABLE 4-1
RELATED PROJECTS CONSIDERED IN ANALYSIS OF CUMULATIVE IMPACTS

Project Name	Project Type	Project Sponsor	Project Location	Project Implementation
IRWD Projects				
MWRP Phase 2 Expansion Project	Recycled water; treatment plant expansion	IRWD	Irvine, CA	Under construction (2010-2012)
MWRP Warehouse Project	Maintenance Facilities	IRWD	Irvine, CA	Planning in progress
MWRP Flood Protection Improvements	San Diego Creek 200-year flood wall protection	IRWD	IRWD	Under construction (2011-2012)
Irvine Well 107 Replacement	Groundwater well redrilling	IRWD	Irvine, CA	2011-2012
Irvine Well 78 Reconstruction	Groundwater well redrilling	IRWD	Irvine, CA	Under construction (2011-2012)
Tustin Legacy Well 1 Project	Groundwater recharge	IRWD	Irvine, CA	2012-2013
Tustin Wells 21 and 22 Project	Groundwater extraction and remediation	IRWD	Tustin, CA	Under construction (2010-2012)
Orange Park Acres Water System Improvements Project	New potable water transmission pipeline	IRWD	Orange, CA	Under construction (2011-2012)
Orange Park Acres Community Sewer System	Sewer pipeline system	IRWD	Orange, CA	Planning in progress
Baker Water Treatment Plant Project	Potable water treatment plant; raw water pump station	IRWD	Lake Forest and Orange, CA	2011-2013
Lake Forest Woods Sewer Rehabilitation	Rehabilitation/replacement of sewer pipelines	IRWD	Lake Forest, CA	Under construction (2010-2012)
Lake Forest Well 2 Redrill	Drilling replacement groundwater well	IRWD	Lake Forest, CA	Under construction (2010-2011)
Newport Boulevard Water Line Relocation	Potable water pipeline replacement	IRWD	Santa Ana, CA	2011-2012
Syphon Reservoir Project	Reservoir expansion	IRWD	County of Los Angeles	Planning in progress
Other Water Projects				
Groundwater Replenishment System Expansion Project	Indirect potable reuse	Orange County Water District	Fountain Valley, CA	Under construction (2011-2014)
Huntington Beach Desalination Water Treatment Facility	Potable water infrastructure project	Poseidon Resources / City of Huntington Beach	Huntington Beach, CA	Approval Phase (2011)
Energy Projects				
Oil Field Improvement Program	Improvements to the City of Newport Beach's existing oil infrastructure	City of Newport Beach	West Newport Oil Field	Planning Phase (2011)

TABLE 4-1 (cont.)
RELATED PROJECTS CONSIDERED IN ANALYSIS OF CUMULATIVE IMPACTS

Project Name	Project Type	Project Sponsor	Project Location	Project Implementation
Roadway Projects				
San Diego Freeway (I-405) Improvements Project	Freeway widening between SR-73 and I-605	Caltrans District 12	Various	CEQA review in progress
Storm Water Basin Stability and Slope Stabilization	Restabilize slopes and medians at nine storm water detention basins	Caltrans District 12	SR-73 between Irvine and Laguna Hills	CEQA review complete
Jamboree Road Bridge Widening Project	Bridge widening on Jamboree above I-73	City of Newport Beach	Newport Beach, CA	Under Construction (2011-2012)
Jamboree Road Improvement	Jamboree roadway widening at Jamboree and MacArthur.	City of Newport Beach	Newport Beach, CA	Planning in Progress (2011-2012)
John Wayne Airport Improvement Program	New Terminal, Parking Structure, and Utility Plant	County of Orange	Newport Beach, CA	Under Construction (2011)
Flood Control/Drainage Projects				
OCFCD Facility No. FO5	Channel Restoration	Orange County Flood Control District	Jamboree Rd. to I-405	Planning in Progress
OCFCD Facility No. FO5	Channel Restoration	Orange County Flood Control District	Between Campus Dr. and I-405	Planning in Progress
Phase 2 Santa Ana River Levee Repair Project	Infrastructure repair and rehabilitation	OCSD	22212 Brookhurst Street, Huntington Beach, CA	Permitting phase (2011); Anticipated Construction (2012)
Bitter Point Pump Station	New pump station	City of Newport Beach	22212 Brookhurst Street, Huntington Beach, CA	Under Construction (Spring 2012)
Semeniuk Slough Dredging	Infrastructure rehabilitation and construction	City of Newport Beach	Channel in Santa Ana River just west of City of Newport Beach	Planning Phase (2011)
Community Development Projects				
Vista Verde Residential Project	Residential development (66 SFD, PA 20)	City of Irvine	5144 Michelson Dr, Irvine, CA	Pending public hearing
Irvine Tech Center Mixed Use Project	Residential and office development	City of Irvine	Jamboree & Campus Dr, Irvine, CA	
University Research Park	Three 4-story building & parking structure	City of Irvine		Entitlement approved
2852 Kelvin	Apartment/Condominiums (194 units, PA 36)	City of Irvine	2852 Kelvin, Irvine, CA	Entitlement approved

TABLE 4-1 (cont.)
RELATED PROJECTS CONSIDERED IN ANALYSIS OF CUMULATIVE IMPACTS

Project Name	Project Type	Project Sponsor	Project Location	Project Implementation
Metropolis	Condominiums (457 units)	City of Irvine	Main St, Irvine, CA	Pending public hearing
Avalon II	Residential apartments (180 units, PA 36)	City of Irvine	16901 Jamboree, Irvine, CA	Entitlement approved
Alton/Millikan	Residential apartments (156 units, PA 36)	City of Irvine	16952 Millikan, Irvine, CA	Entitlement approved
Braille Institute	New 30,000 sf building	City of Irvine	1600 Barranca Pkwy, Irvine, CA	Pending Public Hearing
John Wayne Airport Maintenance Building	Ancillary vehicle/ equipment storage and car wash	Orange County	3180 Airway Ave, Costa Mesa, CA	Approved by Costa Mesa Planning Commission
Koll Center Planned Community	Residential	City of Newport Beach	4343 Von Karman Ave, Newport Beach, CA	Development Plan submitted
Uptown Newport Village Specific Plan	Residential and mixed use redevelopment	City of Newport Beach	4321 Jamboree Rd, Newport Beach, CA	CEQA review in progress
Park Place	Residential apartments (980 units)	City of Irvine	Michelson & Jamboree	Grading, Under Construction
University of California, Irvine				
Arts Building	60,000 sf building	U.C. Irvine	UCI Campus	Under construction
Stem Cell Research Center Building	100,000 sf building	U.C. Irvine	UCI Campus	Under construction
Engineering Hall 5th Floor Interior Improvements	10,000 sf	U.C. Irvine	UCI Campus	Under construction
Verano Place Unit 4 Replacement	160,000 sf	U.C. Irvine	UCI Campus	Under construction
Gross Hall Animal Resource Center		U.C. Irvine	UCI Campus	Approved
Gavin Herbert Eye Institute		U.C. Irvine	UCI Campus	Approved
Alumni Center		U.C. Irvine	UCI Campus	Approved
Mesa Court Renovation Units 1 & 2		U.C. Irvine	UCI Campus	Approved

4.6 Cumulative Impacts and Mitigation Measures

4.6.1 Project Construction

Construction of the proposed project is expected to occur between 2013 and 2015. For the purposes of this analysis, the related projects identified in Table 4-1 are all presumed to be

implemented concurrently within the 2013 to 2015 timeframe. These related projects, which include infrastructure, commercial, and residential development projects may contribute to certain types of cumulative construction impacts to air quality, biological resources, hydrology and water quality, noise, and traffic and transportation, as described below. There would be no cumulative construction-related impacts to aesthetics; cultural resources; geology and soils; hazards and hazardous materials; land use and recreation; or utilities and energy. Due to the nature of these resources as geographically confined, site specific, and/or distinct, any impacts can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts. Cumulative impacts associated with GHG emissions are already discussed in Chapter 3.6, Greenhouse Gas Emissions. GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG impacts from a climate change perspective

Air Quality

As already described in Chapter 3.2, Air Quality, due to the non-attainment of ozone, PM_{10}, and $PM_{2.5}$ in the Basin, the generation of daily construction and operational emissions associated with cumulative development in the region could result in a cumulative significant impact associated with the cumulative net increase of any criteria pollutant for which the region is in non-attainment. According to the SCAQMD, if an individual project results in air emissions of criteria pollutants (VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in non-attainment under an applicable federal or state ambient air quality standard. As discussed previously, and shown in Tables 3.2-5 and 3.2-7, the construction emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any of the criteria pollutants. As such, the daily construction emissions associated with the criteria pollutants generated by the proposed project would not be cumulatively considerable. Therefore, the cumulative impact of the proposed project for construction emissions would be less than significant.

Biological Resources

The proposed project would have no significant direct impacts to biological resources. However, potential indirect impacts to special-status species and sensitive natural communities in the adjacent San Joaquin Wildlife Sanctuary may occur due to construction-related activities. These impacts would the mitigated to less than significant levels with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4. After construction is complete, there would be no permanent significant impacts to biological resources. Cumulative impacts associated with project construction could occur if related projects that are in proximity to the San Joaquin Wildlife Sanctuary were to be constructed concurrently with the proposed project. The MWRP Phase 2 Capacity Expansion and MWRP Flood Protection Improvements, which currently are under construction, would be completed prior to initiating construction of the proposed. In addition, the Phase 2 Capacity Expansion and Flood Protection Improvements are subject to similar mitigation measures as the proposed project related to the protection of threatened, endangered, and migratory nesting birds and wetland and riparian habitats in the Sanctuary (see

MWRP Final EIR). Although the proposed project would prolong construction activities at the MWRP adjacent to the Sanctuary, the contribution of the proposed project to biological resource impacts in the Sanctuary would not be cumulatively considerable with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4.

The other project in close proximity to the proposed project and Sanctuary is the MWRP Warehouse project, which may have similar indirect impacts to biological resources in the Sanctuary as the proposed project, depending on location within the MWRP. If construction of both projects were to overlap, there could be cumulative impacts to special-status species and sensitive natural communities in the Sanctuary. However, with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4, impacts associated with the proposed project would not be cumulatively considerable.

Additionally, IRWD participates in the regional conservation planning effort of the Orange County Central and Coastal NCCP/HCP which mitigates impacts of regional growth on wildlife and its habitats. The Orange County Central and Coastal NCCP/HCP establish a framework to develop a preserve system that provides for the continued existence of sensitive species and the maintenance of natural diversity. Continued participation by IRWD and other project proponents within the study area in regional conservation planning such as the Orange County Central and Coastal NCCP/HCP will reduce cumulative impacts to sensitive biological resources to below a level of significance.

Storm Water Quality

The San Diego Creek and Upper Newport Bay are listed on the Clean Water Act Section 303(d) list as water quality limited due to coliform, nutrients, sedimentation/siltation, selenium, toxaphene, and pesticides. The watershed is designated as a high priority for TMDL development. Polluted storm water runoff that may occur during concurrent construction of the proposed project and related projects in the San Diego Creek Watershed could have a cumulative impact to impaired water quality within the San Diego Creek and Upper Newport Bay. The pollutants generated from construction of these projects could include sediment and hazardous materials that may wash into Sand Diego Creek and downstream into Upper Newport Bay and result in a significant cumulative impact to surface water quality and groundwater quality.

As with the proposed project, all related projects are subject to the same federal CWA, State Porter Cologne Water Quality Control Act, Basin Plan regulations that protect water quality and water resources, and the Orange County Local Drainage Manual, Stormwater Program, and Drainage Area Management Plan (DAMP). These regulations include NPDES permit requirements, implementing SWPPPs, and post-development storm water quality and quantity requirements. All of these regulations are designed to address the incremental effects of individual projects such that they do not cause a cumulatively considerable impact. Therefore, despite the potential for construction of the related projects to alter drainage patterns, runoff conditions, and storm water quality, the required adherence to the aforementioned requirements would ensure that they do not result in cumulatively considerable impacts related to water quality. Therefore, when considered in combination with related projects similarly bound by the same

regulations, the proposed project's incremental contribution to water quality impacts would not be cumulatively considerable.

Noise

The geographic scope of potential cumulative noise impacts includes the project site and immediate surrounding areas, since the effects of noise dissipate with distance from the source. The proposed project would not have significant noise impacts associated with construction; implementation of Mitigation Measures NOISE-1 and NOISE-2 would ensure that construction activities occur during periods when construction noise is exempt from the City of Irvine noise standards. Cumulative impacts associated with project construction could occur if related projects that are in proximity to the project site were to be constructed concurrently with the proposed project. The MWRP Phase 2 Capacity Expansion and MWRP Flood Protection Improvements, which currently are under construction, would be completed prior to initiating construction of the proposed project Construction of the MWRP Warehouse Project could overlap with the proposed project. However, these geographically-proximate projects would be subject to similar construction noise exemptions within the City of Irvine. When considered together, the proposed project together with related projects would prolong construction activities at the MWRP; however, the contribution of the proposed project to noise impacts would not be cumulatively considerable with implementation of Mitigation Measures NOISE-1 and NOISE 2.

Traffic and Transportation

Construction of the proposed project, together with the identified related projects (Table 4-1), could affect traffic and circulation in the project area. The effects of construction activities on traffic and roadway hazards are due to an increase in the number of vehicles on local roadways (due to delivery of materials and worker commutes) and physical constraints on roadways if lane or street closures are required. The proposed project and staging areas would be constrained to the boundaries of the MWRP and greater IRWD property; no roadway closures are necessary for the proposed project. Therefore potential impacts associated with the proposed project would be related to a temporary increase in truck traffic and worker commutes during the construction period. As described in Chapter 3.12, the proposed project would introduce up to approximately 310 additional vehicle trips per day to local roadways during the construction period. Given the number of average daily trips on local roadways in the project vicinity, this number of vehicles would not have a significant impact to performance of the circulation system on a local or regional basis. As such, the effect of the proposed project on traffic and circulation would not be cumulatively considerable during the construction phase.

4.6.2 Project Operation

Operation of the proposed project involves operation of new biosolids handling, biogas management, and energy recovery facilities, and beneficial use of Class A and Class B biosolids produced at the MWRP. Cumulative impacts associated with operation of the proposed project would be related to the effects associated with the physical presence of new facilities. In addition, cumulative impacts would be related to maintenance and operation of the new facilities, such as

electricity usage, delivery of chemicals and sludge, hauling of biosolids offsite, and new employee commuter trips. The resources potentially affected by operation of the proposed project together with related projects listed in Table 4-1 are discussed below. There would be no cumulative operational impacts to biological resources; cultural resources; geology and soils; hazards and hazardous materials; land use and recreation; noise; or utilities and energy. Operation of the proposed project either has no impact to these resources or, due to the nature of these resources as geographically confined, site specific, and/or distinct, any impacts can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts.

Aesthetics

Due to the height of the Solids Handling Building, the proposed project would be more visible from surrounding public vantage points than the existing facilities at the MWRP and those currently under construction as part of the Phase 2 Capacity Expansion. However, as described in Chapter 3.1, with implementation of Mitigation Measures AES-1 and AES-2, the proposed project would have no individually significant impacts to aesthetics, including scenic vistas or visual character. Only related projects that may be within the same line of sight as the proposed project would compound to have potentially cumulative impacts to aesthetics. The only additional project identified in **Table 4.1** that is directly adjacent and potentially within the same line of sight as the proposed project would be the MWRP Warehouse Project. As a storage facility it is not likely that the Warehouse Project would need to be as tall as the proposed Solids Handling Building and thus would not be visible from surrounding areas. As such, the proposed project, when considered together with other related geographically-proximate projects would not have a cumulatively considerable impact to aesthetics.

Air Quality

As already described in Chapter 3.2, Air Quality, due to the non-attainment of ozone, PM_{10}, and $PM_{2.5}$ in the Basin, the generation of daily construction and operational emissions associated with cumulative development in the region could result in a cumulative significant impact associated with the cumulative net increase of any criteria pollutant for which the region is in non-attainment. According to the SCAQMD, if an individual project results in air emissions of criteria pollutants (VOC, CO, NOx, SOx, PM_{10}, and $PM_{2.5}$) that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants for which the proposed project region is in non-attainment under an applicable federal or state ambient air quality standard. As discussed previously, and shown in Tables 3.2-5 and 3.2-7, the operational emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any of the criteria pollutants. As such, the daily operational emissions associated with the criteria pollutants generated by the proposed project would not be cumulatively considerable. Therefore, the cumulative impact of the proposed project for operational emissions would be less than significant.

Storm Water Runoff

The proposed project would capture and treat all storm water runoff onsite, with the exception of very large storm events, when storm water runoff would be discharged to the San Diego Creek, similar to existing conditions at the MWRP. The MWRP has an existing NPDES permit that allows for such emergency discharge of storm water. IRWD would be required to revise its NPDES permit to include the proposed project and allow for the discharge of storm water from the project site. As described in Chapter 3.8, the San Diego Creek would have capacity to handle the slight increase in storm water discharge that may be attributable to runoff from the project site. Therefore, the proposed project would not cause significant onsite or offsite flooding due to an increase in storm water runoff. In addition, potential pollutants from the project site that may be introduced into the San Diego Creek via storm water runoff would be highly diluted in the high flows of very large storm events and would represent an incremental increase in potential pollutant discharges from the MWRP that would not be considered to have a significant effect to water quality. Other related projects in the watershed that increase impermeable surface areas have the potential to also increase the volume of storm water runoff entering the creek and affect water quality of such runoff, which could result in significant cumulative impacts to flooding and surface water quality.

As with the proposed project, all related projects are subject to the same federal CWA, State Porter Cologne Water Quality Control Act, Basin Plan regulations that protect water quality and water resources, the Orange County Local Drainage Manual, Stormwater Program, and Drainage Area Management Plan (DAMP). These regulations include NPDES permit requirements, implementing SWPPPs and BMPs, post-development storm water quality and quantity requirements, and design requirements related to 100-year flood elevations. All of these regulations are designed to address the incremental effects of individual projects such that they do not cause a cumulatively considerable impact. Therefore, despite the potential for related projects to alter drainage patterns, runoff conditions, and storm water quality, the required adherence to the aforementioned requirements would ensure that they do not result in cumulatively considerable impacts related to water quality. Therefore, when considered in combination with related projects similarly bound by the same regulations, the proposed project's incremental contribution to water quality impacts and flooding would not be cumulatively considerable.

Traffic and Transportation

The community development projects listed in Table 4-1 would result in the addition of daily vehicle trips on local and regional roadways. When considered together with the proposed project, there could be cumulative impacts to local and regional traffic volumes that could affect circulation system performance. As described in Chapter 3.12, operation of the proposed project would not have a significant impact on traffic, circulation system performance, or level of service standards. Relative to the capacity of local roadways, the introduction of an additional 46 to 60 vehicles per day would not significantly affect traffic volumes. On a regional basis, the proposed project would result in no change, or potentially a reduction in, the number of vehicles on regional roadways due to a reduction in the number of trucks required to haul away Class A pellets instead of Class B biosolids, which currently are produced at OCSD Plant 1. Therefore, when considering the proposed project together with related projects, the proposed project would

not introduce enough vehicles to local or regional roadways to have a cumulatively considerable impact on traffic, circulation, or level of service.

References – Cumulative Impacts

California Department of Transportation (Caltrans), District 12, Notice of Preparation of a Draft Environmental Impact Report, San Diego Freeway (I-405) Improvement Project, Orange County, California, I-405 Postmile 10.3-24.1

California Department of Transportation (Caltrans), District 12, Storm Water Basin Stability and Slope Stabilization, Orange County, California, District 12-ORA-73, Postmile 10.0-24.5, Initial Study and Mitigated Negative Declaration, September 2010.

City of Costa Mesa, Planning Division, Report of Development Applications, First Quarter 2011, January – March. Available online: http://www.ci.costa-mesa.ca.us/departments/CMPlanning.htm, accessed June 3, 2011.

City of Irvine, Planning and Development Services, Current Planning Projects, Pending Development Applications, http://www.cityofirvine.org/cityhall/cd/planningactivities/pda/current_planning_projects.asp, accessed June 3, 2011.

City of Irvine, Planning and Development Services, Irvine Development: A Snapshot of Notable Proposed and Recently Approved Development Projects, Spring 2011, http://www.cityofirvine.org/cityhall/cd/planningactivities/pda/default.asp, accessed June 3, 2011.

City of Irvine, Planning and Development Services, Pending Development Applications, Current Discretionary Projects Under Review, Tuesday, February 8, 2011, http://www.cityofirvine.org/cityhall/cd/planningactivities/pda/default.asp, accessed June 3, 2011.

City of Newport Beach, Community Development, Planning Division, Current Projects and Cases, Case Log, http://www6.city.newport-beach.ca.us/website/PlanningCaseLog/PA_address.asp, accessed June 3, 2011.

Irvine Ranch Water District, Our Projects Under Construction, http://www.irwd.com/your-water/construction-projects.html, accessed June 3, 2011.

CHAPTER 5
Growth Inducement

5.1 Introduction

The *CEQA Guidelines* (§15126.2(d)) require that an EIR evaluate the growth-inducing impacts of a proposed action. Section 15126.2(d) calls for the EIR to:

> *Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a reclaimed water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth inducement potential. Direct growth would result if a project, for example, involves construction of new housing. A project would have indirect growth inducement potential if it establishes substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it involves a construction effort with substantial short-term employment opportunities that indirectly stimulates the need for additional housing and services to support the new employment demand. Similarly, a project would indirectly induce growth if it removes an obstacle to additional growth and development, such as removing a constraint on a required public service, such as approving a zone change or general plan amendment that increases allowable residential land use densities.

A project that is determined to be growth inducing can result in subsequent environmental effects as a result of such growth. These environmental effects are considered indirect secondary effects of growth. Secondary effects of growth can result, for example, in significant increased demand on community and public service infrastructure; increased traffic and noise; degradation of air and water quality; and conversion of agricultural land to urban uses.

5.2 Direct and Indirect Growth Inducement

Implementation of the proposed project would have no potential to directly foster population growth or to result in the construction of additional housing. Project construction is not expected to

create substantial employment opportunities beyond the level normally available to construction workers in the area. Construction of the proposed project would require between 20 and 120 workers onsite per day depending on work activities, which would vary from day to day. In general, workers are expected to be drawn from the local labor pool. Operation of the proposed project would require up to 10 additional IRWD full-time employees for operation and maintenance of new facilities. These new employees would be located onsite at the MWRP. The proposed project would not provide substantial new employment opportunities that would necessitate additional housing and services in the area. Therefore, the proposed project would have no direct impacts on growth.

As previously described in Chapter 2, Project Description, the objectives of the proposed project are to:

- Allow IRWD to make efficient and sustainable use of its own renewable resources.
- Increase IRWD's autonomy for residuals management.
- Allow for beneficial use of the biosolids produced during the treatment process.
- Allow for beneficial use of biogases produced during anaerobic digestion.
- Minimize environmental impacts associated with residuals management.
- Provide residuals management facilities that meet future solids handling needs of the MWRP Phase 2 and 3 Capacity Expansion Project.

The proposed project would construct new biosolids processing, biogas management, and energy recovery facilities at the MWRP. The proposed facilities would process sludge produced onsite at the MWRP, along with sludge produced at the LAWRP, and potentially other treatment facilities, subject to the capacity constraints of the system. Biosolids processing at the MWRP would be in place of, rather than in addition to, new biosolids processing at OCSD Plant 1. The proposed project would be designed to process solids produced when the MWRP liquid treatment facilities are operating at full capacity once the MWRP Phase 2 and 3 Capacity Expansion Project is completed. In the analysis of growth inducement conducted as part of the MWRP Final EIR it was determined that the Phase 2 and 3 Capacity Expansion Project would not foster growth or remove obstacles to growth (Dudek, 2005). The conditionally approved use of the MWRP facilities for the production of disinfected recycled water is not proposed to be changed. The purpose of the project, supplying the demands of IRWD customers for non-potable water while improving local water supply reliability, is in conformance with the growth projections for the service area. The proposed project would handle the byproducts (i.e. biosolids) of the recycled water treatment and production system at the MWRP. The proposed project simply would relocate the processing of biosolids associated with current and future MWRP operations. The treatment and beneficial reuse of biosolids would not remove an obstacle to growth and thus would not indirectly induce growth.

Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The biogas may be conveyed to microturbines to generate electricity. The electricity would be used as an energy source for other processes at the MWRP and would

partially offset the energy requirements of the proposed new facilities. The energy recovery component of the proposed project would not remove any limitations on energy supplies that would be considered an obstacle to growth, and therefore would not indirectly induce growth.

The proposed project would not directly or indirectly induce growth. Accordingly, the proposed project would not result in any secondary effects of growth.

References – Growth Inducement

Dudek & Associates, Inc, *Michelson Water Reclamation Plant Phase 2 and 3 Capacity Expansion Project, Draft Environmental Impact Report*, State Clearinghouse No. 2005051174. Prepared for Irvine Ranch Water District, November 2005.

CHAPTER 6
Alternatives Analysis

6.1 CEQA Requirements for Alternatives Analysis

CEQA requires that an EIR describe and evaluate a reasonable range of feasible alternatives to a project or to the location of a project that would avoid or substantially lessen significant project impacts and attain most of the project objectives. The *CEQA Guidelines* (§15126.6) and CEQA case law set forth the following guidance for alternatives:

> **Identifying Alternatives.** The range of alternatives is limited to those that would avoid or substantially lessen any of the significant effects of the project, attain most of the objectives of the project, and are feasible to implement. Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. CEQA Guidelines also requires consideration of the No Project Alternative, which addresses the impact of not implementing the project and addresses what could occur in the foreseeable future if the project is not approved The EIR should also identify alternatives considered but rejected as infeasible and briefly explain the reasons underlying such determination.
>
> **Range of Alternatives.** An EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice.
>
> **Evaluation of Alternatives.** An EIR is required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Matrices may be used to display the major characteristics of each alternative and significant environmental effects of each alternative to summarize the comparison. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, the significant effects of the alternative must be described, but this description can be in less detail than the analysis of significant effects of the proposed project.

6.2 Project Objectives

As described in Chapter 2, Project Description, the project objectives are as follows:

- Allow IRWD to make efficient and sustainable use of its own renewable resources.
- Increase IRWD's autonomy for residuals management.
- Allow for beneficial use of the biosolids produced during the treatment process.
- Allow for beneficial use of biogases produced during anaerobic digestion.
- Minimize environmental impacts associated with residuals management.
- Provide residuals management facilities that meet future solids handling needs of the MWRP Phase 2 and 3 Capacity Expansion Project.

6.3 Summary of Impacts of the Proposed Project

Chapters 3 and 4 of this Draft SEIR identify potential impacts associated with the proposed project for each environmental issue area, including long-term and short-term impacts. Mitigation measures have been identified to render impacts less than significant. No significant unavoidable impacts would result from implementation of the proposed project. A summary of the significance of the greatest impacts for each environmental resource analyzed in Chapters 3 and 4 is presented below in **Table 6-1**. Specific impacts and mitigation measures are provided Table ES-1 in the Executive Summary of this Draft SEIR.

TABLE 6-1
SUMMARY OF PROJECT IMPACT ANALYSIS

Environmental Resource	Significance Determination
Aesthetics	LSM
Air Quality	LTS
Biological Resources	LSM
Cultural Resources	LSM
Geology, Soils, and Seismicity	LTS
Greenhouse Gas Emissions	LTS
Hazards and Hazardous Materials	LSM
Hydrology and Water Quality	LSM
Land Use, Planning, and Recreation	LTS
Noise	LSM
Utilities and Energy	LTS
Transportation and Traffic	LTS
Cumulative Impacts	LTS

LTS = Less than Significant
LSM = Less than Significant with Mitigation

SOURCE: ESA 2012.

6.4 Alternative Evaluation Process

In 2009 and 2010, IRWD conducted extensive evaluations of alternatives prior to identifying the proposed project. The preliminary alternatives selection report, *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Preliminary Evaluation of System-Wide Biosolids Management Alternatives* (2009 Alternatives Report) was used to formulate a portion of the analysis for this section. The purpose of the report was to identify, screen, and evaluate the overall strategy for treating, reusing, and/or disposing of the biosolids generated at MWRP and LAWRP.

The 2009 Alternatives Report valuation included two main phases. Phase 1 or Initial Screening, eliminated alternatives that were fatally flawed or were not as appropriate when compared to the other existing alternatives. This process assisted in reducing the number of alternatives to an acceptable number. Phase 2, or the Evaluation of Short-Listed Alternatives, involved evaluating each alternative against a set of specifically-defined criteria, which were designed to allow the consideration and comparison of life-cycle costs against "non-cost" benefits. Non-economic criteria included long-term viability, technology, environmental stewardship, community impacts, the ability to implement, and the alternative's ability to allow autonomy for IRWD. A total of seven alternatives were analyzed based on those criteria, including the No Project Alternative.

The result of the Phase 2 effort yielded three alternatives for further evaluation, including the No Project Alternative. The four alternatives eliminated from further analysis are briefly described below under Section 6.5, Alternatives Eliminated from Further Consideration.

In 2010, IRWD prepared a subsequent report, *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Repot, Michelson Water Recycling Plant Biosolids Management Plan* (2010 Alternatives Report), which further compared the three viable alternatives and added two additional iterations of one alternative. Through comparative analysis, these alternatives were made into one comprehensive alternative. The decision to prepare the subsequent report was based on the recommendations of the IRWD Board of Directors to evaluate alternatives dealing with thermal reduction, such as incineration and drying/combustion. The alternatives were evaluated against the same non-economic criteria in the 2009 Alternatives Report. The 2010 Alternatives Report concluded that the Digestion, Dewatering and Drying at MWRP Alternative (i.e., the proposed project) was the preferred alternative to carry forward into the preliminary design phase based on all of the criteria applied. The other alternatives considered are described below under Section 6.6, Project Alternatives.

6.5 Alternatives Eliminated from Further Consideration

An EIR must briefly describe the rationale for selection and rejection of alternatives. The Lead Agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are not feasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (*CEQA Guidelines*, §15126.6(f)(3)). Factors that may be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan

consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the proponent can reasonably acquire, control or otherwise have access to the alternative site.

This section identifies alternatives considered by the Lead Agency, but rejected as infeasible, and provides a brief explanation of the reasons for their exclusion.

6.5.1 Digestion of All Sludge at MWRP

IRWD considered an alternative that would provide thickening and digestion of all sludge at the MWRP and recover biogas for energy generation, with the digested solids being sent to OCSD Plant 1 for dewatering and further processing and reuse/disposal. This alternative would potentially impact OCSD's conveyance and treatment processes and a revised memorandum of understanding (MOU) between IRWD and OCSD would be required. This alternative has contractual issues because it may be difficult to reach an equitable agreement between the two parties. OCSD could refuse to accept discharge of digested sludge to its system, or if the sludge did get accepted, OCSD may increase costs for processing this type of material. The primary reasons for rejecting this alternative were institutional constraints regarding implementability, economic viability, and the lack of increased autonomy for IRWD in its residuals management.

6.5.2 Digestion of Primary Sludge at MWRP

IRWD considered an alternative that would provide thickening and digestion of only primary sludge at the MWRP and recover biogas for energy generation, with the WAS and digested solids being sent to OCSD Plant 1 for dewatering and further processing and reuse/disposal. Compared to the above-mentioned alternative, this alternative eliminates the WAS thickening centrifuges and requires smaller digesters; however this alternative also would potentially impact OCSD's conveyance and treatment processes and require a revised MOU with OCSD. The primary reasons for rejecting this alternative also were institutional constraints regarding implementability, economic viability, and the lack of increased autonomy for IRWD in its residuals management.

6.5.3 Public Partner for Regional Incineration

IRWD considered an alternative that would provide onsite thickening, digestion, and dewatering of all MWRP sludge to produce a Class B biosolids product. Dewatered biosolids would be hauled to an offsite incinerator that would be operated by a public partner. The transfer of residuals to OCSD would be discontinued. This alternative requires a public partner that would permit, construct, and operate an incinerator at a separate site owned by the partner. This alternative would require construction of Class B facilities at MWRP and conveyance of Class B biosolids to the regional incinerator. The primary reasons for rejecting this alternative were institutional constraints regarding implementability due to potential difficulty in obtaining a permit for an incinerator within SCAQMD by 2015.

6.5.4 Public Partner for Regional Dryer

IRWD considered an alternative that would provide onsite thickening, digestion, and dewatering of all MWRP sludge to produce a Class B biosolids product. The dewatered biosolids would be transferred to a dryer jointly owned and operated by IRWD and a public partner. The transfer of residuals to OCSD would be discontinued. This alternative requires construction and operation of a thermal dryer and associated equipment at an offsite location. The size of the dryer would be driven by the combined solids generation rates for IRWD and the public partner. The primary reasons for rejecting this alternative were implementability related to the need for two separate solids-handling facilities, lack of any identified regional dryer partners, environmental stewardship and community impacts related to energy use, air emissions, and traffic effects due to the number of truck trips required to haul dewatered solids from the MWRP to the offsite dryer facility.

6.6 Project Alternatives

An EIR must describe a range of reasonable alternatives to the proposed project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts to the proposed project. The alternatives analysis must include the "No Project Alternative" as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (*CEQA Guidelines* §15126.6). CEQA Guidelines also require that an EIR identify an environmentally superior alternative (*CEQA Guidelines* §15126.6[e][2]). The following discussion describes the three alternatives considered by the Lead Agency, including the No Project Alternative, as described in the 2010 Alternatives Report.

6.6.1 No Project Alternative

Pursuant to Section 15126.6(e)(2) of the *CEQA Guidelines*, the No Project Alternative shall:

> *…discuss the existing conditions at the time the notice of preparation is published, or if no notice of preparation is published, at the time the environmental analysis is commenced, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.*

Under the No Project Alternative, IRWD would not implement the proposed Biosolids Handling Component of the MWRP Phase 2 and 3 Capacity Expansion Project. That portion of the MWRP site would remain unchanged and the transfer of residual solids to OCSD would continue through the existing force main. The solids management strategy at the LAWRP also would not change. Sludge from the LAWRP would continue to be trucked to Arizona. Under the No Project Alternative, OCSD would continue to process all solids at Plant 1 and haul the resulting biosolids to private vendor reuse and disposal facilities. OCSD would continue to capture methane gas

during the anaerobic digestion process and generate electricity using power engine-generator units at its Central Power Generation Facility. Under the No Project Alternative, IRWD would participate in the expansion of OCSD facilities to meet future treatment demands.

Ability to Meet Project Objectives

Under the No Project Alternative, most of the project objectives would not be achieved. There would be no opportunity for IRWD to recapture biogases to implement any energy recovery facilities or allow IRWD to make use of its own renewable resources through the beneficial reuse of biosolids. IRWD's autonomy for residuals management would not be increased as the need to transfer residual solids to OCSD would continue. However, the future solids handling needs of the Phase 2 and 3 Capacity Expansion Project would be met by continuing to send all residuals to OCSD through the existing force main and by OCSD upgrading their facilities. This is the only project objective that would be met under the No Project Alternative. A renewed MOU/agreement with OCSD would be required.

Impact Analysis

Under the No Project Alternative, the adverse impacts identified in Chapters 3 and 4 of this Draft EIR that are associated with construction and operation of the proposed project would be avoided. There are no significant and unavoidable impacts associated with the proposed project. Other lesser impacts to resources that are localized around the project site, including but not limited to air emissions, biological resources in the Sanctuary, cultural resources, aesthetics, and noise, would be avoided. However, under the No Project Alternative, storm water from the biosolids site would continue to drain to the marsh. Under the No Project Alternative, there would be no benefit to storm water runoff quality because the storm water capture and treatment associated with the proposed project would not be implemented.

Under the No Project Alternative, capacity constraints at OCSD Plant 1 would require construction of new digestion and dewatering facilities at Plant 1 to keep up with future increases in biosolids to be sent by IRWD (and other upstream agencies). OCSD would continue to truck out IRWD's digested Class-B biosolids to disposal/reuse sites, which are farther away from OCSD Plant 1 than the end user sites proposed for the Class A solids to be trucked from the MWRP under the proposed project, and IRWD would continue to truck LAWRP solids to Arizona. As a result, any potential benefit to regional roadway traffic and air quality due to a reduction in truck trips required to haul Class A pellets rather than Class B biosolids would not be realized. Nonetheless, overall the No Project Alternative would have fewer environmental impacts relative to the proposed project.

6.6.2 Alternative 1: Private Partner for Class B Processing

Alternative 1 would include onsite thickening, digestion and dewatering of all MWRP sludge, similar to the proposed project, yielding Class B biosolids. However, there would be no onsite dryer at the MWRP and no production of Class A biosolids. Biogases generated during digestion would be captured and used in an energy recovery system, similar to the proposed project. IRWD would contract with private partners to haul dewatered Class B biosolids offsite for further processing and

reuse. The sludge generated at the LAWRP would not be sent to the MWRP and would continue to be hauled offsite for processing and reuse or disposal, similar to existing conditions. Under Alternative 1, the transfer of residual solids to OCSD would be discontinued, similar to the proposed project.

Ability to Meet Project Objectives

Under Alternative 1, Private Partner for Class B Processing, all project objectives would be met. Facilities similar to the proposed project would be constructed onsite at the MWRP at the project site, with the exception of an onsite dryer. As a result, only Class B biosolids would be produced. Class B biosolids would be transferred to private partners to further process the biosolids for beneficial reuse or disposal.

Impact Analysis

Under Alternative 1, the impacts would be similar to those described in Chapters 3 and 4, with the exception of those described below.

Aesthetics: Alternative 1 would have fewer impacts associated with aesthetics. The development footprint of facilities constructed onsite would be smaller, and without the onsite dryer, the Solids Handling Building would not need to be 70 feet in height. However, Alternative 1 would still require anaerobic digestion facilities, which may include methane digesters similar to the proposed project, which would be up to 68 feet in height and still visible from some public vantage points. Overall, visual impacts associated with visibility of the new facility from some public vantage points would be slightly reduced because the height of the Solids Handling Building would be lower and the footprint smaller. The impact to scenic views would be less than the impacts associated with the proposed project. Security lighting would still be required, and temporary construction-related impacts would also be similar to the proposed project.

Air Quality: Due to similar construction requirements and equipment usage at the same project site, air emissions that would result due to construction of Alternative 1 likely would be similar to that of the proposed project. However, when considering operational impacts, under Alternative 1, the production of only Class B biosolids would result in an increase in the number of truck trips required and greater miles traveled to haul biosolids offsite, relative to the proposed project. As a result, under Alternative 1, impacts to air quality due to operational truck trips associated with hauling Class B biosolids offsite would be greater than the proposed project.

Biological Resources: Alternative 1 would be implemented at the same highly-disturbed site as the proposed project and would not directly impact the neighboring Sanctuary. Impacts associated with biological resources would be similar to that of the proposed project and would be limited to indirect impacts during the construction stage.

Cultural Resources: Alternative 1 would be implemented at the same highly-disturbed site as the proposed project. Since ground disturbance would occur in the same place, potential impacts to cultural resources would be considered similar to that of the proposed project.

Geology, Soils, and Seismicity: Alternative 1 would be implemented at the same highly-disturbed site as the proposed project. Therefore, impacts associated with geology, soils, seismicity, soil erosion and expansive soils would be similar to that of the proposed project.

Greenhouse Gas Emissions: Alternative 1 would include an energy recovery system similar to the proposed project. The amount of biogas produced at the MWRP under Alternative 1 would be similar to the proposed project, as would the amount of electrical power produced by the energy recovery system. The power generated would be used to offset electricity demand in the liquid treatment process at the MWRP similar to the proposed project. However, under Alternative 1, the electrical demand to operate the biosolids handling process would be less than the proposed project because there would be no dryer to operate. Energy consumption is the greatest emission source related to project GHGs. Under Alternative 1, there would be four times as many truck trips required to transport Class B biosolids offsite to disposal and reuse sites. However, the GHG emissions associated with truck transport is relatively small compared to the GHG emissions associated with energy consumption. As a result, Alternative 1 would result in relatively smaller GHG emissions than the proposed project.

Hazards and Hazardous Materials: Alternative 1 would implement similar facilities and processes as the proposed project, which would introduce the storage and use of new hazardous materials at the project site. In addition, construction-related hazardous materials such as gasoline, diesel fuel, lubricating oils, etc., would be used during construction of Alternative 1, similar to the proposed project. As a result, the use, storage and handling of hazardous material and hazards associated with Alternative 1 would be similar to that of the proposed project.

Hydrology and Water Quality: Similar to the proposed project, construction of Alternative 1 would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities onsite. Thus, potential impacts to storm water quality due to contact with construction-related pollutants would be similar to the proposed project. Alternative 1 would also generate Class B biosolids that ultimately would be beneficially reused, although some further processing may occur offsite. As such, Alternative 1 also would require the private partner who operates the vehicles transporting Class B biosolids to the Class B reuse or disposal site to obtain a Part 503 permit to ensure surface water and groundwater quality are protected. Alternative 1 would have a smaller development footprint than the proposed project but nonetheless would similarly increase impervious surfaces and alter project drainage patterns at the project site and would also require a new onsite storm water collection system. The flood wall associated with the Phase 2 and 3 Capacity Expansion Project would still be constructed to protect facilities developed in accordance with Alternative 1 from flooding. Overall, implementation of Alternative 1 would have similar impacts on Hydrology and Water Quality.

Land Use, Planning, and Recreation: Alternative 1 would be implemented at the same highly-disturbed site as the proposed project. The development footprint of facilities constructed onsite would be smaller, and without the onsite dryer, the Solids Handling Building would not need to be 70 feet in height. However, Alternative 1 would still require anaerobic digestion facilities,

which may include methane digesters similar to the proposed project, which would be up to 68 feet in height. Due to the potential height of the digesters, under Alternative 1, the proposed project would still require a conditional use permit from the City of Irvine. Alternative 1 would thus have similar conflicts with the City of Irvine zoning ordinances due to building heights.

Noise: Construction of Alternative 1 would require similar equipment and would have similar noise impacts as the proposed project. Operation of Alternative 1 also would be subject to the same noise ordinances and thresholds as the proposed project and would need to be designed to adhere to such thresholds. Alternative 1 would include the same energy recovery facilities and the same digestion and dewatering facilities, which would generate similar noise levels as the proposed project. Alternative 1 would have no noise associated with a dryer but would have additional noise impacts associated with a greater number of trucks hauling Class B biosolids offsite for reuse and disposal. Overall, Alternative 1 would have similar effects on noise as the proposed project.

Utilities and Energy: Similar to the proposed project, Alternative 1 would generate biosolids that would be disposed at a Class III sanitary landfill in the event that other beneficial uses were not available. Alternative 1 would have impacts to solid waste disposal facilities that are similar to the proposed project. In addition, similar to the proposed project, an energy recovery system would be included in Alternative 1 to convert biogas generated during the digestion process into electricity using an alternative recovery system. Alternative 1 does not need as much electrical power and natural gas to run the digestion and dewatering facilities as the proposed project because there would be no dryer. However, Alternative 1 does require more diesel fuel to run the trucks to haul the Class B biosolids to distant disposal and reuse sites. Given the trade-off, Alternative 1 would be considered to be no more impactful to energy resources than the proposed project.

Transportation and Traffic: Under Alternative 1, impacts associated with transportation and traffic would be greater than the proposed project. Alternative 1 would produce only Class B biosolids, as opposed to both Class A and Class B biosolids produced under the proposed project. Class B biosolids have a greater water content and as such require up to four times as many truck trips to haul the same mass of biosolids offsite relative to Class A biosolids. When comparing haul trips associated with Class A biosolids under the proposed project to haul trips associated with Class B biosolids under Alternative 1, there would be relatively more haul trucks on local and regional roadways that could affect circulation system performance under Alternative 1. In addition, Alternative 1 truck trips are longer and have more of a potential for impacts and accidents on regional roadways.

Impact Summary

Alternative 1 would meet all of the project objectives. When compared to the proposed project, Alternative 1 would result in relatively greater impacts to the environment related to air quality, and traffic and fewer impacts to aesthetics and GHG emissions.

6.6.3 Alternative 2: Onsite Dryer/Combustion

Alternative 2 would require IRWD to build onsite facilities for thickening and dewatering of all MWRP sludge. In addition, a third-party contract vendor would independently build and operate onsite a system to combust and dry the dewatered cake. Dewatered cake would be 40 percent solids. One third of the cake would be burned and turned into ash. The burning process would generate heat to dry the remaining two thirds of the dewatered cake. Under Alternative 2, the end product would be both ash and dried sludge. Ash would be hauled to a landfill for disposal and dried sludge hauled offsite for beneficial use as a fertilizer or an e-fuel. The combustion process would be an energy efficient process that recovers energy from the high temperature exhaust. However, Alternative 2 would not include an energy recovery system to convert biogas to energy like the proposed project. Alternative 2 would require IRWD to provide an electrical supply of approximately 464 kWh per day to the contract vendor. All facilities would be located within the MWRP property. The need to transfer sludge to OCSD also would be eliminated.

Ability to Meet Project Objectives

Under Alternative 2, not all project objectives would be met. IRWD would make use of its own renewable resources, increase its autonomy for residuals management, and allow for beneficial use of some biosolids produced, since the dried sludge could be used as fertilizer or an e-fuel. However, the ash would require disposal in a landfill. There would be no biogas produced because digestion facilities are not part of the process; therefore Alternative 2 would not allow for beneficial use of biogases, which is one of the project objectives.

Impact Analysis

Under Alternative 2, the impacts would be similar to those described in Chapters 3 and 4, with the exception of those described below.

Aesthetics: Under Alternative 2, fewer facilities would be constructed at the project site on the MWRP and the development footprint would be smaller. There would be no digesters or dryer and the third-party vendor facilities would occupy a building of approximately 6,600 sf that per their literature would not require a height greater than 50 feet. As a result, under Alternative 2, the visibility of facilities from some public vantage points would be reduced, relative to the proposed project, which would require facility heights of up to 70 feet. Thus, Alternative 2 would reduce the impact to scenic views relative to the proposed project. Security lighting would still be required, and temporary construction-related impacts would also be similar to the proposed project.

Air Quality: Alternative 2 would involve onsite combustion of some dewatered cake, producing the end result of ash. The heat generated from the combustion process then dries the other remaining cake into a dried sludge. Operational air quality impacts associated with Alternative 2 would be greater than the proposed project due to the combustion process to be implemented..Operational truck trips associated with hauling and disposal of end products may or may not be reduced relative to the proposed project. Ash would have a lesser water content than either Class A or Class B biosolids and would require fewer truck trips to haul offsite. However,

the dried sludge would have greater water content than Class A pellets and would require a greater number of trucks to haul offsite. The number of trucks may be similar to those required to haul Class B biosolids under the proposed project. Thus, under Alternative 2, there may be the same number of haul trucks on local and regional roadways, which would have no effect on air emissions associated with operational truck trips. The third party vendor would be responsible for having an odor control system to prevent release and detection of odors during processing and storage of raw sludge. The odor control system would draw in fresh air at high volume and remains at a controlled negative pressure throughout the operation. Alternative 2 would result in similar impacts related to odor as the proposed project.

Biological Resources: Alternative 2 would be implemented at the same highly-disturbed site as the proposed project and would not directly impact the neighboring Sanctuary. Impacts associated with biological resources would be similar to that of the proposed project and would be limited to indirect impacts during the construction stage.

Cultural Resources: Alternative 2 would be implemented at the same highly-disturbed site as the proposed project. Since ground disturbance would occur in the same place, impacts to cultural resources would be considered similar to that of the proposed project.

Geology, Soils, and Seismicity: Alternative 2 would be implemented at the same highly-disturbed site as the proposed project. Therefore, impacts associated with geology, soils, seismicity, soil erosion and expansive soils would be similar to that of the proposed project.

Greenhouse Gas Emissions: According to the 2010 Alternatives Report, reportable and total GHG emissions would be less than the proposed project. Energy consumption is the greatest emission source related to GHGs. Under Alternative 2, energy consumption would be less than the proposed project.

Hazards and Hazardous Materials: Alternative 2 would reduce the development footprint of facilities, but the use of hazardous materials such as gasoline, diesel fuel, lubricating oils, etc., during construction would be similar. With respect to project operation, the risks associated with use, storage and handling of hazardous materials potentially would increase because the technology of the dryer/combustor facilities and associated chemical usage have not been demonstrated in the U.S. on facilities the size of MWRP. Therefore, there is a greater risk for hazards associated with accidental release of hazardous materials to occur at the project site due to these facilities.

Hydrology and Water Quality: Similar to the proposed project, construction of Alternative 2 would require the use of heavy equipment and construction-related chemicals, such as fuels, oils, grease, solvents and paints that would be stored in limited quantities onsite. Thus, potential impacts to storm water quality due to contact with construction-related pollutants would be similar to the proposed project. Similar to the proposed project, Alternative 2 would also require a new storm water collection system. Storm flow from the same area will be pumped to Pond C. Overall, development of Alternative 2 would have similar impacts on Hydrology and Water Quality, with the exception of drainage impacts. Alternative 2 has a reduced development

footprint relative to the proposed project and would lessen the amount of impervious surfaces at the site, thereby reducing impacts associated with the relative amount of runoff from the project site.

Land Use, Planning, and Recreation: Alternative 2 would be implemented at the same highly-disturbed site as the proposed project. However, the development footprint of facilities constructed onsite would be smaller and building heights would be reduced. There would be no digesters or dryer and the third-party vendor facilities would occupy a building of approximately 6,600 sf that would not require a height greater than 50 feet. Thus, relative to the proposed project, Alternative 2 would not conflict with the building height restrictions associated with the Institutional zoning classification of the City of Irvine. Impacts to land use planning would be less than the proposed project.

Noise: Operation of Alternative 2 also would be subject to the same noise ordinances and thresholds as the proposed project and would need to be designed to adhere to such thresholds. Overall, Alternative 2 would have similar noise impacts when compared to the proposed project.

Utilities and Energy: Under Alternative 2, there would be no digestion facilities. The combustion process would be energy efficient and recover some energy from high temperature exhaust. Alternative 2 would require IRWD to provide an electrical supply of approximately 464 kWh per day to the contract vendor. Overall, Alternative 2 would have less energy demand than the proposed project.

Transportation and Traffic: Under Alternative 2, there may be the same number of haul trucks on local and regional roadways, as described above under Air Quality impacts. Hauling ash and dried sludge may require a similar number of truck trips as hauling Class B biosolids under the proposed project. Therefore, under Alternative 2, there would be no change in the impact to local and regional roadways or to the performance of the circulation system.

Impact Summary

Alternative 2 would not meet all of the goals of the project. As compared to the proposed project, Alternative 2 would result in greater impacts to the environment related to air quality and hazardous materials. Alternative 2 would result in lesser impacts to aesthetics, GHGs, hydrology (drainage/runoff), land use planning, and utilities and energy.

6.7 Summary of Alternatives Analysis

A summary of the alternatives analysis is provided in **Table 6-2**, which compares the proposed project to each alternative with respect to project objectives and project impacts. Since there are no significant and unavoidable impacts associated with the proposed project, none of the alternatives would serve to avoid such an impact. Instead, this analysis identifies any differences in the relative magnitude of environmental impacts associated with the alternatives when compared to the proposed project.

The No Project Alternative would not meet most of the project objectives. The No Project Alternative would avoid non-significant impacts associated with the proposed project while also preventing any benefits from the proposed project from being realized. Alternative 1 would meet all of the project objectives and would result in fewer impacts to aesthetics due to the elimination of the Solids Handling Building, fewer impacts to GHG emissions due to a more complete offset in energy use by the alternative energy system and a smaller electricity demand due to elimination of the dryer, but greater impacts to air emissions, traffic, and circulation system performance due to the greater number of haul trucks required to haul Class B biosolids offsite relative to Class A biosolids.

Alternative 2 would meet some but not all of the project objectives and would result in increased impacts to air quality and risks associated with hazardous materials due to the implementation of the onsite combustion facilities. Alternative 2 would lessen impacts associated with facility footprint and building size, including aesthetics, runoff from impervious surfaces, land use planning (zoning code height limitations), and electricity demand. Alternative 2 also would lessen impacts associated with GHGs.

TABLE 6-2
SUMMARY OF ALTERNATIVES ANALYSIS
RELATIVE IMPACTS AS COMPARED TO THE PROPOSED PROJECT

Environmental Resource	Proposed Project	No Project Alternative	Alternative 1	Alternative 2
Meets All Project Objectives?	Yes	No	Yes	No
Environmental Impacts				
Aesthetics	LSM	-	-	-
Air Quality	LTS	+	+	+
Biological Resources	LSM	-	0	0
Cultural Resources	LSM	-	0	0
Geology, Soils, and Seismicity	LTS	-	0	0
Greenhouse Gas Emissions	LTS	-	-	-
Hazards and Hazardous Materials	LSM	-	0	+
Hydrology and Water Quality	LSM	+	0	-
Land Use, Planning, and Recreation	LTS	-	0	-
Noise	LSM	-	0	0
Utilities and Energy	LTS	-	0	-
Transportation and Traffic	LTS	+	+	0

LTS = less than significant
LSM = less than significant with mitigation
+ = more severe/more intense
- = less severe/less intense
0 = no change

SOURCE: ESA 2012.

6.7.1 Environmentally Superior Alternative

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

As illustrated in Table 6-2, the No Project Alternative would result in the least environmental impacts because there would be less severe or less intense physical changes to most of the environmental resources than otherwise would result with implementation of the proposed project. However, under the No Project Alternative, potential benefits to air quality and traffic associated with the proposed project also would not be realized. Under the No Project Alternative, there would be no reduction in operational truck trips because Class A pellets would not be produced and Class B biosolids would continue to be hauled offsite from OCSD Plant 1 and the LAWRP. As a result, air emissions associated with operational truck trips would not be lessened.

In accordance with CEQA, an environmentally superior alternative shall be identified among the other project alternatives. The proposed project would have no significant and unavoidable impacts, and thus the selection of the environmentally superior alternative is not based on identification of an alternative that would serve to avoid such an impact. Alternative 2 would not meet all of the project objectives and thus would not be selected as the environmentally superior alternative.

A comparison of the proposed project to Alternative 1 presents tradeoffs in impacts associated with the varying components of each alternative project. Alternative 1 would lessen impacts to aesthetics due to elimination of the Solids Handling Building and lessen impacts to GHG emissions due to elimination of the dryer and associated indirect GHG emissions associated energy consumption to operate the dryer. However, Alternative 1 would increase impacts to air quality and traffic due to more operational truck trips associated with hauling Class B biosolids instead of Class A biosolids.

After considering the tradeoff in impacts, IRWD has determined that the proposed project and Alternative 1 are environmentally equivalent alternatives. Alternative 1 is not environmentally superior because the potential decrease in impacts to energy use and indirect GHG emissions when compared to the proposed project do not necessarily outweigh the increase in potential environmental impacts to local/regional air quality and traffic due to operational truck trips. IRWD has determined that the proposed project is the preferred alternative because it would provide a valuable benefit of potential *local* reuse opportunities associated with production of Class A biosolids.

References – Alternatives Analysis

HDR Engineering, *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report/Preliminary Evaluation of System-Wide Biosolids Management Alternatives*, December 2009.

HDR Engineering and Carollo, *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Michelson Water Recycling Plant Biosolids Management Plan*, December 2010.

HDR Engineering and Carollo, *Energy Efficiency Master Plan and Biosolids Handling Preliminary Design Report, Michelson Water Recycling Plant Biosolids Management Plan*, June 2011.

CHAPTER 7
Report Preparers

7.1 Project Sponsor / Lead Agency

Irvine Ranch Water District

15600 Sand Canyon Avenue
Irvine, California 92618-3102

Paul Weghorst – Director of Water Resources
Christian Kessler – Project Manager (CEQA)
Steve Malloy – Project Engineer

7.2 EIR Authors and Consultants

Environmental Science Associates

626 Wilshire Boulevard, Suite 1100
Los Angeles, CA 90017

Tom Barnes – Project Director
Jennifer Jacobus – Project Manager

Technical Staff

Greg Ainsworth
Donald Ambroziak
Bobbette Biddulph
Poonam Boparai
Madeleine Bray
Justin Conley
Allyson Dong
Danielle Griffith
Paul Miller
Eric Schniewind
Sarah Spano
Nicolle Ianelli Steiner
Monica Strauss
Jon West
Terrance Wong
Victoria Zalameda

7.3 Persons and Organizations Consulted

City of Irvine

Joel Belding – Senior Planner
City of Irvine - Community Development
1 Civic Center Plaza
Irvine, CA. 92606-5207

Orange County Airport Land Use Commission

Sue Tanner
3160 Airway Avenue
Costa Mesa, CA 92626

CHAPTER 8
Acronyms

AA	Administering Agency
AB	Assembly Bill
ACI	American Concrete Institute
ADT	Average Daily Traffic
AELUP	Airport Environs Land Use Plan
Afu	Undocumented Fill
AIA	Airport Influence Area
AISC	American Institute of Steel Construction
ALUC	Airport Land Use Commission
Amsl	Above Mean Sea Level
APA	Administrative Procedure Act
APE	Area of Potential Effect
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
ATCM	Airborne Toxics Control Measure
BACT	Best Available Control Technology
Basin	South Coast Air Basin
BAU	Business-As-Usual
bgs	Below Ground Surface
BMP	Best Management Practices
BP	Before Present
CAAQS	California Ambient Air Quality Standards
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Administration
CalARP	California Accidental Release Prevention Program
Cal-ARP	California Accidental Release Program
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency

Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CBSP	Commuter Bikeways Strategic Plan
CCAA	California Clean Air Act
CCAT	California Climate Action Team
CCR	California Code of Regulations
CDBG	Community Development Block Grant
CDFG	California Department of Fish and Game
CEB	Clean Enclosed Burners
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
Cfs	Cubic Feet Per Second
CGS	California Geological Survey
CH_4	Methane
CHL	California Historical Landmarks
CLOMR	Conditional Letter of Map Revision
CMP	Congestion Management Program
CMU	Concrete Masonry Unit
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CPUC	California Public Utilities Commission
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
D	Distance
DAMP	Drainage Area Management Plan
dB	Decibels
dBA A	Weighted Decibels

DNL	Day-night Average Sound Level
DOC	California Department of Conservation
Draft SEIR	Draft Supplemental Environmental Impact Report
DSHTs	Digested Sludge Holding Tanks
dtpw	Dry Tons Per Week
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
ERP	Emergency Response Plan
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FIP	Federal Implementation Plan
FOG	Fats, Oil and Greases
FR	Federal Register
FTA	Federal Transit Administration
GHG	Greenhouse Gas
GWh	Million Kilowatt Hours
H_2S	Hydrogen Sulfide
HAPs	Hazardous Air Pollutants
HCA	Health Care Agency
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HRI	Historic Resources Inventory
HSWA	Hazardous and Solid Waste Act
HVAC	Heating, ventilation and air conditioning
HWCL	California Hazardous Waste Control Law
Hz	Hertz
I	Interstate
IRWD	Irvine Ranch Water District
kWh	Kilowatt Hours
LAWRP	Los Alisos Water Recycling Plant
LCFS	Low Carbon Fuel Standard
LOS	Level of Service

LUFTS	Leaking Underground Fuel Tanks
L_v	RMS vibration level
M	Richter magnitude
M&RP	Monitoring and Reporting Program
MACT	Maximum Achievable Control Technology
MBTA	Migratory Bird Treaty Act
MGD	Million Gallons per Day
MLD	Most Likely Descendent
MMI	Modified Mercalli Intensity
MMRP	Mitigation Monitoring and Reporting Program
MMT	Million Metric Tons
MOU	Memorandum of Understanding
MPG	Miles per Gallon
MS4s	Municipal Separate Storm Sewer System
Mscf/year	Thousand Standard Cubic Feet Per Year
Mw	Moment Magnitude
MWRP	Michelson Water Recycling Plant
N_2O	Nitrous Oxide
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NAS	National Airspace System
NCCP	Natural Community Conservation Planning
NCCP	Natural Community Conservation Plan
NCP	National Contingency Plan
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHTSA	Department of Transportation's National Highway Safety Administration
NMFS	National Marine Fisheries Service
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOC	Notice of Completion
NOI	Notice of Intent
NOP	Notice of Preparation

NO_X	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NROC	Nature Reserve of Orange County
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District
OCSD	Orange County Sanitation District
OCTA	Orange County Transportation Authority
OEHHA	Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OHM	Office of Hazardous Materials Safety
OHP	California Office of Historic Preservation
OPR	California Office of Planning and Research
OSHA	Occupational Safety and Health Administration
PA	Planning Area
PCBs	Polychlorinated Biphenyls
PFCs	Perfluorocarbons
PHI	California Points of Historical Interest
PM_{10}	Coarse Particulate Matter
$PM_{2.5}$	Fine Particulate Matter
POTWs	Publically-Owned Treatment Works
PPV	Peak Particle Velocity
PRC	Public Resources Code
PS	Primary Sludge
PSD	Prevention of Significant Deterioration
PSM	Process Safety Management
PUC	Public Utilities Code
Qal	Alluvial Deposits
RCRA	Resource Conservation and Recovery Act of 1976
RMP	Risk Management Plan
RMS	Root Mean Square
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act

SARWQCB	Santa Ana Regional Water Quality Control Board
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SDC	Seismic Design Category
SF_6	Sulfur Hexafluoride
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SLIC	Spills, Leaks, Investigations, and Cleanup Database
SO_2	Sulfur dioxide
SO_X	Sulfur Oxides
SP	Special Publication
SPF	Standard Project Flood
SR	State Route
SRA	Seismic Response Area
M&RP	Monitoring and Reporting Requirements
SVP	Society for Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TACs	Toxic Air Contaminants
TMDL	Total Maximum Daily Loads
USACE	U.S. Army Corp of Engineers
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	US Geological Survey
Vdb	Decibel notation
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
WAS	Waste Activated Sludge
WDRs	Waste Discharge Requirements
WTPD	Wet Tons per Day
WWII	World War II

APPENDIX A

Scoping Report

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300 phone
213.599.4301 fax
www.esassoc.com

Scoping Report

date April 30, 2011

to Christian Kessler, IRWD

from Jennifer Jacobus

subject IRWD Biosolids Handling and Energy Recovery Facilities Project Public Scoping

IRVINE RANCH WATER DISTRICT
BIOSOLIDS HANDLING AND ENERGY RECOVERY FACILITIES PROJECT

Scoping Report

Introduction

Irvine Ranch Water District (IRWD) is the Lead Agency for the proposed Biosolids Handling and Energy Recovery Facilities Project (proposed project). The proposed project would be located onsite at the existing Michelson Water Recycling Plant (MWRP) property on Michelson Drive in Irvine, CA. The proposed project will provide a complete biosolids processing, biogas management, and energy recovery system for the MWRP and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities at the MWRP that would thicken, stabilize, dewater, and dry biosolids that are generated at both plants. The biosolids stabilization through anaerobic digestion would generate biogas as a byproduct. The biogas would be conveyed to a fuel cell to generate electricity and heat, and this electricity would be used as an energy source for other processes at the MWRP. The proposed project would produce two forms of biosolids: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill. The proposed project provides IRWD with an alternative residuals management strategy to transporting all generated sludge to the Orange County Sanitation District (OCSD) for processing and reuse or disposal.

Notice of Preparation and Notice of Availability

The Notice of Preparation (NOP) was prepared by Environmental Science Associates (ESA) pursuant to the California Environmental Quality Act (CEQA), to notify interested parties that IRWD will be preparing an Environmental Impact Report (EIR) to evaluate potential environmental impacts of the proposed project (see Attachment 1).

The NOP was mailed on March 28, 2011 to interested parties, including local, state, and federal agencies; news publications; and other groups or individuals who had previously expressed interest in the project. A Notice of Completion (NOC) was also prepared by IRWD and sent to the State Clearinghouse (see Attachment 2). Copies of the NOP were made available for public review at local libraries (Heritage Park Library, Katie Wheeler Library and University Park Library) and at the IRWD website: http://www.irwd.com.

Scoping Period

The 30-day project scoping period, which began with the distribution of the NOP on March 28, 2011, remained open through April 26, 2011. During the scoping period, IRWD held a scoping meeting on April 12, 2011, 7:00 p.m. at IRWD's headquarters (15600 Sand Canyon Avenue, Irvine, CA 92618). IRWD placed public notices of the scoping meeting in the Orange County Register-Recorder newspaper on April 8, 2011 (see Attachment 7).

At the scoping meeting, IRWD staff and ESA consultants gave a presentation on the IRWD's proposed action (see Attachment 3). Following the presentation, meeting participants were invited to talk to staff regarding any issues they have. Participant questions and comments were recorded on a whiteboard, and comment cards were also available for participants to fill out at the meeting or to send in at a later date. The sign-in sheet from the public scoping meeting is included as Attachment 4.

Comments

During the scoping period, IRWD received eleven comment letters on the proposed project via mail, e-mail or facsimile (see Attachment 5). IRWD also received verbal comments during the scoping meeting; multiple comments were recorded (see Attachment 6).

The next formal opportunity for public comments will be associated with the release of the Draft Environmental Impact Report, expected to be available for public review in Summer 2012.

Contents of this Report

This Scoping Report contains documents pertinent to the scoping process. The following items are included:

Attachment 1: Notice of Preparation
Attachment 2: Notice of Completion
Attachment 3: Scoping Meeting Presentation
Attachment 4: Scoping Meeting Sign-in Sheet
Attachment 5: Comment Letters Received by IRWD
Attachment 6: Scoping Meeting Verbal Comments
Attachment 7: Public Notice of Scoping Meeting

Attachment 1: Notice of Preparation

Notice of Preparation

Date: March 28, 2011

To: Responsible and Trustee Agencies and Interested Parties

Lead Agency: Irvine Ranch Water District

Project: Biosolids Handling and Energy Recovery Facilities Project

Review Period: March 28, 2011 to April 26, 2011

This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that the Irvine Ranch Water District (IRWD) as the Lead Agency is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Biosolids Handling and Energy Recovery Facilities Project (proposed project). The proposed project would be located onsite at the existing Michelson Water Recycling Plant (MWRP) property, located at 3512 Michelson Drive, Irvine, CA 92612. The proposed project would provide a complete biosolids processing, biogas management, and energy generation system for the MWRP and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities at the MWRP that would thicken, stabilize, dewater, and dry biosolids. Stabilization would be achieved using anaerobic digestion, which would generate biogas as a byproduct. Biogas would be conveyed to a fuel cell to generate electricity and heat. The electricity would be used as an energy source for other processes at the MWRP. The proposed project would produce two classes of biosolids, as defined by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill.

IRWD is soliciting the views of interested persons and agencies as to the scope and content of the environmental information to be evaluated in the EIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The EIR will be used by IRWD when considering approval of the proposed project.

In accordance with the time limits mandated by CEQA, comments on the NOP must be received by IRWD no later than 30 days after publication of this notice. We request that comments be received no later than **April 26, 2011 at 5:00 p.m.** Please send your comments to: Paul Weghorst, Principal Water Resources Manager, Irvine Ranch Water District, 15600 Sand Canyon Ave, Irvine, CA 92618, or weghorst@irwd.com. Please include a return address and contact name with your comments.

A public scoping meeting will be held to receive public comments and suggestions on the project. The scoping meeting will be open to the public on:

DATE: April 12, 2011

TIME: 6:30 p.m. doors open / 7:00 p.m. presentation begins

LOCATION: Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Introduction

IRWD proposes to implement the Biosolids Handling and Energy Recovery Facilities Project (proposed project) to provide a complete biosolids processing, biogas[1] management, and energy recovery system for the Michelson Water Recycling Plant (MWRP) and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities at the MWRP that would thicken, stabilize, dewater, and dry biosolids. Stabilization would be achieved using anaerobic digestion, which would generate biogas that could be put to beneficial reuse or be conveyed to a fuel cell, or other technology, to generate electricity and heat. The electricity would be used as an energy source for other processes at the MWRP. The proposed project would produce two classes of biosolids, as defined by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill.

Currently, all sludge generated at the MWRP is conveyed through pipes to the Orange County Sanitation District (OCSD) for processing and reuse or disposal. For the sludge generated at the LAWRP, IRWD contracts with Synagro to haul solids offsite and process them for reuse or disposal. Until recently, these arrangements worked well; however, recent negotiations between OCSD and IRWD have shown that OCSD's future charges for the costs associated with residuals management services will increase sharply. In addition, sending sludge to OCSD or Synagro prevents IRWD from making beneficial use of a renewable resource. The proposed project provides IRWD with an alternative residuals management strategy.

Project Background

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

IRWD recycles non-potable water from the wastewater it collects via its sewer collection system. IRWD delivers the wastewater from its collection system to either the MWRP or the LAWRP, where it is reclaimed with a tertiary treatment process. It is then conveyed through the recycled water distribution system and sold to customers. IRWD currently is implementing the Phase 2 Expansion Project at the MWRP, which will increase the MWRP capacity from 18 mgd to 28 mgd to meet recycled water demands in 2025. The MWRP Phase 2 Expansion Project maintains the MWRP as a liquid-only treatment facility. Since 1988, all residuals from the MWRP have been conveyed to OCSD for processing and disposal. However, by 2016, OCSD anticipates that it will reach maximum capacity at its solids handling facilities and will need to make significant capital investments to expand its solids processing facilities. During 2009, IRWD evaluated alternative solids handling strategies for the MWRP and LAWRP. The resulting *Preliminary Evaluation of System of System-Wide Biosolids Management Alternatives Report*

[1] Biogas consists of the mixture of methane and carbon dioxide produced by the proposed biosolids treatment process.

(HDR, 2009) concluded that it would be cost effective for IRWD to implement solids handling at the MWRP rather than continuing to transport sludge to OCSD. In November 2009, IRWD's Board of Directors decided to pursue solids handling facilities at MWRP and notified OCSD that it will cease conveying MWRP residuals to the OCSD system by 2016.

Project Objectives

IRWD's objectives for this project consist of the following:

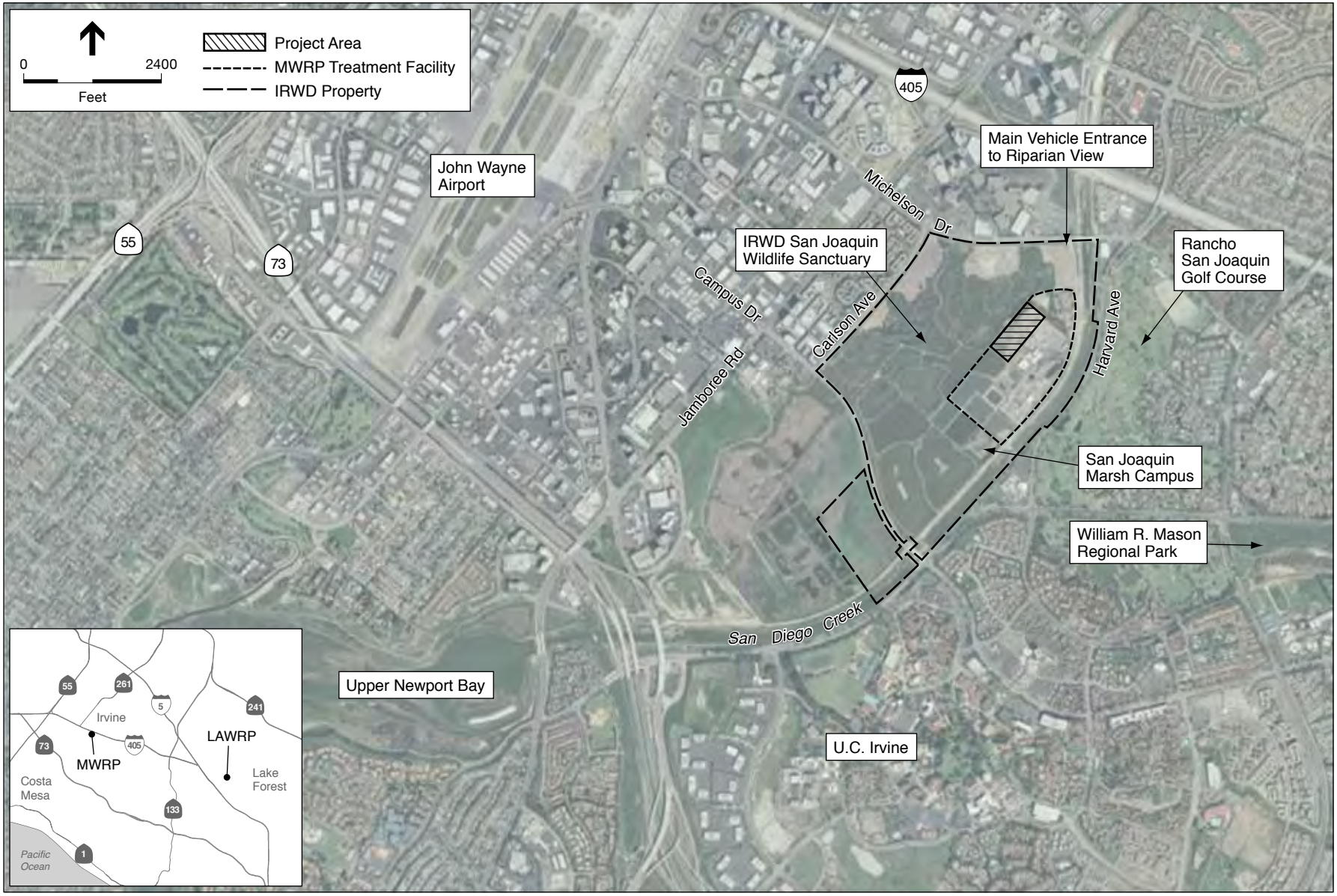
- Allow IRWD to make efficient and sustainable use of its own renewable resources.
- To make beneficial use of recaptured biogases and allow for beneficial use of the biosolids produced during the treatment process.
- Increase IRWD's autonomy for residuals management.
- Minimize environmental impacts associated with residuals management.
- Construct a biosolids handling and energy recovery facility that adequately provides for IRWD's future biosolids handling needs.

Project Location

The proposed project would be constructed onsite at the existing IRWD property, located at 3512 Michelson Drive, Irvine, CA 92612 (see **Figure 1**). The Biosolids Handling and Energy Recovery Facilities would be constructed within a 4.6-acre rectangular-shaped area that currently is vacant land occupied as construction staging for the MWRP Phase 2 Expansion Project. Approximately 300 acres of the IRWD property constitute the San Joaquin Wildlife Sanctuary. Within a two-mile radius of the MWRP are a mixture of residential land uses, as well as recreational, conservation/open space, commercial and industrial park uses; John Wayne Airport; University of California at Irvine; William R. Mason Regional Park; and Rancho San Joaquin Golf Course (Figure 1).

Project Description

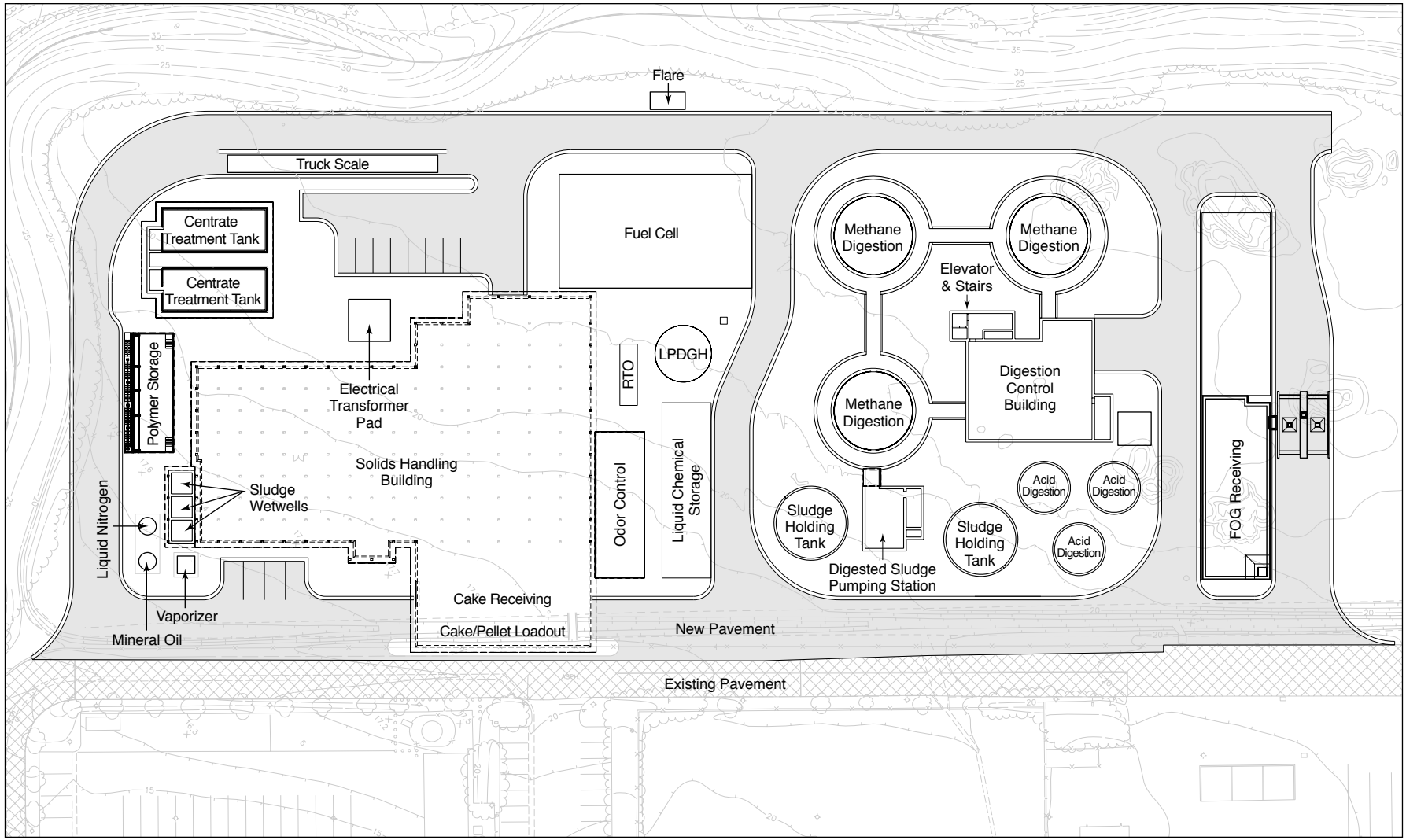
The proposed project would construct new biosolids processing, biogas management, and energy generation facilities at the MWRP. The proposed solids-handling facilities would thicken, stabilize, dewater, and dry solids that are generated at the MWRP. The new facilities to be constructed at the proposed MWRP are shown in **Figure 2.** Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The biogas could be conveyed to a fuel cell to generate electricity and heat. The electricity would be used as an energy source for other processes at the MWRP. In addition to sludge, fats, oil and greases (FOG) associated with restaurant waste would be added to the digesters as a feedstock to increase biogas production. Currently, the majority of FOG in Orange County is transported to OCSD



SOURCE: ESA; GlobeXplorer, 2011.

IRWD Biosolids and Energy Recovery Project . 210480

Figure 1
Project Location



SOURCE: Black & Veatch, 2011.

IRWD Biosolids and Energy Recovery Project . 210480

Figure 2
MWRP Preliminary Site Plan

for processing and disposal. The proposed project would allow diversion of a portion of this FOG to the MWRP.

Digested sludge would be dewatered to produce Class B biosolids or would be dried in a rotary drum dryer to produce pelletized Class A biosolids. Class A biosolids would be put to beneficial use as a fertilizer or used as an e-fuel in an incinerator. Pelletized biosolids would be distributed in bulk using trucks or transferred to an onsite or offsite bagging operation for smaller scale distribution. When the dryer is out of service for an extended period, the Class B biosolids would be hauled offsite for beneficial use or disposal.

In addition to the sludge produced at the MWRP liquid-only facilities, sludge from the LAWRP would be conveyed using trucks to the MWRP for processing. IRWD also may contract with other agencies, such as South Orange County Water Authority (SOCWA), to accept additional truckloads of sludge for processing, within the capacity limitations of the facilities. Currently, IRWD estimates that up to 30 truck loads of sludge per week would be brought to MWRP from LAWRP, SOCWA, or other agencies. The following is a summary of the facilities to be constructed at the MWRP as shown in Figure 2:

- **Solids Handling Building**: The Solids Handling Building would house the solids processing facilities which would include thickening, dewatering, and drying processes, as well as a truck load-out bay for trucking treated biosolids offsite. The Solids Handling Building would have two interior levels and a footprint of approximately 32,000 square feet. The building height would vary, with the highest point approximately 70 feet above grade.

- **Anaerobic Digestion System**: The objective of anaerobic digestion is to convert thickened sludge to a more organically stable form of biosolids and to reduce the amount of biosolids produced. The organic mass of sludge fed to digesters is biologically consumed and converted to biogas and biosolids. The digestion system for the proposed project would include a FOG receiving station; acid digesters; methane digesters; a digested sludge holding tank (DSHT); heating system, and gas-handling facilities.

- **Biogas Handling System**: The purpose of the Biogas Handling System is to optimize the reuse of biogas produced in the digesters. Biogas would be used primarily for cogeneration in the fuel cell or in the dryer, other beneficial uses, or transferred to a waste gas burner.

- **Recycle Treatment:** The liquid from the dewatering centrifuges contains high concentrations of ammonia. The Recycled Treatment system would equalize and treat this sidestream to remove ammonia before returning it to the MWRP liquid-only treatment facilities.

- **Odor Control:** All foul air would be collected from all odor point sources and routed to odor control scrubbers.

Potential Environmental Effects

The EIR will assess the physical changes to the environment that would likely result from construction and operation of the proposed project, including direct, indirect and cumulative impacts. Potential impacts of the proposed project are summarized below. The EIR will identify mitigation measures if necessary to minimize potentially significant impacts of the proposed project. The EIR also will include an analysis of project alternatives as required by CEQA.

Aesthetics

The existing aesthetic quality of the project area is dominated by the MWRP treatment facilities and IRWD Operations Center, the San Joaquin Wildlife Sanctuary, San Diego Creek, open space and surrounding land uses. The EIR will evaluate the proposed project for impacts related to aesthetic resources, including scenic vistas and visual character.

Air Quality and Greenhouse Gas (GHG) Emissions

The proposed project would affect air quality during both project construction and operation. Construction emissions would be due to equipment exhaust, earth movement, construction workers' commute, and material hauling. The EIR will estimate construction-related emissions and long-term operational emissions, including total CO2-equivalent emissions for evaluating the effects of GHGs. The project would utilize biogas, an environmentally-friendly fuel (efuel), to offset the project's electricity demand and dependence on non-renewable fuel. The EIR will compare project emissions with the South Coast Air Quality Management District (SCAQMD) thresholds of significance and also will evaluate the project's consistency with the regional air quality attainment plans. The EIR will examine the project's effects on global climate change and evaluate consistency of the project with the State's GHG emissions reduction goals.

Biological Resources

The proposed project would be constructed primarily within the boundaries of a previously disturbed site. The site is located adjacent to the San Joaquin Wildlife Sanctuary, although it is separated from the Sanctuary by a vegetated earthen berm and proposed floodwall. The EIR will evaluate the potential for construction of the proposed project to have indirect effects to biological resources, such as sensitive species, habitats, and natural communities, and will evaluate the project's consistency with the Orange County Natural Community Conservation Plan/ Habitat Conservation Plan (NCCP/HCP), local ordinances, and state and federal regulations governing biological resources.

Cultural Resources

There are known cultural resources in the vicinity of the project area. Although the project site is located in a previously-disturbed area, excavation below the top soil could uncover previously unknown archaeological or paleontological resources. The EIR will assess the potential effects of the proposed project on cultural resources. Mitigation measures will be developed if necessary to reduce the level of impact where possible.

Geology, Soils and Seismicity

The proposed project would be located in a seismically active region. The construction of project components could be subject to potential seismic hazards including ground shaking. In addition, construction activities could expose soils to storm water erosion. The EIR will evaluate geologic hazards in the region and will develop mitigation measures if necessary to reduce potential effects from the proposed project.

Hazards and Hazardous Materials

The proposed project would introduce new process chemicals that would be stored and used onsite. The EIR will summarize known hazardous waste contamination sites in the project area and will list potentially hazardous materials used and stored during construction and operation of the project. The EIR will include mitigation measures for safe handling and disposal of hazardous materials, if necessary. The EIR also will address the potential for soil contamination and groundwater contamination and will develop mitigation measures to prevent contamination, if necessary.

The Class A and Class B biosolids to be produced by the proposed project are not classified as hazardous materials. The EIR will discuss any potential impacts associated with reuse applications and disposal of this material, including overviews of the regulations governing such reuse and disposal that protect public health and the environment.

Hydrology and Water Quality

The proposed project would change the drainage patterns at the project site, which could affect the volume and quality of surface runoff that in turn could affect local surface water resources. Excavation and construction activities would affect storm water quality if sediment or spills run off the project construction site. The EIR will identify storm water quality protection measures required during construction activities such as sediment fencing and spill prevention and containment. The proposed project is not expected to affect groundwater recharge or the water table.

Land Use

The EIR will identify current land uses and sensitive receptors in the project vicinity. Local General Plans, airport land use plans, and habitat conservation plans will be identified and summarized if applicable. The EIR will identify the adopted goals and policies that could be affected by implementing the proposed project at the MWRP. The EIR will evaluate consistency of the proposed project with existing land use and zoning designations and develop mitigation measures to avoid or substantially lessen inconsistencies where feasible. If a conditional use permit (CUP) is required for the project, the City of Irvine as a Responsible Agency could use the EIR to support the approval of the CUP.

Noise

Construction and operation of the proposed project would generate noise that could affect nearby residences and other sensitive receptors in the project vicinity. The proposed project would be designed to adhere to the City of Irvine's Municipal Code, which provides maximum noise thresholds at the property line (Title 6, Division 8, Chapter 2). The outdoor operational noise associated with the proposed project would be combined with the sound levels of the existing MWRP and the Phase 2 Expansion Project. The EIR will evaluate the proximity of sensitive receptors to the project site and recommend mitigation measures if necessary to ensure that the proposed project complies with local policies and ordinances.

Population and Housing / Growth Inducement

The proposed project would relocate the location of solids handling associated with the MWRP and LAWRP. The proposed project would not build new housing or otherwise have a direct impact on population growth in the project area. The EIR will identify the capacity of the new solids handling system and evaluate the potential for the proposed project to indirectly induce growth and result in secondary environmental effects associated with growth.

Recreation

The project site is directly adjacent to hiking trails in the San Joaquin Wildlife Sanctuary. The EIR will discuss potential impacts to recreational activities in the project vicinity. The EIR will identify thresholds of significance for impacts to recreational facilities and will evaluate effects based on these thresholds. The EIR will identify feasible mitigation measures to reduce the effects of the proposed project to the accessibility of recreation facilities in the area.

The Class A pelletized biosolids produced by the proposed project could be used as fertilizer at recreational facilities such as golf courses and parks. The EIR will discuss the effects to the public, if any, related to the substitution of pellets for fertilizer at recreational facilities.

Traffic and Transportation

Construction of the proposed project would temporarily add additional truck trips to the local transportation corridors for purposes of materials delivery and construction worker commutes. Operation of the proposed project would require regular deliveries of regulated materials for use in the biosolids process at the MWRP site and regular haul trips to distribute the product biosolids for reuse or disposal. The EIR will characterize roadway traits, traffic flow, access, and circulation conditions on affected roadways and at major intersections in the project area. The EIR will assess the potential for construction traffic and operational traffic to affect local roadways. The EIR will develop mitigation measures if necessary to minimize any potential effects.

Utilities and Service Systems

The EIR will review the potential effects of the proposed project on utilities and public services resulting from both construction and operation of the project. The EIR will evaluate landfill capacity to accommodate the proposed project's solid waste disposal needs and compliance with federal, state, and local regulations related to solid waste.

Attachment 2: Notice of Completion

Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # _____

Project Title: Biosolids Handling and Energy Recovery Facilities Project

Lead Agency: Irvine Ranch Water District
Contact Person: Paul Weghorst
Mailing Address: 15600 Sand Canyon Avenue
Phone: (949) 453-5632
City: Irvine
Zip: 92618
County: Orange

Project Location: County: Orange
City/Nearest Community: Irvine
Cross Streets: Michelson Drive/Carlson Avenue
Zip Code: 92612
Lat. / Long.: 33° 39′ 57″ N/ 117° 50′ 24″ W
Total Acres: 4.6
Assessor's Parcel No.: _____
Section: _____ Twp.: _____ Range: _____ Base: _____
Within 2 Miles: State Hwy #: I-405
Waterways: San Diego Creek
Airports: John Wayne Airport
Railways: _____
Schools: U.C. Irvine

Document Type:

CEQA:
- ☒ NOP
- ☐ Early Cons
- ☐ Neg Dec
- ☐ Mit Neg Dec
- ☐ Draft EIR
- ☐ Supplement/Subsequent EIR (Prior SCH No.) _____
- Other _____

NEPA:
- ☐ NOI
- ☐ EA
- ☐ Draft EIS
- ☐ FONSI

Other:
- ☐ Joint Document
- ☐ Final Document
- ☐ Other _____

Local Action Type:

- ☐ General Plan Update
- ☐ General Plan Amendment
- ☐ General Plan Element
- ☐ Community Plan
- ☐ Specific Plan
- ☐ Master Plan
- ☐ Planned Unit Development
- ☐ Site Plan
- ☐ Rezone
- ☐ Prezone
- ☒ Use Permit
- ☐ Land Division (Subdivision, etc.)
- ☐ Annexation
- ☐ Redevelopment
- ☐ Coastal Permit
- ☐ Other _____

Development Type:

- ☐ Residential: Units _____ Acres _____
- ☐ Office: Sq.ft. _____ Acres _____ Employees _____
- ☐ Commercial: Sq.ft. _____ Acres _____ Employees _____
- ☐ Industrial: Sq.ft. _____ Acres _____ Employees _____
- ☐ Educational _____
- ☐ Recreational _____
- ☒ Water Facilities: Type Solids Handling MGD 33
- ☐ Transportation: Type _____
- ☐ Mining: Mineral _____
- ☒ Power: Type Fuel Cell MW 1.4
- ☐ Waste Treatment: Type _____ MGD _____
- ☐ Hazardous Waste: Type _____
- ☐ Other: _____

Project Issues Discussed in Document:

- ☒ Aesthetic/Visual
- ☐ Agricultural Land
- ☒ Air Quality
- ☒ Archeological/Historical
- ☒ Biological Resources
- ☐ Coastal Zone
- ☒ Drainage/Absorption
- ☐ Economic/Jobs
- ☐ Fiscal
- ☒ Flood Plain/Flooding
- ☐ Forest Land/Fire Hazard
- ☒ Geologic/Seismic
- ☐ Minerals
- ☒ Noise
- ☐ Population/Housing Balance
- ☐ Public Services/Facilities
- ☒ Recreation/Parks
- ☐ Schools/Universities
- ☐ Septic Systems
- ☐ Sewer Capacity
- ☒ Soil Erosion/Compaction/Grading
- ☒ Solid Waste
- ☒ Toxic/Hazardous
- ☒ Traffic/Circulation
- ☐ Vegetation
- ☒ Water Quality
- ☒ Water Supply/Groundwater
- ☒ Wetland/Riparian
- ☒ Wildlife
- ☒ Growth Inducing
- ☒ Land Use
- ☒ Cumulative Effects
- ☐ Other _____

Present Land Use/Zoning/General Plan Designation:

City of Irvine Land Use: Institutional (Public Facilities); City of Irvine Zoning: Institutional

Project Description: *(please use a separate page if necessary)*

IRWD proposes to implement the Biosolids Handling and Energy Recovery Facilities Project (proposed project) to provide a complete biosolids processing, biogas[1] management, and energy recovery system for the Michelson Water Recycling Plant

[1] Biogas consists of the mixture of methane and carbon dioxide produced by the proposed biosolids treatment process.

Note: The state Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. Notice of Preparation or previous draft document) please fill in.

(MWRP) and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities at the MWRP that would thicken, stabilize, dewater, and dry biosolids. Stabilization would be achieved using anaerobic digestion, which would generate biogas that could be conveyed to a fuel cell to generate electricity and heat. The electricity would be used as an energy source for other processes at the MWRP. The proposed project would produce two classes of biosolids, as defined by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "**X**".
If you have already sent your document to the agency please denote that with an "**S**".

x Air Resources Board
___ Boating & Waterways, Department of
___ California Highway Patrol
___ CalFire
x Caltrans District # 12
x Caltrans Division of Aeronautics
___ Caltrans Planning (Headquarters)
___ Central Valley Flood Protection Board
___ Coachella Valley Mountains Conservancy
___ Coastal Commission
___ Colorado River Board
___ Conservation, Department of
___ Corrections, Department of
___ Delta Protection Commission
___ Education, Department of
x Energy Commission
x Fish & Game Region # ___
___ Food & Agriculture, Department of
___ General Services, Department of
x Health Services, Department of
___ Housing & Community Development
x Integrated Waste Management Board
x Native American Heritage Commission

x Office of Emergency Services
___ Office of Historic Preservation
___ Office of Public School Construction
___ Parks & Recreation
___ Pesticide Regulation, Department of
___ Public Utilities Commission
x Regional WQCB # ___
___ Resources Agency
___ S.F. Bay Conservation & Development Commission
___ San Gabriel & Lower L.A. Rivers and Mtns Conservancy
___ San Joaquin River Conservancy
___ Santa Monica Mountains Conservancy
___ State Lands Commission
___ SWRCB: Clean Water Grants
x SWRCB: Water Quality
___ SWRCB: Water Rights
___ Tahoe Regional Planning Agency
x Toxic Substances Control, Department of
___ Water Resources, Department of

___ Other ___
___ Other ___

Local Public Review Period (to be filled in by lead agency)

Starting Date March 28, 2011 Ending Date April 26, 2011

Lead Agency (Complete if applicable):

Consulting Firm: ESA
Address: 626 Wilshire Blvd, Suite 1100
City/State/Zip: Los Angeles, CA 90017
Contact: Jennifer Jacobus
Phone: 213-599-4300

Applicant: ___
Address: ___
City/State/Zip: ___
Phone: ___

Signature of Lead Agency Representative: ___ **Date:** 3/24/11

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

Attachment 3: Scoping Meeting Presentation

IRVINE RANCH WATER DISTRICT

Biosolids Handling & Energy Recovery Facilities

Public Scoping Meeting Presentation

April 12, 2011

PURPOSE & AGENDA

- **Purpose of Meeting**

  Provide an opportunity for interested parties to provide input regarding issues to be evaluated in the Draft Environmental Impact Report (EIR)

- **Agenda**
  - California Environmental Quality Act (CEQA) Overview and Process
  - Irvine Ranch Water District (IRWD) Overview
  - Project Objectives
  - Project Description
  - Issues Analyzed in the EIR
  - CEQA Schedule for Project
  - Receive Input

California Environmental Quality Act (CEQA)

- **Disclosure**

  Identify and disclose potential impacts to the environment

- **Decision-Making Tool**

  Inform the public and decision-makers about potential environmental impacts

- **Mitigation**

  Identify ways to avoid or reduce effects of potential impacts

CEQA PROCESS FOR AN EIR

- **PUBLIC SCOPING: Notice of Preparation**
  - 30-day public review (March 28, 2011 to April 26, 2011)
  - Public scoping meeting (April 12, 2011)
    - Objective: receive input regarding issues to be evaluated in Draft EIR
- **Draft Environmental Impact Report**
  - 45-day public review
  - Public meeting
    - Objective: receive comments regarding scope and content of analysis in Draft EIR
- **Responses to Comments/Final EIR**
  - Written responses to Draft EIR comments
- **Certification of Final EIR**
  - IRWD Board of Directors

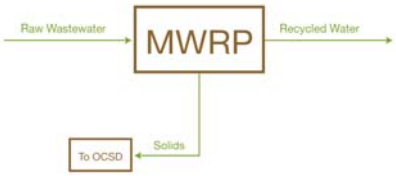
Irvine Ranch Water District (IRWD)

- **IRWD Services**
  - Provides potable and recycled water, sewage collection and treatment, and urban runoff treatment to municipal, industrial, and agricultural customers
- **Service Area**
  - 115,531-acre service area, including all of the City of Irvine and portions of the Cities of Costa Mesa, Lake Forest, Newport Beach, Orange, Santa Ana, Tustin, and unincorporated Orange County
- **Wastewater Treatment**
  - Sewage recycled at Michelson Water Recycling Plant (MWRP) and Los Alisos Water Recycling Plant (LAWRP)
  - Solids currently sent to Orange County Sanitation District (OCSD) for processing and disposal

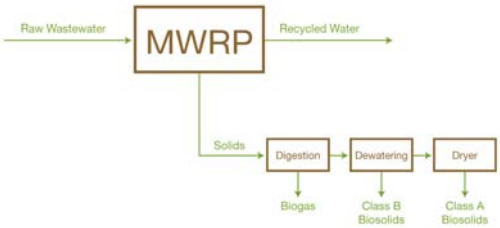
PROJECT OBJECTIVES

- **Allow IRWD to make efficient and sustainable use of its own renewable resources**
- **To make beneficial use of biosolids and biogases produced during the treatment process**
- **Increase IRWD's autonomy for residuals (solids) management**
- **Minimize environmental impacts associated with solids management**
- **Construct a biosolids handling and energy recovery facility that adequately provides for IRWD's future biosolids handling needs**

WASTEWATER TREATMENT PROCESS (Current)



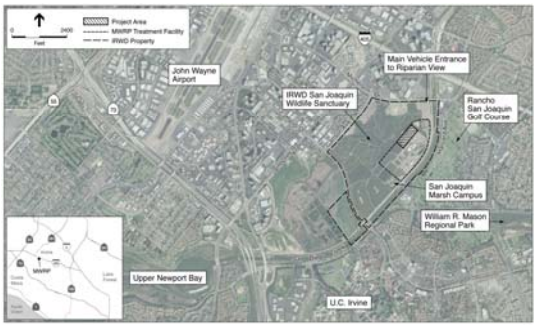
WASTEWATER TREATMENT PROCESS (Proposed)



WHAT ARE BIOSOLIDS?

- **Nutrient-rich organic materials resulting from the biological treatment of domestic sewage in a treatment facility. (U.S. Environmental Protection Agency or USEPA)**
- **Renewable resources: When treated and processed, biosolids can be recycled for beneficial uses, such as fertilizer**
- **Biosolids are regulated by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge**
- **Biosolids are not considered a hazardous material**

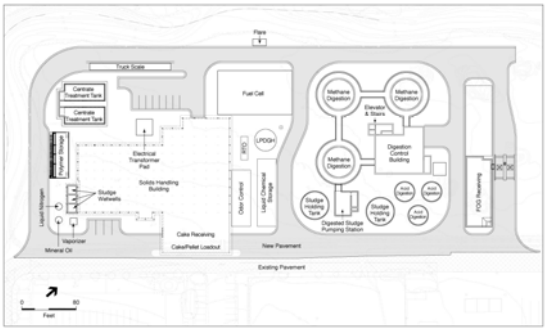
PROJECT LOCATION



PROJECT DESCRIPTION

- **Process sludge from MWRP, LAWRP and other agencies such as South Orange County Wastewater Authority (SOCWA)**
- **Biosolids Processing Facilities**
  - Digestion, Dewatering, and Drying Systems
  - Reclaimed End Products:
    - Class A Pelletized Biosolids
    - Class B Cake Biosolids
- **Biogas Management Facilities**
  - Biogases produced during digestion
  - Reclaimed End Product:
    - Methane (e-fuel)
- **Biogas Reuse Options**
  - Reuse gases onsite (operate dryer)
  - Generate electricity onsite (fuel cell)
  - Sell back to natural gas provider

PRELIMINARY SITE LAYOUT



PRELIMINARY VISUAL SIMULATION

View looking East

PRELIMINARY VISUAL SIMULATION

View looking West

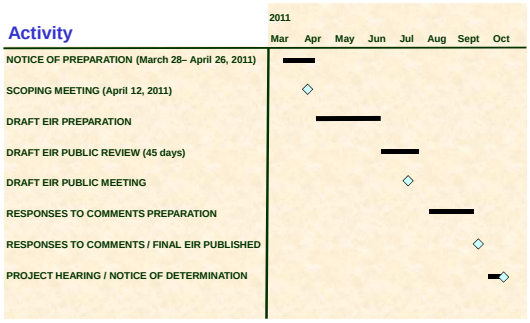
ISSUES ANALYZED IN THE EIR

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

OTHER CEQA REQUIREMENTS

- **Alternatives Analysis**
  - No-Project Alternative
- **Cumulative Impact Analysis**
- **Growth Inducement Analysis**

EIR PROJECT SCHEDULE ESTIMATE



NOP REVIEW PERIOD

- **Review period ends April 26, 2011, 5:00 PM**
- **NOP Availability:**
  - http://www.irwd.com/environment/ceqa.html
  - Heritage Park Library, 14361 Yale Avenue, Irvine
  - Katie Wheeler Library, 13109 Old Myford Road, Irvine
  - University Park Library, 4512 Sandburg Way, Irvine
- **Submit Comments**
  - Tonight: Verbal or Written Comments
  - Or mail comments by April 26, 2011, 5:00 pm, to:

    Paul Weghorst
    Principal Water Resources Manager
    Irvine Ranch Water District
    P.O. Box 57000
    15600 Sand Canyon Ave.
    Irvine, CA 92618-3102

Attachment 4: Scoping Meeting Sign-in Sheet

SIGN-IN SHEET

Irvine Ranch Water District – Biosolids Handling and Energy Recovery Facilities Project

NOP Scoping Meeting

APRIL 12, 2011

7:00 P.M.

The signing, registering, or completion of this document is voluntary. All persons may attend this meeting regardless of whether they sign, register, or complete this document.

NAME	COMPANY/ AFFILIATION	ADDRESS	EMAIL	Mark an "x" if you do not want future notices sent to you regarding the project
Nicki Ruszczycky	CalRecycle	1955 Chicago Ave Ste 100 Riverside CA 92507	Nicki.Ruszczycky@calrecycle.ca.gov	
BILL BRETZ	UC Irvine UC Nat. Res. System		wlbretz@uci.edu	
M. KRATHWIKI	UNIVERSITY SYNAGOGUE	3400 MICHELSON IRVINE	MAZIIK (two one) @ AOL.COM	

Attachment 5: Comment Letters Received by IRWD

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

JERRY BROWN
GOVERNOR

PLANNING & WATER RESOURCES

MAR 31 2011

IRVINE RANCH
WATER DISTRICT

Notice of Preparation

March 28, 2011

To: Reviewing Agencies

Re: Biosolids Handling and Energy Recovery Facilities Project
SCH# 2011031091

Attached for your review and comment is the Notice of Preparation (NOP) for the Biosolids Handling and Energy Recovery Facilities Project 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:

Paul Weghonst
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92718

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,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

1400 10th Street P.O. Box 3044 Sacramento, California 95812-3044
(916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

Document Details Report
State Clearinghouse Data Base

SCH# 2011031091
Project Title Biosolids Handling and Energy Recovery Facilities Project
Lead Agency Irvine Ranch Water District

Type NOP Notice of Preparation

Description IRWD proposes to implement the Biosolids Handling and Energy Recovery Facilities Project (proposed project) to provide a complete biosolids processing, biogas management, and energy recovery system for the Michelson Water Recycling Plant.

Lead Agency Contact

Name Paul Weghonst
Agency Irvine Ranch Water District
Phone (949) 453-5632 **Fax**
email
Address 15600 Sand Canyon Avenue
City Irvine **State** CA **Zip** 92718

Project Location

County Orange
City Irvine
Region
Cross Streets Michelson Drive/Carlson Avenue
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways I-405
Airports John Wayne
Railways
Waterways San Diego Creek
Schools UC Irvine
Land Use City of Irvine Land Use: Institutional (Public Facilities); City of Irvine Zoning: Institutional

---

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Geologic/Seismic; Noise; Recreation/Parks; Solid Waste; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Traffic/Circulation; Water Quality; Water Supply; Wildlife; Growth Inducing; Landuse; Cumulative Effects

---

Reviewing Agencies Resources Agency; California Energy Commission; Office of Historic Preservation; Department of Parks and Recreation; Resources, Recycling and Recovery; Department of Water Resources; Department of Fish and Game, Region 5; CA Department of Public Health; Native American Heritage Commission; California Highway Patrol; Caltrans, District 12; Air Resources Board, Major Industrial Projects; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 8; Public Utilities Commission

---

Date Received 03/28/2011 **Start of Review** 03/28/2011 **End of Review** 04/26/2011

Note: Blanks in data fields result from insufficient information provided by lead agency.

NOP Distribution List

County: Orange

SCH# 2011101012

Resources Agency

- ■ **Resources Agency**
  Nadell Gayou
- ☐ **Dept. of Boating & Waterways**
  Mike Sotelo
- ☐ **California Coastal Commission**
  Elizabeth A. Fuchs
- ☐ **Colorado River Board**
  Gerald R. Zimmerman
- ☐ **Dept. of Conservation**
  Rebecca Salazar
- ■ **California Energy Commission**
  Eric Knight
- ☐ **Cal Fire**
  Allen Robertson
- ☐ **Central Valley Flood Protection Board**
  James Herota
- ■ **Office of Historic Preservation**
  Ron Parsons
- ■ **Dept of Parks & Recreation**
  Environmental Stewardship Section
- ■ **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- ☐ **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- ■ **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou
- ☐ _____
  Conservancy

Fish and Game

- ☐ **Depart. of Fish & Game**
  Scott Flint
  Environmental Services Division
- ☐ **Fish & Game Region 1**
  Donald Koch
- ☐ **Fish & Game Region 1E**
  Laurie Harnsberger
- ☐ **Fish & Game Region 2**
  Jeff Drongesen
- ☐ **Fish & Game Region 3**
  Charles Armor
- ☐ **Fish & Game Region 4**
  Julie Vance
- ■ **Fish & Game Region 5**
  Don Chadwick
  Habitat Conservation Program
- ☐ **Fish & Game Region 6**
  Gabrina Gatchel
  Habitat Conservation Program
- ☐ **Fish & Game Region 6 I/M**
  Brad Henderson
  Inyo/Mono, Habitat Conservation Program
- ☐ **Dept. of Fish & Game M**
  George Isaac
  Marine Region

Other Departments

- ☐ **Food & Agriculture**
  Steve Shaffer
  Dept. of Food and Agriculture
- ☐ **Depart. of General Services**
  Public School Construction
- ☐ **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- ■ **Dept. of Public Health**
  Bridgette Binning
  Dept. of Health/Drinking Water

Independent Commissions,Boards

- ☐ **Delta Protection Commission**
  Linda Flack
- ☐ **Cal EMA (Emergency Management Agency)**
  Dennis Castrillo
- ☐ **Governor's Office of Planning & Research**
  State Clearinghouse
- ■ **Native American Heritage Comm.**
  Debbie Treadway
- ■ **Public Utilities Commission**
  Leo Wong
- ☐ **Santa Monica Bay Restoration**
  Guangyu Wang
- ☐ **State Lands Commission**
  Marina Brand
- ☐ **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Business, Trans & Housing

- ☐ **Caltrans - Division of Aeronautics**
  Philip Crimmins
- ☐ **Caltrans - Planning**
  Terri Pencovic
- ■ **California Highway Patrol**
  Scott Loetscher
  Office of Special Projects
- ☐ **Housing & Community Development**
  CEQA Coordinator
  Housing Policy Division

Dept. of Transportation

- ☐ **Caltrans, District 1**
  Rex Jackman
- ☐ **Caltrans, District 2**
  Marcelino Gonzalez
- ☐ **Caltrans, District 3**
  Bruce de Terra
- ☐ **Caltrans, District 4**
  Lisa Carboni
- ☐ **Caltrans, District 5**
  David Murray
- ☐ **Caltrans, District 6**
  Michael Navarro
- ☐ **Caltrans, District 7**
  Elmer Alvarez
- ☐ **Caltrans, District 8**
  Dan Kopulsky
- ☐ **Caltrans, District 9**
  Gayle Rosander
- ☐ **Caltrans, District 10**
  Tom Dumas
- ☐ **Caltrans, District 11**
  Jacob Armstrong
- ■ **Caltrans, District 12**
  Chris Herre

86

Cal EPA

Air Resources Board

- ☐ Airport Projects
  Jim Lerner
- ☐ Transportation Projects
  Douglas Ito
- ■ Industrial Projects
  Mike Tollstrup
- ☐ **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- ☐ **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- ☐ **State Water Resouces Control Board**
  Steven Herrera
  Division of Water Rights
- ■ **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- ☐ **Department of Pesticide Regulation**
  CEQA Coordinator

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**
  Teresa Rodgers
  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)
  - ☐ **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)

☐ **Other** _____

Last Updated on 01/10/11

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 · www.aqmd.gov

April 6, 2011

Paul Weghorst, Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Notice of Preparation of a CEQA Document for the
Biosolids Handling and Energy Recovery Facilities Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the draft environmental impact report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion. Note that copies of the Draft EIR that are submitted to the State Clearinghouse are not forwarded to the SCAQMD. Please forward a copy of the Draft EIR directly to SCAQMD at the address in our letterhead. **In addition, please send with the draft EIR all appendices or technical documents related to the air quality and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files. These include original emission calculation spreadsheets and modeling files (not Adobe PDF files). Without all files and supporting air quality documentation, the SCAQMD will be unable to complete its review of the air quality analysis in a timely manner. Any delays in providing all supporting air quality documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. The lead agency may wish to consider using land use emissions estimating software such as URBEMIS 2007 or the recently released CalEEMod. These models are available on the SCAQMD Website at: http://www.aqmd.gov/ceqa/models.html.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, that is, sources that generate or attract vehicular trips should be included in the analysis.

The SCAQMD has developed a methodology for calculating PM2.5 emissions from construction and operational activities and processes. In connection with developing PM2.5 calculation methodologies, the SCAQMD has also developed both regional and localized significance thresholds. The SCAQMD requests that the lead agency quantify PM2.5 emissions and compare the results to the recommended PM2.5 significance thresholds. Guidance for calculating PM2.5 emissions and PM2.5 significance thresholds can be found at the following internet address: http://www.aqmd.gov/ceqa/handbook/PM2_5/PM2_5.html.

In addition to analyzing regional air quality impacts the SCAQMD recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LST's can be used in addition to the

recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the proposed project, it is recommended that the lead agency perform a localized significance analysis by either using the LSTs developed by the SCAQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at http://www.aqmd.gov/ceqa/handbook/LST/LST.html.

In the event that the proposed project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the lead agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis") can be found on the SCAQMD's CEQA web pages at the following internet address: http://www.aqmd.gov/ceqa/handbook/mobile_toxic/mobile_toxic.html. An analysis of all toxic air contaminant impacts due to the decommissioning or use of equipment potentially generating such air pollutants should also be included.

Mitigation Measures

In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate significant adverse air quality impacts. To assist the Lead Agency with identifying possible mitigation measures for the project, please refer to Chapter 11 of the SCAQMD CEQA Air Quality Handbook for sample air quality mitigation measures. Additional mitigation measures can be found on the SCAQMD's CEQA web pages at the following internet address: www.aqmd.gov/ceqa/handbook/mitigation/MM_intro.html Additionally, SCAQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook contain numerous measures for controlling construction-related emissions that should be considered for use as CEQA mitigation if not otherwise required. Other measures to reduce air quality impacts from land use projects can be found in the SCAQMD's Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning. This document can be found at the following internet address: http://www.aqmd.gov/prdas/aqguide/aqguide.html. In addition, guidance on siting incompatible land uses can be found in the California Air Resources Board's Air Quality and Land Use Handbook: A Community Perspective, which can be found at the following internet address: http://www.arb.ca.gov/ch/handbook.pdf. CARB's Land Use Handbook is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process. Pursuant to state CEQA Guidelines §15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.

Data Sources

SCAQMD rules and relevant air quality reports and data are available by calling the SCAQMD's Public Information Center at (909) 396-2039. Much of the information available through the Public Information Center is also available via the SCAQMD's World Wide Web Homepage (http://www.aqmd.gov).

The SCAQMD is willing to work with the Lead Agency to ensure that project-related emissions are accurately identified, categorized, and evaluated. If you have any questions regarding this letter, please call Ian MacMillan, Program Supervisor, CEQA Section, at (909) 396-3244.

Sincerely,

Ian V. MacMillan

Ian MacMillan
Program Supervisor, CEQA Inter-Governmental Review
Planning, Rule Development & Area Sources

IM
ORC110329-07
Control Number

Paul A. Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619
weghorst@irwd.com
Phone: 949-453-5632
Fax: 949-453-0228
Cell: 949-485-8115

>>> <MA21K@aol.com> 4/12/2011 10:20 PM >>>
Dear Paul,

Thank for a very informative presentation tonight. Please consider this our formal letter regarding the comments that I made at the meeting. As I mentioned, I am the Treasurer of University Synagogue, located at 3400 Michelson Drive, Irvine, CA 92612. Due to our close proximity to this new proposed 4.5 acre facility, and the fact that our preschool and religious school classrooms are located in the portion of our building closest to your new proposed facility, I wanted to make sure that the following items are addressed in the EIR:

(1) Any noise issues with the facility, both during construction and after the facility is completed.

(2) Any odor issues once the facility is operational.

(3) Any safety concerns due to the creation, capture and use of methane gas at the facility. Also, as there will be a flare in use at the facility, how that flare will be housed. Finally, if there was an explosion, would the facility contain it?

(4) Any concerns about any airborne toxins or other hazardous materials from the facility.

(5) The EIR should reiterate the statement made at the meeting that the biosolids to be created are not considered hazardous materials by the EPA.

(6) We would also like to see how this new facility will affect the sight/view lines from our building.

Please send the EIR and any hearing notices to my attention at the synagogue address above and also to my personal address: 4790 Irvine Blvd., #105-478, Irvine, CA 92620.

Thanks, Mike Krahelski
714-345-6841

AIRPORT LAND USE COMMISSION

FOR ORANGE COUNTY

3160 Airway Avenue • Costa Mesa, California 92626 • 949.252.5170 fax: 949.252.6012

April 14, 2011

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

Subject: NOP of DEIR for Biosolids Handling and Energy Recovery Facilities Project

Dear Mr. Weghorst:

Thank you for the opportunity to review the Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the proposed Biosolids Handling and Energy Recovery Facilities Project in the context of the Airport Land Use Commission's *Airport Environs Land Use Plan for John Wayne Airport (JWA AELUP)*. The proposed project would be located at the existing Michelson Water Recycling Plant (MWRP) at 3512 Michelson Drive, Irvine, CA 92612 and would provide biosolids processing, biogas management, and energy generation system for the MWRP and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities. We wish to offer the following comments and respectfully request consideration of these comments as you proceed with preparation of the DEIR.

The proposed project is located within the Federal Aviation Regulation (FAR) Part 77 Notification Area for JWA. We suggest that the DEIR discuss the proposed building heights and whether or not those buildings would penetrate the notification surface for JWA. Penetration of this surface requires that the project applicant file Federal Aviation Administration (FAA) Form 7460-1 with the FAA Regional Office in order for that agency to determine any potential impacts by the project upon navigable airspace surrounding JWA.

The proposed project is also located within the FAR Part 77 Obstruction Imaginary Surfaces for JWA. We recommend that the DEIR include a discussion of the proposed project's location within the FAR Part 77 Obstruction Imaginary Surfaces for JWA and whether or not the proposed buildings would penetrate those surfaces. Buildings that penetrate obstruction imaginary surfaces would be entering airspace typically reserved for air navigation.

In addition, we recommend the DEIR discuss whether the development of heliports will be part of the proposed project. Should the development of heliports occur within your jurisdiction, proposals to develop new heliports must be submitted through the City to the ALUC for review and action pursuant to Public Utilities Code Section 21661.5. Proposed heliport projects must comply fully with the State permit procedure provided by law and with all conditions of approval imposed or recommended by the FAA, by the ALUC for Orange County, and by Caltrans/Division of Aeronautics.

Thank you for the opportunity to comment on this initial study. Please contact Lea Choum at (949) 252-5123 or via email at lchoum@ocair.com if you need any additional details or information regarding the future referral of your project.

Sincerely,

Kari A. Rigoni
Executive Officer

ORANGE COUNTY
OC Public Works
Our Community. Our Commitment.

Jess A. Carbajal, Director
300 N. Flower Street
Santa Ana, CA

P.O. Box 4048
Santa Ana, CA 92702-4048

Telephone: (714) 834-2300
Fax: (714) 834-5188

NCL 11-009

April 18, 2011

Mr. Paul Weghorst, Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, California 92618

SUBJECT: Notice of Preparation – Biosolids Handling and Energy Recovery Facilities Project

Dear Mr. Weghorst:

The County of Orange has reviewed the Notice of Preparation – Biosolids Handling and Energy Recovery Facilities Project located in the City of Irvine and offers the following comments:

Environmental Resources:

In response to your request for input on the subject project, Environmental Resources has reviewed the document. It is recommended the following be addressed in the EIR:

1. Potential water quality impacts of the project should be evaluated. At minimum, the following information should be provided:
   i. Description of project characteristics with respect to water quality issues, such as project site location in a given watershed, site acreage, known ground contamination, known groundwater contamination, and anticipated change in percent impervious surface area.

   ii. Identification of receiving waters. The EIR should identify all downstream receiving waters that may receive contributory runoff from the project site.

   iii. Description of the sensitivity of the receiving waters. In particular the EIR should identify Areas of Special Biological Significance, water bodies with

Total Maximum Daily Loads (TMDL), and Clean Water Act Sec. 303(d) listed impaired water bodies.

iv. Characterization of the potential water quality impacts from the proposed project and identification of the anticipated pollutants to be generated by the project.

v. Identification of downstream hydrologic conditions of concern that may be affected by project-related changes in runoff volume and velocity; sediment load, makeup or characteristics; reduced infiltration; and/or increased flow, frequency, duration, and peak(s) of storm runoff.

vi. Evaluation of thresholds of significance.

vii. Assessment of project impact significance to water quality.

viii. If a proposed project has the potential to create a major new stormwater discharge to a water body with an established TMDL, the EIR should consider quantitative analysis of the anticipated pollutant loads in the stormwater discharges to the receiving waters.

ix. A reasonable analysis of the cumulative impacts of the proposed project together with past, present and reasonably anticipated future projects (related projects) that could produce cumulative impacts together with the proposed project.

2. Projects that will disturb one or more acres of soil (or disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres), are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity, Order 2009-0009-DWQ, adopted on September 2, 2009.

If you require any additional information, please contact Grant Sharp at (714) 955-0674.

Sincerely,

Michael Balsamo, Manager
General Land Use Planning

MB/mmc

cc: Chris Crompton, Environmental Resources

Community Development

www.cityofirvine.org

City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 (949) 724-6000

April 22, 2011

Mr. Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: Additional Comments for the Review of Notice of Preparation (NOP) for a Environmental Impact Report (EIR) – IRWD Biosolids Handling and Energy Recovery Facilities Project

Dear Mr. Weghorst:

The City of Irvine has reviewed the notice of preparation pertaining to the above referenced project and has the following comments in addition; to those provided in our comment letter dated April 21, 2011:

1. Provide appropriate citation within the NOP checklist and ensure the EIR addresses the potential for particulate release from drum dryers for Class "A" pellet processing and particulate release from truck transport of Class "A" and "B" bio-solids.

2. Provide appropriate citation in the project description ensuring discussion and analysis is undertaken in the EIR that should also the anticipated frequency of operation of the gas flare and review of noise, light and odor impacts (particularly on the San Joaquin Wildlife Sanctuary) associated with the introduction of this use.

3. Indicate whether the sludge holding tanks are covered. The NOP states simply that "foul air is collected and treated to remove odor," but if the sludge tanks are not covered, how will this be possible?

4. Cite the capacity of the proposed facility and how much additional growth in demand the proposed facility can accommodate. Provide more background on the project and how far into the future this facility will carry the City of Irvine. The MWRP expansion will provide capacity for 2025 demands assume that this bio-solids facility will match that, but it's not stated anywhere in the NOP.

5. Describe how the Michelson Water Recycling Plant and Los Alisos Water Recycling Plant currently address Endocrine Disruptors (EDCs) and Pharmaceuticals and Personal Care Products (PPCPs) and whether any changes/additions would be needed at those facilities or at this proposed facility to accommodate anticipated regulatory changes.

Thank you for the opportunity to review and comment on the proposed document. We would appreciate the opportunity to review any further information regarding this project as the planning process proceeds. If you have any questions, please contact me at (949) 724-6314 or at dlaw@ci.irvine.ca.us.

Sincerely,

DAVID R. LAW, AICP
Senior Planner

Cc: Bill Jacobs, Principal Planner
Steve Weiss, Principal Planner

Community Development

www.cityofirvine.org

City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575 (949) 724-6000

April 21, 2011

Mr. Paul Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

SUBJECT: Review of Notice of Preparation for a Environmental Impact Report –IRWD Biosolids Handling and Energy Recovery Facilities Project

Dear Mr. Weghorst:

The City of Irvine has reviewed the notice of preparation pertaining to the above referenced project and has the following comments:

1. For your information, a conditional use permit to allow the proposed land use and a variance to exceed the maximum building height will need to be obtained from the City prior to development of the project. The City will use the proposed EIR as the document to analyze the project once it has been submitted. For additional information pertaining to these required submittals please access the following links or see the informational attachments:

   Conditional Use Permit

   http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=10635

   Variance

   http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=10762

2. It is recommended that the consultant preparing the project traffic documents consult with the City of Irvine traffic modeling staff to review the study area (roadways and intersections) boundaries prior to starting the traffic impact study portion of the EIR, since the proposed project will generate regular deliveries of regulated materials for use in the biosolids process and regular haul trips to distribute the biosolids product for reuse or disposal.

3. The traffic study portion of the EIR shall include the origin and number of the deliveries and the destination of the distribution of the materials. This information is important to determine the study area boundaries and identifying other agencies that need to be

reviewing this document. Based on the project description, Caltrans shall be one of the reviewing agencies.

4. Include in the traffic study the City of Irvine Truck Route map and description, as well as the frequency, type and size of delivery and hauling trucks that will be used for the materials at this site.

5. Include the photo simulations in the EIR that were included in the introductory project power point presentation provided to City staff. In addition, provide additional photo simulations from positions directly north and west of the site.

6. In the Alternatives section of the EIR, provide an alternative project description that is less visually intrusive or not intrusive at all. This proposal would need to be consistent with the development standards in the 6.1 Institutional zone (City of Irvine Zoning Code Section 3-37-37).

7. *Hazard and Hazardous Materials section:* Ensure in that a risk of upset is thoroughly analyzed.

8. *Recreation Section:* The City is does not support the use of Class A pelletized biosolids in recreational areas until further analysis is provided which evaluates potential heavy metals or other contaminants that may be present in these biosolids.

9. *Land Use Section:* Modify this section to ensure that the EIR will evaluate consistency with the certified EIR for the San Joaquin Marsh Enhancement Plan (SCH # 94021027).

10. *Air Quality Section:* Include a discussion of potential odor impacts.

11. Include a detailed site plan with the project description.

Thank you for the opportunity to review and comment on the proposed document. We would appreciate the opportunity to review any further information regarding this project as the planning process proceeds. If you have any questions, please contact me by telephone at (949) 724-6314 or by email at dlaw@ci.irvine.ca.us.

Sincerely,

DAVID R. LAW, AICP
Senior Planner

Attachments
Conditional Use Permit and Variance Information Sheets

Cc: Bill Jacobs, Principal Planner
Steve Weiss, Principal Planner

CONDITIONAL USE PERMIT
INFORMATION SHEET

This type of development case is specified by the Zoning Ordinance for certain uses in some zoning districts. These uses, although generally deemed to be consistent with the purpose and intent of the district, typically have characteristics that require special regulation in order to avoid conflicts with surrounding land uses.

The cost of processing your Conditional Use Permit is charged according to the hours spent by staff in checking plans, writing a staff report, preparing an environmental analysis, notifying the public and attending the public hearing. Total cost varies according to the size of the project and the complexity of the issues. The Planning Commission or the Zoning Administrator reviews Conditional Use Permits. You will also be billed for project related costs such as public notice advertising, postage and City Attorney fees if these are required for your project. Total cost *may vary widely* according to the size of the project and the complexity of the issues. You must first open a Developer Deposit Case account with an *initial deposit* to which project costs are charged. See Developer Deposit form for more specific information. At the close of your case, any remaining funds will be returned to you. At the City's sole discretion, a planning consultant may process your application.

Please use this information sheet as a checklist to assemble the materials required for your Conditional Use Permit, and bring it with you when you submit your application. If you are applying to modify an approved Conditional Use Permit use the separate Minor/Major Modification checklist. Be sure the appropriate person has signed all letters and forms. If you have any questions, please call the Development Assistance Center at (949) 724-6308.

SECTION A - City Documents

____ Development Case Application

____ Developer Deposit Case Setup Form

____ Orange County Fire Authority Service Request & Fee

____ Green Building Program Intent to Participate Form

SECTION B - Letter of Justification

____ This letter should be addressed to the City. It should describe the project or business in your own words and explain *how it would benefit the community*. As a guideline, use the findings from the Conditional Use Permit section of the Zoning Ordinance listed below. These will assist you in preparing your explanation:

- The proposed location of the conditional use is in accord with the objectives of chapter 1-1 of the zoning ordinance and the purpose of the zoning district in which the site is located.
- The proposed conditional use will not be detrimental to the public health, safety or welfare, nor be materially injurious to property or improvements in the vicinity;
- The proposed conditional use is compatible with existing and future uses to the extent those are known, and will comply with each of the applicable provisions of the Zoning Ordinance except for approved Variances and/or Administrative Relief per sections 2-37 and 2-2;
- If the proposed Conditional Use Permit affects land located within the coastal zone, the proposed conditional use will comply with the provisions of the land use plan of the Certified Local Coastal Program.
- Based upon information available at the time of approval, adequate utilities, access roads, drainage and other necessary facilities exist or will be provided to serve the proposed use.

SECTION C - Deposit Check payable to the City of Irvine

____ For a CUP requiring Zoning Administrator approval, a deposit of $1500.00 is required. When the CUP requires Planning Commission approval, the deposit is $12,000.00.

SECTION D - Project Plans These must be legible and must be drawn to scale to clearly illustrate the components of the project. Remember that the staff, Planning Commission and Zoning Administrator are not familiar with the property and will need this information to evaluate your project. **If the plans are not legible, or do not contain the information listed below, your application will not be accepted for processing.** Submit ten sets of project plans, folded to approximately 8 1/2" x 14". Use the checklist to be sure your plans include the following **required** elements:

____ scale (for example 1:20, or 1/8" = 1')
____ vicinity map
____ north arrow
____ building location(s) ("footprints") showing floor plan and access points
____ building elevations (new construction only) (Note that your case planner may require elevations if necessary to understand the project as indicated in section F below.)
____ dimensioned setbacks
____ dimensioned property lines
____ notes labeling existing and proposed on-site uses
____ notes labeling surrounding land uses
____ easement locations (if any)
____ parking lot layout and circulation, showing dimension of parking spaces and drive aisles
____ existing and proposed pavement striping and signage (directional arrows, drop off zones, etc.)
____ turning radii of trucks expected to use the project (including trash trucks)
____ loading, service areas
____ location of trash enclosures
____ controlled access gate locations (if any)
____ ultimate street right-of-way property lines (if these are different from existing)
____ adjacent streets, street names and intersections, showing striping and medians
____ existing and proposed bus turn-out locations (if any)
____ all access points (driveways), existing or proposed; label access type (i.e. curb return or apron)
____ note distance from each driveway to the nearest access of adjacent properties
____ sidewalks
____ "line of sight" (per City Standard Plan 403) at all access points on a curved roadway or at access points where buildings, landscaping or signage may obscure a driver's view
____ turning radii and ramp grades of parking structures, if proposed
____ site and parking summary table as contained on Page 2 of the Development Case Application
____ one set of 11" x 17" reduced project site plan
____ 8 sets of color photo simulations when cellular antennas and monopoles require Conditional Use Permits

SECTION E - Public Notice Materials: Please note that the homeowners' associations which govern

SECTION C - Deposit Check payable to the City of Irvine

____ For a CUP requiring Zoning Administrator approval, a deposit of $1500.00 is required. When the CUP requires Planning Commission approval, the deposit is $12,000.00.

SECTION D - Project Plans These must be legible and must be drawn to scale to clearly illustrate the components of the project. Remember that the staff, Planning Commission and Zoning Administrator are not familiar with the property and will need this information to evaluate your project. **If the plans are not legible, or do not contain the information listed below, your application will not be accepted for processing.** Submit ten sets of project plans, folded to approximately 8 1/2" x 14". Use the checklist to be sure your plans include the following **required** elements:

____ scale (for example 1:20, or 1/8" = 1')
____ vicinity map
____ north arrow
____ building location(s) ("footprints") showing floor plan and access points
____ building elevations (new construction only) (Note that your case planner may require elevations if necessary to understand the project as indicated in section F below.)
____ dimensioned setbacks
____ dimensioned property lines
____ notes labeling existing and proposed on-site uses
____ notes labeling surrounding land uses
____ easement locations (if any)
____ parking lot layout and circulation, showing dimension of parking spaces and drive aisles
____ existing and proposed pavement striping and signage (directional arrows, drop off zones, etc.)
____ turning radii of trucks expected to use the project (including trash trucks)
____ loading, service areas
____ location of trash enclosures
____ controlled access gate locations (if any)
____ ultimate street right-of-way property lines (if these are different from existing)
____ adjacent streets, street names and intersections, showing striping and medians
____ existing and proposed bus turn-out locations (if any)
____ all access points (driveways), existing or proposed; label access type (i.e. curb return or apron)
____ note distance from each driveway to the nearest access of adjacent properties
____ sidewalks
____ "line of sight" (per City Standard Plan 403) at all access points on a curved roadway or at access points where buildings, landscaping or signage may obscure a driver's view
____ turning radii and ramp grades of parking structures, if proposed
____ site and parking summary table as contained on Page 2 of the Development Case Application
____ one set of 11" x 17" reduced project site plan
____ 8 sets of color photo simulations when cellular antennas and monopoles require Conditional Use Permits

SECTION E - Public Notice Materials: Please note that the homeowners' associations which govern

property in the vicinity will be notified of your project as required by the City's Zoning Ordinance. Staff suggests that you advise them of your intent to develop a project as soon as possible to receive their comments and address their concerns.

____ A listing of all names and addresses for:

a. Each property owner and residential tenant, and all homeowners' and community associations governing property within five hundred (500) feet of the property line of the proposed project. Commercial tenants within 500 feet shall be included in the following instances only: 1) the subject of the application is a residential development which is proposed within 1000 feet of where businesses use, store, transport and/or manufacture hazardous materials or waste; or 2) the subject of the application is a heavy manufacturing use which involves the use, storage, transportation, and/or manufacture of hazardous materials or waste. This information shall be provided from the latest equalized assessment roll of Orange County.

b. Each local agency expected to provide water, sewage, schools, or other essential facilities or services to the project.

c. The property owner or the owner's duly authorized agent.

d. The project applicant.

___ Mailing labels may be submitted in any one of the following formats:

Preferred Format:

- Excel TEXT format with separate fields of information on a CD, **or**
- Excel with separate fields of information on a CD.

NOTE: MSWord, Word Perfect, and other common formats will not work

- Each field of information (assessor's parcel number, complete name, complete street address, city, state, zip code) must be separated by a tab key, tab delimited (preferred), or comma, comma-delimited.
- Project number and number of entries on the above list should be printed on the disk label.

Example of Preferred Format:

Cell 1 APN	Cell 2 Attention	Cell 3 Name	Cell 4 Company	Cell 5 Complete Address	Cell 6 Complete Address	Cell 7 City	Cell 8 State	Cell 9 Zip Code
123	J Jones	Payroll	Alton Ctr	567 Alton Pkwy	PO Box 19575	Irvine	CA	92623

For information or questions on formatting, please call (949) 724-6012.

Or

Two sets of labels affixed to a number 10 size envelope in order for the mail room "stuffing machine" to automatically insert the notices and *with the following preprinted return address:*

City of Irvine Community Development - Project Entitlement
P.O. Box 19575
Irvine, CA 92623-9575

____ A map which is keyed to the above mailing list of property owners and labels.

SECTION F - Additional Materials

____ Irvine Green Building Program. Information on this voluntary program is available at the Building and Safety counter at the Community Development lobby or online at www.cityofirvine.org. Go to Departments/Community Development, and then choose Green Building on the left hand side of the screen.

____ Technical studies for noise, traffic, parking, hazardous materials or other issues may be required according to City policy.

____ Treatment Control Water Quality Management (TCWQMP).
The TCWQMP shall provide complete and comprehensive strategy for meeting onsite Treatment Control requirements that will be used to treat predictable pollutant runoff as defined under the current Orange County Stormwater Program Drainage Area Management Plan. For additional information, please see the WQMP Requirements for Discretionary Applications or contact 724-6315.

As stated in Chapter 2-9-3 of the Zoning Ordinance, the Director of Community Development may require additional materials to determine that your application is complete. You will be notified within 30 days of the date you submit your application if any additional materials will be necessary to complete this application.

SECTION F - Additional Materials

____ Irvine Green Building Program. Information on this voluntary program is available at the Building and Safety counter at the Community Development lobby or online at www.cityofirvine.org. Go to Departments/Community Development, and then choose Green Building on the left hand side of the screen.

____ Technical studies for noise, traffic, parking, hazardous materials or other issues may be required according to City policy.

____ Treatment Control Water Quality Management (TCWQMP).
The TCWQMP shall provide complete and comprehensive strategy for meeting onsite Treatment Control requirements that will be used to treat predictable pollutant runoff as defined under the current Orange County Stormwater Program Drainage Area Management Plan. For additional information, please see the WQMP Requirements for Discretionary Applications or contact 724-6315.

As stated in Chapter 2-9-3 of the Zoning Ordinance, the Director of Community Development may require additional materials to determine that your application is complete. You will be notified within 30 days of the date you submit your application if any additional materials will be necessary to complete this application.

VARIANCE
INFORMATION SHEET

This type of development case is specified by the Zoning Ordinance to allow flexibility in certain cases where the strict application of a regulation may not be appropriate. According to state law, the justification for a Variance is that you as a property owner would suffer a unique hardship if the zoning regulation were strictly applied. The concept of a Variance is to place you in parity with other property owners in the same zone. Note that a variance may not be approved to allow land uses otherwise prohibited in a Zoning District. The Zoning Administrator reviews variance requests. However, if your request accompanies another development case, for example a Master Plan, to be reviewed by the Planning Commission, the Planning Commission will also review the Variance.

The cost of processing your Variance request is charged according to the hours spent by staff in checking plans, writing a staff report, preparing an environmental analysis, notifying the public and attending the public hearing. You will also be billed for project related costs such as public notice advertising, postage and City Attorney fees if these are required for your project. Total cost *may vary widely* according to the size of the project and the complexity of the issues. You must first open a Developer Deposit Case account with an *initial deposit* to which project costs are charged. See Developer Deposit form for more specific information. At the close of your case, any remaining funds will be returned to you. At the City's sole discretion, a planning consultant may process your application.

Please use this information sheet as a checklist to assemble the materials required for your Variance request, and bring it with you when you submit your application. Be sure the appropriate person has signed all letters and forms. If you have any questions about the items requested or if you wish to obtain information on processing schedules, please call the Development Assistance Center at (949) 724-6308.

SECTION A - City Documents

_____ Development Case Application

_____ Developer Deposit Case Setup Form

SECTION B - Letter of Justification

_____ This letter should be addressed to the City. It should state the specific zoning regulation from which you are requesting a variance, and explain why the regulation is inappropriate in the case of your project. As a guideline, use the findings from the Variance section of the Zoning Ordinance listed below. These will assist you in preparing your explanation:

A. The strict application of the Zoning Ordinance deprives the property of privileges enjoyed by other property in the vicinity and in an identical land use category because of special circumstances applicable to the property such as size, shape, topography, location or surroundings.

B. The granting of the variance will not constitute a grant of special privileges inconsistent with the limitations upon other properties in the same land use category.

C. The granting of the variance will not be detrimental to the public health, safety or welfare, or

materially injurious to the properties or improvements in the vicinity.

D. If located within the coastal zone, the granting of the variance will not adversely affect access to or along a shoreline, including physical, visual and psychological qualities of access, and will carry out the local coastal program.

SECTION C - Deposit Check payable to the City of Irvine

____ A deposit of $1500.00 is required.

SECTION D - Project Plans These must be legible and must be drawn to scale to clearly illustrate the components of the project. Remember that the staff, Planning Commission and Zoning Administrator are not familiar with the property and will need this information to evaluate your project. **If the plans are not legible, or do not contain the information listed below, your application will not be accepted for processing.** Submit ten sets of project plans, folded to approximately 8 1/2" x 14". Use the checklist to be sure your plans include the following **required** elements:

____ scale (for example 1:20, or 1/8" = 1')
____ vicinity map
____ north arrow
____ building location(s) ("footprints") showing floor plan and access points
____ building elevations (new construction only) (Note that your case planner may require elevations if necessary to understand the project as indicated in section F below.)
____ dimensioned setbacks
____ dimensioned property lines
____ notes labeling existing and proposed on-site uses
____ notes labeling surrounding land uses
____ easement locations (if any)
____ parking lot layout and circulation, showing dimension of parking spaces and drive aisles
____ existing and proposed pavement striping and signage (directional arrows, drop off zones, etc.)
____ turning radii of trucks expected to use the project (including trash trucks)
____ loading, service areas
____ location of trash enclosures
____ controlled access gate locations (if any)
____ ultimate street right-of-way property lines (if these are different from existing)
____ adjacent streets, street names and intersections, showing striping and medians
____ existing and proposed bus turn-out locations (if any)
____ all access points (driveways), existing or proposed; label access type (i.e. curb return or apron)
____ note distance from each driveway to the nearest access of adjacent properties
____ sidewalks
____ "line of sight" (per City Standard Plan 403) at all access points on a curved roadway or at access points where buildings, landscaping or signage may obscure a driver's view
____ turning radii and ramp grades of parking structures, if proposed
____ site and parking summary table
____ one set of 11" x 17" reduced project site plan

materially injurious to the properties or improvements in the vicinity.

D. If located within the coastal zone, the granting of the variance will not adversely affect access to or along a shoreline, including physical, visual and psychological qualities of access, and will carry out the local coastal program.

SECTION C - Deposit Check payable to the City of Irvine

____ A deposit of $1500.00 is required.

SECTION D - Project Plans These must be legible and must be drawn to scale to clearly illustrate the components of the project. Remember that the staff, Planning Commission and Zoning Administrator are not familiar with the property and will need this information to evaluate your project. **If the plans are not legible, or do not contain the information listed below, your application will not be accepted for processing.** Submit ten sets of project plans, folded to approximately 8 1/2" x 14". Use the checklist to be sure your plans include the following **required** elements:

____ scale (for example 1:20, or 1/8" = 1')
____ vicinity map
____ north arrow
____ building location(s) ("footprints") showing floor plan and access points
____ building elevations (new construction only) (Note that your case planner may require elevations if necessary to understand the project as indicated in section F below.)
____ dimensioned setbacks
____ dimensioned property lines
____ notes labeling existing and proposed on-site uses
____ notes labeling surrounding land uses
____ easement locations (if any)
____ parking lot layout and circulation, showing dimension of parking spaces and drive aisles
____ existing and proposed pavement striping and signage (directional arrows, drop off zones, etc.)
____ turning radii of trucks expected to use the project (including trash trucks)
____ loading, service areas
____ location of trash enclosures
____ controlled access gate locations (if any)
____ ultimate street right-of-way property lines (if these are different from existing)
____ adjacent streets, street names and intersections, showing striping and medians
____ existing and proposed bus turn-out locations (if any)
____ all access points (driveways), existing or proposed; label access type (i.e. curb return or apron)
____ note distance from each driveway to the nearest access of adjacent properties
____ sidewalks
____ "line of sight" (per City Standard Plan 403) at all access points on a curved roadway or at access points where buildings, landscaping or signage may obscure a driver's view
____ turning radii and ramp grades of parking structures, if proposed
____ site and parking summary table
____ one set of 11" x 17" reduced project site plan

April 22, 2011

Irvine Ranch Water District
P.O. Box 57000
15600 Sand Canyon Ave.
Irvine, CA 92618-3102

Attention: Mr. Paul Weghorst
Principal Water Resources Manager

RE: Biosolids Processing and Energy Recovery Facility

Dear Mr. Weghorst,

LBA Realty is the owner of the Park Place office and mixed use development located directly to the north of your Michelson Water Recycling Plant (MWRP) located at 3512 Michelson Drive. We have studied the information you released regarding the new facility proposed on your site for the purposes of processing biosolids and biogases. Further we understand that you are in the early processes of the development of an Environmental Impact Report (EIR). As such, LBA Realty would like to express our concerns relative to the potential impact this facility may have on our property value, our tenants and potential for future development.

Given the potential for significant impacts to our property we would like to make sure the EIR addresses the following issues:

1. What odors will be released into the surrounding environment and at what distances will they be noticeable to human smell? Under what conditions might release of odors become more substantial than normal working conditions? What impact will prevailing breezes have and what direction from the facility will be most impacted by potential odors?

2. What is the traffic impact on the neighborhood? How many trucks will be hauling waste in or out of facility at any time? Will trucks hauling waste emit odors? What steps will be taken to insure they do not? What will be the traffic impact during construction of the facility?

3. What potential is there for noise from this facility to reach our site? What will be done to mitigate the noise generated by the scrubbers or other equipment?

4. The architecture of this facility is extremely utilitarian. Since our site is immediately adjacent, we need to understand what the views will be from our site into the facility, not only from grade but also from the upper floors of our buildings. What can be done to make the architecture of the facility more in keeping with the surrounding development? Can any of these processes be moved below grade?

5. What is the impact on the wildlife refuge and the San Joaquin Marsh? The natural vegetation growing in the Marsh contributes greatly to the views from our project toward the back bay.

6. What will be the anticipated impact to the property values of Park Place and the surrounding properties?

7. What provisions will be provided to contain spills and odors in case of an accident or earthquake? What is the likelihood of a spill?

8. What is the impact of a power outage at the facility? What provisions will be in place for back up or redundant power?

LBA Realty has made a significant investment in the purchase and upgrade of the Park Place project and as such we are very concerned about the impact your proposed facility may have on our project. Your thorough and prompt investigation of the issues we identify above will be greatly appreciated.

Please contact me if you have any questions or if there is any further clarification you need as to our concerns.

Sincerely,

Steve Briggs
Principal
LBA Realty

Cc: Perry Schonfeld – LBA Realty
Paul Thometz – LBA Realty
Dave Wensley – Allen Matkins

Paul A. Weghorst
Principal Water Resources Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92619
weghorst@irwd.com
Phone: 949-453-5632
Fax: 949-453-0228
Cell: 949-485-8115

>>> "Distaso, Robert" <RobertDistaso@ocfa.org> 4/25/2011 9:06 AM >>>
Hi Paul,
I am interested in P&ID or chemical flow information for the new project. What HazMats will be at the new project and any other potential hazards for our Fire Pre Plans. I wanted more specific information on the fuel cell (size model, type), RTO, and odor control equipment.

Thanks,
I have worked with Ken E. , Mark G. and Steve M. for other IRWD projects, they have been very helpful in getting us HazMat information for emergency planning.

Robert Distaso PE
Fire Safety Engineer
Orange County Fire Authority
Cell (714) 745-3422
Office (714) 573-6253

ORANGE COUNTY SANITATION DISTRICT

We protect public health and the environment by providing effective wastewater collection, treatment, and recycling.

PLANNING & WATER RESOURCES

April 26, 2011

APR 29 2011

IRVINE RANCH WATER DISTRICT

Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618
Attn: Paul Weghorst, Principal Water Resources Manager

SUBJECT: Notice of Preparation (NOP) for Biosolids Handling and Energy Recovery Facilities Project

---

The Orange County Sanitation District (OCSD) has received and reviewed the above reference NOP. As the regional wastewater agency for northern and central Orange County, OCSD supports your efforts to construct Biosolids handling and energy recovery systems.

As projected in the OCSD 2009 Facilities Master Plan, OCSD will reach its capacity for solids processing treatment in 2016, with IRWD discharges in OCSD regional system. The proposed project is consistent with the long-term planning for the region and has been accounted in the OCSD long-term capital improvement plan. Thus, this project and the timely completion of the proposed improvements are important planning factors to meeting the demands of OCSD's service area.

Based on our review of the NOP, OCSD offers the following comments. The Environmental Impact Report (EIR) should:

1. Evaluate under what conditions or alternatives, after 2016 would Irvine Ranch Water District (IRWD) rely on OCSD for temporary residual management (i.e. conditions in which IRWD would send sludge to OCSD). These could include power outages, high flow events, and other emergencies; this would include evaluating impacts to OCSD.

2. Describe IRWD's plan for seasonal reductions in public demand (i.e. during winter) for Class A pellets and how biosolids product storage would be handled on or offsite, or disposed in the regional sewer.

3. Evaluate landfill capacity and traffic impacts to accommodate the proposed project solids waste disposal needs; this comment is based on OCSD's previous experience with biosolids management. This would include specific location(s) where IRWD proposes to send the solids waste material (i.e. which landfill in Orange County, if any).

The traffic impacts would include all the deliveries for operational needs (chemicals, etc.) as well as Biosolids hauling.

4. It is also important to identify all project support facilities that are required from a construction and operational standpoint which may include, but are not limited to:

    a. New preliminary treatment systems (i.e. will facility accommodate grit removal, or will IRWD continue to send grit to OCSD or have the new facilities handle it)
    b. Boiler systems for digesters
    c. Gas compressor systems
    d. Gas flaring system to handle biogas
    e. New sludge thickening processes
    f. Polymer facilities (including the use of cationic polymer)
    g. Digester gas cleaning systems - type of dosing facilities or other alternative treatment for controlling H_2S levels
    h. Debris removal systems for the centrifuge dewatering operations

Also, two corrections should be noted for the NOP, as follows:

A. Delete the following statement from future environmental documents "...~~in addition, sending sludge to OCSD or Synagro prevents IRWD from making beneficial use of a renewable resource~~." OCSD's biosolids management program strives for 100 percent biosolids recycling while realizing and balancing a diversification of markets. The EIR could comment that as a result of this Project, OCSD will manage fewer solids which will result in less truck traffic.

B. Revise language in environmental document "...The resulting Preliminary Evaluation of System-Wide Biosolids Management Alternatives Report (HDR, 2009) concluded that it would be cost-effective for IRWD to implement solids handling at the MWRP rather than continuing to ~~transport~~ discharge" sludge to OCSD."

OCSD appreciates the opportunity to review and comment on the proposed project, and looks forward to the issuance of the Draft EIR. Should you have any questions or require further information, please call at (714) 593-7335.

James Burror, P.E
Engineering Supervisor

AA:sa
EDMS: 003935727

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY · DAVIS · IRVINE · LOS ANGELES · MERCED · RIVERSIDE · SAN DIEGO · SAN FRANCISCO

SANTA BARBARA · SANTA CRUZ

OFFICE OF RESEARCH
NATURAL RESERVE SYSTEM

5171 California Ave., Suite 150
Irvine, CA 92697-3185
(949) 824-0018
Fax (949) 824-3400
http://www.research.uci.edu/

26 April 2011

To: Paul Weghorst, Principal Water Resources Manager
Irvine Ranch Water District

From: Peter Bowler and William Bretz
UC Natural Reserve System
Office of Research Administration
University of California
Irvine, California 92697 - 1459

Re: Comments submitted on the Notice of Preparation for the IRWD Biosolids Handling and Energy Recovery Facilities Project

Dear Mr. Weghorst:

The following comments are provided by the University of California Natural Reserve System (UCNRS) office at UC Irvine, in response to the Notice of Preparation (NOP) dated March 28, 2011 for Irvine Ranch Water District's proposed Biosolids Handling and Energy Recovery Facilities Project. IRWD's proposed Biosolids Project has the potential to adversely impact the Marsh Reserve, as well as the greater surrounding community, so the UCNRS offers its comments to promote the preparation of a Draft EIR that is fully informative about possible impacts of, and possible alternatives to, the project.

The University of California owns and manages the San Joaquin Freshwater Marsh Reserve (Marsh Reserve), which is located adjacent to the southwest boundaries of the IRWD San Joaquin Wildlife Sanctuary, but the Marsh Reserve is not shown on Figure 1 of the NOP. It should be identified in the Draft EIR as a current land use and sensitive receptor in the project vicinity. The Marsh Reserve serves the University of California as an academic facility dedicated to teaching and scientific research activities that are focused primarily on natural ecological and environmental processes occurring in the ecosystems of the reserve. UCNRS management of the Marsh Reserve strives to protect the ecosystems there as much as possible from human-caused impacts that can adversely impact either the plant and animal communities, or the natural physical-chemical processes that sustain these ecosystems. The academic uses of the Marsh Reserve bring

hundreds of students, their instructors, and research scientists to this outdoors laboratory and classroom every year. The current environmental conditions of the Marsh Reserve cannot be matched or duplicated anywhere else in Southern California; the current environmental conditions and quality of life across the 115,531-acre IRWD service area cannot be matched or duplicated anywhere else. It is an extremely serious matter to propose a project that could possibly jeopardize any aspect of the current surrounding environment that the Biosolids Project will impact.

The NOP Introduction states that "... recent negotiations between OCSD and IRWD have shown that OCSD's future charges for the costs associated with residuals management services will increase sharply." It appears that the primary justification and motivation for the proposed project is economic. More specifically, this justification appears to be certain economic benefits to IRWD.

A secondary justification mentioned in the NOP introduction states that "... sending sludge to OCSD or Synagro prevents IRWD from making beneficial use of a renewable resource." If OCSD and Synagro currently process the IRWD sewage sludge and make beneficial use of it as a renewable resource, then IRWD is not adding to the public good by taking over an operation that is already handled well in the public interest. The Biosolids Project could possibly benefit certain IRWD economic calculations, but it will not create a superior beneficial use of a renewable resource above that currently provided by OCSD and Synagro, as far as the public is concerned.

IRWD's existing system for disposing of the sewage sludge component of the wastewater stream apparently works well; the impacts associated with MWRP's infrastructure construction and operation have been accepted by and incorporated into the community with minimal adverse impacts; and it does not expose the community to the threats, which currently do not exist, of new potential adverse impacts that will come with the implementation of the proposed Biosolids Project. The NOP Project Background states that ".... by 2016, OCSD anticipates that it will reach maximum capacity at its solids handling facilities and will need to make significant capital investments to expand its solids processing facilities." A possible alternative to the proposed Biosolids Project could be for IRWD to help capitalize the needed expansion of the OCSD solids processing facility, and to negotiate new long term contracts with OCSD for the continued processing of the present and future increased load of IRWD sewage sludge. An analysis of this possible alternative should be included in the Draft EIR.

IRWD's Board of Directors decided that it would be cost effective to pursue the Biosolids Project rather than continuing to transport sewage sludge to OCSD, based on the study *Preliminary Evaluation of System-Wide Biosolids Management Alternatives Report* (HDR, 2009). An updated evaluation of the potential economic benefits of the Biosolids Project, compared to the potential economic costs, must be included as part of the Draft EIR. This evaluation should discuss in separate sections 1) the costs and benefits for IRWD, 2) for its customers and the public, and 3) for OCSD. The Draft EIR should analyze the possibility that IRWD's customers could be better served by expending some of the District's enormous capital reserves to support a joint, cooperative

effort with OCSD, instead of pursuing an independent, but potentially redundant, processing facility that is not necessarily needed in the region. The potential avoided costs to IRWD that could result from a partnership with, and continued reliance on, OCSD must be determined and included in the economic analyses.

The Project Description section of the Draft EIR should include a complete accounting of all fractions and components of the sewage and other waste streams that IRWD accepts and treats at the Michelson Water Recycling Plant (MWRP), both for its existing operation as a liquid-only treatment facility, and for its expected operation with the proposed Biosolids Project addition to MWRP. Currently, some fraction of the incoming wet sewage flow is exported from IRWD as the slurry of sewage sludge that is transported to OCSD by pipeline. This slurry exports the solids that the proposed project would remove, but it also exports a substantial quantity of water carrying a significant load of suspended and dissolved pollutants for disposal by OCSD. With the proposed project, this volume of water and its load of pollutants will be retained at MWRP, where the previously exported pollutants' load will be incorporated into the process that creates IRWD's recycled water, and some of these pollutants could be dispersed across its service area in the recycled water.

At the present time, truckloads of sewage sludge from the Los Alisos Water Recycling Plant (LAWRP) and from other agencies (e.g., South Orange County Water Authority), and truckloads of restaurant waste fats, oils and greases (FOG) do not pass through Irvine on public roads, hauling waste to MWRP. These truckloads of waste currently exist, but their potential and real environmental impacts are absorbed elsewhere in the region outside the Irvine Ranch Water District. The proposed project would import this new waste load, overland to MWRP, where the solids would be separated and removed as Class A or Class B biosolids, the FOG would be directed into biogas production, but the fraction of suspended and dissolved pollutants in these truckloads would be retained at MWRP and could become incorporated into its recycled water process. The Draft EIR needs to model the potential changes that will occur to the recycled water product that IRWD provides to its customers that would result from the conversion of MWRP from a liquid-only treatment facility, to a liquid and solid treatment facility importing additional sewage sludge and other wastes by truckload.

The sewage sludge generated at MWRP is currently transported by pipeline to OCSD for processing and disposal. Pipeline transport of this sewage sludge slurry is a very efficient way to export the sewage solids from IRWD, compared to drying this waste and exporting it by trucks. A carbon footprint comparison between the two different pathways of exporting sewage solids from IRWD to elsewhere should be included in the Draft EIR.

The benefits of changing the status quo of the liquid-only treatment facility at MWRP and introducing the transport of hazardous materials overland through Irvine must be clearly explained and justified in the Draft EIR. Hopefully the impacts of these truckloads of sewage sludge and FOG coming to the MWRP Biosolids Project will be limited to the increased traffic, noise, GHG emissions, odors, and carbon footprint, all of

which will be studied in the Draft EIR. However, the potential impacts of the new roadway truck transport of wet, hazardous waste loads through Irvine to MWRP that could result from traffic accidents and spillage of loads must also be described and evaluated. This risk might be rare or low in probability, but certainly the impacts of accidental truckload spillage could be unfortunate and significant.

The proposed Biosolids Project facilities constitute a complex infrastructure of pipelines, buildings, tanks, etc. that would be constructed in a seismically active region. The NOP states that "... project components could be subject to potential seismic hazards including ground shaking." The Draft EIR must also consider the additional hazards of soil liquefaction at the project location. It should present a history of past impacts of the Northridge and Landers earthquakes on MWRP facilities, and it should incorporate new knowledge derived from the recent 9.0 magnitude earthquake in Japan, where unexpected liquefaction and soil movements occurred at great distances from the quake epicenter. The risk of failures of individual and combined components of the proposed Biosolids Project due to earthquake events should be discussed. Emergency response plans for various possible systems' failures caused by earthquakes must be included in the Draft EIR.

At the public scoping meeting held recently, representatives of the District described modern sewage sludge dewatering facilities elsewhere that it has inspected. These facilities feature enclosed structures for handling all parts of the sewage sludge processing that produce noxious odors, and it is alleged that these operations do not produce negative odors that impact the surrounding community. There is little doubt that IRWD would rely on the latest state-of-the-art engineering for the design of its proposed Biosolids Project at the MWRP in Irvine. The proposed Biosolids Project is based on the assumption that it will not release any of the foul odors that are generated during sewage sludge processing, since this would degrade the quality of the environment in the surrounding Irvine community. Technology can fail. The Draft EIR must consider the possibilities of temporary and chronic failure of the facility's odor control technologies, for various reasons. These reasons should include, but not be limited to, disruptions resulting from earthquake, flooding, severe wind events, explosions and fires, and equipment malfunction. This study of possible bad scenarios should evaluate the economic consequences to property values in the areas negatively impacted by odor escape from the project. The environment of the UCNRS San Joaquin Marsh Reserve would be severely degraded for the population of students, instructors, and research scientists who make use of it, if the Biosolid Project facility failed to contain the sewage sludge processing odors it generates. The value of the Marsh Reserve as an unparalleled academic facility for outdoors studies would be significantly diminished by sewage odors.

The USNRS Marsh Reserve is located lower in elevation and effectively downstream from MWRP. If any disruption or failure of the proposed project resulted in releases of sewage waste into the surrounding environment, the pollutant loads released could directly impact the Marsh Reserve. This could adversely impact the natural ecosystems for which the UCNRS serves as Trustee. The Draft EIR must fully describe the

structures, technologies, backup systems, and emergency response plans that are presumed to protect the environment from accidental sewage waste releases, and mitigation plans must be developed for this possibility.

The NOP Recreation section states that "… (t)he EIR will discuss the effects to the public, if any, related to the substitution of pellets for fertilizer at recreational facilities." IRWD relies on an assumption that since the proposed project would comply with Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge, the Class A pellets and Class B cake could be utilized with minimal impacts. The Draft EIR should acknowledge the public and scientific controversy concerning the potential hazards of Class A and Class B dewatered sewage sludge; and EPA regulations notwithstanding, the DEIR should present current scientific understanding about hazardous and toxic components of sewage sludge that can bioaccumulate and contaminate soils and ecosystems where it is applied.

The *Targeted National Sewage Sludge Survey* published by the EPA in 2009 found that dozens of hazardous materials, not regulated and not required to be tested for, have been documented in 100% of the sludge samples EPA collected for testing from around the USA. Scientific studies of sewage sludge confirm its hazards, as known sludge contaminants include dioxins and furans, flame retardant chemicals, metals, organochlorine pesticides, 1,2-dibromo-3-chloropropane (DBCP), naphthalene, triclosan, nonylphenols, phthalates, nanosilver and many other substances that can act as endocrine disruptors or otherwise toxic compounds. The Draft EIR should include an up-to-date review of the potential adverse impacts that are associated with the use of sewage sludge for land application as a fertilizer substitute.

There appear to be a number of negative impacts that could arise from implementation of the proposed Biosolids Project, if things go wrong or if certain planning assumptions are incorrect, as there are a number reasonable scenarios for system failures to occur even for the best designed facility. The Draft EIR needs to explain why IRWD would choose to assume the various risks of potential adverse impacts discussed in these comments, when the alternative of continuing a partnership with OCSD is available, whereby these risks do not threaten the surrounding Irvine community.

UCNRS requests that IRWD accepts and incorporates these various suggestions for the content of the Draft EIR that will be prepared for the Biosolids Project. A hard copy of these comments will be sent to you by US mail.

Sincerely yours,

Dr. Peter A. Bowler
UCNRS Faculty Reserves Manager

Dr. William L. Bretz
UCNRS Marsh Reserve Staff Manager

Attachment 6: Scoping Meeting Verbal Comments

Irvine Ranch Water District
Biosolids Handling and Energy Recovery Facilities Project
NOP Scoping Meeting
April 12, 2011 - 7:00pm

Public Comments

- Please address the noise and smell impacts and any airborne toxins that may affect the school at the synagogue located at the corner of Michelson Drive and Harvard Avenue.
- Is methane gas flammable? Is there a risk of explosions at the plant?
- Will the plant be visible from Michelson Dr. and Harvard Ave. (location of University Synagogue)?
- What are the impacts related to odor? Will odor be detectable at the marsh and neighboring residential land uses? How reliable are the proposed odor control systems?
- Will the facility operate 24 hours per day, seven days per week?
- What is the back-up plan for solids processing in the event of a plant failure? Will OCSD remain as a back-up facility for solids processing for reliability purposes?
- The water that is removed through the dewatering process is returned back into the treatment plant process. Will this affect the quality of the recycled water produced at the MWRP?
- Recycle Treatment Process: What are the process details, products, and byproducts of this process. Provide additional information about the ammonia removal.
- Describe any previous impacts of earthquakes and ground-shaking effects to the existing MWRP facilities. (Were there any cracks or damage?) How would earthquakes affect the new facilities?
- Haul trips/truck trips in and out of the new facilities should be explicitly defined.
- The University of California, Irvine marsh area, Natural Reserve System, should be identified on the project location map.

Attachment 7: Public Notice of Scoping Meeting

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 1/18/52, Case No. A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

April 8, 2011

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: April 8, 2011

Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-7000 ext. 2209

PROOF OF PUBLICATION

Proof of Publication of

Orange County Register-Recorder, Public Notice

Notice of Preparation of an Environmental Impact Report

Irvine Ranch Water District (IRWD) as the Lead Agency is beginning preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the proposed Biosolids Handling and Energy Recovery Facilities Project (proposed project). The proposed project would be located onsite at the existing Michelson Water Recycling Plant (MWRP) property, located at 3512 Michelson Drive, Irvine, CA 92612.

The proposed project would provide a complete biosolids processing, biogas management, and energy generation system for the MWRP and Los Alisos Water Recycling Plant (LAWRP). The proposed project would construct new solids-handling facilities at the MWRP that would thicken, stabilize, dewater, and dry biosolids. Biogas generated as a byproduct from the stabilization process would be conveyed to a fuel cell to generate electricity and heat. The electricity would be used as an energy source for other processes at the MWRP.

The Notice of Preparation (NOP) will be circulated for a 30-day period that begins March 28, 2011 and ends April 26, 2011. IRWD is soliciting the views of interested persons and agencies as to the scope and content of the environmental information to be evaluated in the EIR. The public and interested agencies are invited to submit comments on the proposed project to: Irvine Ranch Water District, Paul Weghorst, 15600 Sand Canyon Avenue, Irvine California 92618, or weghorst@irwd.com. Please include a return address and contact name with your comments.

The NOP is available at the following libraries: Heritage Park Library, 14361 Yale Ave., Irvine, CA 92604; Katie Wheeler Library, 13109 Old Myford Rd., Irvine, CA 92602; University Park Library, 4512 Sandburg Way, Irvine, CA 92612. The NOP is also available for review at the IRWD website: http://www.irwd.com/environment/ceqa.html

A public scoping meeting will be held to receive public comments and suggestions on the project. The scoping meeting will be open to the public on Tuesday, April 12, 2011 at 6:30 p.m. at IRWD Headquarters, 15600 Sand Canyon Avenue, Irvine California 92618.

Publish: Orange County Register April 8, 2011 R-519

APPENDIX B

Initial Study

MWRP PHASE 2 & 3 CAPACITY EXPANSION PROJECT

Initial Study

Prepared for
Irvine Ranch Water District

September 2011

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

Oakland

Orlando

Palm Springs

Petaluma

Portland

Sacramento

San Diego

San Francisco

Santa Cruz

Seattle

Tampa

Woodland Hills

210480

ENVIRONMENTAL CHECKLIST

Initial Study

1. Project Title:	Biosolids Handling and Energy Recovery Project
2. Lead Agency Name and Address:	Irvine Ranch Water District 15600 Sand Canyon Ave Irvine, CA
3. Contact Person and Phone Number:	Paul A. Weghorst (949) 453-5300
4. Project Location:	Irvine, CA
5. Project Sponsor's Name and Address:	Irvine Ranch Water District
6. General Plan Designation(s):	Public Facilities
7. Zoning Designation(s):	Institutional

8. Description of Project:

IRWD is proposing to implement the Michelson and Los Alisos Water Recycling Plants Biosolids Handling and Energy Recovery Facility Project. The Project would largely involve improvements at the Michelson Water Recycling Plant (MWRP), including biosolids processing, biogas management, and energy generation facilities, as described in the *MWRP Biosolids and Energy Recovery Facilities Preliminary Design Report* (HDR/Carollo, 2010). In addition, as stated in the RFP, the Project will include rehabilitation of the biosolids handling system at the Los Alisos Water Recycling Plant (LAWRP). IRWD may decide to send biosolids from LAWRP to MWRP for processing and disposal.

IRWD has conducted an extensive alternatives screening analysis and has identified the Recommended Project, which is identified as Alternative 6 in the *Preliminary Evaluation of System-Wide Biosolids Management Alternatives* (HDR/Carollo, 2009). The Recommended Project includes the following process train to be implemented at the MWRP:

- Thickening of primary sludge and waste activated sludge (WAS);
- Anaerobic digestion and stabilization of thickened sludge, biogas generation, and digested-sludge storage;

- Biogas conveyance to a fuel cell to generate electricity and heat;
- Use of excess biogas to heat the dryer or fuel supplemental boilers for digester heating; use of waste heat from fuel cell and dryer to heat digesters;
- Pumping of digested sludge to dewatering centrifuges, which discharge dewatered solids to cake bins; treatment of centrate from centrifuges for return to aeration basins in liquid treatment process;
- Pumping of dewatered solids from cake bins to a rotary drum dryer or, if dryer is out of service, to cake loadout hoppers;
- Transfer of dried pellets from the rotary drum dryer to pellet storage silos in cake/pellet loadout bay; and
- Loading of pellets or dewatered cake into biosolids trucks.
- Potential transfer of pellets to onsite or offsite bagging operation.

The proposed MWRP facilities would be located in the northwest corner of the MWRP in an area that is currently vacant and being used for construction staging and stockpiling for the ongoing MWRP Phase 2 Capacity Expansion Project. The site is adjacent to the San Joaquin Marsh and associated recreational facilities. The Project would be contained within the existing boundaries of the MWRP and would not directly impact the Marsh. The MWRP is separated and screened from the Marsh by an earthen berm around the perimeter of the site. As part of the MWRP Phase 2 Capacity Expansion Project, a flood protection wall will be built on top of the berm to bring the MWRP out of the 100-year flood zone of San Diego Creek and will further screen the MWRP from the Marsh.

The MWRP Phase 2 Capacity Expansion Project, which is currently under construction, will increase the MWRP capacity from 18 mgd to 28 mgd to meet recycled water demands in 2025. The Expansion Project maintains the MWRP as a liquid-only treatment facility; all residuals from the MWRP are conveyed to the Orange County Sanitation District (OCSD) Plant 1 for processing and disposal. However, by 2015, OCSD anticipates that it will reach maximum capacity at its solids handling facilities. IRWD has decided to implement its own solids handling facilities onsite at MWRP rather than contribute to the expansion of OCSD facilities. Implementing the Biosolids Handling and Energy Recovery Project will also allow IRWD to make efficient and sustainable use of its own renewable resources.

9. Surrounding Land Uses and Setting.

The proposed project would be constructed onsite at the existing IRWD property, located at 3512 Michelson Drive, Irvine, CA 92612. The IRWD property is generally bounded by Michelson Drive, Carlson Avenue, Harvard Avenue, University Drive, Campus Drive, and the San Diego Creek. The IRWD property includes the MWRP treatment facility. The proposed project would be constructed within a 4.6-acre rectangular-shaped area that currently is vacant land occupied as construction staging for the MWRP Phase 2 Expansion Project.

Approximately 300 acres of the IRWD property constitute the IRWD San Joaquin Wildlife Sanctuary. Within a two-mile radius of the MWRP are a mixture of residential land uses, as well as recreational, conservation/open space, commercial and industrial park uses; John Wayne Airport; University of California at Irvine; William R. Mason Regional Park; and Rancho San Joaquin Golf Course10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement. Indicate whether another agency is a responsible or trustee agency.)

Environmental Factors Potentially Affected

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor.

☒ Aesthetics	☐ Agriculture and Forestry Resources	☒ Air Quality
☒ Biological Resources	☒ Cultural Resources	☒ Geology, Soils and Seismicity
☒ Greenhouse Gas Emissions	☒ Hazards and Hazardous Materials	☒ Hydrology and Water Quality
☒ Land Use and Land Use Planning	☐ Mineral Resources	☒ Noise
☐ Population and Housing	☐ Public Services	☐ Recreation
☒ Transportation and Traffic	☒ Utilities and Service Systems	☒ Mandatory Findings of Significance

DETERMINATION: (To be completed by Lead Agency)

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Signature	Date
Printed Name	For

Environmental Checklist

Aesthetics

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
1. 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 daytime or nighttime views in the area?	☒	☐	☐	☐

Discussion

a) According to the City of Irvine's General Plan (1999), the proposed project is not located within or along a scenic vista. Therefore, no impacts would occur and no further analysis is warranted.

b) There are no official or eligible state scenic highways in the project area, as designated by the California Department of Transportation (Caltrans) under the California Scenic Highway Program (Caltrans, 2007). Accordingly, there are no associated state scenic corridors in the vicinity of the proposed project, which are defined as the land generally adjacent to and visible by motorists from a scenic highway. No scenic resources, such as rock outcroppings, trees, or historic buildings, would be affected by the proposed project. Therefore, no impacts would occur and no further analysis is warranted.

c) Construction of the proposed project would require the use of heavy equipment and storage of materials at construction sites. During construction, excavated areas, stockpiled soils, and other materials within the project corridor would constitute negative aesthetic elements in the visual landscape. However, these affects would be temporary and would not substantially degrade the visual quality of the project site and surrounding areas. In addition, the baseline conditions for project site may include the present construction activity associated with the MRWP Phase 2 Capacity Expansion Project. Impacts would be less than significant.

The proposed project would include permanent aboveground facilities. These facilities would be within the boundaries of the existing MRWP and would potentially affect the character of the site for persons utilizing the adjacent recreational hiking trails. The EIR will evaluate the potential impacts of aboveground project components on the visual character of the site and identify mitigation measures to reduce their visual impacts, if necessary.

d) The proposed project includes aboveground facilities that would need nighttime lighting for security purposes. The EIR will evaluate lighting and glare from the proposed project and develop mitigation measures to ensure placement of the lighting does not adversely affect nighttime views in the area.

References

California Department of Transportation (Caltrans). 2007. California State Scenic Highway Mapping System. Kern County. Available on-line at: http://www.dot.ca.gov/hq/LandArch/scenic_highways/main.htm. Accessed September 16, 2010.

City of Irvine. General Plan, 1999

Agricultural and Forest Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURAL AND FOREST 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 Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **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) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion

a) According to the maps prepared for the Farmland Mapping and Monitoring Program of the California Resource Agency (CRA), none of the proposed facilities would be located on Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (CDC 2010). The proposed facilities would be located within the existing property of the MRWP. Therefore, no impacts to Prime, Unique, or Important Farmland would occur and no further analysis is warranted.

b) No part of the proposed project is located on land under a Williamson Act contract (ESA, 2010). Additionally, the project site is not zoned for agricultural use. The project site is zoned as Institutional, with a land use designation of Public Facilities. Therefore, no impacts would occur and no further analysis is warranted.

c) The project site is not zoned as forest land, timberland, or timberland production. The project site is zoned as Institutional with a land use designation of Public Facilities. Therefore, there would be no conflicts with existing zoning. No impacts would occur, and no further analysis is required.

d/e) The project site is located within the boundaries of the existing MWRP. The project site is characterized by vacant land that is currently being utilized as a construction staging are for current construction activities associated with the MRWP Phase 2 Capacity Expansion Project. The project site does not contain forest land, timberland, or farmland. Thus no forest land, timberland, or farmland would be lost or converted to non-forest or non-agricultural use. No impacts would occur, and no further analysis is required.

References

California Department of Conservation (CDC). 2008. Farmland Mapping and Monitoring Program, Orange County Important Farmland 2008. Available online: ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2008/ora08.pdf. Accessed September 15, 2010.

City of Irvine. Land Use Map, 2006. http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=11039. Accessed: September 21, 2010

City of Irvine. Zoning Map, 2010. http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=13672. Accessed: September 21, 2010

Air Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
3. 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?	☒	☐	☐	☐

Discussion

a) The proposed project would be located entirely within the jurisdiction of the South Coast Air Quality Management District (SCAQMD), in the South Coast Air Basin (SCAB). The EIR will describe the Air Quality Management Plan (AQMP) and State Implementation Plan (SIP) and determine whether the project would be consistent with both. The project would be required to be consistent with the AQMP and SIP in order to obtain permits from SCAQMD.

b/c) The EIR will identify all air quality standards and the federal and state attainment status for pollutants for the SCAB. The EIR will include an analysis of the estimated emissions associated with construction and operation of the project, and will determine if, due to these emissions, the project would violate any air quality standards or contribute to an existing violation. The EIR will also include an analysis of cumulative impacts associated with emissions of criteria pollutants.

d) There are several recreational trails that have been identified in the immediate vicinity of the project site. Additionally, several schools and residences are located within one mile of the project site. Construction-related activities would result in diesel exhaust emissions and dust that could adversely affect air quality for the nearest sensitive receptors. Mitigation measures for diesel equipment and dust control that are recommended by SCAQMD will be evaluated as part of the EIR to avoid or reduce the impacts to construction workers, hikers, and occupants of nearby residents, if necessary.

e) In addition to odors that are associated with vehicle exhaust and fueling, the processing of biosolids may have the potential to cause objectionable odors in the vicinity of the project site. Although objectionable odors rarely cause any physical harm, they can be unpleasant and lead to citizen complaints. Impacts associated with odor will be further evaluated in the EIR. The EIR will explain any inherent project design elements that would mitigate odor.

Biological Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. 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 U.S. Fish and Wildlife Service?	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife 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?	☐	☐	☒	☐

Discussion

a-e) Proposed project construction would occur entirely within the existing MWRP boundary in an area characterized by vacant land that is currently being used as a construction staging area. The proposed project would not have a direct impact on biological resources. However, the project site is directly adjacent to the San Joaquin Marsh, an open space area that includes wetland and riparian habitats and documented presence of

special-status species, including avian species. The San Joaquin Marsh includes vegetation that may provide potential roosting and nesting sites for raptors and possibly migratory birds. Therefore, the project's indirect impacts on special-status species, habitats, wetlands, and migratory wildlife will be further evaluated in the EIR.

f) The Orange County Natural Community Conservation Plan (NCCP) for the Central and Coastal Subregion (Subarea Plan) was adopted in July 1996, establishing a 37,380 acre reserve system, called the Natural Reserve of Orange County (NROC). The adjacent San Joaquin Marsh and San Diego Creek are mapped as Non-Reserve Open Space (County of Orange, 1995). The EIR will confirm that the proposed project is consistent with the Subarea Plan and would not conflict with the provisions of the NCCP.

References

Orange, County of. 1995. Natural Community Conservation Plan / Habitat Conservation Plan. County of Orange, Central & Coastal Subregion. Map Section (Figures 1 through 73).

Cultural Resources

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. 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?	☐	☒	☐	☐

Discussion

a) The project site consists of land that is currently vacant and being used for construction staging and stockpiling for the ongoing MRWP Phase 2 Capacity Expansion Project. The proposed project would not require demolition of any existing buildings or historical structures. No impacts to historical resources are expected.

b/c) The project site consists of land that is currently vacant and being used for construction staging and stockpiling for the ongoing MRWP Phase 2 Capacity Expansion Project. However, there are known cultural resources that exist in the vicinity of the project site.

A Phase I cultural resources survey will be completed for the project to confirm whether or not cultural resources or paleontological resources have the potential to exist onsite. If necessary, the EIR will include mitigation measures to reduce potential impacts to cultural resources to less than significant levels.

d) Construction of the project will require ground disturbance including excavation. The EIR will include mitigation measures to be implemented in the unlikely event that human remains are encountered during the excavation, grading, or other construction activities.

Geology, Soils, and Seismicity

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY, SOILS, AND SEISMICITY — Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site 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 wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Discussion

a.i) The Alquist-Priolo Earthquake Fault Zoning Act requires the delineation of zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development and prohibit construction on or near active fault traces to reduce hazards associated with fault rupture. The Alquist-Priolo Earthquake Fault Zones are the regulatory zones that include surface traces of active faults. The proposed project would not be located in a mapped Alquist-Priolo Earthquake Hazard Zone, nor does it occur near any mapped faults of Quaternary Age that may be deemed active or potentially active (Dudek & Associates, 2005). Therefore, it is anticipated that there would be no impacts associated with fault rupture.

a.ii/iii) The proposed project is located in a seismically active area. According to the California Building Code (CBC), all of the proposed structures are located is seismic zone 4. Rupture of a known earthquake fault could result in adverse effects to the proposed facilities. Damage to the proposed facitilities could be expected as a result of groundshaking during a seismic event. Damage from earthquakes is often the result of liquefaction of alluvial soils underlying large rigid structures. Liquefaction occurs primarily in areas of recently deposited sands and silts and in areas of high groundwater levels.

The EIR will describe in detail the existing seismic conditions in the project area and evaluate the potential effects of seismic events and seismic-related ground failure on the proposed facilities. The EIR will include mitigation measures, if necessary, to reduce the impact of seismic events on project facilities to less than significant levels. The proposed project would be designed in accordance with the Uniform Building Code (UBC) and California Building Code (CBC) requirements and current seismic design standards to minimize seismic impacts and to reduce the risk of damage caused by liquefaction.

a.iv) The topography in the vicinity of proposed project is gently sloping; however, the footprints of the proposed facilities are located on flat land. The EIR will include mitigation measures, if necessary, to reduce the impact of landslides on the project facilities. The proposed pipeline would be designed in accordance with UBC and CBC requirements and current design standards to reduce the risk of damage caused by landslides and minimize impacts to less than significant levels.

b) The proposed project would result in land disturbance greater than one acre; therefore, the Lead Agency would be required to file a Notice of Intent with the State Water Resources Control Board (SWRCB) to comply with the National Pollution Discharge Elimination System (NPDES) General Permit for Discharges of Storm Water Associated with Construction Activity (GCP). In accordance with the NPDES GCP, the Lead Agency would be required to prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for the proposed project. The SWPPP would include an Erosion Control Plan to minimize soil erosion during construction and prevent soil from washing off the construction site into storm drains, drainage canals, creeks, streams and other natural

habitats. Soil erosion and sediment control measures would reflect best management practices (BMPs) and could include, but not be limited to, sediment barriers and traps, silt basins, and silt fences. The impact of the proposed project on soil erosion would be considered less than significant with mitigation.

c) The EIR will describe the geologic units and soils in the project area and will determine the potential effects of the proposed project on soils, including the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse. If necessary, the EIR will include mitigation measures requiring geotechnical analyses and development of recommendations to be incorporated into the project design to reduce impacts to less than significant levels.

d) Expansive soils possess a shrink-swell characteristic that can result in structural damage over a long period of time. Expansive soils are largely comprised of silicate clays, which expand in volume when water is absorbed and shrink when dried. The EIR will describe the existing characteristics of the soils in the project area. The proposed facilities would comply with the UBC and CBC and current standards for the use or avoidance of expansive soil materials. If necessary, the EIR will include mitigation measures related to expansive soils to reduce impacts to less than significant levels.

e) The proposed project does not include the use of septic tanks. There would be no impact.

References

Dudek and Associates, Inc. Michelson Water Reclamation Plant Phase 2 and 3 Capacity Expansion Project. Draft Environmental Impact Report. 2005.

Greenhouse Gas Emissions

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. GREENHOUSE GAS EMISSIONS — Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

Discussion

a) Greenhouse gas (GHG) emissions from human activity are implicated in global climate change or global warming. The principal GHGs are carbon dioxide (CO_2), methane (CH_4), NO_x, ozone, water vapor, and fluorinated gases (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride). The EIR will identify the GHG emissions associated with construction and operation of the proposed project and their potential impact on the environment.

b) In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill No. 32; California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), which requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing an approximate 25 percent reduction in emissions). The EIR will identify the applicable plans, policies and regulations adopted for the reduction of GHG emissions and determine whether or not the project will conflict with AB32 and other regulations adopted for the purpose of reducing GHG emissions.

Hazards and Hazardous Materials

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8. 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?	☐	☒	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	☐	☒	☐	☐

Discussion

a, b) Construction of the proposed project would require equipment that utilizes hazardous materials such as petroleum fuels and oil. During construction activities, such hazardous materials could accidentally be spilled or otherwise released into the environment. Therefore, the proposed project could create a significant hazard to the environment or public due to hazardous materials. This resource area will be discussed in the EIR, and mitigation measures will be developed to reduce impacts to less than significant levels by requiring construction contractors to follow BMPs.

Additionally, the proposed project would introduce new process chemicals that would be stored and used onsite. Therefore, during operation of the proposed project, the potential exists that these chemicals can create a significant hazard to the public and the environment. This issue will be further analyzed in the EIR.

c) The proposed project would include hazardous materials that would be routinely used during operation of the proposed project and project construction would require use of hazardous materials as described above. The EIR will identify the locations of schools and other sensitive receptors relative to the project components. If necessary, mitigation measures will be developed to reduce hazardous emissions or the potential for accidental release of hazardous substances during project construction and operation to less than significant levels

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

A preliminary search of the DTSC Cortese List database identified one hazardous site within a half-mile radius of the project site. The site is a Military Evaluation Site and is located approximately a half mile east of the project site. The search did not identify any

hazardous sites on, or adjacent to, the project site (DTSC, 2010). Therefore, it is anticipated that the proposed project would not affect a known hazardous material site. The EIR will confirm that there would be no impact.

e) The facilities of the proposed project are within two miles of John Wayne International Airport. The EIR will include a review of the ALUP and evaluate the potential effects of the proposed project to public safety for people residing or working in the project area. If necessary, the EIR will include mitigation measures to ensure the proposed project complies with the ALUP and to reduce any potential hazards to public safety to less than significant levels.

f) The proposed project is not located in the vicinity of a private airstrip. Therefore, no impacts would occur and no further analysis is warranted.

g) The proposed project is not expected to interfere with an adopted emergency response or evacuation plan. Individual project review by both the City's Public Safety Department and the Orange County Fire Authority (OCFA) is required. All construction activities would be performed per City and OCFA standards and codes, thereby avoiding any interference with emergency response or evacuation plans. As a result, impacts would be less than significant and no further analysis is warranted.

h) The project site is adjacent to the San Joaquin Marsh and San Diego Creek, open space areas that include vegetation. Construction of the proposed project would require equipment and activities that use petroleum fuels and oil and could result in accidental spills leading to fire-related hazards. The EIR will evaluate the potential for construction of the proposed project to accidentally result in wildland fires during project construction. Operation of the proposed project would not pose a risk to wildland fires. If necessary, the EIR will develop mitigation measures to be implemented during project construction to reduce the risk of exposing people or structures to a significant risk of loss, injury or death due to wildland fires to less than significant levels.

References

DTSC, Hazardous Waste and Substance Sites (Cortese) List, accessed September 21, 2010: http://www.calepa.ca.gov/SiteCleanup/CorteseList.

Hydrology and Water Quality

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
9. 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 a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site?	☒	☐	☐	☐
d) Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☒	☐	☐	☐
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 that 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) Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐

Discussion

a/f) This project is located in the Regional Water Quality Control Board (RWQCB) – Santa Ana District jurisdiction. The EIR will describe storm water runoff control requirements for both project construction and operation, and provide mitigation if necessary to meet construction and operational storm water runoff quality requirements.

The project also would be subject to SWRCB Water Quality Order No. 2004-0012-DWQ for general WDRs for the discharge of biosolids to land for use. The EIR will discuss

regulatory constraints and actual impacts associated with the use of pelletized fertilizer by end users, such as golf courses, parks, and gardens. Direct impacts at end use site include potential surface water quality and groundwater impacts related to the nutrient content of the pellets and the rate of application, and impacts related to the fate of the pellets when applied at end use sites.

b) The EIR will any potential impacts of the proposed project to groundwater, such as potential impacts associated with construction dewatering. Mitigation measures will be developed to minimize impacts, if necessary.

c/d/e) The proposed project is not expected to substantially alter existing drainage patterns within the project area. The proposed project would not alter the drainage pattern of any stream or river. The project will introduce new impervious surfaces to the project site. The EIR will evaluate the potential for the increase in impervious surfaces to increase the rate or amount of runoff from the site.

g) The proposed project does not include construction of new housing. Therefore no impact would occur and no further analysis is warranted.

h/i) The MRWP is located along the San Diego Creek, a 100-year flood control facility under the maintenance of the Orange County Flood Control District (OCFCD). As part of the MWRP Phase 2 Capacity Expansion Project, a flood protection wall will be built on top of the berm separating the project site from the Marsh. This will bring the MWRP out of the 100-year flood zone of San Diego Creek. The EIR will discuss the risks associated with flooding of the proposed facilities at the project site.

j) The project site is located five miles inland from the Pacific Ocean and therefore would not be subject to inundation by a tsunami. Mudflows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. Mudflow events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. Due to the topographic nature in the vicinity of the project site, the potential to be inundated by mudflow is considered remote. Therefore, impacts would be less than significant.

Land Use and Land Use Planning

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
10. LAND USE AND LAND USE 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?	☐	☐	☐	☒

Discussion

a) The proposed project includes the construction of non-linear facilities located within the boundaries of the existing MRWP. Implementation of the proposed project would not physically divide an established community. There would be no impact.

b) The proposed biosolids and energy recovery facilities would be located on parcels owned by IRWD. The land use designation for the project site is Public Facilities (City of Irvine, 1999). The zoning designation is Institutional. The project would be located within the notification area for the John Wayne International Airport ALUP.

The EIR will discuss all land use plans, policies, and regulations that apply to the proposed project, including general plans and the John Wayne International Airport ALUP. The proposed biosolids and energy recovery facilities would be located on parcels owned by IRWD. The EIR will provide a discussion of any impacts associated with land use and zoning designations. Mitigation measures will be included if necessary to ensure the project complies with the ALUP and zoning designations.

c) The EIR will discuss potential conflicts with the Orange County NCCP as part of Biological Resources, Question (f).

References

City of Irvine. Land Use Map, 2006. http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=11039. Accessed: September 21, 2010

City of Irvine. Zoning Map, 2010. http://www.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=13672. Accessed: September 21, 2010

Mineral Resources

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
11. 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?	☐	☐	☐	☒

Discussion

a) The project site consists of land that is currently vacant and being used for construction staging and stockpiling for the ongoing MRWP Phase 2 Capacity Expansion Project. Mineral extraction activities are not present on site. Both the project site and the surrounding area are not identified as sources of important mineral resources (Orange County General Plan, 2005). Therefore, no impacts on mineral resources are anticipated.

b) The project site consists of land that is currently vacant and being used for construction staging and stockpiling for the ongoing MRWP Phase 2 Capacity Expansion Project. No locally-important mineral resource recovery sites are located on or near the project site (Orange County General Plan, 2005). Therefore, no adverse impacts to the availability of locally-important mineral resources would occur and no further analysis is warranted.

References

Orange County General Plan 2005. Mineral Resources, Chapter VI 13. Available online: http://www.ocplanning.net/GeneralPlan2005.aspx

Noise

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
12. NOISE — Would the project:				
a) Result in exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☒	☐	☐	☐
b) Result in exposure of persons to, or generation of, excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) Result in 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 area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☒	☐	☐	☐
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) Noise generated during project construction would occur with varying intensities and durations during the various phases of construction. The closest sensitive receptors would be located approximately 1,400 feet or more from the construction area. The EIR will identify relevant noise standards and evaluate noise levels associated with project construction. Operation of the proposed project is not expected exceed noise standards, as project design would be in accordance with all applicable standards and regulations.

b) Groundborne vibration and groundborne noise could result due to earth movement during the construction phase of the proposed project. The closest sensitive receptors would be located approximately 1,400 feet or more from the construction area. The EIR will identify relevant vibration standards and evaluate vibration levels associated with project construction. Operation of the proposed project is not expected exceed vibration standards, as project design would be in accordance with all applicable regulations.

c) Operation of the proposed facilities may generate additional noise and could result in a permanent increase in ambient noise levels in the project vicinity. The EIR will identify the potential noise levels associated with operation of the project facilities. If necessary, the EIR will develop mitigation measures to ensure that design of the proposed facilities include materials to buffer noise such that any increases in noise levels above existing levels do not exceed standards established by applicable noise ordinances and regulations.

d) Heavy equipment use during construction would cause a temporary or periodic increase in ambient noise levels. The EIR will identify the potential noise levels associated with construction activity depending construction phases and projected inventory of equipment to be used. If necessary, the EIR will develop mitigation measures to ensure temporary noise caused by construction activities would be reduced in accordance with applicable noise ordinances and regulations.

e) The proposed project is located approximately 1.5 miles southeast of the John Wayne International Airport and within the John Wayne International Airport Land Use Plan. Therefore, the proposed project has the potential to expose people working on the project site to excessive noise levels. This issue will be further evaluated in the EIR.

f) There are no private airstrips within the vicinity of the proposed project. No impacts would occur, and no further analysis is required.

Population and Housing

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. 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 units, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) The proposed project would relocate the solids handling associated with the MWRP from Orange County Sanitation District facilities to the MWRP site. The proposed project would not directly induce population growth in the region because the project does not involve construction of new homes or businesses. The proposed project would not indirectly induce population growth in the region by removing an obstacle to growth, such as wastewater treatment capacity. The project would not affect the effluent treatment capacity at the MWRP. The project simply alters the location and nature of the solids handling associated with the MWRP. There would be no impact. The EIR will address potential growth inducement associated with the project in a separate chapter.

b, c) The project is proposed to be sited on lands that are currently vacant. No residences ojr people be displaced by the proposed project. No impacts are expected, and no further analysis is warranted.

Public Services

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES — Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of, or the 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 following public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Discussion

a.i) The Orange County Fire Department provides fire suppression and emergency medical services to the project area. The primary fire station that would serve the project area is the Orange County Fire Authority (OCFA) Fire Station #4 located at 2 California Avenue in Irvine, approximately 1 mile southeast of the project site. The proposed project would relocate the solids handling associated with the MWRP from Orange County Sanitation District facilities to the MWRP site. The project would add biosolids handling and energy recovery facilities at the existing MWRP. The proposed project would not require new or expanded facilities in order to provide adequate fire suppression and emergency medical services. There would be no impact, and no further analysis is warranted.

a.ii) Police protection services in the project area are provided by the Orange County Police Department. The closest station to the project site is the Irvine Police Department located at 1 Civic Center Plaza, approximately 1.6 miles northeast of the project site. The proposed project would relocate the solids handling associated with the MWRP from Orange County Sanitation District facilities to the MWRP site. The project would add biosolids handling and energy recovery facilities at the existing MWRP. The proposed project would not require new or expanded facilities in order to provide adequate police protection services. There would be no impact, and no further analysis is warranted.

a.iii) During project construction and operation, a relatively small number of construction workers would be required. It is expected that most of these workers would commute to the project site from surrounding communities. Therefore substantial temporary increases in population that would adversely affect local school populations are not expected. There would be no impact and no further analysis is warranted.

a.iv, v) The proposed project would require a relatively small number of construction workers. Therefore, substantial permanent increases in population that would adversely affect local parks, libraries and other public facilities (such as post offices) are also not expected. The proposed project is expected to result in no impact to other such public facilities. No further analysis is warranted.

Recreation

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. RECREATION — Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☒	☐	☐	☐

Discussion

a) The project is not expected to have a direct or indirect effect on population growth and would not effect the use of neighborhood or regional parks or require construction or expansion of recreational facilities.

b) The project site is directly adjacent to recreational hiking trails in the San Joaquin Marsh. The EIR will discuss potential impacts to recreational activities within the project area. The EIR will identify feasible mitigation measures to reduce the effects to accessibility of recreation facilities during project construction. Operation of the project is not expected to have a long-term effect on access or use of the trails.

Class A pelletized biosolids produce by the project would be used as fertilizer at recreational facilities such as golf courses and parks. The EIR will discuss the effects to the public, if any related to the substitution of pellets for fertilization at recreational facilites.

Transportation and Traffic

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
16. TRANSPORTATION AND TRAFFIC — Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☒	☐	☐
b) Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
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) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☒	☐	☐

Discussion

a, b, f) The EIR will characterize roadway traits, traffic flow, access, and circulation conditions on affected roadways and at major intersections in the project area. The EIR will assess the potential for construction traffic and operational traffic to affect local roadways. The EIR will describe the existing traffic loads, capacities, level-of-service standards for roadways, bus routes, and bike routes in the project vicinity. The EIR will estimate the project construction traffic generation on the basis of estimates of earthwork quantities on-site, worker crew size, and equipment needs. Minimum standards for travel widths that would allow maintaining either uncontrolled two-way traffic flow, or alternate one-way traffic flow, will be applied to affected roadways to ascertain the significance of the impact. The EIR will also discuss any conflict with applicable plans, ordinances, or policies regarding traffic performance in the local circulation system. Mitigation measures will be developed to reduce adverse effects to traffic and circulation.

c) The nearest airport to the project site is the John Wayne International Airport, located approximately 1.5 miles to the northeast. The proposed project would not result in an increase in air traffic levels or a change in location of air traffic patterns that would result in substantial safety risks, as air traffic patterns would not be affected. The EIR will

discuss the ALUP for John Wayne International Airport and identify any potential conflicts with the ALUP. If necessary, mitigation measures would be develop to ensure the project complies with the ALUP and impacts to air traffic safety are less than significant.

d) The proposed project would not introduce any roadway hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. All construction or operational truck trips and deliveries would utilize roadways permitted for the associated vehicle type, size, and weight, in accordance with regulations by California Department of Transportation and local roadway agency regulations. The EIR will identify roadways compatible for use for by construction and operational delivery trucks. Mitigation measures, such as a traffic control plan, will be developed to reduce impacts due to incompatible uses to less than significant level.

e) Construction of the proposed project would require transportation of equipment and materials that could interfere with emergency response or evacuation plans. Roadways could be temporarily blocked due to operation or storage of construction equipment and material deliveries. The effect of project construction on emergency response and evacuation plans will be discussed in the EIR. Mitigation measures, such as a traffic control plan, will be developed to reduce impacts to less than significant level.

Utilities and Service Systems

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. UTILITIES AND SERVICE SYSTEMS — Would the project:				
a) Conflict with 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?	☐	☐	☒	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider that would 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 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?	☐	☒	☐	☐

Discussion

a) The proposed project would relocate the solids handling associated with the MWRP operations from the OCSD facilities to the MWRP. The project would provide beneficial use of biosolids, a valuable renewable resource, in the form of dried, pelletized material that can be used as fertilizer for municipal, commercial, or residential applications. The project would be subject to the SWRCB Water Quality Order No. 2004-0012-DWQ (General Order) for general waste discharge requirements (WDRs) for the discharge of biosolids to land for use in agriculture, silviculture, horticulture, and reclamation activities. The EIR will compile an overview of federal, state, and local biosolids regulations that are intended to protect public and environmental health and explain the allowable end uses for the classes of biosolids to be produced by the project – Class A and Class B biosolids. The overview of biosolids regulations would be included to explain how regulatory standards and restrictions on distribution and application of biosolids protect public health. The EIR will demonstrate how the project will comply with all requirements of the RWQCB and SWRCB.

b) The proposed project includes the construction and operation of new biosolids handling and energy recovery facilities associated with the MWRP, a wastewater treatment plant. The environmental effects associated with the project will be evaluated throughout the EIR.

c) The design of the proposed project will include new onsite storm water runoff drainage and collection facilities. The EIR will explain the nature of onsite drainage facilities and demonstrate how storm water will be collected onsite, treated if necessary, and where it will be discharged. It is not expected that new offsite storm water drainage facilities will be required to accommodate runoff from the project. Impacts are expected to be less than significant.

d) Water needs of the project during construction would be relatively minor and temporary. Existing water resources would be sufficient to meet those needs. Recycled water produced at the MWRP could be used for various construction related activities, such as dust suppression. Following construction, the proposed project would require

inconsequential amounts of potable water. Therefore, impacts to existing water supplies or entitlements are considered less than significant.

e) The proposed project would relocate the solids handling associated with the MWRP operations from the current OCSD facilities to the MWRP. OCSD would not be required to provide future capacity for processing of solids produced at the MWRP. The project would be designed to process onsite all solids produced at the MWRP at full build-out design capacity. IRWD, as the wastewater treatment provider, would have adequate capacity to serve project demand.

f, g) The proposed project would require excavation and grading for installation of the proposed facilities. Installation of the proposed facilities would likely result in construction waste, including excavated soil. The EIR will determine the approximate amount of excess soils to be produced during project construction. The EIR will identify landfills in the project vicinity that have adequate permitted capacity to accept solid waste construction debris such as spoil soils. The EIR will identify local, state, and federal regulations related to solid waste and determine appropriate mitigation measures, if necessary, to ensure the proposed project complies with such regulations.

Operation of the project would produce Class A and Class B biosolids. The EIR will include an overview of biosolids regulations, including Title 40 of the Code of Federal Regulations Part 503, Standards for the Use or Disposal of Sewage Sludge. The EIR will identify the methods of disposal, or categories of reuse, permissible for Class A and Class B biosolids, demonstrate the project's compliance with all statues and regulations related to solid waste, and demonstrate the available capacity/demand for disposal/reuse of Class A and Class B biosolids.

Mandatory Findings of Significance

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
18. MANDATORY FINDINGS OF SIGNIFICANCE — Would the project:				
a) 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?	☒	☐	☐	☐

Issues (and Supporting Information Sources):	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact
b) 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) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Discussion

a) The EIR will address impacts to biological and cultural resources.

b) The EIR will identify a list of related projects in the project vicinity to determine whether or not the proposed project would have impacts that are individually limited but cumulatively considerable.

c) The EIR will identify sensitive receptors in the project area and identify, if possible and if necessary, mitigation measures to reduce adverse effects to human beings to less than significant levels. The EIR will discuss the public health effects of producing and reusing biosolids.

APPENDIX C

Air Quality and Greenhouse Gas Emissions Calculations

PhaseNumber	PhaseName	PhaseStartDate	PhaseEndDate	NumDays
1	Site Clearing	June 1, 2012	June 14, 2012	10
2	Grading	June 15, 2012	July 26, 2012	30
3	Excavation	July 27, 2012	December 13, 2012	100
4	Building Construction	December 14, 2012	August 15, 2013	175
5	Equipment Installation	August 16, 2013	February 13, 2014	130
6	Final Grading	February 14, 2014	March 27, 2014	30
7	Paving	March 28, 2014	May 22, 2014	40

PhaseName	OffRoad Equipment Type	Number of equipment pieces	Hours per day	Horsepower
Site Clearing	Rubber Tired Dozers	1	7	358
	Tractors/Loaders/Backhoes	2	7	75
Grading	Graders	1	7	162
	Rubber Tired Dozers	1	7	358
	Scrapers	1	7	356
	Tractors/Loaders/Backhoes	1	7	75
Excavation	Excavators	1	7	157
	Dozers	1	7	358
	Tractors/Loaders/Backhoes	1	7	75
Building Construction	Cranes	1	7	208
	Forklifts	2	7	149
	Generator Sets	1	7	84
	Tractors/Loaders/Backhoes	2	7	75
	Welders	1	7	46
Equipment Installation	Cranes	1	7	208
	Forklifts	1	7	149
	Generator Sets	1	7	84
	Tractors/Loaders/Backhoes	1	7	75
	Welders	1	7	46
Final Grading	Graders	1	7	162
	Tractors/Loaders/Backhoes	1	7	75
Paving	Pavers	1	7	89
	Paving Equipment	1	7	82
	Rollers	2	7	84

Highest (Most Conservative) EMFAC2007 (version 2.3)
Emission Factors for On-Road Passenger Vehicles & Delivery Trucks

Projects in the SCAQMD (Scenario Years 2007 - 2026)

Derived from Peak Emissions Inventory (**Winter**, **Annual**, **Summer**)

Vehicle Class:

Passenger Vehicles (<8500 pounds) & Delivery Trucks (>8500 pounds)

The following emission factors were compiled by running the California Air Resources Board's EMFAC2007 (version 2.3) Burden Model, taking the weighted average of vehicle types and simplifying into two categories:

Passenger Vehicles & Delivery Trucks.

These emission factors can be used to calculate on-road mobile source emissions for the vehicle categories listed in the tables below, by use of the following equation:

Emissions (pounds per day) = N x TL x EF

where N = number of trips, TL = trip length (miles/day), and EF = emission factor (pounds per mile)

This methodology replaces the old EMFAC emission factors in Tables A-9-5-J-1 through A-9-5-L in Appendix A9 of the current SCAQMD CEQA Handbook. All the emission factors account for the emissions from start, running and idling exhaust. In addition, the ROG emission factors include diurnal, hot soak, running and resting emissions, and the PM10 & PM2.5 emission factors include tire and brake wear.

Scenario Year: **2009**

All model years in the range 1965 to 2009

Passenger Vehicles (pounds/mile)	
CO	**0.00968562**
NOx	**0.00100518**
ROG	**0.00099245**
SOx	**0.00001066**
PM10	**0.00008601**
PM2.5	**0.00005384**
CO2	**1.09755398**
CH4	**0.00008767**

Delivery Trucks (pounds/mile)	
CO	**0.02016075**
NOx	**0.02236636**
ROG	**0.00278899**
SOx	**0.00002679**
PM10	**0.00080550**
PM2.5	**0.00069228**
CO2	**2.72330496**
CH4	**0.00013655**

Scenario Year: **2015**

All model years in the range 1971 to 2015

Passenger Vehicles (pounds/mile)	
CO	**0.00614108**
NOx	**0.00060188**
ROG	**0.00066355**
SOx	**0.00001070**
PM10	**0.00009259**
PM2.5	**0.00006015**
CO2	**1.10192837**
CH4	**0.00005923**

Delivery Trucks (pounds/mile)	
CO	**0.01169445**
NOx	**0.01285026**
ROG	**0.00173890**
SOx	**0.00002741**
PM10	**0.00050307**
PM2.5	**0.00041268**
CO2	**2.81247685**
CH4	**0.00008076**

Biosolids-related Mobile Emisions (2015 Operations)

Daily Worker Trips:	10
Daily Delivery Truck Trips:	9
Worker Roundtrip Miles:	20
Delivery Truck Roundtrip Miles:	180

Project Worker Trip Emissions:

ROG	0.13271
NOx	0.120375
CO	1.228215
SOx	0.002141
PM10	0.018518
PM2.5	0.01203

Project Delivery Truck Emissions:

ROG	2.817026
NOx	20.81743
CO	18.94501
SOx	0.04441
PM10	0.814981
PM2.5	0.668549

Total Proposed Project Mobile Emissions

ROG	**2.949736**
NOx	**20.9378**
CO	**20.17323**
SOx	**0.046551**
PM10	**0.833499**
PM2.5	**0.680578**

OCSD Mobile Emisions (2015 Operations)

Daily Worker Trips:	0
Daily Delivery Truck Trips:	9
Worker Roundtrip Miles:	20
Delivery Truck Roundtrip Miles:	397

Project Worker Trip Emissions:

ROG	0
NOx	0
CO	0
SOx	0
PM10	0
PM2.5	0

Project Delivery Truck Emissions:

ROG	6.213107
NOx	45.91399
CO	41.78427
SOx	0.097948
PM10	1.797486
PM2.5	1.474521

210480-IRWD Biosolids

Orange County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Light Industry	150	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Project Characteristics -

Land Use - Site acreage + staging area

Construction Phase - Construction schedule assumptions

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment updated

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Minor site clearing

Trips and VMT - Worst case - maximum number of worker and vendor trips

Grading - Soil excavation assumptions

Vehicle Trips - Estimated operational vehicle trips (assumes a 5-day week) with Class B Biosolids Deliveries (worst-case)

Area Coating -

Energy Use - GHG emissions generated in ENVIRON report.

Water And Wastewater - GHG emissions generated in ENVIRON report.

Solid Waste - GHG emissions generated in ENVIRON report.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	10.51	83.88	63.36	0.14	202.22	3.65	205.87	3.28	3.65	6.93	0.00	14,554.54	0.00	0.81	0.00	14,571.54
2014	5.21	29.09	33.83	0.07	3.92	1.74	5.65	0.16	1.74	1.89	0.00	6,556.26	0.00	0.49	0.00	6,566.51
2015	4.07	21.43	27.55	0.06	4.44	1.59	5.37	0.16	1.59	1.73	0.00	5,741.88	0.00	0.39	0.00	5,750.10
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	10.51	83.88	63.36	0.14	198.93	3.65	202.58	1.51	3.65	5.16	0.00	14,554.54	0.00	0.81	0.00	14,571.54
2014	5.21	29.09	33.83	0.07	3.92	1.74	5.65	0.16	1.74	1.89	0.00	6,556.26	0.00	0.49	0.00	6,566.51
2015	4.07	21.43	27.55	0.06	4.04	1.59	5.37	0.16	1.59	1.73	0.00	5,741.88	0.00	0.39	0.00	5,750.10
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Clearing - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.26	0.00	7.26	2.90	0.00	2.90						0.00
Off-Road	3.21	25.46	14.87	0.02		1.33	1.33		1.33	1.33		2,573.62		0.29		2,579.67
Total	**3.21**	**25.46**	**14.87**	**0.02**	**7.26**	**1.33**	**8.59**	**2.90**	**1.33**	**4.23**		**2,573.62**		**0.29**		**2,579.67**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.52**	**2.96**	**17.02**	**0.03**	**3.77**	**0.16**	**3.94**	**0.15**	**0.16**	**0.31**		**3,190.44**		**0.17**		**3,194.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.83	0.00	2.83	1.13	0.00	1.13						0.00
Off-Road	3.21	25.46	14.87	0.02		1.33	1.33		1.33	1.33	0.00	2,573.62		0.29		2,579.67
Total	**3.21**	**25.46**	**14.87**	**0.02**	**2.83**	**1.33**	**4.16**	**1.13**	**1.33**	**2.46**	**0.00**	**2,573.62**		**0.29**		**2,579.67**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.52**	**2.96**	**17.02**	**0.03**	**3.77**	**0.16**	**3.94**	**0.15**	**0.16**	**0.31**		**3,190.44**		**0.17**		**3,194.00**

3.3 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.43	0.00	5.43	2.90	0.00	2.90						0.00
Off-Road	5.97	49.85	26.00	0.05		2.27	2.27		2.27	2.27		5,323.97		0.53		5,335.19
Total	**5.97**	**49.85**	**26.00**	**0.05**	**5.43**	**2.27**	**7.70**	**2.90**	**2.27**	**5.17**		**5,323.97**		**0.53**		**5,335.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.52**	**2.96**	**17.02**	**0.03**	**3.77**	**0.16**	**3.94**	**0.15**	**0.16**	**0.31**		**3,190.44**		**0.17**		**3,194.00**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.12	0.00	2.12	1.13	0.00	1.13						0.00
Off-Road	5.97	49.85	26.00	0.05		2.27	2.27		2.27	2.27	0.00	5,323.97		0.53		5,335.19
Total	**5.97**	**49.85**	**26.00**	**0.05**	**2.12**	**2.27**	**4.39**	**1.13**	**2.27**	**3.40**	**0.00**	**5,323.97**		**0.53**		**5,335.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.52**	**2.96**	**17.02**	**0.03**	**3.77**	**0.16**	**3.94**	**0.15**	**0.16**	**0.31**		**3,190.44**		**0.17**		**3,194.00**

3.4 Excavation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.39	0.00	5.39	2.91	0.00	2.91						0.00
Off-Road	4.87	39.21	20.87	0.04		1.79	1.79		1.79	1.79		4,627.34		0.44		4,636.49
Total	**4.87**	**39.21**	**20.87**	**0.04**	**5.39**	**1.79**	**7.18**	**2.91**	**1.79**	**4.70**		**4,627.34**		**0.44**		**4,636.49**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.12	41.72	25.47	0.06	193.05	1.69	194.73	0.23	1.69	1.92		6,736.75		0.20		6,741.05
Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**5.64**	**44.68**	**42.49**	**0.09**	**196.82**	**1.85**	**198.67**	**0.38**	**1.85**	**2.23**		**9,927.19**		**0.37**		**9,935.05**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.10	0.00	2.10	1.13	0.00	1.13						0.00
Off-Road	4.87	39.21	20.87	0.04		1.79	1.79		1.79	1.79	0.00	4,627.34		0.44		4,636.49
Total	**4.87**	**39.21**	**20.87**	**0.04**	**2.10**	**1.79**	**3.89**	**1.13**	**1.79**	**2.92**	**0.00**	**4,627.34**		**0.44**		**4,636.49**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	4.12	41.72	25.47	0.06	193.05	1.69	194.73	0.23	1.69	1.92		6,736.75		0.20		6,741.05
Vendor	0.14	1.55	1.03	0.00	0.09	0.05	0.14	0.01	0.05	0.06		269.41		0.01		269.57
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**5.64**	**44.68**	**42.49**	**0.09**	**196.82**	**1.85**	**198.67**	**0.38**	**1.85**	**2.23**		**9,927.19**		**0.37**		**9,935.05**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.92	26.25	16.93	0.03		1.69	1.69		1.69	1.69		3,015.93		0.35		3,023.28
Total	**3.92**	**26.25**	**16.93**	**0.03**		**1.69**	**1.69**		**1.69**	**1.69**		**3,015.93**		**0.35**		**3,023.28**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.36	3.87	2.57	0.01	0.23	0.13	0.36	0.02	0.13	0.15		673.54		0.02		673.91
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.74**	**5.28**	**18.56**	**0.04**	**3.91**	**0.24**	**4.16**	**0.16**	**0.24**	**0.40**		**3,594.57**		**0.18**		**3,598.34**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.92	26.25	16.93	0.03		1.69	1.69		1.69	1.69	0.00	3,015.93		0.35		3,023.28
Total	**3.92**	**26.25**	**16.93**	**0.03**		**1.69**	**1.69**		**1.69**	**1.69**	**0.00**	**3,015.93**		**0.35**		**3,023.28**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.36	3.87	2.57	0.01	0.23	0.13	0.36	0.02	0.13	0.15		673.54		0.02		673.91
Worker	1.38	1.41	15.99	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,921.03		0.16		2,924.43
Total	**1.74**	**5.28**	**18.56**	**0.04**	**3.91**	**0.24**	**4.16**	**0.16**	**0.24**	**0.40**		**3,594.57**		**0.18**		**3,598.34**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.59	24.30	16.70	0.03		1.50	1.50		1.50	1.50		3,015.93		0.32		3,022.68
Total	**3.59**	**24.30**	**16.70**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**		**3,015.93**		**0.32**		**3,022.68**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	3.51	2.34	0.01	0.23	0.11	0.35	0.02	0.11	0.13		676.02		0.02		676.36
Worker	1.29	1.29	14.79	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,864.31		0.15		2,867.47
Total	**1.62**	**4.80**	**17.13**	**0.04**	**3.91**	**0.23**	**4.15**	**0.16**	**0.23**	**0.38**		**3,540.33**		**0.17**		**3,543.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.59	24.30	16.70	0.03		1.50	1.50		1.50	1.50	0.00	3,015.93		0.32		3,022.68
Total	**3.59**	**24.30**	**16.70**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**	**0.00**	**3,015.93**		**0.32**		**3,022.68**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	3.51	2.34	0.01	0.23	0.11	0.35	0.02	0.11	0.13		676.02		0.02		676.36

Worker	1.29	1.29	14.79	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,864.31		0.15		2,867.47
Total	**1.62**	**4.80**	**17.13**	**0.04**	**3.91**	**0.23**	**4.15**	**0.16**	**0.23**	**0.38**		**3,540.33**		**0.17**		**3,543.83**

3.6 Equipment Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.79	18.64	11.95	0.02		1.12	1.12		1.12	1.12		2,262.82		0.25		2,268.06
Total	**2.79**	**18.64**	**11.95**	**0.02**		**1.12**	**1.12**		**1.12**	**1.12**		**2,262.82**		**0.25**		**2,268.06**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	3.51	2.34	0.01	0.23	0.11	0.35	0.02	0.11	0.13		676.02		0.02		676.36
Worker	1.29	1.29	14.79	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,864.31		0.15		2,867.47
Total	**1.62**	**4.80**	**17.13**	**0.04**	**3.91**	**0.23**	**4.15**	**0.16**	**0.23**	**0.38**		**3,540.33**		**0.17**		**3,543.83**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	2.79	18.64	11.95	0.02		1.12	1.12		1.12	1.12	0.00	2,262.82		0.25		2,268.06
Total	**2.79**	**18.64**	**11.95**	**0.02**		**1.12**	**1.12**		**1.12**	**1.12**	**0.00**	**2,262.82**		**0.25**		**2,268.06**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.33	3.51	2.34	0.01	0.23	0.11	0.35	0.02	0.11	0.13		676.02		0.02		676.36
Worker	1.29	1.29	14.79	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,864.31		0.15		2,867.47
Total	**1.62**	**4.80**	**17.13**	**0.04**	**3.91**	**0.23**	**4.15**	**0.16**	**0.23**	**0.38**		**3,540.33**		**0.17**		**3,543.83**

3.6 Equipment Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.55	17.08	11.77	0.02		1.00	1.00		1.00	1.00		2,262.82		0.23		2,267.64
Total	**2.55**	**17.08**	**11.77**	**0.02**		**1.00**	**1.00**		**1.00**	**1.00**		**2,262.82**		**0.23**		**2,267.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	3.18	2.15	0.01	0.23	0.10	0.34	0.02	0.10	0.12		678.31		0.01		678.62
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68
Total	**1.51**	**4.35**	**15.79**	**0.04**	**3.91**	**0.22**	**4.14**	**0.16**	**0.22**	**0.38**		**3,479.05**		**0.15**		**3,482.30**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.55	17.08	11.77	0.02		1.00	1.00		1.00	1.00	0.00	2,262.82		0.23		2,267.64
Total	**2.55**	**17.08**	**11.77**	**0.02**		**1.00**	**1.00**		**1.00**	**1.00**	**0.00**	**2,262.82**		**0.23**		**2,267.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.30	3.18	2.15	0.01	0.23	0.10	0.34	0.02	0.10	0.12		678.31		0.01		678.62
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68
Total	**1.51**	**4.35**	**15.79**	**0.04**	**3.91**	**0.22**	**4.14**	**0.16**	**0.22**	**0.38**		**3,479.05**		**0.15**		**3,482.30**

3.7 Final Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.66	0.00	0.66	0.00	0.00	0.00						0.00
Off-Road	1.31	9.37	7.54	0.01		0.57	0.57		0.57	0.57		1,227.31		0.12		1,229.77
Total	**1.31**	**9.37**	**7.54**	**0.01**	**0.66**	**0.57**	**1.23**	**0.00**	**0.57**	**0.57**		**1,227.31**		**0.12**		**1,229.77**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.27	0.86	0.00	0.09	0.04	0.13	0.01	0.04	0.05		271.32		0.01		271.45
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68
Total	**1.33**	**2.44**	**14.50**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**3,072.06**		**0.15**		**3,075.13**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.26	0.00	0.26	0.00	0.00	0.00						0.00
Off-Road	1.31	9.37	7.54	0.01		0.57	0.57		0.57	0.57	0.00	1,227.31		0.12		1,229.77
Total	**1.31**	**9.37**	**7.54**	**0.01**	**0.26**	**0.57**	**0.83**	**0.00**	**0.57**	**0.57**	**0.00**	**1,227.31**		**0.12**		**1,229.77**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.27	0.86	0.00	0.09	0.04	0.13	0.01	0.04	0.05		271.32		0.01		271.45
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68
Total	**1.33**	**2.44**	**14.50**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**3,072.06**		**0.15**		**3,075.13**

3.8 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.74	17.01	11.78	0.02		1.43	1.43		1.43	1.43		1,688.64		0.25		1,693.80
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.74**	**17.01**	**11.78**	**0.02**		**1.43**	**1.43**		**1.43**	**1.43**		**1,688.64**		**0.25**		**1,693.80**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.27	0.86	0.00	0.09	0.04	0.13	0.01	0.04	0.05		271.32		0.01		271.45
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68
Total	**1.33**	**2.44**	**14.50**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**3,072.06**		**0.15**		**3,075.13**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.74	17.01	11.78	0.02		1.43	1.43		1.43	1.43	0.00	1,688.64		0.25		1,693.80
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.74**	**17.01**	**11.78**	**0.02**		**1.43**	**1.43**		**1.43**	**1.43**	**0.00**	**1,688.64**		**0.25**		**1,693.80**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.12	1.27	0.86	0.00	0.09	0.04	0.13	0.01	0.04	0.05		271.32		0.01		271.45
Worker	1.21	1.17	13.64	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,800.74		0.14		2,803.68

Total	**1.33**	**2.44**	**14.50**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**3,072.06**		**0.15**		**3,075.13**

210480-IRWD Biosolids

Orange County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Light Industry	150	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Project Characteristics -

Land Use - Site acreage + staging area

Construction Phase - Construction schedule assumptions

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment updated

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Minor site clearing

Trips and VMT - Worst case - maximum number of worker and vendor trips

Grading - Soil excavation assumptions

Vehicle Trips - Estimated operational vehicle trips (assumes a 5-day week) with Class B Biosolids Deliveries (worst-case)

Area Coating -

Energy Use - GHG emissions generated in ENVIRON report.

Water And Wastewater - GHG emissions generated in ENVIRON report.

Solid Waste - GHG emissions generated in ENVIRON report.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	10.73	86.69	64.20	0.14	202.22	3.66	205.88	3.28	3.66	6.95	0.00	14,337.11	0.00	0.81	0.00	14,354.07
2014	5.34	29.45	33.30	0.07	3.92	1.74	5.66	0.16	1.74	1.89	0.00	6,365.62	0.00	0.48	0.00	6,375.77
2015	4.20	21.74	27.06	0.06	4.44	1.59	5.37	0.16	1.59	1.73	0.00	5,555.01	0.00	0.39	0.00	5,563.12
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2013	10.73	86.69	64.20	0.14	198.93	3.66	202.59	1.51	3.66	5.17	0.00	14,337.11	0.00	0.81	0.00	14,354.07
2014	5.34	29.45	33.30	0.07	3.92	1.74	5.66	0.16	1.74	1.89	0.00	6,365.62	0.00	0.48	0.00	6,375.77
2015	4.20	21.74	27.06	0.06	4.04	1.59	5.37	0.16	1.59	1.73	0.00	5,555.01	0.00	0.39	0.00	5,563.12
Total	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Clearing - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.26	0.00	7.26	2.90	0.00	2.90						0.00
Off-Road	3.21	25.46	14.87	0.02		1.33	1.33		1.33	1.33		2,573.62		0.29		2,579.67
Total	**3.21**	**25.46**	**14.87**	**0.02**	**7.26**	**1.33**	**8.59**	**2.90**	**1.33**	**4.23**		**2,573.62**		**0.29**		**2,579.67**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.66**	**3.24**	**16.28**	**0.03**	**3.77**	**0.16**	**3.95**	**0.15**	**0.16**	**0.31**		**2,998.70**		**0.17**		**3,002.11**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.83	0.00	2.83	1.13	0.00	1.13						0.00
Off-Road	3.21	25.46	14.87	0.02		1.33	1.33		1.33	1.33	0.00	2,573.62		0.29		2,579.67
Total	**3.21**	**25.46**	**14.87**	**0.02**	**2.83**	**1.33**	**4.16**	**1.13**	**1.33**	**2.46**	**0.00**	**2,573.62**		**0.29**		**2,579.67**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00

Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.66**	**3.24**	**16.28**	**0.03**	**3.77**	**0.16**	**3.95**	**0.15**	**0.16**	**0.31**		**2,998.70**		**0.17**		**3,002.11**

3.3 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.43	0.00	5.43	2.90	0.00	2.90						0.00
Off-Road	5.97	49.85	26.00	0.05		2.27	2.27		2.27	2.27		5,323.97		0.53		5,335.19
Total	**5.97**	**49.85**	**26.00**	**0.05**	**5.43**	**2.27**	**7.70**	**2.90**	**2.27**	**5.17**		**5,323.97**		**0.53**		**5,335.19**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.66**	**3.24**	**16.28**	**0.03**	**3.77**	**0.16**	**3.95**	**0.15**	**0.16**	**0.31**		**2,998.70**		**0.17**		**3,002.11**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.12	0.00	2.12	1.13	0.00	1.13						0.00
Off-Road	5.97	49.85	26.00	0.05		2.27	2.27		2.27	2.27	0.00	5,323.97		0.53		5,335.19
Total	**5.97**	**49.85**	**26.00**	**0.05**	**2.12**	**2.27**	**4.39**	**1.13**	**2.27**	**3.40**	**0.00**	**5,323.97**		**0.53**		**5,335.19**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.66**	**3.24**	**16.28**	**0.03**	**3.77**	**0.16**	**3.95**	**0.15**	**0.16**	**0.31**		**2,998.70**		**0.17**		**3,002.11**

3.4 Excavation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.39	0.00	5.39	2.91	0.00	2.91						0.00
Off-Road	4.87	39.21	20.87	0.04		1.79	1.79		1.79	1.79		4,627.34		0.44		4,636.49
Total	**4.87**	**39.21**	**20.87**	**0.04**	**5.39**	**1.79**	**7.18**	**2.91**	**1.79**	**4.70**		**4,627.34**		**0.44**		**4,636.49**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.20	44.24	27.04	0.06	193.05	1.70	194.75	0.23	1.70	1.93		6,711.07		0.21		6,715.47
Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**5.86**	**47.48**	**43.32**	**0.09**	**196.82**	**1.86**	**198.70**	**0.38**	**1.86**	**2.24**		**9,709.77**		**0.38**		**9,717.58**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.10	0.00	2.10	1.13	0.00	1.13						0.00
Off-Road	4.87	39.21	20.87	0.04		1.79	1.79		1.79	1.79	0.00	4,627.34		0.44		4,636.49
Total	**4.87**	**39.21**	**20.87**	**0.04**	**2.10**	**1.79**	**3.89**	**1.13**	**1.79**	**2.92**	**0.00**	**4,627.34**		**0.44**		**4,636.49**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	4.20	44.24	27.04	0.06	193.05	1.70	194.75	0.23	1.70	1.93		6,711.07		0.21		6,715.47
Vendor	0.15	1.63	1.13	0.00	0.09	0.05	0.15	0.01	0.05	0.06		267.87		0.01		268.02
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**5.86**	**47.48**	**43.32**	**0.09**	**196.82**	**1.86**	**198.70**	**0.38**	**1.86**	**2.24**		**9,709.77**		**0.38**		**9,717.58**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.92	26.25	16.93	0.03		1.69	1.69		1.69	1.69		3,015.93		0.35		3,023.28
Total	**3.92**	**26.25**	**16.93**	**0.03**		**1.69**	**1.69**		**1.69**	**1.69**		**3,015.93**		**0.35**		**3,023.28**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.37	4.08	2.84	0.01	0.23	0.13	0.36	0.02	0.13	0.15		669.66		0.02		670.06
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.88**	**5.69**	**17.99**	**0.04**	**3.91**	**0.24**	**4.16**	**0.16**	**0.24**	**0.40**		**3,400.49**		**0.18**		**3,404.15**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.92	26.25	16.93	0.03		1.69	1.69		1.69	1.69	0.00	3,015.93		0.35		3,023.28
Total	**3.92**	**26.25**	**16.93**	**0.03**		**1.69**	**1.69**		**1.69**	**1.69**	**0.00**	**3,015.93**		**0.35**		**3,023.28**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.37	4.08	2.84	0.01	0.23	0.13	0.36	0.02	0.13	0.15		669.66		0.02		670.06
Worker	1.51	1.61	15.15	0.03	3.68	0.11	3.80	0.14	0.11	0.25		2,730.83		0.16		2,734.09
Total	**1.88**	**5.69**	**17.99**	**0.04**	**3.91**	**0.24**	**4.16**	**0.16**	**0.24**	**0.40**		**3,400.49**		**0.18**		**3,404.15**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.59	24.30	16.70	0.03		1.50	1.50		1.50	1.50		3,015.93		0.32		3,022.68
Total	**3.59**	**24.30**	**16.70**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**		**3,015.93**		**0.32**		**3,022.68**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.34	3.68	2.61	0.01	0.23	0.12	0.35	0.02	0.12	0.13		671.98		0.02		672.34
Worker	1.41	1.47	13.99	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,677.72		0.14		2,680.75
Total	**1.75**	**5.15**	**16.60**	**0.04**	**3.91**	**0.24**	**4.15**	**0.16**	**0.24**	**0.38**		**3,349.70**		**0.16**		**3,353.09**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.59	24.30	16.70	0.03		1.50	1.50		1.50	1.50	0.00	3,015.93		0.32		3,022.68
Total	**3.59**	**24.30**	**16.70**	**0.03**		**1.50**	**1.50**		**1.50**	**1.50**	**0.00**	**3,015.93**		**0.32**		**3,022.68**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.34	3.68	2.61	0.01	0.23	0.12	0.35	0.02	0.12	0.13		671.98		0.02		672.34

Worker	1.41	1.47	13.99	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,677.72		0.14		2,680.75
Total	**1.75**	**5.15**	**16.60**	**0.04**	**3.91**	**0.24**	**4.15**	**0.16**	**0.24**	**0.38**		**3,349.70**		**0.16**		**3,353.09**

3.6 Equipment Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.79	18.64	11.95	0.02		1.12	1.12		1.12	1.12		2,262.82		0.25		2,268.06
Total	**2.79**	**18.64**	**11.95**	**0.02**		**1.12**	**1.12**		**1.12**	**1.12**		**2,262.82**		**0.25**		**2,268.06**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.34	3.68	2.61	0.01	0.23	0.12	0.35	0.02	0.12	0.13		671.98		0.02		672.34
Worker	1.41	1.47	13.99	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,677.72		0.14		2,680.75
Total	**1.75**	**5.15**	**16.60**	**0.04**	**3.91**	**0.24**	**4.15**	**0.16**	**0.24**	**0.38**		**3,349.70**		**0.16**		**3,353.09**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	2.79	18.64	11.95	0.02		1.12	1.12		1.12	1.12	0.00	2,262.82		0.25		2,268.06
Total	**2.79**	**18.64**	**11.95**	**0.02**		**1.12**	**1.12**		**1.12**	**1.12**	**0.00**	**2,262.82**		**0.25**		**2,268.06**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.34	3.68	2.61	0.01	0.23	0.12	0.35	0.02	0.12	0.13		671.98		0.02		672.34
Worker	1.41	1.47	13.99	0.03	3.68	0.12	3.80	0.14	0.12	0.25		2,677.72		0.14		2,680.75
Total	**1.75**	**5.15**	**16.60**	**0.04**	**3.91**	**0.24**	**4.15**	**0.16**	**0.24**	**0.38**		**3,349.70**		**0.16**		**3,353.09**

3.6 Equipment Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.55	17.08	11.77	0.02		1.00	1.00		1.00	1.00		2,262.82		0.23		2,267.64
Total	**2.55**	**17.08**	**11.77**	**0.02**		**1.00**	**1.00**		**1.00**	**1.00**		**2,262.82**		**0.23**		**2,267.64**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	3.32	2.42	0.01	0.23	0.10	0.34	0.02	0.10	0.12		674.10		0.02		674.43
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90
Total	**1.64**	**4.66**	**15.30**	**0.04**	**3.91**	**0.22**	**4.14**	**0.16**	**0.22**	**0.38**		**3,292.18**		**0.15**		**3,295.33**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.55	17.08	11.77	0.02		1.00	1.00		1.00	1.00	0.00	2,262.82		0.23		2,267.64
Total	**2.55**	**17.08**	**11.77**	**0.02**		**1.00**	**1.00**		**1.00**	**1.00**	**0.00**	**2,262.82**		**0.23**		**2,267.64**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.31	3.32	2.42	0.01	0.23	0.10	0.34	0.02	0.10	0.12		674.10		0.02		674.43
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90
Total	**1.64**	**4.66**	**15.30**	**0.04**	**3.91**	**0.22**	**4.14**	**0.16**	**0.22**	**0.38**		**3,292.18**		**0.15**		**3,295.33**

3.7 Final Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.66	0.00	0.66	0.00	0.00	0.00						0.00
Off-Road	1.31	9.37	7.54	0.01		0.57	0.57		0.57	0.57		1,227.31		0.12		1,229.77
Total	**1.31**	**9.37**	**7.54**	**0.01**	**0.66**	**0.57**	**1.23**	**0.00**	**0.57**	**0.57**		**1,227.31**		**0.12**		**1,229.77**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.33	0.97	0.00	0.09	0.04	0.13	0.01	0.04	0.05		269.64		0.01		269.77
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90
Total	**1.46**	**2.67**	**13.85**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**2,887.72**		**0.14**		**2,890.67**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Fugitive Dust					0.26	0.00	0.26	0.00	0.00	0.00						0.00
Off-Road	1.31	9.37	7.54	0.01		0.57	0.57		0.57	0.57	0.00	1,227.31		0.12		1,229.77
Total	**1.31**	**9.37**	**7.54**	**0.01**	**0.26**	**0.57**	**0.83**	**0.00**	**0.57**	**0.57**	**0.00**	**1,227.31**		**0.12**		**1,229.77**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.33	0.97	0.00	0.09	0.04	0.13	0.01	0.04	0.05		269.64		0.01		269.77
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90
Total	**1.46**	**2.67**	**13.85**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**2,887.72**		**0.14**		**2,890.67**

3.8 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.74	17.01	11.78	0.02		1.43	1.43		1.43	1.43		1,688.64		0.25		1,693.80
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.74**	**17.01**	**11.78**	**0.02**		**1.43**	**1.43**		**1.43**	**1.43**		**1,688.64**		**0.25**		**1,693.80**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.33	0.97	0.00	0.09	0.04	0.13	0.01	0.04	0.05		269.64		0.01		269.77
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90
Total	**1.46**	**2.67**	**13.85**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**2,887.72**		**0.14**		**2,890.67**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.74	17.01	11.78	0.02		1.43	1.43		1.43	1.43	0.00	1,688.64		0.25		1,693.80
Paving	0.00					0.00	0.00		0.00	0.00						0.00
Total	**2.74**	**17.01**	**11.78**	**0.02**		**1.43**	**1.43**		**1.43**	**1.43**	**0.00**	**1,688.64**		**0.25**		**1,693.80**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00		0.00
Vendor	0.13	1.33	0.97	0.00	0.09	0.04	0.13	0.01	0.04	0.05		269.64		0.01		269.77
Worker	1.33	1.34	12.88	0.03	3.68	0.12	3.80	0.14	0.12	0.26		2,618.08		0.13		2,620.90

Total	**1.46**	**2.67**	**13.85**	**0.03**	**3.77**	**0.16**	**3.93**	**0.15**	**0.16**	**0.31**		**2,887.72**		**0.14**		**2,890.67**

210480-IRWD Biosolids

Orange County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric
General Light Industry	150	1000sqft

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**		**Utility Company**	Southern California Edison
Climate Zone	8		2.2		
		Precipitation Freq (Days)			
			30		

1.3 User Entered Comments

Project Characteristics -

Land Use - Site acreage + staging area

Construction Phase - Construction schedule assumptions

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment updated

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Equipment list assumptions.

Off-road Equipment - Minor site clearing

Trips and VMT - Worst case - maximum number of worker and vendor trips

Grading - Soil excavation assumptions

Vehicle Trips - Estimated operational vehicle trips (assumes a 5-day week) with Class B Biosolids Deliveries (worst-case)

Area Coating -

Energy Use - GHG emissions generated in ENVIRON report.

Water And Wastewater - GHG emissions generated in ENVIRON report.

Solid Waste - GHG emissions generated in ENVIRON report.

Construction Off-road Equipment Mitigation -

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.70	5.30	4.21	0.01	9.35	0.24	9.59	0.23	0.24	0.47	0.00	828.64	828.64	0.05	0.00	829.72
2014	0.64	3.52	4.15	0.01	0.46	0.21	0.67	0.02	0.21	0.23	0.00	727.41	727.41	0.05	0.00	728.55
2015	0.19	0.91	1.28	0.00	0.19	0.06	0.25	0.01	0.06	0.07	0.00	222.41	222.41	0.02	0.00	222.75
Total	**1.53**	**9.73**	**9.64**	**0.02**	**10.00**	**0.51**	**10.51**	**0.26**	**0.51**	**0.77**	**0.00**	**1,778.46**	**1,778.46**	**0.12**	**0.00**	**1,781.02**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2013	0.70	5.30	4.21	0.01	9.11	0.24	9.35	0.10	0.24	0.34	0.00	828.64	828.64	0.05	0.00	829.72
2014	0.64	3.52	4.15	0.01	0.46	0.21	0.67	0.02	0.21	0.23	0.00	727.41	727.41	0.05	0.00	728.55
2015	0.19	0.91	1.28	0.00	0.18	0.06	0.24	0.01	0.06	0.07	0.00	222.41	222.41	0.02	0.00	222.75
Total	**1.53**	**9.73**	**9.64**	**0.02**	**9.75**	**0.51**	**10.26**	**0.13**	**0.51**	**0.64**	**0.00**	**1,778.46**	**1,778.46**	**0.12**	**0.00**	**1,781.02**

3.0 Construction Detail

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Clearing - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.04	0.00	0.04	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.13	0.07	0.00		0.01	0.01		0.01	0.01	0.00	11.67	11.67	0.00	0.00	11.70
Total	**0.02**	**0.13**	**0.07**	**0.00**	**0.04**	**0.01**	**0.05**	**0.02**	**0.01**	**0.03**	**0.00**	**11.67**	**11.67**	**0.00**	**0.00**	**11.70**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	1.22	0.00	0.00	1.22
Worker	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	12.66	12.66	0.00	0.00	12.68
Total	**0.01**	**0.02**	**0.09**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.88**	**13.88**	**0.00**	**0.00**	**13.90**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.13	0.07	0.00		0.01	0.01		0.01	0.01	0.00	11.67	11.67	0.00	0.00	11.70
Total	**0.02**	**0.13**	**0.07**	**0.00**	**0.01**	**0.01**	**0.02**	**0.01**	**0.01**	**0.02**	**0.00**	**11.67**	**11.67**	**0.00**	**0.00**	**11.70**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Vendor	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	1.22	0.00	0.00	1.22
Worker	0.01	0.01	0.08	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	12.66	12.66	0.00	0.00	12.68
Total	**0.01**	**0.02**	**0.09**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**13.88**	**13.88**	**0.00**	**0.00**	**13.90**

3.3 Grading - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.08	0.00	0.08	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.75	0.39	0.00		0.03	0.03		0.03	0.03	0.00	72.43	72.43	0.01	0.00	72.58
Total	**0.09**	**0.75**	**0.39**	**0.00**	**0.08**	**0.03**	**0.11**	**0.04**	**0.03**	**0.07**	**0.00**	**72.43**	**72.43**	**0.01**	**0.00**	**72.58**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	3.66	0.00	0.00	3.66
Worker	0.02	0.02	0.23	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	37.99	37.99	0.00	0.00	38.04
Total	**0.02**	**0.04**	**0.25**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**41.65**	**41.65**	**0.00**	**0.00**	**41.70**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.03	0.00	0.03	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.09	0.75	0.39	0.00		0.03	0.03		0.03	0.03	0.00	72.43	72.43	0.01	0.00	72.58
Total	**0.09**	**0.75**	**0.39**	**0.00**	**0.03**	**0.03**	**0.06**	**0.02**	**0.03**	**0.05**	**0.00**	**72.43**	**72.43**	**0.01**	**0.00**	**72.58**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	3.66	0.00	0.00	3.66
Worker	0.02	0.02	0.23	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	37.99	37.99	0.00	0.00	38.04
Total	**0.02**	**0.04**	**0.25**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**41.65**	**41.65**	**0.00**	**0.00**	**41.70**

3.4 Excavation - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.27	0.00	0.27	0.15	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.24	1.96	1.04	0.00		0.09	0.09		0.09	0.09	0.00	209.84	209.84	0.02	0.00	210.25
Total	**0.24**	**1.96**	**1.04**	**0.00**	**0.27**	**0.09**	**0.36**	**0.15**	**0.09**	**0.24**	**0.00**	**209.84**	**209.84**	**0.02**	**0.00**	**210.25**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.21	2.06	1.33	0.00	8.70	0.08	8.79	0.01	0.08	0.10	0.00	305.09	305.09	0.01	0.00	305.29
Vendor	0.01	0.08	0.06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.19	12.19	0.00	0.00	12.20
Worker	0.07	0.07	0.78	0.00	0.17	0.01	0.17	0.01	0.01	0.01	0.00	126.64	126.64	0.01	0.00	126.78
Total	**0.29**	**2.21**	**2.17**	**0.00**	**8.87**	**0.09**	**8.97**	**0.02**	**0.09**	**0.11**	**0.00**	**443.92**	**443.92**	**0.02**	**0.00**	**444.27**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.11	0.00	0.11	0.06	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.24	1.96	1.04	0.00		0.09	0.09		0.09	0.09	0.00	209.84	209.84	0.02	0.00	210.25
Total	**0.24**	**1.96**	**1.04**	**0.00**	**0.11**	**0.09**	**0.20**	**0.06**	**0.09**	**0.15**	**0.00**	**209.84**	**209.84**	**0.02**	**0.00**	**210.25**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.21	2.06	1.33	0.00	8.70	0.08	8.79	0.01	0.08	0.10	0.00	305.09	305.09	0.01	0.00	305.29
Vendor	0.01	0.08	0.06	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	12.19	12.19	0.00	0.00	12.20
Worker	0.07	0.07	0.78	0.00	0.17	0.01	0.17	0.01	0.01	0.01	0.00	126.64	126.64	0.01	0.00	126.78
Total	**0.29**	**2.21**	**2.17**	**0.00**	**8.87**	**0.09**	**8.97**	**0.02**	**0.09**	**0.11**	**0.00**	**443.92**	**443.92**	**0.02**	**0.00**	**444.27**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.16	0.10	0.00		0.01	0.01		0.01	0.01	0.00	16.41	16.41	0.00	0.00	16.45
Total	**0.02**	**0.16**	**0.10**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.41**	**16.41**	**0.00**	**0.00**	**16.45**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	3.66	0.00	0.00	3.66
Worker	0.01	0.01	0.09	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	15.20	15.20	0.00	0.00	15.21
Total	**0.01**	**0.03**	**0.11**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**18.86**	**18.86**	**0.00**	**0.00**	**18.87**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.02	0.16	0.10	0.00		0.01	0.01		0.01	0.01	0.00	16.41	16.41	0.00	0.00	16.45
Total	**0.02**	**0.16**	**0.10**	**0.00**		**0.01**	**0.01**		**0.01**	**0.01**	**0.00**	**16.41**	**16.41**	**0.00**	**0.00**	**16.45**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.66	3.66	0.00	0.00	3.66
Worker	0.01	0.01	0.09	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00	15.20	15.20	0.00	0.00	15.21
Total	**0.01**	**0.03**	**0.11**	**0.00**	**0.02**	**0.00**	**0.02**	**0.00**	**0.00**	**0.00**	**0.00**	**18.86**	**18.86**	**0.00**	**0.00**	**18.87**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.29	1.98	1.36	0.00		0.12	0.12		0.12	0.12	0.00	222.92	222.92	0.02	0.00	223.42
Total	**0.29**	**1.98**	**1.36**	**0.00**		**0.12**	**0.12**		**0.12**	**0.12**	**0.00**	**222.92**	**222.92**	**0.02**	**0.00**	**223.42**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.03	0.28	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01	0.00	49.86	49.86	0.00	0.00	49.88
Worker	0.11	0.11	1.17	0.00	0.27	0.01	0.28	0.01	0.01	0.02	0.00	202.40	202.40	0.01	0.00	202.63
Total	**0.14**	**0.39**	**1.38**	**0.00**	**0.29**	**0.02**	**0.31**	**0.01**	**0.02**	**0.03**	**0.00**	**252.26**	**252.26**	**0.01**	**0.00**	**252.51**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.29	1.98	1.36	0.00		0.12	0.12		0.12	0.12	0.00	222.92	222.92	0.02	0.00	223.42
Total	**0.29**	**1.98**	**1.36**	**0.00**		**0.12**	**0.12**		**0.12**	**0.12**	**0.00**	**222.92**	**222.92**	**0.02**	**0.00**	**223.42**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.03	0.28	0.21	0.00	0.02	0.01	0.03	0.00	0.01	0.01	0.00	49.86	49.86	0.00	0.00	49.88

Worker	0.11	0.11	1.17	0.00	0.27	0.01	0.28	0.01	0.01	0.02	0.00	202.40	202.40	0.01	0.00	202.63
Total	**0.14**	**0.39**	**1.38**	**0.00**	**0.29**	**0.02**	**0.31**	**0.01**	**0.02**	**0.03**	**0.00**	**252.26**	**252.26**	**0.01**	**0.00**	**252.51**

3.6 Equipment Installation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.14	0.91	0.59	0.00		0.06	0.06		0.06	0.06	0.00	100.56	100.56	0.01	0.00	100.79
Total	**0.14**	**0.91**	**0.59**	**0.00**		**0.06**	**0.06**		**0.06**	**0.06**	**0.00**	**100.56**	**100.56**	**0.01**	**0.00**	**100.79**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.02	0.17	0.12	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.98	29.98	0.00	0.00	29.99
Worker	0.06	0.06	0.70	0.00	0.16	0.01	0.17	0.01	0.01	0.01	0.00	121.69	121.69	0.01	0.00	121.83
Total	**0.08**	**0.23**	**0.82**	**0.00**	**0.17**	**0.02**	**0.19**	**0.01**	**0.02**	**0.02**	**0.00**	**151.67**	**151.67**	**0.01**	**0.00**	**151.82**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	0.14	0.91	0.59	0.00		0.06	0.06		0.06	0.06	0.00	100.56	100.56	0.01	0.00	100.79
Total	**0.14**	**0.91**	**0.59**	**0.00**		**0.06**	**0.06**		**0.06**	**0.06**	**0.00**	**100.56**	**100.56**	**0.01**	**0.00**	**100.79**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.02	0.17	0.12	0.00	0.01	0.01	0.02	0.00	0.01	0.01	0.00	29.98	29.98	0.00	0.00	29.99
Worker	0.06	0.06	0.70	0.00	0.16	0.01	0.17	0.01	0.01	0.01	0.00	121.69	121.69	0.01	0.00	121.83
Total	**0.08**	**0.23**	**0.82**	**0.00**	**0.17**	**0.02**	**0.19**	**0.01**	**0.02**	**0.02**	**0.00**	**151.67**	**151.67**	**0.01**	**0.00**	**151.82**

3.6 Equipment Installation - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.27	0.19	0.00		0.02	0.02		0.02	0.02	0.00	32.84	32.84	0.00	0.00	32.91
Total	**0.04**	**0.27**	**0.19**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**32.84**	**32.84**	**0.00**	**0.00**	**32.91**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.05	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	9.82	9.82	0.00	0.00	9.82
Worker	0.02	0.02	0.21	0.00	0.05	0.00	0.06	0.00	0.00	0.00	0.00	38.85	38.85	0.00	0.00	38.89
Total	**0.02**	**0.07**	**0.25**	**0.00**	**0.05**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**48.67**	**48.67**	**0.00**	**0.00**	**48.71**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.04	0.27	0.19	0.00		0.02	0.02		0.02	0.02	0.00	32.84	32.84	0.00	0.00	32.91
Total	**0.04**	**0.27**	**0.19**	**0.00**		**0.02**	**0.02**		**0.02**	**0.02**	**0.00**	**32.84**	**32.84**	**0.00**	**0.00**	**32.91**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.05	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	9.82	9.82	0.00	0.00	9.82
Worker	0.02	0.02	0.21	0.00	0.05	0.00	0.06	0.00	0.00	0.00	0.00	38.85	38.85	0.00	0.00	38.89
Total	**0.02**	**0.07**	**0.25**	**0.00**	**0.05**	**0.00**	**0.07**	**0.00**	**0.00**	**0.00**	**0.00**	**48.67**	**48.67**	**0.00**	**0.00**	**48.71**

3.7 Final Grading - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.14	0.11	0.00		0.01	0.01		0.01	0.01	0.00	16.70	16.70	0.00	0.00	16.73
Total	**0.02**	**0.14**	**0.11**	**0.00**	**0.01**	**0.01**	**0.02**	**0.00**	**0.01**	**0.01**	**0.00**	**16.70**	**16.70**	**0.00**	**0.00**	**16.73**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68	3.68	0.00	0.00	3.68
Worker	0.02	0.02	0.20	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	36.42	36.42	0.00	0.00	36.46
Total	**0.02**	**0.04**	**0.21**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**40.10**	**40.10**	**0.00**	**0.00**	**40.14**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.02	0.14	0.11	0.00		0.01	0.01		0.01	0.01	0.00	16.70	16.70	0.00	0.00	16.73
Total	**0.02**	**0.14**	**0.11**	**0.00**	**0.00**	**0.01**	**0.01**	**0.00**	**0.01**	**0.01**	**0.00**	**16.70**	**16.70**	**0.00**	**0.00**	**16.73**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.68	3.68	0.00	0.00	3.68
Worker	0.02	0.02	0.20	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	36.42	36.42	0.00	0.00	36.46
Total	**0.02**	**0.04**	**0.21**	**0.00**	**0.05**	**0.00**	**0.05**	**0.00**	**0.00**	**0.00**	**0.00**	**40.10**	**40.10**	**0.00**	**0.00**	**40.14**

3.8 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.05	0.34	0.24	0.00		0.03	0.03		0.03	0.03	0.00	30.63	30.63	0.00	0.00	30.72
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.34**	**0.24**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**30.63**	**30.63**	**0.00**	**0.00**	**30.72**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.91	4.91	0.00	0.00	4.91
Worker	0.02	0.02	0.26	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	48.56	48.56	0.00	0.00	48.62
Total	**0.02**	**0.05**	**0.28**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**53.47**	**53.47**	**0.00**	**0.00**	**53.53**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.05	0.34	0.24	0.00		0.03	0.03		0.03	0.03	0.00	30.63	30.63	0.00	0.00	30.72
Paving	0.00					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	**0.05**	**0.34**	**0.24**	**0.00**		**0.03**	**0.03**		**0.03**	**0.03**	**0.00**	**30.63**	**30.63**	**0.00**	**0.00**	**30.72**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vendor	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.91	4.91	0.00	0.00	4.91
Worker	0.02	0.02	0.26	0.00	0.07	0.00	0.07	0.00	0.00	0.01	0.00	48.56	48.56	0.00	0.00	48.62

Total	**0.02**	**0.05**	**0.28**	**0.00**	**0.07**	**0.00**	**0.07**	**0.00**	**0.00**	**0.01**	**0.00**	**53.47**	**53.47**	**0.00**	**0.00**	**53.53**

BIOSOLIDS HANDLING COMPONENT GREENHOUSE GAS COMPARISON[1]

GHG Source	To OCSD mtCO2e/yr	To IRWD[2] mtCO2e/yr	Net Difference mtCO2e/yr
IRWD Pump to Main St. Stn or to IRWD Biosoids[2]	same	same	-
Electrical Power			
Electrical Power for Main St. Pump Stn	23	N/A	(23)
Electrical Power for Liquid Treatment[3]	2,497	N/A	(2,497)
Electrical Power for Biosolids Treatment[4]	same	same	-
Electricity Use for Drying	N/A	779	779
Offset for Digester Gas from Solids Used for Elect Gen[5]	(1,091)	(1,100)	(9)
			(1,750)
Natural Gas			
Natural Gas Use for Heating digesters[6]	same	same	-
Natural Gas Use for Drying	N/A	3,465	3,465
Offset for Natural Gas Use Avoidance due to Generator Waste Heat Recovery[7]	(1,309)	(1,064)	246
			3,711
Empolyees and Other Delivery Trips (Shown in Table 2-2)[8]	same	same	-
Cake Hauling[9]	1,174	N/A	(1,174)
Pellet Hauling[10]	N/A	61	61
			(1,113)
TOTAL			**848**
Offset for land-applied solids	(2,507)	(125)	2,382
Offset for replacing coal in kiln operation	N/A	(3,323)	(3,323)
TOTAL			**(94)**

Assumptions

1. Comparison of biosolids quantity based on MWRP at startup capacity (23.6 mgd), APAD, Average Day, to either OCSD or MWRP for treatment and reuse.

2. IRWD's residuals pump station pumping to either the OCSD Main St. PS or to the MWRP Biosolids Facility would use the same amount of energy; therefore, the GHG impact is the same.

3. Sludge pumped to OCSD must first pass through OCSD's liquid treatment process before entering their biosolids treatment process.

4. Electrical power to run biosolids facilities at OCSD for IRWD solids assumed to be equal; therefore, the GHG impact is the same.

5. Generation of electricity using biogas is performed using engine generators at OCSD or microtubines at IRWD.

6. Natural gas used for digester heating is assumed to be equal at either OCSD or at MWRP; therefore, the GHG impact is the same.

7. Waste heat is recovered from engine generators at OCSD or microtubines at IRWD.

8. Employee and chemical delivery trips at either OCSD or MWRP be equal; therefore, the GHG impact is the same.

9. Cake shipped from OCSD to either La Paz, AZ or Yuma, AZ, avg 370 mi. one way

10. Pellets shipped to Adelanto, CA, 84 mi (95%), or local, 10 mi (5%)

Supporting calculations are on file at Irvine Ranch Water District and available upon request.

APPENDIX D

Biological Resources

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank	CESA	FESA	Elevation High (m)	Elevation Low (m)	CA Endemic
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	4.2	S3?	G4?	None	None	100	0	F
Abronia villosa var. aurita	chaparral sand-verbena	Nyctaginaceae	annual herb	1B.1	S2	G5T3T4	None	None	1600	75	F
Aphanisma blitoides	aphanisma	Chenopodiaceae	annual herb	1B.2	S3	G3G4	None	None	305	1	F
Astragalus pycnostachyus var. lanosissimus	Ventura marsh milk-vetch	Fabaceae	perennial herb	1B.1	S1	G2T1	CE	FE	35	1	T
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	1B.2	S2.2	G2	None	None	460	3	F
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	1B.2	S2.2	G3G4	None	None	140	0	F
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	1B.1	S1.1	G1G2	None	None	1900	25	F
Atriplex serenana var. davidsonii	Davidson's saltscale	Chenopodiaceae	annual herb	1B.2	S2?	G5T2?	None	None	200	10	F
Calochortus plummerae	Plummer's mariposa lily	Liliaceae	perennial bulbiferous herb	1B.2	S3	G3	None	None	1700	100	T
Calochortus weedii var. intermedius	intermediate mariposa lily	Liliaceae	perennial bulbiferous herb	1B.2	S2.2	G3G4T2	None	None	855	105	T
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	1B.1	S2	G4T2	None	None	425	0	F
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	Asteraceae	annual herb	1B.1	S1	G5T1	None	None	100	0	F
Chloropyron maritimum ssp. maritimum	salt marsh bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S1	G4?T1	CE	FE	30	0	F
Chorizanthe parryi var. fernandina	San Fernando Valley spineflower	Polygonaceae	annual herb	1B.1	S1.1	G2T1	CE	FC	1220	150	T
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	4.2	S3.2	G3G4	None	None	300	5	F
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	4.2	S3.2	G3G4	None	None	940	25	F
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	4.2	S3.2	G4?	None	None	500	50	F
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	1B.2	S2	G2	None	None	790	15	T
Dudleya stolonifera	Laguna Beach dudleya	Crassulaceae	perennial stoloniferous herb	1B.1	S1.1	G1	CT	FT	260	10	T
Euphorbia misera	cliff spurge	Euphorbiaceae	perennial shrub	2.2	S1	G5	None	None	500	10	F
Helianthus nuttallii ssp. parishii	Los Angeles sunflower	Asteraceae	perennial rhizomatous herb	1A	SH	G5TH	None	None	1675	10	T
Hordeum intercedens	vernal barley	Poaceae	annual herb	3.2	S3S4	G3G4	None	None	1000	5	F
Horkelia cuneata ssp. puberula	mesa horkelia	Rosaceae	perennial herb	1B.1	S2.1	G4T2	None	None	810	70	T
Isocoma menziesii var. decumbens	decumbent goldenbush	Asteraceae	perennial shrub	1B.2	S2.2	G3G5T2T3	None	None	135	10	F
Juglans californica	Southern California black walnut	Juglandaceae	perennial deciduous tree	4.2	S3.2	G3	None	None	900	50	T
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	1B.1	S2.1	G4T3	None	None	1220	1	F
Malacothrix saxatilis var. saxatilis	cliff malacothrix	Asteraceae	perennial rhizomatous herb	4.2	S3.2	G5T3	None	None	200	3	T
Nama stenocarpum	mud nama	Hydrophyllaceae	annual / perennial herb	2.2	S1S2	G4G5	None	None	500	5	F
Nasturtium gambelii	Gambel's water cress	Brassicaceae	perennial rhizomatous herb	1B.1	S1	G1	CT	FE	330	5	F
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	1B.1	S2	G2	None	None	1210	15	T
Nemacaulis denudata var. denudata	coast woolly-heads	Polygonaceae	annual herb	1B.2	S2.2	G3G4T3?	None	None	100	0	F
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	1B.1	S2.1	G1	CE	FE	660	15	F
Pentachaeta aurea ssp. allenii	Allen's pentachaeta	Asteraceae	annual herb	1B.1	S2	G4T2	None	None	520	75	T
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Boraginaceae	perennial herb	3.2	S3.2	G5?T3	None	None	300	5	F
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	1B.1	S1.1	G1G2	None	None	400	15	F
Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	perennial rhizomatous herb	1B.2	S3	G3	None	None	650	0	T
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	2.2	S1.2	G3?	None	None	800	15	F
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	2.2	S2S3	G4?	None	None	1530	15	F
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	1B.2	S2	G3	None	None	5	0	F
Symphyotrichum defoliatum	San Bernardino aster	Asteraceae	perennial rhizomatous herb	1B.2	S2	G2	None	None	2040	2	T
Verbesina dissita	big-leaved crownbeard	Asteraceae	perennial herb	1B.1	S1.1	G2G3	CT	FT	205	45	F

Selected Elements by Scientific Name

California Department of Fish and Game

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
Allen's pentachaeta *Pentachaeta aurea ssp. allenii*	PDAST6X021	None	None	G4T2	S2	1B.1
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S4	SSC
aphanisma *Aphanisma blitoides*	PDCHE02010	None	None	G3G4	S3	1B.2
arroyo chub *Gila orcuttii*	AFCJB13120	None	None	G2	S2	SSC
arroyo toad *Anaxyrus californicus*	AAABB01230	Endangered	None	G2G3	S2S3	SSC
bank swallow *Riparia riparia*	ABPAU08010	None	Threatened	G5	S2S3	
Belding's savannah sparrow *Passerculus sandwichensis beldingi*	ABPBX99015	None	Endangered	G5T3	S3	
big free-tailed bat *Nyctinomops macrotis*	AMACD04020	None	None	G5	S2	SSC
big-leaved crownbeard *Verbesina dissita*	PDAST9R050	Threatened	Threatened	G2G3	S1.1	1B.1
Braunton's milk-vetch *Astragalus brauntonii*	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
California beardtongue *Penstemon californicus*	PDSCR1L110	None	None	G3?	S2	1B.2
California black rail *Laterallus jamaicensis coturniculus*	ABNME03041	None	Threatened	G4T1	S1	FP
California horned lark *Eremophila alpestris actia*	ABPAT02011	None	None	G5T3Q	S3	WL
California least tern *Sternula antillarum browni*	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	FP
California Walnut Woodland *California Walnut Woodland*	CTT71210CA	None	None	G2	S2.1	
chaparral nolina *Nolina cismontana*	PMAGA080E0	None	None	G2	S2	1B.2
chaparral ragwort *Senecio aphanactis*	PDAST8H060	None	None	G3?	S1.2	2.2
chaparral sand-verbena *Abronia villosa var. aurita*	PDNYC010P1	None	None	G5T3T4	S2	1B.1
cliff spurge *Euphorbia misera*	PDEUP0Q1B0	None	None	G5	S1	2.2
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G4G5	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
coast patch-nosed snake *Salvadora hexalepis virgultea*	ARADB30033	None	None	G5T3	S2S3	SSC
Coast Range newt *Taricha torosa*	AAAAF02032	None	None	G5T4	S4	SSC
coast woolly-heads *Nemacaulis denudata var. denudata*	PDPGN0G011	None	None	G3G4T3?	S2.2	1B.2
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	ABPBG02095	None	None	G5T3Q	S3	SSC
coastal California gnatcatcher *Polioptila californica californica*	ABPBJ08081	Threatened	None	G3T2	S2	SSC
coastal whiptail *Aspidoscelis tigris stejnegeri*	ARACJ02143	None	None	G5T3T4	S2S3	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S3	WL
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	PDAST5L0A1	None	None	G4T3	S2.1	1B.1
Coulter's saltbush *Atriplex coulteri*	PDCHE040E0	None	None	G2	S2.2	1B.2
Davidson's saltscale *Atriplex serenana var. davidsonii*	PDCHE041T1	None	None	G5T2?	S2?	1B.2
estuary seablite *Suaeda esteroa*	PDCHE0P0D0	None	None	G3	S2	1B.2
ferruginous hawk *Buteo regalis*	ABNKC19120	None	None	G4	S3S4	WL
Gambel's water cress *Nasturtium gambelii*	PDBRA270V0	Endangered	Threatened	G1	S1	1B.1
globose dune beetle *Coelus globosus*	IICOL4A010	None	None	G1	S1	
grasshopper sparrow *Ammodramus savannarum*	ABPBXA0020	None	None	G5	S2	SSC
great blue heron *Ardea herodias*	ABNGA04010	None	None	G5	S4	
heart-leaved pitcher sage *Lepechinia cardiophylla*	PDLAM0V020	None	None	G2	S2.2	1B.2
hoary bat *Lasiurus cinereus*	AMACC05030	None	None	G5	S4?	
intermediate mariposa-lily *Calochortus weedii var. intermedius*	PMLIL0D1J1	None	None	G3G4T2	S2.2	1B.2
Laguna Beach dudleya *Dudleya stolonifera*	PDCRA040P0	Threatened	Threatened	G1	S1	1B.1
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
light-footed clapper rail *Rallus longirostris levipes*	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
long-eared owl *Asio otus*	ABNSB13010	None	None	G5	S3	SSC
long-spined spineflower *Chorizanthe polygonoides var. longispina*	PDPGN040K1	None	None	G5T3	S3	1B.2
Los Angeles sunflower *Helianthus nuttallii ssp. parishii*	PDAST4N102	None	None	G5TH	SH	1A
Malibu baccharis *Baccharis malibuensis*	PDAST0W0W0	None	None	G1	S1.1	1B.1
many-stemmed dudleya *Dudleya multicaulis*	PDCRA040H0	None	None	G2	S2	1B.2
mesa horkelia *Horkelia cuneata ssp. puberula*	PDROS0W045	None	None	G4T2	S2.1	1B.1
Mexican long-tongued bat *Choeronycteris mexicana*	AMACB02010	None	None	G4	S1	SSC
mimic tryonia (=California brackishwater snail) *Tryonia imitator*	IMGASJ7040	None	None	G2G3	S2S3	
monarch butterfly *Danaus plexippus*	IILEPP2010	None	None	G5	S3	
mud nama *Nama stenocarpum*	PDHYD0A0H0	None	None	G4G5	S1S2	2.2
northern leopard frog *Lithobates pipiens*	AAABH01170	None	None	G5	S2	SSC
Nuttall's scrub oak *Quercus dumosa*	PDFAG050D0	None	None	G1G2	S1.1	1B.1
orangethroat whiptail *Aspidoscelis hyperythra*	ARACJ02060	None	None	G5	S2	SSC
Orcutt's pincushion *Chaenactis glabriuscula var. orcuttiana*	PDAST20095	None	None	G5T1	S1	1B.1
osprey *Pandion haliaetus*	ABNKC01010	None	None	G5	S3	WL
Pacific pocket mouse *Perognathus longimembris pacificus*	AMAFD01042	Endangered	None	G5T1	S1	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
Parish's brittlescale *Atriplex parishii*	PDCHE041D0	None	None	G1G2	S1.1	1B.1
Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150	None	None	G3	S3	1B.2
prostrate vernal pool navarretia *Navarretia prostrata*	PDPLM0C0Q0	None	None	G2	S2	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
red-diamond rattlesnake *Crotalus ruber*	ARADE02090	None	None	G4	S2?	SSC
Riverside fairy shrimp *Streptocephalus woottoni*	ICBRA07010	Endangered	None	G1	S1	
Riversidian Alluvial Fan Sage Scrub *Riversidian Alluvial Fan Sage Scrub*	CTT32720CA	None	None	G1	S1.1	
rosy boa *Charina trivirgata*	ARADA01020	None	None	G4G5	S3S4	
salt marsh bird's-beak *Chloropyron maritimum ssp. maritimum*	PDSCR0J0C2	Endangered	Endangered	G4?T1	S1	1B.2
Salt Spring checkerbloom *Sidalcea neomexicana*	PDMAL110J0	None	None	G4?	S2S3	2.2
San Bernardino aster *Symphyotrichum defoliatum*	PDASTE80C0	None	None	G2	S2	1B.2
San Diego desert woodrat *Neotoma lepida intermedia*	AMAFF08041	None	None	G5T3?	S3?	SSC
San Diego fairy shrimp *Branchinecta sandiegonensis*	ICBRA03060	Endangered	None	G1	S1	
San Fernando Valley spineflower *Chorizanthe parryi var. fernandina*	PDPGN040J1	Candidate	Endangered	G2T1	S1.1	1B.1
sandy beach tiger beetle *Cicindela hirticollis gravida*	IICOL02101	None	None	G5T2	S1	
Santa Ana River woollystar *Eriastrum densifolium ssp. sanctorum*	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Santa Ana speckled dace *Rhinichthys osculus ssp. 3*	AFCJB3705K	None	None	G5T1	S1	SSC
Santa Ana sucker *Catostomus santaanae*	AFCJC02190	Threatened	None	G1	S1	SSC
South Coast saltscale *Atriplex pacifica*	PDCHE041C0	None	None	G3G4	S2.2	1B.2
Southern California Arroyo Chub/Santa Ana Sucker Stream *Southern California Arroyo Chub/Santa Ana Sucker Stream*	CARE2330CA	None	None	G?	SNR	
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	ABPBX91091	None	None	G5T2T4	S2S3	WL
southern California saltmarsh shrew *Sorex ornatus salicornicus*	AMABA01104	None	None	G5T1?	S1	SSC
Southern Coast Live Oak Riparian Forest *Southern Coast Live Oak Riparian Forest*	CTT61310CA	None	None	G4	S4	
Southern Coastal Salt Marsh *Southern Coastal Salt Marsh*	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest *Southern Cottonwood Willow Riparian Forest*	CTT61330CA	None	None	G3	S3.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
Southern Dune Scrub *Southern Dune Scrub*	CTT21330CA	None	None	G1	S1.1	
Southern Foredunes *Southern Foredunes*	CTT21230CA	None	None	G2	S2.1	
Southern Interior Cypress Forest *Southern Interior Cypress Forest*	CTT83230CA	None	None	G2	S2.1	
Southern Riparian Scrub *Southern Riparian Scrub*	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland *Southern Sycamore Alder Riparian Woodland*	CTT62400CA	None	None	G4	S4	
southern tarplant *Centromadia parryi ssp. australis*	PDAST4R0P4	None	None	G4T2	S2	1B.1
Southern Willow Scrub *Southern Willow Scrub*	CTT63320CA	None	None	G3	S2.1	
southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
summer holly *Comarostaphylis diversifolia ssp. diversifolia*	PDERI0B011	None	None	G3T2	S2	1B.2
Tecate cypress *Hesperocyparis forbesii*	PGCUP040C0	None	None	G2	S1.1	1B.1
thread-leaved brodiaea *Brodiaea filifolia*	PMLIL0C050	Threatened	Endangered	G1	S1	1B.1
tidewater goby *Eucyclogobius newberryi*	AFCQN04010	Endangered	None	G3	S2S3	SSC
two-striped garter snake *Thamnophis hammondii*	ARADB36160	None	None	G3	S2	SSC
Valley Needlegrass Grassland *Valley Needlegrass Grassland*	CTT42110CA	None	None	G3	S3.1	
wandering (=saltmarsh) skipper *Panoquina errans*	IILEP84030	None	None	G4G5	S1	
western beach tiger beetle *Cicindela latesignata latesignata*	IICOL02113	None	None	G4T1T2	S1	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3?	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius alexandrinus nivosus*	ABNNB03031	Threatened	None	G4T3	S2	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G3	S3	SSC
western tidal-flat tiger beetle *Cicindela gabbii*	IICOL02080	None	None	G4	S1	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFG SSC or FP
white rabbit-tobacco *Pseudognaphalium leucocephalum*	PDAST440C0	None	None	G4	S2S3.2	2.2
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3	FP
yellow-breasted chat *Icteria virens*	ABPBX24010	None	None	G5	S3	SSC
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4?	

Record Count: 109

FINDINGS AND FACTS IN SUPPORT OF FINDINGS

IRVINE RANCH WATER DISTRICT
Michelson Water Recycling Plant Phase 2 & 3 Capacity Expansion Project,
Biosolids Handling Component
(State Clearinghouse No. 211031091)

I. Description of the Project

The Irvine Ranch Water District (IRWD) as the Lead Agency proposes the Michelson Water Recycling Plant (MWRP) Phase 2 and 3 Capacity Expansion Project (proposed project). IRWD is proposing to modify the proposed project to include a Biosolids Handling Component that would integrate a new residuals-handling system at the MWRP, including biosolids processing, biogas management, and energy recovery systems. The proposed project would allow IRWD to make efficient and sustainable use of its own renewable resources, by allowing for beneficial use of biosolids and biogases produced during the wastewater treatment process. Under the proposed project, IRWD would discontinue sending residuals to Orange County Sanitation District (OCSD) for treatment and disposal.

The proposed project would process residuals produced at the MWRP and IRWD's Los Alisos Water Recycling Plant (LAWRP). The proposed project includes solids-handling facilities that would thicken, stabilize, dewater, and dry sludge to produce biosolids. Stabilization of sludge would be achieved using anaerobic digestion, which would generate biogas as a byproduct. The biogas would be put to beneficial reuse, including but not limited to providing an energy source for other processes at the MWRP. The proposed project would produce two classes of biosolids, as defined by Title 40 of the Code of Federal Regulations Part 503 (40 CFR Part 503), Standards for the Use or Disposal of Sewage Sludge: Class A pellets that could be reclaimed for beneficial use as a fertilizer or biofuel, and Class B cake that could be land applied as a fertilizer, composted, or otherwise disposed in a landfill.

II. Compliance with the California Environmental Quality Act

IRWD is the Lead Agency for the Project under the California Environmental Quality Act ("CEQA"). Pursuant to the requirements of the State CEQA Guidelines, IRWD prepared a Notice of Preparation that was publicly circulated for 30 days in March 2011. In addition, IRWD held a public scoping meeting on April 12, 2011 to provide the public and governmental agencies information on the CEQA process and to give further opportunities to identify environmental issues and alternatives for consideration in the EIR.

On July 2, 2012, IRWD filed a Notice of Completion of the Draft Supplemental EIR No. 1 (Draft SEIR) with the Governor's Office of Planning and Research. A 45-day public review period was established for the Draft SEIR (July 3, 2012 through August 16, 2012). A public meeting on the DEIR was held at IRWD on July 24, 2012. A Notice of Availability of the Draft SEIR with the date of the public meeting was published concurrently with distribution of the Draft SEIR. In response to requests by interested

parties, a Notice of Extension of Review Period extended the review period by an additional 15 days, bringing the total review period to 60 days. The extended comment period for the Draft SEIR ended on August 31, 2012. Written comments were received.

IRWD reviewed all of the written comments received from interested persons, organizations and agencies and prepared detailed responses to the comments directed to any significant environmental issues. The comments and responses, along with revisions to the Draft SEIR text, are included in separate chapters, which, together with the Draft SEIR, comprise the Final SEIR.

III. Findings Regarding Potentially Significant Environmental Impacts

The SEIR addressed the environmental resources for which the proposed project could result in potentially significant effects: aesthetics; air quality; biological resources; cultural resources; geology, soils, and seismicity; greenhouse gas emissions; hazards and hazardous materials; hydrology and water quality; land use, planning, and recreation; noise; utilities and energy; and transportation and traffic. Based on the results of the SEIR analysis, it was concluded that the implementation of environmental commitments incorporated into the proposed project along with proposed mitigation would insure that impacts to these environmental resources would be less than significant for the proposed project.

The SEIR reviewed combined cumulative impacts associated with the project's effects in conjunction with the effects of past, present and reasonably foreseeable future projects in the same geographic area. For this purpose, the SEIR included a list of past, present and reasonably-foreseeable future capital improvement, development and other construction projects located in the vicinity of the project, as well as identified past, present and reasonably-foreseeable projects in the area. The cumulative impact analysis was conducted for each of the same environmental resources listed above for the project impact analysis. The SEIR analysis concluded that, with the implementation of the proposed mitigation measures, the project would not have any cumulatively significant impacts.

CEQA provides that when an EIR identifies any significant environmental effects that would occur if the project is approved or carried out, the agency must make a finding or findings for each of the identified significant effects, accompanied by a brief explanation of the rational for each finding. The possible types of findings are:

Finding 1	Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
Finding 2	Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
Finding 3	Specific economic, legal, social, technological, or other considerations, including considerations for the provision of employment opportunities for highly trained workers, make

infeasible the mitigation measures or alternatives identified in the environmental impact report.

CEQA provides that when making findings, a public agency must adopt a reporting and monitoring program for the changes to the project that it has adopted or made conditions of approval in order to mitigate or avoid significant project-related impacts on the environment. In accordance with CEQA, a Mitigation Monitoring and Reporting Program (MMRP) has been prepared for the proposed project (See Appendix A). The MMRP is designed to ensure compliance during implementation of the approved project through ongoing monitoring and reporting of adopted mitigation measures. The primary goal of the MMRP is to ensure that during final design, construction, and operation, the proposed project will avoid or reduce potentially significant environmental impacts.

The facts listed herein in support of findings summarize the basis for the findings, as set forth more fully in the Draft SEIR, Final SEIR and appendices thereto. For convenience of reference, impacts and mitigation measures are referenced by designations given in the Draft SEIR (*e.g.,* "3.1-1"). The full text of each mitigation measure is contained in the MMRP. By specific topic area, the findings and facts in support of the findings are as follows:

A. Aesthetics

POTENTIAL EFFECTS: Potential effects examined include: the potential to introduce new contrasting features into the visual landscape [3.1-1]; the potential to introduce new contrasting features visible from scenic roadways [3.1-2]; the potential to impact the visual character of the project site and its surroundings [3.1-3]; the potential to introduce new sources of light or glare that could affect day or nighttime views in the area [3.1-4].

FINDINGS: Adherence to mitigation measures listed in the Draft SEIR will reduce impacts 3.1-1 and 3.1-4 to less than significant levels. Impacts 3.1-2 and 3.1-3 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project facilities and construction equipment would introduce new contrasting features into the visual landscape that would be visible from other surrounding streets and public vantage points. However, the proposed facilities would mostly be screened by existing vegetation and would introduce small contrasting features visible between small breaks in vegetation. In order to minimize the effects of the proposed project on scenic views in the area, Mitigation Measure AES-1 would be implemented that requires IRWD to select paint color schemes that blend in with surrounding landscape and built environment. As a result, impacts to visual landscapes would remain less than significant [3.1-1].

There are no officially-designated State scenic highways or eligible State scenic highways within the project area. The proposed project would not be visible from University Drive, I-405, or Culver Drive, which are designated as a Rural or Natural Character roadway and Urban Character roadways. The proposed project would result in the removal of some ornamental trees at the perimeter of the project site, but the proposed project includes a Landscape Plan detailing replanting of new trees. The proposed project would not have other effects on scenic resources, such as rock

outcroppings or historic buildings. Impacts to scenic resources would be less than significant, requiring no mitigation [3.1-2].

Construction activities would result in short-term impacts to aesthetic resources. The use of tall pieces of equipment, such as cranes, that would be visible from distant public vantage points in the project vicinity would constitute negative aesthetic elements in the existing visual landscape. However, these effects would be temporary and would not have a long-term effect on the existing visual character of the project site and surrounding area. In addition, the project site currently is occupied as construction staging for the Phase 2 Capacity Expansion. Consequently, construction of the proposed project would create similar temporary conditions as the existing construction activities at the MWRP property and would not result in substantial impacts to the visual character of the site [3.1-3]

The proposed project includes permanent aboveground facilities, the operation of which would alter the visual character of the project site as viewed from neighboring public vantage points. The existing visual character of the site is defined by vacant land on an industrial property and a floodwall. The project site is part of the MWRP facility, which is developed as an industrial treatment facility. The existing berm, floodwall, and landscaping currently partially screen views of the site, and the proposed project includes development and implementation of a Landscape Plan that would include screenings to soften the appearance of the proposed facilities. In addition, the proposed new buildings and structures would incorporate the colors and materials of the surrounding area where feasible. The proposed facilities would be industrial facilities similar to those already onsite at the MWRP and similar to those under construction as part of the Phase 2 Capacity Expansion. As a result, impacts to visual character of the project site would be considered less than significant, requiring no mitigation [3.1-3].

Nighttime construction activities would require temporary security lighting and construction lighting that could introduce new sources of light into the nighttime sky. Implementation of Mitigation Measure AES-2 would ensure that construction lighting is shielded and directed downward to avoid light spill to surrounding sensitive areas. New permanent indoor lighting and outdoor security lighting would be designed to minimize offsite impacts during operations. Impacts regarding light and glare would be less than significant with mitigation [3.1-4].

MITIGATION MEASURES: AES-1 and AES-2

B. Air Quality

POTENTIAL EFFECTS: Potential effects examined include: the potential to conflict with or obstruct implementation of the applicable air quality plan [3.2-1]; the potential for construction and operational emissions to violate an air quality standard [3.2-2]; the potential to result in cumulatively considerable net increases of criteria pollutants [3.2-3]; the potential to expose sensitive receptors to pollutant concentrations [3.2-4]; and the potential to create objectionable odors [3.2-5].

FINDINGS: Impacts 3.2-1 through 3.2-5 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project would be constructed entirely within the MWRP property and would be compatible with the existing land use designation and consistent with Air Quality Management Plan (AQMP) attainment forecasts. Therefore, the proposed project would not conflict with the AQMP and other applicable air quality plans. Impacts would be less than significant, requiring no mitigation [3.2-1].

Construction and operational impacts of the proposed project would not exceed the South Coast Air Quality Management District's (SCAQMD's) daily significance thresholds for reactive organic gases (ROG), NO_X, CO, SO_2, $PM_{2.5}$, and PM_{10}. Impacts would be less than significant, requiring no mitigation [3.2-2].

Construction and operational emissions generated by the proposed project would not exceed the SCAQMD thresholds of significance for any criteria pollutants and therefore would not be expected to be cumulatively considerable. Impacts would be less than significant, requiring no mitigation [3.2-3].

Construction and operational activities of the proposed project would not create substantial carbon monoxide (CO) hotspots and would only produce a maximum of 35.59 lbs/day, which would not exceed the SCAQMD threshold of 550 lbs/day. Construction activities would result in short-term emissions of $PM_{2.5}$ as a result of diesel engine exhaust, which is below the significance threshold and would not result in a long-term substantial source of Toxic Air Contaminants (TAC). Operation activities would result in the release of small amounts of TAC emissions but all project facilities would comply with all Rule 1401 requirements to ensure impacts are less than significant. Impacts would be less than significant, requiring no mitigation [3.2-4].

Emissions from construction activities would occur only within and immediately around the project site and would be temporary and would not result in objectionable odors. Operation of the proposed project would not result in nuisance odors from emissions of organic and inorganic compounds. The installation of the odor control system operated under a SCAQMD regulatory permit and implementation of the Odor Control Maintenance and Monitoring Plan would neutralize objectionable odors resulting in no detectable odors beyond the boundary of the MWRP. Impacts would be less than significant, requiring no mitigation [3.2-5].

MITIGATION MEASURES: None required.

C. Biological Resources

POTENTIAL EFFECTS: Potential effects examined include: the potential to adversely impact candidate, sensitive, or special-status species [3.3-1]; the potential to adversely impact riparian habitat or other sensitive natural communities [3.3-2]; the potential to adversely impact wetlands, riparian habitats, and other jurisdictional features [3.3-3]; and the potential to interfere with native resident or migratory wildlife species [3.3-4].

FINDINGS: Adherence to mitigation measures listed in the Draft SEIR will reduce Impacts 3.3-1 through 3.3-4 to less than significant levels (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project would be developed entirely within the existing footprint of the MWRP which is disturbed land and devoid of vegetation. No direct or permanent impacts to sensitive plant or animal species, or sensitive plant communities would occur. However, sensitive species that utilize the adjacent natural habitats within the Sanctuary could be indirectly affected by lighting, noise, and other construction-related activities. Mitigation Measures BIO-1 and BIO-2 would ensure that construction activities avoid impacts to nesting birds and active nests, including least Bell's vireo and southwestern willow flycatcher, through surveys, avoidance, and establishment of disturbance-free buffer zones. Implementation of Mitigation Measures BIO-1 and BIO-2 would ensure impacts are less than significant. Impacts would be less than significant with mitigation [3.3-1].

No sensitive natural communities are identified within the project site boundaries and no direct impacts to riparian, wetland, or other sensitive communities would occur. Sensitive natural communities are located adjacent to the project site, although impacts to sensitive habitats along the project's access corridor adjacent to these communities are not anticipated to be impacted. However, implementation of Mitigation Measure BIO-3 would require revegetation and restoration to potentially impacted sensitive natural communities and would ensure impacts to riparian habitat or other sensitive natural communities are less than significant. Impacts would be less than significant with mitigation [3.3-2].

The proposed project would occur entirely on previously-disturbed lands that are considered urban/developed or disturbed habitat and would not directly impact adjacent natural communities, including riparian or wetland habitats as defined by Section 404 of the Clean Water Act. However, the proposed project could have indirect effects to wetland and riparian areas in the San Joaquin Wildlife Sanctuary that are adjacent to staging areas and associated access roads. Implementation of Mitigation Measure BIO-3 would ensure that impacts to riparian, wetlands, or other adjacent jurisdictional features would be less than significant. Impacts would be less than significant with mitigation [3.3-3].

Operational facility lighting systems would be designed to minimize offsite impacts, by directing light downwards and using low-intensity lighting along parking areas and walkways. Operational impacts to wildlife movements would be less than significant. Associated nighttime lighting and noise during nighttime construction activities would have the potential to impact wildlife in the adjacent Sanctuary, causing nocturnal wildlife to avoid moving through the area. Implementation of Mitigation Measure BIO-4 would reduce indirect construction-related impacts to wildlife activities and movement by requiring that lighting be shielded and directed away from the San Joaquin Wildlife Sanctuary and Marsh and San Diego Creek. Impacts would be less than significant with mitigation [3.3-4].

MITIGATION MEASURES: BIO-1 through BIO-4.

D. Cultural Resources

POTENTIAL EFFECTS: Potential effects examined include: the potential for construction activities to adversely affect archeological resources [3.4-1]; the potential

for construction activities to adversely affect paleontological resources [3.4-2]; and the potential to disturb human remains [3.4-3].

FINDINGS: Adherence to mitigation measures listed in the Draft SEIR will reduce Impacts 3.4-1 through 3.4-3 to less than significant levels (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The project area is considered highly sensitive for archeological resources; a total of eight archeological sites and seven isolates have been previously recorded within ½ mile of the project area. None of the resources identified are located within the project area. Excavation for the proposed project would extend up to 35 feet below ground surface (bgs) in which excavation would extend beneath the disturbed layer of artificial fill and into undisturbed native alluvium. It is possible that such actions could unearth, expose, or disturb subsurface archaeological resources that were not observable on the surface. Implementation of Mitigation Measures CUL-1 and CUL-2 would reduce impacts to archeological resources to less than significant levels. Mitigation Measure CUL-1 requires that an archaeological monitor is retained to determine the areas where excavation would exceed the depth of artificial fill based on the project design and grading plans. The archeological monitor shall redirect ground-disturbing activities away in the event of an archeological find. Mitigation Measure CUL-2 requires that construction activities be redirected away from the immediate vicinity if a cultural resource is encountered and develop a treatment plan if required. Impacts would be less than significant with mitigation [3.4-1].

No fossil localities have been previously recorded within the project area; however, several fossil localities had been recorded nearby in the same type of sediments that underlie the project area. Excavation for the proposed project would extend up to 35 feet bgs, and fossils have been recovered from depths of 8 to 25 feet bgs immediately north of the project area. Implementation of Mitigation Measures CUL-3 and CUL-4 would reduce impacts to paleontological resources to less than significant levels. Mitigation Measure CUL-3 requires that a Qualified Orange County Paleontologist be retained and that construction activities be halted or redirected to other work areas in the event paleontological resources are found. Mitigation Measure CUL-4 requires the preparation of a Paleontological Resources Mitigation and Monitoring plan for areas in which construction excavations would exceed a depth of 8 feet or the depth of artificial fill. Impacts would be less than significant with mitigation [3.4-2].

There are no known human remains at the project area. However, since the nature of the proposed project would involve ground-disturbing activities, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. Mitigation Measure CUL-5 requires that if human remains are uncovered, project construction shall be immediately halted, the Orange County coroner shall be contacted to evaluate the remains, and the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines shall be followed. Impacts would be less than significant with mitigation [3.4-3].

MITIGATION MEASURES: CUL-1 through CUL-5.

E. Geology, Soils, and Seismicity

POTENTIAL EFFECTS: Potential effects examined include: the potential for exposure of people or structures to strong seismic ground shaking [3.5-1]; the potential for soil erosion [3.5-2]; the potential to introduce new structures onto unstable soils that could lead to lateral spreading, subsidence, liquefaction, or collapse [3.5-3]; the potential to be located on expansive soils [3.5-4].

FINDINGS: Impact 3.5-1 through 3.5-4 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project is located in a seismically active area that has the potential to experience strong ground shaking. The proposed project components would be designed to include all technical specifications required by the seismic safety codes according to the California Building Code (CBC). As a result, compliance with CCR Title 24 would minimize impacts due to seismic ground shaking. Impacts would be less than significant, requiring no mitigation [3.5-1].

The proposed project would require excavation and/or grading that may result in erosion during construction activities as bare soils are exposed to wind or rain. However, the proposed project would comply with the National Pollutant Discharge Elimination System (NPDES) General Construction Permit and prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) including an Erosion Control Plan to minimize erosion. In addition, any eroded soils that may wash offsite with stormwater runoff would be captured and conveyed to the MWRP for treatment and would not flow into the surrounding marsh or San Diego Creek. Therefore, impacts related to soil erosion would be less than significant, requiring no mitigation [3.5-2].

The proposed project is not located in an area susceptible to landslides, but is located in an area with a potential for ground failure in the form of liquefaction due to seismic activity. The geotechnical investigation concluded that liquefaction-caused surface manifestation would be low based on the minor thickness of the liquefiable layers and the significant thickness of the nonliquefiable surface cover. In addition, in accordance with the CBC, the proposed project design includes a mass pile foundation to mitigate for potential effects due to settlement and subsidence. Impacts would be less than significant, requiring no mitigation [3.5-3].

The proposed project is not located on expansive soils and the expansion and collapsible potential of the soil at the MWRP are low. The proposed project would incorporate design features identified in the geotechnical investigation, including a combination of presaturation of subgrade soils, reinforcement, moisture barriers/drains, and a sub layer of granular materials. This would reduce impacts to new structures associated with expansive soils properties. Impacts would be less than significant, requiring no mitigation. [3.5-4].

MITIGATION MEASURES: None required.

F. Greenhouse Gas Emissions

POTENTIAL EFFECTS: Potential effects examined include: the potential to generate GHG emissions that may have a significant impact on the environment; and the potential to conflict with the applicable GHG plan, policy, or regulation.

FINDINGS: Impact 3.6-1 and Impact 3.6-2 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project would result in an increase in GHG emissions associated with natural gas consumption and a relative decrease in GHG emissions associated with mobile sources and electricity consumption. GHG emissions resulting from construction and operation activities would result in a total net increase of approximately 907 metric tons per year (MT/year) of CO_2e and would not exceed the 10,000 MT/year CO_2e benchmark. Impacts would be less than significant, requiring no mitigation [3.6-1].

The proposed project would be designed with biogas management and energy recovery systems and would not pose any apparent conflict with the California Air Resource Board (CARB) Scoping Plan Recommended Actions as identified in the Draft SEIR. In addition, the use of biosolids produced by the proposed project would have beneficial uses as a renewable fuel source, could result in a net decrease in GHG emissions relative to baseline conditions, and could further reduce GHG emissions. Therefore, the proposed project would be consistent with the Recommended Actions under the CARB Scoping Plan. Impacts would be less than significant, requiring no mitigation [3.6-2].

MITIGATION MEASURES: None required.

G. Hazards & Hazardous Materials

POTENTIAL EFFECTS: Potential effects examined include: the potential for operation activities to create hazardous conditions through routine transport, use, or disposal of hazardous materials [3.7-1]; the potential to create hazardous conditions through reasonably foreseeable upset and accident conditions involving the release of hazardous materials [3.7-2]; and the potential to result in safety hazards or obstructions to navigable airspace [3.7-3].

FINDINGS: Adherence to the mitigation measures listed in the Draft SEIR will reduce Impact 3.7-2 to less than significant levels. Impacts 3.7-1 and 3.7-3 will be less than significant; requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project would result in new increased quantities of hazardous materials, including the additional use and storage of chemicals and the storage of biogas in low-pressure biogas holding tank. Class A and B biosolids produced at the MWRP are considered non-hazardous and would not impact the public or environment through their routine transport, use, or disposal. The proposed project would comply with existing regulatory standards with respect to the storage and handling of hazardous materials including compliance with the existing Hazardous Materials Business Plan and PSM and RMP requirements as managed and overseen by

the Orange County Fire Authority (OCFA). Biogas facilities would be designed in conformance with the NFPA Code 820: Standard for Fire Protection for Wastewater Treatment and Collection Systems and would minimize fire and explosion hazards through design criteria and built-in safety features. To further minimize potential hazards associated with generation and the use of biogas, IRWD would develop and implement a Biogas Handling System Maintenance and Monitoring Plan ensuring that biogas facilities, equipment, and safety devices are adequately maintained and monitored. In the event of fire or explosion, IRWD would implement procedures in its ERP and Site Safety Plan. Impacts would be less than significant, requiring no mitigation [3.7-1].

The accidental release and spills of hazardous materials may occur during construction and potentially cause soil or groundwater contamination or affect the health and safety of onsite construction workers. Implementation of Mitigation Measures HAZ-1 through HAZ-4 would reduce potentially significant impacts associated with hazardous substance spills during construction to less than significant levels. Mitigation Measure HAZ-1 requires that Best Management Practices (BMPs) included as part of the SWPPP prevent accidental release of hazardous materials into the environment that could affect soils or contaminate groundwater. Mitigation Measure HAZ-2 requires that hazardous materials are not disposed or released onto the ground, in the air, underlying groundwater, or any surface water. Mitigation Measure HAZ-3 requires that a hazardous substance management, handling, storage, disposal, and emergency response plan is prepared and implemented. Mitigation Measure HAZ-4 requires that hazardous materials spill kits are maintained onsite for small spills. Operational activities would increase the type and volume of hazardous materials to the site that would result in the increase of potentially accidental upset conditions. Implementation of Mitigation Measure HAZ-4 would provide a means of limiting adverse effects in the event of accidental release. Impacts would be less than significant with mitigation [3.7-2].

Construction of the proposed project would require the use of cranes and lights and other construction equipment that could pose hazards to aircraft operations for JWA. If the FAA determines that construction would result in a potential hazard or obstruction, the FAA may require IRWD to prepare and implement an airport construction safety plan identifying BMPs and appropriate notifications to aviators. If FAA determines that permanent structures or other operational features of the proposed project would result in a potential hazard or obstruction to protected airspace, IRWD would then consult with JWA staff and the FAA to identify appropriate steps to adjust project plans or include appropriate markings to identify hazards to aviators. Impacts would be less than significant, requiring no mitigation [3.7-3].

MITIGATION MEASURES: HAZ-1 through HAZ-4

H. Hydrology and Water Quality

POTENTIAL EFFECTS: Potential effects examined include: the potential for construction and operation of the new facilities to violate water quality standards or waste discharge requirements [3.8-1]; the potential for reuse of biosolids to violate water quality standards or waste discharge requirements [3.8-2]; the potential for adverse impacts to groundwater levels [3.8-3]; the potential to alter the existing drainage pattern of the project site and increase the amount of surface runoff [3.8-4]; and the potential for flooding due to a 100-year flood event [3.8-5].

FINDINGS: Adherence to the mitigation measures listed in the Draft SEIR will reduce Impact 3.8-1 to less than significant. Impacts 3.8-2 through 3.8-5 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: Construction activities would require the use of heavy equipment and construction-related chemicals that could result in accidental spills or disposal of potentially harmful materials. The proposed project would implement a SWPPP and BMPs for stormwater pollution control and adhere to a Hazardous Substance Control and Emergency Response Plan for quick and safe cleanup of accidental spills that may occur during construction. Operation activities may result in accidental spills that could drain into surface waters or infiltrate to groundwater resulting in the degradation of surface water or groundwater quality. In addition to the proposed stormwater runoff collection system that would capture all runoff from the project site to convey to the MWRP for treatment, the proposed project would also operate under a NPDES Permit (No. CA8000326) that includes WDRs, the M&RP, SWPPP Requirements and Stormwater M&RPs. Implementation of Mitigation Measure HYDRO-1 requires the SWPPP to be updated to include the proposed facilities as part of the project to reduce the potential for accidental releases to impact water quality. Impacts would be less than significant with mitigation [3.8-1].

The Class A pellets and Class B cake to be produced by the proposed project could contain pollutants that during land application could potentially either leach into storm water runoff or underlying groundwater aquifers. The type and concentration of pollutants in residual biosolids can vary substantially depending upon the feedstock, digestion processes, and application practices. In general, biosolids are expected to contain substantial amounts of organic matter, as well as salt, nutrients, and in some cases, heavy metals, pathogens, and toxic organic/inorganic pollutants. Part 503 permits are issued by the USEPA and are required for all biosolids generators and treatment works treating domestic sewage, which would include IRWD once the proposed project is implemented. Part 503 requirements can be incorporated into the NPDES permits that also are issued to publicly-owned treatment works, such as the MWRP. The NPDES Permit for the MWRP currently includes USEPA Part 503 requirements in addition to Regional Board biosolids requirements. IRWD is required to report any change in the use or disposal practices of biosolids to the RWQCB at least 90 days in advance of the change. In addition, the Stormwater M&RP in the current NPDES permit stipulates that IRWD shall maintain a permanent log of all solids hauled away from the MWRP for use/disposal elsewhere and shall provide a monthly summary of the volume, type, use, and the destination. IRWD is renewing the NPDES permit for the MWRP; the new permit would include new Part 503 requirements that would reflect proposed changes in the processing, disposal and beneficial use of biosolids to be produced at the MWRP.

The disposal or beneficial use of the biosolids produced at the MWRP would be in accordance with the allowable uses as stipulated in Part 503. Part 503 classifies biosolids into Class A, Class B, and Sub-class B based on pathogen levels, pollutant concentrations, and vector attraction limits. Part 503 permits include sampling and analysis requirements for the treatment facility prior to release of the materials. Part 503 permits also require biosolids generators to conduct regular monitoring and reporting of the concentration of certain constituents, particularly metals, in order for biosolids to be land applied. IRWD would be required to adhere to all terms and conditions associated with Part 503 in their new NPDES permit, which would result in a less than significant

impact to water quality due to subsequent disposal or beneficial use of biosolids produced at the MWRP.

Under the Clean Water Act, Section 405(d)(2)(C), the USEPA is required to conduct a review of the Part 503 standards not less than every two years for purposes of identifying and regulating new pollutants that may be present in biosolids at levels of concern for public health and the environment, where sufficient data exist. Currently, USEPA is evaluating and conducting exposure and hazard assessments for nine new pollutants, including barium, beryllium, manganese, silver, fluoranthene, pyrene, 4-chloroaniline, nitrate and nitrite (USEPA, 2009). In addition, the USEPA has recently sampled and tested sewage sludge from 74 randomly selected publically-owned treatment works in 35 states to test for various new compounds that may be present and identify concentrations. The compounds tested included phosphorus, metals, flame retardants, pharmaceuticals, steroids, and hormones. Survey results are still being analyzed. As scientific data is reviewed, the Part 503 numeric criteria will be revised to reflect any conclusive findings of the biennial review in order to maintain protection of human health, water quality, and the environment. IRWD would be required to comply with any new sampling, monitoring, and reporting criteria for new compounds in the future in accordance with Part 503. To date, there is no documented scientific evidence that sewage sludge regulations have failed to protect public health or the environment.

In addition to Part 503, IRWD would be required to comply with the SWRCB adopted Water Quality Order No. 2004-0012-DWQ (General Order) for general WDRs for the discharge of biosolids to land. The General Order primarily applies to appliers of biosolids but also applies to the generator of biosolids. SWRCB has evaluated the conditions of the General Order in accordance with CEQA and have determined that projects that meet the conditions for approval under the General Order would have no significant impacts to the environment. The General Order requires each applier to prepare and submit a Notice of Intent (NOI) for the area in which the biosolids are to be applied. The NOI identifies the generator of the biosolids and the Part 503 monitoring report from the generator. The RWQCB issues a Notice of Applicability under the general WDRs along with discharge monitoring requirements. IRWD would be required to comply with any monitoring or reporting requirements of the WDRs. As a result, impacts to water quality would be less than significant, requiring no mitigation [3.8-2].

Temporary construction and operational dewatering activities at the MWRP would not affect the principal aquifer and would not deplete groundwater supplies. The proposed project would result in a net increase of impervious surfaces that would reduce the amount of precipitation that infiltrates and recharges the shallow groundwater aquifer. However, the amount of infiltration that would be reduced through the introduction of new impervious surfaces would not substantially affect groundwater levels beneath the site and would not affect the principal aquifer or deplete groundwater supplies. Impacts would be less than significant, requiring no mitigation measures [3.8-3].

The proposed project includes a new separate stormwater collection system that would collect and contain all runoff from the project site with a capacity to handle a 100-year storm event. In the event of exceeded capacity, runoff from the project site would overflow into the existing stormwater collection system for the rest of the MWRP and be stored for later treatment or overflow as emergency discharge into the San Diego Creek, as currently allowed by the existing NPDES permit for the MWRP. In addition, new

sources of polluted runoff would not be significant as runoff from the project site would be captured and treated the majority of the time. IRWD will amend the NPDES permit for the MWRP to include the proposed project and allow additional discharge into the San Diego Creek. Impacts would be less than significant, requiring no mitigation [3.8-4].

The proposed project is located along the westerly bank of the San Diego Creek and is protected from flooding by the San Diego Creek Channel. IRWD has committed to the construction of flood protection measures to ensure protection against flooding at the MWRP, including construction of a permanent flood wall around the MWRP. With the implementation of the flood wall, the proposed project would not introduce new structures into an area subject to flooding due to a 100-year storm event and the MWRP would be removed from the FEMA 100-year flood zone. Impacts would be less than significant, requiring no mitigation [3.8-5].

MITIGATION MEASURES: HYDRO-1

I. Land Use, Planning and Recreation

POTENTIAL EFFECTS: Potential effects examined include: the potential to create an environmental effect due to conflict with the City of Irvine zoning ordinance [3.9-1].

FINDINGS: Impact 3.9-1 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: The proposed project would be consistent with the land use designation of Public Facilities and with the City's Land Use policies. The Institutional zoning allows a maximum building height of 50 feet; however, the Solids Handling Building would be up to 70 feet high and the methane digesters would have a maximum height of 68 feet. No significant environmental effects would result from the zoning inconsistency. However, IRWD has applied for a CUP to address the proposed building height inconsistency. Upon approval of the CUP, IRWD would be required to conform to any associated conditions to maintain allowable use. Impacts would be less than significant, requiring no mitigation [3.9-1].

MITIGATION MEASURES: None required.

J. Noise

POTENTIAL EFFECTS: Potential effects examined include: the potential for construction to result in temporary increases to ambient noise levels [3.10-1]; the potential for construction activities to expose persons to or generate ground-borne vibration and noise [3.10-2]; and the potential for operational activities to permanently increase noise levels in the project vicinity [3.10-3].

FINDINGS: Adherence to the mitigation measures listed in the Draft SEIR will reduce Impacts 3.10-1 and 3.10-3 to less than significant levels. Impact 3.10-2 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: Construction activities would generate high noise levels that could impact sensitive receptors located in proximity to the project site. Implementation of Mitigation Measure NOISE-1 requires the use of noise control

techniques on construction equipment to lessen the potential temporary noise impacts. NOISE-1 also requires IRWD to establish a noise disturbance coordinator to address local noise complaints. Construction in the City would only occur during designated times addressed in the Noise Ordinance. For construction activities to occur outside restricted hours, a temporary waiver would be required. Mitigation Measure NOISE-2 would ensure that IRWD secures noise waivers from the City prior to construction activities that occur outside of the exempted construction hours in the Noise Ordinance. Implementation of Mitigation Measures NOISE-1 and NOISE-2 would minimize impacts related to temporary increases in ambient noise levels. Impacts would be less than significant with mitigation [3.10-1].

Pile driving construction activities would generate vibration levels up to 0.644 PPV at a distance of 25 feet. The nearest sensitive receptor would be 1,400 feet southwest and would be exposed to approximately 0.002 PV, which would not exceed FTA standards. Impacts would be less than significant, requiring no mitigation [3.10-2].

Operational activities would generate noise from vehicle trips and operation of mechanical equipment, which would be continuous over daytime and nighttime hours. The proposed project would adhere to the City's Noise Ordinance and would be designed to ensure operational noise from the MWRP facilities would not exceed the maximum A-weighted sound pressure level of 55 dBA at the MWRP property boundary. Operational activities would result in an increase in ambient noise that is less than 5dBA at surrounding sensitive receptors. Implementation of Mitigation Measure NOISE-3 would require IRWD to conduct a post-construction noise survey to ensure that cumulative operational noise does not exceed thresholds established in the City's Noise Ordinance. Impacts would be less than significant with mitigation [3.10-3].

MITIGATION MEASURES: NOISE-1 through NOISE-3

K. Utilities and Energy

POTENTIAL EFFECTS: Potential effects examined include: the potential to require an agreement with OCSD to maintain an emergency connection between MWRP and Plant 1 [3.11-1]; the potential for a landfill servicing the project to have insufficient permitted capacity to accommodate the project's solid waste disposal needs [3.11-2]; and the potential for the proposed project to result in an increase in energy consumption such that additional electrical capacity is required [3.11-3].

FINDINGS: Impacts 3.11-1 through 3.11-3 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: Under the proposed project, primary sludge, primary scum, waste activated sludge, and biosolids generated at the MWRP would be treated onsite and would not be discharged to OCSD Plant 1. However, IRWD would maintain the pipeline connection to OCSD as an emergency treatment system backup in the event of an outage at the MWRP as permitted by an existing agreement with OCSD. The existing pipeline would have adequate capacity. Impacts would be less than significant, requiring no mitigation [3.11-1].

Construction of the proposed project would require excavation and grading for installation of the proposed facilities, which would generate solid waste and spoil soils. Frank K. Bowerman Landfill currently serves the project site and would have adequate landfill capacity to accommodate disposal of solid wastes generated during construction of the proposed project. Operation of the proposed project would generate Class A and Class B biosolids that may be disposed in a landfill in the event that other planned beneficial uses are not available. Otay Annex Landfill, Simi Valley Landfill, and Prima Deshecha Landfill would all have capacity for biosolids disposal. Prima Deshecha Landfill is scheduled to close in 2067 and would be available during the life of the project. Impacts would be less than significant, requiring no mitigation [3.11-2].

Construction activities would not result in a substantial increase in energy consumption or wasteful energy consumption or require the need for new energy infrastructure. Operation activities would result in a net increase in consumption of electricity and natural gas. However, energy consumption would be neither wasteful nor unnecessary and would not be considered a substantial increase on a regional basis as the proposed project would process biosolids that currently are treated at OCSD Plant 1, replacing the existing energy requirements for such processing. Impacts would be less than significant, requiring no mitigation [3.11-3].

MITIGATION MEASURES: None required.

L. Transportation and Traffic

POTENTIAL EFFECTS: Potential effects examined include: the potential for operational activities to introduce potential onsite hazards due to vehicle movements [3.12-1]; the potential for construction and operational activities to affect the performance of the circulation system [3.12-2]; and the potential for operational activities to affect level of service standards due to additional vehicles on local roadways [3.12-3].

FINDINGS: Impacts 3.12-1 through 3.12-3 will be less than significant, requiring no mitigation (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: Operation activities would require trucks to deliver and haul away solids that could result in potential hazards to worker safety or the environment. The facilities would be designed to avoid hazards associated with truck deliveries and hauling while loading and unloading of solids would be segregated from chemical delivery and storage areas. In addition, onsite roadways would be designed to restrict trucks to only forward movement resulting in a safe working environment and eliminating any potential hazards associated with trucks backing up. Impacts would be less than significant, requiring no mitigation [3.12-1].

Construction vehicle movement and activities would result in short-term and intermittent impacts on roadway capacities. The addition of 310 total construction-related vehicle trips would not affect performance of the circulation system including Michelson Drive, Jamboree Road, Culver Drive, and the I-405. Operational trips would equal to 23 to 30 roundtrips per day during Class A pellets or Class B cake hauling and would not significantly impact the traffic volume of the local circulation system. When the dryer is not operating, the proposed project would result in no change in the baseline conditions of trucks on regional roadways. In addition, the proposed project would eliminate some

trucks hauling solids from OCSD to end users in Arizona, which would reduce the number of trucks on the regional roadways. Impacts would be less than significant, requiring no mitigation [3.12-2].

Level of service (LOS) standards for roadways and intersections that are part of the Orange County CMP network are intended to regulate long-term traffic increases resulting from the operation of new development, and do not apply to temporary construction projects. Therefore, for the proposed project, temporary construction-generated traffic would not result in any long-term degradation in operating conditions or LOS on any nearby roadways. Given the typical daily number of vehicles traveling on I-405, Jamboree Road, Michelson, University, and Harvard, the proposed project would not introduce enough vehicles to affect LOS and would not substantially affect traffic volume. Impacts would be less than significant, requiring no mitigation [3.12-3].

MITIGATION MEASURES: None required.

M. Cumulative Impacts

POTENTIAL EFFECTS: The cumulative impacts analysis focuses on the effects of concurrent construction and operation of the proposed project with other spatially and temporally proximate projects. Construction of the proposed project is expected to occur between 2013 and 2015. Thus, the cumulative analysis relies on a list of related projects that are presumed to be implemented concurrently within the 2013 to 2015 timeframe.

The proposed project, together with related projects, which include infrastructure, commercial, and residential development projects, may contribute to certain types of cumulative construction impacts to air quality, biological resources, hydrology and water quality, noise, utilities and energy, and traffic and transportation [4-1]. Operation of the proposed project and related projects could result in cumulative long-term impacts [4-2].

FINDINGS: In addition to regulatory programs designed to address certain cumulative impacts, adherence to the mitigation measures listed in Sections A through L for the respective environmental resources discussed in those sections, will also reduce potentially significant cumulative impacts to a level that is less than significant and not cumulatively considerable. Thus, impacts can be mitigated for individual projects and collectively do not compound to create cumulatively considerable impacts (Finding 1).

FACTS IN SUPPORT OF THE FINDINGS: According to the SCAQMD, if an individual project results in air emissions of criteria pollutants that exceed the SCAQMD's recommended daily thresholds for project-specific impacts, then it would also result in a cumulatively considerable net increase of these criteria pollutants. Construction air emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any criteria pollutants. Therefore, construction emissions associated with the proposed project would not be cumulatively considerable [4-1].

Potential indirect impacts to special-status species and sensitive natural communities in the adjacent San Joaquin Wildlife Sanctuary may occur due to construction-related activities. These impacts would be mitigated to less than significant levels with implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, and BIO-4. With the implementation of mitigation impacts associated with the proposed project would not be

cumulatively considerable. In addition, continued participation by IRWD and other project proponents within the study area in regional conservation planning such as the Orange County Central and Coastal NCCP/HCP will reduce cumulative impacts to sensitive biological resources to below a level of significance. Therefore, the proposed project would not be cumulatively considerable [4-1].

Pollutants generated from construction of the proposed project and related projects may wash into San Diego Creek and downstream into Upper Newport Bay resulting in a significant cumulative impact to surface water quality and groundwater quality. Adherence to the same federal CWA, State Porter Cologne Water Quality Control Act, Basin Plan regulations that protect water quality and water resources, and the Orange County Local Drainage Manual, Stormwater Program, and Drainage Area Management Plan (DAMP) would ensure cumulatively considerable impacts related to water quality does not occur. Therefore, in combination with related projects similarly bound by the same regulations, the proposed project's incremental contribution to water quality impacts would not be cumulatively considerable [4-1].

Implementation of Mitigation Measures NOISE-1 and NOISE-2 would ensure construction activities occurring during periods when construction noise is exempt from the City of Irvine noise standards are mitigated to less than significant levels. When considered together, the proposed project together with related projects would prolong construction activities at the MWRP. However, the contribution of the proposed project to noise impacts would not be cumulatively considerable with implementation of Mitigation Measures NOISE-1 and NOISE 2 [4-1].

The number of vehicles generated by the proposed project would not have a significant impact to performance of the circulation system on a local or regional basis. As such, the effect of the proposed project on traffic and circulation would not be cumulatively considerable during the construction phase [4.1].

Implementation of Mitigation Measures AES-1 and AES-2 would ensure the proposed project would have no individually significant impacts to aesthetics, including scenic vistas or visual character. The only additional project identified that is directly adjacent and potentially within the same line of sight as the proposed project would be the MWRP Warehouse Project. The Warehouse Project would not be as tall as the proposed Solids Handling Building and would not be visible from surrounding areas. Therefore, the proposed project, when considered together with other related geographically-proximate projects would not have a cumulatively considerable impact [4-2].

Operational emissions associated with the proposed project would not exceed the SCAQMD's thresholds of significance for any of the criteria pollutants. The daily operational emissions associated with the criteria pollutants generated by the proposed project would not be cumulatively considerable. Therefore, the cumulative impact of the proposed project for operational emissions would be less than significant [4-2].

As with the proposed project, all related projects are subject to the same federal CWA, State Porter Cologne Water Quality Control Act, Basin Plan regulations that protect water quality and water resources, the Orange County Local Drainage Manual, Stormwater Program, and Drainage Area Management Plan (DAMP). Therefore, despite the potential for related projects to alter drainage patterns, runoff conditions, and storm

water quality, the required adherence such requirements would ensure that they do not result in cumulatively considerable impacts related to water quality. Therefore, when considered in combination with related projects similarly bound by the same regulations, the proposed project's incremental contribution to water quality impacts and flooding would not be cumulatively considerable [4-2].

Operation of the proposed project would not have a significant impact on traffic, circulation system performance, or level of service standards. On a regional basis, the proposed project would result in no change, or potentially a reduction in, the number of vehicles on regional roadways due to a reduction in the number of trucks required to haul away Class A pellets instead of Class B biosolids, which currently are produced at OCSD Plant 1. Therefore, when considering the proposed project together with related projects, the proposed project would not have a cumulatively considerable impact on traffic, circulation, or level of service [4-2].

MITIGATION MEASURES: Mitigation Measures listed for the proposed project's separate impacts in Sections A through L, above.

N. Growth Inducement

POTENTIAL EFFECTS: Potential effects examined included: direct and/or indirect growth inducement potential of the proposed project.

FINDINGS: The proposed project would not directly or indirectly induce growth nor result in any secondary effects of growth within the IRWD service area.

FACTS IN SUPPORT OF THE FINDINGS: Implementation of the proposed project would have no potential to directly foster population growth or result in the construction of additional housing. Project construction is not expected to create substantial employment opportunities beyond the level normally available to construction workers in the area. The proposed project would not provide substantial new employment opportunities that would necessitate additional housing and services in the area. Therefore, the proposed project would have no direct impacts on growth. The proposed project would construct new biosolids processing, biogas management, and energy recovery facilities at the MWRP. The proposed facilities would process sludge produced onsite at the MWRP, along with sludge produced at the LAWRP, and potentially other treatment facilities, subject to the capacity constraints of the system. Biosolids processing at the MWRP would be in place of, rather than in addition to, new biosolids processing at OCSD Plant 1. The proposed project would be designed to process solids produced when the MWRP liquid treatment facilities are operating at full capacity once the MWRP Phase 2 and 3 Capacity Expansion Project is completed. The purpose of the MWRP Phase 2 and 3 Capacity Expansion Project, to supply the demands of IRWD customers for non-potable water while improving local water supply reliability, is in conformance with the growth projections for the service area. The proposed project would handle the byproducts (i.e. biosolids) of the recycled water treatment and production system at the MWRP. The proposed project simply would relocate the processing of biosolids associated with current and future MWRP operations. The treatment and beneficial reuse of biosolids would not remove an obstacle to growth and thus would not indirectly induce growth.

The electricity generated by biogas as a byproduct would be used as an energy source for other processes at the MWRP and would partially offset the energy requirements of the proposed new facilities. The energy recovery component of the proposed project would not remove any limitations on energy supplies that would be considered an obstacle to growth, and therefore would not indirectly induce growth. The proposed project would not directly or indirectly induce growth. Accordingly, the proposed project would not result in any secondary effects of growth.

MITIGATION MEASURES: None required.

IV. Findings Regarding Alternatives to the Project

CEQA requires an EIR to describe a reasonable range of alternatives to the project or to the location of the project, which could feasibly attain the project objectives, and to evaluate the comparative merits of the alternatives. Only alternatives that meet most of the project objectives, are feasible, and that would avoid or substantially reduce at least one of the significant impacts of the project need be considered. Alternatives to the proposed project evaluated in the SEIR included the No Project Alternative, the Private Partner for Class B Processing Alternative, and the Onsite Dryer/Combustion Alternative. Four other alternatives to the proposed project were also considered but rejected from further consideration because they would not accomplish the project objectives nor meet environmental criteria of reducing or avoiding a significant impact. The rejected alternatives included the following:

- an alternative that would provide thickening and digestion of all sludge at the MWRP and recover biogas for energy generation, with the digested solids being sent to OCSD Plant 1 for dewatering and further processing and reuse/disposal;
- an alternative that would provide thickening and digestion of only primary sludge at the MWRP and recover biogas for energy generation, with the WAS and digested solids being sent to OCSD Plant 1 for dewatering and further processing and reuse/disposal;
- an alternative that would provide onsite thickening, digestion, and dewatering of all MWRP sludge to produce a Class B biosolids product. Dewatered biosolids would then be hauled to an offsite incinerator that would be operated by a public partner; and
- an alternative that would provide onsite thickening, digestion, and dewatering of all MWRP sludge to produce a Class B biosolids product. The dewatered biosolids would be transferred to a dryer jointly owned and operated by IRWD and a public partner.

A. No Project Alternative

FINDINGS: The No Project Alternative is not environmentally superior to the proposed project.

FACTS IN SUPPORT OF THE FINDINGS: The No Project Alternative would not meet most of the project objectives. Under the No Project Alternative, the identified impacts associated with construction and operation would be avoided. Stormwater from the biosolids site would continue to drain to the marsh but there would be no benefit to stormwater runoff quality because the stormwater capture and treatment associated with

the proposed project would not be implemented. Under the No Project Alternative, any potential benefit to region roadway traffic and air quality due to a reduction in truck trips required to haul Class A pellets rather than Calls B biosolids would not be realized. Overall, the No Project Alternative would avoid non-significant impacts associated with the proposed project while also preventing any benefits from the proposed project from being realized.

B. Private Partner for Class B Processing

FINDINGS: The Private Partner for Class B Processing Alternative is not environmentally superior to the proposed project.

FACTS IN SUPPORT OF THE FINDINGS: Under the Private Partner for Class B Processing Alternative, facilities would include onsite thickening, digestion, and dewatering of all MWRP sludge, similar to the proposed project with the exception of an onsite dryer at the MWRP and no production of Class A biosolids would occur. Class B biosolids would be transferred to private partners to further process the biosolids for beneficial reuse or disposal. This would require more haul trucks on local and regional roadways that could affect circulation system performance and increase impacts to local/regional air quality. Under this Alternative, the transfer of residual solids to OCSD would be discontinued, similar to the proposed project. Under the Private Partner for Class B Processing Alternative, all project objectives would be met. All impacts would be similar to the proposed project with fewer impacts to aesthetics and GHG emissions. However, this alternative would result in relatively greater impacts related to air quality and traffic.

C. Onsite Dryer/Combustion

FINDINGS: The Onsite Dryer/Combustion Alternative is not environmentally superior to the proposed project.

FACTS IN SUPPORT OF THE FINDINGS: Under the Onsite Dryer/Combustion Alternative, IRWD would build onsite facilities for thickening and dewatering of all MWRP sludge. In addition, a third-party contract vendor would independently build and operate an onsite system to combust and dry the dewatered cake, and the transfer of sludge to OCSD would be eliminated. The end product would be processed into ash that would be hauled to a landfill for disposal and dried sludge that would be hauled offsite for beneficial use as fertilizer or as e-fuel. Although the combustion process for the dried sludge would be an energy efficient process, this alternative would not include an energy recovery system to convert biogas to energy like the proposed project. In addition, the Onsite Dryer/Combustion Alternative would be required to provide electrical supply to the contract vendor. Under this Alternative, not all objectives of the proposed project would be met. No biogas would be produced as part of this Alternative because digestion facilities are not part of the process. Therefore, this Alternative would not allow for beneficial use of biogases, which is one of the project objectives. The Onsite Dryer/Combustion Alternative would result in lesser impacts related to aesthetics, GHGs, hydrology (drainage/runoff), land use planning, and utilities and energy. However, this alternative would result in greater impacts to the environment related to air quality and hazardous materials due to the implementation of the onsite combustion facilities.

V. General Findings

A. The written Responses to Comments contained in the Final SEIR have adequately responded to the comments received on the Draft SEIR in the public review process.

B. Recirculation of the Draft SEIR following the preparation of the Responses to Comments is not required. The Responses to Comments and resulting revisions to the Draft SEIR do not add significant new information to the SEIR, including information showing any new significant impact from the proposed project, any increase in the severity of any impact, or any considerably different, feasible alternative.

FACTS IN SUPPORT OF THE FINDINGS:

The Responses to Comments merely clarify and amplify the Draft SEIR's discussion of the analyses. Mitigation Measure BIO-2 was revised in response to comments from the U.S. Fish and Wildlife Service, to include a fourth option for avoiding indirect impacts to special-status bird species during project construction by erecting noise barriers prior the first nesting season. Mitigation Measures CUL-4 and CUL-5 were edited in response to comments by the City of Irvine, to require that the Director of Community Development of the City of Irvine be notified of discoveries related to paleontological resources or human remains. Mitigation Measure NOISE-3 was also edited in response to comments by the City of Irvine, to ensure a copy of the noise survey is provided to the Director of Community Development of the City of Irvine.

No new impacts were identified in the comments to the Draft SEIR. Other clarifying text revisions were made. Revisions made merely clarify information presented in the Draft SEIR.

MITIGATION MONITORING AND REPORTING PROGRAM

MWRP Phase 2 & 3 Capacity Expansion Project, Biosolids Handling Component

Introduction

In accordance with Section 15091(d) and Section 15097 of the *CEQA Guidelines*, which require a public agency to adopt a program for reporting on or monitoring required changes or conditions of approval to substantially lessen significant environmental effects, the Mitigation Monitoring and Reporting Program is hereby adopted for this project.

This Mitigation Monitoring and Reporting Program (MMRP) summarizes the mitigation commitments identified in the MWRP Phase 2 & 3 Capacity Expansion Project Final Supplemental EIR No. 1 (State Clearinghouse No. 2011031091). Mitigation measures are presented in the same order as they occur in the Final EIR. The columns in the MMRP table provide the following information:

- **Mitigation Measure(s):** The action(s) that will be taken to reduce the impact to a less-than-significant level.
- **Implementation, Monitoring, and Reporting Action:** The appropriate steps to implement and document compliance with the mitigation measures.
- **Responsibility:** The agency or private entity responsible for ensuring implementation of the mitigation measure. However, until the mitigation measures are completed, the Irvine Ranch Water District, as the CEQA Lead Agency, remains responsible for ensuring that implementation of the mitigation measures occur in accordance with the MMRP (*CEQA Guidelines*, Section 15097(a)).
- **Monitoring Schedule:** The general schedule for conducting each monitoring task, either prior to construction, during construction and/or after construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Aesthetics			
AES-1: The Irvine Ranch Water District shall select paint color schemes that blend in with the color palette of the surrounding landscape and built environment.	• Include mitigation measure in project design specifications. • Include mitigation measure in construction contractor specifications. • Maintain records of specifications in project file.	IRWD; Construction Contractor	Prior to construction
AES-2: Temporary construction lighting shall be shielded and directed downward to minimize offsite light spill and minimize effects to nighttime views while maintaining requirements for worker safety.	• Include mitigation measure in construction contractor specifications. • IRWD shall appoint a construction monitor to verify contractor compliance. • Maintain records of construction monitoring in project file.	IRWD; Construction Contractor	During Construction
Air Quality			
None Required.			
Biological Resources			
BIO-1: Construction activities shall be managed to avoid impacts to nesting birds and active nests. Initiation of ground-disturbing activities shall be avoided between February 1 and August 15, the general nesting bird season, to avoid significant impacts to nesting birds adjacent to the project site. If ground disturbance is initiated during this time period, then alternatively, impacts may also be avoided by: 1. conducting a survey during the breeding season to determine presence or absence of nests within a radius of the construction site specified by a qualified biologist; 2. avoiding impact to trees with occupied nests until juveniles have fledged and nests are no longer active or the nest has failed; and 3. establishing a disturbance-free buffer zone around nest	• Include mitigation measure in construction contractor specifications. • If ground-disturbing activities are initiated during February 1 and August 15, IRWD shall approve or appoint a qualified biologist to conduct the survey and implement BIO-1. • Retain survey records and implementation records in the project file.	IRWD; Construction Contractor	During Construction
BIO-2: If initiation of ground-disturbing construction activities must occur during the specific nesting season of least Bell's vireo and southwestern willow flycatcher (March 15 through September 15), impacts to these species would be avoided through implementation of one of the four of the following measures. Implementation of one of the measures below would reduce impacts to less than significant levels: 1. Conduct surveys to determine the presence or absence of least Bell's vireo or southwestern willow flycatcher in suitable habitat within the project area in accordance with USFWS protocols (USFWS 1999, 2000). If neither species is detected by these surveys, construction may proceed without additional	• Include mitigation measure in construction contractor specifications. • If ground-disturbing activities are initiated during February 1 and August 15, IRWD shall approve or appoint a qualified biologist to conduct the surveys and implement BIO-2. • Retain survey records and implementation records in the project files.	IRWD; Construction Contractor	During Construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
mitigation. 2. If protocol surveys detect the presence of either species, delay construction within a distance determined by a qualified biologist to be appropriate of occupied territory until after the least Bell's vireo and/or southwestern willow flycatcher have migrated from the site. If nesting is detected, delay construction within a distance determined by a qualified biologist until the biologist determines that the young have fledged the nests and/or the nests are no longer active. 3. If protocol surveys detect the active nests of either species, noise barriers may be erected to reduce sound levels at nest sites to reduce the "no construction" buffer distance around the nest as determined by a qualified biologist. If noise barriers are utilized, a qualified biologist shall conduct monitoring of noise levels at the nest sites to determine if construction noise has the potential to affect nesting behavior. If construction activities are determined to affect nesting behavior of least Bell's vireo and/or southwestern willow flycatcher, the biological monitor shall halt construction-related activities that may impact the nests until the juveniles have fledged and/or the nests are no longer active. 4. Erect noise barriers prior to the first nesting season (starting March 15th) following the initiation of construction. The noise barrier shall be of adequate height, length and materials to maintain ambient noise levels in the adjacent riparian woodland for the duration of the construction period. The effectiveness of the barriers to reduce noise levels to ambient conditions shall be tested with noise monitoring equipment prior to the first nesting season. Barriers shall be maintained in working condition until completion of the project.			
BIO-3: Temporary impacts to sensitive natural communities resulting from project construction or use of access road and staging areas shall be revegetated and restored to preconstruction conditions. Additionally, the boundaries of sensitive habitats along access roads, staging areas, and work areas shall be protected with Best Management Practices (BMPs) such as orange safety fencing, silt fencing, sandbags or similar where necessary. The site shall be inspected by a project biologist when necessary to ensure BMPs are implemented to protect sensitive natural communities where appropriate.	• Include mitigation measure in construction contractor specifications. • IRWD shall appoint a qualified biologist to verify contractor compliance. • Retain records of BMP implementation in the project file.	IRWD; Construction Contractor	During Construction
BIO-4: If construction occurs during nighttime hours and lighting is required, then lighting shall be shielded and directed away from San Joaquin Wildlife Sanctuary and Marsh and San Diego Creek, while maintaining sufficient lighting to ensure worker safety.	• Include mitigation measure in construction contractor specifications. • IRWD shall appoint a construction monitor to verify contractor compliance. • Maintain records of construction monitoring in the project file.	IRWD; Construction Contractor	During Construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Cultural Resources			
CUL-1: Prior to the start of any earth-moving activity, an archaeological monitor shall be retained. The archaeological monitor shall be, or shall work under the supervision of, a qualified archaeologist, defined as an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology (Department of the Interior, 2010). The qualified archaeologist shall determine the areas where excavation would exceed the depth of artificial fill based on the project design and grading plans. The qualified archaeologist shall consult with IRWD to determine the initial duration and timing of monitoring in these areas. Based on observations of soil stratigraphy or other factors, the level of monitoring may be reduced as warranted. In the event that cultural resources are unearthed during ground-disturbing activities, the archaeological monitor shall be empowered to halt or redirect ground-disturbing activities away from the vicinity of the find so that the find can be evaluated. Due to the sensitivity of the project area for Native American resources, at least one Native American monitor may, if requested, also monitor ground-disturbing activities in the project area.	• Include mitigation measure in construction contractor specifications. • Retain a qualified archaeological monitor to implement CUL-1. • If requested, allow at least one Native American monitor to be present during ground-disturbing activities. • Retain copies of monitoring reports in the project file.	IRWD; Construction Contractor	Prior to and During Construction
CUL-2: During construction of all project components, if a cultural resource is encountered, construction activities shall be redirected away from the immediate vicinity of the find until it can be evaluated by a qualified archaeologist. If the find is determined to be potentially significant, the archaeologist, in consultation with IRWD and appropriate Native American group(s) (if the find is a prehistoric or Native American resource), shall develop a treatment plan. Construction activities shall be redirected to other work areas until the treatment plan has been implemented or the qualified archaeologist determines work can resume in the vicinity of the find.	• Include mitigation measure in construction contractor specifications. • Retain a qualified archaeologist to implement CUL-2 in the event that cultural resources are encountered. • Retain copies of the Treatment Plan and records of implementation in the project file.	IRWD; Construction Contractor	Prior to and During Construction
CUL-3: Prior to the start of any earth moving activities, an Orange County Certified (OCC) Paleontologist shall be retained. Based on geotechnical findings and the construction design plans, the OCC Paleontologist shall determine areas where excavation would exceed eight (8) feet bgs or the depth of artificial fill. The OCC Paleontologist shall consult with IRWD to determine the duration and timing of monitoring in these areas. All required paleontological resources monitoring shall be performed by qualified paleontological monitors. In the event fossils are exposed during earth moving, the monitor shall have the authority to halt or redirect construction activities to other work areas so the find can be evaluated.	• Include mitigation measure in construction contractor specifications. • Retain a qualified OCC Paleontologist to implement CUL-3 and determine monitoring areas and timing in consultation with IRWD. • Retain copies of monitoring reports in the project file.	IRWD; Construction Contractor	Prior to and During Construction
CUL-4: In the event that paleontological resources are encountered, the OCC Paleontologist shall develop a Paleontological Resources Mitigation and Monitoring Plan. The Plan shall address procedures for paleontological resources monitoring; microscopic examination of samples where applicable; the evaluation, recovery, identification, and curation of fossils, and the preparation of a final mitigation report. Once the find has been evaluated in accordance with the Plan, the OCC Paleontologist shall determine when work can resume in the vicinity of the find. The	• Include mitigation measure in construction contractor specifications. • Retain a qualified OCC Paleontologist to implement CUL-4 in the event that paleontological resources are encountered. • Retain copy of Paleontological Resources Mitigation and Monitoring Plan and records of	IRWD; Construction Contractor	Prior to and During Construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Director of Community Development of the City of Irvine shall also be notified of the discovery and the determination of the OCC Paleontologist related to recovery, handling, and disposition of identified resources.	implementation in the project file.		
CUL-5*:* If human remains are uncovered during project construction, the project proponent shall immediately halt work, contact the Orange County coroner to evaluate the remains, and follow the procedures and protocols set forth in Section 15064.5 (e)(1) of the CEQA Guidelines. If the County coroner determines that the remains are Native American, the project proponent shall contact the Native American Heritage Commission (NAHC), in accordance with Health and Safety Code Section 7050.5, subdivision (c), and Public Resources Code 5097.98 (as amended by AB 2641). The NAHC shall designate a Most Likely Descendent (MLD) for the remains Per Public Resources Code 5097.98, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this section (PRC 5097.98), with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The Director of Community Development of the City of Irvine shall also be notified of the discovery and the determination of the NAHC related to recovery, handling, and disposition of remains and associated artifacts.	• Include mitigation measure in construction contractor specifications. • Retain records of all inadvertent discovery evaluations in the project file.	IRWD; Construction Contractor	During Construction
Geology, Soils, and Mineral Resources			
None Required			
Greenhouse Gas Emission			
None Required.			
Hazards and Hazardous Materials			
HAZ-1: IRWD shall require the construction contractor to include the following BMPs in the SWPPP that would prevent the accidental release of hazardous materials. The plan shall include, but not be limited to, the following BMPs: • Follow manufacturers' recommendations and regulatory requirements for use, storage, and disposal of chemical products and hazardous materials used in construction. • During routine maintenance of construction equipment, properly contain and remove grease and oils. • Properly dispose of discarded containers of fuels and other chemicals. • In the event of a petroleum product spill, the contractor shall contain the spill and clean up the contaminated area in compliance with regulations with DTSC and RWQCB approval. Contaminated soils shall be removed and disposed of in	• Include mitigation measure in construction contractor specifications. • Retain a qualified construction monitor to conduct routine inspections of mitigation implementation during project construction. • Retain construction monitoring reports in project file. • Maintenance and operation records shall be retained in the project file.	IRWD; Construction Contractor	During Construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
accordance with applicable regulations.			
HAZ-2: During project construction, hazardous materials shall not be disposed of or released onto the ground, into the air, into the underlying groundwater, or any surface water. Totally enclosed containment shall be provided for all trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products and other potentially hazardous materials, shall be removed to a hazardous waste facility permitted or otherwise authorized to treat, store, or dispose of such materials.	• Include mitigation measure in construction contractor specifications. • Retain inspection records in the project files • Retain a qualified construction monitor to conduct routine inspections of mitigation implementation during project construction. • Retain construction monitoring reports in project file.	IRWD; Construction Contractor	During Construction
HAZ-3: A hazardous substance management, handling, storage, disposal, and emergency response plan shall be prepared and implemented by the construction contractor.	• Include mitigation measure in construction contractor specifications. • Prepare a Hazardous Substance Management, Handling, Storage, Disposal, and Emergency Response Plan • Retain records of the Plan and its implementation in the project file.	IRWD; Construction Contractor	During and After Construction
HAZ-4: During construction and operation of the proposed project, hazardous materials spill kits shall be maintained onsite for small spills.	• Include mitigation measure in construction contractor specifications. • Retain a qualified construction monitor to conduct routine inspections of mitigation implementation during project construction. • Retain construction monitoring reports in project file. • Retain records of implementation or use of spill kits in project file.	IRWD; Construction Contractor	During and After Construction
Hydrology and Water Quality			
HYDRO-1: IRWD shall update the Storm Water Pollution Prevention Plan for the MWRP to include the proposed Biosolids Handling Component. The revised SWPPP shall include BMPs that would reduce potential impacts to water quality due to accidental releases of pollutants from the proposed facilities. BMPs would include both non-structural measures (e.g., preventative maintenance and inspection schedules, spill response and clean-up procedures, material handling and storage procedures, employee training, etc.) and structural measures (e.g., sediment control and erosion control devices, runoff and run-on control devices, retention ponds, secondary containment structures, treatment, etc.).	• Include mitigation measure in construction contractor specifications. • Prepare a SWPPP for the MWRP to include the proposed Biosolids Handling Component. • Retain records of and implementation of the SWPPP in project file.	IRWD; Construction Contractor	Prior to and During Construction

Mitigation Measures	Implementation, Monitoring, and Reporting Action	Responsibility	Monitoring Schedule
Land Use, Planning, and Recreation			
None Required.			
Noise			
NOISE-1: To reduce daytime noise impacts due to construction activities, IRWD shall require construction contractors to implement the following measures: • Construction activities shall be in compliance with the applicable City of Irvine Noise Ordinances, or as otherwise permitted by the City. • Equipment and trucks used for project construction shall use noise control techniques. • A noise disturbance coordinator shall be established. The noise disturbance coordinator shall be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad mufflers, etc.) and would be required to respond to the noise complaints. All signs posted at the construction site shall list the telephone number and email address for the noise disturbance coordinator.	• Include mitigation measure in construction contractor specifications. • During construction, IRWD or the construction contractor shall appoint a noise disturbance coordinator to respond to any local complaints about construction noise • Posted signs at the construction site shall include the telephone number and email address for the noise disturbance coordinator. • Retain implementation records in the project file, including any complaints and resolution of complaints.	IRWD; Construction Contractor	During Construction
NOISE-2: IRWD shall secure a temporary waiver from the City of Irvine for construction activities that occur outside of the exempted construction hours stipulated in the City of Irvine Noise Ordinance.	• Include mitigation measure in construction contractor specifications.	IRWD; Construction Contractor	Prior to and During Construction
NOISE-3: IRWD shall conduct a post-construction noise survey to ensure that operation of the MWRP is in compliance with the City of Irvine Noise Ordinance (Title 6, Division 8, Chapter 2) at the IRWD property boundary. If survey results indicate non-compliance with the Noise Ordinance, IRWD shall implement additional sound-dampening architectural and equipment improvements at the MWRP and conduct a follow-up survey to demonstrate compliance with noises thresholds. A copy of the noise survey shall be provided to the Director of Community Development of the City of Irvine, as well as information on site improvements necessary to correct excess noise levels as well as a schedule for completion of the improvements.	• After construction, IRWD shall appoint a qualified acoustical consultant to perform a post-construction noise survey to determine compliance with applicable regulations. • Retain records of the post-construction noise survey in project files.	IRWD; Construction Contractor	After Construction
Utilities and Energy			
None Required.			
Transportation and Traffic			
None Required.			
Cumulative Impacts			
None Required.			