AGENDA
IRVINE RANCH WATER DISTRICT
BOARD OF DIRECTORS
REGULAR MEETING

October 28, 2013

PLEDGE OF ALLEGIANCE

CALL TO ORDER 5:00 P.M., Board Room, District Office
15600 Sand Canyon Avenue, Irvine, California

ROLL CALL Directors Matheis, LaMar, Swan, Withers and President Reinhart

NOTICE

If you wish to address the Board on any item, including Consent Calendar items, please file your name with the Secretary. Forms are provided on the lobby table. Remarks are limited to five minutes per speaker on each subject. Consent Calendar items will be acted upon by one motion, without discussion, unless a request is made for specific items to be removed from the Calendar for separate action.

COMMUNICATIONS TO THE BOARD

1. A. Written:

   B. Oral: Mrs. Joan Irvine Smith relative to the Dyer Road Wellfield.

2. ITEMS RECEIVED TOO LATE TO BE AGENDIZED

   Recommendation: Determine that the need to discuss and/or take immediate action on item(s) introduced come to the attention of the District subsequent to the agenda being posted.

PUBLIC HEARING — Resolution No. 2013-38

3. DECLARING INTENTION TO DETACH SPECIFIED TERRITORY FROM AND/OR TO ANNEX SPECIFIED TERRITORY TO EACH OF IMPROVEMENT DISTRICT NOS.102, 105, 106, 121, 135, 140, 161, 182, 184, 186, 2(202, 206, 221, 230, 235, 250, 261, 282, 284 and 286

   Recommendation:
   1. Open the Hearing
   2. Inquire of the Secretary how the hearing was noticed
   3. Receive and file the affidavit of posting and proof of publication
   4. Request legal counsel to describe the nature of the proceedings
   5. Inquire of the Secretary if there has been any written communications
   6. Hear any persons who wishes to speak relative to the detachment/attachment of specified territories to each of Improvement District Nos. 102, 105, 106, 121, 135, 140, 161, 182, 184, 186, 2(202, 206, 221, 230, 235, 250, 261, 282, 284 and 286.
   7. Board comments/discussion
   8. Adopt a resolution by title
   9. Close the Hearing

Reso No. 2013-

CONSENT CALENDAR	Resolution No. 2013-38	Items 4-9

4. MINUTES OF REGULAR AND ADJOURNED REGULAR BOARD MEETING

Recommendation: That the minutes of the October 14, 2013 Regular Board meeting and the October 18, 2013 Adjourned Regular Board meeting be approved as presented.

5. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Mary Aileen Matheis, Douglas Reinhart, Peer Swan, and John Withers.

6. SEPTEMBER 2013 TREASURY REPORTS

Recommendation: That the Board receive and file the Treasurer's Investment Summary Report, the Monthly Interest Rate Swap Summary for September 2013, and disclosure report of reimbursements to board members and staff; approve the September 2013 summary of payroll ACH payments in the total amount of $1,442,307 and approve the September 2013 accounts payable disbursement summary of warrants 342226 through 342864, workers' compensation distributions, wire transfers, payroll withholding distributions and voided checks in the total amount of $14,008,726.

7. PLANNING AREA 9B (STONEGATE) JEFFREY ROAD PIPELINES CONTRACT CHANGE ORDER

Recommendation: That the Board authorize a budget increase for project 30422 (1024) in the amount of $233,100, from $2,729,100 to $2,962,200, and for project 30389 (4176) in the amount of $335,500, from $777,700 to $1,113,200; authorize a budget reduction for project 10423 (1519) in the amount of $568,600, from $1,755,600 to $1,187,000; approve Expenditure Authorizations for projects 10423 (1519), 30422 (1024), and 30389 (4176) in the amounts of $201,400, $233,100, and $335,500, respectively; and approve a Contract Change Order in the amount of $166,328 to the Reimbursement Agreement with the Irvine Community Development Company for Planning Area 9B Jeffrey Road pipelines, projects 10423 (1519), 30422 (1024), and 30389 (4176).

8. STRAND RANCH WELL SREX-4 REPLACEMENT OVERSIGHT

Recommendation: That the Board approve a Compromise and Release Agreement for the replacement of SREX-4; approve an Expenditure Authorization for Project 11289 (2812) in the amount of $95,900; and authorize the General Manager to enter into a Professional Services Agreement with Wildermuth Environmental, Inc. for hydrogeologic and engineering oversight of the replacement of SREX-4 in the amount of $77,110.

CONSENT CALENDAR - Continued Resolution No. 2013-38	Items 4-9
9. DEEP AQUIFER TREATMENT SYSTEM AND WELL 77 LEASE PAYMENT - EXPENDITURE AUTHORIZATION Recommendation: That the Board approve an Expenditure Authorization for project 10391 (1214) in the amount of $424,900 to fund the Deep Aquifer Treatment System (DATS) and the Well 77 lease payments.	
ACTION CALENDAR	
10. VARIANCE FOR THE MULTI-FAMILY DWELLING AND COMMERCIAL PLUMBING FIXTURE RETROFIT PROGRAM Recommendation: That the Board approve Variance No. 2 with bottom line utility solutions modifying bond requirements and increasing the contract amount by $378,555 to the agreement for non-consultant services for the multi-family dwelling and commercial plumbing fixture retrofit program.	
11. TUSTIN LEGACY REIMBURSEMENT AGREEMENT AND BARRANCA PARKWAY PIPELINES CONSTRUCTION CONTRACT Recommendation: That the Board authorize a budget increase for the Tustin Legacy Barranca Pipelines, project 11714 (4366) in the amount of $180,400, from $162,800 to $343,200, and for project 31714 (4368) in the amount of $529,100, from $160,600 to $689,700; approve Expenditure Authorizations for projects 11714 (4366) and 31714 (4368) in the amounts of $343,200 and $689,700, respectively; and authorize the General Manager to execute a Reimbursement Agreement with the City of Tustin for the design and construction of IRWD capital facilities in the Tustin Legacy development.	
12. DECLARE INTENT TO CONSOLIDATE COTERMINOUS IMPROVEMENT DISTRICT (ID) 125/225, ANNEX AND DETACH PARCELS TO FORM ID 153/253, ANNEX PARCELS TO FORM ID 185/285 AND TO ADOPT PLANS OF WORKS FOR NEWLY FORMING IDS Recommendation: That the Board adopt three resolutions as follows: (1) Declaring its intent to Consolidate coterminous improvement districts (ID) 125/225, annex and detach parcels to form ID 153/253, annex parcels to form ID 185/285, and to adopt plans of works for newly forming IDs; (2) Declaring its intention to annex and detach parcels, Improvement District Nos. 153/253; and (3) Declaring its intention to form Improvement District Nos. 185/285	Reso No. 2013 Reso No. 2013 Reso No. 2013

OTHER BUSINESS

Pursuant to Government Code Section 54954.2, members of the Board of Directors or staff may ask questions for clarification, make brief announcements, make brief reports on his/her own activities. The Board or a Board member may provide a reference to staff or other resources for factual information, request staff to report back at a subsequent meeting concerning any matter, or direct staff to place a matter of business on a future agenda. Such matters may be brought up under the General Manager's Report or Directors' Comments.

13. A. General Manager's Report

B. Directors' Comments

C. CLOSED SESSION:

(1) CONFERENCE WITH LABOR NEGOTIATORS
Agency Designated Representatives: Paul Cook and Jenny Roney
Employee Organization: Irvine Ranch Water District Employees Association

(2) CONFERENCE WITH LEGAL COUNSEL relative to existing litigation - Government Code Section 54956.9(a) – Williams vs. IRWD and MWDSC (Revised Confidentiality and Common Interest Agreement; Second Amended Tolling Agreement (Water Agencies)).

(3) CONFERENCE WITH LEGAL COUNSEL relative to anticipated litigation– Government Code Section 54956.9(d)(2) – significant exposure to litigation (one potential case).

(4) CONFERENCE WITH LEGAL COUNSEL relative to anticipated litigation– Government Code Section 54956.9(d)(4) – initiation of litigation (one potential case) (potential settlement construction contractor).

D. Adjourn.

* * * \

October 28, 2013
Prepared by: Christopher Smithson
Submitted by: Cheryl Clary
Approved by: Paul Cook

PUBLIC HEARING

DECLARING INTENTION TO DETACH SPECIFIED TERRITORIES FROM AND/OR TO ANNEX SPECIFIED TERRITORY TO EACH OF IMPROVEMENT DISTRICT NOS. 102, 105, 106, 121, 130, 135, 140, 161, 182, 184, 186, 2(202), 206, 221, 230, 235, 250, 261, 282, 284, AND 286

SUMMARY:

By adoption of Resolution No. 2013-37 on October 14, 2013, the Board of Directors declared its intention to order the annexation or detachment of:

- Water IDs 102, 105, 106, 121, 130, 135, 140, 161, 182, 184, and 186 into one coterminous water ID
- Sewer IDs 2(202), 206, 221, 230, 235, 250, 261, 282, 284, and 286 into one coterminous sewer ID

The purpose of this hearing is to allow members of the public and the Board to consider any matters concerning the annexations of the specified territories. The District Secretary has noticed the hearing pursuant to the requirements of Section 6066 of the California Government Code.

OUTLINE OF PROCEEDINGS

President: Declare this to be the time and place for a hearing on the annexation of:

- Water IDs 102, 105, 106, 121, 130, 135, 140, 161, 182, 184, and 186 into one coterminous water ID, and
- Sewer IDs 2(202), 206, 221, 230, 235, 250, 261, 282, 284, and 286 into one coterminous sewer ID

President: Declare the hearing open. Ask the Secretary how the hearing was noticed.

Secretary: Notice of the time and place of this hearing was published in the Orange County Register on October 14, 2013 and October 21, 2013. A notice was also posted in the District office on October 8, 2013, and on October 14, 2013, notices were posted in three public places within the territory proposed to be detached.

Board: RECOMMENDED MOTION: RECEIVE AND FILE THE AFFIDAVIT OF POSTING AND THE PROOF OF PUBLICATION PRESENTED BY THE SECRETARY.

President: Request Legal Counsel to describe the nature of the proceedings.

Legal Counsel: Tonight's public hearing is held to provide all persons interested to be heard, to present objections or protests, including any written comments submitted, concerning the District's intention to detach from and /or to annex 21 specified territories.

President: Inquire of the Secretary whether there have been any written communications.

Secretary: Respond.

President: Inquire whether there is anyone present who wishes to address the Board concerning the annexations of the listed improvement districts

President: Inquire whether there are any comments or questions from members of the Board of Directors. State that the hearing will be closed and ask for a recommendation to close the hearing and to adopt the following resolutions by title.

Board: RECOMMENDED MOTION: THAT THE HEARING BE CLOSED AND THE FOLLOWING RESOLUTIONS BE ADOPTED BY TITLE:

RESOLUTION NO. 2013-____

RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRVINE RANCH WATER DISTRICT DECLARING ITS INTENTION TO ORDER THE CONSOLIDATION OF COTERMINOUS IMPROVEMENT DISTRICTS AND ADOPT PLANS OF WORKS FOR CONSOLIDATED IMPROVEMENT DISTRICT NOS. 125 AND 225.

ENVIRONMENTAL COMPLIANCE:

This item is categorically exempt from CEQA (categorical exemption Class 20) as a project consisting of changes in organization of local agencies not changing the area in which existing powers are exercised, under the California Environmental Quality Act Code of Regulations, Title 14, Article 19, Section 15320.

LIST OF EXHIBITS:

Exhibit "A" –Resolution

EXHIBIT "A"

RESOLUTION NO. 2013-38

RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRVINE RANCH WATER DISTRICT DECLARING ITS INTENTION TO ORDER THE CONSOLIDATION OF COTERMINOUS IMPROVEMENT DISTRICTS AND ADOPT PLANS OF WORKS FOR CONSOLIDATED IMPROVEMENT DISTRICT NOS. 125 AND 225

WHEREAS, the Irvine Ranch Water District ("IRWD") has established various improvement districts for the purpose of acquiring and constructing works and facilities to provide water service for the benefit of the lands within such improvement districts, including Improvement District Nos. 102, 105, 106, 121, 130, 135, 140, 161, 182, 184 and 186 of IRWD; and

WHEREAS, IRWD has established various improvement districts for the purpose of acquiring and constructing works and facilities to provide sewer and recycled water service for the benefit of the lands within such improvement districts, including Improvement District Nos. 2(202), 206, 221, 230, 235, 250, 261, 282, 284 and 286 of IRWD; and

WHEREAS, by virtue of annexations and detachments ordered by this Board of Directors, the water improvement districts listed in the first recital hereof are coterminous, and the sewer improvement districts listed in the second recital hereof are coterminous; and

WHEREAS, it is the opinion of the Board of Directors of IRWD that it is in the best interest of IRWD to consolidate said coterminous water improvement districts into a single water improvement district and to consolidate said coterminous sewer improvement districts into a single sewer improvement district; and

WHEREAS, the Board of Directors of IRWD has been presented with a draft plan of works for each of the proposed consolidated improvement districts, amending and superseding the individual plans of works of the respective improvement districts to be consolidated.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District DOES HEREBY RESOLVE, DETERMINE and ORDER as follows:

Section 1. Pursuant to Sections 36454 *et seq.* of the Water Code, the Board of Directors hereby determines that the proposed consolidations of coterminous improvement districts are in the best interests of IRWD and states its intention to order the consolidations.

Section 2. The designation of the improvement district to be created by the consolidation of Improvement District Nos. 102, 105, 106, 121, 130, 135, 140, 161, 182, 184 and 186 shall be "Improvement District No. 125." The existing coterminous improvement districts to be consolidated as Improvement District No. 125 are as modified by the annexations and detachments described and depicted as follows:

ANNEXATION NO. 3 TO IMPROVEMENT DISTRICT NO. 102 [Exhibits A1 and B1];

ANNEXATION NO. 8 TO IMPROVEMENT DISTRICT NO. 105 [Exhibits A1 and B1];
DETACHMENT NO. 7 FROM IMPROVEMENT DISTRICT NO. 105 [Exhibits A1 and B1];

ANNEXATION NO. 4 TO IMPROVEMENT DISTRICT NO. 106 [Exhibits A1 and B1];
DETACHMENT NO. 3 FROM IMPROVEMENT DISTRICT NO. 106 [Exhibits A1 and B1];

ANNEXATION NO. 3 TO IMPROVEMENT DISTRICT NO. 121 [Exhibits A1 and B1];

ANNEXATION NO. 2 TO IMPROVEMENT DISTRICT NO. 130 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 130 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 135 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 140 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 140 [Exhibits A1 and B1];

ANNEXATION NO. 4 TO IMPROVEMENT DISTRICT NO. 161 [Exhibits A1 and B1];
DETACHMENT NO. 3 FROM IMPROVEMENT DISTRICT NO. 161 [Exhibits A1 and B1];

ANNEXATION NO. 2 TO IMPROVEMENT DISTRICT NO. 182 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 182 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 184 [Exhibits A1 and B1];
DETACHMENT NO. 2 FROM IMPROVEMENT DISTRICT NO. 184 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 186 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 186 [Exhibits A1 and B1];

Section 3. The designation of the improvement district to be created by the consolidation of Improvement District Nos. 2(202), 206, 221, 230, 235, 250, 261, 282, 284 and 286 of IRWD shall be "Improvement District No. 225." The existing coterminous improvement districts to be consolidated as Improvement District No. 225 are as modified by the annexations and detachments described and depicted as follows:

ANNEXATION NO. 6 TO IMPROVEMENT DISTRICT NO. 2(202) [Exhibits A1 and B1];

ANNEXATION NO. 7 TO IMPROVEMENT DISTRICT NO. 206 [Exhibits A2 and B2];

ANNEXATION NO. 2 TO IMPROVEMENT DISTRICT NO. 221 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 230 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 230 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 235 [Exhibits A2 and B2];

ANNEXATION NO. 6 TO IMPROVEMENT DISTRICT NO. 250 [Exhibits A1 and B1];
DETACHMENT NO. 9 FROM IMPROVEMENT DISTRICT NO. 250 [Exhibits A1 and B1];

ANNEXATION NO. 6 TO IMPROVEMENT DISTRICT NO. 261 [Exhibits A1 and B1];
DETACHMENT NO. 4 FROM IMPROVEMENT DISTRICT NO. 261 [Exhibits A1 and B1];

ANNEXATION NO. 2 TO IMPROVEMENT DISTRICT NO. 282 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 282 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 284 [Exhibits A1 and B1];
DETACHMENT NO. 2 FROM IMPROVEMENT DISTRICT NO. 284 [Exhibits A1 and B1];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 286 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 286 [Exhibits A1 and B1];

Section 4. The total amounts of authorized bonds and outstanding bonds of the improvement districts to be consolidated are as follows:

Consolidated ID	Improvement District	Authorized Bonds	Authorized/Unissued	Outstanding Bonds[a]
125	102	$ 26,805,000	$ -	$ -
	105	$ 188,734,000	$ 55,400	$ 122,810,100
	106	$ 22,895,000	$ 326,000	$ -
	121	$ 35,437,000	$ 3,255,000	$ 19,818,500
	130	$ 110,465,000	$ 55,304,000	$ 16,642,500
	135	$ 20,010,000	$ -	$ 4,570,700
	140	$ 117,130,000	$ 84,803,900	$ 10,281,000
	161	$ 40,786,000	$ 28,351,000	$ 11,370,000
	182	$ 74,653,000	$ 62,246,000	$ 4,913,300
	184	$ 79,065,000	$ 75,115,000	$ 3,870,000
	186	$ 19,266,000	$ 12,633,300	$ 1,377,500
225	2(202)	$ 30,316,000	$ 1,906,000	$ -
	206	$ 69,665,000	$ 51,748,000	$ -
	221	$ 50,452,000	$ -	$ 20,460,000
	230	$ 165,173,000	$ 94,751,000	$ 37,467,800
	235	$ 15,724,000	$ -	$ 2,749,200
	250	$ 286,727,000	$ 70,109,000	$ 148,843,800
	261	$ 46,364,000	$ 18,989,000	$ 25,488,500
	282	$ 59,101,000	$ 49,621,000	$ 4,410,500
	284	$ 92,590,000	$ 79,740,000	$ 5,122,500
	286	$ 40,531,000	$ 40,031,000	$ 461,500

Section 5. The purpose of the proposed consolidated Improvement District No. 125 and of the plan of works shall be to acquire and construct works and facilities, as described in the plan of works, for the acquisition, collection, storage, distribution and treatment of water and water rights, including dams, reservoirs, storage tanks, treatment facilities, pipes, pumping equipment, urban runoff diversion and treatment systems, and all necessary equipment and property therefor, reconstruction, replacements and additions to said facilities, acquiring funds to fulfill contractual commitments to carry out the powers and purposes of IRWD contained in contracts, including contracts with other agencies, and the payment of operating and other costs of IRWD to the extent

[a] As of October 1, 2013

permitted by law, provided that the carrying out of said purpose shall benefit the land within the proposed improvement district.

Section 6. The purpose of the proposed consolidated Improvement District No. 225 and of the plan of works shall be to acquire and construct works and facilities, as described in the plan of works, for the collection, treatment and disposal of sewage and the storage and distribution of reclaimed water, including dams, reservoirs, storage tanks, treatment facilities, pipes, pumping equipment and all necessary equipment and property therefor, reconstruction, replacements and additions to said facilities, acquiring funds to fulfill contractual commitments to carry out the powers and purposes of IRWD contained in contracts, including contracts with other agencies, and the payment of operating and other costs of IRWD to the extent permitted by law, provided that the carrying out of said purpose shall benefit the land within the proposed improvement district.

Section 7. Monday, November 11, 2013, at the hour of 5:00 p.m. of said day (or as soon thereafter as is reasonably practicable) in the Board of Directors Room of Irvine Ranch Water District, 15600 Sand Canyon Avenue, Irvine, California, be and the same are hereby fixed by this Board of Directors as the time and place for a hearing on the question of the above-listed consolidations and any other matter related to any of the foregoing.

Section 8. At the time and place fixed in Section 7 or at any time or place to which such hearing may be continued, any person interested, including any person owning land included within the improvement districts to be consolidated, may appear and be heard concerning any matter set forth in this resolution of intention.

Section 9. The Secretary is directed to publish notice of such hearing by publishing a copy of this resolution once a week for two successive weeks pursuant to Section 6066 of the California Government Code, in a newspaper of general circulation published in Orange County. The first publication shall be at least fourteen (14) days prior to the time fixed for the hearing. The Secretary is further directed to post a copy of this resolution in three public places within each proposed Improvement District, for at least fourteen (14) days prior to the time fixed for the hearing. To the extent the Secretary has, prior to adoption hereof, accomplished any of the publications or postings directed by this Section, the same are hereby ratified.

ADOPTED, SIGNED AND APPROVED this _____ day of _____, 2013.

_____
President/Vice President
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

_____
Secretary/Assistant Secretary
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

APPROVED AS TO FORM:

BOWIE, ARNESON,
WILES & GIANNONE
Legal Counsel - IRWD

By_____

BAWGjca/ 0171976

October 28, 2013
Prepared and
Submitted by: L. Bonkowski LB
Approved by: P. Cook

CONSENT CALENDAR

MINUTES OF REGULAR AND ADJOURNED REGULAR BOARD MEETING

SUMMARY:

Provided are the minutes of the October 14, 2013 Regular Board Meeting and the October 18, 2013 Adjourned Regular Board meeting for approval.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

Not applicable.

RECOMMENDATION:

THAT THE MINUTES OF THE OCTOBER 14, 2013 REGULAR BOARD MEETING AND THE OCTOBER 18, 2013 ADJOURNED REGULAR BOARD MEETING BE APPROVED AS PRESENTED.

LIST OF EXHIBITS:

Exhibit "A" – Minutes – October 14, 2013
Exhibit "B" – Minutes – October 18, 2013

EXHIBIT "A"

MINUTES OF REGULAR MEETING – OCTOBER 14, 2013

The regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 5:00 p.m. by President Reinhart on October 14, 2013 in the District office, 15600 Sand Canyon Avenue, Irvine, California.

Directors Present: Swan, Withers, LaMar and Reinhart

Directors Absent: Matheis (listened via conference call but did not participate)

Also Present: General Manager Cook, Executive Director of Finance Clary, Executive Director of Engineering Burton, Executive Director of Water Policy Heiertz, Director of Water Resources Weghorst, Director of Human Resources Roney, Legal Counsel Hoskinson, Secretary Bonkowski, Director of Public Affairs Beeman, Ms. Shannon Reed, Ms. Christine Compton, Mr. Mike Hoolihan, Ms. Amy McNulty, Ms. Tina Bertsch, Ms. Cheryl Kelly, Mr. Christopher Smithson, Mr. Mark Tettemer,
Mr. Dean Kirk, Mr. Jim Reed, Mr. Bruce Newell, and other members of the public and staff.

WRITTEN COMMUNICATION: None.

ORAL COMMUNICATION

Mrs. Joan Irvine Smith's assistant addressed the Board of Directors with respect to the Dyer Road wellfield. She said it was her understanding that currently wells 1, 4, 5, 6, 7, C-8, C-9, 10, 12, 13, 14, 15, 17 and 18 will operate in accordance with the District's annual pumping plan. Wells 2, 3, 11 and 16 will be off. This was confirmed by Mr. Cook, General Manager of the District.

With respect to the OCWD annexation of certain IRWD lands, on June 5, 2009, IRWD received a letter from OCWD noting that OCWD has completed the formal responses to comments they previously received on the draft program Environmental Impact Report. The letter further noted that with this task completed, OCWD has exercised its right to terminate the 2004 Memorandum of Understanding (MOU) regarding annexation. OCWD also indicated that due to the lack of progress on the annexation issue, the draft program Environmental Impact Report will not be completed. On June 8, 2009, OCWD completed the Long-Term Facilities Plan which was received and filed by the OCWD Board in July 2009. Staff has been coordinating with the City of Anaheim (Anaheim) and Yorba Linda Water District (YLWD) on their most recent annexation requests and has reinitiated the annexation process with OCWD. IRWD, YLWD and Anaheim have negotiated a joint MOU with OCWD to process and conduct environmental analysis of the annexation requests. The MOU was approved by the OCWD Board on July 21, 2010. This was confirmed by Mr. Cook.

On October 2, 2013, the OCWD Board adopted a resolution approving and authorizing execution of an Annexation Agreement with the IRWD, the City of Anaheim, YLWD; certified the final program/project EIR for the OCWD annexation request for IRWD, the City of Anaheim,

YLWD; authorized filing of a CEQA Notice of Determination; and authorized transmittal of a resolution to LAFCO and directed staff to prepare the necessary documents and application to LAFCO to annex the requested areas into the District. This was confirmed by Mr. Cook.

With respect to the Groundwater Emergency Service Plan, IRWD has an agreement in place with various south Orange County water agencies, MWDOC and OCWD, to produce additional groundwater for use within IRWD and transfer imported water from IRWD to south Orange County in case of emergencies. IRWD has approved the operating agreement with certain south Orange County water agencies to fund the interconnection facilities needed to affect the emergency transfer of water. MWDOC and OCWD have also both approved the operating agreement. This was confirmed by Mr. Cook.

ITEMS RECEIVED TOO LATE TO BE AGENDIZED - None.

PRESENTATION - POSTER CONTEST WINNER

Ms. Cheryl Kelly presented framed art work to a local student whose water awareness poster was selected for honors in 2013 by the Metropolitan Water District of Southern California.

CONSENT CALENDAR

Director Swan asked that Item No. 9 be pulled from the Consent Calendar for discussion under the Action Calendar. There being no objection, Item No. 9 was moved accordingly. On MOTION by Withers, seconded and unanimously carried, CONSENT CALENDAR ITEMS 4 – 8 WERE APPROVED AS FOLLOWS:

4. MINUTES OF REGULAR BOARD MEETING

   Recommendation: That the minutes of the September 23, 2013 Regular Board meeting be approved as presented.

5. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

   Recommendation: That the Board ratify/approve the meetings and events for Steven LaMar, John Withers, Peer Swan, and Douglas Reinhart.

6. 2013 STATE LEGISLATIVE UPDATE

   Recommendation: That the Board authorize staff to continue to work with IRWD's industry and association partners on AB 1330 (Pérez) to seek removal of Section 15 from the bill.

CONSENT CALENDAR

7. SAN JOAQUIN MARSH OUTLET VALVE REPLACEMENT PROJECT FINAL ACCEPTANCE

Recommendation: That the Board accept construction of the San Joaquin Marsh Outlet Valve Replacement, project 10835 (1853); authorize the General Manager to file a Notice of Completion; and authorize the payment of the retention 35 days after the date of recording the Notice of Completion.

8. PARTICIPATION IN MUNICIPAL WATER DISTRICT OF ORANGE COUNTY TURF REMOVAL PROGRAM

Recommendation: That the Board authorize an increase to the Operating Budget of $150,000 from over-allocation funds for FY 2013-14 to provide funding for the Member Agency-funded MWDOC Turf Removal program.

ACTION CALENDAR

FIRST AMENDMENT TO AGREEMENT FOR PARTICIPATION IN SPECIFIED MUNICIPAL WATER DISTRICT OF ORANGE COUNTY REBATE PROGRAMS

Following an inquiry from Director Swan, Ms. McNulty relayed that there is no mechanism in place in the amendment to specify that the District's funding would go towards the lower flow toilets providing 3.5 gallons per flush. There being no further comments, on MOTION by Swan, seconded and unanimously carried, THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE THE FIRST AMENDMENT TO THE DISTRICT'S AGREEMENT WITH THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY SUBJECT TO NON-SUBSTANTIVE CHANGES FOR PARTICIPATION AND CO-FUNDING BY IRVINE RANCH WATER DISTRICT IN SPECIFIED MUNICIPAL WATER DISTRICT OF ORANGE COUNTY REBATE PROGRAMS, FOR COST-EFFECTIVE TACTICAL INCENTIVE WATER USE EFFICIENCY MEASURES.

RESOLUTION OF INTENT TO ANNEX AREAS TO PROVIDE FOR THE CONSOLIDATION OF IMPROVEMENT DISTRICTS INTO DEVELOPED IDS 125/225

General Manager Cook reported that in early 2011, the District undertook a process to review and, if appropriate, develop modifications to the District's current capital funding plan. Mr. Cook said that the focus of the review has been to identify issues with the District's existing capital funding plan and to consider adjustments that would improve and update the plan as the District approaches build-out, when its focus will transition to ongoing operations and maintenance activities. The review process has included the input and direction from the Finance and Personnel Committee, the Board, as well as input from interested outside participants which includes representatives from the development community and allows them to provide input as staff develops its updated Long-Term Capital Funding Plan (LTFP).

Mr. Cook said that the LTFP process resulted in a recommendation for a master consolidation plan that focused on combining developed and developing areas into separate improvement districts (IDs). As part of the reorganization of IDs, the California Water Code requires that a Plan of Works (POW) document be completed which provides the linkage between the engineering plan to fund the necessary infrastructure and the corresponding financial requirements. Staff anticipates the adoption of six new POWs as a result of implementing the District's master consolidation plan which requires a noticed public hearing.

Executive Director of Finance Clary reported that this consolidation process requires three Board meetings. Ms. Clary said that the first step in this process is for the Board to declare its intent to annex and detach portions of 21 IDs to provide for the consolidation of the developed ID 125/225. She said that on October 28, 2013, a Public hearing will be held to order the annexations and detachments of 21 IDs - 125/225 (the developed/underlay ID), declare intent to consolidate coterminous IDs, 21 IDs - 125/225, declare intent to annex and detach parcels, ID 153/253 (the developing ID), declare intent to form IDs 185/285 (portion of the Opportunity Study Area currently in ID 135/235), and declare intent to adopt Plan of Works for 125/225, 153/253, 185/285. She said that on November 11, 2013 another public hearing will be held to order the consolidation of coterminous ID, 21 IDs – 125/225, order annexations and detachments of ID 153/253, order the formation of ID 185/285, and adopt Plan of Works.

Director Swan reported that the process culminating in this action has been discussed at several Committee and Board meetings over the past few years with meetings held with the property owners. On MOTION by Swan, seconded and unanimously carried, the FOLLOWING RESOLUTION WAS ADOPTED BY TITLE:

RESOLUTION NO. 2013-37

RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRVINE RANCH WATER DISTRICT DECLARING ITS INTENTION TO DETACH SPECIFIC TERRITORY FROM AND/OR TO ANNEX SPECIFIC TERRITORY TO EACH OF IMPROVEMENT DISTRICTS NOS. 102, 105, 106, 121, 130, 140, 161, 182, 184, 186, 2(202), 206, 221, 230, 235, 250, 261, 282, 284, AND 286

RECYCLED WATER USE SITE INSPECTION AND TESTING

Using a PowerPoint presentation, Mr. Mark Tettemer reported that IRWD currently serves recycled water at approximately 5,000 sites that vary in size and complexity. IRWD also serves approximately 580 single-family lots, several industrial customers, and over 50 dual-plumbed commercial buildings where recycled water is used indoors.

Mr. Tettemer said that depending on the type of recycled water use site, there are different regulatory requirements to conduct visual inspections and periodic cross-connection tests to confirm the systems are properly identified and the recycled water system is not connected to the potable water system. He said that over the past year, staff has incorporated inspection and testing into its regular activities, but has not been able to complete the inspection and testing

work within the frequency currently required by the Department of Public Health. To augment efforts to complete the inspection and testing of the District's recycled water sites, staff recommends retaining the services of a qualified firm to conduct inspections and testing under the direction of IRWD staff. To facilitate the inspection and testing process, staff categorized the recycled water use sites according to type and developed a list of 13 types. The sites vary from a regular agriculture field to dual-plumbed commercial buildings that use recycled water for toilets, urinals and trap primers. These various types have different configurations and recycled water uses and therefore have different testing protocols and frequencies for inspection and testing.

Mr. Tettemer said that staff prepared a Request for Proposal (RFP) which requested qualifications and experience as well as the cost "per site" to complete the identified work. The RFP stipulated that each proposal includes costs on a "per site" basis based on the 13 different types. The tasks for the work include contacting the Site Supervisor to arrange for the field meeting, conducting the field meeting and associated paperwork, and entering the results into the District's computerized tracking system.

Mr. Tettemer said that the RFP was sent to six companies that perform this type of work. He said that staff reviewed the four proposals received and conducted interviews with the firms. Staff determined that Real Green Inc. possessed the best understanding of the requirements for this work, coupled with a team of highly qualified and experienced inspectors. He further said that staff recommends compensating Real Green on a "per site" basis as a pilot test and will closely monitor the outcomes to ensure IRWD is cost-effectively achieving its goals.

Director LaMar reported that this item was reviewed and approved by the Water Resources Policy and Communications Committee on October 7, 2013. Director Swan made suggestions for assessing data for a reduction of inspections and to work with the Department of Public Health to make recommendations for any adjustments, especially in relation to homeowner association inspections. On MOTION by LaMar, seconded and unanimously carried, THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH REAL GREEN INC. IN AN AMOUNT NOT TO EXCEED $500,000 OVER A 12-MONTH PERIOD TO PROVIDE FIELD INSPECTORS TO ASSIST STAFF WITH PERFORMING INSPECTION AND TESTING OF RECYCLED WATER USE SITES.

ORANGE COUNTY WATER DISTRICT ANNEXATION AGREEMENT

General Manager Cook reported that the Irvine Ranch Water District has requested the annexation of additional areas within IRWD into the Orange County Water District (OCWD). Mr. Cook said that OCWD is processing this application simultaneously with two other applications: one from Yorba Linda Water District (YLWD) and the other from the City of Anaheim. He said that on October 2, 2013, by a 10-0 vote, the OCWD Board certified the Final Program/Project Environmental Impact Report Orange County Water District Annexation Request by the City of Anaheim, Irvine Ranch Water District, and Yorba Linda Water District and then approved the annexation agreements between the OCWD and each of the three

annexing agencies. He further recognized Board members and staff for their efforts on this long process.

Executive Director of Water Resources Heiertz provided an overview of the past annexation efforts. He then reviewed the current annexation agreement and terms noting: 1) payment of the direct EIR and annexation processing costs; 2) payment of the cost of any required environmental mitigation; 3) payment of the annual Annexation Charge; 4) indemnification of OCWD for challenges to the EIR and annexation process; 5) commitment by IRWD to utilize the DATS Wells Nos. 8 and 9 to serve the demand of the annexing territory; 6) commitment by IRWD to continue sending a minimum amount of four million gallons per day of flows from IRWD to the Orange County Sanitation District over the next 20 years; 7) early relinquishment by IRWD of the remaining Basin Equity Assessment exemption for the DATS Wells Nos. 8 and 9 (currently set to expire in 2016); 8) a moratorium on any future annexations by IRWD for the next 10 years; and 9) a maximum of 70% for IRWD's Basin Production Percentage for the next 10 years.

Mr. Heiertz said that for the next steps, OCWD, as the lead agency on the Annexation EIR, has already filed the Notice of Determination. The 30-day period during which the EIR can be challenged in court began on October 3, 2013. Assuming no protests are received by OCWD, the annexations will be sent to the Local Agency Formation Commission (LAFCO) for consideration. OCWD staff has indicated that they expect this process to take three to four months.

Director LaMar reported that this item was reviewed at the Water Resources Policy and Communications Committee on March 7, 2013 and has been reviewed by the Board in past Closed Session discussions. On MOTION by LaMar, seconded and unanimously carried, THE BOARD ADOPTED THE "FINAL PROGRAM/PROJECT ENVIRONMENTAL IMPACT REPORT ORANGE COUNTY WATER DISTRICT ANNEXATION REQUEST BY THE CITY OF ANAHEIM, IRVINE RANCH WATER DISTRICT, AND YORBA LINDA WATER DISTRICT" AS A RESPONSIBLE AGENCY UNDER CEQA AND DIRECTED STAFF TO FILE A NOTICE OF DETERMINATION, AND AUTHORIZED THE PRESIDENT AND GENERAL MANAGER TO EXECUTE THE "ANNEXATION AGREEMENT BETWEEN ORANGE COUNTY WATER DISTRICT AND IRVINE RANCH WATER DISTRICT REGARDING ANNEXATION TO ORANGE COUNTY WATER DISTRICT".

OTHER BUSINESS

GENERAL MANAGER'S REPORT

General Manager Cook recognized Mr. Ken Drake on his promotion to Assistant Director of Maintenance. Mr. Drake provided the Board with a brief history of his work experience at the District since 1980.

Mr. Cook discussed the Federal Government shutdown and noted that as of now there are no significant impacts to the District.

Mr. Cook reported on the good news that Standard & Poor's reaffirmed the District's triple A plus rating.

Mr. Cook announced that after 35 years at the District, Executive Director of Water Policy Heiertz will be retiring at the end of December. President Reinhart said that he appreciated all of the fine work that Mr. Heiertz has contributed to the District.

DIRECTORS' COMMENTS

Director Withers reported on his attendance at an Irvine Public Schools Foundation event along with General Manager Cook. He said that this Thursday he will be a lecturer at Clarement College on land use policy.

Director Swan reported on his and Director LaMar's attendance at an ACWA Headwaters Committee meeting, a Clean Tech conference, a MWDOC/MWD Committee meeting, an OCWD Board meeting, a Newport Chamber of Commerce meeting, a WACO meeting, an expo opening at the base, OCWD Water Issues meeting, an ACC-OC City Leaders Event at the San Joaquin Wildlife Sanctuary, and a Planning Committee meeting for WACO. In response to Director Swan's inquiry, Mr. Burton updated him on the schedule for the MWRP Phase II with a startup anticipated by mid-February, dependent upon seasonal rains.

Director Reinhart announced that Director Swan is on the slate for Vice President of ACWA. Director Swan said that if elected, he would need to resign from the Region X position.

Director LaMar reported on his attendance at CalDesal Annual conference in San Diego, a drought response workshop hosted by the DWR, an OCBC Infrastructure Committee meeting, and an ACC-OC City Leaders event.

Director Reinhart reported on his attendance at a CalDesal Annual conference, and a south county meeting with General Managers and Directors.

Director Swan asked staff to revisit the Irvine Lake Recreational agreement relative to liability due to the recent recreational activity in and around the lake, including bleachers and RV storage.

ADJOURNMENT

President Reinhart adjourned the meeting to Friday, October 18, 2013 at 11:30 a.m. in the Multi-purpose room to hold a Strategic Planning Workshop.

APPROVED and SIGNED this 28th day of October, 2013.

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President, IRVINE RANCH WATER DISTRICT

Secretary IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

Legal Counsel - Bowie, Arneson, Wiles & Giannone

EXHIBIT "B"

MINUTES OF ADJOURNED REGULAR MEETING – OCTOBER 18, 2013

The adjourned regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 11:30 a.m. by President Reinhart on October 18, 2013 in the District's Multi-purpose Room, 15600 Sand Canyon Avenue, Irvine, California.

Directors Present: LaMar, Matheis, Reinhart, Withers and Swan

Directors Absent: None.

Also Present: General Manager Cook and consultant Loren Lillestrand.

WRITTEN COMMUNICATION: None.

ORAL COMMUNICATION: None.

REVIEW AGENDA AND DESIRED OUTCOMES

General Manager Cook reviewed the agenda and desired outcomes.

BOARD PROCESS REVIEW

The District's consultant, Mr. Loren Lillestrand, facilitated an interactive discussion regarding Board processes and operating efficiencies.

ADJOURNMENT

There being no further discussion, President Reinhart adjourned the meeting.

APPROVED and SIGNED this 28th day of October, 2013.

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President, IRVINE RANCH WATER DISTRICT

_____

Secretary IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

_____

Legal Counsel - Bowie, Arneson, Wiles & Giannone

October 28, 2013
Prepared and
Submitted by: N. Savedra
Approved by: P. Cook

CONSENT CALENDAR

RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

SUMMARY:

Pursuant to Resolution 2006-29 adopted on August 28, 2006, approval of attendance of the following events and meetings are required by the Board of Directors.

Events/Meetings

Mary Aileen Matheis

10/17/13	ACWA Region 10 Program, Irvine, CA
10/23/13	MWDOC Water Policy Forum
10/24/13	SCWC Annual Meeting
10/25/13	MWD's 50th Anniversary-Diemer Water Treatment Plant & Ozone Dedication

Douglas Reinhart

10/17/13	ACWA Region 10 Program, Irvine, CA
10/23/13	MWDOC Water Policy Forum

Peer Swan

10/23/13	MWDOC Water Policy Forum

John Withers

10/23/13	MWDOC Water Policy Forum
11/27/13	Boardmember Presentation-Irvine Rotary Club

RECOMMENDATION:

THAT THE BOARD RATIFY/APPROVE THE MEETINGS AND EVENTS FOR MARY AILEEN MATHEIS, DOUGLAS REINHART, PEER SWAN, AND JOHN WITHERS AS DESCRIBED.

LIST OF EXHIBITS:

None

October 28, 2013
Prepared by: R. Jacobson/T. Fournier/J. Davis
Submitted by: Cheryl Clary
Approved by: Paul Cook

CONSENT CALENDAR

SEPTEMBER 2013 TREASURY REPORTS

SUMMARY:

The following is submitted for the Board's information and approval:

A. The Investment Summary Report for September 2013. This Investment Summary Report is in conformity with the 2013 Investment Policy and provides sufficient liquidity to meet estimated expenditures during the next six months, as outlined in Exhibit "A".

B. The Monthly Interest Rate Swap Summary as of September 30, 2013, as outlined in Exhibit "B".

C. The Summary of Payroll ACH payments in the total amount of $1,442,307, as outlined in Exhibit "C".

D. The September 30, 2013 Disbursement Summary of warrants 342226 through 342864, wire transfers, Workers' Compensation distributions, payroll withholding distributions, and voided checks in the total amount of $14,008,726, as outlined in Exhibit "D".

E. The Disclosure Report of Reimbursements to Board Members and Staff for September 2013, detailing payments or reimbursements for individual charges of $100.00 or more per transaction, as outlined in Exhibit "E".

FISCAL IMPACTS:

As of September 30, 2013, the book value of the investment portfolio was $311,961,021, with a 0.37% rate of return and a market value of $311,769,720. Based on the District's September 30, 2013 quarterly real estate investment rate of return of 9.95%, the District's weighted average return for the fixed income and real estate investments was 2.18%.

As of September 30, 2013, the total notional amount of the interest rate swap portfolio was $130 million of fixed payer swaps. Cash accrual in September from all swaps was negative $624,052.

Payroll ACH payments totaled $1,442,307 and wire transfers, all other ACH payments, and checks issued for debt service, accounts payable, payroll, and water purchases for September totaled $14,008,726.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3 Section 15378.

COMMITTEE STATUS:

This item was not submitted to a Committee; however, the investment and interest rate swap reports are submitted to the Finance and Personnel Committee on a monthly basis.

RECOMMENDATION:

THAT THE BOARD RECEIVE AND FILE THE TREASURER'S INVESTMENT SUMMARY REPORT, THE MONTHLY INTEREST RATE SWAP SUMMARY FOR SEPTEMBER 2013, AND DISCLOSURE REPORT OF REIMBURSEMENTS TO BOARD MEMBERS AND STAFF; APPROVE THE SEPTEMBER 2013 SUMMARY OF PAYROLL ACH PAYMENTS IN THE TOTAL AMOUNT OF $1,442,307 AND APPROVE THE SEPTEMBER 2013 ACCOUNTS PAYABLE DISBURSEMENT SUMMARY OF WARRANTS 342226 THROUGH 342864, WORKERS' COMPENSATION DISTRIBUTIONS, WIRE TRANSFERS, PAYROLL WITHHOLDING DISTRIBUTIONS AND VOIDED CHECKS IN THE TOTAL AMOUNT OF $14,008,726.

LIST OF EXHIBITS:

Exhibit "A" - Investment Summary Report
Exhibit "B" - Monthly Interest Rate Swap Summary
Exhibit "C" - Monthly Payroll ACH Summary
Exhibit "D" - Monthly Summary of District Disbursements
Exhibit "E" – Disclosure of Reimbursements to Board Members and Staff

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

Exhibit "A"

09/30/13

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON	YIELD	YTFC	ORIGINAL COST	CARRY VALUE	MARKET VALUE (1) 9/30/2013	UNREALIZED GAIN/(LOSS)(2)
07/15/13			10/31/13		LAIF	State of California Tsy.	$50,000,000		0.260%		$50,000,000.00	$50,000,000.00	50,028,366.00	28,366.00
09/18/13			10/31/13		LAIF-JPA	State of California Tsy.	30,500,000		0.260%		$30,500,000.00	$30,500,000.00	30,517,303.26	17,303.26
07/15/13			10/16/13		LAIF BABS	State of California Tsy.	29,082,991		0.260%		$29,082,990.54	$29,082,990.54	29,099,489.90	16,499.36
12/20/12	N/A	N/A	12/19/13	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.190%	0.183%		10,000,700.00	10,000,151.92	10,002,400.00	2,248.08
04/24/12	N/A	N/A	12/23/13	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Bank	5,000,000	0.625%	0.304%		5,026,600.00	5,003,631.25	5,005,850.00	2,218.75
07/11/12	N/A	N/A	02/25/14	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Bank	5,000,000	1.375%	0.301%		5,086,800.00	5,020,362.33	5,025,900.00	5,537.67
05/23/12	N/A	N/A	05/23/14	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	0.350%	0.394%		4,995,600.00	4,998,589.59	5,006,950.00	8,360.41
04/18/12	N/A	N/A	05/28/14	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.375%	0.354%		5,107,250.00	5,033,289.29	5,041,000.00	7,710.71
01/30/12	One Time	01/30/14	01/30/15	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.750%	0.500%	0.500%	5,024,850.00	5,011,019.25	5,008,150.00	(2,869.25)
01/30/12	One Time	01/30/14	01/30/15	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	10,000,000	0.750%	0.453%	0.453%	10,059,000.00	10,026,162.41	10,016,300.00	(9,862.41)
02/09/12	Continuous	05/09/12	02/09/15	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.460%	0.480%	0.700%	4,997,000.00	4,998,642.34	5,000,200.00	1,557.66
04/29/13	Quarterly	10/29/13	04/29/15	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Bank	5,000,000	0.320%	0.310%	0.280%	5,001,000.00	5,000,787.67	4,999,750.00	(1,037.67)
12/18/12	Continuous	03/18/13	06/18/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.320%	0.360%	0.720%	9,990,000.00	9,993,146.93	9,996,400.00	3,253.07
12/27/12	Continuous	03/26/13	06/26/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.375%	0.375%	0.375%	10,000,000.00	10,000,000.00	10,000,300.00	300.00
04/30/13	Continuous	07/15/13	07/15/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.290%	0.290%	0.290%	5,000,000.00	5,000,000.00	4,994,050.00	(5,950.00)
08/28/12	Continuous	08/27/13	08/27/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.480%	0.480%	0.480%	10,000,000.00	10,000,000.00	10,000,500.00	500.00
09/17/12	Continuous	09/17/13	09/17/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.480%	0.482%	0.482%	4,999,750.00	4,999,836.53	5,000,200.00	363.47
09/17/12	Continuous	09/17/13	09/17/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.480%	0.455%	0.472%	5,001,250.00	5,000,817.35	5,000,200.00	(617.35)
09/25/12	Quarterly	09/25/13	09/25/15	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Bank	5,000,000	0.500%	0.470%	0.490%	5,001,500.00	5,000,991.78	4,997,850.00	(3,141.78)
09/28/12	Continuous	12/28/12	09/28/15	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.450%	0.470%	0.470%	4,997,000.00	4,998,008.22	5,000,200.00	2,191.78
10/17/12	One Time 2yr	10/09/14	10/09/15	Aaa/AA+/NR	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.480%	0.460%	0.466%	5,002,000.00	5,001,357.87	5,002,600.00	1,242.13
12/18/12	Continuous	03/18/13	12/18/15	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	10,000,000	0.400%	0.425%	0.701%	9,992,500.00	9,994,465.75	9,972,600.00	(21,865.75)
12/21/12	Continuous	03/21/13	12/21/15	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	0.410%	0.418%	0.510%	4,998,750.00	4,999,074.20	4,987,000.00	(12,074.20)
01/15/13	N/A	07/15/13	01/15/16	NA/AA+/AAA	FHLB - Note	Fed Home Loan Bank	5,000,000	0.375%	0.390%		4,997,750.00	4,998,126.03	4,980,200.00	(17,926.03)
01/17/13	Quarterly	07/15/13	01/15/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.500%	0.500%	0.500%	5,000,000.00	5,000,000.00	4,989,350.00	(10,650.00)
03/21/13	Quarterly	09/04/13	03/04/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.600%	0.566%	0.379%	5,005,000.00	5,004,171.65	4,988,350.00	(15,821.65)
03/14/13	Continuous	09/07/13	03/07/16	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	0.470%	0.490%		9,994,000.00	9,995,107.44	9,968,500.00	(26,607.44)
05/22/13	Quarterly	08/28/13	03/28/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.650%	0.256%	0.613%	5,005,250.00	5,004,584.29	4,993,100.00	(11,484.29)
04/12/13	Continuous	07/12/13	04/12/16	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.410%	0.447%	0.851%	4,994,500.00	4,995,363.14	4,977,250.00	(18,113.14)
04/30/13	Quarterly	10/25/13	04/25/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.580%	0.536%	0.310%	5,006,550.00	5,005,625.44	4,979,150.00	(26,475.44)
05/24/13	Quarterly	10/25/13	04/25/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	4,975,000	0.580%	0.568%	0.500%	4,976,641.75	4,975,843.72	4,954,254.25	(21,589.47)
05/20/13	Quarterly	10/29/13	04/29/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.500%	0.500%	0.500%	5,000,000.00	5,000,000.00	4,973,550.00	(26,450.00)
05/31/13	Quarterly	11/27/13	05/27/16	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	0.520%	0.585%	0.935%	4,990,000.00	4,991,126.37	4,979,600.00	(11,526.37)
06/17/13	Monthly	07/13/13	06/17/16	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	0.750%	0.750%	0.750%	5,000,000.00	5,000,000.00	4,978,906.00	(21,094.00)
03/14/13	Continuous	12/26/12	09/26/16	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	0.680%	0.683%		4,999,500.00	4,999,577.79	4,975,781.00	(23,796.79)
SUB-TOTAL							$304,557,991				$304,833,732.29	$304,632,851.08	$304,441,550.41	($191,300.66)
RESTRICTED CASH (Swap Collateral Deposits)														
					Collateral Deposit	Citi-Group	$6,998,170		0.150%		$6,998,169.74	$6,998,169.74	6,998,169.74	
					Collateral Deposit	Merrill Lynch	$330,000		0.150%		$330,000.00	$330,000.00	330,000.00	
SUB-TOTAL							$7,328,170				$7,328,169.74	$7,328,169.74	$7,328,169.74	
TOTAL INVESTMENTS							$311,886,160				$312,161,902.03	$311,961,020.82	$311,769,720.15	
					Petty Cash						3,200.00			
				September	Bank Bal.	Bank of America					4,454,622.51			
											$316,619,724.54			

(1) LAIF market value is as of the most recent quarter-end as reported by LAIF.
Security market values are determined using Bank of New York ("Trading Prices"), Bloomberg and/or broker dealer pricing.
(2) Gain (loss) calculated against carry value using the trading value provided by Bank of New York/or Brokers
(3) Real estate rate of return is based on most recent quarter end return

This Investment Summary Report is in conformity with the 2013 Investment Policy and provides sufficient liquidity to meet the next six months estimated expenditures.

Outstanding Variable Rate Debt	$358,200,000
Net Outstanding Variable Rate Debt (Less $130 million fixed-payer swaps)	$228,200,000
Investment Balance:	$316,619,725
Investment to Variable Rate Debt Ratio:	139%
Portfolio - Average Number of Days To Maturity	438

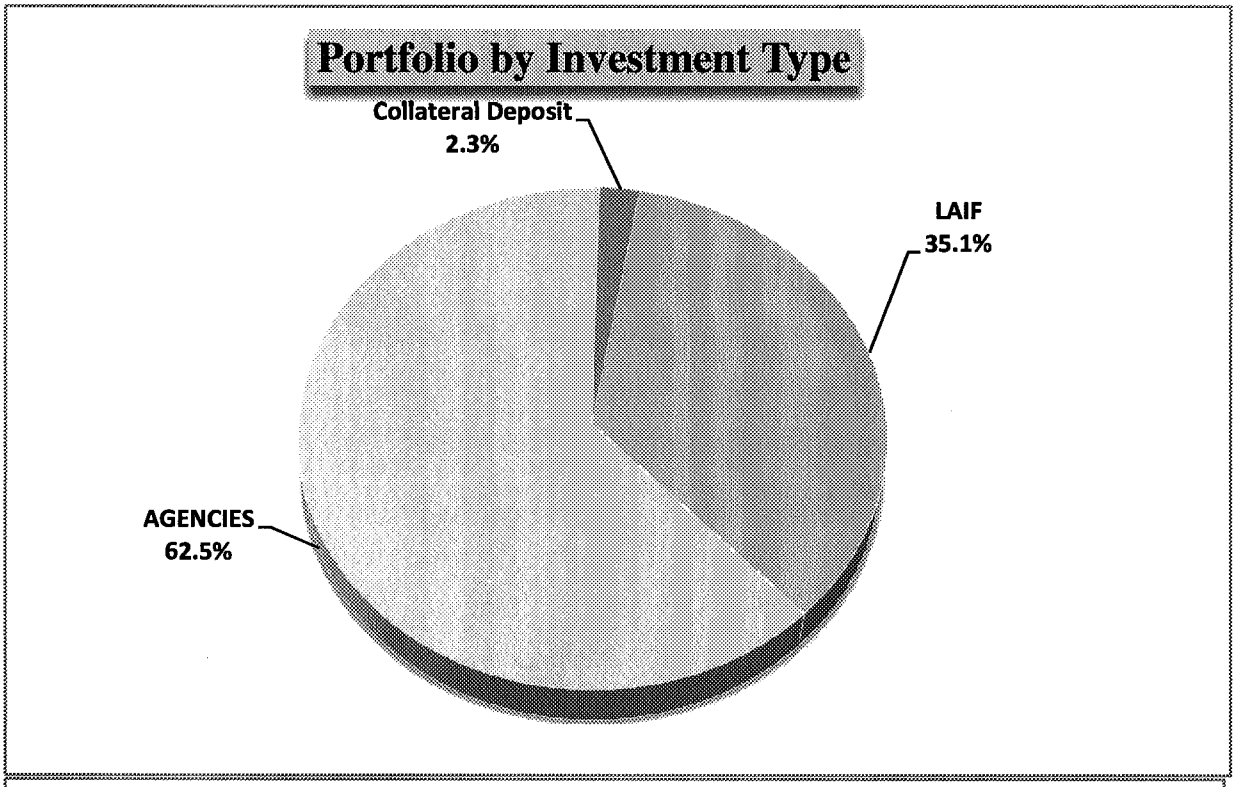
	Investment Portfolio	Real Estate Portfolio (3)	Weighted Avg. Return
September	0.37%	9.95%	2.18%
August	0.38%	10.91%	2.37%
Change	-0.01%		

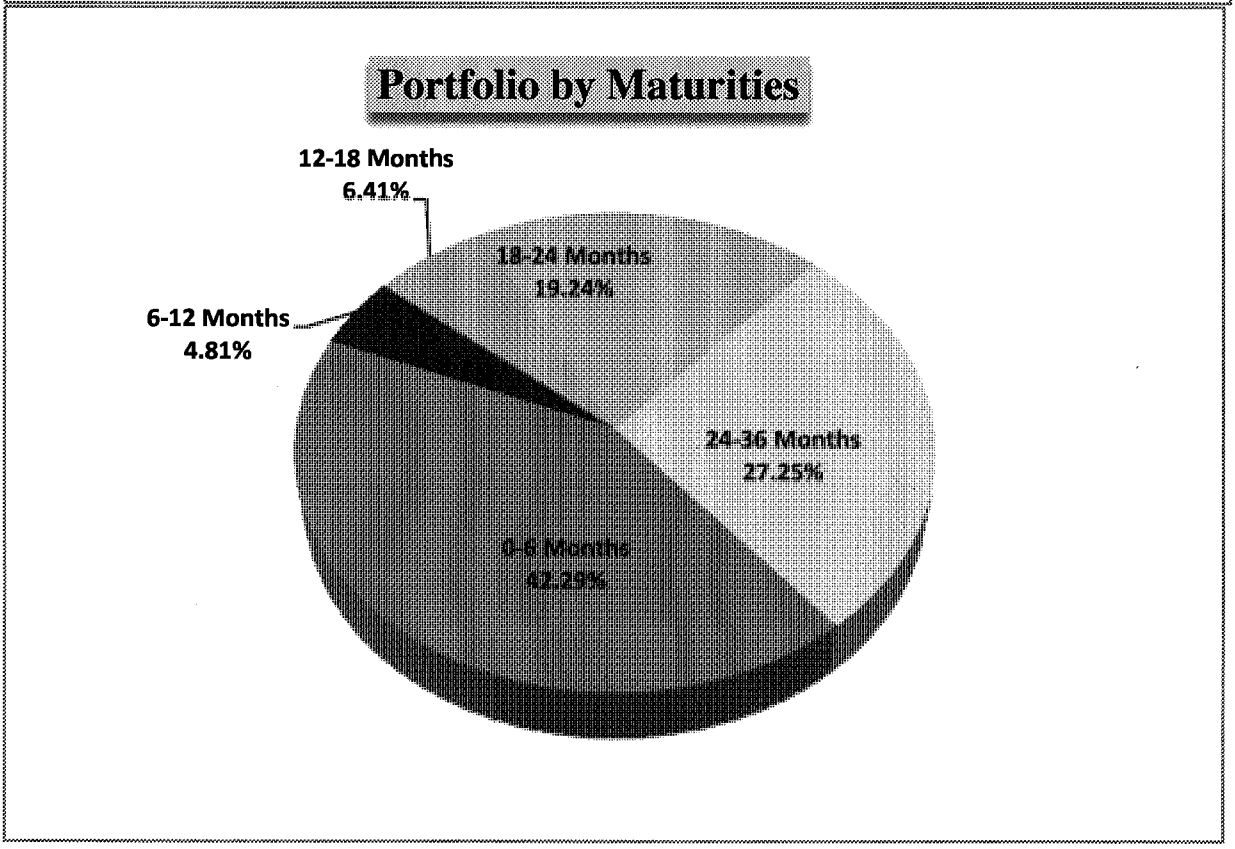
IRVINE RANCH WATER DISTRICT
SUMMARY OF MATURITIES

09/30/13

DATE	TOTAL	%	LAIF	AGENCIES	COLLATERAL DEPOSIT	CAL REV NOTES
09/13	$116,911,160	37.49%	$109,582,991		$7,328,170	
10/13						
11/13						
12/13	$15,000,000	4.81%		15,000,000		
1/14						
2/14	$5,000,000	1.60%		5,000,000		
3/14						
4/14						
5/14	$10,000,000	3.21%		10,000,000		
6/14						
07/14						
08/14						
SUB-TOTAL	$146,911,160	47.10%	$109,582,991	$30,000,000	$7,328,170	
13 Months - 3 YEARS						
9/1/2014 - 12/31/2014	-					
1/1/2015 - 3/31/2015	20,000,000	6.41%		20,000,000		
4/1/2015 - 6/30/2015	25,000,000	8.02%		25,000,000		
07/1/2015 - 9/30/2015	35,000,000	11.22%		35,000,000		
10/1/2015 - 12/30/15	$20,000,000	6.41%		20,000,000		
01/01/16 - 03/31/2016	$30,000,000	9.62%		30,000,000		
04/01/16 - 06/30/2016	$29,975,000	9.61%		29,975,000		
07/01/16 - 9/30/2016	$5,000,000	1.60%		5,000,000		
TOTALS	$311,886,160	100.00%	$109,582,991	$194,975,000	$7,328,170	
% OF PORTFOLIO			35.14%	62.51%	2.35%	

September 2013 INVESTMENT PORTFOLIO
September 30, 2013





Irvine Ranch Water District
Summary of Real Estate
9/30/2013

	ACQUISITION DATE	PROPERTY TYPE	OWNERSHIP INTEREST	ORIGINAL COST	RATE OF RETURN QUARTER ENDED Sep-13
Sycamore Canyon	Dec-92	Apartments	Fee Simple	$ 43,550,810	12.24%
Wood Canyon Villas	Jun-91	Apartments	Limited Partner	$ 6,000,000	8.56%
ITC (230 Commerce)	Jul-03	Office Building	Fee Simple	$ 5,739,845	7.31%
Waterworks Business Pk.	Nov-08	Research & Dev.	Fee Simple	$ 8,630,577	4.75%
Sand Canyon Professional Center	Jul-12	Medical Office	Fee Simple	$ 8,648,594	6.36%
				$ 72,569,826	9.95%

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

Joint Powers Agency - Investment Contracts

9/30/2013

Settlement Date	JPA Issue	Investment Contract	Original Cost	Current Par	Market Value 09/30/13
10/25/1994	JPA - Issue #1	AIG Matched Funding Corp. 7.705% Due 2-15-14	$ 407,878,616	$ 238,500,000	$ 238,500,000
10/25/1994	JPA - Issue #2	Federal National Mortgage Assoc. 8.18% Due 2-15-14	$ 518,644,189	$ 349,472,521	$ 359,477,919
			$ 926,522,805	$ 587,972,521	$ 597,977,919

IRVINE RANCH WATER DISTRICT
INTEREST RATE SWAP MONTHLY SUMMARY REPORT - DETAIL
September 30, 2013

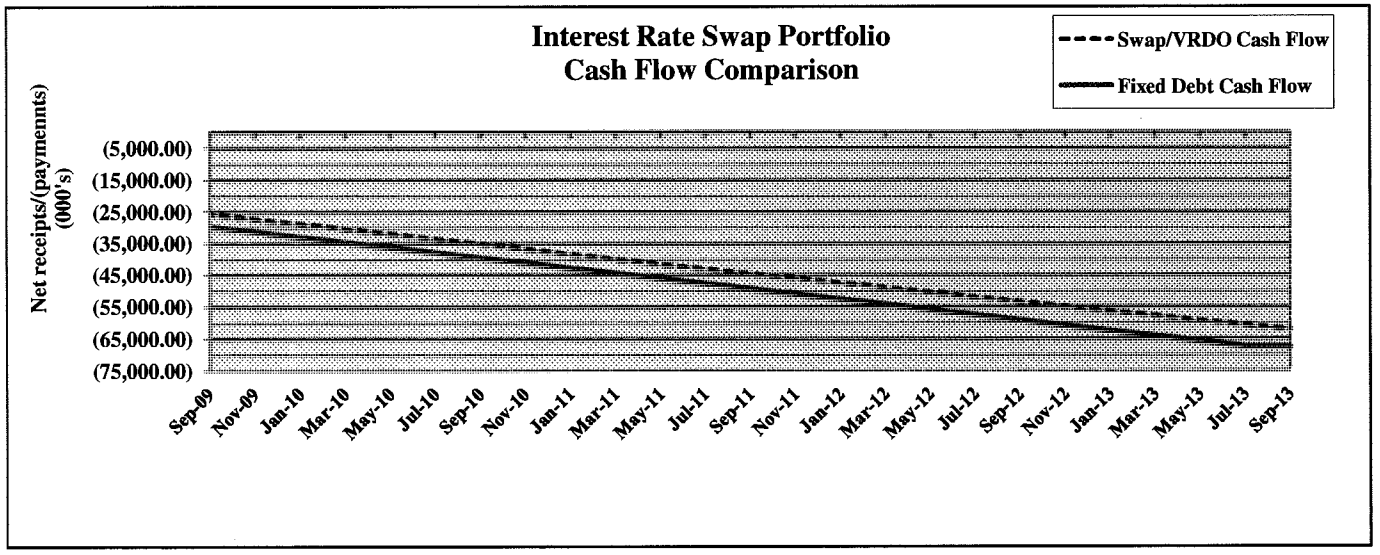
Exhibit "B"

LIBOR Avg %	Prior Mo.	Current Mo.	12 Mo Avg
	0.18%	0.18%	0.20%

Current Fiscal Year Active Swaps								Cash Flow (Since 6/06)				Mark to Market	
Effective Date	Maturity Date	Years to Maturity	Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference
Fixed Payer Swaps - By Effective Date													
6/4/2006	6/4/2019	5.7	ML	$ 20,000,000	FXP	LIBOR	6.200%	$ (96,774)	$ (100,183)	$ (307,046)	$ (6,543,064)	$ 15,047,462	$ (4,952,538)
6/4/2006	6/4/2019	5.7	CG	$ 20,000,000	FXP	LIBOR	6.200%	$ (96,774)	$ (100,183)	(307,046)	(6,543,064)	15,048,054	(4,951,946)
6/17/2006	6/17/2019	5.7	CG	$ 30,000,000	FXP	LIBOR	6.140%	$ (143,677)	$ (148,790)	(456,030)	(9,695,238)	22,646,589	(7,353,411)
3/10/2007	3/10/2029	15.5	ML	$ 30,000,000	FXP	LIBOR	5.687%	$ (132,752)	$ (137,448)	(421,290)	(8,610,993)	20,658,534	(9,341,466)
3/10/2007	3/10/2029	15.5	CG	$ 30,000,000	FXP	LIBOR	5.687%	(132,752)	(137,448)	(421,290)	(8,610,993)	20,676,276	(9,323,724)
Totals/Weighted Avgs		10.2		$ 130,000,000			5.949%	$ (602,729)	$ (624,052)	$ (1,912,702)	$ (40,003,353)	$ 94,076,915	$ (35,923,085)
Total Current Year Active Swaps				$ 130,000,000				$ (602,729)	$ (624,052)	$ (1,912,702)	$ (40,003,353)	$ 94,076,915	$ (35,923,085)

Current Fiscal Year Terminated Swaps							Cash Flow				Mark to Market	
Effective Date	Maturity Date	Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference
Total Current Year Terminated Swaps			$ -				$ -	$ -	$ -	$ -	$ -	$ -

Current Fiscal Year - Total Swaps			Cash Flow				Mark to Market	
			Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference
Total Current Year Active & Terminated Swaps		$ 130,000,000	$ (602,729)	$ (624,052)	$ (1,912,702)	$ (40,003,353)	$ 94,076,915	$ (35,923,085)



Cash Flow Comparison
Synthetic Fixed vs. Fixed Rate Debt

	Cash Flow to Date
Synthetic Fixed =	$62,035,586
Fixed Rate =	$67,460,837

Assumptions:
- Fixed rate debt issued at 5.10% in Jun-06, and 4.93% in Mar-07 (estimated TE rates - Bloomberg)
- 'Synthetic' includes swap cash flow + interest + fees to date

Exhibit "C"

MONTHLY SUMMARY OF PAYROLL ACH PAYMENTS

September
2013

DATE	AMOUNT	VENDOR	PURPOSE
9/6/2013	717,500.54	BANK OF AMERICA	ACH Payments for Payroll
9/20/2013	724,806.48	BANK OF AMERICA	ACH Payments for Payroll
	$1,442,307.02		

IRWD Ledger — Payment Register For 01-SEP-13 To 30-SEP-13 — Report Date: 01-OCT-2013 06:50
BANK: Bank of America N.A. Branch : Los Angeles — Account: Checking AP and PR — Page: 1
Bank Account Currency: USD (US Dollar) — Payment Currency: USD (US Dollar)
Payment Type: All — Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342226		05-SEP-13	Alvaro Alfaro		105.00			Negotiable
342227		05-SEP-13	David Le		282.70	16-SEP-13	282.70	Reconciled
342228		05-SEP-13	Jared Pennington		217.00	16-SEP-13	217.00	Reconciled
342229		05-SEP-13	Kenneth Drake		92.00	12-SEP-13	92.00	Reconciled
342230		05-SEP-13	Lyndy Lewis		152.55	09-SEP-13	152.55	Reconciled
342231		05-SEP-13	Malcolm Cortez		67.80	18-SEP-13	67.80	Reconciled
342232		05-SEP-13	Peer Swan		1,083.71	10-SEP-13	1,083.71	Reconciled
342233		05-SEP-13	Steve Habiger		235.00	09-SEP-13	235.00	Reconciled
342234		05-SEP-13	Steven LaMar		623.98	09-SEP-13	623.98	Reconciled
342235		05-SEP-13	AGILENT TECHNOLOGIES, INC.		1,580.04	09-SEP-13	1,580.04	Reconciled
342236		05-SEP-13	AIRGAS-WEST, INC.		995.36	09-SEP-13	995.36	Reconciled
342237		05-SEP-13	ALEXANDER CONTRACT SERVICES INC		102,543.62	11-SEP-13	102,543.62	Reconciled
342238		05-SEP-13	ALWAZZAN, ZAID		18.17	16-SEP-13	18.17	Reconciled
342239		05-SEP-13	AMERICAN MESSAGING SERVICES LLC		292.36	10-SEP-13	292.36	Reconciled
342240		05-SEP-13	ANDERSONPENNA PARTNERS, INC		13,680.00	11-SEP-13	13,680.00	Reconciled
342241		05-SEP-13	ARROWS		36.57	24-SEP-13	36.57	Reconciled
342242		05-SEP-13	ASSOCIATION OF CALIFORNIA WATER AGENCIES/JPIA		35,814.94	12-SEP-13	35,814.94	Reconciled
342243		05-SEP-13	AST CORPORATION		13,271.34	09-SEP-13	13,271.34	Reconciled
342244		05-SEP-13	AT&T		80.85	10-SEP-13	80.85	Reconciled
342245		05-SEP-13	AT&T		3,192.10	10-SEP-13	3,192.10	Reconciled
342246		05-SEP-13	AZIZ, NURUL		400.00	09-SEP-13	400.00	Reconciled
342247		05-SEP-13	BATTERY SPECIALTIES		475.47	11-SEP-13	475.47	Reconciled
342248		05-SEP-13	BETTERCOM, INC.		6,876.84	12-SEP-13	6,876.84	Reconciled
342249		05-SEP-13	BORCH AND HOWELL GROUP		3,000.00	11-SEP-13	3,000.00	Reconciled
342250		05-SEP-13	BROWN, ALEX		15.93			Negotiable
342251		05-SEP-13	BRUNO, HEIDI		10.10	26-SEP-13	10.10	Reconciled
342252		05-SEP-13	CDW GOVERNMENT LLC		2,955.23	10-SEP-13	2,955.23	Reconciled
342253		05-SEP-13	CEPA OPERATIONS, INC		459.04	06-SEP-13	459.04	Reconciled
342254		05-SEP-13	CHARLES P CROWLEY COMPANY INC		6,262.07	16-SEP-13	6,262.07	Reconciled
342255		05-SEP-13	CHIANG, ANNIE		16.92	12-SEP-13	16.92	Reconciled
342256		05-SEP-13	CHO, SOO KYUNG		26.64	16-SEP-13	26.64	Reconciled
342257		05-SEP-13	CITY OF LAKE FOREST		159,959.28	16-SEP-13	159,959.28	Reconciled
342258		05-SEP-13	CITY OF TUSTIN		715,501.18	11-SEP-13	715,501.18	Reconciled
342259		05-SEP-13	CLEARINGHOUSE		528.45	10-SEP-13	528.45	Reconciled

IRWD Ledger — Payment Register For 01-SEP-13 To 30-SEP-13 — Report Date: 01-OCT-2013 06:50
BANK: Bank of America N.A. Branch : Los Angeles — Account: Checking AP and PR — Page: 2
Bank Account Currency: USD (US Dollar) — Payment Currency: USD (US Dollar)
Payment Type: All — Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342260		05-SEP-13	CONDITION MONITORING SERVICES INC		4,927.50	09-SEP-13	4,927.50	Reconciled
342261		05-SEP-13	CONEYBEARE INC		7,636.30	12-SEP-13	7,636.30	Reconciled
342262		05-SEP-13	CORELOGIC INC		5,400.00	13-SEP-13	5,400.00	Reconciled
342263		05-SEP-13	CREDENTIAL CHECK CORPORATION		67.80	09-SEP-13	67.80	Reconciled
342264		05-SEP-13	DAVID SHERWIN CONCRETE PUMPING		395.00	11-SEP-13	395.00	Reconciled
342265		05-SEP-13	EDWARDS, DONNA		80.00	20-SEP-13	80.00	Reconciled
342266		05-SEP-13	ELECTRABOND		160.00	17-SEP-13	160.00	Reconciled
342267		05-SEP-13	EMA INC		5,262.56	12-SEP-13	5,262.56	Reconciled
342268		05-SEP-13	FEDEX		298.48	11-SEP-13	298.48	Reconciled
342269		05-SEP-13	FERGUSON ENTERPRISES, INC.		60,043.68	11-SEP-13	60,043.68	Reconciled
342270		05-SEP-13	FIDELITY SECURITY LIFE INSURANCE COMPANY		6,100.68	12-SEP-13	6,100.68	Reconciled
342271		05-SEP-13	FIVE POINT PARTNERS LLC		66,880.49	13-SEP-13	66,880.49	Reconciled
342272		05-SEP-13	Fotini Charnaw		620.86	09-SEP-13	620.86	Reconciled
342273		05-SEP-13	FRANK LA PLACA EXTERMINATING INC		175.00	16-SEP-13	175.00	Reconciled
342274		05-SEP-13	FRONTLINE MANAGEMENT INC		360.60	13-SEP-13	360.60	Reconciled
342275		05-SEP-13	GEORGE YARDLEY CO INC		2,757.71	09-SEP-13	2,757.71	Reconciled
342276		05-SEP-13	GLOBALSTAR INC		168.77	09-SEP-13	168.77	Reconciled

342277	05-SEP-13	GRAINGER	5,422.83	13-SEP-13	5,422.83	Reconciled
342278	05-SEP-13	HIGHLAND PRODUCTS GROUP, LLC	3,297.08	09-SEP-13	3,297.08	Reconciled
342279	05-SEP-13	HILL BROTHERS CHEMICAL COMPANY	13,133.25	10-SEP-13	13,133.25	Reconciled
342280	05-SEP-13	HOME DEPOT USA INC	19.93	10-SEP-13	19.93	Reconciled
342281	05-SEP-13	HYDRO-SCAPE PRODUCTS INC	33.47	09-SEP-13	33.47	Reconciled
342282	05-SEP-13	INTERNAL REVENUE SERVICE	25.00	12-SEP-13	25.00	Reconciled
342283	05-SEP-13	IRVINE PIPE & SUPPLY INC	6,285.99	10-SEP-13	6,285.99	Reconciled
342284	05-SEP-13	IRWD EMPLOYEE ASSOCIATION	470.00	09-SEP-13	470.00	Reconciled
342285	05-SEP-13	JCI JONES CHEMICALS INC	5,505.50	10-SEP-13	5,505.50	Reconciled
342286	05-SEP-13	JOHN MICHAEL COVAS	134.00	13-SEP-13	134.00	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342287		05-SEP-13	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES		325.00	06-SEP-13	325.00	Reconciled
342288		05-SEP-13	KONECRANES INC		349.00	10-SEP-13	349.00	Reconciled
342289		05-SEP-13	MARSH RISK & INSURANCE SVCS		315,029.10	13-SEP-13	315,029.10	Reconciled
342290		05-SEP-13	MARUKOME USA INC		20,794.13	20-SEP-13	20,794.13	Reconciled
342291		05-SEP-13	MC MASTER CARR SUPPLY CO		1,328.65	10-SEP-13	1,328.65	Reconciled
342292		05-SEP-13	MCBAIN SYSTEMS LP		640.00	09-SEP-13	640.00	Reconciled
342293		05-SEP-13	MCKEEHAN, MARK		127.45	20-SEP-13	127.45	Reconciled
342294		05-SEP-13	MERCHANTS LANDSCAPE SERVICES INC		7,280.00	10-SEP-13	7,280.00	Reconciled
342295		05-SEP-13	NATIONAL READY MIXED CONCRETE CO		681.64	10-SEP-13	681.64	Reconciled
342296		05-SEP-13	NATURES IMAGE INC		2,303.22	10-SEP-13	2,303.22	Reconciled
342297		05-SEP-13	NCH CORPORATION		263.98	09-SEP-13	263.98	Reconciled
342298		05-SEP-13	NEPTUNE TECHNOLOGY GROUP, INC.		71,510.69	12-SEP-13	71,510.69	Reconciled
342299		05-SEP-13	NMG GEOTECHNICAL INC		9,524.80	11-SEP-13	9,524.80	Reconciled
342300		05-SEP-13	OLIN CORPORATION		51,082.18	13-SEP-13	51,082.18	Reconciled
342301		05-SEP-13	ON ASSIGNMENT LAB SUPPORT		1,244.80	09-SEP-13	1,244.80	Reconciled
342302		05-SEP-13	ORACLE AMERICA, INC.		21,868.61	11-SEP-13	21,868.61	Reconciled
342303		05-SEP-13	OSTS, INC		1,492.50	09-SEP-13	1,492.50	Reconciled
342304		05-SEP-13	OUTSOURCE TECHNICAL LLC		70,168.00	18-SEP-13	70,168.00	Reconciled
342305		05-SEP-13	PACIFIC COAST BOLT CORP		6,286.90	11-SEP-13	6,286.90	Reconciled
342306		05-SEP-13	PADDOCK, BONNER		3.59	10-SEP-13	3.59	Reconciled
342307		05-SEP-13	PARADA PAINTING INC		45,310.73	13-SEP-13	45,310.73	Reconciled
342308		05-SEP-13	PARK, SANG WOO		58.32			Negotiable
342309		05-SEP-13	PAUL E BRADLEY INC		4,612.50	13-SEP-13	4,612.50	Reconciled
342310		05-SEP-13	PAULUS ENGINEERING INC		47,452.50	10-SEP-13	47,452.50	Reconciled
342311		05-SEP-13	PERS LONG TERM CARE		852.57	12-SEP-13	852.57	Reconciled
342312		05-SEP-13	PIVOT INTERIORS INC		2,161.79	06-SEP-13	2,161.79	Reconciled
342313		05-SEP-13	PONTON INDUSTRIES INC		3,647.29	20-SEP-13	3,647.29	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342314		05-SEP-13	PRAXAIR DISTRIBUTION INC		1,146.86	10-SEP-13	1,146.86	Reconciled
342315		05-SEP-13	RBF CONSULTING		207,595.47	13-SEP-13	207,595.47	Reconciled
342316		05-SEP-13	RESPONSE ENVELOPE, INC		2,607.66	09-SEP-13	2,607.66	Reconciled
342317		05-SEP-13	RICHARD C SLADE & ASSOCIATES		6,525.00			Negotiable
342318		05-SEP-13	ROAD BUILDERS INC		1,430.35	16-SEP-13	1,430.35	Reconciled
342319		05-SEP-13	RSI DEVELOPMENT, LLC		2,000.00	16-SEP-13	2,000.00	Reconciled
342320		05-SEP-13	SAGORIN, MICHAEL		13.85	09-SEP-13	13.85	Reconciled

342321	05-SEP-13	SANTA ANA BLUE PRINT		63.18	10-SEP-13	63.18	Reconciled
342322	05-SEP-13	SARMIENTO, LUANA		52.05	12-SEP-13	52.05	Reconciled
342323	05-SEP-13	SHAMROCK SUPPLY CO INC		430.23	06-SEP-13	430.23	Reconciled
342324	05-SEP-13	SHEA HOMES		5,685.91			Negotiable
342325	05-SEP-13	SILVER, CHARLES		90.95			Negotiable
342326	05-SEP-13	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT		3,327.59			Negotiable
342327	05-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		17,538.31	09-SEP-13	17,538.31	Reconciled
342328	05-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		3,811.64			Negotiable
342329	05-SEP-13	SOUTHERN CALIFORNIA SECURITY CENTER, INC.		1,410.29	11-SEP-13	1,410.29	Reconciled
342330	05-SEP-13	SPARKLETTS		427.99	11-SEP-13	427.99	Reconciled
342331	05-SEP-13	STANDARD PACIFIC		70.37	26-SEP-13	70.37	Reconciled
342332	05-SEP-13	STEVEN ENTERPRISES INC		438.10	06-SEP-13	438.10	Reconciled
342333	05-SEP-13	STONE, JEFFREY		56.58	10-SEP-13	56.58	Reconciled
342334	05-SEP-13	SUNNYHILLS RESTORATION		53,608.18	10-SEP-13	53,608.18	Reconciled
342335	05-SEP-13	SUPERMEDIA LLC		72.75	11-SEP-13	72.75	Reconciled
342336	05-SEP-13	TALLEY INC		2,515.54	09-SEP-13	2,515.54	Reconciled
342337	05-SEP-13	TESTAMERICA LABORATORIES, INC		157.50	09-SEP-13	157.50	Reconciled
342338	05-SEP-13	TOP TEN REAL ESTATE, INC.		59.39	10-SEP-13	59.39	Reconciled
342339	05-SEP-13	TRELL, JESSICA		77.73			Negotiable
342340	05-SEP-13	TRI-STATE SEMINAR		720.00			Negotiable

Payment Document : IRWD CHECK

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
342341		05-SEP-13	TROPICAL PLAZA NURSERY INC		2,072.54	06-SEP-13	2,072.54	Reconciled
342342		05-SEP-13	TRUCPARCO		2,180.16	10-SEP-13	2,180.16	Reconciled
342343		05-SEP-13	UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA		679.50	12-SEP-13	679.50	Reconciled
342344		05-SEP-13	UNITED PARCEL SERVICE INC		52.73	09-SEP-13	52.73	Reconciled
342345		05-SEP-13	UNITED SITE SERVICES OF CALIFORNIA INC		833.28	09-SEP-13	833.28	Reconciled
342346		05-SEP-13	UNIVAR USA INC		4,277.71	09-SEP-13	4,277.71	Reconciled
342347		05-SEP-13	UNIVERSAL METALS CO.		158.76	09-SEP-13	158.76	Reconciled
342348		05-SEP-13	US BANK NAT'L ASSOCIATION NORTH DAKOTA		65,436.13	13-SEP-13	65,436.13	Reconciled
342349		05-SEP-13	USA BLUEBOOK		3,398.11	12-SEP-13	3,398.11	Reconciled
342350		05-SEP-13	VERIZON CALIFORNIA INC		243.57	11-SEP-13	243.57	Reconciled
342351		05-SEP-13	VERIZON WIRELESS SERVICES LLC		724.70	10-SEP-13	724.70	Reconciled
342352		05-SEP-13	VULCAN MATERIALS COMPANY		1,342.14	09-SEP-13	1,342.14	Reconciled
342353		05-SEP-13	VWR INTERNATIONAL, LLC		1,961.98	09-SEP-13	1,961.98	Reconciled
342354		05-SEP-13	WASTE MANAGEMENT OF ORANGE COUNTY		1,754.21	10-SEP-13	1,754.21	Reconciled
342355		05-SEP-13	WEST COAST SAFETY SUPPLY INC		5,572.19	16-SEP-13	5,572.19	Reconciled
342356		05-SEP-13	WESTERN EXTERMINATOR COMPANY		6,799.50	13-SEP-13	6,799.50	Reconciled
342357		06-SEP-13	Craig Cascelli		140.00	16-SEP-13	140.00	Reconciled
342358		06-SEP-13	Hector Navarro		130.83	23-SEP-13	130.83	Reconciled
342359		06-SEP-13	Mark Nelson		235.00	09-SEP-13	235.00	Reconciled
342360		06-SEP-13	Pio Reynoso		1,252.68	11-SEP-13	1,252.68	Reconciled
342361		06-SEP-13	Zackariah Tegel		230.00			Negotiable
342362		06-SEP-13	BANK OF NEW YORK MELLON TRUST COMPANY NA	NEWARK	1,324.00	11-SEP-13	1,324.00	Reconciled
342363		06-SEP-13	Todd Colvin	HOME	105.00	11-SEP-13	105.00	Reconciled
342364		09-SEP-13	CITY OF ORANGE	ORANGE	240.00	12-SEP-13	240.00	Reconciled
342365		09-SEP-13	CITY OF ORANGE	ORANGE	1,000.00	17-SEP-13	1,000.00	Reconciled

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Payment Document : IRWD CHECK								
342366		12-SEP-13	CALIFORNIA SCREENPRINT INC.	IRVINE	2,700.48	12-SEP-13	2,700.48	Reconciled
342367		12-SEP-13	Barkev Meserlian		102.85	16-SEP-13	102.85	Reconciled
342368		12-SEP-13	Christine Compton		25.00	16-SEP-13	25.00	Reconciled
342369		12-SEP-13	Han-Tsuei Shih		290.27			Negotiable
342370		12-SEP-13	Jo Ann Corey		89.89	13-SEP-13	89.89	Reconciled
342371		12-SEP-13	Kelly Welch		147.32	17-SEP-13	147.32	Reconciled
342372		12-SEP-13	Rory Moore		217.00			Negotiable
342373		12-SEP-13	Susanne Johnson		107.35	13-SEP-13	107.35	Reconciled
342374		12-SEP-13	ACCUZIP, INC.		995.00	18-SEP-13	995.00	Reconciled
342375		12-SEP-13	ADS LLC		1,991.00	16-SEP-13	1,991.00	Reconciled
342376		12-SEP-13	AKM CONSULTING ENGINEERS, INC.		57,678.00	17-SEP-13	57,678.00	Reconciled
342377		12-SEP-13	AMERICAN TRAINING RESOURCES, INC		1,079.15	13-SEP-13	1,079.15	Reconciled
342378		12-SEP-13	APPLIED TECHNOLOGY GROUP INC		20,298.14	19-SEP-13	20,298.14	Reconciled
342379		12-SEP-13	AQUA-METRIC SALES COMPANY		3,621.79	17-SEP-13	3,621.79	Reconciled
342380		12-SEP-13	ARCADIS U.S., INC.		51,065.96	23-SEP-13	51,065.96	Reconciled
342381		12-SEP-13	ARIZONA PIPELINE COMPANY		117,089.26	19-SEP-13	117,089.26	Reconciled
342382		12-SEP-13	AT&T		121.50	18-SEP-13	121.50	Reconciled
342383		12-SEP-13	AT&T		1,948.16	18-SEP-13	1,948.16	Reconciled
342384		12-SEP-13	AUTOZONE PARTS, INC.		508.78	16-SEP-13	508.78	Reconciled
342385		12-SEP-13	B & K ELECTRIC WHOLESALE		4,794.36	17-SEP-13	4,794.36	Reconciled
342386		12-SEP-13	B&K ELECTRIC WHOLESALE		1,232.26	17-SEP-13	1,232.26	Reconciled
342387		12-SEP-13	BATTERIES PLUS AND BATTERIES PLUS BULBS		258.62	26-SEP-13	258.62	Reconciled
342388		12-SEP-13	BATTERIES PLUS AND BATTERIES PLUS BULBS		1,096.73			Voided
342389		12-SEP-13	BDC SPECIAL WASTE		204.20	17-SEP-13	204.20	Reconciled
342390		12-SEP-13	BIGWIG MONSTER, LLC		17,160.00	19-SEP-13	17,160.00	Reconciled
342391		12-SEP-13	BIOMAGIC INC		19,907.21	17-SEP-13	19,907.21	Reconciled
342392		12-SEP-13	BORCHARD SURVEYING & MAPPING, INC.		4,515.00	18-SEP-13	4,515.00	Reconciled
342393		12-SEP-13	BOYD & ASSOCIATES		3,783.00	16-SEP-13	3,783.00	Reconciled
342394		12-SEP-13	C WELLS PIPELINE MATERIALS INC		8,123.12	24-SEP-13	8,123.12	Reconciled

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342395		12-SEP-13	CALIFORNIA BARRICADE INC		3,483.82	17-SEP-13	3,483.82	Reconciled
342396		12-SEP-13	CANON FINANCIAL SERVICES, INC		9,812.08	23-SEP-13	9,812.08	Reconciled
342397		12-SEP-13	CAPTIVE AUDIENCE MARKETING INC.		85.32	17-SEP-13	85.32	Reconciled
342398		12-SEP-13	CARL WARREN & CO		3,200.09	17-SEP-13	3,200.09	Reconciled
342399		12-SEP-13	CDW GOVERNMENT LLC		894.02	16-SEP-13	894.02	Reconciled
342400		12-SEP-13	CITY OF LAKE FOREST		5,802.20	25-SEP-13	5,802.20	Reconciled
342401		12-SEP-13	CLEAN ENERGY FUELS		790.70	17-SEP-13	790.70	Reconciled
342402		12-SEP-13	COMMERCIAL COATING RESOURCE INC		8,850.00	18-SEP-13	8,850.00	Reconciled
342403		12-SEP-13	CONEYBEARE INC		9,966.81	19-SEP-13	9,966.81	Reconciled
342404		12-SEP-13	CR & R INCORPORATED		12.30	18-SEP-13	12.30	Reconciled
342405		12-SEP-13	CREATIVE ALLIANCE GROUP LLC		5,064.41	20-SEP-13	5,064.41	Reconciled
342406		12-SEP-13	Debbie Kanoff		2,321.52	13-SEP-13	2,321.52	Reconciled
342407		12-SEP-13	DEE JASPAR & ASSOCIATES, INC.		2,309.41	17-SEP-13	2,309.41	Reconciled
342408		12-SEP-13	EAST ORANGE COUNTY WATER DISTRICT		362.24	16-SEP-13	362.24	Reconciled
342409		12-SEP-13	ELECTRITEL SERVICES, INC.		543.34	13-SEP-13	543.34	Reconciled
342410		12-SEP-13	ENVIRONMENTAL EQUIPMENT SUPPLY, INC		600.77	18-SEP-13	600.77	Reconciled
342411		12-SEP-13	ENVIRONMENTAL SCIENCE ASSOCIATES		3,512.08	17-SEP-13	3,512.08	Reconciled
342412		12-SEP-13	EXECUTIVE LIGHTING & ELECTRIC		1,662.26	13-SEP-13	1,662.26	Reconciled

342413	12-SEP-13	FEDEX	420.09	17-SEP-13	420.09	Reconciled
342414	12-SEP-13	FERGUSON ENTERPRISES, INC.	33,265.85	18-SEP-13	33,265.85	Reconciled
342415	12-SEP-13	FIRE EXTINGUISHING SAFETY & SERVICE	459.31	16-SEP-13	459.31	Reconciled
342416	12-SEP-13	GANAHL LUMBER CO.	3,020.14	16-SEP-13	3,020.14	Reconciled
342417	12-SEP-13	GCI CONSTRUCTION, INC.	5,676.25	23-SEP-13	5,676.25	Reconciled
342418	12-SEP-13	GENERAL ELECTRIC COMPANY	1,425.60	16-SEP-13	1,425.60	Reconciled
342419	12-SEP-13	GRAINGER	973.74	16-SEP-13	973.74	Reconciled
342420	12-SEP-13	GRAYBAR ELECTRIC COMPANY	373.95	16-SEP-13	373.95	Reconciled

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342421		12-SEP-13	HAAKER EQUIPMENT COMPANY		3,188.25	18-SEP-13	3,188.25	Reconciled
342422		12-SEP-13	HACH COMPANY		7,618.63	23-SEP-13	7,618.63	Reconciled
342423		12-SEP-13	HILL BROTHERS CHEMICAL COMPANY		5,789.10	18-SEP-13	5,789.10	Reconciled
342424		12-SEP-13	HOME DEPOT USA INC		799.01	19-SEP-13	799.01	Reconciled
342425		12-SEP-13	IDEXX DISTRIBUTION, INC		22.68	16-SEP-13	22.68	Reconciled
342426		12-SEP-13	II FUELS INC		16,654.76	17-SEP-13	16,654.76	Reconciled
342427		12-SEP-13	INDUSTRIAL ELECTRIC MACHINERY LLC		4,344.88	20-SEP-13	4,344.88	Reconciled
342428		12-SEP-13	INDUSTRIAL METAL SUPPLY CO		320.59			Negotiable
342429		12-SEP-13	IRVINE PIPE & SUPPLY INC		107.86	13-SEP-13	107.86	Reconciled
342430		12-SEP-13	IRWD-PETTY CASH CUSTODIAN		722.74	17-SEP-13	722.74	Reconciled
342431		12-SEP-13	JCI JONES CHEMICALS INC		4,004.23	16-SEP-13	4,004.23	Reconciled
342432		12-SEP-13	JOHN G. ALEVIZOS D.O. INC.		1,269.39	17-SEP-13	1,269.39	Reconciled
342433		12-SEP-13	KIMBALL MIDWEST		1,885.21	19-SEP-13	1,885.21	Reconciled
342434		12-SEP-13	KS DIRECT LLC		3,018.60	13-SEP-13	3,018.60	Reconciled
342435		12-SEP-13	LABELLE-MARVIN INC		4,922.50			Negotiable
342436		12-SEP-13	LCS TECHNOLOGIES, INC.		14,500.00	18-SEP-13	14,500.00	Reconciled
342437		12-SEP-13	LEWIS OPERATING CORP		30,399.74	17-SEP-13	30,399.74	Reconciled
342438		12-SEP-13	LUBRICATION ENGINEERS, INC.		617.42	16-SEP-13	617.42	Reconciled
342439		12-SEP-13	MAG SYSTEMS, INC.		1,559.12	16-SEP-13	1,559.12	Reconciled
342440		12-SEP-13	MARKET-THINK LLC		3,900.00	24-SEP-13	3,900.00	Reconciled
342441		12-SEP-13	MARVIN GARDENS LLC		90.36	13-SEP-13	90.36	Reconciled
342442		12-SEP-13	MERCHANTS LANDSCAPE SERVICES INC		2,790.25	13-SEP-13	2,790.25	Reconciled
342443		12-SEP-13	MGH PAINTING INC		3,700.00	13-SEP-13	3,700.00	Reconciled
342444		12-SEP-13	MOBILE MODULAR MANAGEMENT CORPORATION		3,192.00	17-SEP-13	3,192.00	Reconciled
342445		12-SEP-13	MUTUAL PROPANE		116.98	17-SEP-13	116.98	Reconciled
342446		12-SEP-13	NATIONAL READY MIXED CONCRETE CO		1,353.64	16-SEP-13	1,353.64	Reconciled

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342447		12-SEP-13	NATIONAL SPECIALITY ALLOYS LLC		317.86	16-SEP-13	317.86	Reconciled
342448		12-SEP-13	NCL OF WISCONSIN INC		89.76	17-SEP-13	89.76	Reconciled
342449		12-SEP-13	NORTHERN SAFETY CO INC		138.07	16-SEP-13	138.07	Reconciled
342450		12-SEP-13	NURSERY PRODUCTS LLC		25,583.48	23-SEP-13	25,583.48	Reconciled
342451		12-SEP-13	O'HAREN GOVERNMENT RELATIONS		6,500.00	19-SEP-13	6,500.00	Reconciled
342452		12-SEP-13	OLIN CORPORATION		2,763.68	16-SEP-13	2,763.68	Reconciled
342453		12-SEP-13	ON ASSIGNMENT LAB SUPPORT		2,359.86	16-SEP-13	2,359.86	Reconciled
342454		12-SEP-13	ONESOURCE DISTRIBUTORS LLC		606.86	16-SEP-13	606.86	Reconciled

342455	12-SEP-13	ORANGE COUNTY AUTO PARTS CO	697.99	13-SEP-13	697.99	Reconciled
342456	12-SEP-13	OUTSOURCE TECHNICAL LLC	15,726.00	24-SEP-13	15,726.00	Reconciled
342457	12-SEP-13	PACIFIC GAS AND ELECTRIC COMPANY	24.94	17-SEP-13	24.94	Reconciled
342458	12-SEP-13	PARKHOUSE TIRE INC	1,895.06	17-SEP-13	1,895.06	Reconciled
342459	12-SEP-13	PARKHOUSE TIRE INC	396.36	17-SEP-13	396.36	Reconciled
342460	12-SEP-13	PASCAL & LUDWIG CONSTRUCTORS	29,200.00	17-SEP-13	29,200.00	Reconciled
342461	12-SEP-13	PAULUS ENGINEERING INC	20,712.72	17-SEP-13	20,712.72	Reconciled
342462	12-SEP-13	PERKINELMER HEALTH SCIENCES INC	24,460.23	23-SEP-13	24,460.23	Reconciled
342463	12-SEP-13	PINNACLE LANDSCAPE COMPANY	6,544.91	17-SEP-13	6,544.91	Reconciled
342464	12-SEP-13	PMC ENGINEERING LLC.	9,913.22	24-SEP-13	9,913.22	Reconciled
342465	12-SEP-13	PRINCIPAL LIFE INSURANCE	25,504.97	20-SEP-13	25,504.97	Reconciled
342466	12-SEP-13	PRIORITY MAILING SYSTEMS LLC	481.68	18-SEP-13	481.68	Reconciled
342467	12-SEP-13	PROGRESSIVE BUSINESS PUBLICATIONS	94.56	16-SEP-13	94.56	Reconciled
342468	12-SEP-13	PSOMAS	658.08	16-SEP-13	658.08	Reconciled
342469	12-SEP-13	PTI SAND & GRAVEL INC	1,053.91	17-SEP-13	1,053.91	Reconciled
342470	12-SEP-13	PURE AQUA, INC	1,756.40	13-SEP-13	1,756.40	Reconciled

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342471		12-SEP-13	REACH EMPLOYEE ASSISTANCE INC		882.00	19-SEP-13	882.00	Reconciled
342472		12-SEP-13	RESPONSE ENVELOPE, INC		1,770.93	17-SEP-13	1,770.93	Reconciled
342473		12-SEP-13	SAN DIEGO FLUID SYSTEM TECH		301.28	16-SEP-13	301.28	Reconciled
342474		12-SEP-13	SANTA MARGARITA FORD		382.71	16-SEP-13	382.71	Reconciled
342475		12-SEP-13	SCHINDLER ELEVATOR CORPORATION		169.16	18-SEP-13	169.16	Reconciled
342476		12-SEP-13	SECURTEC DISTRICT PATROL INC		5,400.00	20-SEP-13	5,400.00	Reconciled
342477		12-SEP-13	SHELF MASTER INC		2,708.43	13-SEP-13	2,708.43	Reconciled
342478		12-SEP-13	SIGMA-ALDRICH INC		324.31	16-SEP-13	324.31	Reconciled
342479		12-SEP-13	SIGNATURE FLOORING INC		3,703.40	16-SEP-13	3,703.40	Reconciled
342480		12-SEP-13	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT		11,814.31	20-SEP-13	11,814.31	Reconciled
342481		12-SEP-13	SOUTH COAST ANSWERING SERVICE		543.55	17-SEP-13	543.55	Reconciled
342482		12-SEP-13	SOUTH COAST WATER CO.		40.00	17-SEP-13	40.00	Reconciled
342483		12-SEP-13	SOUTH COAST WATER CO.		151.68	17-SEP-13	151.68	Reconciled
342484		12-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		54,580.12	18-SEP-13	54,580.12	Reconciled
342485		12-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		500.00			Negotiable
342486		12-SEP-13	SOUTHERN CALIFORNIA SECURITY CENTER, INC.		112.63	20-SEP-13	112.63	Reconciled
342487		12-SEP-13	SPARLING INSTRUMENTS LLC		94.10	16-SEP-13	94.10	Reconciled
342488		12-SEP-13	SPATIAL WAVE, INC.		480.00	16-SEP-13	480.00	Reconciled
342489		12-SEP-13	STANDARD & POOR'S FINANCIAL SERVICES LLC		1,500.00	16-SEP-13	1,500.00	Reconciled
342490		12-SEP-13	THE FURMAN GROUP		10,070.00	19-SEP-13	10,070.00	Reconciled
342491		12-SEP-13	THE GAS COMPANY		1,228.59	18-SEP-13	1,228.59	Reconciled
342492		12-SEP-13	TRENCH SHORING COMPANY		764.89	17-SEP-13	764.89	Reconciled

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342493	12-SEP-13	TROPICAL PLAZA NURSERY INC	422.67	16-SEP-13	422.67	Reconciled
342494	12-SEP-13	TRUCPARCO	13,132.27	24-SEP-13	13,132.27	Reconciled
342495	12-SEP-13	TRUGREEN LANDCARE LLC	280.00	16-SEP-13	280.00	Reconciled
342496	12-SEP-13	U S EQUIPMENT CO INC	845.61	13-SEP-13	845.61	Reconciled
342497	12-SEP-13	UNITED PARCEL SERVICE INC	48.39	16-SEP-13	48.39	Reconciled
342498	12-SEP-13	UNITED SITE SERVICES OF CALIFORNIA INC	458.67	16-SEP-13	458.67	Reconciled
342499	12-SEP-13	UNITED STATES POST OFFICE	24,580.00	20-SEP-13	24,580.00	Reconciled
342500	12-SEP-13	UNITED STATES POSTAL SERVICE	77.18	16-SEP-13	77.18	Reconciled
342501	12-SEP-13	UNIVAR USA INC	9,778.91	18-SEP-13	9,778.91	Reconciled
342502	12-SEP-13	US PEROXIDE LLC	28,732.92	23-SEP-13	28,732.92	Reconciled
342503	12-SEP-13	USA BLUEBOOK	184.56	20-SEP-13	184.56	Reconciled
342504	12-SEP-13	VISIONARY DIGITAL ENTERPRISES, LLC	26,887.76	18-SEP-13	26,887.76	Reconciled
342505	12-SEP-13	VWR INTERNATIONAL, LLC	848.19	16-SEP-13	848.19	Reconciled
342506	12-SEP-13	WASTE MANAGEMENT OF ORANGE COUNTY	1,227.89	17-SEP-13	1,227.89	Reconciled
342507	12-SEP-13	WATERLINE TECHNOLOGIES INC	2,919.52	18-SEP-13	2,919.52	Reconciled
342508	12-SEP-13	WECK LABORATORIES INC	5,240.00	19-SEP-13	5,240.00	Reconciled
342509	12-SEP-13	WESTERN EXTERMINATOR COMPANY	2,235.00	26-SEP-13	2,235.00	Reconciled
342510	12-SEP-13	WIRELESS WATCHDOGS, LLC	916.00	27-SEP-13	916.00	Reconciled
342511	12-SEP-13	AIRGAS-WEST, INC.	12.83	16-SEP-13	12.83	Reconciled
342512	12-SEP-13	B & K ELECTRIC WHOLESALE	8,329.75	19-SEP-13	8,329.75	Reconciled
342513	12-SEP-13	CITY OF LAKE FOREST	4,968.23			Negotiable
342514	12-SEP-13	INDUSTRIAL METAL SUPPLY CO	490.36	16-SEP-13	490.36	Reconciled
342515	12-SEP-13	IRVINE PIPE & SUPPLY INC	607.54	13-SEP-13	607.54	Reconciled
342516	12-SEP-13	MC MASTER CARR SUPPLY CO	1,557.75	17-SEP-13	1,557.75	Reconciled
342517	12-SEP-13	ROAD BUILDERS INC	931.51	16-SEP-13	931.51	Reconciled

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342518		12-SEP-13	TRUE SOUTH RENEWABLES INC.		895.98	16-SEP-13	895.98	Reconciled
342519		12-SEP-13	US PEROXIDE LLC		11,971.33	23-SEP-13	11,971.33	Reconciled
342520		12-SEP-13	WALTERS WHOLESALE ELECTRIC		875.79	20-SEP-13	875.79	Reconciled
342521		17-SEP-13	ORANGE COUNTY WATER ASSOCIATIO	IRVINE	750.00			Negotiable
342522		18-SEP-13	ORANGE COUNTY WATER ASSOCIATION	IRVINE	500.00			Negotiable
342523		19-SEP-13	Andrew Willis		105.00	27-SEP-13	105.00	Reconciled
342524		19-SEP-13	Douglas Reinhart		556.42			Negotiable
342525		19-SEP-13	Franklin Soto		120.00	24-SEP-13	120.00	Reconciled
342526		19-SEP-13	James Hamer		140.00	24-SEP-13	140.00	Reconciled
342527		19-SEP-13	Jeffrey Schreck		118.76			Negotiable
342528		19-SEP-13	Joan Gronek		114.00	20-SEP-13	114.00	Reconciled
342529		19-SEP-13	Jose Silva		145.80	26-SEP-13	145.80	Reconciled
342530		19-SEP-13	Kenneth Erwin		49.95	20-SEP-13	49.95	Reconciled
342531		19-SEP-13	Matthew Daniel		217.00			Negotiable
342532		19-SEP-13	Peer Swan		1,047.09	20-SEP-13	1,047.09	Reconciled
342533		19-SEP-13	AGILENT TECHNOLOGIES, INC.		59.62	23-SEP-13	59.62	Reconciled
342534		19-SEP-13	AIRGAS-WEST, INC.		272.97	24-SEP-13	272.97	Reconciled
342535		19-SEP-13	ALPHA TRAFFIC SERVICES, INC.		2,497.50	24-SEP-13	2,497.50	Reconciled
342536		19-SEP-13	ANDERSONPENNA PARTNERS, INC		16,910.00	25-SEP-13	16,910.00	Reconciled
342537		19-SEP-13	APPLIED INDUSTRIAL TECHNOLOGIES - CA LLC		82.88	24-SEP-13	82.88	Reconciled
342538		19-SEP-13	ASHFORD, WALT		1,072.47	23-SEP-13	1,072.47	Reconciled
342539		19-SEP-13	ASSETPOINT LLC		16,269.00	27-SEP-13	16,269.00	Reconciled
342540		19-SEP-13	ASSOCIATION OF CALIFORNIA CITIES		3,000.00			Negotiable
342541		19-SEP-13	AT&T		3,507.42	25-SEP-13	3,507.42	Reconciled
342542		19-SEP-13	AT&T		47.58	23-SEP-13	47.58	Reconciled
342543		19-SEP-13	AUTOZONE PARTS, INC.		195.80	23-SEP-13	195.80	Reconciled

342544	19-SEP-13	B & K ELECTRIC WHOLESALE	1,715.42	24-SEP-13	1,715.42	Reconciled
342545	19-SEP-13	BIOMAGIC INC	2,846.34	24-SEP-13	2,846.34	Reconciled
342546	19-SEP-13	BLOOMBERG FINANCE LP	11,985.00	27-SEP-13	11,985.00	Reconciled
342547	19-SEP-13	BORCHARD SURVEYING & MAPPING, INC.	2,805.00			Negotiable
342548	19-SEP-13	C WELLS PIPELINE MATERIALS INC	16,677.36	25-SEP-13	16,677.36	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342549		19-SEP-13	CABELA'S MARKETING AND BRAND MANAGEMENT, INC.		1,311.78	24-SEP-13	1,311.78	Reconciled
342550		19-SEP-13	CALIFORNIA BANK & TRUST		22,487.92	26-SEP-13	22,487.92	Reconciled
342551		19-SEP-13	CALIFORNIA BARRICADE INC		3,889.96	24-SEP-13	3,889.96	Reconciled
342552		19-SEP-13	CANON FINANCIAL SERVICES, INC		15,166.03			Negotiable
342553		19-SEP-13	CANON SOLUTIONS AMERICA, INC.		407.01	23-SEP-13	407.01	Reconciled
342554		19-SEP-13	CITY OF TUSTIN		152,695.20	24-SEP-13	152,695.20	Reconciled
342555		19-SEP-13	CLA-VAL COMPANY		1,630.80	23-SEP-13	1,630.80	Reconciled
342556		19-SEP-13	CLEARINGHOUSE		528.45	24-SEP-13	528.45	Reconciled
342557		19-SEP-13	COAST PLUMBING HEATING AND AIR, INC		1,585.00	23-SEP-13	1,585.00	Reconciled
342558		19-SEP-13	COMMERCE ENERGY INC		479.59	24-SEP-13	479.59	Reconciled
342559		19-SEP-13	COMMERCIAL DOOR OF ORANGE COUNTY, INC.		4,469.00	25-SEP-13	4,469.00	Reconciled
342560		19-SEP-13	CONEYBEARE INC		14,201.86	24-SEP-13	14,201.86	Reconciled
342561		19-SEP-13	CREDENTIAL CHECK CORPORATION		436.76	24-SEP-13	436.76	Reconciled
342562		19-SEP-13	D & G SIGNS		415.80	27-SEP-13	415.80	Reconciled
342563		19-SEP-13	DATA CLEAN CORPORATION		826.25	24-SEP-13	826.25	Reconciled
342564		19-SEP-13	DIRECTV INC		94.99	25-SEP-13	94.99	Reconciled
342565		19-SEP-13	EMPLOYEE BENEFIT SPECIALIST, INC		660.00	23-SEP-13	660.00	Reconciled
342566		19-SEP-13	ENVIRONMENTAL ENGINEERING AND CONTRACTING, INC.		12,135.90	24-SEP-13	12,135.90	Reconciled
342567		19-SEP-13	ENVIRONMENTAL EXPRESS INC		4,001.51	23-SEP-13	4,001.51	Reconciled
342568		19-SEP-13	EXPRESSAIR		71.00			Negotiable
342569		19-SEP-13	FARRELL & ASSOCIATES		86.90	25-SEP-13	86.90	Reconciled
342570		19-SEP-13	FEDEX		200.62	25-SEP-13	200.62	Reconciled
342571		19-SEP-13	FEDEX NATIONAL LTL, INC		359.74	25-SEP-13	359.74	Reconciled
342572		19-SEP-13	FERGUSON ENTERPRISES, INC.		10,374.48	25-SEP-13	10,374.48	Reconciled
342573		19-SEP-13	FERGUSON, DAVID		10,612.99	20-SEP-13	10,612.99	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342574		19-SEP-13	FIRST CHOICE SERVICES		245.64	25-SEP-13	245.64	Reconciled
342575		19-SEP-13	FISERV		12,417.22	24-SEP-13	12,417.22	Reconciled
342576		19-SEP-13	FLEET SOLUTIONS LLC		4,041.90	24-SEP-13	4,041.90	Reconciled
342577		19-SEP-13	G.M. SAGER CONSTRUCTION CO,INC		12,500.00	24-SEP-13	12,500.00	Reconciled
342578		19-SEP-13	GANAHL LUMBER CO.		373.14	24-SEP-13	373.14	Reconciled
342579		19-SEP-13	GOLDEN BELL PRODUCTS		20,350.00	24-SEP-13	20,350.00	Reconciled
342580		19-SEP-13	GRAINGER		3,878.22	23-SEP-13	3,878.22	Reconciled
342581		19-SEP-13	HACH COMPANY		7,304.43			Negotiable
342582		19-SEP-13	HAMILTON, KURT		1,664.71			Negotiable
342583		19-SEP-13	HARMSWORTH ASSOCIATES		940.00	26-SEP-13	940.00	Reconciled
342584		19-SEP-13	HDR ENGINEERING INC		12,217.45	26-SEP-13	12,217.45	Reconciled
342585		19-SEP-13	HILL BROTHERS		16,182.60	25-SEP-13	16,182.60	Reconciled

			CHEMICAL COMPANY				
342586		19-SEP-13	HOME DEPOT USA INC	162.30	24-SEP-13	162.30	Reconciled
342587		19-SEP-13	HORIZON TECHNOLOGY INC	610.42	27-SEP-13	610.42	Reconciled
342588		19-SEP-13	IMPERIAL WESTERN PRODUCTS INC	653.26	23-SEP-13	653.26	Reconciled
342589		19-SEP-13	INDUSTRIAL METAL SUPPLY CO	381.68	23-SEP-13	381.68	Reconciled
342590		19-SEP-13	INSTRUMART	2,055.35	23-SEP-13	2,055.35	Reconciled
342591		19-SEP-13	INTERNAL REVENUE SERVICE	25.00	26-SEP-13	25.00	Reconciled
342592		19-SEP-13	IRON MOUNTAIN INFORMATION MANAGEMENT INC	1,781.79	24-SEP-13	1,781.79	Reconciled
342593		19-SEP-13	IRVINE PIPE & SUPPLY INC	1,317.23	23-SEP-13	1,317.23	Reconciled
342594		19-SEP-13	IRWD EMPLOYEE ASSOCIATION	520.00	24-SEP-13	520.00	Reconciled
342595		19-SEP-13	J. L. PATTERSON & ASSOCIATES, INC.	820.00	23-SEP-13	820.00	Reconciled
342596		19-SEP-13	KIM, SOON TAE	1,750.00	25-SEP-13	1,750.00	Reconciled
342597		19-SEP-13	KIMBALL MIDWEST	990.72	25-SEP-13	990.72	Reconciled
342598		19-SEP-13	KOELLER NEBEKER CARLSON & HALUCK, LLP	4,372.59	24-SEP-13	4,372.59	Reconciled
342599		19-SEP-13	LA HABRA FENCE COMPANY INC	2,579.00	24-SEP-13	2,579.00	Reconciled

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Payment Document : IRWD CHECK								
342600		19-SEP-13	LEE & RO, INC.		67,102.90	25-SEP-13	67,102.90	Reconciled
342601		19-SEP-13	LU'S LIGHTHOUSE, INC.		962.30	23-SEP-13	962.30	Reconciled
342602		19-SEP-13	LUBRICATION ENGINEERS, INC.		1,420.85	23-SEP-13	1,420.85	Reconciled
342603		19-SEP-13	MAIN GRAPHICS		185.99	26-SEP-13	185.99	Reconciled
342604		19-SEP-13	MC FADDEN-DALE INDUSTRIAL		84.77	24-SEP-13	84.77	Reconciled
342605		19-SEP-13	MC MASTER CARR SUPPLY CO		1,078.39	23-SEP-13	1,078.39	Reconciled
342606		19-SEP-13	MCCALL'S METERS, INC.		755.86			Negotiable
342607		19-SEP-13	MERCHANTS LANDSCAPE SERVICES INC		1,419.65	23-SEP-13	1,419.65	Reconciled
342608		19-SEP-13	MORTON SAFETY CO		376.40	23-SEP-13	376.40	Reconciled
342609		19-SEP-13	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY		1,500.00	23-SEP-13	1,500.00	Reconciled
342610		19-SEP-13	MURALIDHAR KADAMBALA		2,450.00			Negotiable
342611		19-SEP-13	NATIONAL READY MIXED CONCRETE CO		1,028.16	24-SEP-13	1,028.16	Reconciled
342612		19-SEP-13	NCH CORPORATION		665.59	23-SEP-13	665.59	Reconciled
342613		19-SEP-13	OCTA		480.00	24-SEP-13	480.00	Reconciled
342614		19-SEP-13	OLIN CORPORATION		24,171.07	26-SEP-13	24,171.07	Reconciled
342615		19-SEP-13	ONESOURCE DISTRIBUTORS LLC		332.23	23-SEP-13	332.23	Reconciled
342616		19-SEP-13	ORANGE COUNTY AUTO PARTS CO		549.07	23-SEP-13	549.07	Reconciled
342617		19-SEP-13	ORANGE COUNTY VECTOR CONTROL DISTRICT		154.11			Negotiable
342618		19-SEP-13	OUTSOURCE TECHNICAL LLC		39,068.00	26-SEP-13	39,068.00	Reconciled
342619		19-SEP-13	PACIFIC COAST BOLT CORP		531.93	24-SEP-13	531.93	Reconciled
342620		19-SEP-13	PERS LONG TERM CARE		852.57	25-SEP-13	852.57	Reconciled
342621		19-SEP-13	PRAXAIR DISTRIBUTION INC		1,092.33	24-SEP-13	1,092.33	Reconciled
342622		19-SEP-13	PSB INTEGRATED MARKETING		150.00	23-SEP-13	150.00	Reconciled
342623		19-SEP-13	PVF SALES, INC.		323.49	23-SEP-13	323.49	Reconciled
342624		19-SEP-13	RINGCLEAR LLC		35.40			Negotiable

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342625		19-SEP-13	SANTA ANA BLUE		1,009.66	24-SEP-13	1,009.66	Reconciled

			PRINT				
342626		19-SEP-13	SANTA ANA CITY OF		52.62	23-SEP-13	52.62	Reconciled
342627		19-SEP-13	SANTA MARGARITA FORD		518.13	24-SEP-13	518.13	Reconciled
342628		19-SEP-13	SCOTT HEALTH & SAFETY		460.52	26-SEP-13	460.52	Reconciled
342629		19-SEP-13	SECURTEC DISTRICT PATROL INC		5,760.00			Negotiable
342630		19-SEP-13	SHAMROCK SUPPLY CO INC		1,613.23	23-SEP-13	1,613.23	Reconciled
342631		19-SEP-13	SIMI VALLEY LANDFILL AND RECYCLING CENTER		1,267.90	25-SEP-13	1,267.90	Reconciled
342632		19-SEP-13	SIRIUS COMPUTER SOLUTIONS INC		111,966.04	26-SEP-13	111,966.04	Reconciled
342633		19-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		341,883.59	24-SEP-13	341,883.59	Reconciled
342634		19-SEP-13	SOUTHERN CALIFORNIA SECURITY CENTER, INC.		239.02	25-SEP-13	239.02	Reconciled
342635		19-SEP-13	SUN ENGINEERING SERVICES, INC		7,193.60	26-SEP-13	7,193.60	Reconciled
342636		19-SEP-13	SUNNYHILLS RESTORATION		79,203.90	26-SEP-13	79,203.90	Reconciled
342637		19-SEP-13	TEKDRAULICS		38,448.00	24-SEP-13	38,448.00	Reconciled
342638		19-SEP-13	TETRA TECH, INC		21,300.00	26-SEP-13	21,300.00	Reconciled
342639		19-SEP-13	THE GAS COMPANY		628.98	25-SEP-13	628.98	Reconciled
342640		19-SEP-13	THE GITTELMAN GROUP		21,841.69	26-SEP-13	21,841.69	Reconciled
342641		19-SEP-13	TRIPAC MARKETING INC		1,249.74	23-SEP-13	1,249.74	Reconciled
342642		19-SEP-13	TROPICAL PLAZA NURSERY INC		6,773.25	24-SEP-13	6,773.25	Reconciled
342643		19-SEP-13	TRUCPARCO		933.94	27-SEP-13	933.94	Reconciled
342644		19-SEP-13	TRUGREEN LANDCARE LLC		24,297.33	25-SEP-13	24,297.33	Reconciled
342645		19-SEP-13	TYCO INTEGRATED SECURITY, LLC		3,252.44	25-SEP-13	3,252.44	Reconciled
342646		19-SEP-13	UNITED PARCEL SERVICE INC		35.82	23-SEP-13	35.82	Reconciled
342647		19-SEP-13	UNITED SITE SERVICES OF CALIFORNIA INC		139.26	23-SEP-13	139.26	Reconciled

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Payment Document : IRWD CHECK								
342648		19-SEP-13	UNIVAR USA INC		11,184.01	25-SEP-13	11,184.01	Reconciled
342649		19-SEP-13	US PEROXIDE LLC		29,476.65			Negotiable
342650		19-SEP-13	VERIZON CALIFORNIA INC		48.30	24-SEP-13	48.30	Reconciled
342651		19-SEP-13	VULCAN MATERIALS COMPANY		1,338.60	23-SEP-13	1,338.60	Reconciled
342652		19-SEP-13	VWR INTERNATIONAL, LLC		900.65	23-SEP-13	900.65	Reconciled
342653		19-SEP-13	WALTERS WHOLESALE ELECTRIC		902.71			Negotiable
342654		19-SEP-13	WATERLINE TECHNOLOGIES INC		2,840.00	25-SEP-13	2,840.00	Reconciled
342655		19-SEP-13	WAXIE'S ENTERPRISES, INC		3,194.23	23-SEP-13	3,194.23	Reconciled
342656		19-SEP-13	WECK LABORATORIES INC		609.00	23-SEP-13	609.00	Reconciled
342657		19-SEP-13	WEST COAST SAFETY SUPPLY INC		462.85			Negotiable
342658		19-SEP-13	WESTERN EXTERMINATOR COMPANY		9,897.50			Negotiable
342659		19-SEP-13	ZEBRON CONTRACTING INC		17,440.00	26-SEP-13	17,440.00	Reconciled
342660		19-SEP-13	ZEE MEDICAL SERVICE CO		909.43	23-SEP-13	909.43	Reconciled
342661		23-SEP-13	LILLESTRAND LEADERSHIP CONSULTING, INC.	CHINO HILLS	9,557.98			Negotiable
342662		23-SEP-13	REED, JAMES D	PURCHASE_PAY	1,935.65			Negotiable
342663		23-SEP-13	JCI JONES CHEMICALS INC	CINCINNATI	5,505.50	26-SEP-13	5,505.50	Reconciled
342664		24-SEP-13	COUNTY OF ORANGE	PURCHASE_PAY	1,100.00			Negotiable
342665		24-SEP-13	COUNTY OF ORANGE	IRVINE-OC PARKS	5,000.00			Negotiable
342666		25-SEP-13	FOWLER ENVIRONMENTAL	PAY	600.00			Negotiable
342667		26-SEP-13	Alexander Murphy		645.00			Negotiable

342668	26-SEP-13	Alfonso Paz	395.00				Negotiable
342669	26-SEP-13	Bonnie Steward	124.95	27-SEP-13	124.95		Reconciled
342670	26-SEP-13	Braulio Gomez	134.33				Negotiable
342671	26-SEP-13	Carlos Collazo	97.20	27-SEP-13	97.20		Reconciled
342672	26-SEP-13	Gretchen Maswadeh	48.85	27-SEP-13	48.85		Reconciled
342673	26-SEP-13	Jennifer Davis	119.98				Negotiable
342674	26-SEP-13	Lars Oldewage	1,976.12				Negotiable

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Payment Document : IRWD CHECK								
342675		26-SEP-13	Leslie Bonkowski		228.24			Negotiable
342676		26-SEP-13	Michael Hoffman		181.94			Negotiable
342677		26-SEP-13	Roberta Sitzler		35.00			Negotiable
342678		26-SEP-13	ACHAY, LUKE		33.90			Negotiable
342679		26-SEP-13	AFLAC		5,963.84			Negotiable
342680		26-SEP-13	AGILENT TECHNOLOGIES, INC.		1,259.01			Negotiable
342681		26-SEP-13	AHMED, HUZAYFA		53.80			Negotiable
342682		26-SEP-13	AIRGAS-WEST, INC.		898.64			Negotiable
342683		26-SEP-13	ALPHA TRAFFIC SERVICES, INC.		470.00			Negotiable
342684		26-SEP-13	AM CONSERVATION GROUP, INC.		3,510.00			Negotiable
342685		26-SEP-13	AM LEONARD INC		72.69			Negotiable
342686		26-SEP-13	AMERICAN SOCIETY OF CIVIL ENGINEERS		280.00			Negotiable
342687		26-SEP-13	ARCADIS U.S., INC.		2,494.25			Negotiable
342688		26-SEP-13	AST CORPORATION		3,253.28			Negotiable
342689		26-SEP-13	AT&T		3,856.84			Negotiable
342690		26-SEP-13	AT&T		49.71			Negotiable
342691		26-SEP-13	AUTOZONE PARTS, INC.		157.67			Negotiable
342692		26-SEP-13	BATTERIES PLUS AND BATTERIES PLUS BULBS		2,045.07			Negotiable
342693		26-SEP-13	BATTERY SPECIALTIES		3,236.32			Negotiable
342694		26-SEP-13	BERNARDS		897.45			Negotiable
342695		26-SEP-13	BI, HONG GUANG		154.68			Negotiable
342696		26-SEP-13	BILL'S SWEEPING SERVICE INC		460.00			Negotiable
342697		26-SEP-13	BIOMAGIC INC		4,472.98			Negotiable
342698		26-SEP-13	BK FOUNTAIN WORKS		717.30			Negotiable
342699		26-SEP-13	BRUCE NEWELL		1,316.00			Negotiable
342700		26-SEP-13	C WELLS PIPELINE MATERIALS INC		12,454.56			Negotiable
342701		26-SEP-13	CABELA'S MARKETING AND BRAND MANAGEMENT, INC.		1,352.74			Negotiable
342702		26-SEP-13	CALIFORNIA BARRICADE INC		13,788.77			Negotiable
342703		26-SEP-13	CANON FINANCIAL SERVICES, INC		912.61			Negotiable
342704		26-SEP-13	CARUSO, TEDDY		22.13			Negotiable
342705		26-SEP-13	CHAO, TAMMY		7.11			Negotiable
342706		26-SEP-13	CITY OF IRVINE		319.81			Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342707		26-SEP-13	CITY OF NEWPORT BEACH		1,185.56			Negotiable
342708		26-SEP-13	CITY OF ORANGE		368.98			Negotiable
342709		26-SEP-13	CITY OF TUSTIN		1,216.00			Negotiable
342710		26-SEP-13	COASTAL OCCUPATIONAL MEDICAL GROUP, INC.		255.00			Negotiable
342711		26-SEP-13	COLONIAL LIFE & ACCIDENT INSURANCE CO.		1,531.24			Negotiable
342712		26-SEP-13	Colton Martin		703.44			Negotiable
342713		26-SEP-13	CONEYBEARE INC		14,381.94			Negotiable
342714		26-SEP-13	CONSOLIDATED FABRICATORS CORP.		27,247.27			Negotiable
342715		26-SEP-13	COX COMMUNICATIONS		3,343.07			Negotiable
342716		26-SEP-13	DALEY & HEFT LLP		8,778.43			Negotiable
342717		26-SEP-13	DECKSIDE POOL SERVICE		461.95			Negotiable
342718		26-SEP-13	DELPHIN COMPUTER		5,000.31			Negotiable

		SUPPLY			
342719	26-SEP-13	DONALD MEYLOR	786.00		Negotiable
342720	26-SEP-13	DONATELLA, GLAUDETTE	70.16		Negotiable
342721	26-SEP-13	EAST ORANGE COUNTY WATER DISTRICT	3,250.57		Negotiable
342722	26-SEP-13	EJZYKOWICZ, DANIELE	36.97		Negotiable
342723	26-SEP-13	ELECTRABOND	2,663.00		Negotiable
342724	26-SEP-13	EMA INC	900.00		Negotiable
342725	26-SEP-13	EMPLOYMENT DEVELOPMENT DEPARTMENT	865.00		Negotiable
342726	26-SEP-13	EXECUTIVE LIGHTING & ELECTRIC	1,946.74		Negotiable
342727	26-SEP-13	EXTRA SPACE MANAGEMENT	2,151.36		Negotiable
342728	26-SEP-13	FAHIMI, REZA	45.25		Negotiable
342729	26-SEP-13	FARINA, SAMUEL	21.62		Negotiable
342730	26-SEP-13	FEDEX	464.80		Negotiable
342731	26-SEP-13	FERGUSON ENTERPRISES, INC.	11,651.04		Negotiable
342732	26-SEP-13	FIRST CHOICE SERVICES	991.53		Negotiable
342733	26-SEP-13	FPORE, KRISTIN	36.97		Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342734		26-SEP-13	G.M. SAGER CONSTRUCTION CO,INC		19,150.00			Negotiable
342735		26-SEP-13	GANAHL LUMBER CO.		3,451.76			Negotiable
342736		26-SEP-13	GENERAL ELECTRIC COMPANY		804.60			Negotiable
342737		26-SEP-13	GLOBALSTAR INC		168.77			Negotiable
342738		26-SEP-13	GRAINGER		2,492.37			Negotiable
342739		26-SEP-13	GRAPHIC PACKAGING INC.		721.54			Negotiable
342740		26-SEP-13	GREAT PACIFIC EQUIPMENT INC		615.00			Negotiable
342741		26-SEP-13	H2O INNOVATION USA INC		3,299.40			Negotiable
342742		26-SEP-13	HACH COMPANY		1,157.74			Negotiable
342743		26-SEP-13	HANSON BRIDGETT LLP		32,953.09			Negotiable
342744		26-SEP-13	HARTFORD LIFE AND ACCIDENT INSURANCE COMPANY		148.28			Negotiable
342745		26-SEP-13	HDR ENGINEERING INC		12,095.94			Negotiable
342746		26-SEP-13	HERITAGE FIELDS EL TORO, LLC		425,971.78			Negotiable
342747		26-SEP-13	HILL BROTHERS CHEMICAL COMPANY		18,898.70			Negotiable
342748		26-SEP-13	HOFFMEYER, LENA		127.92			Negotiable
342749		26-SEP-13	HOME DEPOT USA INC		948.48			Negotiable
342750		26-SEP-13	IDENTICARD SYSTEMS WORLDWIDE INC		310.88			Negotiable
342751		26-SEP-13	IDEXX DISTRIBUTION, INC		3,283.62			Negotiable
342752		26-SEP-13	IRVINE PIPE & SUPPLY INC		562.95			Negotiable
342753		26-SEP-13	IRWD-PETTY CASH CUSTODIAN		1,161.49			Negotiable
342754		26-SEP-13	JCI JONES CHEMICALS INC		2,012.56			Negotiable
342755		26-SEP-13	JOHN G. ALEVIZOS D.O. INC.		1,410.00			Negotiable
342756		26-SEP-13	JOSE GARCIA		10,229.00			Negotiable
342757		26-SEP-13	JUERGEN KROGMANN		147.47			Negotiable
342758		26-SEP-13	KATAM, SRUTHI		75.64			Negotiable
342759		26-SEP-13	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES		1,250.00			Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342760		26-SEP-13	KIMBALL MIDWEST		1,046.06			Negotiable
342761		26-SEP-13	KIPLING, LINDSAY		4.73			Negotiable

342762	26-SEP-13	KOY, HOR AUN	40.06			Negotiable
342763	26-SEP-13	LAVOIE, DON	3,548.16			Negotiable
342764	26-SEP-13	LEADERSHIP TOMORROW	1,400.00			Negotiable
342765	26-SEP-13	LEE, DOHOON	442.81			Negotiable
342766	26-SEP-13	LEE, IJUNG	29.35			Negotiable
342767	26-SEP-13	LEWIS OPERATING CORP	1,800.00			Negotiable
342768	26-SEP-13	LG ERICSSON USA INC.	334.22			Negotiable
342769	26-SEP-13	LGC GEOTECHNICAL, INC.	1,140.00			Negotiable
342770	26-SEP-13	LI, YIQUN	1.59			Negotiable
342771	26-SEP-13	LIN, CUI	37.16			Negotiable
342772	26-SEP-13	LING, SHICHUN	26.81			Negotiable
342773	26-SEP-13	LIVINGSTON, PETER	294.42			Negotiable
342774	26-SEP-13	LY, SAMANTHA	44.78			Negotiable
342775	26-SEP-13	MARVIN GARDENS LLC	2,593.70	26-SEP-13	2,593.70	Reconciled
342776	26-SEP-13	MC FADDEN-DALE INDUSTRIAL	128.34			Negotiable
342777	26-SEP-13	MC MASTER CARR SUPPLY CO	643.22			Negotiable
342778	26-SEP-13	MCGUIREWOODS LLP	11,829.60			Negotiable
342779	26-SEP-13	MENDEL, DEREK	27.79			Negotiable
342780	26-SEP-13	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	77,223.07			Negotiable
342781	26-SEP-13	MUTUAL PROPANE	97.87			Negotiable
342782	26-SEP-13	NATIONAL READY MIXED CONCRETE CO	1,054.16			Negotiable
342783	26-SEP-13	NEW IRVINE RANCH CONSERVANCY	935.84			Negotiable
342784	26-SEP-13	NEWAGE INDUSTRIES INC	370.14			Negotiable
342785	26-SEP-13	NINYO & MOORE	7,285.00			Negotiable
342786	26-SEP-13	OLIN CORPORATION	16,552.71			Negotiable
342787	26-SEP-13	ON ASSIGNMENT LAB SUPPORT	1,244.80			Negotiable
342788	26-SEP-13	ONESOURCE DISTRIBUTORS LLC	360.37			Negotiable
342789	26-SEP-13	ORANGE COUNTY AUTO PARTS CO	280.96			Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342790		26-SEP-13	ORANGE COUNTY VECTOR CONTROL DISTRICT		5,626.82			Negotiable
342791		26-SEP-13	PAC RIM ENGINEERING		8,062.50			Negotiable
342792		26-SEP-13	PACIFIC AQUASCAPE INT		705.13			Negotiable
342793		26-SEP-13	PACIFIC PARTS & CONTROLS INC		280.96			Negotiable
342794		26-SEP-13	PARK, JEONGUK		15.08			Negotiable
342795		26-SEP-13	PASCAL & LUDWIG CONSTRUCTORS		4,790.45			Negotiable
342796		26-SEP-13	PINNACLE TOWERS LLC		592.11			Negotiable
342797		26-SEP-13	PRAXAIR DISTRIBUTION INC		2,092.81			Negotiable
342798		26-SEP-13	PRE-PAID LEGAL SERVICES INC		1,216.66			Negotiable
342799		26-SEP-13	QUINDRY, GERALD		25.47			Negotiable
342800		26-SEP-13	RAM AIR ENGINEERING INC		6,476.60			Negotiable
342801		26-SEP-13	RBF CONSULTING		8,272.22			Negotiable
342802		26-SEP-13	RESTEK CORPORATION		61.44			Negotiable
342803		26-SEP-13	RICHARD C SLADE & ASSOCIATES		5,053.71			Negotiable
342804		26-SEP-13	RINCON TRUCK CENTER INC.		58.17			Negotiable
342805		26-SEP-13	ROUTLEY, WALTER		12.21			Negotiable
342806		26-SEP-13	SANCHEZ, CORBIN		16.06			Negotiable
342807		26-SEP-13	SANTA ANA BLUE PRINT		321.06			Negotiable
342808		26-SEP-13	SANTA MARGARITA FORD		637.69			Negotiable
342809		26-SEP-13	SCHULER ENGINEERING CORPORATION		1,198.49			Negotiable
342810		26-SEP-13	SCHULER ENGINEERING CORPORATION		22,771.32			Negotiable
342811		26-SEP-13	SCIENTIFIC REFRIGERATION		1,118.27			Negotiable
342812		26-SEP-13	SEPARATION		4,685.00			Negotiable

			PROCESSES INC			
342813		26-SEP-13	SHAMROCK SUPPLY CO INC	461.64		Negotiable
342814		26-SEP-13	SIGMA-ALDRICH INC	115.97		Negotiable

IRWD Ledger — Payment Register For 01-SEP-13 To 30-SEP-13 — Report Date: 01-OCT-2013 06:50
BANK: Bank of America N.A. Branch : Los Angeles — Account: Checking AP and PR — Page: 23
Bank Account Currency: USD (US Dollar) — Payment Currency: USD (US Dollar)
Payment Type: All — Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342815		26-SEP-13	SLATER BUILDERS INC.		321.65			Negotiable
342816		26-SEP-13	SOOKSAVATH, BILLY		35.70			Negotiable
342817		26-SEP-13	SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT		869.88			Negotiable
342818		26-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		127,453.49			Negotiable
342819		26-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		597.00			Negotiable
342820		26-SEP-13	SOUTHERN CALIFORNIA EDISON COMPANY		27,771.31			Negotiable
342821		26-SEP-13	SOUTHERN CALIFORNIA SECURITY CENTER, INC.		38.88			Negotiable
342822		26-SEP-13	STANTEC CONSULTING SERVICES INC.		620.00			Negotiable
342823		26-SEP-13	T AND S LARSEN MAINTENANCE		400.00			Negotiable
342824		26-SEP-13	TELEDYNE LEEMAN LABS		535.20			Negotiable
342825		26-SEP-13	TESTAMERICA LABORATORIES, INC		192.15			Negotiable
342826		26-SEP-13	TETRA TECH, INC		2,791.94			Negotiable
342827		26-SEP-13	THE NEW HOME COMPANY		19.71			Negotiable
342828		26-SEP-13	THE POWERTECH GROUP INC		1,943.00			Negotiable
342829		26-SEP-13	THE SUMMIT AT THE TURTLE RIDGE		2,264.36			Negotiable
342830		26-SEP-13	THOMAS, JUDY		74.73			Negotiable
342831		26-SEP-13	TIC-RETAIL PROPERTIES		61.93			Negotiable
342832		26-SEP-13	TOTAL TELCO SPECIALISTS INC		7,319.00			Negotiable
342833		26-SEP-13	TROPICAL PLAZA NURSERY INC		33,853.24			Negotiable
342834		26-SEP-13	TRUCPARCO		1,034.23			Negotiable
342835		26-SEP-13	TRUGREEN LANDCARE LLC		20,240.00			Negotiable
342836		26-SEP-13	UNITED PARCEL SERVICE INC		82.75			Negotiable

IRWD Ledger — Payment Register For 01-SEP-13 To 30-SEP-13 — Report Date: 01-OCT-2013 06:50
BANK: Bank of America N.A. Branch : Los Angeles — Account: Checking AP and PR — Page: 24
Bank Account Currency: USD (US Dollar) — Payment Currency: USD (US Dollar)
Payment Type: All — Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342837		26-SEP-13	UNITED WAY OF ORANGE COUNTY		630.00			Negotiable
342838		26-SEP-13	URQUHART, CARMEL		139.99			Negotiable
342839		26-SEP-13	UTILITY SYSTEMS SCIENCE & SOFTWARE INC.		1,500.00			Negotiable
342840		26-SEP-13	VA CONSULTING, INC		2,640.00			Negotiable
342841		26-SEP-13	VANCIU ELECTRIC INC		7,600.00			Negotiable
342842		26-SEP-13	VAUGHAN'S INDUSTRIAL REPAIR CO INC		512.00			Negotiable
342843		26-SEP-13	VERIZON CALIFORNIA INC		614.25			Negotiable
342844		26-SEP-13	VPSI INC		10,074.00			Negotiable
342845		26-SEP-13	WALTERS WHOLESALE ELECTRIC		223.93			Negotiable
342846		26-SEP-13	WAN, PAUL & REBEKAH		695.93			Negotiable
342847		26-SEP-13	WASHINGTON, CICELY		22.72			Negotiable
342848		26-SEP-13	WASTE MANAGEMENT OF ORANGE COUNTY		1,421.46			Negotiable
342849		26-SEP-13	WATERLINE		475.00			Negotiable

			TECHNOLOGIES INC				
342850		26-SEP-13	WAXIE'S ENTERPRISES, INC		399.45		Negotiable
342851		26-SEP-13	WECK LABORATORIES INC		4,533.50		Negotiable
342852		26-SEP-13	WEISS, MARTIN		46.41		Negotiable
342853		26-SEP-13	WELLS SUPPLY COMPANY		459.01		Negotiable
342854		26-SEP-13	WESTERN EXTERMINATOR COMPANY		747.00		Negotiable
342855		26-SEP-13	WHITIN, HOLLY		1.45		Negotiable
342856		26-SEP-13	WOLTERS KLUWER LAW & BUSINESS		446.12		Negotiable
342857		26-SEP-13	WORKFLOWONE		2,338.88		Negotiable
342858		26-SEP-13	YANG, JUDY		27.61		Negotiable
342859		26-SEP-13	YORKE ENGINEERING LLC		1,741.55		Negotiable
342860		26-SEP-13	YSI INCORPORATED		2,945.81		Negotiable
342861		26-SEP-13	ANTHEM BLUE CROSS LOS ANGELES		562.26		Negotiable
342862		26-SEP-13	PAYNE & FEARS LLP	PAY	441.08		Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
342863		26-SEP-13	PAULUS ENGINEERING INC	PAY	303,243.44			Negotiable
342864		30-SEP-13	SEPARATION PROCESSES INC	CARLSBAD	2,423.75			Negotiable
			Payment Document Subtotal:		6,190,408.40		4,576,854.39	
Payment Document : IRWD Wire								
10085		06-SEP-13	CALPERS	SACRAMENTO	364,508.89			Negotiable
10086		10-SEP-13	INTERNAL REVENUE SERVICE	FRESNO	151,937.33			Negotiable
10087		10-SEP-13	FRANCHISE TAX BOARD	SACRAMENTO	41,332.71			Negotiable
10088		10-SEP-13	EMPLOYMENT DEVELOPMENT DEPARTMENT	W SACRAMENTO	10,020.91			Negotiable
10089		10-SEP-13	ORDONEZ, CYNTHIA MARIE	DESERT HOT SPR	500.17			Negotiable
10090		10-SEP-13	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	SACRAMENTO	1,991.98			Negotiable
10091		10-SEP-13	EMPLOYEE BENEFIT SPECIALIST, INC	PAY	9,984.99			Negotiable
10092		10-SEP-13	GREAT WEST	DENVER	89,396.96			Negotiable
10093		10-SEP-13	CALPERS	SACRAMENTO	83,489.70			Negotiable
10094		10-SEP-13	BANK OF NEW YORK MELLON TRUST COMPANY NA	NEWARK	4,824.33			Negotiable
10095		10-SEP-13	SUMITOMO MITSUI BANKING CORPORAION	NEW YORK	684.33			Negotiable
10096		10-SEP-13	U.S. BANK NATIONAL ASSOCIATION	PAY	2,463.00			Negotiable
10097		10-SEP-13	BANK OF AMERICA	SAN FRANCISCO	2,880.16			Negotiable
10098		10-SEP-13	YORK INSURANCE SERVICES GROUP INC - CA	PAY	6,918.78			Negotiable
10099		11-SEP-13	UNITED STATES DEPARTMENT OF INTERIOR BUREAU OF RECLAMATION	BOULDER CITY	15,000.00			Negotiable
10100		11-SEP-13	SUMITOMO MITSUI BANKING CORPORAION	NEW YORK	1,875.29			Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD Wire								
10101		11-SEP-13	BANK OF NEW YORK MELLON TRUST COMPANY NA	NEWARK	1,336.55			Negotiable
10102		18-SEP-13	YORK INSURANCE SERVICES GROUP INC	PAY	1,071.47			Negotiable

			- CA				
10103		24-SEP-13	YORK INSURANCE SERVICES GROUP INC - CA	PAY	9,976.33		Negotiable
10104		24-SEP-13	YORK INSURANCE SERVICES GROUP INC - CA	PAY	22,020.78		Negotiable
10105		25-SEP-13	J.R. FILANC CONSTRUCTION COMPANY INC.	ESCONDIDO	567,268.24		Negotiable
10106		25-SEP-13	BANK OF AMERICA MERRILL LYNCH	PAY	823,090.91		Negotiable
10107		25-SEP-13	CITIGROUP GLOBAL MARKETS INC.	NEW YORK	823,090.20		Negotiable
10108		25-SEP-13	MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	FOUNTAIN VALLEY	1,578,836.50		Negotiable
10109		25-SEP-13	U.S. BANK NATIONAL ASSOCIATION	ST. LOUIS	8,476.13		Negotiable
10110		25-SEP-13	INTERNAL REVENUE SERVICE		153,429.34		Negotiable
10111		25-SEP-13	FRANCHISE TAX BOARD	SACRAMENTO	41,858.90		Negotiable
10112		25-SEP-13	EMPLOYMENT DEVELOPMENT DEPARTMENT	W SACRAMENTO	9,826.31		Negotiable
10113		25-SEP-13	ORDONEZ, CYNTHIA MARIE	DESERT HOT SPR	500.17		Negotiable
10114		25-SEP-13	CALIFORNIA DEPARTMENT OF CHILD SUPPORT SERVICES	SACRAMENTO	1,991.98		Negotiable
10115		25-SEP-13	EMPLOYEE BENEFIT SPECIALIST, INC	PAY	10,408.37		Negotiable
10116		25-SEP-13	GREAT WEST	DENVER	88,443.75		Negotiable
10117		25-SEP-13	CALPERS	SACRAMENTO	83,300.97		Negotiable
10118		30-SEP-13	INTERNAL REVENUE SERVICE	FRESNO	193.75		Negotiable
10119		30-SEP-13	FRANCHISE TAX BOARD	SACRAMENTO	8.96		Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD Wire								
10120		30-SEP-13	EMPLOYMENT DEVELOPMENT DEPARTMENT	W SACRAMENTO	18.01			Negotiable
10121		30-SEP-13	FILANC-BALFOUR BEATTY JV	WEST COVINA	2,805,360.23			Negotiable
			Payment Document Subtotal:		7,818,317.38			
			Bank Account Subtotal :		14,008,725.78		4,576,854.39	
	Report Count : 676		Report Total:		14,008,725.78		4,576,854.39	

*** End of Report ***

Exhibit "E"

IRWD
Government Code Section 53065.5 Disclosure Report
Payments or Reimbursements for Individual Charges of $100 or More Per Transaction for Services or Product Received
September 2013

Name	Ck No.	Ck Date	Amount	Description
Alexander Murphy	342667	26-Sep-13	645.00	Employee Wellness Program
Alfonso Paz	342668	26-Sep-13	130.00	Water Distribution Operator Grade D4 Exam Fee
Alfonso Paz	342668	26-Sep-13	105.00	Water Distribution Grade D4 Certificate
Alvaro Alfaro	342226	5-Sep-13	105.00	Water Distribution Grade D4 Renewal
Andrew Willis	342523	19-Sep-13	105.00	Water Treatment Operator Renewal
Bonnie Steward	342669	26-Sep-13	124.95	Safety Shoes Reimbursement
Braulio Gomez	342670	26-Sep-13	134.33	Safety Shoes Reimbursement
Craig Cascelli	342357	6-Sep-13	140.00	CWEA Membership Renewal
Douglas Reinhart	342524	19-Sep-13	470.54	Two nights Rm & Tax, Aug. 14-15, 2013, attending Urban Water Institute Annual Conf., San Diego, CA
James Hamer	342526	19-Sep-13	140.00	CWEA Membership Renewal
Jared Pennington	342228	5-Sep-13	140.00	CWEA Membership Renewal
Jeffrey Schreck	342527	19-Sep-13	118.76	Safety Shoes Reimbursement
Jennifer Davis	342673	26-Sep-13	119.98	Deferred Compensation meeting supplies
Joan Gronek	342528	19-Sep-13	114.00	CC&B meeting supplies
Jose Silva	342529	19-Sep-13	145.80	Safety Shoes Reimbursement
Lars Oldewage	342674	26-Sep-13	650.00	Annual WateReuse Symposium Registration Fee
Lars Oldewage	342674	26-Sep-13	255.80	Round trip airfare to Denver, CO, attending WateReuse Symposium
Lars Oldewage	342674	26-Sep-13	650.64	Three nights Rm & Tax, Sep. 15-17, 2013, attending WateReuse Symposium, Denver, CO
Leslie Bonkowski	342675	26-Sep-13	228.24	Meeting supplies
Mark Nelson	342359	6-Sep-13	130.00	Water Distribution Operator Grade D4 Exam Fee
Mark Nelson	342359	6-Sep-13	105.00	Water Distribution Grade D4 Certificate
Matthew Daniel	342531	19-Sep-13	140.00	CWEA Membership Renewal
Michael Hoffman	342676	26-Sep-13	181.94	Safety Shoes Reimbursement
Peer Swan	342532	19-Sep-13	461.80	Round trip airfare to Sacramento, CA attending ACWA Special Executive Committee meeting, Aug. 16, 2013
Peer Swan	342532	19-Sep-13	461.80	Round trip airfare to Sacramento, CA attending ACWA Finance Committee meeting, Aug. 27, 2013
Peer Swan	342232	5-Sep-13	246.59	One night Rm & Tax, Aug. 21, 2013, attending CASA Annual Conf. in San Diego, CA
Peer Swan	342232	5-Sep-13	481.80	Round trip airfare to Sacramento, CA, attending ACWA Board meeting, Jul. 25-26, 2013
Peer Swan	342232	5-Sep-13	125.50	One night Rm & Tax, Jul. 25, 2013, attending ACWA Board meeting in Sacramento, CA
Pio Reynoso	342360	6-Sep-13	757.12	South Sewer Tie In - Four nights lodging, Aug. 18-21, 2013 at Newport Dunes
Pio Reynoso	342360	6-Sep-13	330.42	South Sewer Tie In - Misc. Expenses for four days
Rory Moore	342372	12-Sep-13	140.00	CWEA Membership Renewal
Steve Habiger	342233	5-Sep-13	130.00	Water Distribution Operator Grade D4 Exam Fee
Steve Habiger	342233	5-Sep-13	105.00	Water Distribution Grade D4 Certificate
Steven LaMar	342234	5-Sep-13	470.54	Two nights Rm & Tax, Aug. 14-15, 2013, attending Urban Water Institute Annual Conf., San Diego, CA
Todd Colvin	342363	6-Sep-13	105.00	Water Distribution Grade D4 Certificate
Zackariah Tegel	342361	6-Sep-13	148.00	CWEA Membership Renewal

October 28, 2013
Prepared by: K. Lew/M. Cortez
Submitted by: K. Burton
Approved by: Paul Cook

CONSENT CALENDAR

PLANNING AREA 9B (STONEGATE) JEFFREY ROAD PIPELINES
CONTRACT CHANGE ORDER

SUMMARY:

Irvine Community Development Company (ICDC) is continuing with Planning Area (PA) 9B (Stonegate) development including Jeffrey Road improvements and backbone street improvements. As part of the development projects, ICDC is constructing IRWD's domestic water, sewer, and recycled water capital facilities under a Supplemental Reimbursement Agreement. Due to changed field conditions including interfering utilities, additional traffic control requirements, and difficult tie-in conditions, the contractor incurred extra cost to make the Syphon pipeline to Zone A pipeline connection. Staff recommends that the Board:

- Authorize a budget increase for the Jeffrey Road Pipelines, Project 30422 in the amount of $233,100, from $2,729,100 to $2,962,200, and for Project 30389 in the amount of $335,500, from $777,700 to $1,113,200;
- Authorize a budget reduction for Project 10423 in the amount of $568,600, from $1,755,600 to $1,187,000;
- Approve Expenditure Authorizations for Projects 10423, 30422, and 30389 in the amounts of $201,400, $233,100, and $335,500, respectively; and
- Approve a Contract Change Order in the amount of $166,328 to the Reimbursement Agreement with ICDC for PA 9B Jeffrey Road Pipelines, Projects 10423, 30422, and 30389.

BACKGROUND:

The Jeffrey Road Pipelines are currently being constructed between Irvine Boulevard and Portola Parkway in PA 9B. The project includes construction of approximately 5,000 lineal feet of 12-inch Zone 3 domestic water pipeline, 2,700 lineal feet of 36-inch Zone A recycled water pipeline, 2,700 lineal feet of 36-inch Syphon pipeline, 4,800 lineal feet of 16-inch Zone B recycled water pipeline, and 1,400 lineal feet of 6-inch, 12-inch, and 20-inch Zone C recycled water pipelines.

During installation of the 36-inch Syphon to 36-inch Zone A connection at the intersection of Jeffrey Road and Encore, several difficulties were encountered resulting in a Contract Change Order, attached as Exhibit "A":

Interfering Utilities:

An unknown existing 24-inch steel pipeline was discovered in the same alignment as the proposed 36-inch Syphon pipeline. This 24-inch pipeline was determined to be abandoned. The contractor was directed to remove the interfering portion of the pipeline in order to install the new 36-inch Syphon pipeline and connection. Since this interfering 24-inch pipe may be

continuous along the remaining alignment of the 36-inch Syphon pipeline and 16-inch domestic water pipeline, additional removals will be required and handled as a future change order.

An unknown, active 10-inch ACP pipeline was discovered crossing the area where the Syphon to Zone A wye connection needed to be installed. This extra facility needed to be protected in place during the tie-in construction.

Traffic Control Modifications:

The traffic control setup by the street improvement contractor, Hillcrest Construction, was not adequate for the size of excavation needed to handle the interfering pipelines and install the large 36-inch wye connection piece. The contractor was required to construct a single detour lane to route southbound traffic on the shoulder of the existing road around the construction area.

Complete Syphon Tie-In:

The plans included a gap between the Syphon/Zone A connection and the future Syphon pipeline from the future PA 5B pump station. This gap was located in the Jeffrey Road and Encore intersection. To eliminate the difficulty of excavating in this congested intersection in the future, it was determined that the tie-in should be completed now. A 36-inch butterfly valve was deleted from the Encore contract and relocated to Jeffrey Road so the tie-in could be made now (the butterfly valve was deleted from the Encore contract resulting in a $28,000 deductive change order).

Additional Tie-in Modifications:

The existing Zone A pipeline at the connection point was slightly skewed from the orientation shown on the design plans. Pipe segments needed to be cut down into smaller joints and modified to construct the awkward angles and make the connection.

Due to the significant changed conditions, the contractor was directed to perform the work on a time and materials basis. A credit was applied based on the original bid unit prices. The work was completed in 15 days and the total cost of the work is in the amount of $166,328. Staff has reviewed the change order with the contractor and agrees that the costs were accurately documented and the work was performed fairly.

FISCAL IMPACTS:

Projects 10423 (1519), 30422 (1024), and 30389 (4176) are included in the FY 2013-14 Capital Budget. Approval of Expenditure Authorizations is requested in the amounts shown in the table below and in Exhibit "B".

Project No.	Current Budget	Addition <Reduction>	Total Budget	Existing EA	This EA Request	Total EA Request
10423 (1519)	$1,755,600	<$568,600>	$1,187,000	$ 985,600	$201,400	$1,187,000
30422 (1024)	$2,729,100	$233,100	$2,962,200	$2,729,100	$233,100	$2,962,200
30389 (4176)	$ 777,700	$335,500	$1,113,200	$ 777,700	$335,500	$1,113,200
TOTAL	$5,262,400	$-0-	$5,262,400	$4,492,400	$770,000	$5,262,400

Although the overall project budget is unchanged, the additional Expenditure Authorizations are being requested to fund all Contract Change Orders to date and related additional consultant services and staff time.

ENVIRONMENTAL COMPLIANCE:

The construction of the capital facilities for Planning Area 9B is subject to the California Environmental Quality Act (CEQA). In conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, an Environmental Impact Report was certified by the City of Irvine on March 25, 2002 (SCH #2001051010).

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2013.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE A BUDGET INCREASE FOR PROJECT 30422 (1024) IN THE AMOUNT OF $233,100, FROM $2,729,100 TO $2,962,200, AND FOR PROJECT 30389 (4176) IN THE AMOUNT OF $335,500, FROM $777,700 TO $1,113,200; AUTHORIZE A BUDGET REDUCTION FOR PROJECT 10423 (1519) IN THE AMOUNT OF $568,600, FROM $1,755,600 TO $1,187,000; APPROVE EXPENDITURE AUTHORIZATIONS FOR PROJECTS 10423 (1519), 30422 (1024), AND 30389 (4176) IN THE AMOUNTS OF $201,400, $233,100, AND $335,500, RESPECTIVELY; AND APPROVE A CONTRACT CHANGE ORDER IN THE AMOUNT OF $166,328 TO THE REIMBURSEMENT AGREEMENT WITH THE IRVINE COMMUNITY DEVELOPMENT COMPANY FOR PLANNING AREA 9B JEFFREY ROAD PIPELINES, PROJECTS 10423 (1519), 30422 (1024), AND 30389 (4176).

LIST OF EXHIBITS:

Exhibit "A" – Contract Change Order
Exhibit "B" – Expenditure Authorizations

EXHIBIT "A"

CHANGE NO.:	
DATE:	August 27, 2013

POTENTIAL CHANGE OF WORK ACKNOWLEDGEMENT & VALUE
(FOR IRWD CAPITAL IMPROVEMENTS)

The purpose of this form is to acknowledge a change in work for the intent of reimbursement of costs. Upon acceptance a change order will be issues.

IRWD P.O. No.: Code #5719

ICDC Contract No.: 4500047426

Owner: Irvine Community Development Company

Contractor/Consultants: Leatherwood Construction, Inc.

Sewer	
Domestic Water	
Reclaim Water	X
Other	

Design Engineer: SAIC

IRWD Mgr.

Project Description: Stonegate [PA-9B], Jeffrey Road BB SIP – IRWD Capital Facilities Improvements

PART A – POTENTIAL CHANGE OF WORK:

Plan Revision Required: [ ] YES [X] NO **Estimated Cost:** $166,328.00 MR 8/27/13

Change Initiated By:

Work Description:
Contractor was directed by IRWD to install the 36" CMLC Siphon Line while contending with an existing previously undiscovered conflicting, slurry-filled RCP line, while working in live traffic lanes and installing a new 36" BFV.

1. Submitted by: _____
Owner Representative / Date

2a. In IRWD's opinion the aforementioned work **does** [X] **does not** [ ] qualify as a potential change in work.

2b. IRWD comments (required if representative does not concur with the potential change):

2c. Reviewed by: Kelly Hon 9/30/13
IRWD Representative / Date

3. Received and Recorded by: _____
Owner Representative / Date

PART B – CHANGE OF WORK VALUE: $ 166,328.00

Detailed Backup Attached [ ]

1. Submitted by: _____
Owner Representative / Date

2. Recommended by: KLB _____
IRWD Representative / Date

S:\CDC\COMMUNITY DEV & CONSTRUCTION\CONSTRUCTION\MR\PROJECTS\PA9B - Stonegate\Jeffrey SIP 39\CONTRACTOR[S]\CHANGE ORDERS\Leatherwood\PCOW COR 13, $166,328.00.doc

Revised 10/7/02

LEATHERWOOD CONSTRUCTION INC.
17050 Bushard Street, Ste-213
Fountain Valley, CA 92708
714-593-6575 (P)
714-593-6576 (F)
LICENSE #760851

August 19, 2013

Irvine Community Development Company
12621 Jeffrey Road
Irvine, CA 92620

Attn: Michael Rodebaugh
Re: Jeffrey Rd IRWD Capital Improvements (Contract-#4500047426)
Subj: CO-#13: 36" CMLC Siphon Line, Shoefly, and 36" BFV

Dear Mike,

LCI is submitting Change Order-13 for the Utility Conflicts with the 36" CMLC Siphon Line, installing the Shoefly @ Encore, and for IRWD adding (1) 36" BFV, CL-250 to the project. LCI is submitting (15) signed Daily Extra Work Reports verified by IRWD's inspection. LCI is requesting an increase Contract Change Order in the amount of **$166,328.00** excluding the bonds. Finally, LCI is requesting deferred working days to perform this work. If you have any questions please do not hesitate to contact me at (714) 593-6575.

ITEM	DESCRIPTION	QTY	UNIT	TOTAL
206	36" CMLC Zone-A (10+15 to 10+42)	-27 LF	235.00	-6,345.00
233	36" CMLC Siphon Line, CL-200 (33+18 to 35+30)	-212 LF	215.00	-45,580.00
13-1	(7/16/13) Rocksaw & Grind AC @ Station 10+23 for 36" Wye	1 LS	7,657.00	7,657.00
13-2	(7/17/13) Exc & Remove 24" WL in conflict with 36" Wye/WCP	1 LS	36,675.00	36,675.00
13-3	(7/18/13) Install 36" CMLC from 10+15 to 10+42	1 LS	16,813.00	16,813.00
13-4	(7/19/13) Compaction of Trench & AC Base Pave	1 LS	6,008.00	6,008.00
13-5	(7/23/13) Rocksaw & Grind AC from 33+00 to 35+40	1 LS	9,288.00	9,288.00
13-6	(7/24/13) Install 36" CMLC Siphon from 35+20 to 35+40	1 LS	14,803.00	14,803.00
13-7	(7/26/13) Install 36" CMLC Siphon from 34+40 to 35+20	1 LS	13,346.00	13,346.00
13-8	(7/29/13) Install 36" CMLC Siphon from 33+18 to 34+40	1 LS	10,859.00	10,859.00
13-9	(7/30/13) AC Base Pave 36" Siphon from 33+18 to 35+35	1 LS	9,646.00	9,646.00
13-10	(7/31/13) Remove Stalls & Weld Joints 36" CMLC Siphon	1 LS	9,126.00	9,126.00
13-11	(8/1/13) Weld Joints 36" CMLC Siphon & Bolt-up 36" BFV	1 LS	48,874.00	48,874.00
13-12	(8/2/13) Weld Joints 36" CMLC Siphon Line	1 LS	6,838.00	6,838.00
13-13	(8/5/13) Weld & Point-up Joints, Clean Inside of Pipe	1 LS	9,108.00	9,108.00
13-14	(8/6/13) Install 36" Spool Pieces & 36" BFV	1 LS	8,840.00	8,840.00
13-15	(8/7/13) Weld on 36" Dish-head, Backfill, Compact, & AC Pave	1 LS	10,372.00	10,372.00
	GRAND TOTAL			**166,328.00**

Sincerely,
LEATHERWOOD CONTRUC TION, INC.

Bobby Kawai,
Vice-President

EXHIBIT "B"

IRVINE RANCH WATER DIST

Expenditure Authorization

Project Name: PA9 JEFFREY RD 12" ZONE 3 - IRVINE BLVD TO PORTOLA
EPMS Project No: 10423 **EA No:** 5
Oracle Project No: 1519
Project Manager: CORTEZ, MALCOLM
Project Engineer: LEW, KELLY
Request Date: October 2, 2013

ID Split: Miscellaneous

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
150	100.0	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$985,600
This Request:	$201,400
Total EA Requests:	$1,187,000
Previously Approved Budget:	$1,755,600
Budget Adjustment Requested this EA:	($568,600)
Updated Budget:	$1,187,000
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING DESIGN - IRWD	10,000	25,000	35,000	10,000	25,000	35,000	*9/06*	*9/12*
ENGINEERING DESIGN - OUTSIDE	30,000	210,000	240,000	30,000	210,000	240,000	*9/06*	*9/12*
DESIGN STAFF FIELD SUPPORT	0	3,000	3,000	0	3,000	3,000	*9/06*	*9/12*
ENGINEERING - CA&I IRWD	35,000	25,000	60,000	35,000	25,000	60,000	*1/13*	*6/14*
ENGINEERING - CA&I OUTSIDE	15,000	75,000	90,000	15,000	75,000	90,000	*1/13*	*6/14*
CONSTRUCTION FIELD SUPPORT	5,000	5,000	10,000	5,000	5,000	10,000	*1/13*	*6/14*
CONSTRUCTION	88,100	550,000	638,100	(611,900)	1,250,000	638,100	*1/13*	*6/14*
LEGAL	0	3,000	3,000	0	3,000	3,000	*9/06*	*6/14*
Contingency - 10.00% Subtotal	$18,300	$89,600	$107,900	($51,700)	$159,600	$107,900		
Subtotal (Direct Costs)	$201,400	$985,600	$1,187,000	($568,600)	$1,755,600	$1,187,000		
Estimated G/A - 170.00% of direct labor*	$79,200	$104,400	$183,600	$85,000	$98,600	$183,600		
Total	$280,600	$1,090,000	$1,370,600	($483,600)	$1,854,200	$1,370,600		
Direct Labor	$50,000	$58,000	$108,000	$50,000	$58,000	$108,000		

***EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.**

EA Originator: Kelly Lew 10/3/13

Department Director: Kevin L Burton 10/4/13

Finance: 10/7/13

Board/General Manager:

**** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $1,390,000. The above-captioned project is further described in the attached staff report and additional documents, if any, which are hereby incorporated. This official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2.**

IRVINE RANCH WATER DISTRICT

Expenditure Authorization

Project Name: PA9 JEFFREY RD PIPELINES, 36" ZNA, 36" SYPHON
EPMS Project No: 30422 **EA No:** 5
Oracle Project No: 1024
Project Manager: CORTEZ, MALCOLM
Project Engineer: LEW, KELLY
Request Date: October 2, 2013

ID Split: Regional Reclaimed Water Split with LAWD (11/08)

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
211	2.1	CAPITAL FUND
212	13.2	BONDS YET TO BE SOLD**
213	4.8	BONDS YET TO BE SOLD**
215	.7	CAPITAL FUND
221	13.2	BONDS YET TO BE SOLD**
230	9.6	BONDS YET TO BE SOLD**
235	7.9	PREVIOUSLY SOLD BONDS
240	7.7	BONDS YET TO BE SOLD**
250	31.7	BONDS YET TO BE SOLD**
261	9.1	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$2,729,100
This Request:	$233,100
Total EA Requests:	$2,962,200
Previously Approved Budget:	$2,729,100
Budget Adjustment Requested this EA:	$233,100
Updated Budget:	$2,962,200
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING DESIGN - IRWD	0	50,000	50,000	0	50,000	50,000	*9/06*	*9/12*
ENGINEERING DESIGN - OUTSIDE	0	300,000	300,000	0	300,000	300,000	*9/06*	*9/12*
DESIGN STAFF FIELD SUPPORT	0	3,000	3,000	0	3,000	3,000	*9/06*	*9/12*
ENGINEERING - CA&I IRWD	0	50,000	50,000	0	50,000	50,000	*1/13*	*6/14*
ENGINEERING - CA&I OUTSIDE	30,000	170,000	200,000	30,000	170,000	200,000	*1/13*	*6/14*
CONSTRUCTION FIELD SUPPORT	10,000	5,000	15,000	10,000	5,000	15,000	*1/13*	*6/14*
CONSTRUCTION	300,000	1,900,000	2,200,000	300,000	1,900,000	2,200,000	*1/13*	*6/14*
LEGAL	0	3,000	3,000	0	3,000	3,000	*9/06*	*6/14*
Contingency - 5.00% Subtotal	($106,900)	$248,100	$141,200	($106,900)	$248,100	$141,200		
Subtotal (Direct Costs)	$233,100	$2,729,100	$2,962,200	$233,100	$2,729,100	$2,962,200		
Estimated G/A - 170.00% of direct labor*	$6,200	$194,400	$200,600	$17,000	$183,600	$200,600		
Total	$239,300	$2,923,500	$3,162,800	$250,100	$2,912,700	$3,162,800		
Direct Labor	$10,000	$108,000	$118,000	$10,000	$108,000	$118,000		

***EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.**

EA Originator: Kelly Lew 10/3/13

Department Director: Kevin L. Burton 10/4/13

Finance: 10/7/13

Board/General Manager:

**** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $3,227,000. The above captioned project is further described in the attached staff report and additional documents, if any, which are hereby incorporated by reference. This declaration of official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2.**

IRVINE RANCH WATER DISTRICT

Expenditure Authorization

Project Name: PA9 JEFFREY RD PIPELINES, ZONE B AND ZONE C
EPMS Project No: 30389 **EA No:** 2
Oracle Project No: 4176
Project Manager: CORTEZ, MALCOLM
Project Engineer: LEW, KELLY
Request Date: October 2, 2013

ID Split: Miscellaneous

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
250	100.0	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$777,700
This Request:	$335,500
Total EA Requests:	$1,113,200
Previously Approved Budget:	$777,700
Budget Adjustment Requested this EA:	$335,500
Updated Budget:	$1,113,200
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING DESIGN - IRWD	0	15,000	15,000	0	15,000	15,000	7/12	12/12
ENGINEERING DESIGN - OUTSIDE	0	110,000	110,000	0	110,000	110,000	7/12	12/12
DESIGN STAFF FIELD SUPPORT	0	5,000	5,000	0	5,000	5,000	7/12	12/12
ENGINEERING - CA&I IRWD	0	20,000	20,000	0	20,000	20,000	1/13	6/14
ENGINEERING - CA&I OUTSIDE	20,000	30,000	50,000	20,000	30,000	50,000	1/13	6/14
CONSTRUCTION FIELD SUPPORT	5,000	5,000	10,000	5,000	5,000	10,000	1/13	6/14
CONSTRUCTION	280,000	520,000	800,000	280,000	520,000	800,000	1/13	6/14
LEGAL	0	2,000	2,000	0	2,000	2,000	7/12	6/14
Contingency - 10.00% Subtotal	$30,500	$70,700	$101,200	$30,500	$70,700	$101,200		
Subtotal (Direct Costs)	$335,500	$777,700	$1,113,200	$335,500	$777,700	$1,113,200		
Estimated G/A - 170.00% of direct labor*	$4,000	$81,000	$85,000	$8,500	$76,500	$85,000		
Total	$339,500	$858,700	$1,198,200	$344,000	$854,200	$1,198,200		
Direct Labor	$5,000	$45,000	$50,000	$5,000	$45,000	$50,000		

***EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.**

EA Originator: Kelley Lew 10/3/13

Department Director: Kevin L Burton 10/4/13

Finance: _____

Board/General Manager: _____

**** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $1,223,[illegible]'s further described in the attached staff report and additional documents, if any, which are hereby incorporated [illegible]icial intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2.**

October 28, 2013
Prepared by: K. Welch
Submitted by: P. Weghorst / G. Heiertz
Approved by: Paul Cook

CONSENT CALENDAR

STRAND RANCH WELL SREX-4 REPLACEMENT OVERSIGHT

SUMMARY:

The settlement of outstanding issues with Bakersfield Well and Pump (BWP) over the failure of well SREX-4 located on the Strand Ranch Integrated Banking Project (Strand Ranch) is likely to result in a Compromise and Release Agreement for the replacement the well. Contingent upon approval by the Board of a satisfactory agreement with BWP to replace SREX-4, staff recommends that the Board:

- Approve an Expenditure Authorization for Project 11289 (2812) in the amount of $95,900; and
- Authorize the General Manager to enter into a Professional Services Agreement with Wildermuth Environmental, Inc. for hydrogeologic and engineering oversight of the replacement of SREX-4 in the amount of $77,110.

BACKGROUND:

On August 23, 2010, the Board approved the award of a construction contract to BWP for the Strand Ranch Recovery Facilities Drilling and Construction of Extraction Wells Project. Under this contract, BWP drilled and constructed five separate wells. A sixth well was constructed previously by BWP under separate contract during the well field design process. Well SREX-4 was drilled, constructed, tested and video logged by BWP between September 15, 2010 and June 29, 2011. The location of this well is shown on Exhibit "A".

During the construction of the Strand Ranch wells, Wildermuth Environmental, Inc. (WEI) worked as a sub-consultant to Dee Jaspar and Associates (DJA) and provided daily hydrogeologic and engineering oversight during well drilling, well construction and testing activities. In addition, WEI prepared well completion reports for each well.

On September 14, 2011, IRWD awarded the Strand Ranch Recovery Project Pipeline Facilities and Well Equipping Project to W.M. Lyles. Wellhead facilities were installed by W.M. Lyles on the six wells that were drilled and constructed by BWP and on a well that existed prior to IRWD's purchase of the Strand Ranch. On September 24, 2012, W.M. Lyles conducted an eight-hour test of the wellhead facilities at SREX-4. At the end of the test, it was observed that substantial amounts of sand had been produced by SREX-4. BWP was notified of the sand production problem on September 24, 2012. BWP performed multiple video surveys and investigated the cause for the high sand production from the Well SREX-4.

Between November 1, 2012 and January 25, 2013, BWP, IRWD, construction managers from DJA and WEI worked cooperatively to evaluate the results of the video logs, packer tests and airlifting operations that were performed by BWP. On January 25, 2013, it was concluded by all

involved with the investigation that the absence of the end cap was the cause of the sand production.

Replacement of SREX-4:

It is likely that settlement of the outstanding issues associated with SREX-4 will result in a Compromise and Release Agreement that would require BWP to abandon the existing well, obtain a new permit for the new well, construct a well pad extension and drill and construct a new well in conformance with the specifications for the Strand Ranch extraction wells. BWP would also likely be required to develop and test the replacement well and to relocate most wellhead related facilities.

To ensure that the replacement well is drilled and constructed to IRWD's technical specifications, staff recommends that WEI provide hydrogeologic and engineering oversight during the well replacement process under a new Professional Services Agreement. Staff has negotiated with WEI a scope of work, cost proposal and schedule to perform the oversight work as provided in Exhibit "B".

Construction management services including surveying, compaction testing and concrete testing that will be necessary to construct a well pad extension and to relocate discharging piping, electrical conduits, fencing and other appurtenances will be performed by DJA through a no cost variance to an existing Professional Services Agreement. This agreement is for the Strand Ranch Recovery Project Pipeline Facilities and Well Equipping Project and the associated purchase order has sufficient budget to perform this work.

It is anticipated that IRWD will repair and install the pump and motor and test all SREX-4 wellhead equipment through a separate small construction contract. The scope of work for the reinstallation of the pump and motor will depend upon the recommendations of the ongoing Strand Ranch Pump Setting Optimization and Design Study that is currently ongoing through the efforts of Thomas Harder and Company and Kennedy/Jenks Consultants.

FISCAL IMPACTS:

Project 11289 (2812) is included in the FY 2013-14 Capital Budget. WEI's cost of providing hydroeologic and engineering oversight associated with the replacement of SREX-4 is $77,110. IRWD staff time will also be required in the amount of $10,000. Sufficient budget exists in Project 11289 (2812) to complete this work with the reallocation of budget from the construction task to IRWD and outside construction administration task as shown in the Expenditure Authorization. The Expenditure Authorization includes the cost of the oversight work plus contingency as presented in the table below and in Exhibit "C".

Project No.	Current Budget	Addition <Reduction>	Total Budget	Existing EA	This EA Request	Total EA Request
11289 (2812)	$17,739,700	$0	$17,739,700	$15,261,200	$ 95,900	$15,357,100

ENVIRONMENTAL COMPLIANCE:

A Final Environmental Impact Report (EIR) for the Strand Ranch Integrated Water Banking Project has been prepared, certified and the project approved in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3.

COMMITTEE STATUS:

This item was reviewed at the Engineering and Operations Committee meeting on October 15, 2013.

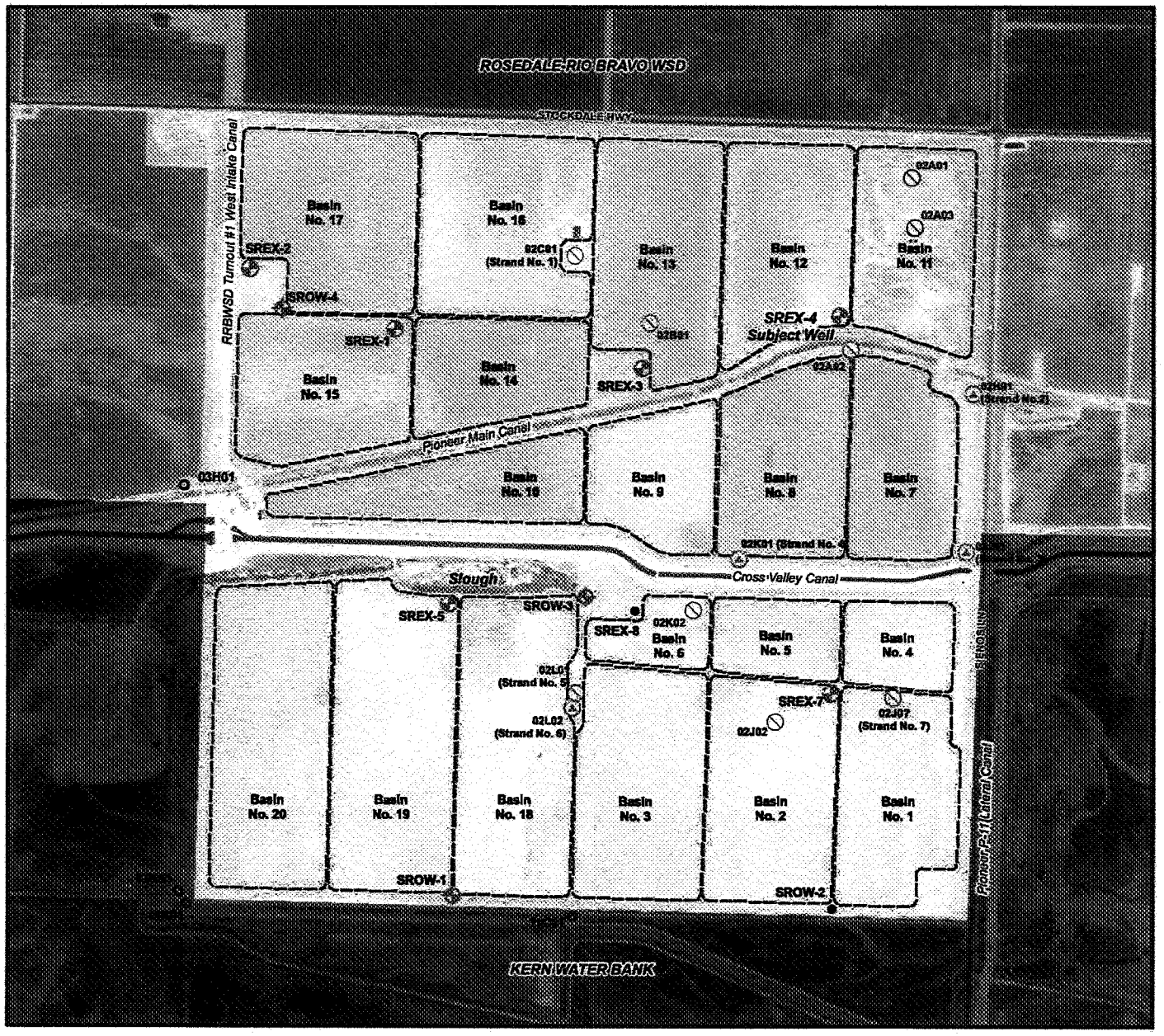
RECOMMENDATION:

THAT THE BOARD APPROVE, CONTINGENT UPON BOARD APPROVAL OF A COMPROMISE AND RELEASE AGREEMENT FOR THE REPLACEMENT OF SREX-4, AN EXPENDITURE AUTHORIZATION FOR PROJECT 11289 (2812) IN THE AMOUNT OF $95,900; AND AUTHORIZE THE GENERAL MANAGER TO ENTER INTO A PROFESSIONAL SERVICES AGREEMENT WITH WILDERMUTH ENVIRONMENTAL, INC. FOR HYDROGEOLOGIC AND ENGINEERING OVERSIGHT OF THE REPLACEMENT OF SREX-4 IN THE AMOUNT OF $77,110.

EXHIBITS:

Exhibit "A" – Strand Ranch Well Location Map
Exhibit "B" – Wildermuth Environmental, Inc. Proposal for Hydrogeologic and Engineering Oversight of the Replacement of Strand Ranch Well SREX-4
Exhibit "C" – Expenditure Authorization

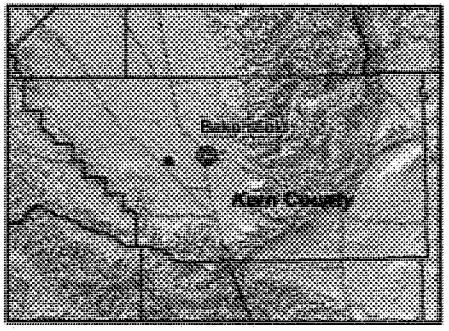
EXHIBIT "A"



Main Features

- Strand Ranch Recharge Basins
- Completed Observation Well - Nested
- Completed Extraction Well
- Existing Strand Ranch Well
- Abandoned/Destroyed Strand Ranch Well
- Proposed Observation/Extraction Well
- Other Production Well

Note: Aerial image from the USDA-FSA Aerial Photography Field Office via the CaSIL. Publication_Date: 20090814.



Produced by:

WILDERMUTH ENVIRONMENTAL INC.

www.wildermuthenvironmental.com

Author: MAB
Date: 20110613
File: Figure1-2.mxd

0 500 1,000 1,500 Feet

0 200 400 Meters

079-001
004

Detailed Well Locations

Strand Ranch Integrated Banking Project

Figure 1

EXHIBIT "B"

WILDERMUTH
ENVIRONMENTAL INC.

October 8, 2013

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

Subject: ***Proposal for Well Construction Oversight and Testing of SREX-4, Strand Ranch Water Bank***

Dear Mr. Weghorst,

Pursuant to your verbal request, Wildermuth Environmental, Inc. (WEI) is pleased to submit this proposal for well construction oversight and testing of well SREX-4, located on the Strand Ranch Integrated Water Bank, Bakersfield, CA. The Irvine Ranch Water District (IRWD) is expecting Bakersfield Well and Pump (BWP) to replace SREX-4.

Scope of Work

The requested scope of work described herein is for the drilling, construction, and testing oversight of SREX-4. The following is a list of tasks and task descriptions proposed for this project:

Task 1 Project Management

Task 1 includes project meetings to discuss schedule, budget, and any related technical issues between IRWD, Dee Jasper and Associates (DJA), and WEI. This task also includes coordination between WEI, DJA, and BWP, invoice review, and progress reporting. Progress reporting will be conducted at major task completions, and if the project status dictates additional project meetings.

Task 2 Well Construction Oversight

Task 2 includes the oversight of all well-related drilling, construction, and testing activities. WEI will provide full-time oversight during all phases of the extraction well construction (bore hole reaming oversight is included as an optional task, see Task 4); from conductor casing installation through the final well sample collection and video log. At the completion of bore hole reaming, WEI geologists will be onsite to verify that the caliper, plumbness, and alignment survey are in accordance with the Technical Specifications. Additionally, WEI geologists will ensure all drilling, construction, and testing activities are conducted in accordance with the Technical Specifications.

Task 3 Prepare a Well Summary Report

23692 Birtcher Drive, Lake Forest, CA 92630 Tel: 949.420.3030 Fax: 949.420.4040 www.wildermuthenvironmental.com

Task 3 includes the preparation of a well construction summary report for SREX-4. The report will include a discussion of the drilling activities, methods used to collect and analyze the data, results of the data analysis, and a discussion of those results. The report will be supported by figures, tables, charts, and appendices. A draft report will be submitted electronically to IRWD for review and comment. Upon receipt and incorporation of comments, WEI will submit two hard copies and an electronic version of the final report to IRWD.

Task 4 Optional Tasks

Task 4 includes complete oversight by WEI during bore hole reaming activities. Otherwise, DJA Engineers will provide bore hole reaming progress updates to WEI and IRWD.

Schedule and Fee

We estimate the cost to complete the above scope of work is $77,110. Details of the cost breakdown are provided in the attached work breakdown structure and fee schedule.

Again, WEI appreciates being considered for this project. Please feel free to contact Mark Wildermuth or myself if you have any questions or concerns.

Wildermuth Environmental, Inc.

Michael A. Blazevic, PG
Senior Hydrogeologist

Andrew E. Malone, PG
Principal Geologist

Enclosures: WEI work breakdown structure and fee schedule and key staff resumes

Work Breakdown Structure and Fee Estimate
SREX-4 Well Construction Oversight
Strand Ranch Integrated Water Bank, Irvine Ranch Water District

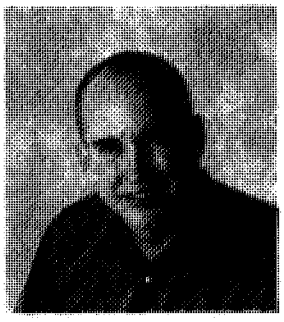
Description	Notes	Labor (hourly rate)								Other Direct Charges					Total Program Costs	
		Principal I	Senior III	Senior I	Specialist I - Field	Staff III	Eng Tech	Admin	Task Rep Multiplier	Cost		Travel & Lodging	Lab	Report	Total ODCs			
		$245	$220	$185	$175	$160	$135	$110		Task	Project				Task	Project	Task	Project
Task 1 Project Management											**$2,475**					**$0**		**$2,475**
1.1 Project Meetings	a	2		2					2	$1,480							$1,480	
1.2 Contractor Coordination			1	3					1	$465							$465	
1.3 Project Administration			2	2				2	1	$530							$530	
Task 2 Well Construction Oversight											**$52,325**					**$7,890**		**$80,215**
2.1 Conductor Casing Installation					15				1	$1,875							$1,875	
2.2 Pilot Hole Drilling			1		75				1	$9,375							$9,375	
2.3 Geophysical Survey					12				1	$1,500							$1,500	
2.4 Review Data and Prepare Draft Well Design		2	2		4				1	$930							$930	
2.5 Prepare for and Attend a Well Design Meeting		1			2				1	$465							$465	
2.6 Prepare Final Well Design		1	2		1				1	$340							$340	
2.7 Bore Hole Reaming	b,c				0				1	$0							$0	
2.8 Caliper, Plumbiness, and Alignment Survey and Data Review			1		9				1	$1,125							$1,125	
2.9 Sieve Analysis Data Review		1	3		4				1	$715							$715	
2.10 Casing, Screen, and Annular Fill Placement					54				1	$6,750							$6,750	
2.11 Development	d		1		174				1	$21,750							$21,750	
2.12 Step-Drawdown Test	d		1		12				1	$1,500							$1,500	
2.13 Setup/Conduct Constant Rate Test and Sample Collection	d		1		30				1	$3,750			$890		$890		$4,640	
2.14 Spinner Survey	d				6				1	$750							$750	
2.15 Video Log Survey and Review	d				12				1	$1,500							$1,500	
2.16 Travel, Lodging, Subsistence	e											$7,000			$7,000		$7,000	
Task 3 Reporting											**$14,220**					**$200**		**$14,420**
3.1 Prepare Draft Well Construction Summary Report		4	8	44		16	8		1	$10,560							$10,560	
3.2 IRWD Review Meeting		2		2					1	$740							$740	
3.3 Prepare Final Well Construction Summary Report		2		10		4		4	1	$2,920				$200	$200		$3,120	
Totals		**17**	**29**	**85**	**410**	**20**	**8**	**6**			**$68,020**	**$7,000**	**$890**	**$200**		**$8,090**		**$76,110**
Task 4 Optional Tasks											**$6,750**					**$875**		**$7,625**
4.1 Bore Hole Reaming Oversight (Full Oversight)					54				1	$6,750		$ 875.00			$875		$7,625	

Notes:

a **Includes project progress meetings via conference calls. Additional meetings will be billed at hourly rates.**
b **See Task 4 Optinal Task.**
c **DJA will conduct oversight during bore hole reaming.**
d **Travel costs are calculated assuming that Tasks 2.11 - 2.15 are completed continuously 5 days per week. Four separate weeks are assumed. Additional travel costs will be incurred if shut-down periods occur.**
e **Includes 42 hours of staff travel time included in the labor costs.**

Andrew Malone, PG

Principal Geologist



Assignment

Principal Geologist

Partner

Education

M.S., Geological Sciences, Indiana University at Bloomington, 1991

B.A., Geological Sciences, B.A., Environmental Studies, University of California at Santa Barbara, 1987

Registrations

Professional Geologist, California GEO 8700

Mr. Malone is a Principal Geologist and Partner at Wildermuth Environmental, Inc. (WEI). He has over 20 years of professional experience in water resources and the geologic sciences. His technical expertise includes sedimentary geology, tectonics, basin characterization, hydrogeologic and hydrologic analyses, aquifer mechanics, Geographic Information Systems (GIS), and database design and implementation. At WEI, Mr. Malone develops investigative strategies for hydrologic and hydrogeologic studies, works to increase the technical expertise of the company, manages projects and staff, and mentors junior staff, guiding them as they develop into WEI's next generation of expert water-resources professionals.

Since joining WEI, his most significant work consists of redefining groundwater sub-basin boundaries and recalculating TDS and nitrogen water quality objectives for the Santa Ana River Watershed to support the Regional Board's revision of its Water Quality Control Plan in 2004. At present, Mr. Malone is conducting ongoing investigations for the Hydraulic Control Monitoring Program—a program that assesses the outflow of poor quality groundwater with high TDS and nitrogen concentrations from the Chino Basin, upon which critical basin management practices, such as recycled water recharge, are dependent.

Prior to joining the firm, Mr. Malone's professional experience included employment as a field geologist for the Indiana State Geological Survey and as a Geology instructor at Saddleback College in Southern California.

Mr. Malone received a B.A. in Geological Sciences and a B.A. in Environmental Studies from the University of California at Santa Barbara in 1987 and an M.S. in Geological Sciences from Indiana University at Bloomington in 1991. His M.S. thesis was published in a regional geology journal and won the journal's Best Paper Award in 1992.

Selected Project Experience

Wildermuth Environmental, Inc. – 1996 to Present

Hydraulic Control Monitoring Program, Chino Basin Watermaster

Principal Geologist: Mr. Malone is conducting ongoing investigations to determine the state of groundwater outflow from the Chino Basin as surface water in the Santa Ana River. Crucial groundwater management practices, such as the recharge of recycled water, are dependent upon the demonstration that basin producers are controlling groundwater outflow.

Through extensive literature review and analyses of geologic, geophysical, and hydrologic data, Mr. Malone generated a conceptual hydrogeologic model of the Chino Basin near the river. Based on this model, he developed a detailed groundwater monitoring program that included the construction of nine nested, multiple-depth monitoring wells. The data derived from this monitoring program has characterized (1) the three-dimensional piezometric gradients in this part of the basin over time and in response to specific management practices and (2) the hydraulic relationships between the groundwater basin and the river.

Watermaster Services, Six Basins Watermaster

Principal Geologist: Mr. Malone currently manages and directs technical and administrative services for the Six Basins Watermaster. In this role, Mr. Malone conducts Watermaster Board and Advisory Committee meetings and manages WEI staff scientists and engineers to: collect and compile all groundwater and surface-water data required by the adjudication; determine the annual operating safe yield for the Six Basins; update the Watermaster Rules and Regulations and its Operating Plan as necessary; coordinate recharge activities; execute a meter-testing program; and

prepare the Watermaster annual report and annual budget, among other tasks, as requested by the Watermaster Board.

In addition, Mr. Malone is managing the development of the strategic plan for the Six Basins Watermaster. The objective of the strategic plan is to improve water-resources management within the Six Basins area. This effort began in early 2012 and includes the articulation of the issues, needs, and wants of the Watermaster parties—individually and collectively as a group—which are being used to define the collective goals of the Watermaster parties. Impediments to achieving these goals are also being defined, which will assist in the development of actionable tasks to remove those impediments and achieve the goals. Also as part of this strategic-planning effort, Mr. Malone is managing the preparation of a "state-of-the-basin" report. This report will describe the physical state of all water-resources used by or available to the Watermaster parties, which can reveal impediments to achieving the goals.

Land Subsidence Monitoring Programs, Chino Basin Watermaster

Project Manager and Principal Geologist: Mr. Malone is conducting ongoing investigations to determine the extent, rate, and mechanisms of land subsidence and ground fissuring in the Chino Basin. A common cause of ground fissuring within alluvial basins is the removal of subsurface fluids, which results in the compaction of poorly consolidated aquifer materials and land subsidence.

Mr. Malone supervised the construction of multiple-depth piezometers and a dual-borehole extensometer, a highly sophisticated monitoring facility that records the data necessary to establish relationships between pore-pressure changes and aquifer-system compaction in the area of acute subsidence and historical ground fissuring. Though this is an ongoing project, results were used to develop a management plan in the Chino Basin that will minimize and/or abate permanent land subsidence and ground fissuring in the future.

Nitrogen/Total Dissolved Solids Studies, Santa Ana Watershed Project Authority

Principal Geologist: Mr. Malone conducted studies to revise water quality objectives for groundwater sub-basins throughout the Santa Ana River Watershed. Mr. Malone developed revised sub-basin boundaries, based on a reassessment of hydrogeology, groundwater flow paths, and groundwater quality, to create management zones for more effective environmental stewardship of these systems. This included the development and testing of sophisticated statistical techniques to set new TDS and nitrate water quality objectives based on historical water quality data. He has since directed three subsequent recomputations of ambient water quality in the groundwater management zones, which were then compared to the objectives and used by the Regional Board to assess the existence and magnitude of assimilative capacity.

Arlington Basin Desalter Expansion Studies, Western Municipal Water District

Project Manager and Principal Geologist: Mr. Malone managed and conducted a feasibility study to expand the Arlington Desalter facility in western Riverside County. The study included hydrogeologic investigations, groundwater and surface water monitoring programs, and the development and calibration of a numerical, computer-simulation, groundwater-flow model of the Arlington Basin aquifer system. This model was used to predict the hydrologic impacts of an expanded Arlington Desalter and the ability of the aquifer system to supply the expanded desalter with the required volumes of raw groundwater over the life of the facility (at least 30 years) without causing unacceptable impacts at the desalter wells, within the groundwater basin, or within neighboring basins. The model results indicated that the desalter expansion was feasible but that new wells would need to be constructed and that drawdown caused by pumping these new wells would impact the neighboring

Riverside Basin. At present, additional feasibility studies and model runs are being conducted, which include the artificial recharge of supplemental waters in the Arlington Basin. The objectives of this artificial recharge are to temporarily store supplemental water supplies, to increase the yield of the Arlington Basin, and to mitigate the regional drawdown impacts that would be caused by increased desalter pumping.

Selected Publications

Malone, A. E., & Suttner, L. J. (1991). Deposition of the Morrison Formation (Jurassic), Northern Tobacco Root Mountains, Montana with Evidence against Recurrent Movement along the Willow Creek Fault Zone. *The Mountain Geologist, 28*(2), 47-64.



Assignment

Senior Hydrogeologist II

Education

B.A., Geology with a Coordinate Major in Environmental Science and Studies, Occidental College, Los Angeles, CA, 2002

Additional Training & Certifications

Professional Geologist, State of California No. 8546

Red Cross First Aid, CPR, and AED

Mine Safety Training

Ms. Rolfe has ten years of professional experience in the geological and hydrogeological sciences. Her technical expertise includes aquifer monitoring program design, deployment, and management, production and monitoring well design, installation, and testing, piezometric data collection and interpretation, the application of GIS to complex hydrological and hydrogeological problems, and the collection and interpretation of high-resolution thermal data for groundwater movement detection.

At Wildermuth Environmental, Ms. Rolfe manages the deployment and maintenance of large-scale piezometric and land surface subsidence data collection efforts in the Chino Basin in Southern California and several small-scale piezometric data collection efforts. She also coordinates and implements well installation and testing projects and is involved with various groundwater basin studies throughout southern California.

Ms. Rolfe received a B.A. in Geology with a coordinate major in Environmental Science and Studies from Occidental College in 2002. She is a registered Professional Geologist in the State of California.

Selected Project Experience

Wildermuth Environmental, Inc. – April 2006 to Present

Land Subsidence Monitoring Programs, Chino Basin Watermaster

Senior Hydrogeologist II: Ms. Rolfe oversaw the installation of two dual-nested piezometers and was the lead Hydrogeologist at WEI for the installation of cable extensometers within each piezometer. The extensometer facilities monitor groundwater level changes and aquifer compaction in an area of historical ground surface subsidence and ground fissuring. Ms. Rolfe manages the long-term monitoring and data analysis effort which compares changes in piezometric levels to aquifer compaction and vertical ground-level motion, which is measured locally by the extensometer facilities, and regionally by InSAR.

Optimum Basin Management Program, Chino Basin Watermaster

Senior Hydrogeologist II: Ms. Rolfe is involved with several aspects of the Chino Basin Watermaster's Optimum Basin Management Program. Specifically, Ms. Rolfe performed well reconnaissance throughout the Chino Basin to evaluate the suitability of wells for piezometric data collection. She expanded the Chino Basin groundwater level monitoring network with pressure transducers to fill gaps in spatial coverage and for specific localized investigations. Ms. Rolfe continues to manage the groundwater level data collected from pressure transducers basin wide. Additionally, Ms. Rolfe was involved with sampling groundwater wells in the Chino Basin for perchlorate concentration and speciation; and is involved with the ongoing Hydraulic Control Monitoring Program (HCMP) activities related to groundwater level monitoring network updating, and participates in data interpretation and preparation of the HCMP Annual Reports.

Water Level and Production Monitoring Program, Rancho Mission Viejo

Staff Scientist II: Ms. Rolfe managed the water level and production monitoring program which included monthly recording of production, hour, and power meter readings at over 50 sites and measurement of groundwater levels at eight wells. Ms. Rolfe provided monthly production reports to the client for water accounting purposes, and annual groundwater level charts for basin management. Recently, Ms. Rolfe responded to the client's changing needs by replacing the monthly groundwater level measurement program with pressure transducers that record groundwater levels

every 15-minutes and training the Ranch staff to measure meter readings. The pressure transducers provide higher temporal data collection resolution which allows for a greater understanding of causal relationships between climate, production, recharge, and groundwater level changes.

Hydrologic Characterization Study, Confidential Client

Staff Scientist II: The objective of the study was to determine the direction and rate of flow of groundwater from recycled water recharge basins to potable water production wells. Ms. Rolfe was a key member of the WEI team involved with the siting and design of four piezometers for water level and water quality monitoring, and collection of lithology samples for aquifer property analysis. Ms. Rolfe also designed and implemented the piezometric level monitoring program, which included the four new piezometers and five production wells. The study involved the collection of water level and quality data to identify the movement of recycled water discharged to each of three infiltration ponds in succession. Ms. Rolfe interpreted the piezometric data which included creating hand-contours of regional piezometric levels and comparing causal effects of recharge at the basins and production at the wells on piezometric levels. Ms. Rolfe co-authored the report for this study.

Construct San Timoteo Management Zone Monitoring Wells, City of Beaumont

Senior Scientist II: Ms. Rolfe coordinated and implemented the initial hydrogeologic investigation in the San Timoteo Management Zone, prepared the technical plans and specifications for the wells, performed bidding support for the City, managed the construction of two wells in the San Timoteo Management Zone, and authored the report detailing the drilling, construction, development, and testing of the wells. As part of the initial hydrologic investigation Ms. Rolfe implemented a vertical flow survey within an existing production well and conducted field reconnaissance to determine target monitoring and production well locations. The installation of the wells was required by the Santa Ana Regional Water Quality Control Board to satisfy the City's 2004 Basin Plan Amendment commitments.

RIX Capacity Restoration Project, Carollo Engineers

Staff Scientist II: The project involved a feasibility analysis of a proposed expansion of the Colton/San Bernardino Rapid Infiltration and Extraction (RIX) Facility in San Bernardino, California which receives approximately 33 million gallons per day of secondary treated wastewater from the San Bernardino Municipal Water Department and Colton's wastewater treatment facilities. The Facility utilizes natural bio-filtration and ultra-violet disinfection to meet the State of California Title 22 tertiary standards, in addition to the discharge standards specified in a separate NPDES permit issued to the RIX facility. Ms. Rolfe wrote the drilling specifications for a test well and designed a monitoring well field to test the hydrologic characteristics of aquifers beneath the proposed expansion area. She oversaw the installation of two production wells and four monitoring wells, utilizing the flooded-reverse circulation and auger drilling methods. Split-spoon samples were collected during advancement of the auger bit and aquifer testing was conducted within the well field. These data were utilized in a saturated zone groundwater flow model covering the existing RIX well field and the expansion area. Ms. Rolfe co-authored the final report for this investigation.

Soil Characterization Study at the San Jacinto Wildlife Area in Support of the Use of Recycled Water in the San Jacinto Lower Pressure Management Zone, Eastern Municipal Water District

Staff Scientist II: Ms. Rolfe coordinated and conducted a soil characterization study to evaluate the potential for recycled water applied to the ground surface to infiltrate

into the soil and reach the underlying aquifer. The study utilized Cone Penetration Tests (CPTs), soil type characterization from soil core samples collected as part of the study, and laboratory analysis of the hydraulic conductivity properties of selected soil cores. Ms. Rolfe analyzed the soil data and co-authored the report for the study. The study was completed to comply with the Santa Ana Regional Water Quality Control Board Order R8-2008-008 Waste Discharge and Producer/User Reclamation Requirements for Eastern Municipal Water District Regional Water Reclamation Facilities Discharge to Groundwater Management Zones within San Jacinto River Basin which required the Eastern Municipal Water District (EMWD) to develop a regulatory compliance strategy for the continued use of recycled water in the San Jacinto Lower Pressure (SJLP).

Groundwater Development in Beaumont South Basin, San Timoteo Watershed Management Authority

Staff Scientist II: Ms. Rolfe collected borehole lithology samples; oversaw drilling contractor activities including borehole drilling, aquifer zone testing, construction, development, and pump testing; and collected groundwater samples for Title 22 water quality analyses for one production well. Ms. Rolfe authored the project report which detailed the installation activities.

Extraction Facilities, Irvine Ranch Water District

Staff Scientist II: Ms. Rolfe was part of the Wildermuth team that oversaw the installation of eight production wells and four nested piezometers at Strand Ranch in Bakersfield, CA. Ms. Rolfe collected borehole lithology samples; oversaw drilling contractor activities, including borehole drilling, aquifer zone testing, construction, development, and pump testing; and collected groundwater samples for water quality analyses.

Special Groundwater Monitoring Program, Beaumont Basin Watermaster

Staff Scientist II: Ms. Rolfe conducted well reconnaissance to evaluate the suitability of wells for water level data collection and designed and deployed a groundwater level monitoring network utilizing pressure transducers. She also managed and maintained the network for over five years.

Recomputation of Ambient Water Quality, Basin Monitoring Program Task Force - Santa Ana Watershed Project Authority

Senior Scientist II: Ms. Rolfe was on the analysis team for the triennial recomputation of ambient nitrate and TDS concentration estimates in each management zone of the Santa Ana River Watershed in the 2006 and 2009 efforts. The recomputation of ambient water quality is part of the basin monitoring program required by the Santa Ana Region Basin Plan. Ambient nitrate and TDS determinations in Santa Ana River Watershed groundwater management zones are compared to water quality objectives and used by the Regional Board to assess assimilative capacity. Ambient water quality determinations involve using sophisticated statistical techniques to quantify nitrate and total dissolved solids concentrations in groundwater management zones, analyses of historical water quality data, water level contouring, and aquifer geometry in subbasins throughout the watershed. Ms. Rolfe was also involved in the development of TDS and nitrogen concentration contours used to develop the ambient water quality determinations.

Chino Basin Recycled Water Groundwater Recharge Program: Title 22 Engineering Report, Chino Basin Watermaster

Senior Scientist II: Ms. Rolfe managed the construction of the lysimeters and nested monitoring wells associated with this study, which includes the following recharge basins in the Chino Basin: 8th Street, Brooks, RP3, and Declez. The objective of the facilities is to monitor the movement of recycled water as it travels from the recharge basins towards potable production wells. Ms. Rolfe continues to manage a network of pressure transducers which monitor the piezometric levels in the wells.

GSI/water, South Pasadena, California – March 2003 to August 2005

Pilot Well Drilling and Testing for a Well Siting Study, Golden State Water Company (formerly Southern California Water Company)

Staff Geologist: Ms. Rolfe was the lead field geologist on test well drilling at six sites in Wrightwood, CA. Ms. Rolfe conducted high-resolution thermal surveys through the water column within temporary casings installed in each pilot hole. Ms. Rolfe also conducted an aerial thermal survey by installing thermal monitoring equipment within shallow boreholes aligned perpendicular to the underflow of Sheep Creek and tributaries east of Wrightwood. The data collected during the study were used to site and design three production wells for the client.

Garnet Hill Subbasin Groundwater Development Project, Mission Springs Water District

Staff Geologist: Ms. Rolfe was the lead field geologist during design, installation, and testing of two production wells in the Garnet Hill Subbasin of the Coachella Valley Groundwater Basin north of Palm Springs, CA.

Aerial Thermal Survey for Thermal Groundwater Resource Assessment, The City of Paso Robles

Staff Geologist: Following the 6.5 magnitude San Simeon earthquake in December, 2003, two sulfur hot springs erupted in the City. Ms. Rolfe reproduced a thermal survey originally conducted in the 1980's to compare the new configuration of thermal groundwater resources following the earthquake to the historical resource location. The project involved field reconnaissance to find original probes if intact, and site replacement locations as necessary, hiring and managing a drilling contractor to install new thermal probes utilizing the auger drilling method, and data collection from the thermal probes.

Water Budget, Mission Springs Water District

Staff Geologist: Ms. Rolfe utilized geographic information systems (GIS) to determine watershed boundaries and groundwater and watershed area as part of a Water Budget analysis of the Desert Hot Springs and Mission Creek subbasins of the Coachella Valley Groundwater Basin. She also collected and compiled groundwater production, climate, and recharge data for the water budget calculation.

Water Budget, San Jacinto Basin Authority

Staff Geologist: Ms. Rolfe utilized geographic information systems (GIS) to determine watershed boundaries and groundwater and watershed area as part of a Water Budget analysis of the Desert Hot Springs and Mission Creek subbasins of the Coachella Valley Groundwater Basin. She also collected and compiled groundwater production, climate, and recharge and groundwater storage change data for the water budget calculation.

Production Well Installation, Fern Valley Water District

Staff Geologist: **Ms. Rolfe was the lead field geologist during installation and testing of two bedrock production wells in Idyllwild, CA. Air-rotary and ODEX and hammer casing advance drilling methods were utilized. Ms. Rolfe collected representative formation samples during drilling which were used to determine the final well design. Ms. Rolfe oversaw construction and testing of the production wells** and produced a report detailing the project results.

Occidental College Geology Department, Los Angeles, California

Mineralogical Study – 2001 to 2002

Research Assistant: Ms. Rolfe conducted independent research comparing **mineralogy of granites to the occurrence of apatite.** She presented a poster on the **findings at the Southern California Conference** for Undergraduate Research **(SCCUR) in 2001 and wrote a report summarizing the** findings of the study.

Laboratory Assistant for Mineralogy and Physical Geology Classes – 2000 to 2002

Teaching Assistant: Ms. Rolfe served as a laboratory assistant and peer advisor. She explained class materials and answered questions for Mineralogy and Physical Geology classes.

Publications/Presentations

Sturchio NC, Beloso Jr AD, Heraty LJ, LeClaire J, Rolfe T, Manning KR (2008). *Isotopic Evidence for Agricultural Perchlorate in Groundwater of the Western Chino Basin, California.* In: Sixth International Conference on Remediation of Chlorinated and Recalcitrant Compounds, Monterey, CA, 18–22 May 2008.

Rolfe, T. (2001). *The Abundance of Apatite in Intrusive Rocks.* Poster session presentation at the annual Southern California Conference on Undergraduate Research, Los Angeles, CA.



Assignment

Senior Hydrogeologist I

Education

B.S., Geology, California State University, Fullerton, 2005

M.S., Geology, California State University, Fullerton, 2008

Registrations

Professional Geologist, California No. 8785

Mr. Blazevic joined the Wildermuth Environmental team in December 2008, bringing with him over six years of professional experience in the geological and hydrogeological sciences. His technical expertise includes aquifer sedimentology, stratigraphy, and the application of Geographic Information Systems (GIS) to complex hydrological and hydrogeological problems. He has worked throughout southern and central California on the drilling and testing for water supply and monitoring wells, collection and interpretation of geologic and hydrogeologic data and maps, and the preparation of technical reports.

Recently, Mr. Blazevic provided well construction, development, and testing oversight for 6 extraction wells and 3 nested piezometers for the Irvine Ranch Water District's Strand Ranch Water Bank extraction facilities near Bakersfield, CA.

Mr. Blazevic received a B.S. in Geological Sciences from California State University, Fullerton in 2005 and an M.S. in Geological Sciences from California State University, Fullerton in 2008. His M.S. thesis received the "Best Paper Award" in physical sciences at the 2007 Southern California Academy of Sciences annual meeting and was accepted by the *Journal of Sedimentary Geology* for publication in 2009.

Selected Project Experience

Wildermuth Environmental, Inc. – December 2008 to Present

Analysis of Dry-Weather Discharge and Depth and Historical Characterization of the Santa Ana River from RIX to the MWD Crossing, Law Offices of Somach, Simmons, and Dunn

Senior Hydrogeologist I/Project Manager: Mr. Blazevic served as a senior hydrogeologist and project manager for this project. The objectives of the Santa Ana River analysis was to understand the current depth-discharge relationship under normal and low flow conditions as well as the historical hydrology of the river between the City of San Bernardino Metropolitan Water District's Rapid Infiltration and Extraction facility (RIX) and the Metropolitan Water District of Southern California Crossing. Mr. Blazevic was responsible for coordinating and acquiring high-resolution river channel geometry LiDAR data, collecting and measuring discharge data, and analyzing historical aerial photos. These datasets were used to assist WEI's principal engineers in the development of a hydraulic model in HEC-RAS and to analyze historical discharge-depth relationships along the Santa Ana River.

2012 Temescal Basin Recharge Master Plan, City of Corona

Staff Scientist II: Mr. Blazevic served as staff scientist for this project. The Temescal Basin Recharge Master Plan was developed to provide a series of alternatives and solutions to mediate the overdraft in the Temescal Groundwater Basin. Mr. Blazevic assisted in characterizing the potential sources (baseflow, storm water, recycled water, and groundwater sources) for artificial recharge, identifying and characterizing the universe of potential artificial recharge sites, and developing surface water hydraulic simulations for various artificial recharge scenarios within the Temescal Basin.

Drilling, Construction, and Testing of One Dual Nested Piezometer: Land Subsidence Monitoring Program/Chino Basin Watermaster

Staff Scientist II: Mr. Blazevic provided construction oversight for single dual-nested piezometers that will be used to house two cable extensometers. Mr. Blazevic was involved in all phases of the well drilling, construction, development, and testing of the new piezometers; including executing field work such as well construction oversight, logging borehole lithology, and well/annular construction. The data

collected by Mr. Blazevic will be used to monitor groundwater level changes due to nearby pumping and to install cable extensometers that will measure soil extension and compaction within the soils. This nested piezometer/extensometer was installed in anticipation of pumping from the Chino Creek Well Field beginning in fall 2013. He was also responsible for the completion of the well construction oversight technical report.

Application of the Wasteload Allocation Model to Characterize the TDS Impact on the Santa Ana River from Elsinore Valley Water District Recycled Water Discharge, MWH

Staff Scientist II/Project Manager: Mr. Blazevic served as a staff scientist and project manager for this project. The objectives of this study were to estimate the mass of TDS discharged to Temescal Creek in excess of the EVMWD's TDS permit limit and to use the existing Wasteload Application Model (WLAM) to estimate the theoretical impact of EVMWD recycled water discharge to the Santa Ana River. Mr. Blazevic was responsible for analyzing discharge, TDS concentration, and conductivity data in order to refine the TDS concentration in EVMWD discharge in excess of their permit limit. He was also responsible for assisting WEI's principal engineers in applying and calibrating the WLAM to estimate TDS concentration impacts on the Santa Ana River.

Laurel Pond Water Budget and Evaluation of Recycling Alternatives

Staff Scientist II: The objective of this project was to assist the Mammoth Community Water District (MCWD) with developing a surface water-budget model to accurately establish the Laurel Pond's response to changes in the amount of wastewater discharged to the pond as well as to natural hydrologic variations. The surface water model will be used to evaluate the MCWD's summertime wastewater discharge reductions and future wastewater recycling alternatives for the Laurel Pond. Mr. Blazevic was responsible for collecting and compiling all historical water-budget data, assisting staff in developing and calibrating the surface water-budget model, and using the model to evaluate the future MCWD recycling alternatives.

Design and Construction of Groundwater Extraction Facilities: Strand Ranch Water Banking Facility, Irvine Ranch Water District/AECOM/DJA

Staff Scientist II: Mr. Blazevic provided oversight construction for three triple-nested piezometers and 6 extraction wells was used to monitor, recharge, and extract up to 17,500 acre-feet of water per year. Mr. Blazevic was involved in all phases of the well drilling, construction, development, and testing of the new wells; including executing field work such as well construction oversight, logging borehole lithology, and conducting aquifer tests. The data collected in the Strand Ranch area by Mr. Blazevic was used to identify hydrogeologic units, develop a conceptual model, and ultimately create a numerical flow model to estimate the water level changes resulting from future Strand Ranch extraction well pumping. He was also responsible for the completion of all well construction oversight technical reports.

San Timoteo Management Zone Well Field, City of Beaumont

Staff Scientist II: Mr. Blazevic provided construction oversight and conducted aquifer tests for two artesian wells (a production well and a dual-nested piezometer) in the San Timoteo Management Zone (STMZ). These wells were installed as part of a groundwater monitoring program within the STMZ to provide additional water quality data because there was insufficient data to perform the triennial recomputation of ambient water quality as required by the Santa Ana Regional Water Quality Control Board to keep it's "Maximum Benefit" status. The loss of Maximum Benefit could have resulted in the Regional Board requiring retroactive mitigation for

TDS and nitrate-nitrogen discharges affecting these management zones in excess of the antidegradation objectives.

State of the Basin Assessment for the Cucamonga Basin, Cucamonga Water District

Staff Scientist II: The objective of this project was to prepare a concise description of water resources of the Basin area, including recent changes in groundwater storage, safe yield, and water quality. Mr. Blazevic was involved with tasks consisting of compiling and reviewing recent reports and to update Wildermuth Environmental's groundwater databases with respect to wells, groundwater levels, groundwater quality, and groundwater production. The data collected and compiled in this task has supported the development of a hydrogeologic setting for the Basin. Mr. Blazevic has, based on new borehole data, geophysical data, and previous reports developed new hydrostratigraphic sections. In addition to the updated hydrostratigraphic sections, a description of historical groundwater levels and time histories were also prepared. Groundwater level maps were developed for 5 to 10 different years for the period of 1960 to present.

Hromadka and Associates – 2007 to 2008

Confidential Client, Rancho Palos Verdes, CA

Geologist/GIS Analyst: Mr. Blazevic was responsible for data collection and interpretation of historical aerial photographs, topographic maps, and land use/land coverage to better understand the factors responsible for a shallow landslide. Current and historical groundwater data was reviewed along with an analysis of rainfall to understand the interactions between surface infiltration and the shallow groundwater table. This data was used to interpret the source of water, and if the source of the water was a contributing factor to the slope failure.

Confidential Client, Pacific Palisades, CA

Geologist: Mr. Blazevic completed a surface reconnaissance of the exposed shallow soils, and drainage/erosion patterns. This data was used as part of a hydrology analysis and water budget. He reviewed available geologic and hydrogeologic information regarding slope stability, previous landslide events, and current drainage patterns. The character and distribution of soils, based on boring logs, and existing data were also characterized to calculate runoff and infiltration rates. An infiltration analysis was completed during several storm events.

Publications/Presentation

Blazevic, M. A., Kirby, M. E., Woods, A. D., Browne, B. L., & Bowman, D. D. (2009). Facies Model for Glacial-Age Sediments, Baldwin Lake, Southern California. Journal of Sedimentary Geology.

Blazevic, M. A., Kirby, M. E., Browne, B. L., Woods, A. D., & Bowman, D. D. (2007). Paleoenvironmental Reconstruction of a Glacial-age Sediment Core from Baldwin Lake, Southern California: Evidence for Multi-timescale Climate [Abstract]. American Geophysical Union Fall Meeting.

Blazevic, M. A., Kirby, M. E., Woods, A. D., Browne, B. L., & Bowman, D. D. (2007). High-resolution Thin-section Photomicrography Analysis of a Glacial-age Sediment Core From Baldwin Lake, Southern California: A Look at Some Initial Results [Abstract]. Annual Southern California Academy of Sciences Meeting.



Assignment

Senior Hydrogeologist I

Education

B.S., Geology, California State University, Fullerton, 2006

M.S., Civil and Environmental Engineering, California State University, Fullerton, 2010

Registrations

Professional Geologist,California No. 8854

Engineer-In-Training, California No. 142007

Additional Training & Certifications

Gravity Collection & Modeling Software, 2005

Red Cross First Aid, CPR, and AED

Mr. Cruikshank has eight years of professional experience in water resources management, hydrology and hydrogeology. His technical expertise includes hydrogeologic basin analysis, water resource planning, recharge master planning, recycled water planning, GIS applications and report graphics.

As a Senior Hydrogeologist I, Mr. Cruikshank assists in the development of groundwater and surface water models, manages projects, analyzes lithologic and hydraulic data, evaluates aquifer parameters, creates innovative graphics that accurately and artfully display model results, and creates report graphics. He has been an integral in all phases of the Chino Basin Groundwater Model, the 2013 Recharge Master Plan Update, Peace II Project, and the Dry-Year Yield Program Expansion. He is currently the project manager/project engineer for the 2013 Chino Basin Recharge Mater Plan Update and the Cucamonga Groundwater Model.

Mr. Cruikshank received a B.S. in Geological Sciences from California State University, Fullerton in 2006. His senior thesis was presented at the 2006 NGWA Ground Water Summit where he earned the NGWREF Farvolden Award for the best undergraduate presentation. Mr. Cruikshank received an M.S. in Civil and Environmental Engineering from California State University, Fullerton in 2010.

Selected Project Experience

Wildermuth Environmental, Inc. – 2006 to Present

2013 Amendment to 2010 Recharge Master Plan Update, Chino Basin Watermaster

Senior Hydrogeologist I/Project Manager: Mr. Cruikshank is currently the project manager and engineer for the recharge master planning efforts in the Chino Basin. The 2013 Amendment consist of the evaluation of the projects analyzed in the 2010 RMP as well as the projects recommended by the Chino Recharge Master Plan Steering Committee. Mr. Cruikshank is responsible for the project management tasks, the hydraulic calculations and modeling associated with the recharge improvements, and report preparation.

Update and Recalibration of Chino Basin Groundwater Model, Chino Basin Watermaster

Senior Hydrogeologist I: Mr. Cruikshank assisted in the update and recalibration of the Chino Basin groundwater and surface water model. The basin geometry and layering was updated to take into account newly drilled wells. The surface water model was improved to account for improved resolution of land use data and refined historical/planning estimates of the deep infiltration of precipitation and applied water. The model will be used to determine the safe yield of the basin, the safe yield created by the desalter wells and reoperation and the state of hydraulic control.

2013 Six Basins State of the Basin Report, Six Basins Watermaster

Senior Hydrogeologist I: Mr. Cruikshank was responsible for the hydrogeologic characterization of the Six Basins. Specifically, he constructed numerous hydrogeologic cross sections, created several historic regional groundwater elevation contours maps, evaluated aquifer parameters, mapped the depth to bedrock, analyzed groundwater in storage and developed yield through GIS applications.

2012 Temescal Basin Recharge Master Plan, City of Corona

Senior Hydrogeologist I: Mr. Cruikshank served as the project engineer for the Temescal Basin Recharge Master Plan. The Temescal recharge master plan was developed to provide a solution to the overdraft of the Temescal Basin which is estimated to be about 3,000 acre-ft/yr. Mr. Cruikshank was responsible for the

development and hydraulic simulations of the various recharge scenarios involving the capture of storm water and imported water and recycled water at both existing and improved basins.

San Juan Basin Groundwater Management Plan and Facilities Plan Update, San Juan Basin Authority

Staff Scientist II: Mr. Cruikshank serves as a staff scientist for the update of the San Juan Basin Groundwater Management Plan and Facilities Plan. Developed in the early 1990's, the original plan resulted in the construction of new production wells and a groundwater desalter facility to treat high-TDS groundwater. Since that time, significant development has occurred, and there is increasing pressure to optimize the use of all resources, specifically groundwater. Mr. Cruikshank completed a comprehensive hydrogeologic assessment of the groundwater basin that included recalculating the storage capacity of the groundwater basin in order to provide a clear understanding of the basins groundwater resources. The updated plan represents the most comprehensive "state of the basin" assessment ever done for the San Juan Basin.

2010 Recharge Master Plan Update and Implementation, Chino Basin Watermaster

Staff Scientist II: Mr. Cruikshank served as a staff scientist for the development of the 2010 Recharge Master Plan Update. The investigation also determined the existing recharge capacity for imported and recycled waters and the future recharge capacity requirements. The report included conclusions and recommendations for future recharge projects and future supplemental water supply sources, including non-Metropolitan imported water supplies. Currently, Watermaster and the stakeholders are preparing to implement the recommendations of the 2010 Recharge Master Plan Update.

Strand Ranch Recovery Facilities Project, Irvine Ranch Water District.

Staff Hydrogeologist II: Mr. Cruikshank was involved in all phases of well drilling, construction, development, and testing of three-triple nested piezometers and four extraction wells; including well construction oversight, logging borehole lithology, and conducting aquifer tests. Mr. Cruikshank analyzed the data collected in the Strand Ranch area and identified hydrogeologic units, developed a conceptual model that was used to create a numerical flow model to estimate the water level changes resulting from future Strand Ranch extraction well pumping. The facility will be used to recharge and extract up to 17,500 acre-feet of water per year and will have a total storage capacity.

Recycled Water Planning Investigation, San Bernardino Municipal Water District

Staff Scientist II: Mr. Cruikshank assisted in the development of cost-effective alternatives for the reuse of recycled water in the City of San Bernardino. The proposed Clean Water Factory (CWF) will treat secondary effluent from the existing San Bernardino Water Reclamation Plant (SBWRP) to a quality approved for recharge and direct use, and advanced treated water will be conveyed north to existing flood control basins for spreading. In addition to CWF scenarios, the project alternatives evaluated direct recycled water reuse for users along the pipeline route to the basins. Mr. Cruikshank assisted in the development of treatment and project alternatives, preliminary design calculations for conveyance facilities, and created high quality graphics for the report.

Recomputation of Ambient Water Quality, Basin Monitoring Program Task Force - Santa Ana Watershed Project Authority

Staff Scientist II: Mr. Cruikshank worked on the triennial recomputation of ambient nitrate and TDS concentration estimates in each management zone of the Santa Ana River Watershed in the 2010-2011 and in the 2007-2008 effort. The recomputation of ambient water quality is part of the basin monitoring program required by the Santa Ana Region Basin Plan. Ambient nitrate and TDS determinations in Santa Ana

River Watershed groundwater management zones are compared to water quality objectives and used by the Regional Board to assess assimilative capacity. Mr. Cruikshank contoured water level and water quality data in each effort. He was also responsible for summarizing the data from each management zone by creating raster grids of the contoured water level and water quality data that was used to calculate the objectives.

San Timoteo Management Zone Well Field, City of Beaumont; Beaumont, CA

Staff Scientist II: Mr. Cruikshank sited, logged borehole lithology, oversaw well construction, and conducted aquifer zone tests for two artesian wells (a production well and a dual-nested piezometer) in the San Timoteo Management Zone (STMZ). These wells were installed as part of a groundwater monitoring program within the STMZ to provide additional water quality data because there was insufficient data to perform the triennial recomputation of ambient water quality as required by the Santa Ana Regional Water Quality Control Board to keep it's "Maximum Benefit" status. The loss of Maximum Benefit could have resulted in the Regional Board requiring retroactive mitigation for TDS and nitrate-nitrogen discharges affecting these management zones in excess of the antidegradation objectives.

Phase II Feasibility Study for the Expansion of the Arlington Desalter System, Western Municipal Water District

Staff Scientist II: Mr. Cruikshank assisted in developing cost-effective alternatives for increasing production at the Arlington Desalter. WEI was tasked with locating and sizing a new array of groundwater production wells and associated raw water pipelines to supply the expanded Arlington Desalter and with analyzing the groundwater basin's ability to accept artificial recharge. WEI successfully sized and located the new artificial recharge facilities necessary to support increased groundwater production. Mr. Cruikshank assisted in the development of planning criteria and the evaluation of potential recharge and well sites.

2009 Production Optimization and Evaluation of the Peace II Project Description, Chino Basin Watermaster

Staff Scientist II: Mr. Cruikshank assisted in the evaluation of the Peace II Project Description. Based on previous investigations, including the Chino Basin Groundwater Model Recalibration and the Dry-Year Yield Expansion Program, it was determined that the safe yield of the basin would decline by about 10,000 acre-ft/yr, projected future production may not be sustainable, and future production will be limited by Watermaster's existing replenishment capacity. To address these concerns, WEI optimized the location and magnitude of groundwater production and replenishment in order to maximize groundwater production capabilities.

Chino Basin Dry-Year Yield Program Expansion, Chino Basin Watermaster

Staff Scientist I: Mr. Cruikshank assisted senior WEI scientists in the development of the Chino Basin Dry-Year Yield Expansion (DYYE) Program. WEI's role in this project was to assist the Chino Basin Watermaster, the Inland Empire Utilities Agency, and the Metropolitan Water District of Southern California in evaluating the impacts of expanding the then current 100,000 acre-ft DYY Program to 300,000 acre-ft. WEI completed a thorough reassessment of the hydrogeologic conditions of the Chino Basin; assisted other consultants with facility planning, including well siting, water quality evaluations, and specialized mapping; developed and applied a sophisticated set of surface and groundwater models to evaluate the impacts of the DYYE on groundwater levels, contaminant plume movement, and surface and groundwater interaction in the southern part of the basin. The results of this work were used in the environmental permitting process for the expansion facilities.

Cucamonga Creek Investigation, Cucamonga Valley Water District

Staff Scientist I: Mr. Cruikshank assisted senior WEI engineers in determining the feasibility of recharge within the Cucamonga Creek debris cone based on hydrologic, hydrogeologic (utilizing field drilling and geophysical methods), environmental, and legal constraints. The goal of this project was to rapidly identify fatal flaws related to conducting recharge in the study area. Upon completing the fatal flaw analysis,

conceptual recharge facilities, operating plans, and costs were prepared. Mr. Cruikshank assisted in the development a work plan for a series of geophysical surveys, selected and scheduled geophysical consultants and drilling contractors, and performed several other project tasks.

Publications / Presentations

Laton, W. R., Foster, J. H., Blazevic, M., Velarde, J., & Cruikshank, M. (2007). *Oeste Hydrologic Sub-Area Hydrogeological Report.* Mojave Water Agency.

Cruikshank, M. (2006). *Presence of Deep High Quality Groundwater in El Mirage Valley, San Bernardino County, California**. Poster session presented at the 2006 NGWA Ground Water Summit. (*Received the NGWREF Farvolden Award for the best undergraduate presentation.)

Cruikshank, M., Laton, W. R., & Foster, J. H. (2006). *Hydrogeologic Investigation of El Mirage Valley, San Bernardino County, California.* 2006 Oeste Hydrologic Sub-basin Advisory Committee.

IRVINE RANCH WATER DISTRICT EXHIBIT "C"

Expenditure Authorization

Project Name: STRAND RANCH FACILITIES AND MONITORING PROGRAM
EPMS Project No: 11289 **EA No:** 13
Oracle Project No: 2812
Project Manager: WEGHORST, PAUL
Project Engineer: WELCH, KELLY
Request Date: October 8, 2013

ID Split: Regional Water Split with LAWD (11/08)

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
112	3.6	BONDS YET TO BE SOLD**
113	4.4	BONDS YET TO BE SOLD**
115	6.2	CAPITAL FUND
121	12.8	BONDS YET TO BE SOLD**
130	10.0	BONDS YET TO BE SOLD**
135	16.2	PREVIOUSLY SOLD BONDS
140	3.5	BONDS YET TO BE SOLD**
150	26.1	BONDS YET TO BE SOLD**
153	2.9	BONDS YET TO BE SOLD**
154	1.2	BONDS YET TO BE SOLD**
161	6.7	BONDS YET TO BE SOLD**
182	2.5	BONDS YET TO BE SOLD**
184	2.3	BONDS YET TO BE SOLD**
186	.8	BONDS YET TO BE SOLD**
188	.8	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$15,261,200
This Request:	$95,900
Total EA Requests:	$15,357,100
Previously Approved Budget:	$17,739,700
Budget Adjustment Requested this EA:	$0
Updated Budget:	$17,739,700
Budget Remaining After This EA	$2,382,600

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING - PLANNING IRWD	0	50,000	50,000	0	50,000	50,000	4/07	6/15
ENGINEERING - PLANNING OUTSIDE	0	80,000	80,000	0	80,000	80,000	4/07	6/15
ENGINEERING DESIGN - IRWD	0	50,000	50,000	0	50,000	50,000	7/08	6/15
ENGINEERING DESIGN - OUTSIDE	0	1,528,000	1,528,000	0	1,528,000	1,528,000	4/04	7/14
ENGINEERING - CA&I IRWD	10,000	270,000	280,000	10,000	270,000	280,000	9/07	7/13
ENGINEERING - CA&I OUTSIDE	77,200	887,000	964,200	77,200	995,000	1,072,200	9/07	7/13
CONSTRUCTION	0	11,003,800	11,003,800	(87,200)	13,149,000	13,061,800	4/00	7/13
LEGAL	0	5,000	5,000	0	5,000	5,000	4/02	8/16
ENGINEERING ENVIRONMENTAL-OUTS	0	0	0	0	0	0	3/11	6/15
Contingency - 10.00% Subtotal	$8,700	$1,387,400	$1,396,100	$0	$1,612,700	$1,612,700		
Subtotal (Direct Costs)	$95,900	$15,261,200	$15,357,100	$0	$17,739,700	$17,739,700		
Estimated G/A - 170.00% of direct labor*	$17,000	$629,000	$646,000	$17,000	$629,000	$646,000		
Total	$112,900	$15,890,200	$16,003,100	$17,000	$18,368,700	$18,385,700		
Direct Labor	$10,000	$370,000	$380,000	$10,000	$370,000	$380,000		

*EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.

EA Originator: _____ 10/8/13

Department Director: _____ 10/9/13

Finance: _____

Board/General Manager: _____

** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $18,754,000. The above-captioned project is further described in the attached staff report and additional documents, if any, which are hereby incorporated by reference. This declaration of official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2.

October 28, 2013
Prepared and
Submitted by: P. Sheilds
Approved by: Paul Cook

CONSENT CALENDAR

DEEP AQUIFER TREATMENT SYSTEM AND WELL 77
LEASE PAYMENT - EXPENDITURE AUTHORIZATION

SUMMARY:

On June 24, 2013, the Board authorized the addition of Project 10391 (1214) in the amount of $424,900 to the Fiscal Year 2013-14 Capital Budget to fund the Deep Aquifer Treatment System (DATS) and the Well 77 lease payments. Due to an oversight, the Expenditure Authorization approval was inadvertently omitted from the recommendation to the Board. Staff recommends that the Board approve a corresponding Expenditure Authorization in the amount of $424,900 to fund these lease payments.

BACKGROUND:

The Board authorized the budget addition of the DATS and Well 77 lease payments in the Fiscal Year 2013-14 Capital Budget on June 24, 2013 in the amount of $424,900 to fund the DATS lease payment to the City of Santa Ana and the Well 77 lease payment to the Irvine Unified School District. Due to an oversight when the budget was approved, the corresponding EA was not included in the recommended action. An Expenditure Authorization is required at this time in the amount of $424,900 to fund these lease payments.

The project has no funding authorization restrictions because the purpose is clearly defined, and the specified lease agreement payments minimize staff discretion.

FISCAL IMPACTS:

Project 10391 (1214) is included in the FY 2013-14 Capital Budget. The Expenditure Authorization is provided as Exhibit "A" and listed below.

Project No.	Current Budget	Addition <Reduction>	Total Budget	Existing EA	This EA Request	Total EA Request
10391 (1214)	$ 0	$424,900	$ 424,900	$0	$ 424,900	$ 424,900

ENVIRONMENTAL COMPLIANCE:

Project 10391 (1214) is a ministerial project and not subject to the California Environmental Quality Act (CEQA) pursuant to Section 21080 of the Public Resources Code.

COMMITTEE STATUS:

The original item for budget and Expenditure Authorization approval was reviewed by the Engineering and Operations Committee on June 18, 2013.

RECOMMENDATION:

THAT THE BOARD APPROVE AN EXPENDITURE AUTHORIZATION FOR PROJECT 10391 (1214) IN THE AMOUNT OF $424,900 TO FUND THE DEEP AQUIFER TREATMENT SYSTEM (DATS) AND THE WELL 77 LEASE PAYMENTS.

LIST OF EXHIBITS:

Exhibit "A" – Expenditure Authorization

EXHIBIT "A"

IRVINE RANCH WATER DISTRICT

Expenditure Authorization

Project Name: DATS & WELL 77 LEASE PAYMENT 13/14
EPMS Project No: 10391 **EA No:** 1
Oracle Project No: 1214
Project Manager: SHEILDS, PATRICK
Project Engineer: SHEILDS, PATRICK
Request Date: July 16, 2013

ID Split: Regional Potable Water Splits (11/08)

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
112	4.3	BONDS YET TO BE SOLD**
113	5.2	BONDS YET TO BE SOLD**
115	7.3	CAPITAL FUND
121	15.3	BONDS YET TO BE SOLD**
130	11.8	BONDS YET TO BE SOLD**
140	4.2	BONDS YET TO BE SOLD**
150	31.2	BONDS YET TO BE SOLD**
153	3.4	BONDS YET TO BE SOLD**
154	1.5	BONDS YET TO BE SOLD**
161	8.0	BONDS YET TO BE SOLD**
182	3.0	BONDS YET TO BE SOLD**
184	2.8	BONDS YET TO BE SOLD**
186	1.0	BONDS YET TO BE SOLD**
188	1.0	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$0
This Request:	$424,900
Total EA Requests:	$424,900
Previously Approved Budget:	$0
Budget Adjustment Requested this EA:	$424,900
Updated Budget:	$424,900
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
LAND	424,900	0	424,900	424,900	0	424,900	7/13	6/14
Contingency - % Subtotal	$0	$0	$0	$0	$0	$0		
Subtotal (Direct Costs)	$424,900	$0	$424,900	$424,900	$0	$424,900		
Estimated G/A - 170.00% of direct labor*	$0	$0	$0	$0	$0	$0		
Total	$424,900	$0	$424,900	$424,900	$0	$424,900		
Direct Labor	$0	$0	$0	$0	$0	$0		

*EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.

EA Originator: _____ _____

Department Director: _____ 7/17/13

Finance: _____ _____

Board/General Manager: _____ _____

** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $434,000. The above-captioned project is further described in the attached staff report and additional documents, if any, which are hereby incorporated by reference. This declaration of official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2.

October 28, 2013
Prepared By: A. McNulty
Submitted by: G. Heiertz
Approved by: Paul Cook

ACTION CALENDAR

VARIANCE FOR THE MULTI-FAMILY DWELLING AND COMMERCIAL PLUMBING FIXTURE RETROFIT PROGRAM

SUMMARY:

In July 2012, IRWD entered into an agreement with Bottom Line Utility Solutions to provide installation services for the Multi-Family Dwelling and Commercial Plumbing Fixture Retrofit Program. In May 2013, Variance No. 1 was approved extending the agreement term through June 2014. Staff recommends that the Board authorize the General Manager to execute Variance No. 2 with Bottom Line Utility Solutions in the amount of $378,555 for additional funding for plumbing fixture retrofitting and modification of its bond requirement.

BACKGROUND:

In July of 2012, IRWD executed a Non-Consultant Services Agreement with Bottom Line Utility Solutions to perform installation services for the Multi-Family Dwelling and Commercial Plumbing Fixture Retrofit Program in the amount of $400,000 with a termination date of June 2013. Due to the scale and complex management structure of the multi-family sector, a longer planning phase is required for the benefit of customers. Several large apartment management companies that were approached early in the program to solicit participation initially were not interested or were hesitant to participate, however, during the course of the program, have now decided to move forward with this program.

In May of 2013, Western National was prepared to retrofit its older apartment communities. Even though the program was set to terminate in June of 2013, it was able to accommodate 416 toilet retrofits at Western National's Emerald Court property. With a renewed interest from other commercial properties and a commitment from Western National, the contract with Bottom Line Utility Solutions was extended through 2014 with staff budgeting $400,000 in FY 2013-14.

At the end of FY 2012-13, $107,695 remained on the existing contract with Bottom Line Utility Solutions. Staff proposes to increase the contract by $378,555, for a total contract amount of $778,555. Funding from the Municipal Water District of Orange County has also been awarded to IRWD for $86,250 which will partially offset this additional contract amount.

Two Western National properties are scheduled for retrofitting this month. The first property, Spring Lakes in Lake Forest, can be completed within the existing contract budget. The second property, Westridge, would exceed the contract along with the Phase Five bond amounts. The requested contract variance (as provide in Exhibit "A") is required prior to commencement of work at Westridge.

Bonding Requirement:

Projects using public funds require performance bonds with project costs typically encompassing construction from start to finish. A customer plumbing fixture project differs in that each retrofit is a complete project in itself. One incomplete retrofit leaves the District exposed to costs, typically less than $300. Also, installation invoices are not approved for payment until installations are verified and customer satisfaction assessed by staff. In light of these fundamental differences in projects and in an effort to reduce hardship on the installer, the $400,000 total program budget for FY 2012-13 was phased into five $80,000 increments. Because the bond amount will be exceeded during the second Western National project this month, staff has developed a reasonable bonding requirement for this type of retrofit project which is based on the daily average toilet install quantities and associated cost. Using the installation rates from the program's performance last year, staff determined a daily exposure cost of not more than $15,000. A bond in this amount can be held for the duration of the program, rolling over day to day, and not require phasing which creates a hindrance to the program flow.

FISCAL IMPACTS:

Funding for this program was included in the approved FY 2013-14 Operating Budget as noted below:

Original Contract	Contract Balance	FY 2013-14 WUE Budget	MWDOC Funding	New Program Contract Increase
$400,000	$107,695	$400,000	$86,250	$378,555

ENVIRONMENTAL COMPLIANCE:

This program is exempt from CEQA.

COMMITTEE STATUS:

This item was reviewed at the Engineering and Operations Committee meeting on October 15, 2013.

RECOMMENDATION:

THAT THE BOARD APPROVE VARIANCE NO. 2 WITH BOTTOM LINE UTILITY SOLUTIONS MODIFYING BOND REQUIREMENTS AND INCREASING THE CONTRACT AMOUNT BY $378,555 TO THE AGREEMENT FOR NON-CONSULTANT SERVICES FOR THE MULTI-FAMILY DWELLING AND COMMERCIAL PLUMBING FIXTURE RETROFIT PROGRAM.

LIST OF EXHIBITS:

Exhibit "A" – Non-Consultant Services Variance

EXHIBIT "A"

IRVINE RANCH WATER DISTRICT
NON-CONSULTANT SERVICES VARIANCE

Purpose. This procedure shall be used to identify, estimate, and report variances to the scope of work in professional services agreements between IRWD and a consulting engineer or other type of consultant. A variance may be initiated by either IRWD's Project Manager or by the Engineer/Consultant.

Variance. The Variance shall be used to identify all changes to the original scope of work, budget, and schedule for any study, design, or construction phases services.

Engineer/Consultant Initiates Variance. If a Variance is initiated by the Engineer/Consultant, the Engineer/Consultant shall prepare the Variance including the Description of Variance, the Engineering & Management Cost Impact, the Schedule Impact, and the Required Approval Determination sections. The Engineer/Consultant shall then sign the Variance and submit it to the IRWD Project Manager for action.

IRWD Initiates Variance. If a Variance is initiated by IRWD's Project Manager, the IRWD Project Manager shall complete the Description of Variance and fill-in the Total Original Contract amount and Previous Variances amount (if any). The Variance shall then be given to the Engineer/Consultant to complete the Cost Impact, the Schedule Impact, and the Required Approval Determination sections. The Engineer/Consultant shall then sign the Variance and submit it to the IRWD Project Manager for action.

Variance Processing. Once a Variance is signed and submitted by the Engineer/Consultant, the IRWD Project Manager shall:

1. Enter the Variance's details onto a Variance Register for the project,
2. Review, sign, and date the Variance, and
3. Obtain appropriate approvals.

Notice to Proceed. Work covered by a Variance may proceed upon signing by the department Director. A copy of the Variance, signed by the Director, shall be the Engineer's/Consultant's Notice to Proceed with the required work.

Contractual Authorization. Work covered by a Variance which has been signed by the Director may require final approval from the General Manager, Committee, or Board based upon the requirements of the Procurement Policy. These approvals may be obtained after the Engineer/Consultant has been given a copy of the Variance signed by the Director (the Engineer's/Consultant's Notice to Proceed). The IRWD Project Manager shall promptly thereafter prepare a memo to the General Manager, Committee and/or Board agenda items(s) for approvals as required. Once the Variance is properly approved, it modifies the existing Engineer's/Consultant's agreement.

Financial Authorization. An approved Variance may require any of the following:

1. A Capital Budget increase,
2. A new Expenditure Authorization,
3. An extension to an existing Purchase Order, and/or
4. A new Purchase Order.

It is the IRWD Project Manager's responsibility to process the necessary paperwork to grant the required financial authorization.

IRVINE RANCH WATER DISTRICT
NON-CONSULTANT SERVICES VARIANCE

Project Title: Multi-Family Dwelling and Commercial Plumbing Fixture Retrofit
File No.:
Date: October 9, 2013
Variance No.: 2
Project No.:
Project No.
Purchase Order No.: 509851

Originator: [x] IRWD [ ] ENGINEER/CONSULTANT [ ] Other (Explain)

Description of Variance (*attach any back-up material*):
This variance is to add $378,555 in funding to the contract and to modify the bond requirement. Effective upon execution of this variance the contract shall be modified to require only one bond in the amount of $15,000 for the duration of the contract. This is adequate to mitigate any risk associated with the average size retrofit job on any given day.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor $	Direct Costs	Subcon. $	Total $
Funding Increase				$378,555		$378,555
					Total $ =	$378,555

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule

Required Approval Determination:

Total Original Contract	$400,000	[ ] General Manager: Single Variance less than or equal to $30,000.
Previous Variances $ 0 This Variance $ 378,555		[ ] Committee: Single Variance greater than $30,000, and less than or equal to $60,000.
Total Sum of Variances New Contract Amount	$ 378,555 $ 778,555	[ ] Board: Single Variance greater than $60,000.
Percentage of Total Variances to Original Contract	49 %	[x] Board: Cumulative total of Variances greater than $60,000, or 30% of the original contract, whichever is higher.

ENGINEER/CONSULTANT:
BOTTOM LINE UTILITY SOLUTIONS, INC.

Project Engineer/Manager — Date 10/10/13

Engineer's/Consultant's Management — Date 10/9/2013

IRVINE RANCH WATER DISTRICT

Department Director — Date

General Manager/Comm./Board — Date

IRVINE RANCH WATER DISTRICT

PROFESSIONAL SERVICES VARIANCE REGISTER

Project Title: Multi-Family Dwelling and Commercial Plumbing Fixture Retrofit

Project No.: _____ Project Manager: Amy McNulty

Variance No.	Description	Dates		Variance Amount
		Initiated	Approved	
1	1-year program extension	5/31/13	6/20/13	$0
2	Funding increase and bond requirement revision	10/09/13		$378,555

08
October 28, 2013 KNL
Prepared by: K. Lew/M. Cortez
Submitted by: K. Burton KB
Approved by: Paul Cook

ACTION CALENDAR

TUSTIN LEGACY REIMBURSEMENT AGREEMENT AND BARRANCA PARKWAY PIPELINES CONSTRUCTION CONTRACT

SUMMARY:

The City of Tustin (City) is continuing with the development of Tustin Legacy including Barranca Parkway street improvements between Armstrong Avenue and Tustin Ranch Road. As part of the development projects, the City will design and construct IRWD's domestic water, sewer, and recycled water capital facilities under a Reimbursement Agreement. Staff recommends that the Board:

- Authorize a budget increase for the Tustin Legacy Barranca Parkway Pipelines, Project 11714 in the amount of $180,400, from $162,800 to $343,200, and for Project 31714 in the amount of $529,100, from $160,600 to $689,700;
- Approve Expenditure Authorizations for Projects 11714 and 31714 in the amounts of $343,200 and $689,700, respectively; and
- Authorize the General Manager to execute a new Reimbursement Agreement with the City for the design and construction of IRWD capital facilities in the Tustin Legacy Development.

BACKGROUND:

Reimbursement Agreement:

The engineering design for the Tustin Legacy development was initiated in 2008 by Shea Properties, who later withdrew from the project. The Tustin Community Redevelopment Agency (TCRA) subsequently took the developer role and re-started the design of the street improvements for Tustin Ranch Road in July 2011. In August 2011, the Board authorized the execution of a Reimbursement Agreement (RA) with the TCRA for the design and construction of capital improvements within the Tustin Legacy development. However, since redevelopment agencies were eliminated in December 2011, the RA was revised to reflect the City as the party to the agreement in April 2012. The current RA with the City covers Tustin Ranch Road and limited areas of the Tustin Legacy development. A new RA is needed to cover design and construction of IRWD facilities within the remainder of the Tustin Legacy area. The new RA is attached as Exhibit "A" and has been reviewed by IRWD's legal counsel.

The required capital facilities are documented in the May 2013 Sub-Area Master Plan Update for Tustin Legacy, prepared by RBF Consulting. The domestic water, sewer, and recycled water systems are shown in Exhibit "B".

Barranca Parkway Pipelines Construction Contract:

The City is nearing completion of the Tustin Ranch Road street improvements project. As part of this project, they are constructing IRWD capital facilities under the terms of the existing RA. The City's contractor, R.J. Noble (Noble), has performed very good quality work on IRWD's facilities and has been cooperative throughout construction.

The City is now proposing to construct the Barranca Parkway Street Improvements between Armstrong Avenue and Tustin Ranch Road as a change order to Noble's existing contract. Noble provided a cost proposal to construct IRWD's facilities including domestic water, sewer, and recycled water facilities. The sewer facilities will replace an existing temporary trunk sewer so it will be constructed at the City's cost. Noble's price for IRWD's portion of the work including domestic water and recycled water facilities is $635,616.06 as shown in the Bid Breakdown attached as Exhibit "C". Staff has reviewed the proposed unit prices and has determined that they are fair and consistent with other recently bid construction projects. Staff recommends approval of the construction of Barranca Parkway Domestic Water and Recycled Water Pipelines in the amount of $635,616.06 under the new RA.

FISCAL IMPACTS:

Projects 11714 (4366) and 31714 (4368) are included in the FY 2013-14 Capital Budget. Staff requests the budget adjustments and Expenditure Authorizations as shown in the table below and in Exhibit "D".

Project No.	Current Budget	Addition <Reduction>	Total Budget	Existing EA	This EA Request	Total EA Request
11714 (4366)	$162,800	$180,400	$ 343,200	$ -0-	$ 343,200	$ 343,200
31714 (4368)	$160,600	$529,100	$ 689,700	$ -0-	$ 689,700	$ 689,700
TOTAL	$323,400	$709,500	$1,032,900	$ -0-	$1,032,900	$1,032,900

ENVIRONMENTAL COMPLIANCE:

This RA is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15061 (b) (3), in that CEQA applies only to projects which have the potential for causing a significant effect on the environment.

The execution of the RA agreement would allow for the construction of the capital domestic water, sewer, and recycled water facilities in Tustin Legacy. This project is subject to CEQA. In conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, a Joint Environmental Impact Statement/Environmental Impact Report was certified by the City of Tustin and the Department of the Navy on January 3, 2000 (SCH 1982040906).

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2013.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE A BUDGET INCREASE FOR THE TUSTIN LEGACY BARRANCA PIPELINES, PROJECT 11714 (4366) IN THE AMOUNT OF $180,400, FROM $162,800 TO $343,200, AND FOR PROJECT 31714 (4368) IN THE AMOUNT OF $529,100, FROM $160,600 TO $689,700; APPROVE EXPENDITURE AUTHORIZATIONS FOR PROJECTS 11714 (4366) AND 31714 (4368) IN THE AMOUNTS OF $343,200 AND $689,700, RESPECTIVELY; AND AUTHORIZE THE GENERAL MANAGER TO EXECUTE A REIMBURSEMENT AGREEMENT WITH THE CITY OF TUSTIN FOR THE DESIGN AND CONSTRUCTION OF IRWD CAPITAL FACILITIES IN THE TUSTIN LEGACY DEVELOPMENT.

LIST OF EXHIBITS:

Exhibit "A" – Reimbursement Agreement
Exhibit "B" – Domestic Water, Sewer, and Recycled Water Systems
Exhibit "C" – Barranca Parkway Pipelines Bid Breakdown
Exhibit "D" – Expenditure Authorizations

EXHIBIT "A"

File No. 11379 (1047)

REIMBURSEMENT AGREEMENT BETWEEN
IRVINE RANCH WATER DISTRICT
AND THE CITY OF TUSTIN
FOR
A VARIETY OF IRWD FACILITIES RELATED TO THE
TUSTIN LEGACY DEVELOPMENT

This Agreement is made and entered into as of this ____ day of _____, 20__, by and between IRVINE RANCH WATER DISTRICT ("DISTRICT"), a California water district formed and existing pursuant to the California Water District Law of the State of California, and THE CITY OF TUSTIN ("TUSTIN"), a public body, corporate and politic.

W I T N E S S E T H:

WHEREAS, TUSTIN and The City of Tustin as Successor Agency to the Tustin Community Redevelopment Agency ("SUCCESSOR AGENCY") (TUSTIN and SUCCESSOR AGENCY are collectively referred to herein as "CITY") propose to construct street and utility improvements for Tustin Legacy (the "Project"), within the jurisdictional boundaries of DISTRICT and TUSTIN; and

WHEREAS, prior to or in conjunction with CITY's construction of the Project, IRWD is desirous of TUSTIN designing and/or constructing, within or adjacent to the street improvements that comprise the Project, a substantial amount of those certain capital facilities and appurtenances generally depicted on Exhibit "A" attached hereto and incorporated by reference herein which consist generally of the following: approximately 17,000 lineal feet (LF) of 12-inch domestic water pipeline; 12,700 LF of 12-inch to 18-inch sewer pipeline; and 31,500 LF of 6-inch to 16-inch recycled water pipeline (hereinafter referred to as the "IRWD FACILITIES"); and

WHEREAS, the parties have determined that it would be more expedient for TUSTIN to design and/or construct the IRWD FACILITIES rather than the DISTRICT; and

WHEREAS, DISTRICT is amenable to the design and/or construction of the IRWD FACILITIES by TUSTIN, at the cost of TUSTIN, which cost is to be reimbursed by DISTRICT; and

WHEREAS, except as otherwise provided herein, upon the completion of the IRWD FACILITIES, the IRWD FACILITIES shall become the property of DISTRICT in accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, the parties hereto, in consideration of the mutual promises and covenants hereinafter set forth, do agree as follows:

SECTION 1. The IRWD FACILITIES. In conjunction with the Project, TUSTIN agrees to initiate and diligently pursue to completion the design and/or construction of the IRWD FACILITIES.

SECTION 2. PLANS. The IRWD FACILITIES shall be constructed by TUSTIN in conjunction with the Project pursuant to plans prepared by TUSTIN's design engineer. TUSTIN agrees to submit all project plans and specifications and all bidding documents to DISTRICT at least fifteen (15) days prior to advertisement for bids for the Project, and agrees that such advertisement shall not commence until DISTRICT has given its written approval of the plans, specifications and bidding documents pertaining to the IRWD FACILITIES. DISTRICT shall have five (5) calendar days from its receipt of the plans, specifications and bidding documents pertaining to the IRWD FACILITIES to review them and indicate approval or request changes, and the parties shall cooperate in good faith to address such requests. TUSTIN agrees that the IRWD FACILITIES shall be completed pursuant to such approved project plans and specifications pertaining to the IRWD FACILITIES (the "Plans and Specifications"). The Plans and Specifications shall be deemed to incorporate the applicable portions of DISTRICT's latest edition of "Construction Manual for the Construction of Water, Sewer, and Reclaimed Water Facilities" (the "Construction Manual"). The costs associated with the design of the Plans and Specifications shall be on a time-and-material basis for services and are currently estimated at **$600,000**, subject to adjustment for actual costs incurred by TUSTIN for the design services, including design services required in connection with any approved design revisions and change orders approved as specified in Section 4.

SECTION 3. BIDDING AND AWARD. The parties agree that the construction of the IRWD FACILITIES shall be included in TUSTIN's contract(s) awarded for the Project and that

the IRWD FACILITIES shall be bid as a separate item or items that can be deleted. During the bidding process, TUSTIN shall deliver to IRWD one (1) complete set of the bid documents that include the IRWD FACILITIES, including all related addenda concurrently with the distribution thereof to prospective bidders. Upon opening of bids by CITY, TUSTIN will submit the bids or a spread sheet summary of the bids to DISTRICT. DISTRICT will have a period of ten (10) calendar days from its receipt of the bid results for review and approval of the IRWD FACILITIES bid item(s) submitted by the bidder identified to DISTRICT by TUSTIN as CITY's proposed successful bidder. TUSTIN agrees that bids received for the construction of the IRWD FACILITIES bid item(s) shall be subject to the approval of DISTRICT prior to award of the Project construction contract(s) that include the IRWD FACILITIES; and further agrees that in the event DISTRICT does not approve such bids within the time permitted for DISTRICT's review and approval above, either party may terminate this Agreement upon twenty-four (24) hours' prior written notice, in which event TUSTIN shall have no further obligation to construct the IRWD FACILITIES, and DISTRICT shall install the IRWD FACILITIES with its own contractor in conjunction with and in cooperation with CITY's Project and within timeframes provided by TUSTIN. In such event TUSTIN shall be obligated to provide reasonable construction windows and site access for DISTRICT's contractors. If DISTRICT approves of the IRWD FACILITIES bid item(s) of CITY's successful bidder, TUSTIN agrees to cause the IRWD FACILITIES to be constructed as part of the contract awarded to such bidder, except that TUSTIN retains the right to reject all bids and not award a contract for the Project or the IRWD FACILITIES. The total engineer's estimate of construction cost for the IRWD FACILITIES, excluding design costs identified in Section 2, is **$6,681,430**; provided, however, the amount to be reimbursed by DISTRICT shall be based on the actual costs of construction. Upon award of the construction contract, TUSTIN shall provide DISTRICT with one (1) original copy of the fully executed contract documents and one (1) copy of the bid package relating to the IRWD FACILITIES received from the successful bidder.

SECTION 4. DESIGN REVISIONS AND CONSTRUCTION CHANGE ORDERS. TUSTIN and DISTRICT agree that if, during design or construction, TUSTIN requests or initiates any revision to the Plans and Specifications, then the cost of any such revision shall be borne by TUSTIN and shall not be reimbursed by DISTRICT, unless such revision and additional costs are necessary to construct the IRWD FACILITIES in accordance with the Construction Manual and not for the benefit of any third party, could not reasonably have been foreseen at the time of advertisement for bids for the Project and prior written approval thereof has been given by DISTRICT. DISTRICT shall reimburse TUSTIN for the cost of any revisions requested or initiated by DISTRICT. TUSTIN shall promptly furnish DISTRICT with copies of any

proposed design revisions and construction change orders to the Project contract within five (5) working days of initiation of changed conditions to such contract, which change orders shall be subject to DISTRICT approval if and to the extent any of the IRWD FACILITIES are affected thereby. DISTRICT will review and respond to proposed construction change orders affecting the IRWD FACILITIES within five (5) working days of receipt by DISTRICT. A design revision or construction change order or increase in the quantity of any unit price item over the bid quantity involving the IRWD FACILITIES shall be considered null and void for purposes of reimbursement hereunder unless approved in writing by both IRWD and TUSTIN authorized representatives. Nothing in this Agreement shall require IRWD to reimburse the cost of any design or construction costs that are incurred as a result of or to correct design errors or omissions or faulty work of the contractor or other parties retained by TUSTIN, and TUSTIN shall be responsible for recovering such costs from the applicable parties.

SECTION 5. REIMBURSEMENT. DISTRICT agrees to reimburse TUSTIN for the following costs (collectively, the "Costs"): (1) the actual costs of design and construction incurred by TUSTIN for the design and construction of the IRWD FACILITIES, including any project revisions and construction change orders that are reimbursable in accordance with Section 4 and a share of mobilization and demobilization corresponding to the IRWD FACILITIES bid schedule costs in proportion to all Project bid schedule costs, plus (2) an administration fee which shall be equal to four percent (4%) of the actual cost of construction (actual cost of construction is defined as costs paid directly to TUSTIN's contractor for construction only, excluding any cost for design, surveying, geotechnical or other work) of the IRWD FACILITIES. The administration fee shall be deemed to cover all costs of the IRWD FACILITIES project administration including, but not limited to, accounting, inspection, construction administration, submittal review, permits and rights-of way, surveying, geotechnical, bonds, insurance, and all other items not specifically included in the bid schedules for the IRWD FACILITIES. TUSTIN shall keep a separate accounting of all Costs incurred by TUSTIN in relation to the IRWD FACILITIES.

Within thirty (30) days following receipt by DISTRICT of a contractor invoice for DISTRICT's portion of a construction progress payment on a certified form provided by the contractor to TUSTIN, accompanied by supporting documentation as may be necessary to show the amounts which represent Costs of the IRWD FACILITIES, DISTRICT shall provide a progress payment to TUSTIN. As part security for the fulfillment of the obligations under this Agreement for construction of the IRWD FACILITIES, TUSTIN will retain, from progress

payments made to the contractor, 10% of such estimated value from each progress payment requested.

Within sixty (60) days of DISTRICT's acceptance of the IRWD FACILITIES as provided in Section 8, and filing a notice of completion, a final accounting of the Costs shall be made by TUSTIN and submitted to DISTRICT as a final invoice for the remaining Costs so found to be due after deducting therefrom all previous payments and shall include any supporting documentation necessary to show the amounts which represent remaining Costs of the IRWD FACILITIES. Within thirty (30) days of said final accounting, DISTRICT agrees to pay to TUSTIN the total amount of the remaining Costs. Within thirty (30) days of said final accounting, DISTRICT agrees to pay to TUSTIN the total amount of the Costs, less previous progress payments made by DISTRICT pursuant to the preceding paragraph. If the total of the previously made progress payments exceeds the Costs, TUSTIN shall refund the difference to DISTRICT within thirty (30) days of said final accounting.

SECTION 6. LAWS, ORDINANCES, RULES AND REGULATIONS. TUSTIN shall require in its contract for the construction of the IRWD FACILITIES that its contractor be fully informed of and comply with all laws, ordinances, rules and regulations, including, but not limited to, all applicable requirements of the California Labor Code, prevailing wage laws, the Construction Manual, and the Rules and Regulations of DISTRICT, in connection with the construction of the IRWD FACILITIES.

SECTION 7. INSPECTION. DISTRICT shall have sole and absolute discretion as to all aspects of design and construction of the IRWD FACILITIES, and DISTRICT shall be entitled to inspect the construction of the IRWD FACILITIES as it deems necessary to assure compliance with the approved Plans and Specifications, including shop drawing review and material inspection thereof. DISTRICT shall have access to all phases of the Project work to be performed by TUSTIN for the purpose of such inspection; provided, however, all questions and any field inspection issues and requests from DISTRICT regarding the work being performed shall be directed by DISTRICT to TUSTIN's resident engineer and not directly by DISTRICT to the contractor, but the foregoing is not intended to prohibit DISTRICT from discussing such issues and requests with the contractor. DISTRICT will promptly notify TUSTIN of any portion of the work on the IRWD FACILITIES which appears not to conform to the approved Plans and Specifications. The determination of DISTRICT as to conformity of the IRWD FACILITIES with the approved Plans and Specifications shall be made in DISTRICT's sole and absolute discretion. DISTRICT agrees not to unreasonably withhold its approval as to such conformity of

the IRWD FACILITIES with the approved Plans and Specifications, and DISTRICT agrees to defend and indemnify TUSTIN against all disputes related to a DISTRICT determination regarding conformity with approved Plans and Specifications. TUSTIN shall require its contractor to construct the IRWD FACILITIES so that the IRWD FACILITIES conform to the approved Plans and Specifications. TUSTIN agrees to assume full responsibility for certifying or obtaining certification of the compaction of backfill material in the trench zone over the IRWD FACILITIES. DISTRICT shall assume full responsibility for certifying or obtaining certification of the compaction of backfill material in the pipe bedding zone beneath and surrounding the IRWD FACILITIES.

SECTION 8. ACCEPTANCE. DISTRICT agrees to accept the IRWD FACILITIES when the IRWD FACILITIES have been completed by TUSTIN in accordance with all requirements of the approved Plans and Specifications, including any change orders approved by DISTRICT as provided in Section 4 hereof. At the time of completion and acceptance of the IRWD FACILITIES, TUSTIN agrees to furnish DISTRICT with one (1) copy of the contractor's redlined set of "record" drawings (showing all revisions, manufacturer and type of valves, pipe and fittings as required by DISTRICT) and one (1) copy of the compaction reports and certificate for the IRWD FACILITIES trench zones, survey notes and cut sheets.

SECTION 9. OWNERSHIP. It is mutually agreed between the parties hereto that notwithstanding the fact that TUSTIN shall accomplish the construction of the IRWD FACILITIES subject to reimbursement, the IRWD FACILITIES to be completed hereunder, together with the necessary franchises, licenses, easements, rights-of-way, and other privileges that are assigned and approved by TUSTIN, shall at all times be subject to the applicable rates, rules and regulations of DISTRICT, as modified or amended from time to time. TUSTIN hereby disclaims any interest in the IRWD FACILITIES and does hereby transfer and assign to DISTRICT any and all right, title, and interest it may have in the IRWD FACILITIES. DISTRICT shall own, operate and maintain the IRWD FACILITIES following acceptance thereof.

SECTION 10. GUARANTEES. TUSTIN will, pursuant to the requirement(s) of the approved Plans and Specifications, obtain from its contractor(s) for the IRWD FACILITIES a written guarantee of the IRWD FACILITIES against defects in workmanship and materials for a period of one (1) year from the date of acceptance by TUSTIN, which acceptance shall be given only after acceptance by DISTRICT as provided in Section 8. It is further agreed that TUSTIN shall cause the IRWD FACILITIES to be brought or restored to full compliance with the

requirements of the approved Plans and Specifications, including any test requirements, for any portions of the IRWD FACILITIES which during said one (1) year period are found not to be in conformance with the provisions of the approved Plans and Specifications. This guarantee is in addition to any and all other warranties, express or implied, from TUSTIN's contractors or material manufacturers, with respect to the IRWD FACILITIES. The guarantee and obligations under this section shall in no way be relieved by DISTRICT's inspection and/or acceptance of the IRWD FACILITIES. This section sets forth the entire guarantee and warranty of TUSTIN with respect to the IRWD FACILITIES. The express or implied warranties of other persons with respect to the IRWD FACILITIES shall in no way be limited by the guarantee and warranty of TUSTIN contained in this section. If requested by DISTRICT, TUSTIN agrees to assign to DISTRICT the contractor's guarantee as it relates to the IRWD FACILITIES and/or any other guarantees or warranties relating to the IRWD FACILITIES.

SECTION 11. INDEMNIFICATION. TUSTIN shall indemnify, defend and hold DISTRICT, its officers, agents, employees, and engineers harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen during construction of the IRWD FACILITIES as a result of any negligent or willful acts or omissions by TUSTIN with respect to the Project design or construction save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any act, omission, or negligence of DISTRICT, its officers, agents, employees or engineers or by any act or omission for which DISTRICT, its officers, agents, employees or engineers are liable without fault.

DISTRICT shall indemnify, defend and hold TUSTIN and SUCCESSOR AGENCY, and their elected and appointed officials, agents, and employees, harmless from any expense, liability or claim for death, injury, loss, damage or expense to persons or property which may arise or is claimed to have arisen either (i) as a result of any negligent acts or omissions by DISTRICT, its officers, agents, or employees, with respect to the IRWD FACILITIES design or construction; or (ii) following DISTRICT acceptance of the IRWD FACILITIES, with respect to maintenance and operation of the IRWD FACILITIES, save and except to the extent such expense, liability or claim is proximately caused in whole or in part by any negligence of TUSTIN, its elected and appointed officials, agents, employees or engineers, or by any act or omission for which TUSTIN, its elected and appointed officials, agents, employees or engineers are liable without fault.

SECTION 12. INSURANCE AND BONDING. TUSTIN shall cause its contractor(s) to provide performance and payment bonds for the construction of the Project including the IRWD FACILITIES and to include DISTRICT, its officers, agents, employees and engineers, as additional insureds on all liability insurance policies that TUSTIN requires its contractor(s) to provide. As evidence of such insurance coverage, TUSTIN shall, prior to commencement of construction of the IRWD FACILITIES, provide DISTRICT with copies of certificates of insurance and insurance endorsements from TUSTIN's contractor(s).

SECTION 13. TERMINATION. Either party shall have the right to terminate this Agreement at any time prior to DISTRICT's approval of one or more of the IRWD FACILITIES bid item(s) as set forth in Section 3 by providing twenty-four (24) hours prior written notice to the other party. If at the request or direction of a party other than TUSTIN, the construction of the IRWD FACILITIES is not accomplished or completed, DISTRICT shall remain obligated for the actual amount of the Costs incurred by TUSTIN.

If TUSTIN's Project is canceled or modified so as to eliminate the necessity of the construction of the IRWD FACILITIES, TUSTIN shall have the right to terminate this Agreement and thereby terminate its obligation to construct the IRWD FACILITIES, by providing five (5) business days' prior written notice to DISTRICT. In such case, DISTRICT will not be obligated for any design or any other Costs incurred by TUSTIN. If IRWD elects to construct the IRWD FACILITIES, DISTRICT shall be obligated to acquire the design work from TUSTIN by separate agreement.

SECTION 14. NOTICE. Any notice or other written instrument required or permitted by this Agreement to be given to either party shall be deemed received when personally served or twenty-four (24) hours after being deposited in the U.S. Mail, postage prepaid, registered or certified, return receipt requested and addressed as follows:

DISTRICT: Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000
Attn: General Manager

TUSTIN: City of Tustin
300 Centennial Way
Tustin, CA 92780
Attn: Director of Public Works/City Engineer/Assistant Executive Director

SECTION 15. SUCCESSORS AND ASSIGNS; INTEGRATION; AMENDMENT. This Agreement shall be binding upon and inure to the benefit of the successor and assigns of TUSTIN and DISTRICT. This Agreement constitutes the entire Agreement between TUSTIN and DISTRICT and supersedes all prior understandings and agreements between the parties with respect to the subjects hereof. This Agreement may be modified only in writing signed by both parties hereto.

SECTION 16. LEGAL FEES. In the event of any declaratory or other legal or equitable action instituted between TUSTIN and DISTRICT in connection with this Agreement, the prevailing party shall be entitled to recover from the losing party its reasonable costs and expenses, including court costs and reasonable attorneys' fees.

SECTION 17. SEVERABILITY. If any term, provision, covenant or condition of this Agreement is held to be invalid, void or other unenforceable, to any extent, by any court of competent jurisdiction, the remainder of this Agreement shall not be affected thereby, and each term provision, covenant or condition of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

SECTION 18. APPLICABLE LAW. This Agreement shall be construed and enforced in accordance with the laws of the State of California.

SECTION 19. WAIVER. The waiver of any provision of this Agreement by either party shall not be deemed to be a waiver of any other provision or of any preceding or subsequent breach hereunder.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the parties to the Agreement execute this Agreement.

IRVINE RANCH WATER DISTRICT

By_____ Dated_____
Paul Cook, General Manager

ATTEST:

By_____ Dated_____
Secretary/Assistant Secretary

APPROVED AS TO FORM:

By_____ Dated_____
Legal Counsel, IRWD

CITY OF TUSTIN

By_____ Dated_____
Elwyn A. Murray, Mayor

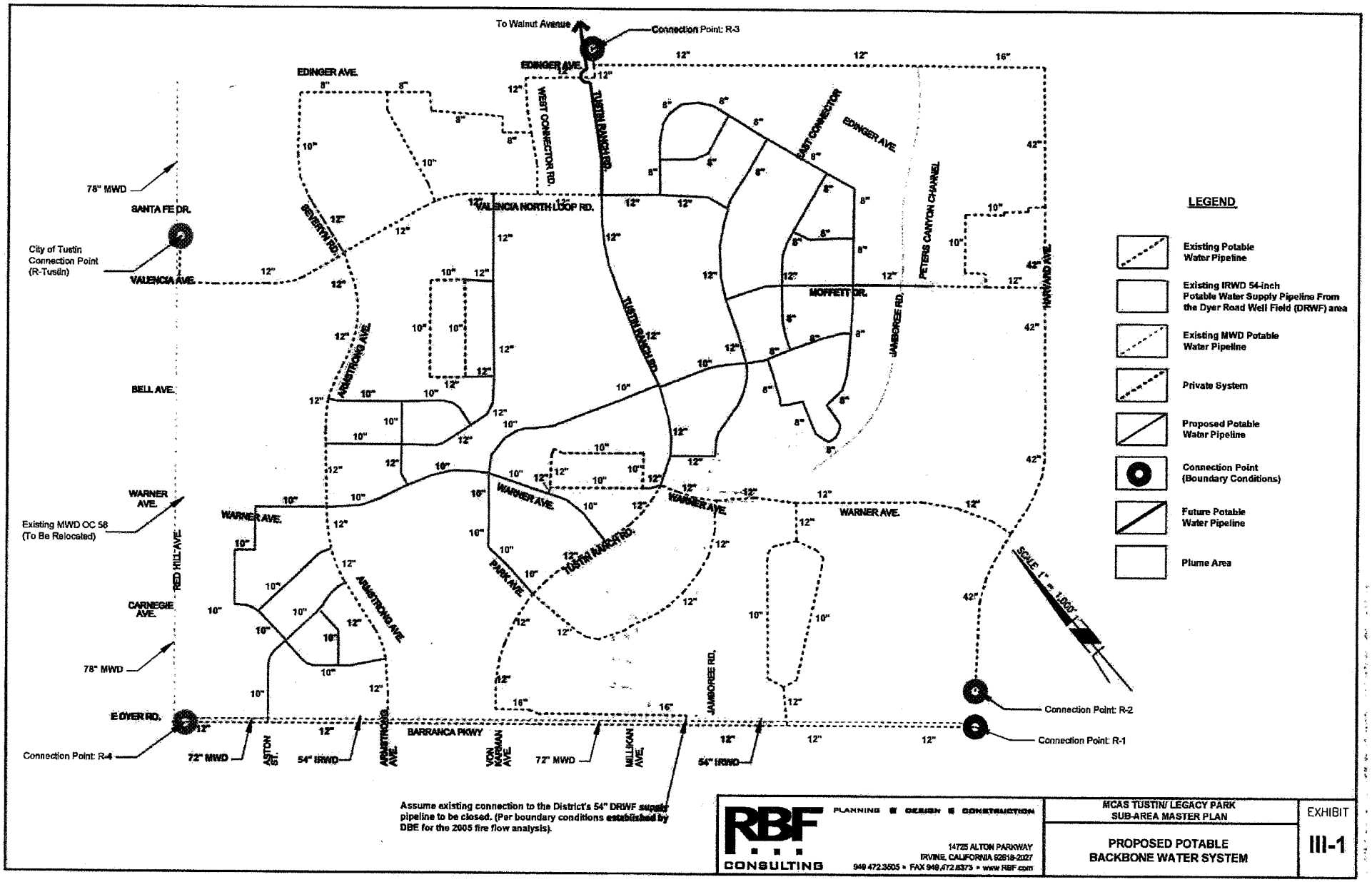
ATTEST:

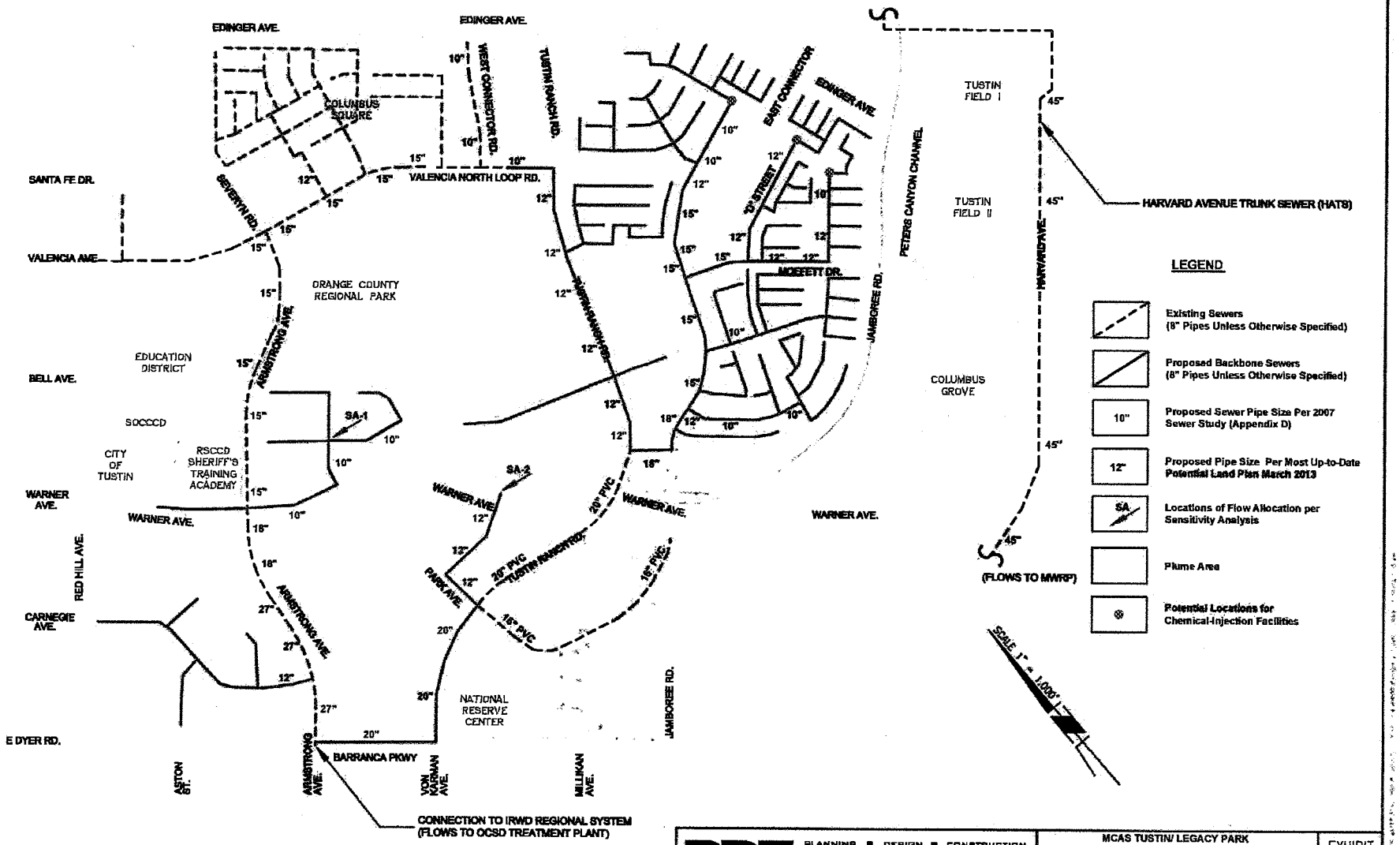
By_____ Dated_____
City Clerk

APPROVED AS TO FORM:

By_____ Dated_____
City Attorney

EXHIBIT "B"


To Walnut Avenue
Connection Point: R-3
EDINGER AVE.
WEST CONNECTOR RD.
TUSTIN RANCH RD.
EAST CONNECTOR
PETERS CANYON CHANNEL
78" MWD
SANTA FE DR.
City of Tustin Connection Point (R-Tustin)
VALENCIA AVE.
SEVENTH RD.
VALENCIA NORTH LOOP RD.
MOFFETT DR.
JAMBOREE RD.
ARMSTRONG AVE.
BELL AVE.
WARNER AVE.
Existing MWD OC 58 (To Be Relocated)
RED HILL AVE.
PARK AVE.
CARNEGIE AVE.
78" MWD
E DYER RD.
Connection Point: R-4
72" MWD
ASTON ST.
54" IRWD
BARRANCA PKWY
VON KARMAN AVE
MICHELSON
Connection Point: R-2
Connection Point: R-1
SCALE 1" = 1000'
LEGEND
Existing Potable Water Pipeline
Existing IRWD 54-inch Potable Water Supply Pipeline From the Dyer Road Well Field (DRWF) area
Existing MWD Potable Water Pipeline
Private System
Proposed Potable Water Pipeline
Connection Point (Boundary Conditions)
Future Potable Water Pipeline
Plume Area
Assume existing connection to the District's 54" DRWF supply pipeline to be closed. (Per boundary conditions established by DBE for the 2005 fire flow analysis).
RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
14725 ALTON PARKWAY
IRVINE, CALIFORNIA 92618-2027
949.472.3505 • FAX 949.472.8373 • www.RBF.com
MCAS TUSTIN/ LEGACY PARK
SUB-AREA MASTER PLAN
PROPOSED POTABLE
BACKBONE WATER SYSTEM
EXHIBIT
III-1



RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
14725 ALTON PARKWAY
IRVINE, CALIFORNIA 92618-2027
949.472.3505 • FAX 949.472.8373 • www.RBF.com

MCAS TUSTIN/ LEGACY PARK
SEWER SYSTEM ALTERNATIVES

PROPOSED SEWER COLLECTION SYSTEM (ALTERNATIVE 1A)

EXHIBIT V-2

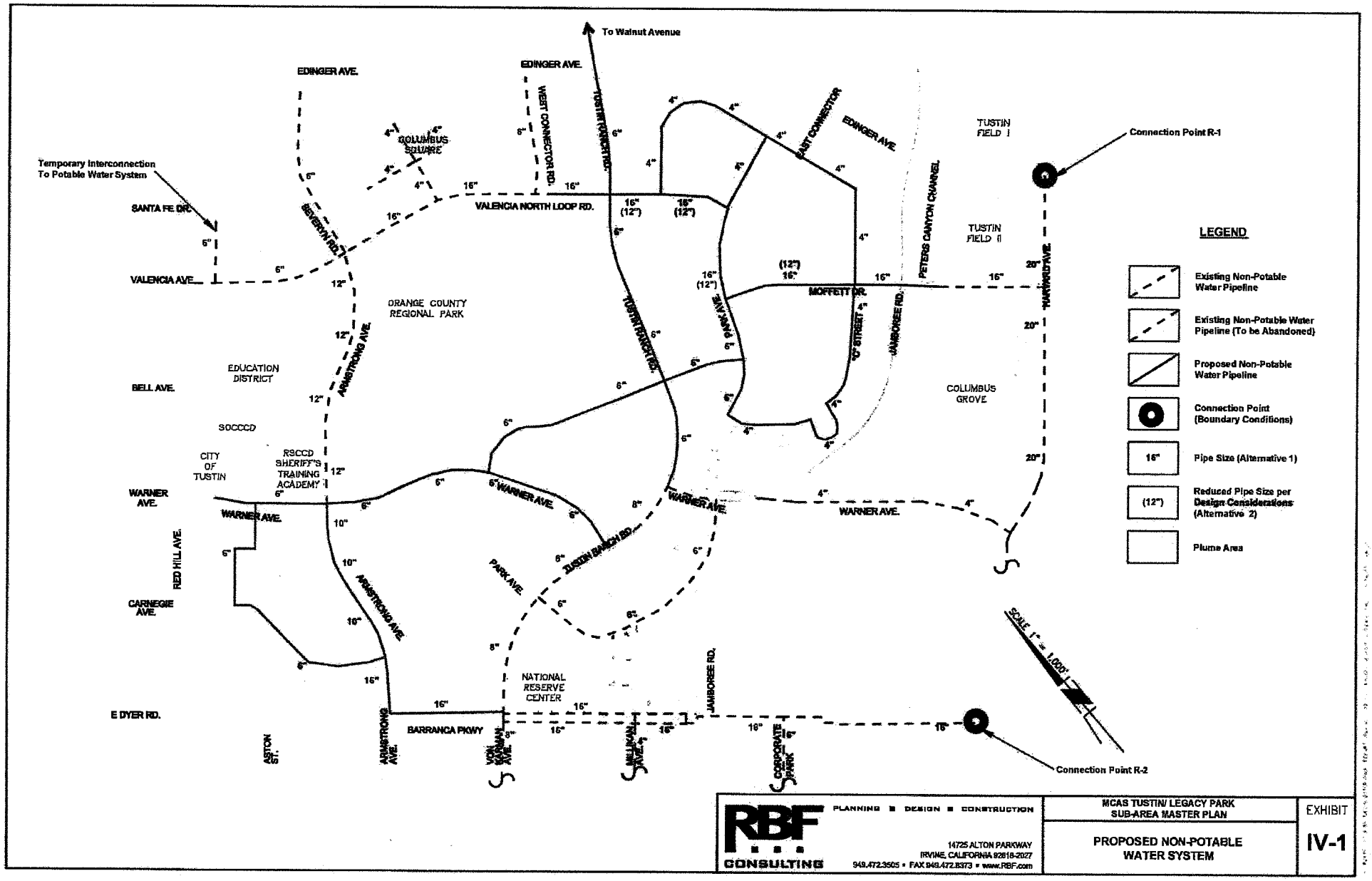

To Walnut Avenue
EDINGER AVE.
EDINGER AVE.
WEST CONNECTOR RD.
TUSTIN RANCH RD.
EAST CONNECTOR
EDINGER AVE.
TUSTIN FIELD I
Connection Point R-1
Temporary Interconnection To Potable Water System
SANTA FE DR.
COLUMBUS SQUARE
VALENCIA NORTH LOOP RD.
PETERS CANYON CHANNEL
TUSTIN FIELD II
BEVERLY RD.
VALENCIA AVE.
ORANGE COUNTY REGIONAL PARK
MOFFETT DR.
"C" STREET
JAMBOREE RD.
PARK AVE.
TUSTIN RANCH RD.
HARVARD AVE.
ARMSTRONG AVE.
EDUCATION DISTRICT
BELL AVE.
SOCCCD
COLUMBUS GROVE
CITY OF TUSTIN
RSCCD SHERIFF'S TRAINING ACADEMY
WARNER AVE.
WARNER AVE.
WARNER AVE.
WARNER AVE.
WARNER AVE.
JUSTIN RANCH RD.
PARK AVE.
RED HILL AVE.
CARNEGIE AVE.
ARMSTRONG AVE.
NATIONAL RESERVE CENTER
JAMBOREE RD.
E DYER RD.
ASTON ST.
ARMSTRONG AVE.
BARRANCA PKWY
VON KARMAN AVE.
MILLIKAN AVE.
CORPORATE PARK
Connection Point R-2
SCALE 1" = 1,000'
LEGEND
Existing Non-Potable Water Pipeline
Existing Non-Potable Water Pipeline (To be Abandoned)
Proposed Non-Potable Water Pipeline
Connection Point (Boundary Conditions)
16" Pipe Size (Alternative 1)
(12") Reduced Pipe Size per Design Considerations (Alternative 2)
Plume Area
RBF CONSULTING
PLANNING ■ DESIGN ■ CONSTRUCTION
14725 ALTON PARKWAY
IRVINE, CALIFORNIA 92618-2027
949.472.3505 • FAX 949.472.8373 • www.RBF.com
MCAS TUSTIN/ LEGACY PARK
SUB-AREA MASTER PLAN
PROPOSED NON-POTABLE WATER SYSTEM
EXHIBIT
IV-1

EXHIBIT "C"

The R.J. NOBLE Company

15505 E. LINCOLN AVE.. PO BOX 620 ORANGE, CA 92856
TEL: (714) 637-1550 FAX: (714) 637-8321
ENGINEERING CONTRACTOR
LICENSE # A-782908

To:	City of Tustin	**Contact:**	
Address:	300 Centennial Way	**Phone:**	(714) 573-3000
	Tustin, CA 92780-3767	**Fax:**	
Project Name:	Barranca Parkway Improvements	**Bid Number:**	
Project Location:	Red Hill Ave To Tustin Ranch Road, Tustin, CA	**Bid Date:**	5/24/2013

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
3					
03001	MOBILIZATION	1.00	LS	$12,000.00	$12,000.00
03002	CONST. SURVEY, STAKING, SURVEY MON	1.00	LS	$2,300.00	$2,300.00
03003	DEVELOP CONSTRUCTION WATER	1.00	UNIT	$2,500.00	$2,500.00
03004	DUST CONTROL AND CLEAN UP	1.00	LS	$4,500.00	$4,500.00
03005	SWPP AND BMPS	1.00	LS	$3,500.00	$3,500.00
03006	TRAFFIC CONTROL	1.00	UNIT	$22,000.00	$22,000.00
03007	CLEARING AND GRUBBING	1.00	LS	$5,000.00	$5,000.00
03009	Bonds / Insurance	1.00	LS	$18,000.00	$18,000.00
03137	INSTALL 12" AWWA C-900	15.00	LF	$147.00	$2,205.00
03138	INSTALL 12" DW BUTTERFLY VALVE	2.00	EACH	$5,460.00	$10,920.00
03139	INSTALL 12"X12"X12" DI TEE	1.00	EACH	$4,725.00	$4,725.00
03140	INSTALL 12" DI GLANGED COUPLING ADAPTER WITH 316 STAINLESS STEEL NUTS	1.00	EACH	$1,575.00	$1,575.00
03141	INSTALL 12" DW BUTTERFLY VALVE (FE X FE) & VALVE BOX	2.00	EACH	$5,460.00	$10,920.00
03142	INSTALL BLOW-OFF ASSEMBLY	1.00	EACH	$7,350.00	$7,350.00
03143	INSTALL CUT-IN TEE FOR AC PIPE	1.00	EACH	$9,975.00	$9,975.00
03144	R&R EXISITNG AC PAVEMENT	1,100.00	SF	$1.95	$2,145.00
03145	INSTALL 12" FLEX TRANSITION COUPLING	2.00	EACH	$1,890.00	$3,780.00
03146	INSTALL 12" CML&FULLY WELDED STEEL PIPE	4.00	EACH	$1,575.00	$6,300.00
03147	INSTALL 12" CML&C FULLY WELDED PIPE	201.00	EACH	$385.00	$77,385.00
03148	INSTALL CASING TEST STATION	2.00	EACH	$2,730.00	$5,460.00
03149	REMOVE & DISPOSE EXISTING PORTIONS OF 8" WATER LINE	192.00	LF	$89.00	$17,088.00
03150	INSTALL 20" STEEL CASING FOR WATER PIPE	20.00	LF	$546.00	$10,920.00
03151	INSTALL 2 WIRE TEST STATION	2.00	EACH	$2,415.00	$4,830.00
03152	INSTALL WELD ON FLANGE FOR CMB& C PIPE	2.00	EACH	$840.00	$1,680.00
03153	INSTALL CASING TEST STATION	2.00	EACH	$2,730.00	$5,460.00
03154	INSTALL WELD ON FLANGE FOR CML&C PIPE	4.00	EACH	$1,890.00	$7,560.00
03155	INSTALL 16" RW BUTTERFLY VALVE	2.00	EACH	$6,825.00	$13,650.00
03156	INSTALL 16" AWWA C-905 PVC PURPLE PIPE	1,255.00	LF	$168.00	$210,840.00
03157	INSTALL 16"X16" DI TEE(FE XFE) W-16	1.00	EACH	$5,040.00	$5,040.00
03158	INSTALL 16" 22.5 DEGREE DI BEND	2.00	EACH	$2,625.00	$5,250.00
03159	INSTALL 16" 90 DEGREE DI BEND	2.00	EACH	$2,940.00	$5,880.00
03160	INSTALL 16" CML&C FULLY WELDED STEEL PIPE 45 DEGREE ELBOW	4.00	EACH	$2,310.00	$9,240.00
03161	INSTALL 16" CML&C FULLY WELDED STEEL PIPE,, MINIMUM WORKING PRESSURE	187.00	EACH	$336.00	$62,832.00
03162	INSTALL 16" FLEX TRANSITION COUPLING WIHT STAINLESS ESTEEL RESTRAINING HARNES	1.00	EACH	$3,255.00	$3,255.00
03163	REMOVE & REPLACE EXISTING AC PAVEMENT	1,240.00	SF	$7.85	$9,734.00
03164	R&R EXISTING CONCRETE MEDIAN & TRAFFIC SIGN	50.00	SF	$40.03	$2,001.50
03165	REMOVE 16" 90 DEGREE DI BEND	1.00	EACH	$2,730.00	$2,730.00

Item #	Item Description	Estimated Quantity	Unit	Unit Price	Total Price
03166	INSTALL TEMPORARY FLUSH OUT ASSEMBLY	1.00	EACH	$4,200.00	$4,200.00
03167	R&R EXISTING CURB & GUTTER	9.00	SF	$132.84	$1,195.56
03168	INSTALL TWO WIRE TEST STATION	2.00	EACH	$2,415.00	$4,830.00
03169	INSTALL BLOW- OFF ASSEMLY	2.00	EACH	$6,510.00	$13,020.00
03170	INSTALL 24" STEEL CASING FOR RECYCLED WATER PIPE	40.00	LF	$546.00	$21,840.00
03171	~~INSTALL FIRE HYDRANT PER IRWD~~	~~1.00~~	~~EACH~~	~~$6,510.00~~	~~$6,510.00~~
03172	~~INSTALL 2" COPPER SERVICE~~	~~1.00~~	~~EACH~~	~~$2,625.00~~	~~$2,625.00~~
				Total Price for above 3 Items:	**$644,751.06**

Total Bid Price: ~~$644,751.06~~

635,616.06

Notes:

- ITEMS TO BILL WILL BE BASED ON UNIT PRICES. FIELD MEASURMENTS WILL APPLY.
- BID IS BASED ON PRELIMINARY PLANS. PRICES WILL BE ADJUSTED WITH FINAL APPROVED PLANS.
- PAVING SECTION IS APPROXIMATE AND PRICE WILL BE ADJUSTED WHEN FINAL SECTION IS DETERMINED.
- NOT INCLUDED: ENGINEERING, TESTING, PERMITS OR BONDS.
- PRICES INCLUDE ONE MOVE IN.
- PRICES GOOD THROUGH 12/31/2013.
- PRICES BASED ON CONSTRUCTING THE RCB AND SEWER AT THE SAME TIME

Payment Terms:

BILLING AND PAYMENT PER THE TUSTIN RANCH ROAD SPECIFICATIONS AND CONTRACT WITH THE CITY OF TUSTIN AND R.J. NOBLE COMPANY

ACCEPTED: The above prices, specifications and conditions are satisfactory and are hereby accepted. **Buyer:** _____ **Signature:** _____ **Date of Acceptance:** _____	**CONFIRMED:** **R.J. NOBLE COMPANY** **Authorized Signature:** _____ **Estimator:** Steve Mendoza SteveMendoza@RJNobleCompany.com

EXHIBIT "D"

IRVINE RANCH WATER DISTRICT

Expenditure Authorization

Project Name: TUSIN LEGACY-TUSTIN RANCH, BARRANCA & ARMSTRONG DW
EPMS Project No: 11714 **EA No:** 1
Oracle Project No: 4366
Project Manager: CORTEZ, MALCOLM
Project Engineer: LEW, KELLY
Request Date: August 28, 2013

ID Split: Miscellaneous

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
113	100.0	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$0
This Request:	$343,200
Total EA Requests:	$343,200
Previously Approved Budget:	$162,800
Budget Adjustment Requested this EA:	$180,400
Updated Budget:	$343,200
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING DESIGN - IRWD	10,000	0	10,000	2,000	8,000	10,000	*4/13*	*8/13*
ENGINEERING DESIGN - OUTSIDE	20,000	0	20,000	10,000	10,000	20,000	*4/13*	*8/13*
DESIGN STAFF FIELD SUPPORT	5,000	0	5,000	0	5,000	5,000	*4/13*	*8/13*
ENGINEERING - CA&I IRWD	15,000	0	15,000	5,000	10,000	15,000	*9/13*	*4/14*
ENGINEERING - CA&I OUTSIDE	30,000	0	30,000	22,000	8,000	30,000	*9/13*	*4/14*
CONSTRUCTION FIELD SUPPORT	10,000	0	10,000	5,000	5,000	10,000	*9/13*	*4/14*
CONSTRUCTION	220,000	0	220,000	120,000	100,000	220,000	*9/13*	*4/14*
LEGAL	2,000	0	2,000	0	2,000	2,000	*4/13*	*4/14*
Contingency - 10.00% Subtotal	$31,200	$0	$31,200	$16,400	$14,800	$31,200		
Subtotal (Direct Costs)	$343,200	$0	$343,200	$180,400	$162,800	$343,200		
Estimated G/A - 170.00% of direct labor*	$68,000	$0	$68,000	$20,400	$47,600	$68,000		
Total	$411,200	$0	$411,200	$200,800	$210,400	$411,200		
Direct Labor	$40,000	$0	$40,000	$12,000	$28,000	$40,000		

***EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.**

EA Originator: Kelly Lew 10/2/13

Department Director: Laura L Burton 10/4/13

Finance: [signature] 10/10/13

Board/General Manager:

**** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $42(is further described in the attached staff report and additional documents, if any, which are hereby incorporate official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.150-2**

IRVINE RANCH WATER DISTRICT

Expenditure Authorization

Project Name: TUSIN LEGACY-TUSTIN RANCH, BARRANCA & ARMSTRONG RW
EPMS Project No: 31714 **EA No:** 1
Oracle Project No: 4368
Project Manager: CORTEZ, MALCOLM
Project Engineer: LEW, KELLY
Request Date: August 28, 2013

ID Split: Miscellaneous

Improvement District (ID) Allocations

ID No.	Allocation %	Source of Funds
213	100.0	BONDS YET TO BE SOLD**
Total	**100.0%**	

Summary of Direct Cost Authorizations

Previously Approved EA Requests:	$0
This Request:	$689,700
Total EA Requests:	$689,700
Previously Approved Budget:	$160,600
Budget Adjustment Requested this EA:	$529,100
Updated Budget:	$689,700
Budget Remaining After This EA	$0

Comments:

Phase	This EA Request	Previous EA Requests	EA Requests to Date	This Budget Request	Previous Budget	Updated Budget	Start	Finish
ENGINEERING DESIGN - IRWD	20,000	0	20,000	12,000	8,000	20,000	4/13	8/13
ENGINEERING DESIGN - OUTSIDE	45,000	0	45,000	35,000	10,000	45,000	4/13	8/13
DESIGN STAFF FIELD SUPPORT	10,000	0	10,000	5,000	5,000	10,000	4/13	8/13
ENGINEERING - CA&I IRWD	20,000	0	20,000	10,000	10,000	20,000	9/13	4/14
ENGINEERING - CA&I OUTSIDE	40,000	0	40,000	32,000	8,000	40,000	9/13	4/14
CONSTRUCTION FIELD SUPPORT	10,000	0	10,000	5,000	5,000	10,000	9/13	4/14
CONSTRUCTION	480,000	0	480,000	380,000	100,000	480,000	9/13	4/14
LEGAL	2,000	0	2,000	2,000	0	2,000	4/13	4/14
Contingency - 10.00% Subtotal	$62,700	$0	$62,700	$48,100	$14,600	$62,700		
Subtotal (Direct Costs)	$689,700	$0	$689,700	$529,100	$160,600	$689,700		
Estimated G/A - 170.00% of direct labor*	$102,000	$0	$102,000	$54,400	$47,600	$102,000		
Total	$791,700	$0	$791,700	$583,500	$208,200	$791,700		
Direct Labor	$60,000	$0	$60,000	$32,000	$28,000	$60,000		

***EA includes estimated G&A. Actual G&A will be applied based on the current ratio of direct labor to general and administrative costs.**

EA Originator: Kelly Lew 10/2/13

Department Director: Kevin L. Burton 10/4/13

Finance: 10/10/13

Board/General Manager:

**** IRWD hereby declares that it reasonably expects those expenditures marked with two asterisks to be reimbursed with proceeds of future debt to be incurred by IRWD in a maximum principal amount of $ ect is further described in the attached staff report and additional documents, if any, which are hereby incorpor of official intent to reimburse costs of the above-captioned project is made under Treasury Regulation Section 1.15(**

October 28, 2013
Prepared by: Christopher Smithson
Submitted by: Cheryl Clary
Approved by: Paul Cook

ACTION CALENDAR

DECLARE INTENT TO ANNEX/DETACH PARCELS TO FORM IMPROVEMENT DISTRICT (ID) 153/253 AND DECLARE INTENT TO FORM ID 185/285 AND ADOPT PLANS OF WORKS FOR NEWLY FORMING IDS

SUMMARY:

In early 2011, IRWD undertook a process to review and, if appropriate, develop modifications to the District's current capital funding plan. The focus of the review has been to identify issues with the District's existing capital funding plan and to consider adjustments that would improve and update the plan as the District approaches build-out, when its focus will transition to ongoing operations and maintenance activities. The review process has included the input and direction from the Finance and Personnel Committee (Committee), the Board, as well as input from interested outside participants (Working Group) which includes representatives from the development community and allows them to provide input as staff develops its updated Long-Term Capital Funding Plan (LTFP).

The LTFP process resulted in a recommendation for a master consolidation plan that focused on combining developed and developing areas into separate improvement districts (IDs). As part of the reorganization of IDs, the California Water Code requires that a Plan of Works (POW) document be completed. A POW provides the linkage between the engineering plan to fund the necessary infrastructure and the corresponding financial requirements. Staff anticipates the adoption of six new POWs as a result of implementing the District's master consolidation plan. The Board of Directors must adopt each POW in a noticed hearing.

This consolidation process requires three Board meetings. The Board adopted a resolution at its October 14, 2013 Board meeting declaring the intent to annex and detach parcels from 21 ID's to form the coterminous ID's that will be consolidated as ID 125/225.

The October 28, 2013 meeting requires that the Board:

1. Hold a public hearing ordering the annexations and detachments of the 21 ID's that will form ID 125/225;
2. Declare the intent to consolidate the coterminous IDs into the developed ID 125/225;
3. Declare the intent to annex and detach parcels in order to form the developing ID 153/253;
4. Declare the intent to form IDs 185/285 which is made up of a portion of the Opportunity Study Area currently included in IDs 135/235; and
5. Declare the intent to adopt Plans of Works (POW) for the new formations 125/225, 153/253, and 185/285.

Staff recommends that the Board adopt these resolutions.

BACKGROUND:

At the Committee meeting in August 2012, staff presented a proposed four-step work plan, addressing specific tasks that would need to be completed before changes to the current capital funding plan can be assessed and implemented. The Committee authorized staff to proceed with Task 1 of the Work Plan which included an assessment of 1) the impacts of leaving the current capital funding plan unchanged in future years, and 2) modifications to the baseline by applying certain working assumptions. The two scenarios were developed to identify issue areas and provide the basis for evaluating the effects of further changes.

The next step identified a modified baseline that considered alternatives to addressing the challenges the District would face if the course remained unchanged. Changes included:

- Revising the current new capital and enhancement definitions;
- Including the ID 110/210 area in future capital funding; and
- Using 1% revenues to fund enhancement and replacement projects with any remaining amounts allocated at the discretion of the Board.

Staff presented the Baseline and the Modified Baseline to the Board at the June 28, 2013 workshop. The applied changes improved the financial position of several IDs, but in many cases, additional adjustments would be required for ID financial sustainability. In some cases, general obligation authority would not be available to fund future capital. Staff reviewed with the Committee a master consolidation plan that focused on consolidating developed and developing areas into separate IDs.

Consolidation of IDs:

Consolidating existing IDs into developed and developing IDs provides a solution which addresses current issues including financial viability for the remaining IDs and having sufficient general obligation authority to fund future infrastructure. The recommended master consolidation uses a globalized approach that provides a fair and equitable method to allocate capital infrastructure costs that links the fees paid with the benefits received.

As part of the reorganization of IDs, the California Water Code requires that a POW document be completed. A POW provides the linkage between the engineering plan to fund the necessary infrastructure and the corresponding financial requirements. An integral part of a POW is a benefits analysis which supports that the engineering plan benefits the entire territory infrastructure included within a specific ID. Staff anticipates the adoption of six new POW's as a result of implementing the District's master consolidation plan. The draft POW's are included as Exhibits "D" through "I".

In order to complete this process, the Board must take certain steps in a manner proscribed by legal counsel, with sufficient time in between to provide published notice of the meetings. This series of items will go to the Board on three separate occasions as follows:

Date	Board Calendar	Explanation
10/14/2013 **Completed**	Board Action Item: • Declare Intent to Annex and detach parcels from 21 IDs to form the coterminous IDs that will be consolidated as ID 125/225(the developed/underlay ID).	Maps must be completed before the Board declares the intent to annex. All maps were completed and submitted to the County on or before October 8, 2013.
Date	**Board Calendar**	**Explanation**
10/28/2013	Public Hearing: • Hearing/Order annexations and detachments, 21 IDs - 125/225(the developed/underlay ID) • Declare intent to consolidate coterminous IDs, 21 IDs - 125/225 • Declare intent to annex and detach parcels, ID 153/253 (the developing ID) • Declare intent to form IDs 185/285 (portion of the Opportunity Study Area currently in ID 135/235) • Declare intent to adopt POWs, 125/225, 153/253, 185/285	Notice of these actions must be published two times before the public hearing. Declaring intention to consolidate requires a 4/5 affirmative vote of the Board of Directors.
11/11/2013	Public Hearing: • Hearing/Order consolidation of coterminous IDs, 21 IDs - 125/225 • Hearing/Order annexations and detachments, ID 153/253 • Hearing/Order formation, ID 185/285 • Hearing/Adopt POWs	Notice of these actions must be published two times after the October 14, 2013 public hearing and before this public hearing.

At the Board meeting on 10/14/2013, the Board declared its intent to annex and detach parcels from 21 IDs to form the coterminous IDs that will be consolidated as ID 125/225 (the developed/underlay ID). The next associated step is for the Board to declare intent to consolidate the coterminous IDs into 125/225. In addition, staff recommends that the Board approve the following:

- Declare intent to annex and detach parcels to form the developing ID 153/253;
- Declare intent to form the IDs 185/285; and
- Declare intent to adopt POWs for the developed ID 125/225, the developing ID 153/253, and the portion of the opportunity study currently located in 135/235, identified as 185/285.

These are included as resolutions in Exhibits "A" through "C".

FISCAL IMPACTS:

The net fiscal impacts will be minimal to the District as a whole and vary based on the improvement district.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

The process culminating in this action has been discussed at several Committee and Board meetings over the past few years.

RECOMMENDATION:

THAT THE BOARD ADOPT THE FOLLOWING RESOLUTIONS BY TITLE:

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
IRVINE RANCH WATER DISTRICT DECLARING ITS
INTENTION TO DETACH SPECIFIED TERRITORY FROM,
AND TO ANNEX SPECIFIED TERRITORY TO
IMPROVEMENT DISTRICT NOS. 153 AND 253
AND ADOPT AMENDED PLANS OF WORKS
FOR SAID IMPROVEMENT DISTRICTS

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
IRVINE RANCH WATER DISTRICT DECLARING ITS
INTENTION TO FORM IMPROVEMENT DISTRICT NO. 185
AND TO ADOPT A PLAN OF WORKS THEREFOR

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
IRVINE RANCH WATER DISTRICT DECLARING ITS
INTENTION TO FORM IMPROVEMENT DISTRICT NO. 285
AND TO ADOPT A PLAN OF WORKS THEREFOR

LIST OF EXHIBITS:

Exhibit "A" – Resolution Declaring Intent to Form IDs 153/253
Exhibit "B" – Resolution Declaring Intent to Form ID 185
Exhibit "C" – Resolution Declaring Intent to Form ID 285
Exhibit "D" – Draft Plan of Works ID 125
Exhibit "E" – Draft Plan of Works ID 225
Exhibit "F" – Draft Plan of Works ID 153
Exhibit "G" – Draft Plan of Works ID 253
Exhibit "H" – Draft Plan of Works ID 185
Exhibit "I" – Draft Plan of Works ID 285

EXHIBIT "A"

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE
IRVINE RANCH WATER DISTRICT DECLARING ITS
INTENTION TO DETACH SPECIFIED TERRITORY FROM,
AND TO ANNEX SPECIFIED TERRITORY TO
IMPROVEMENT DISTRICT NOS. 153 AND 253
AND ADOPT AMENDED PLANS OF WORKS
FOR SAID IMPROVEMENT DISTRICTS

WHEREAS, the Irvine Ranch Water District ("IRWD") has established various improvement districts for the purpose of acquiring and constructing works and facilities to provide water service for the benefit of the lands within such improvement districts, including Improvement District No. 153 of IRWD; and

WHEREAS, IRWD has established various improvement districts for the purpose of acquiring and constructing works and facilities to provide sewer and recycled water service for the benefit of the lands within such improvement districts, including Improvement District No.253 of IRWD; and

WHEREAS, it is the opinion of the Board of Directors of IRWD that the below-designated annexations (the "Annexations") and detachments (the "Detachments"), each as described and depicted in the exhibit hereto listed opposite each such annexation or detachment, should be ordered upon the terms and conditions set forth herein:

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 153 [Exhibits A1 and B1];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 153 [Exhibits A2 and B2];

ANNEXATION NO. 1 TO IMPROVEMENT DISTRICT NO. 253 [Exhibits A3 and B3];
DETACHMENT NO. 1 FROM IMPROVEMENT DISTRICT NO. 253 [Exhibits A4 and B4];

WHEREAS, the Board of Directors of IRWD has been presented with a draft plan of works for each of Improvement District Nos. 153 and 253, amending and superseding the respective existing plans of works for said improvement districts.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District DOES HEREBY RESOLVE, DETERMINE and ORDER as follows:

Section 1. Pursuant to Sections 36428 *et seq.* and Sections 36442 *et seq.*, respectively, of the Water Code, the Board of Directors hereby states its intention to order the Annexations and Detachments.

Section 2. Maps showing the exterior boundaries of the territories to be annexed and the territories to be detached, which maps shall govern for all details as to the extent of the territories to be annexed and territories to be detached, are referenced by the exhibit designations listed in the recitals hereof opposite the respective Annexations and Detachments and are on file with the Secretary of IRWD and are available for inspection by any interested person.

Section 3. The Annexations and Detachments shall be subject to the following terms and conditions:

(a) From and after the date of Annexations, the properties annexed shall be liable for debt service on all currently outstanding and future bonds of the respective improvement district to which they are annexed (including any bonds of a predecessor improvement district with respect to which any improvement district is obligated);

(b) From and after the date of Detachments, to the extent permitted by law, the properties detached shall be relieved of liability for debt service on all currently outstanding and future bonds of the respective improvement district from which they are detached (including any bonds of a predecessor improvement district with respect to which any improvement district is obligated);

(c) IRWD shall pay the costs incurred by IRWD in accomplishing the Annexations and Detachments, including legal, engineering and administrative costs, and all processing fees of the County of Orange and/or the State Board of Equalization.

Section 4. Assessments for carrying out any of the respective purposes of Improvement District Nos. 153 and 253, including the payment of principal of and interest on any outstanding bonds or warrants of said Improvement Districts, shall be levied exclusively on the lands in said Improvement Districts, including the properties to be annexed to each of the Improvement Districts. If revenues are used for carrying out any of the respective purposes of Improvement District Nos. 153 and 253, including the payment of principal of and interest on any outstanding revenue bonds of said Improvement Districts, such revenues shall be limited to revenues derived from the operation of the Improvement District works, including those serving the properties annexed.

Section 5. Monday, November 11, 2013, at the hour of 5:00 p.m. of said day (or as soon thereafter as is reasonably practicable) in the Board of Directors Room of Irvine Ranch Water District, 15600 Sand Canyon Avenue, Irvine, California, be and the same are hereby fixed by this Board of Directors as the time and place for a hearing on the question of the above-listed Annexations and Detachments and any other matter related to any of the foregoing.

Section 6. At the time and place fixed in Section 5 or at any time or place to which such hearing may be continued, any person interested, including any person owning land included within the properties to be annexed or to be detached, may appear and be heard concerning any matter set forth in this resolution of intention.

Section 7. The Secretary is directed to publish notice of such hearing by publishing a copy of this resolution once a week for two successive weeks pursuant to Section 6066 of the California Government Code, in a newspaper of general circulation published in Orange County. The first publication shall be at least fourteen (14) days prior to the time fixed for the hearing. The Secretary is further directed to post a copy of this resolution in three public places within the properties to be annexed and the properties to be detached from each Improvement District, for at least fourteen (14) days prior to the time fixed for the hearing. To the extent the Secretary has, prior to adoption hereof, accomplished any of the publications or postings directed by this Section, the same are hereby ratified.

ADOPTED, SIGNED AND APPROVED this _____ day of _____, 2013.

_____
President/Vice President
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

_____
Secretary/Assistant Secretary
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

APPROVED AS TO FORM:

BOWIE, ARNESON,
WILES & GIANNONE
Legal Counsel - IRWD

By_____

BAWGjca/ 0172358

EXHIBIT "B"

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRVINE RANCH WATER DISTRICT DECLARING ITS INTENTION TO FORM IMPROVEMENT DISTRICT NO. 185 AND TO ADOPT A PLAN OF WORKS THEREFOR

WHEREAS, the Board of Directors of the Irvine Ranch Water District ("IRWD") is of the opinion that an improvement district should be formed over the territory described below, to be known as "Improvement District No. 185;" and

WHEREAS, the Board of Directors of IRWD intends to adopt a plan of works for the proposed improvement district; and

WHEREAS, a draft plan of works for the proposed improvement district has been presented to this Board of Directors.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District DOES HEREBY RESOLVE, DETERMINE and ORDER as follows:

Section 1. It is the intention of the Board of Directors of IRWD to form an improvement district within IRWD that shall be known as "Improvement District No. 185" and to adopt a plan of works therefor.

Section 2. It is the further intention of the Board of Directors to acquire or construct improvements described in the plan of works, as approved, and to issue general obligation bonds, the proceeds of which shall be used to pay the expenses thereof included in the estimate of cost set forth below.

Section 3. The purpose of the proposed improvement district and of the plan of works shall be to acquire and construct works and facilities, as described in the plan of works, for the acquisition, collection, storage, distribution and treatment of water and water rights, including dams, reservoirs, storage tanks, treatment facilities, pipes, pumping equipment, urban runoff diversion and treatment systems, and all necessary equipment and property therefor, reconstruction, replacements and additions to said facilities, acquiring funds to fulfill contractual commitments to carry out the powers and purposes of IRWD contained in contracts, including contracts with other agencies, and the payment of operating and other costs of IRWD to the extent permitted by law, provided that the carrying out of said purpose shall benefit the land within the proposed improvement district.

Section 4. The estimated expense of carrying out the purposes described in Section 3 of this resolution is $13,500,000.00.

Section 5. General obligation bonds are proposed to be issued and sold for the purpose of providing funds to carry out the plan of works, and assessments to pay the bonds and interest thereon shall be levied exclusively on the lands within the proposed improvement district, including any territory annexed thereto. It is the further intention of the Board of Directors, if such is determined by the Board to be necessary or desirable in connection with the sale of any of the proposed general obligation bonds, to pledge all or part of the revenues of said works or any facilities extended or improved by said works to the payment or security of said bonds and the interest thereon, pursuant to the powers granted by Section 53500 *et seq.* of the Government Code of the State of California.

Section 6. A map showing the exterior boundaries of the proposed improvement district, which map shall govern for all details as to the extent of the proposed improvement district, is on file with the Secretary of IRWD and is available for inspection by any interested person.

Section 7. Monday, November 11, 2013, at the hour of 5:00 p.m. of said day (or as soon thereafter as is reasonably practicable) in the Board of Directors Room of Irvine Ranch Water District, 15600 Sand Canyon Avenue, Irvine, California, be and the same are hereby fixed by this Board of Directors as the time and place for a hearing on the question of the formation of the proposed improvement district, the extent thereof, the purpose for which it is to be formed, the benefit to lands within the proposed improvement district from carrying out said purpose, the estimated expense of carrying out said purpose, the proposed plan of works and the benefit or lack of benefit therefrom to the lands within the proposed improvement district and any other matter related to any of the foregoing.

Section 8. At the time and place fixed in Section 7 or at any time or place to which such hearing may be continued, any person interested, including any person owning land within the territory proposed to be included in the improvement district, may appear and be heard concerning any matter set forth in this resolution of intention, and written protests, if any, will be considered.

Section 9. The Secretary is directed to publish notice of such hearing by publishing a copy of this resolution once a week for two successive weeks pursuant to Section 6066 of the California Government Code, in a newspaper of general circulation published in Orange County. The first publication shall be at least fourteen (14) days prior to the time fixed for the hearing. The Secretary is further directed to post a copy of this resolution in three public places within the territory proposed to be included in the proposed improvement district, for at least fourteen (14) days prior to the time fixed for the hearing. To the extent the Secretary has, prior to adoption hereof, accomplished any of the publications or postings directed by

this Section, the same are hereby ratified.

ADOPTED, SIGNED AND APPROVED this 28th day of October, 2013.

_____
President/Vice President
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

_____
Secretary/Assistant Secretary
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

APPROVED AS TO FORM:

BOWIE, ARNESON,
WILES & GIANNONE
Legal Counsel - IRWD

By_____

BAWGjca/172493

EXHIBIT "C"

RESOLUTION NO. 2013-

RESOLUTION OF THE BOARD OF DIRECTORS OF THE IRVINE RANCH WATER DISTRICT DECLARING ITS INTENTION TO FORM IMPROVEMENT DISTRICT NO. 285 AND TO ADOPT A PLAN OF WORKS THEREFOR

WHEREAS, the Board of Directors of the Irvine Ranch Water District ("IRWD") is of the opinion that an improvement district should be formed over the territory described below, to be known as "Improvement District No. 285;" and

WHEREAS, the Board of Directors of IRWD intends to adopt a plan of works for the proposed improvement district; and

WHEREAS, a draft plan of works for the proposed improvement district has been presented to this Board of Directors.

NOW, THEREFORE, the Board of Directors of the Irvine Ranch Water District DOES HEREBY RESOLVE, DETERMINE and ORDER as follows:

Section 1. It is the intention of the Board of Directors of IRWD to form an improvement district within IRWD that shall be known as "Improvement District No. 285" and to adopt a plan of works therefor.

Section 2. It is the further intention of the Board of Directors to acquire or construct improvements described in the plan of works, as approved, and to issue general obligation bonds, the proceeds of which shall be used to pay the expenses thereof included in the estimate of cost set forth below.

Section 3. The purpose of the proposed improvement district and of the plan of works shall be to acquire and construct works and facilities, as described in the plan of works, for the collection, treatment and disposal of sewage and the storage and distribution of reclaimed water, including dams, reservoirs, storage tanks, treatment facilities, pipes, pumping equipment and all necessary equipment and property therefor, reconstruction, replacements and additions to said facilities, acquiring funds to fulfill contractual commitments to carry out the powers and purposes of IRWD contained in contracts, including contracts with other agencies, and the payment of operating and other costs of IRWD to the extent permitted by law, provided that the carrying out of said purpose shall benefit the land within the proposed improvement district.

Section 4. The estimated expense of carrying out the purposes described in Section 3 of this resolution is $21,300,000.00.

Section 5. General obligation bonds are proposed to be issued and sold for the purpose of providing funds to carry out the plan of works, and assessments to pay the bonds and interest thereon shall be levied exclusively on the lands within the proposed improvement district, including any territory annexed thereto. It is the further intention of the Board of Directors, if such is determined by the Board to be necessary or desirable in connection with the sale of any of the proposed general obligation bonds, to pledge all or part of the revenues of said works or any facilities extended or improved by said works to the payment or security of said bonds and the interest thereon, pursuant to the powers granted by Section 53500 *et seq.* of the Government Code of the State of California.

Section 6. A map showing the exterior boundaries of the proposed improvement district, which map shall govern for all details as to the extent of the proposed improvement district, is on file with the Secretary of IRWD and is available for inspection by any interested person.

Section 7. Monday, November 11, 2013, at the hour of 5:00 p.m. of said day (or as soon thereafter as is reasonably practicable) in the Board of Directors Room of Irvine Ranch Water District, 15600 Sand Canyon Avenue, Irvine, California, be and the same are hereby fixed by this Board of Directors as the time and place for a hearing on the question of the formation of the proposed improvement district, the extent thereof, the purpose for which it is to be formed, the benefit to lands within the proposed improvement district from carrying out said purpose, the estimated expense of carrying out said purpose, the proposed plan of works and the benefit or lack of benefit therefrom to the lands within the proposed improvement district and any other matter related to any of the foregoing.

Section 8. At the time and place fixed in Section 7 or at any time or place to which such hearing may be continued, any person interested, including any person owning land within the territory proposed to be included in the improvement district, may appear and be heard concerning any matter set forth in this resolution of intention, and written protests, if any, will be considered.

Section 9. The Secretary is directed to publish notice of such hearing by publishing a copy of this resolution once a week for two successive weeks pursuant to Section 6066 of the California Government Code, in a newspaper of general circulation published in Orange County. The first publication shall be at least fourteen (14) days prior to the time fixed for the hearing. The Secretary is further directed to post a copy of this resolution in three public places within the territory proposed to be included in the proposed improvement district, for at least fourteen (14) days prior to the time fixed for the hearing. To the extent the Secretary has, prior to adoption hereof, accomplished any of the publications or postings directed by

this Section, the same are hereby ratified.

ADOPTED, SIGNED AND APPROVED this 28th day of October, 2013.

_____
President/Vice President
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

_____
Secretary/Assistant Secretary
IRVINE RANCH WATER DISTRICT
and of the Board of Directors
thereof

APPROVED AS TO FORM:

BOWIE, ARNESON,
WILES & GIANNONE
Legal Counsel - IRWD

By_____

BAWGjca/ 172494

REVISED
PLAN OF WORKS
PROVIDING FOR SEWAGE COLLECTION, TREATMENT AND DISPOSAL,
WATER SUPPLY, STORAGE, TRANSMISSION AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 125

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Revised Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

For the overall District, the planning of the water supply, storage and distribution system has been accomplished by the Water Resources Master Plan ("WRMP") and its predecessor planning documents. The WRMP describes the facilities and entitlements needed to provide for ultimate demands and reliability over the entire District, both for the existing population and future development. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute and focused on specific elements. However, the WRMP is a comprehensive compilation of data and analyses that IRWD considers necessary for its planning needs, and as such, IRWD considers the WRMP its primary water planning document. The WRMP also includes recycled water supply, which is within the fiscal requirements of the sewer plans of works. Subarea master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owner and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WRMP and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and

it has also occurred in conjunction with improvement district reorganization. This Plan of Works has been prepared in connection with the reorganization of Improvement District No. 153 to include a number of planned development areas within the improvement districts concurrently consolidated as Improvement District No. 125. See Section 1.3.

The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the domestic water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects which provide domestic water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the water system capital facilities; (2) provide a consolidated and revised plan of works to supersede and replace the individual plans of works of the improvement districts being reorganized and consolidated; (3) evaluate the benefit of the revised and consolidated plan of works to the territory of the consolidated ID. See Section 1.3.

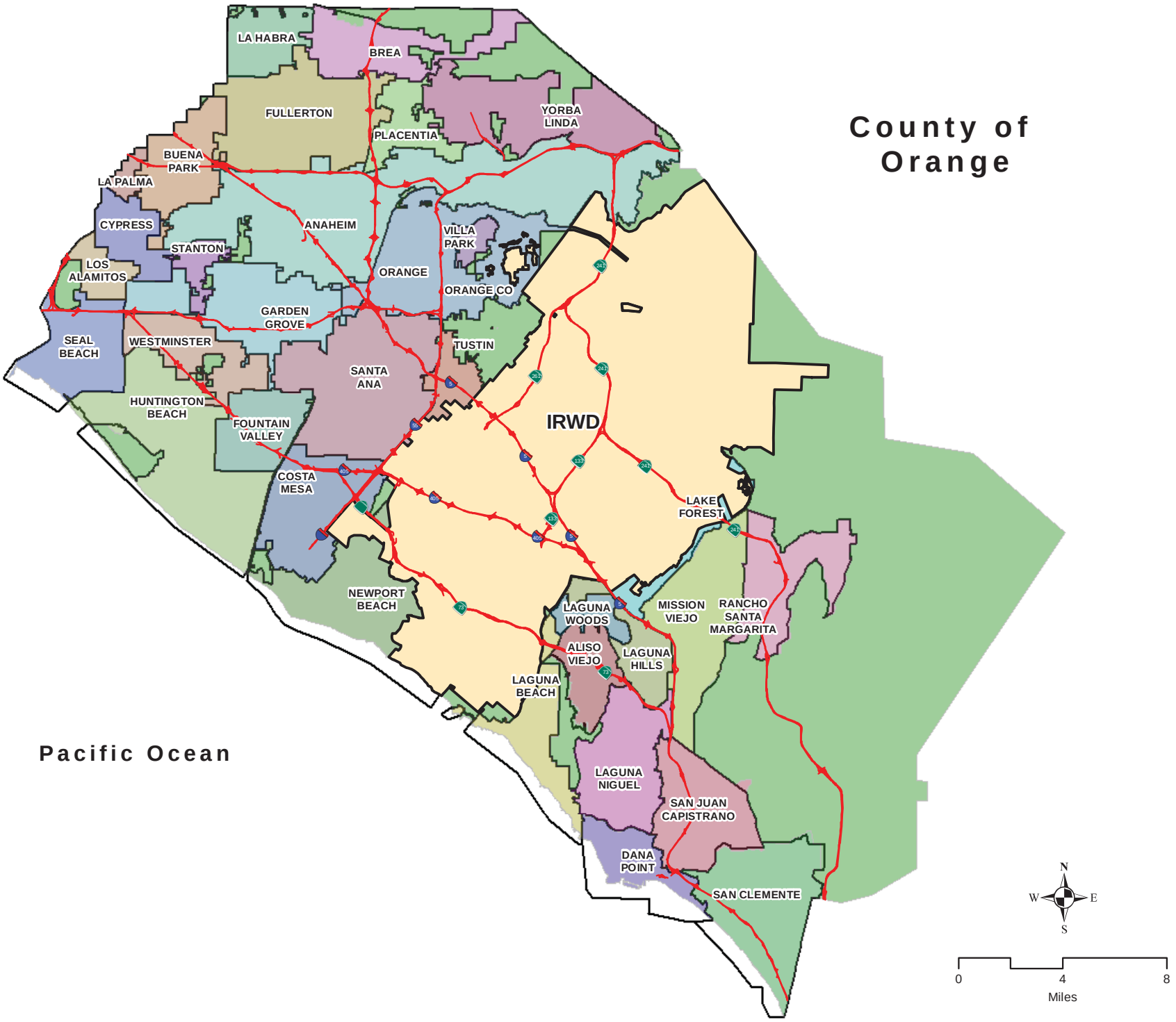
The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional domestic water supply, storage and transmission facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district. The Improvement District represents the consolidation of former improvement districts that, prior to their consolidation, authorized and incurred bonded indebtedness to finance their respective local facilities. Substantially all of the remaining local facilities will be financed by the developing improvement districts (ID Nos. 112, 113, 153, 185, 188, 212, 213, 253, 285 and 288), and therefore the Improvement District No. 125's remaining fiscal requirements as described in this Plan of Works exclude local facilities and represent only the Improvement District's participation along with other improvement districts in the construction of the IRWD regional system. See Section 4.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary

services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. See **Figure I-1** for a location Map of IRWD.

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 105,000 water and approximately 100,400 sewer service connections.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
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4
8
Miles

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilities to be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size, location and phasing of sewer collection and recycled water delivery facilities to be constructed from the existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid- to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill

Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1 became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the improvement districts formed before 1978, each sewer improvement district preceded its water counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in 1986, over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

Regional Allocation. As the regional water system has been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently discontinued, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. As a result an improvement district can reach full development, but its regional system funding participation will continue. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" and "210" areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas and benefit received from future capital facilities.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to build-out and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140.

Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the build-out of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210"

areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

This Plan of Works will supersede the individual plan of works previously adopted for the consolidated improvement districts by IRWD (or its predecessors Los Alisos Water District, with respect to ID Nos. 135 and 235). The previous plans of works were adopted at the time of ID formation (or at the time of initial and supplemental bond authorizations, in the case of ID Nos. 135 and 235). In some cases, plans of works were later revised in connection with additional bond authorizations and improvement district consolidations.

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

No ID

ID = 210

ID = 225

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

Irvine Ranch Water District
2014 Potable Water System Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 188
ID = 153
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 110
ID = 153
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an area wide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980s.

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing irrigation system would provide agricultural water until no longer needed. The cost of the untreated

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the water system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern

County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area. Under an agreement entered into between the District and OCSD, the District acquired equity interests

in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to build-out, the District has incorporated in its system planning efforts the updating

of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 125

2.1 DESCRIPTION OF THE STUDY AREA

As a result of the current reorganization of ID No. 125, the land included in the improvement district consists of predominately existing development areas in portions of former ID Nos. 1 (120), 121,130, 135, 140, 106 (160), 161, 182, 184, and 186 as well as existing developments within other former improvement districts (principally former ID Nos. 130 and 150) that have been added to ID No. 125 by annexation. Areas of former ID that contained permanent open space have been excluded. The resulting Improvement District No. 125 is a developed improvement district that will function in tandem with existing ID No. 110 to provide equitable regional capital cost sharing by the District's developed areas.

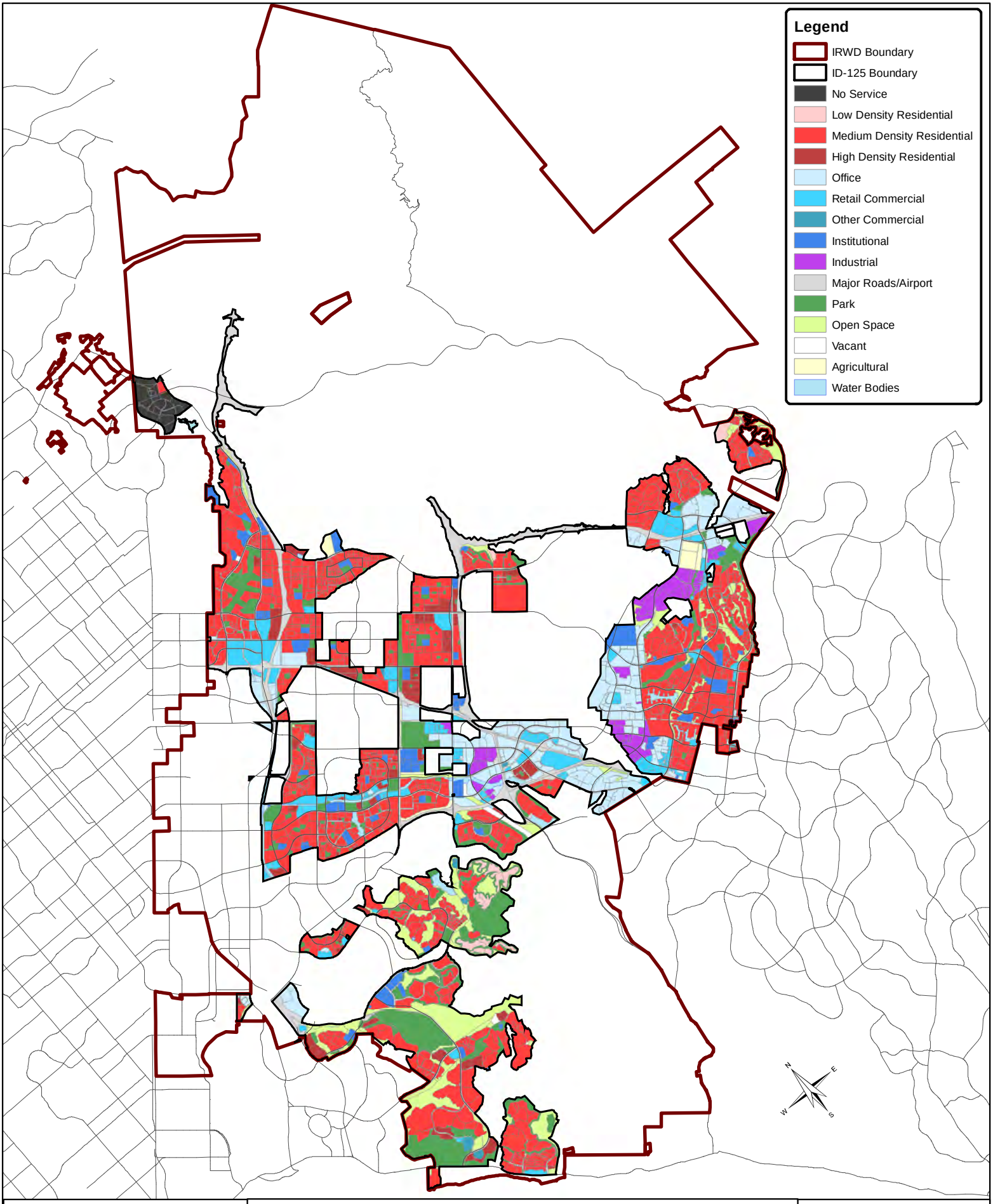
To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. Though development in ID No. 125 is substantially complete, The District expects some continued "infill" development to continue to occur over the next 15 years. The development of the ID No. 125 to be predominantly combination of residential with supporting local commercial, regional commercial and office, and some industrial development. **Figure II-1** shows the boundaries of ID No. 125, encompassing about 35,438 acres.

Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.



IRVINE RANCH WATER DISTRICT

ID-125 LANDUSE

FIGURE-II-1

2.3 DEMAND AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2**.

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 - Treated Water Demand: Tabulates the average daily water demand at build-out (2035) within the reorganized ID No. 153 service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Potable Water Demands (AFY)
Residential			
1112	Rural Density	Irvine	1
1115	Rural Density	County	22
1122	Estate Density	Irvine	107
1132	Low Density	Irvine	2,916
1133	Low Density	Newport Beach	994
1134	Low Density PC	Tustin	142
1135	Suburban Density	County	1,317
1136	Low Density	Lake Forest	4,123
1141	Low-Medium Density	Orange	30
1146	Low-Medium Density	Lake Forest	30
1153	Medium-Low Density	Newport Beach	35
1162	Medium Density	Irvine	6,502
1163	Medium Density	Newport Beach	1,233
1164	Medium Density PC	Tustin	2,271
1166	Medium Density	Lake Forest	1,284
1172	Medium-High Density	Irvine	4,618
1175	Urban Density	County	391
1176	Medium-High Density	Lake Forest	539
1182	High Density	Irvine	2,118
1183	High Density	Newport Beach	399
1184	High Density PC	Tustin	43
1186	High Density	Lake Forest	91
1192	High Rise Density	Irvine	157
Commercial			
1210	General Office		3,721
1221	Community Commercial		2,240
1222	Regional Commercial		526
1230	Commercial Recreation		18
1240	Institutional		481
1244	Hospital		92
1260	School		279
1290	Hotel		122

Land Use Code	Description	Land Use Agency	2035 Potable Water Demands (AFY)
Other			
1310	Industrial - Light		1,411
1820	Community Park		504
1830	Regional Park		543
1840	Fuel Modification Zone		43

Total **39,343 AFY**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the current consolidation process, 11 of IRWD's 16 water improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed, as well as certain remaining lands proposed for development that are also included in reorganized ID No. 153 and newly formed 185. Existing water ID Nos. 112, 113,154 and 188 are not included in the reorganization or consolidation actions. Regional water project costs will continue to be allocated to each water improvement district based on that improvement district's pro-rata share of the ultimate IRWD treated water demand.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed treated water supply, storage and transmission facilities needed to provide an adequate and reliable water system meeting the ultimate needs of ID No. 125.

Periodically, IRWD revises its treated water improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence treated water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal water demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

A description and cost estimate of the proposed regional domestic water facilities share allocated to ID No. 125 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 125

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
10204	LAKE FOREST WELL 8 DRILLING	Regional	47.5%	$263,707	$124,491	$139,216	$0	$0
10205	LAKE FOREST WELL 8 WELLHEAD	Regional	47.5%	$267,420	$106,329	$161,091	$0	$0
10294	LAKE FOREST WELL 6 DRILLING	Regional	47.5%	$263,707	$124,491	$139,216	$0	$0
10295	LAKE FOREST WELL 6 WELLHEAD	Regional	47.5%	$267,420	$106,329	$161,091	$0	$0
10391	DATS & WELL 77 LEASE PAYMENT 13/14	Regional	47.5%	$222,637	$222,637	$0	$0	$0
10392	DATS & WELL 77 LEASE PAYMENT 14/15	Regional	47.5%	$254,625	$254,625	$0	$0	$0
10393	DATS & WELL 77 LEASE PAYMENT 15/16	Regional	47.5%	$292,854	$20,289	$272,565	$0	$0
10394	DATS & WELL 77 LEASE PAYMENT 16/17	Regional	47.5%	$338,229	$0	$338,229	$0	$0
10395	DATS & WELL 77 LEASE PAYMENT 17/18	Regional	47.5%	$388,931	$0	$388,931	$0	$0
10396	DATS & WELL 77 LEASE PAYMENT 18/19	Regional	47.5%	$448,227	$0	$448,227	$0	$0
10397	DATS & WELL 77 LEASE PAYMENT 19/20	Regional	47.5%	$516,548	$0	$513,697	$2,851	$0
10428	51 & 52 WELLHEADS, PIPELINE & TREATMENT	Regional	47.5%	$19,195,320	$0	$19,195,320	$0	$0
11055	ENG PLANNING STUDY RESERVE 13/14	Regional	47.5%	$103,716	$103,716	$0	$0	$0
11056	ENG PLANNING STUDY RESERVE 14/15	Regional	47.5%	$114,088	$114,088	$0	$0	$0
11057	ENG PLANNING STUDY RESERVE 15/16	Regional	47.5%	$125,528	$0	$125,528	$0	$0
11096	GIS SUPPORT APPLICATIONS 13/14	Regional	47.5%	$31,455	$31,455	$0	$0	$0
11097	GIS SUPPORT APPLICATIONS 14/15	Regional	47.5%	$34,600	$34,600	$0	$0	$0
11129	HYDRAULIC MODELING 13/14	Regional	47.5%	$23,042	$23,042	$0	$0	$0
11131	HYDRAULIC MODELING 14/15	Regional	47.5%	$25,346	$25,346	$0	$0	$0
11163	CROSS VALLEY CANAL CAPACITY PURCHASE	Regional	47.5%	$45,196	$45,196	$0	$0	$0
11218	BAKER WTP	Regional	47.5%	$42,623,500	$27,211,372	$15,412,128	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11271	OCWD ANNEXATION FEE 14/15	Regional	47.5%	$245,878	$245,878	$0	$0	$0
11275	OCWD ANNEXATION FEE 15/16	Regional	47.5%	$278,634	$0	$278,634	$0	$0
11277	OCWD ANNEXATION FEE 16/17	Regional	47.5%	$315,608	$0	$315,608	$0	$0
11278	OCWD ANNEXATION FEE 17/18	Regional	47.5%	$357,657	$0	$357,657	$0	$0
11279	OCWD ANNEXATION FEE 18/19	Regional	47.5%	$405,203	$0	$405,203	$0	$0
11280	OCWD ANNEXATION FEE 19/20	Regional	47.5%	$472,984	$0	$470,133	$2,851	$0
11281	OCWD ANNEXATION FEE 20/21	Regional	47.5%	$535,973	$0	$0	$535,973	$0
11282	OCWD ANNEXATION FEE 21/22	Regional	47.5%	$607,278	$0	$0	$607,278	$0
11284	OCWD ANNEXATION FEE 22/23	Regional	47.5%	$688,100	$0	$0	$688,100	$0
11285	OCWD ANNEXATION FEE 23/24	Regional	47.5%	$779,759	$0	$0	$779,759	$0
11286	OCWD ANNEXATION FEE 24/25	Regional	47.5%	$883,555	$0	$0	$875,520	$8,035
11289	STRAND RANCH FACILITIES AND MONITORING	Regional	47.5%	$173,066	$172,744	$322	$0	$0
11325	IDP WELLS,PIPELINES,TREATMENT PLNT IMPR	Regional	47.5%	$75,763	$75,763	$0	$0	$0
11331	TIC WELLS 109/112/114	Regional	47.5%	$12,512,007	$0	$0	$12,512,007	$0
11339	AUTOMATION SYSTEM IMPROVEMENTS DW	Regional	47.5%	$126,045	$79,880	$46,165	$0	$0
11368	WATER BANKING EXPANSION	Regional	47.5%	$1,530,352	$969,859	$560,493	$0	$0
11384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	47.5%	$132,976	$132,976	$0	$0	$0
11405	OPA / REGIONAL GROUNDWATER PROJECT	Regional	47.5%	$2,273,136	$2,273,136	$0	$0	$0
11408	OPA / REGIONAL TRANSMISSION MAIN	Regional	47.5%	$95,043	$95,043	$0	$0	$0
11455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	47.5%	$405,659	$405,659	$0	$0	$0
11473	WELL 106 REPLACEMENT DRILLING & SITE	Regional	47.5%	$1,218,068	$1,218,068	$0	$0	$0
11560	LAKE FOREST DW OFFSITE IMPROVEMENTS	Regional	47.5%	$641,084	$347,839	$293,245	$0	$0
11578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	47.5%	$811,951	$0	$811,951	$0	$0
11582	GEN SYS MODS 13/14	Regional	47.5%	$70,903	$70,903	$0	$0	$0
11596	WATER BANKING AGREEMENTS	Regional	47.5%	$62,763	$62,763	$0	$0	$0
11627	WELL 115 REPLACEMENT WELL/WELLHEAD &	Regional	28.0%	$1,163,935	$1,163,935	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11631	GROUNDWATER DISPOSAL SYSTEM CONCEPT	Regional	47.5%	$156,071	$156,071	$0	$0	$0
11637	JACKSON RANCH SOLAR PROJECT	Regional	47.5%	$44,831	$44,831	$0	$0	$0
11645	STOCKDALE WEST RANCH JOINT BANKING	Regional	47.5%	$2,992,873	$2,810,110	$182,764	$0	$0
11648	GEN SYS MODS 14/15	Regional	47.5%	$77,994	$77,994	$0	$0	$0
11655	SKYLIGHT PROTECTION	Regional	47.5%	$18,288	$18,288	$0	$0	$0
11665	SJM BUILDING CAMPUS MOLD REMEDIATION	Regional	23.8%	$10,999	$10,999	$0	$0	$0
11675	MANNING BPS PERMANENT GENERATOR	Regional	47.5%	$116,831	$116,831	$0	$0	$0
11686	EOCWD - IRWD JOINT WELL PLANNING REPORT	Regional	47.5%	$25,446	$25,446	$0	$0	$0
11687	RMS AT 5 DOMESTIC WATER RESERVOIRS	Regional	47.5%	$1,476,437	$1,113,097	$363,340	$0	$0
11697	GEN SYS MODS 15/16	Regional	47.5%	$85,818	$0	$85,818	$0	$0
11726	STRAND RANCH KERN RIVER EXPORTABILITY	Regional	47.5%	$61,969	$61,969	$0	$0	$0
11738	WATER BANKING PLANNING	Regional	47.5%	$144,106	$144,106	$0	$0	$0
11742	LTFP ID CONSOLIDATION	Regional	47.5%	$40,734	$40,734	$0	$0	$0
12326	SCWD INTEGRATION STUDY REGIONAL PIPES	Regional	47.5%	$12,377,248	$0	$12,377,248	$0	$0
12328	SCWD INTEGRATION STUDY REGIONAL PUMPS	Regional	47.5%	$4,269,921	$0	$4,269,921	$0	$0
12329	SCWD INTEGRATION STUDY PIPES FOR 150 / 153	Regional	47.5%	$13,567,703	$0	$13,567,703	$0	$0
15051	WELLS 51/52/53 TREATMENT ALTERNATIVES	Regional	47.5%	$69,754	$69,754	$0	$0	$0
15052	JOINT WELL FIELD WITH ANAHEIM - WELLHEADS	Regional	47.5%	$14,314,026	$0	$9,508,130	$4,805,896	$0
15423	TUSTIN LEGACY WELLS 1, 2, 3 & 4	Regional	47.5%	$14,796,412	$0	$14,796,412	$0	$0
15428	WELL 53 SITE ACQUISITION & WELL DRILLING	Regional	47.5%	$1,463,108	$663,204	$799,904	$0	$0
19420	OCWD ANNEXATION	Regional	47.5%	$72,889	$72,889	$0	$0	$0
				$158,892,927	**$41,288,769**	**$96,785,890**	**$20,810,233**	**$8,035**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving one or more of the planned development areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s) For the purpose of the POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

The proposed local master plan facilities for ID No. 125 are detailed in **Table IV-1**. . The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 125

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
10917	NEWPORT COAST CATHODIC PROTECTION	Local	100.0%	$247,390	$247,390	$0	$0	$0
				$247,390	**$247,390**	**$0**	**$0**	**$0**

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 125. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

ID No. 125 will, as the successor consolidated improvement district, have authorized and unissued bonds in the amount of $322,034,240, representing the combined authorized and unissued bonds of the consolidating improvement districts.

Table V-1
Bond Authorization Summary
Improvement District 125

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Local Subtotal	**$247,390**	**$0**	**$0**	**$0**	**$247,390**
Escalated Regional Subtotal	**$41,288,769**	**$96,785,890**	**$20,810,233**	**$8,035**	**$158,892,927**
Contingency (10%)	**$4,153,616**	**$9,678,589**	**$2,081,023**	**$804**	**$15,914,032**
Bond Reserve (6%)	**$2,741,386**	**$6,387,869**	**$1,373,475**	**$530**	**$10,503,261**
Funded Reserve (6%)	**$2,741,386**	**$15,485,742**	**$1,373,475**	**$530**	**$10,503,261**
Bond Discount (2%)	**$2,018,790**	**$11,614,307**	**$457,825**	**$177**	**$3,501,087**
Bond Issuance Costs (1%)	**$1,009,395**	**$11,614,307**	**$228,913**	**$88**	**$1,750,543**
Bond Authorization Total	**$54,200,733**	**$151,566,703**	**$26,324,945**	**$10,164**	**$201,312,501**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The consolidation of ID Nos. 125 and 225 is part of an overall restructuring of the District's improvement districts, which also includes the reorganization of ID Nos. 153 and 253 and the formation of ID Nos. 185 and 285. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;

- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-50 allocation as a fair means of sharing improvement district debt service costs between the aggregate contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an

examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital –project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward build-out. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plans of Works for the improvement districts consolidated as ID No. 125 were adopted or amended in 1978, except for ID No. 135, described in further detail below. In combination with local facilities specific to the individual improvement district, the 1978 Plans of Works provided for financing of shares in a common regional system that included acquisition of capacity in the AMP and participation in the construction of the District's own well field in the main Orange County groundwater

basin. Like IRWD, LAWD issued bonds in the early 1960s to construct a plan of works for the acquisition and distribution of a supplemental imported Colorado River water supply, in cooperation with neighboring districts. LAWD's share of the construction of the Santiago Aqueduct, extending 14 miles from Metropolitan Water District's Santiago Lateral, was financed by the sale in 1961 of general obligation waterworks bonds aggregating $1,410,000. Following the acquisition of sewering powers in 1963, LAWD obtained its initial authorization of sewer bonds in the amount of $6,140,000 in 1964, to complete a plan of works, the first phase of which consisted of trunk and sub-trunk sewers serving the two major drainage basins of LAWD and delivering the wastewater to a proposed treatment and water reclamation plant. Population growth generated the need for additional storage reservoirs and a filtration plant in the water system, and a treatment plant expansion, additional trunk and interceptor sewers and participation in a regional plant with ultimate ocean outfall facilities. As a result, in 1968, LAWD's 1961 water bond and 1964 sewer bond authorizations were supplemented by additional authorizations of $17,600,000 and $9,584,000, respectively. Subsequently, LAWD acquired capacity in the AMP as well as some groundwater production facilities, and abandoned its filtration plant. When LAWD consolidated with IRWD in 2000, ID No. 135, as LAWD's successor, had constructed regional water importation facilities comparable to IRWD's, but had not constructed comparable groundwater production capacity. IRWD's melded water rate structure is not applied in ID No. 135. Following the consolidation of ID No. 135 within ID No. 125, a planning area will be retained over the former ID No. 135 to facilitate the continuation of the separate water rate structure until satisfaction of equity considerations make the separate structure no longer necessary. Among the factors to be evaluated in placing the former ID No. 135 area in a parity rate structure will be the value derived from assets of the former LAWD and the contribution of ad valorem assessments from the area to ID No. 125 debt service.

The majority of the imported water feeder system and IRWD's delivery system components and the groundwater production and delivery facilities are in place. Based on its ultimate demands, ID No. 125 will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 153 were formerly within ID Nos. 130, 150, 153 and other improvement districts. The areas consolidated within ID No. 125 were formerly within several separate improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas consolidated as ID No. 125 are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 125 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 153 and 185, these distinctions are no longer prominent. The regional delivery system and its integrated supply sources provide uniform benefit to all of the component areas of ID No. 125 by satisfying basic supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 153 among its various planned development areas in proportion to their benefit.

The areas within the reorganized ID No. 125 have shared imported water and groundwater facilities through the regional split. Notwithstanding that some of ID No. 153's territory is not within the boundary of the Orange County Water District and that under OCWD practices, the demand of this area does not increase the quantity of groundwater produced by IRWD without a BEA impact, groundwater is considered to reduce IRWD's dependence on imported supply and thus all areas participate proportionally in the regional supply source mix. All areas of ID No. 125 (except for former ID No. 135 as noted above) receive the base allocation melded water rate which provides the benefit of reduced cost through the supply mix.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 125as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 125

Like ID No. 153, ID No. 125 will continue to share proportionally in the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete,

and future regional projects will add components necessary to provide basic reliability, benefitting the developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 125 will exclude demands of 153, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within 153, between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered to be the case for the various geographic areas comprising ID No. 153. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 153.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 153, 185, 188, existing ID Nos. 112 and 113, and the consolidated developed ID No. 125 is considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

Each developed area has already completed and paid for its local capital facilities (distribution facilities other than the regional feeders and major transmission mains, operational storage tanks, pump stations) which fairly allocated differences based on pressure zone and geographic distances from feeder turnouts, etc. The combined distribution system is of equal benefit to each customer. Local systems for the developing improvement districts will be borne by them exclusively, and the consolidated developing improvement district will not bear any of the cost of their local systems. Moreover, local facilities construction for each development area generally has preceded development, and differing connection fees have offset some or all of any disparities among local facilities cost among consolidating improvement districts.

6.7 IMPROVEMENT DISTRICT NO. 125 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 125 in several ways: (1) similarities or differences in future service needs among the areas identified for inclusion by annexation to, or by retention in, the reorganized as ID No. 125; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 125; and (3) regional cost allocation among ID No. 125 and other areas receiving benefit from the regional facilities. Also evaluated

were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 153 comprise several non-contiguous planned development areas that were previously in different improvement districts. Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including source of water supply that would warrant exclusion from the ID No. 153 territory. The areas included in the reorganized ID No. 153 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated groundwater and imported water supplies. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use, it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 153 lands within the underlying improvement district, ID No. 125, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as storage reservoirs, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 153 demands from the ID No. 125 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated 50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

The regional water system supply and distribution components are considered to benefit all of the areas of former improvement districts reorganized as ID No. 125 in proportion to demand. To satisfy the remaining financing obligations of ID No. 125 to complete the regional supply system, there is no need for retaining separate allocations of regional cost sharing, as all of the improvement districts are substantially developed and are allocated proportionate shares based on demand. The supply, storage and non-local distribution system is essentially complete. The remaining regional cost obligations will consist primarily of reliability and system enhancement and replacement projects. Apart from demand, no basis exists for allocating differing proportional cost responsibilities for these projects among the consolidating improvement districts.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 153 would receive benefit from ID No. 153 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 105, 130 and other improvement districts which will, instead, be included in the reorganized ID No. 125, open space, and areas contained within another developing improvement district. Also excluded are the areas not

included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 125. The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 153. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because, through the reorganized ID No. 125, their allocation of the cost of the regional system benefits will continue to be proportional.

The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 125 would receive benefit from ID No. 125 planned works, and should not be excluded. The areas excluded consist of open space areas, areas contained in developing ID Nos. 112, 113 and 188. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developing areas in ID Nos. 112, 113 and 188 will contribute their regional cost share for the completion of the regional system and the full cost of their separate local facilities. Their allocation of the cost of the regional system benefits will continue to be proportional. The allocation of local facilities costs not benefitting ID No. 125 warrants the exclusion of these improvement districts from the consolidated ID No. 125.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 153, 125 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 112, 113, 153, 185, and 188 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the other separate developing improvement districts from ID No. 125 will facilitate the allocation of local facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive

service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of some areas in both ID No. 153 or other overlying improvement districts and underlying ID No. 125. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1 (201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the 1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125 and 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 is contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Water Resources Master Plan. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 125 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

The authorized and unissued bonds of the reorganized ID No. 125 are estimated to be sufficient to accomplish this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in technology and refinements in master planning and subarea master planning.

REVISED
PLAN OF WORKS
PROVIDING FOR SEWAGE COLLECTION, TREATMENT AND DISPOSAL,
AND WATER SUPPLY, STORAGE, TRANSMISSION
AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 225

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Revised Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

The Wastewater Treatment Master Plan ("WTMP") and its predecessor planning documents have accomplished the planning of the District's wastewater collection and treatment. The Sewage Collection System Master Plan (SCSMP) also addresses the planning of the collection system. Recycled water supply, which is within the fiscal requirements of sewer plans of works, including this Plan of Works, is part of the scope of the Water Resources Master Plan ("WRMP"). Sub-area master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owners and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WTMP, WRMP, SCSMP, and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and it has also occurred in conjunction with improvement district reorganization. This Plan of Works has been prepared in connection with the reorganization and consolidation of several improvement districts as Improvement District No. 125. See Section 1.3.

The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or

development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the wastewater collection and treatment and recycled water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects that provide wastewater collection and treatment and recycled water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the capital facilities for the wastewater system; (2) provide a revised plan of works to supersede and replace the existing plan of works of the improvement district being reorganized; and (3) evaluate the benefit of the revised plan of works to the territory of the reorganized improvement district. (2) provide a consolidated and revised plan of works to supersede and replace the individual plans of works of the improvement districts being reorganized and consolidated; (3) evaluate the benefit of the revised and consolidated plan of works to the territory of the consolidated ID.

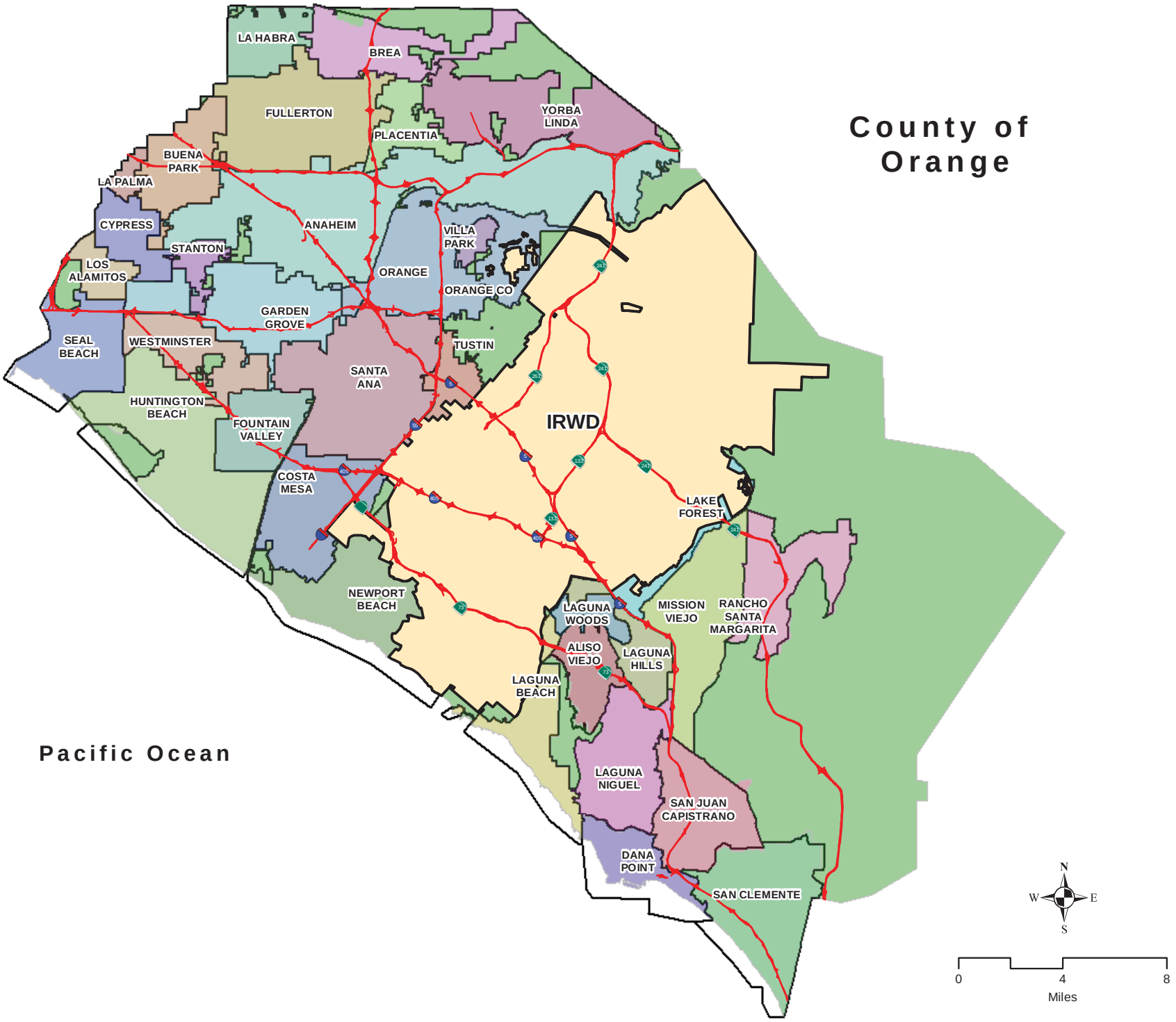
The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional wastewater collection and treatment and recycled water facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district. The Improvement District represents the consolidation of former improvement districts that, prior to their consolidation, authorized and incurred bonded indebtedness to finance their respective local facilities. Substantially all of the remaining local facilities will be financed by the developing improvement districts (ID Nos. 112, 113, 153, 185, 188, 212, 213, 253, 285 and 288), and therefore the Improvement District No. 225's remaining fiscal requirements as described in this Plan of Works exclude local facilities and represent only the Improvement District's participation along with other improvement districts in the construction of the IRWD regional system. See Section 4.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and

treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. See **Figure I-1** for a location Map of IRWD.

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 105,000 water and approximately 100,400 sewer service connections.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
E
S
0
4
8
Miles

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilities to be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size, location and phasing of sewer collection and recycled water delivery facilities to be constructed from the existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid - to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1 became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation

District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the improvement districts formed before 1978, each sewer improvement district preceded its water counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in 1986, over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

Regional Allocation. As regional water system have been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently discontinued, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. As a result an improvement district can reach full development, but its regional system funding participation will continue. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding

approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" and "210" areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas and benefit received from future capital facilities.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to build-out and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140. Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing

structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the build-out of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210" areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

No ID

ID = 210

ID = 225

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

Irvine Ranch Water District
2014 Potable Water System Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 188
ID = 153
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 110
ID = 153
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

This Plan of Works will supersede the individual plan of works previously adopted for the consolidated improvement districts by IRWD (or its predecessors Los Alisos Water District, with respect to ID Nos. 135 and 235). The previous plans of works were adopted at the time of ID formation (or at the time of initial and supplemental bond authorizations, in the case of ID Nos. 135 and 235). In some cases, plans of works were later revised in connection with additional bond authorizations and improvement district consolidations.

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an area wide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980's.

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing irrigation system would provide agricultural water until no longer needed. The cost of the untreated water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the water system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be

complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment

capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area. Under an agreement entered into between the District and OCSD, the District acquired equity interests in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to buildout, the District has incorporated in its system planning efforts the updating of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 225

2.1 DESCRIPTION OF THE STUDY AREA

As a result of the current reorganization of ID No. 225, the land included in the improvement district consists of predominately existing development areas in portions of former ID Nos. 2 (220), 221,230, 235, 206 (260), 261, 282, 284, and 286 as well as existing developments within other former improvement districts (principally former ID Nos. 230 and 250) that have been added to ID No. 225 by annexation. Areas of former ID that contained permanent open space have been excluded. The resulting Improvement District No. 225 is a developed improvement district that will function in tandem with existing ID No. 210 to provide equitable regional capital cost sharing by the District's developed areas.

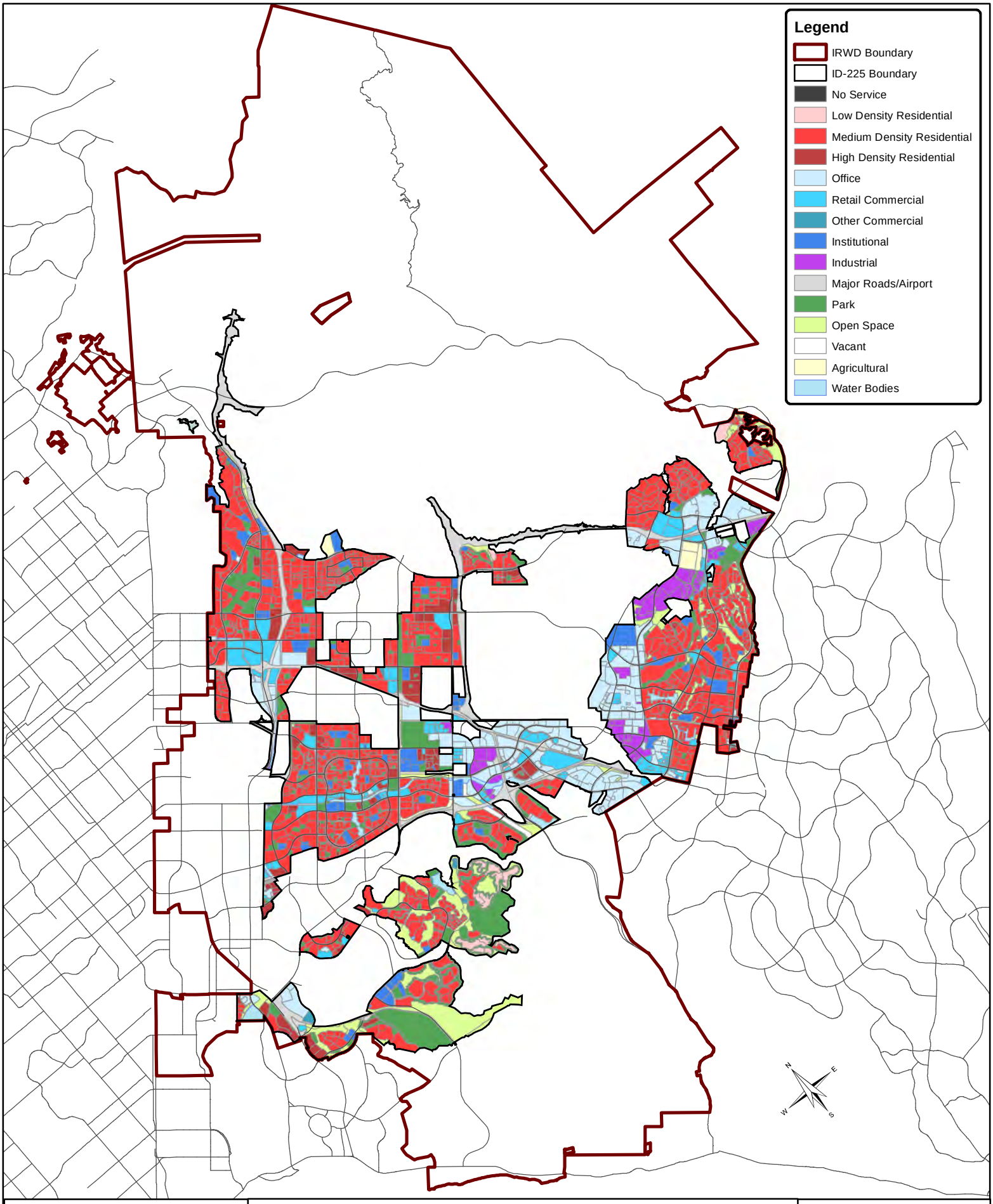
To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. Though development in ID No. 225 is substantially complete, The District expects some continued "infill" development to continue to occur over the next 15 years. The development of the ID No. 225 to be predominantly combination of residential with supporting local commercial, regional commercial and office, and some industrial development. **Figure II-1** shows the boundaries of ID No. 225, encompassing about _____ acres.

Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.



IRVINE RANCH WATER DISTRICT

ID-225 LANDUSE

FIGURE-II-1

2.3 DEMAND AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2**.

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 - **Sewage Generation:** Tabulates the average daily wastewater flow at build-out (2035) within the ID No. 225 service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Sewer Flows (MGD)
Residential			
1122	Estate Density	Irvine	0.05
1132	Low Density	Irvine	1.39
1134	Low Density PC	Tustin	0.04
1135	Suburban Density	County	0.54
1136	Low Density	Lake Forest	1.84
1141	Low-Medium Density	Orange	0.01
1146	Low-Medium Density	Lake Forest	0.02
1162	Medium Density	Irvine	4.28
1163	Medium Density	Newport Beach	0.22
1164	Medium Density PC	Tustin	1.39
1166	Medium Density	Lake Forest	0.73
1172	Medium-High Density	Irvine	3.19
1175	Urban Density	County	0.21
1176	Medium-High Density	Lake Forest	0.32
1182	High Density	Irvine	1.80
1183	High Density	Newport Beach	0.27
1184	High Density PC	Tustin	0.04
1186	High Density	Lake Forest	0.07
1192	High Rise Density	Irvine	0.10
Commercial			
1210	General Office		2.33
1221	Community Commercial		1.33
1222	Regional Commercial		0.39
1240	Institutional		0.15
1244	Hospital		0.06
1260	School		0.12
1290	Hotel		0.03
Industrial			
1300	Industrial		0.12
1310	Industrial - Light		0.92
Total			**21.97 MGD**

Table II-3 – **Recycled Water Demands:** Tabulates the average daily recycled water demands at build-out (2035) within the ID No. 225 service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Recycled Water Demands (AFY)
Residential			
1112	Rural Density	Irvine	2
1122	Estate Density	Irvine	28
1132	Low Density	Irvine	538
1134	Low Density PC	Tustin	83
1136	Low Density	Lake Forest	375
1146	Low-Medium Density	Lake Forest	4
1162	Medium Density	Irvine	1,316
1163	Medium Density	Newport Beach	133
1164	Medium Density PC	Tustin	401
1166	Medium Density	Lake Forest	127
1172	Medium-High Density	Irvine	1,188
1176	Medium-High Density	Lake Forest	42
1182	High Density	Irvine	483
1183	High Density	Newport Beach	91
1184	High Density PC	Tustin	6
1186	High Density	Lake Forest	4
1192	High Rise Density	Irvine	12
Commercial & Industrial			
1210	General Office		1,038
1221	Community Commercial		704
1222	Regional Commercial		175
1230	Commercial Recreation		23
1240	Institutional		371
1244	Hospital		33
1260	School		764
1290	Hotel		3
1301	Industrial		442
Other			
1820	Community Park		2,446
1830	Regional Park		3,226
1840	Fuel Modification Zone		316
2120	Low-Irrigated AG Recycled		92
2220	High-Irrigation AG Recycled		126
Total			**14,607 AFY**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the reorganization consolidation process, 10 of IRWD's 18 sewer improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed, as well as certain remaining lands proposed for development that are also included in reorganized ID No. 253, newly formed 285 and existing 288. Existing ID Nos. 1(201), 212, 213, 240, 252, and 256 are not included in the reorganization or consolidation actions. Regional sewer and recycled water project costs will continue to be allocated to each sewer improvement district based on that improvement district's pro-rata shares of the ultimate IRWD wastewater and recycled water demands.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed wastewater collection and treatment and recycled water supply, storage and distribution facilities needed to provide an adequate and reliable wastewater and recycled water system meeting the ultimate needs of ID No. 225.

Periodically, IRWD revises its sewer improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence wastewater treatment and recycled water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

Based on the total IRWD sewage generation, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 9.6%. Based on the total IRWD recycled water demands, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 10.3%.

A description and cost estimate of the proposed regional domestic water facilities share allocated to ID No. 225 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 48.5% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 225

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20113	OCSD CORF 12/13	Regional	48.5%	$180,056	$180,056	$0	$0	$0
20114	OCSD CORF 13/14	Regional	48.5%	$1,023,770	$1,023,770	$0	$0	$0
20115	OCSD CORF 14/15	Regional	48.5%	$1,202,954	$941,836	$261,119	$0	$0
20116	OCSD CORF 15/16	Regional	48.5%	$1,285,144	$0	$1,285,144	$0	$0
20117	OCSD CORF 16/17	Regional	48.5%	$1,678,031	$0	$1,678,031	$0	$0
20118	OCSD CORF 17/18	Regional	48.5%	$2,211,654	$0	$2,211,654	$0	$0
20119	OCSD CORF 18/19	Regional	48.5%	$1,773,988	$0	$1,773,988	$0	$0
20120	OCSD CORF 19/20	Regional	48.5%	$2,096,586	$0	$1,632,803	$463,784	$0
20214	MWRP EXPANSION PHASE II	Regional	48.5%	$23,901	$23,901	$0	$0	$0
20356	OCSD CORF 20/21	Regional	48.5%	$2,408,525	$0	$0	$2,408,525	$0
20357	OCSD CORF 21/22	Regional	48.5%	$2,712,401	$0	$0	$2,712,401	$0
20358	OCSD CORF 22/23	Regional	48.5%	$3,018,437	$0	$0	$3,018,437	$0
20360	OCSD CORF 23/24	Regional	48.5%	$3,359,123	$0	$0	$3,359,123	$0
20362	OCSD CORF 24/25	Regional	48.5%	$3,737,305	$0	$0	$2,900,129	$837,176
20468	FOOTHILL SEWER DIVERSION TO LAWRP	Regional	48.5%	$550,143	$87,553	$462,590	$0	$0
20540	LONG TERM SEWER SYSTEM FLOW MONITORING	Regional	48.5%	$203,876	$96,046	$107,830	$0	$0
20587	OCSD EQUITY 12/13	Regional	48.5%	$0	$0	$0	$0	$0
20588	OCSD EQUITY 13/14	Regional	48.5%	$53	$53	$0	$0	$0
20589	OCSD EQUITY 14/15	Regional	48.5%	$675,054	$434,269	$240,785	$0	$0
20593	OCSD EQUITY 15/16	Regional	48.5%	$1,054,184	$0	$1,054,184	$0	$0
20621	OCSD EQUITY 16/17	Regional	48.5%	$1,230,285	$0	$1,230,285	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20715	OCSD EQUITY 17/18	Regional	48.5%	$2,962,179	$0	$2,962,179	$0	$0
20716	OCSD EQUITY 18/19	Regional	48.5%	$3,310,886	$0	$3,310,886	$0	$0
20717	OCSD EQUITY 19/20	Regional	48.5%	$3,329,146	$0	$2,131,169	$1,197,978	$0
20718	OCSD EQUITY 20/21	Regional	48.5%	$2,237,504	$0	$0	$2,237,504	$0
20719	OCSD EQUITY 21/22	Regional	48.5%	$1,423,788	$0	$0	$1,423,788	$0
20720	OCSD EQUITY 22/23	Regional	48.5%	$807,790	$0	$0	$807,790	$0
20733	OCSD EQUITY 23/24	Regional	48.5%	$890,105	$0	$0	$890,105	$0
20734	OCSD EQUITY 24/25	Regional	48.5%	$980,911	$0	$0	$625,446	$355,465
20798	OCSD EQUITY 25/26	Regional	48.5%	$1,045,147	$0	$0	$0	$1,045,147
20799	OCSD EQUITY 26/27	Regional	48.5%	$950,030	$0	$0	$0	$950,030
20802	OCSD CORF 25/26	Regional	48.5%	$4,155,473	$0	$0	$0	$4,155,473
20803	OCSD CORF 26/27	Regional	48.5%	$4,612,571	$0	$0	$0	$4,612,571
20811	OCSD SOLIDS HANDLING 13/14	Regional	20.8%	$290,095	$290,095	$0	$0	$0
20812	OCSD SOLIDS HANDLING 14/15	Regional	20.8%	$351,153	$351,153	$0	$0	$0
20959	SEWER GEN SYS MODS 14/15	Regional	48.5%	$161,853	$161,853	$0	$0	$0
21055	ENG PLANNING STUDY RESERVE 13/14	Regional	48.5%	$91,815	$91,815	$0	$0	$0
21056	ENG PLANNING STUDY RESERVE 14/15	Regional	48.5%	$100,997	$100,997	$0	$0	$0
21057	ENG PLANNING STUDY RESERVE 15/16	Regional	48.5%	$111,129	$0	$111,129	$0	$0
21096	GIS SUPPORT APPLICATIONS 13/14	Regional	48.5%	$32,117	$32,117	$0	$0	$0
21097	GIS SUPPORT APPLICATIONS 14/15	Regional	48.5%	$35,328	$35,328	$0	$0	$0
21129	HYDRAULIC MODELING 13/14	Regional	48.5%	$23,527	$23,527	$0	$0	$0
21131	HYDRAULIC MODELING 14/15	Regional	48.5%	$25,880	$25,880	$0	$0	$0
21133	UNIVERSITY LS ODOR CONTROL SYSTEM	Regional	48.5%	$136,256	$136,256	$0	$0	$0
21134	MANHOLE CONST MAIN AND SKY PARK SOUTH	Regional	48.5%	$25,981	$25,981	$0	$0	$0
21146	MWRP BIOSOLIDS AND ENERGY RECOVERY	Regional	20.8%	$52,089,157	$22,539,638	$29,549,519	$0	$0
21147	LAWRP SYSTEM UPGRADES	Regional	48.5%	$392,336	$218,964	$173,371	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
21248	MWRP EXPANSION PHASE 3	Regional	48.5%	$14,514,256	$0	$7,463,594	$7,050,661	$0
21339	AUTOMATION SYSTEM IMPROVEMENTS SEWER	Regional	48.5%	$70,353	$44,590	$25,763	$0	$0
21455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	48.5%	$162,381	$162,381	$0	$0	$0
21578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	48.5%	$829,045	$0	$829,045	$0	$0
21655	SKYLIGHT PROTECTION	Regional	48.5%	$18,673	$18,673	$0	$0	$0
21742	LTFP ID CONSOLIDATION	Regional	48.5%	$41,592	$41,592	$0	$0	$0
30214	MWRP EXPANSION PHASE II	Regional	51.0%	$18,737	$18,737	$0	$0	$0
30331	IRVINE LAKE SEISMIC STABILITY STUDY	Regional	51.0%	$15,371	$15,371	$0	$0	$0
30342	LAWRP SYSTEM UPGRADES	Regional	51.0%	$569,628	$306,446	$263,181	$0	$0
30374	SYPHON RESERVOIR INTERIM IMPROVEMENTS	Regional	51.0%	$105,917	$105,917	$0	$0	$0
30380	SALT MANAGEMENT PLAN DEVELOPMENT	Regional	51.0%	$61,822	$61,822	$0	$0	$0
30382	SYPHON RESERVOIR EXPANSION	Regional	51.0%	$50,159,519	$1,339,909	$48,819,610	$0	$0
30396	RW SITE INSPECTION & TESTING COMPUTER	Regional	51.0%	$27,826	$27,826	$0	$0	$0
30398	RW CONVERSION GRANTS FOR ON-SITE 13/14	Regional	51.0%	$140,643	$140,643	$0	$0	$0
30399	RW CONVERSION FOR OFF-SITE 13/14	Regional	51.0%	$82,018	$82,018	$0	$0	$0
30400	HEALTH DEPT FEES FOR 13/14	Regional	51.0%	$47,629	$47,629	$0	$0	$0
30408	MULTI-ZONE REGIONAL PS - ZONE A TO SYPHON	Regional	51.0%	$2,089,672	$203,952	$1,885,721	$0	$0
30412	SYPHON RESERVOIR EXPANSION - ENV.	Regional	51.0%	$128,627	$60,610	$68,017	$0	$0
30415	CATHODIC PROTECTION FOR GAP PIPE SEGMENT	Regional	51.0%	$68,274	$68,274	$0	$0	$0
30418	MWRP MBR LEAP AERATION CONVERSION	Regional	51.0%	$655,859	$0	$655,859	$0	$0
30422	PA9 JEFFREY RD PIPELINES, 36" ZNA, 36" SYPHON	Regional	51.0%	$878,470	$878,470	$0	$0	$0
30517	LAKE FOREST CONTROL AND TELEMETRY SYS	Regional	51.0%	$20,028	$20,028	$0	$0	$0
31055	ENG PLANNING STUDY RESERVE 13/14	Regional	51.0%	$99,017	$99,017	$0	$0	$0
31056	ENG PLANNING STUDY RESERVE 14/15	Regional	51.0%	$108,918	$108,918	$0	$0	$0
31057	ENG PLANNING STUDY RESERVE 15/16	Regional	51.0%	$119,844	$0	$119,844	$0	$0
31096	GIS SUPPORT APPLICATIONS 13/14	Regional	51.0%	$33,772	$33,772	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
31097	GIS SUPPORT APPLICATIONS 14/15	Regional	51.0%	$37,149	$37,149	$0	$0	$0
31129	HYDRAULIC MODELING 13/14	Regional	51.0%	$24,740	$24,740	$0	$0	$0
31131	HYDRAULIC MODELING 14/15	Regional	51.0%	$27,214	$27,214	$0	$0	$0
31248	MWRP EXPANSION PHASE 3	Regional	51.0%	$9,631,245	$0	$4,826,930	$4,804,314	$0
31339	AUTOMATION SYSTEM IMPROVEMENTS RW	Regional	51.0%	$135,332	$85,766	$49,567	$0	$0
31384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	51.0%	$251,580	$251,580	$0	$0	$0
31578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	51.0%	$871,779	$0	$871,779	$0	$0
31582	GEN SYS MODS 13/14	Regional	51.0%	$32,819	$32,819	$0	$0	$0
31648	GEN SYS MODS 14/15	Regional	51.0%	$36,100	$36,100	$0	$0	$0
31655	SKYLIGHT PROTECTION	Regional	51.0%	$19,635	$19,635	$0	$0	$0
31697	GEN SYS MODS 15/16	Regional	51.0%	$39,724	$0	$39,724	$0	$0
				$193,173,834	**$31,222,688**	**$116,095,300**	**$33,899,985**	**$11,955,861**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s). For the purpose of this POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

The proposed local master plan facilities for ID No. 225 are detailed in **Table IV-1**. Only one local project was identified for newly formed ID No. 225. The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 225

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
30390	PA 9B RW AND SYPHON LATERAL PIPELINE,	Sub-Regional	51.0%	$73,996	$73,996	$0	$0	$0
				$73,996	**$73,996**	**$0**	**$0**	**$0**

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 225. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

ID No. 225 will, as the successor consolidated improvement district, have authorized and unissued bonds in the amount of $406,894,840, representing the combined authorized and unissued bonds of the consolidating improvement districts.

Table V-1
Bond Authorization Summary
Improvement District 225

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Regional Subtotal	**$31,222,688**	**$116,095,300**	**$33,899,985**	**$11,955,861**	**$193,173,834**
Escalated Sub-Regional Subtotal	**$73,996**	**$0**	**$0**	**$0**	**$73,996**
Contingency (10%)	**$3,129,668**	**$11,609,530**	**$3,389,998**	**$1,195,586**	**$19,324,783**
Bond Reserve (6%)	**$2,065,581**	**$7,662,290**	**$2,237,399**	**$789,087**	**$12,754,357**
Funded Reserve (6%)	**$2,065,581**	**$18,575,248**	**$2,237,399**	**$789,087**	**$12,754,357**
Bond Discount (2%)	**$2,384,499**	**$13,931,436**	**$745,800**	**$263,029**	**$4,251,452**
Bond Issuance Costs (1%)	**$1,192,250**	**$13,931,436**	**$372,900**	**$131,514**	**$2,125,726**
Bond Authorization Total	**$42,134,263**	**181,805,240**	**$42,883,481**	**15,124,164**	**$244,458,505**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from sewer and recycled water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant treatment and disposal capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The consolidation of ID Nos. 125 and 225 is part of an overall restructuring of the District's improvement districts, which also includes the reorganization of ID Nos. 153 and 253 and the formation of ID Nos. 185 and 285. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;
- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-50 allocation as a fair means of sharing improvement district debt service costs between the aggregate

contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital – project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward buildout. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plans of Works for the improvement districts consolidated as ID No. 225 were adopted or amended in 1978, except for ID No. 235, described in further detail below. In combination with local facilities specific to the individual improvement district, the 1978 Plans of Works provided for financing

of shares in a common regional system that included acquisition of capacity in the AMP and participation in the construction of the District's own well field in the main Orange County groundwater basin. Like IRWD, LAWD issued bonds in the early 1960s to construct a plan of works for the acquisition and distribution of a supplemental imported Colorado River water supply, in cooperation with neighboring districts. LAWD's share of the construction of the Santiago Aqueduct, extending 14 miles from Metropolitan Water District's Santiago Lateral, was financed by the sale in 1961 of general obligation waterworks bonds aggregating $1,410,000. Following the acquisition of sewering powers in 1963, LAWD obtained its initial authorization of sewer bonds in the amount of $6,140,000 in 1964, to complete a plan of works, the first phase of which consisted of trunk and sub-trunk sewers serving the two major drainage basins of LAWD and delivering the wastewater to a proposed treatment and water reclamation plant. Population growth generated the need for additional storage reservoirs and a filtration plant in the water system, and a treatment plant expansion, additional trunk and interceptor sewers and participation in a regional plant with ultimate ocean outfall facilities. As a result, in 1968, LAWD's 1961 water bond and 1964 sewer bond authorizations were supplemented by additional authorizations of $17,600,000 and $9,584,000, respectively. Subsequently, LAWD acquired capacity in the AMP as well as some groundwater production facilities, and abandoned its filtration plant. When LAWD consolidated with IRWD in 2000, ID No. 135, as LAWD's successor, had constructed regional water importation facilities comparable to IRWD's, but had not constructed comparable groundwater production capacity. IRWD's melded water rate structure is not applied in ID No. 135. Following the consolidation of ID No. 135 within ID No. 125, a planning area will be retained over the former ID No. 135 to facilitate the continuation of the separate water rate structure until satisfaction of equity considerations make the separate structure no longer necessary. Among the factors to be evaluated in placing the former ID No. 135 area in a parity rate structure will be the value derived from assets of the former LAWD and the contribution of ad valorem assessments from the area to ID No. 125 debt service.

The majority of the regional wastewater treatment, disposal and reclamation facilities exist. Based on its ultimate demands, ID No. 225 will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional MWRP capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 253 were primarily within former ID Nos. 230, 250, 253 and to a lesser extent, other improvement districts. The areas consolidated within ID No. 225 were formerly within several separate improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas consolidated as ID No. 225 are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 225 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 253 and 285, these distinctions are no longer prominent. The regional system and its integrated treatment and reclamation facilities provide uniform benefit to all of the component areas of ID No. 225 by satisfying basic treatment, disposal and recycled water supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 253 among its various planned development areas in proportion to their benefit.

Through the regional split, the areas within the consolidated ID No. 225 have shared the cost of IRWD's regional reclamation plants, as well as the treatment and disposal facilities of Orange County Sanitation District and its Revenue Area 14 under agreements between the District and OCSD. Not all of ID No. 225 and other improvement districts' service areas are tributary to all of the plants. However, the plants and their tributary regional collection systems are considered to function as one regional system and optimize the District's sewage collection and water reclamation systems and provide dual or backup treatment capability for various parts of the service area. The District is continuing to develop its capability for multiple discharge options among the tributary areas of the plants. Thus all areas participate proportionally in the regional system. All areas receive the uniform sewer rate which provides the benefit of reduced cost through treatment options. An exception to this is ID No. 240, which is sewered only to OCSD's regional plant and is not within OCSD's Revenue Area 14 nor tributary to the MWRP, LAWRP, or Chiquita plants. IRWD does provide sewage collection and recycled water service to ID No. 240. ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. ID Nos. 240, 252 and 256 are not included in the current reorganization and consolidation of improvement districts.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 225 as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 225

In parallel with the consolidation of ID No. 225 itself, portions of ID No. 225's territory will be retained as part of several improvement districts to form a reorganized improvement district designated ID No. 253. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." All of the developing areas reorganized into ID Nos. 253 are retained or reorganized within the boundaries of the underlying improvement district, ID No. 225. This assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as sewer trunk facilities, previously built with the proceeds of bonds of one of the improvement districts consolidated in the underlying improvement district.

Like ID No. 253, ID No. 225 will continue to share proportionally in the cost of completing the regional system, such as treatment plant expansion costs and the new capital portion of the cost of solids handling facilities. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete, and future regional projects will add components necessary to provide basic reliability, benefitting the developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 225 will exclude demands of 253, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within 253, between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered the case for the various geographic areas comprising ID No. 253. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 253.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 253, 285, 288, existing ID Nos. 212 and 213, and the consolidated developed ID No. 225 is

considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

Each developed area has already completed and paid for its local capital facilities. The combined collection and distribution system is of equal benefit to each customer. Local systems for the developing improvement districts will be borne by them exclusively, and the consolidated developing improvement district will not bear any of the cost of their local systems. Moreover, local facilities construction for each development area generally has preceded development, and differing connection fees have offset some or all of any disparities among local facilities cost among consolidating improvement districts.

6.7 IMPROVEMENT DISTRICT NO. 225 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 225 in several ways: (1) similarities or differences in future service needs among the areas identified for inclusion by annexation to, or by retention in, the reorganized as ID No. 225; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 225 ; and (3) regional cost allocation among ID No. 225 and other areas receiving benefit from the regional facilities. Also evaluated were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 253 comprise several non-contiguous planned development areas that were previously in different improvement districts. Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including source of water supply treatment and disposal), that would warrant exclusion from the ID No. 253 territory. The areas included in the reorganized ID No. 253 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated groundwater and imported water supplies integrated wastewater collection and treatment and recycled water systems. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use, it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 253 lands within the underlying improvement district, ID No. 225, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as trunk sewers, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 253 demands from the ID No. 225 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated

50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

The regional recycled water system and sewer collection system are considered to benefit all of the areas of former improvement districts reorganized as ID No. 225 in proportion to demand. To satisfy the remaining financing obligations of ID No. 225 to complete the regional supply system, there is no need for retaining separate allocations of regional cost sharing, as all of the improvement districts are substantially developed and are allocated proportionate shares based on demand. The supply, storage and non-local distribution and collection systems are essentially complete. The remaining regional cost obligations will consist primarily of regional treatment plant expansions, reliability and system enhancement and replacement projects. Apart from demand, no basis exists for allocating differing proportional cost responsibilities for these projects among the consolidating improvement districts.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 253 would receive benefit from ID No. 253 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 230, 250 and other improvement districts which will, instead, be included in the reorganized ID No. 225, open space, and areas contained within another developing improvement district. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 225. The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 253. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because, through the reorganized ID No. 225, their allocation of the cost of the regional system benefits will continue to be proportional.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 253, 225 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 253, 212, 213, 285 and 288 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the other separate developing improvement districts from ID No. 225 will facilitate the allocation of local

facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional system has been born by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of areas in both ID No. 253 and underlying ID No. 225. A similar regional allocation would be applied to replacements and enhancement projects, to the extent funded by the improvement districts. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1 (201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the 1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125 and 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in

proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 is contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Wastewater Treatment Master Plan and Sewer Collection System Master Plan, as to wastewater system facilities, and its Water Resources Master Plan, as to recycled water system facilities. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 225 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in development phasing, changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

The authorized and unissued bonds of the consolidated ID No. 225 are estimated to be sufficient to accomplish this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in development phasing, changes in technology and refinements in master planning and subarea master planning.

REVISED
PLAN OF WORKS
PROVIDING FOR DOMESTIC WATER SUPPLY,
STORAGE, TRANSMISSION AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 153

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Revised Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

For the overall District, the planning of the water supply, storage and distribution system has been accomplished by the Water Resources Master Plan ("WRMP") and its predecessor planning documents. The WRMP describes the facilities and entitlements needed to provide for ultimate demands and reliability over the entire District, both for the existing population and future development. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute and focused on specific elements. However, the WRMP is a comprehensive compilation of data and analyses that IRWD considers necessary for its planning needs, and as such, IRWD considers the WRMP its primary water planning document. The WRMP also includes recycled water supply, which is within the fiscal requirements of the sewer plans of works.] Subarea master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owner and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WRMP and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and it has also occurred in conjunction with improvement district reorganization. This Plan of Works has

been prepared in connection with the reorganization of Improvement District No. 153 to include a number of planned development areas within the improvement districts concurrently consolidated as Improvement District No. 125. See Section 1.3.

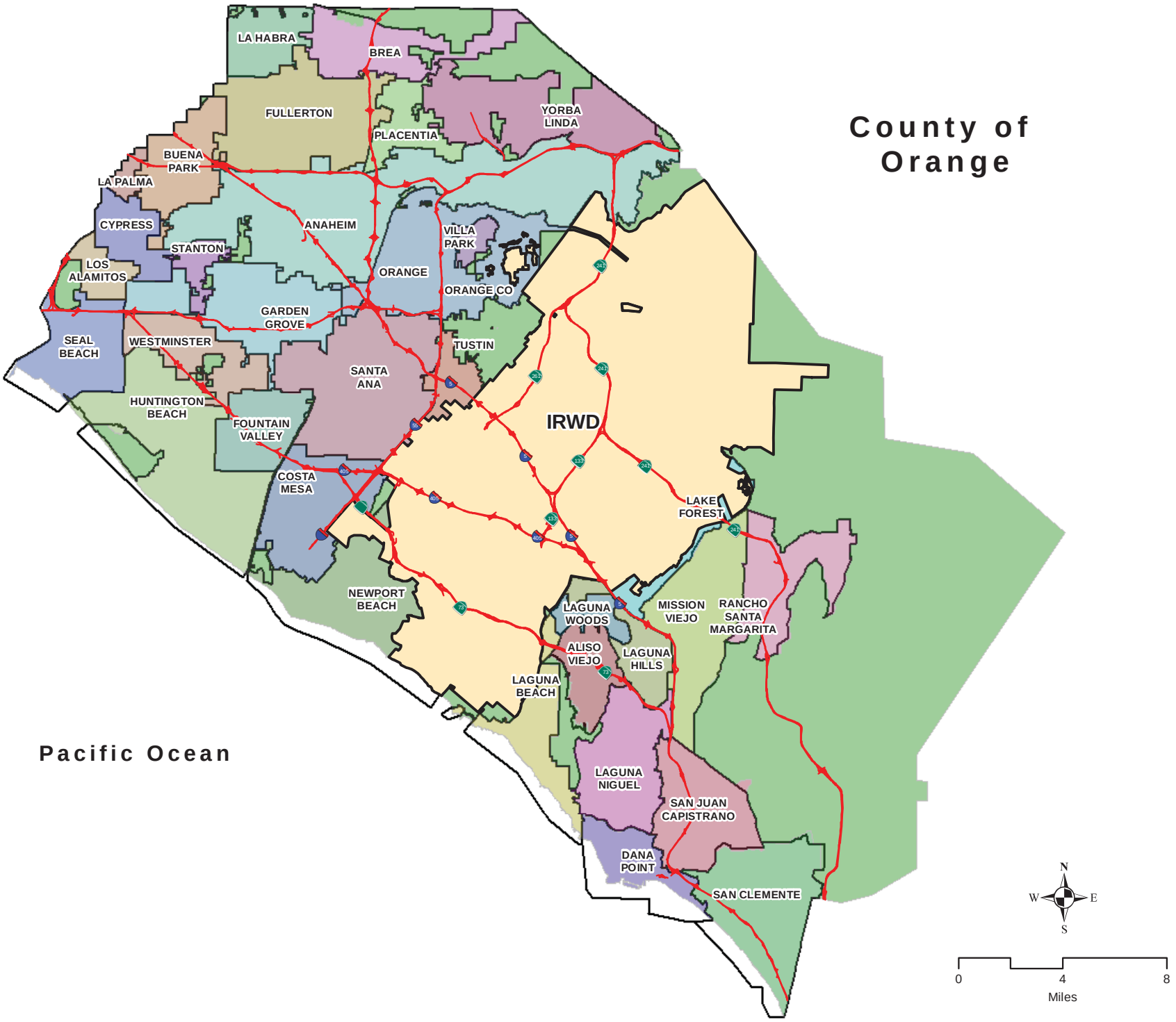
The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the domestic water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects which provide domestic water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the water system capital facilities; (2) provide a revised plan of works to supersede and replace the existing plan of works of the improvement district being reorganized; and (3) evaluate the benefit of the revised plan of works to the territory of the reorganized improvement district.

The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional domestic water supply, storage and transmission facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. See **Figure I-1** for a location Map of IRWD.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
E
S
0
4
8
Miles

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 108,000 water and approximately 103,500 sewer service connections.

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilities to be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size, location and phasing of sewer collection and recycled water delivery facilities to be constructed from the

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones.. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid- to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting

Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1 became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the improvement districts formed before 1978, each sewer improvement district preceded its water

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in [1986], over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

Regional Allocation. As the regional water system has been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently modified, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. As a result an improvement district can reach full development, but its regional system funding participation will continue. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding approach also recognizes that at any point in time prior to full buildout, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" and "210"areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas and benefit received from future capital facilities.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities

construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to buildout and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140. Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the buildout of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210" areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

Irvine Ranch Water District
2014 Potable Water System
Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 153
ID = 188
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 153
ID = 110
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

ID = 225

No ID

ID = 210

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an area wide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980s..

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

irrigation system would provide agricultural water until no longer needed. The cost of the untreated water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the water system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale

Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area.

Under an agreement entered into between the District and OCSD, the District acquired equity interests in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to buildout, the District has incorporated in its system planning efforts the updating of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 153

2.1 DESCRIPTION OF THE STUDY AREA

ID No. 153 as originally formed, represented the majority of the territory of ID No. 1 of the former Santiago County Water District, the area extending northward from Loma Ridge to the Fremont Canyon area. As a result of the current reorganization of ID No. 153, the land included in the improvement district consists of planned future development areas in portions of former ID No. 153 as well as planned future developments within other former improvement districts (principally former ID Nos. 105 and 130) that have been added to ID No. 153 by annexation. Areas of former ID No. 153 that contained permanent open space, including approximately 13,400 acres near the Lomas de Santiago ridgeline, have been excluded. The resulting Improvement District No. 153 is a developing improvement district that will function in tandem with existing ID Nos. 112 (former MCAS El Toro), 113 (former MCAS Tustin) and 188 (Portola Center) and new ID No. 185 , where development is underway, to provide equitable regional capital cost sharing by the District's developing areas.

To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. The District expects future development of the reorganized ID No. 253 to be predominantly residential with supporting commercial development, and expects development in ID No. 253 to continue through at least 2035.

Figure II-1 shows the boundaries of reorganized ID No. 253, encompassing about _____ acres.

The reorganized ID No. 253 includes portions of the following planned development areas as depicted on **Figures II-1a through II-1e**:

- **Figure II-1a** depicts portions of Planning Areas 1 and 2 (north of Portola Parkway, between the Eastern Transportation Corridor and Jeffrey Road), Planning Areas 5B, and 9B (north of the Irvine Blvd to Portola Parkway, bisected by Jeffrey Road);

- **Figure II-1b** depicts portions of Planning Area 6 (southeast of the intersection of the Eastern Transportation Corridor and the Foothill Transportation Corridor), Planning Areas 30 (northeast of the intersection of I-5 and I-405), and Planning Area 40 (north of I-5 generally bounded by Trabuco Road, Future O Street, and Jeffrey Road) ;

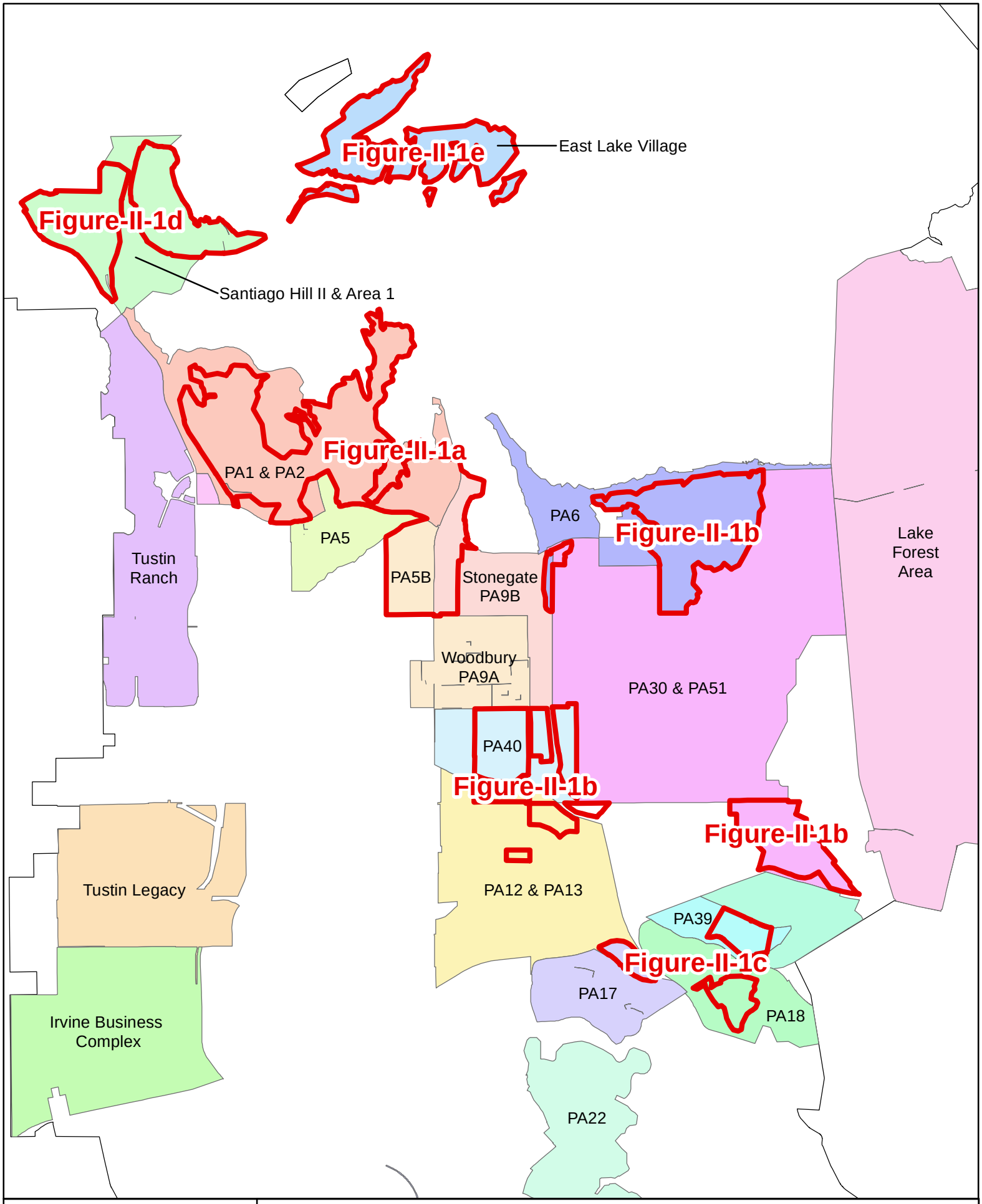
- **Figure II-1c** depicts portions of Planning Area 17 (southwest of the intersection of I-405 and SR-133), Planning Area 18 (south-east of the intersection SR-133 and I-405), Planning Area 39 (south of Irvine Center Drive, between I-405 and Bake Parkway);

- **Figure II-1d** depicts Santiago Hills II and East Orange Area 1 (east of Jamboree Road and north of the intersection of SR-241/Santiago Canyon Road and SR-261); supplemented by Santiago Hills Integration Study ;

- **Figure II-1e** depicts East Orange General Plan ("Lake Village" -- north of Santiago Canyon Road and southeast of Irvine Lake; also supplemented by Santiago Hills Integration Study);

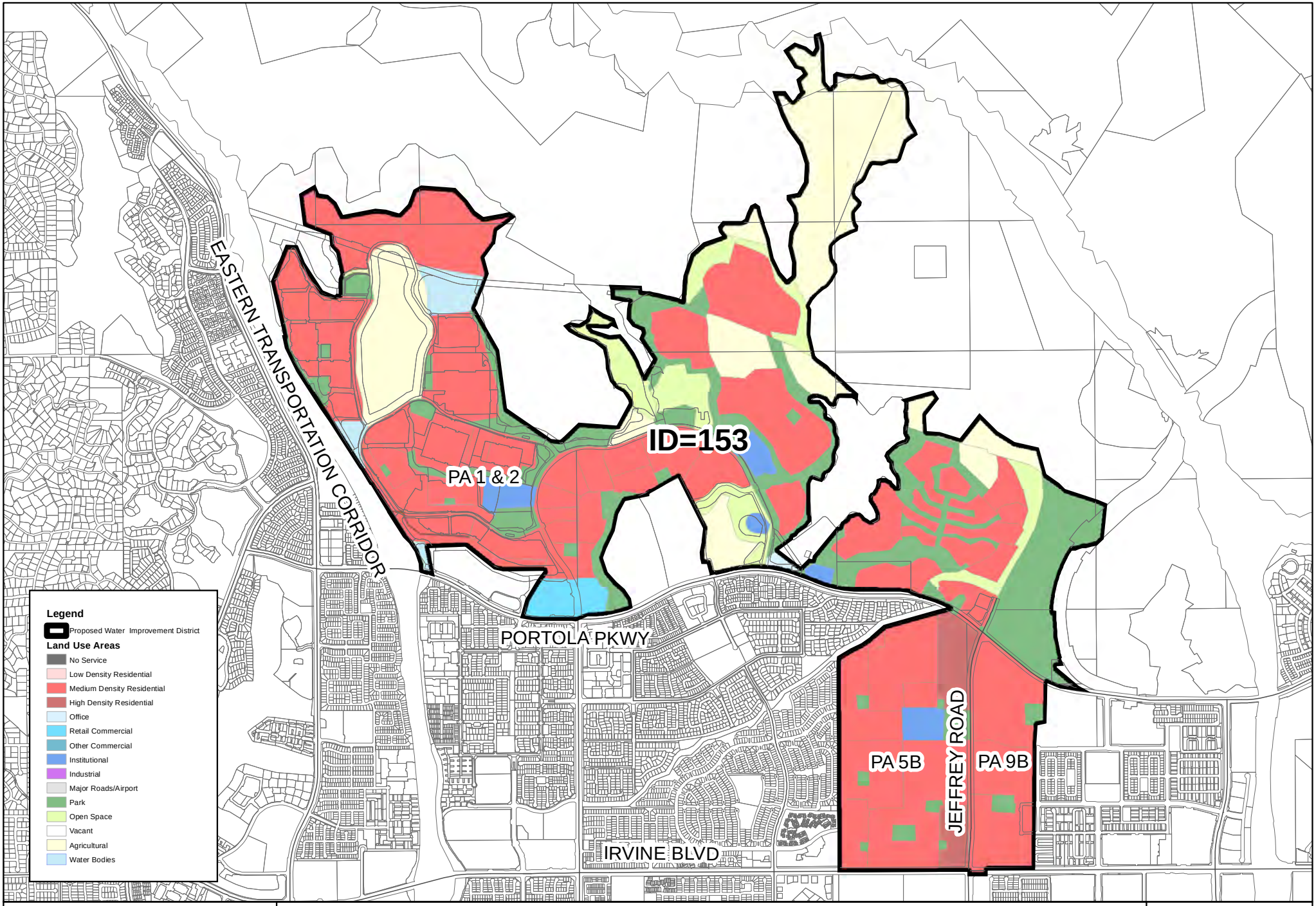
Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.



IRVINE RANCH WATER DISTRICT

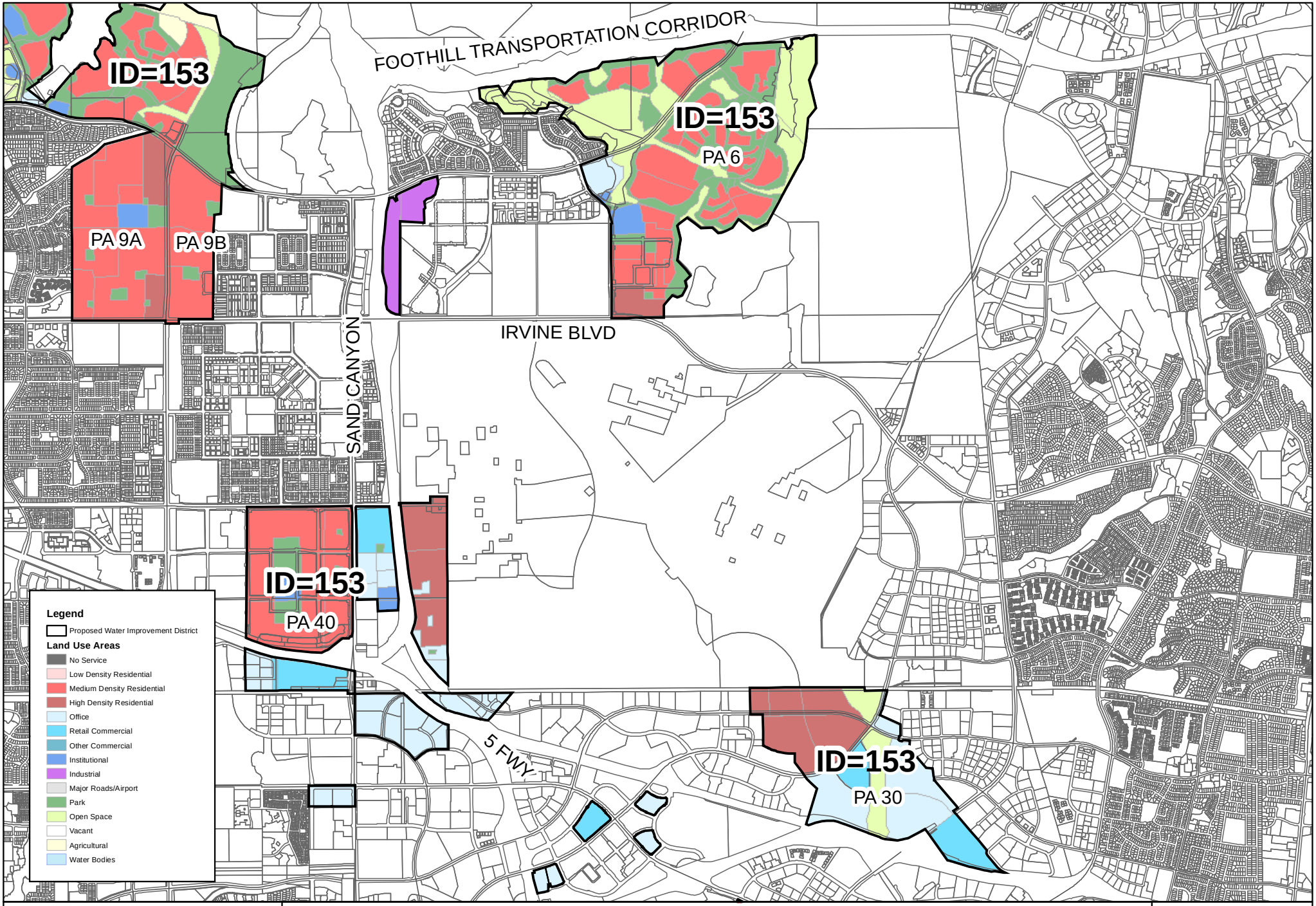
POTABLE ID-153 LAND USE PLAN INDEX



IRVINE RANCH WATER DISTRICT

POTABLE IMPROVEMENT DISTRICT 153
PLANNING AREAS 1, 2, 5B, AND 9B PROPOSED LAND USE

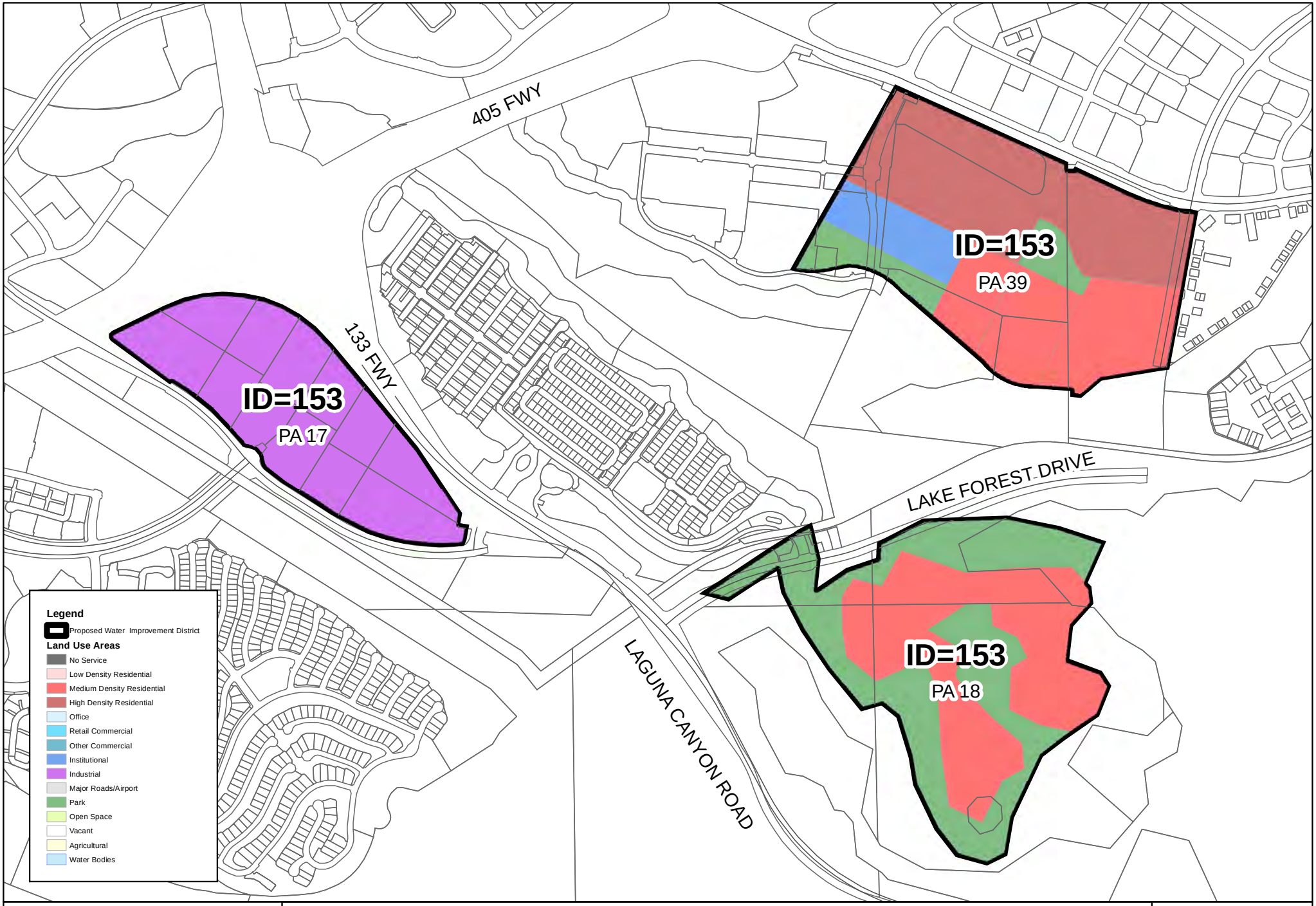
FIGURE-II-1a



IRVINE RANCH WATER DISTRICT

WATER IMPROVEMENT DISTRICT 153
PA 6, PA 30, PA 40, PA 51 PROPOSED LAND USE

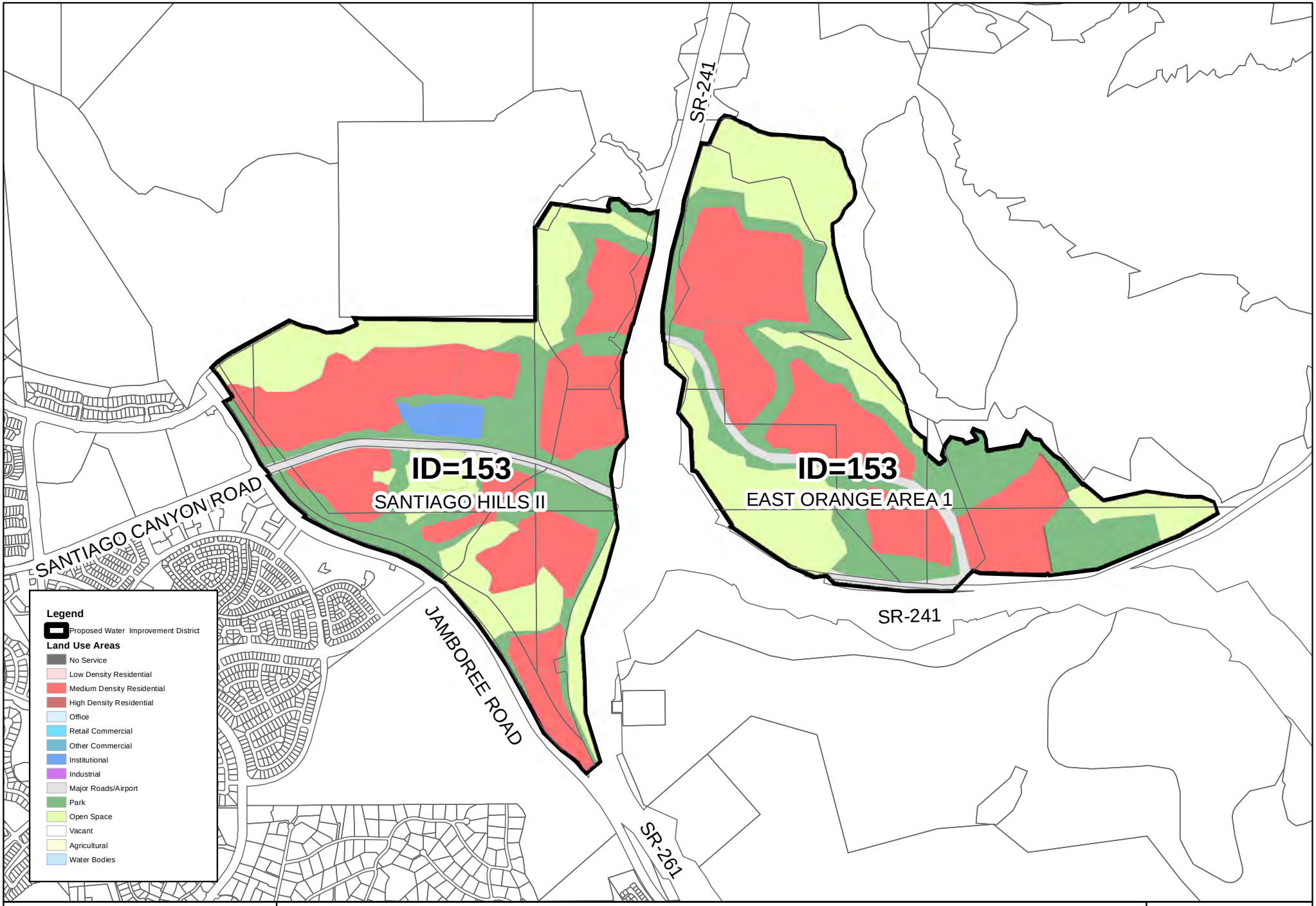
FIGURE-II-1b



IRVINE RANCH WATER DISTRICT

POTABLE IMPROVEMENT DISTRICT 153
PLANNING AREA 17, 18 AND 39 PROPOSED LAND USE

FIGURE-II-1c



IRVINE RANCH WATER DISTRICT

POTABLE IMPROVEMENT DISTRICT 153
SANTIAGO HILL II AND EAST ORANGE AREA 1 PROPOSED LAND USE

FIGURE-II-1d



IRVINE RANCH WATER DISTRICT

POTABLE IMPROVEMENT DISTRICT 153
EAST LAKE VILLAGE AREA

FIGURE-II-1e

2.3 DEMAND AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2**.

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 – Treated Water Demand: Tabulates the average daily water demand at build-out (2035) within the reorganized ID No. 153 service area, using the District's ***demand forecasting tool***.

PA	Land Use Code	Description	2035 Potable Demands (AFY)
Planning Area EO-3A, 3B, 6A - Santiago Hills, East Lake Village			
EO-03A	1131	Low Density	409.55
	1141	Low-Medium Density	173.20
	1161	Medium Density	286.99
	1260	School	18.32
	1820	Community Park	23.87
	1830	Regional Park	201.26
EO-03B	1131	Low Density	204.13
	1141	Low-Medium Density	265.68
	1820	Community Park	49.46
	1830	Regional Park	198.63
EO-06A	1131	Low Density	655.49
	1141	Low-Medium Density	163.41
	1230	Commercial Recreation	32.40
	1290	Hotel	24.23
	1820	Community Park	11.66
	1830	Regional Park	949.37
		Subtotal	3,667.65
Planning Area 1 and 2 - Orchard Hills			
I-01,02	1132	Low Density	616.93
	1162	Medium Density	424.65
	1172	Medium-High Density	264.90
	1210	General Office	4.39
	1221	Community Commercial	41.57
	1240	Institutional	3.97
	1260	School	10.74
	1820	Community Park	12.21
	1830	Regional Park	38.78
		Subtotal	1,418.13
Planning Area 5B			
I-05B	1132	Low Density	140.00
	1162	Medium Density	299.84
	1172	Medium-High Density	70.46
	1182	High Density	85.00
	1260	School	7.59
	1820	Community Park	7.49
		Subtotal	610.39

PA	Land Use Code	Description	2035 Potable Demands (AFY)
Planning Area 6 - Portola Springs			
I-06	1132	Low Density	110.79
	1162	Medium Density	277.30
	1172	Medium-High Density	127.98
	1182	High Density	95.83
	1210	General Office	21.10
	1240	Institutional	1.09
	1260	School	7.43
	1310	Industrial - Light	76.68
	1820	Community Park	4.14
	1830	Regional Park	22.60
	1840	Fuel Modification Zone	8.86
		Subtotal	753.79
Planning Area 9B - Stonegate			
I-09B	1132	Low Density	75.60
	1162	Medium Density	133.39
		Subtotal	208.99
Planning Area 17 and 18 - Quail Hill and Hidden Canyon			
I-17	1310	Industrial - Light	102.35
I-18	1132	Low Density	136.99
	1820	Community Park	0.75
	1840	Fuel Modification Zone	14.07
		Subtotal	254.15
Planning Area 30 - Great Park Neighborhoods			
I-30	1182	High Density	716.90
	1210	General Office	144.04
	1221	Community Commercial	88.17
		Subtotal	949.11
PA-31, 32, 33a, and 35 - Spectrum Area			
I-31	1210	General Office	74.89
I-32	1210	General Office	32.42
I-33a	1192	High Rise Density	150.24
	1820	Community Park	2.08
I-35	1210	General Office	2.29
	1310	Industrial - Light	7.30
		Subtotal	269.21

PA	Land Use Code	Description	2035 Potable Demands (AFY)
Planning Area 39			
I-39	1172	Medium-High Density	172.91
	1182	High Density	222.40
	1230	Commercial Recreation	4.73
	1260	School	7.18
	1820	Community Park	5.82
		Subtotal	413.05
Planning Area 12 and 40 - Cypress Village			
I-12	1210	General Office	35.67
	1221	Community Commercial	54.88
I-40	1162	Medium Density	188.16
	1172	Medium-High Density	215.60
	1182	High Density	232.06
	1210	General Office	45.29
	1221	Community Commercial	38.80
	1240	Institutional	3.79
	1260	School	4.21
		Subtotal	818.47

Total ID 153 Water Demands **9,362.95**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the current consolidation process, 11 of IRWD's 16 water improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed , as well as certain remaining lands proposed for development that are also included in reorganized ID No. 153 and newly formed 185. Existing water ID Nos. 112, 113,154 and 188 are not included in the reorganization or consolidation actions. Regional water project costs will continue to be allocated to each water improvement district based on that improvement district's pro-rata share of the ultimate IRWD treated water demand.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full buildout, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed treated water supply, storage and transmission facilities needed to provide an adequate and reliable water system meeting the ultimate needs of ID No. 153.

Periodically, IRWD revises its treated water improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence treated water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal water demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

A description and cost estimate of the proposed regional domestic water facilities share allocated to ID No. 153 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 153

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
10204	LAKE FOREST WELL 8 DRILLING	Regional	11.1%	$61,624	$29,092	$32,533	$0	$0
10205	LAKE FOREST WELL 8 WELLHEAD	Regional	11.1%	$62,492	$24,847	$37,644	$0	$0
10294	LAKE FOREST WELL 6 DRILLING	Regional	11.1%	$61,624	$29,092	$32,533	$0	$0
10295	LAKE FOREST WELL 6 WELLHEAD	Regional	11.1%	$62,492	$24,847	$37,644	$0	$0
10391	DATS & WELL 77 LEASE PAYMENT 13/14	Regional	11.1%	$52,027	$52,027	$0	$0	$0
10392	DATS & WELL 77 LEASE PAYMENT 14/15	Regional	11.1%	$59,502	$59,502	$0	$0	$0
10393	DATS & WELL 77 LEASE PAYMENT 15/16	Regional	11.1%	$68,435	$4,741	$63,694	$0	$0
10394	DATS & WELL 77 LEASE PAYMENT 16/17	Regional	11.1%	$79,039	$0	$79,039	$0	$0
10395	DATS & WELL 77 LEASE PAYMENT 17/18	Regional	11.1%	$90,887	$0	$90,887	$0	$0
10396	DATS & WELL 77 LEASE PAYMENT 18/19	Regional	11.1%	$104,744	$0	$104,744	$0	$0
10397	DATS & WELL 77 LEASE PAYMENT 19/20	Regional	11.1%	$120,709	$0	$120,043	$666	$0
10428	51 & 52 WELLHEADS, PIPELINE & TREATMENT	Regional	11.1%	$4,485,643	$0	$4,485,643	$0	$0
11055	ENG PLANNING STUDY RESERVE 13/14	Regional	11.1%	$24,237	$24,237	$0	$0	$0
11056	ENG PLANNING STUDY RESERVE 14/15	Regional	11.1%	$26,661	$26,661	$0	$0	$0
11057	ENG PLANNING STUDY RESERVE 15/16	Regional	11.1%	$29,334	$0	$29,334	$0	$0
11096	GIS SUPPORT APPLICATIONS 13/14	Regional	11.1%	$7,350	$7,350	$0	$0	$0
11097	GIS SUPPORT APPLICATIONS 14/15	Regional	11.1%	$8,085	$8,085	$0	$0	$0
11129	HYDRAULIC MODELING 13/14	Regional	11.1%	$5,385	$5,385	$0	$0	$0
11131	HYDRAULIC MODELING 14/15	Regional	11.1%	$5,923	$5,923	$0	$0	$0
11163	CROSS VALLEY CANAL CAPACITY PURCHASE	Regional	11.1%	$10,562	$10,562	$0	$0	$0
11218	BAKER WTP	Regional	11.1%	$9,960,439	$6,358,868	$3,601,571	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11271	OCWD ANNEXATION FEE 14/15	Regional	11.1%	$57,458	$57,458	$0	$0	$0
11275	OCWD ANNEXATION FEE 15/16	Regional	11.1%	$65,112	$0	$65,112	$0	$0
11277	OCWD ANNEXATION FEE 16/17	Regional	11.1%	$73,753	$0	$73,753	$0	$0
11278	OCWD ANNEXATION FEE 17/18	Regional	11.1%	$83,579	$0	$83,579	$0	$0
11279	OCWD ANNEXATION FEE 18/19	Regional	11.1%	$94,690	$0	$94,690	$0	$0
11280	OCWD ANNEXATION FEE 19/20	Regional	11.1%	$110,529	$0	$109,863	$666	$0
11281	OCWD ANNEXATION FEE 20/21	Regional	11.1%	$125,248	$0	$0	$125,248	$0
11282	OCWD ANNEXATION FEE 21/22	Regional	11.1%	$141,911	$0	$0	$141,911	$0
11284	OCWD ANNEXATION FEE 22/23	Regional	11.1%	$160,798	$0	$0	$160,798	$0
11285	OCWD ANNEXATION FEE 23/24	Regional	11.1%	$182,217	$0	$0	$182,217	$0
11286	OCWD ANNEXATION FEE 24/25	Regional	11.1%	$206,473	$0	$0	$204,595	$1,878
11289	STRAND RANCH FACILITIES AND MONITORING	Regional	11.1%	$40,443	$40,367	$75	$0	$0
11325	IDP WELLS,PIPELINES,TREATMENT PLNT IMPR	Regional	11.1%	$17,705	$17,705	$0	$0	$0
11331	TIC WELLS 109/112/114	Regional	11.1%	$2,923,859	$0	$0	$2,923,859	$0
11339	AUTOMATION SYSTEM IMPROVEMENTS DW	Regional	11.1%	$29,455	$18,667	$10,788	$0	$0
11368	WATER BANKING EXPANSION	Regional	11.1%	$357,619	$226,641	$130,978	$0	$0
11384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	11.1%	$31,074	$31,074	$0	$0	$0
11455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	11.1%	$94,796	$94,796	$0	$0	$0
11473	WELL 106 REPLACEMENT DRILLING & SITE	Regional	11.1%	$284,643	$284,643	$0	$0	$0
11560	LAKE FOREST DW OFFSITE IMPROVEMENTS	Regional	11.1%	$149,811	$81,284	$68,527	$0	$0
11578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	11.1%	$189,740	$0	$189,740	$0	$0
11582	GEN SYS MODS 13/14	Regional	11.1%	$16,569	$16,569	$0	$0	$0
11596	WATER BANKING AGREEMENTS	Regional	11.1%	$14,667	$14,667	$0	$0	$0
11627	WELL 115 REPLACEMENT WELL/WELLHEAD &	Regional	6.5%	$271,993	$271,993	$0	$0	$0
11631	GROUNDWATER DISPOSAL SYSTEM CONCEPT	Regional	11.1%	$36,471	$36,471	$0	$0	$0
11637	JACKSON RANCH SOLAR PROJECT	Regional	11.1%	$10,476	$10,476	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11645	STOCKDALE WEST RANCH JOINT BANKING	Regional	11.1%	$699,387	$656,678	$42,709	$0	$0
11648	GEN SYS MODS 14/15	Regional	11.1%	$18,226	$18,226	$0	$0	$0
11655	SKYLIGHT PROTECTION	Regional	11.1%	$4,274	$4,274	$0	$0	$0
11665	SJM BUILDING CAMPUS MOLD REMEDIATION	Regional	5.6%	$2,570	$2,570	$0	$0	$0
11675	MANNING BPS PERMANENT GENERATOR	Regional	11.1%	$27,302	$27,302	$0	$0	$0
11686	EOCWD - IRWD JOINT WELL PLANNING REPORT	Regional	11.1%	$5,946	$5,946	$0	$0	$0
11687	RMS AT 5 DOMESTIC WATER RESERVOIRS	Regional	11.1%	$345,020	$260,113	$84,907	$0	$0
11697	GEN SYS MODS 15/16	Regional	11.1%	$20,054	$0	$20,054	$0	$0
11726	STRAND RANCH KERN RIVER EXPORTABILITY	Regional	11.1%	$14,481	$14,481	$0	$0	$0
11738	WATER BANKING PLANNING	Regional	11.1%	$33,675	$33,675	$0	$0	$0
11742	LTFP ID CONSOLIDATION	Regional	11.1%	$9,519	$9,519	$0	$0	$0
12326	SCWD INTEGRATION STUDY REGIONAL PIPES	Regional	11.1%	$2,892,367	$0	$2,892,367	$0	$0
12328	SCWD INTEGRATION STUDY REGIONAL PUMPS	Regional	11.1%	$997,813	$0	$997,813	$0	$0
12329	SCWD INTEGRATION STUDY PIPES FOR 150 / 153	Regional	11.1%	$3,170,558	$0	$3,170,558	$0	$0
15051	WELLS 51/52/53 TREATMENT ALTERNATIVES	Regional	11.1%	$16,300	$16,300	$0	$0	$0
15052	JOINT WELL FIELD WITH ANAHEIM - WELLHEADS	Regional	11.1%	$3,344,962	$0	$2,221,900	$1,123,062	$0
15423	TUSTIN LEGACY WELLS 1, 2, 3 & 4	Regional	11.1%	$3,457,688	$0	$3,457,688	$0	$0
15428	WELL 53 SITE ACQUISITION & WELL DRILLING	Regional	11.1%	$341,905	$154,980	$186,925	$0	$0
19420	OCWD ANNEXATION	Regional	11.1%	$17,033	$17,033	$0	$0	$0
				$36,577,362	**$9,095,127**	**$22,617,334**	**$4,863,023**	**$1,878**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving one or more of the planned development areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s). For the purpose of this POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

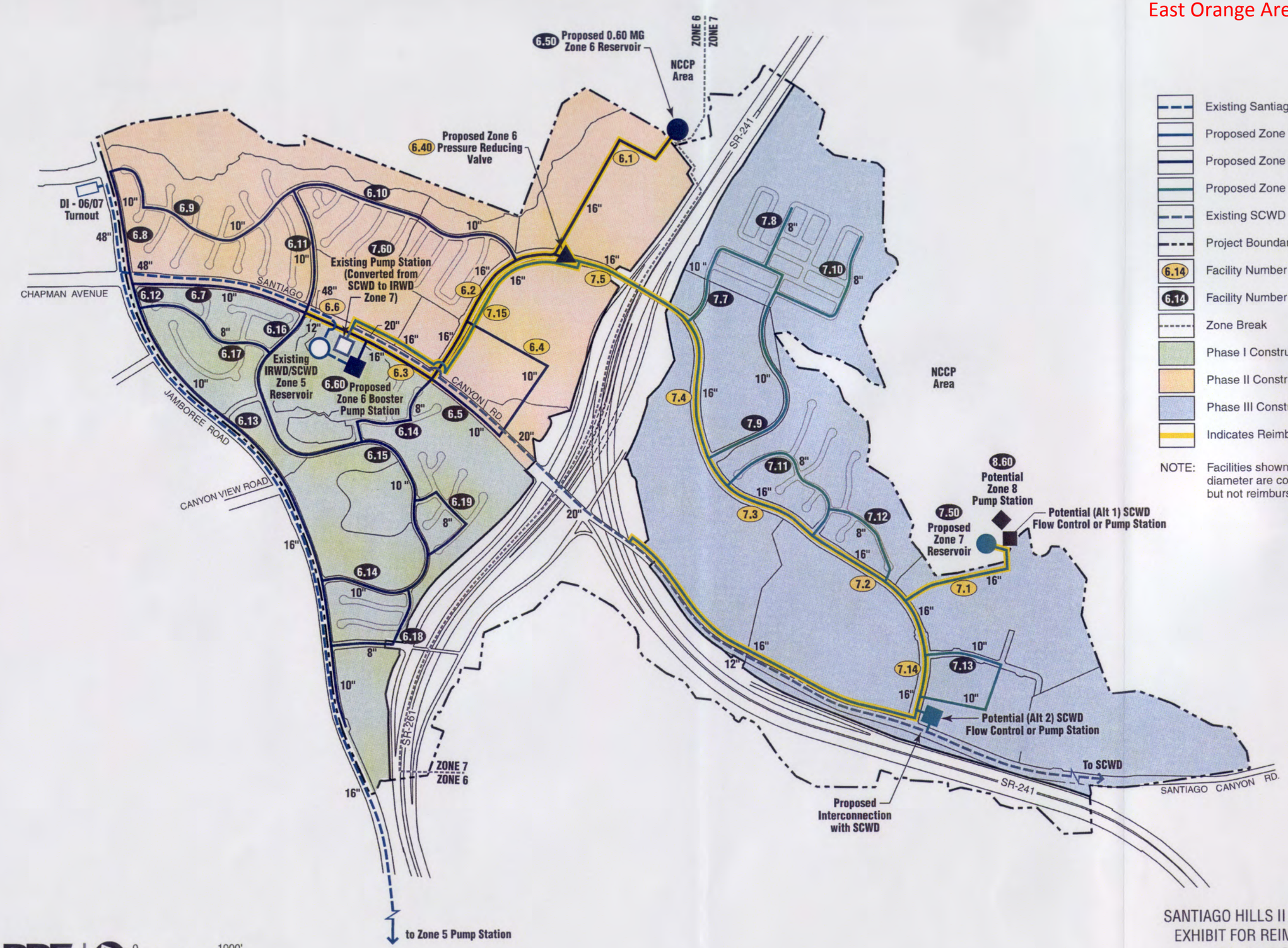
The proposed local master plan facilities for ID No. 153 are detailed in **Table IV-1** and shown on **Figure IV-1a** though **IV-1j**. These figures, taken from the sub-area master plans, show both facilities inside and outside the improvement district's boundary, and some facilities shown may have already been constructed. The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 153

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
10423	PA9 JEFFREY RD 12" ZONE 3 - IRVINE BLVD TO	Local	100.0%	$1,098,460	$1,098,460	$0	$0	$0
10446	PA18 ZN 3-4 BPS	Local	100.0%	$2,597,815	$2,597,815	$0	$0	$0
11138	SANTIAGO HILLS II DW FACILITIES	Local	100.0%	$36,881,048	$0	$2,912,747	$33,968,301	$0
11405	OPA / REGIONAL GROUNDWATER PROJECT	Sub-Regional	75.0%	$3,589,163	$3,589,163	$0	$0	$0
11408	OPA / REGIONAL TRANSMISSION MAIN	Sub-Regional	75.0%	$150,068	$150,068	$0	$0	$0
11605	PA 40 PHASE 2 DW FACILITIES	Local	100.0%	$59,950	$59,950	$0	$0	$0
11613	PA1 PHASE 2: 16" Z5 PIPE, 5-4 PRV'S	Local	100.0%	$2,279,994	$0	$2,273,349	$6,645	$0
11633	PA 40 PHASE 3-5 DW FACILITIES	Local	100.0%	$997,104	$0	$997,104	$0	$0
11641	PA 18 SOUTH DW FACILITIES	Local	100.0%	$2,110,330	$1,119,800	$990,530	$0	$0
11739	PA 18S HIDDEN CANYON 12" ZONE 3 DW	Local	100.0%	$180,928	$180,928	$0	$0	$0
				$49,944,860	**$8,796,183**	**$7,173,731**	**$33,974,946**	**$0**

East Orange Area 1, Santiago Hills II



- Existing Santiago Canyon Road Pipeline (SCRP)
- Proposed Zone 5 Pipeline
- Proposed Zone 6 Pipeline
- Proposed Zone 7 Pipeline
- Existing SCWD Supply System
- Project Boundary
- Facility Number (Reimbursable)
- Facility Number (Non-Reimbursable)
- Zone Break
- Phase I Construction
- Phase II Construction
- Phase III Construction
- Indicates Reimbursement Facilities

NOTE: Facilities shown here **AND** less than 12-inch diameter are considered back bone facilities but not reimbursement facilities.

RBF CONSULTING

0 1000'

8/30/05 JN 10-104353-12158

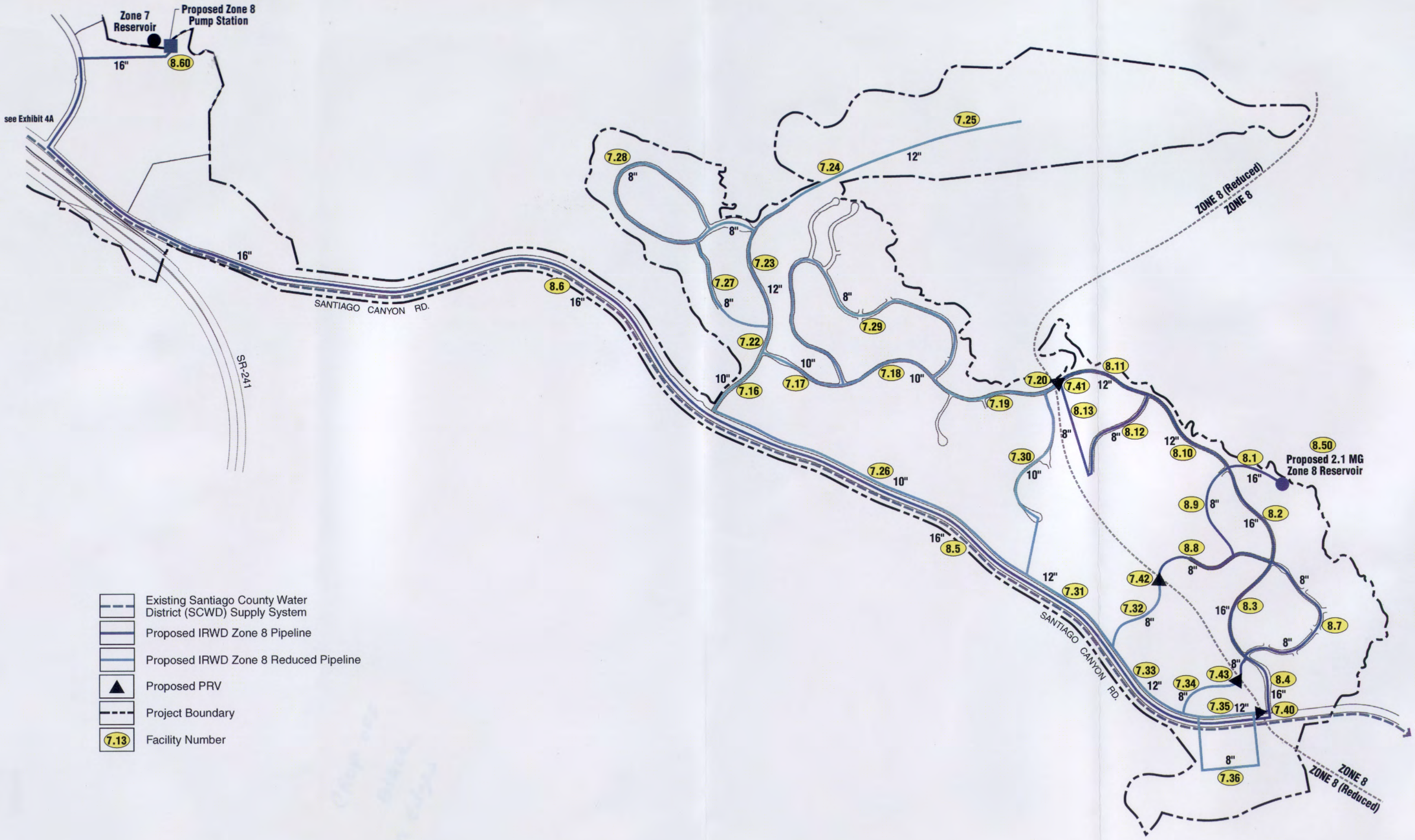
ENGINEERING & PLANNING

NOV 28 2005

IRVINE RANCH WATER DISTRICT

SANTIAGO HILLS II AND EAST ORANGE AREA I
EXHIBIT FOR REIMBURSEMENT AGREEMENT

Potable Water System



Existing Santiago County Water District (SCWD) Supply System

Proposed IRWD Zone 8 Pipeline

Proposed IRWD Zone 8 Reduced Pipeline

Proposed PRV

Project Boundary

7.13 Facility Number

RBF CONSULTING

0 1200'

12/29/04 JN 10-103212-11554

EAST ORANGE LAKE VILLAGE SAMP

Proposed Potable Water Distribution System

Exhibit 4B

Orchard Hills - PA 1,2

TO SANTIAGO ZONE 5 RESERVOIR

CONNECT PROPOSED 16-INCH ZONE 5 PIPELINE TO EXIST. 16-INCH ZONE 5 PIPELINE IN JAMBOREE ROAD

EXIST. ZONE 5 TO 4

EXIST. TUSTIN ZONE 5 BPS

EXIST. ZONE 5 TO 3.5 & EXIST. ZONE 5 TO 3 PRV STATION WITHIN BPS

P-1

P-2

P-3

P-4

P-5

P-6

P-7

P-8

P-9

P-10

P-11

PROPOSED 10 MG ZONE 5 RESERVOIR LOCATION

66" ALLEN-McCOLLOCH PIPELINE (AMP)

39" BAKER PIPELINE

OC-71

54" IRVINE LAKE PIPELINE (ILP)

EXISTING DW 5.0 MG ZONE 3 RESERVOIR

AVOCADO ORCHARDS

PROPOSED RES. ACCESS ROAD

EASTERN TRANSPORTATION CORRIDOR - R261

TUSTIN RANCH DRIVE

JAMBOREE RD

GATE PARK

CULVER DR

PORTOLA PKWY

EXISTING IRWD DW & RW RESERVOIR INLET/OUTLET PIPELINES TO BE RELOCATED WITHIN LOOP ROAD FROM CULVER DR

NORTHWOOD HIGH SCHOOL

EXISTING ZONE 2 RESERVOIR

EXISTING ZONE 4 RESERVOIR & RATTLESNAKE ZONE B PUMP STATION COMPLEX

RATTLESNAKE RESERVOIR

TEMP. CONNECTION BETWEEN ZONE 5/4R FOR PHASE I OPERATION

PROPOSED ZONE 3-5 BOOSTER PUMP STATION

20" & 30" ZONE 3 PIPELINE IN PORTOLA PKWY AS IDENTIFIED IN PA 3B, 8A, 5A AND SPECTRUM 8 SAMP

EXIST. ZONE 3 BPS AT JAMBOREE & PETER'S CANYON

N.A.P.

ZONE	PAD ELEVATION BELOW WHICH INDIVIDUAL PRV REQUIRED
3	285
4R	340
4	455
5	551
5R	471

LEGEND

- EXISTING ZONE 2 PIPELINE
- EXISTING ZONE 3 PIPELINE
- ZONE 3 – 470 HGL
- ZONE 4R – 525 HGL
- ZONE 4 – 640 HGL
- ZONE 5 – 736 HGL
- ZONE 5R – 656 HGL
- NCCP NATURE RESERVE
- WATER BODY
- ≥ 80 PSI MAX STATIC
- BOOSTER PUMP STATION
- PRESSURE REDUCING STATION
- 1 PROPOSED WATER SAMPLING STATION

SCALE: 1" = 1250'

NOTE:
ALL PIPELINES ARE 8", UNLESS OTHERWISE NOTED.

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PREPARED FOR:
IRVINE RANCH WATER DISTRICT

PLANNING AREAS 1 AND 2 SAMP DOMESTIC WATER SYSTEM FACILITIES

FIGURE 3-3

EXISTING NORTHWOOD ZONE 3 TANK
FUTURE 30" PIPELINE RELOCATION THROUGH PA 1 & 2
APPROXIMATE TRANSITION POINT FROM THE 30" TO THE 20" PARALLEL PIPELINE
RATTLESNAKE RESERVOIR
ZONE 3 TO 5 BPS PER PA 1 & 2 SAMP
EXISTING NORTHWOOD ZONE 2
PA 1 AND 2
EXISTING 16" LINE IN PORTOLA BETWEEN YALE & SAND CANYON TO BE CONVERTED TO NON-POTABLE ZONE C TRANSMISSION MAIN
SMALL PRIVATE BPS TO SERVE RESTROOMS IN GATEWAY PARK ZONE 4 AREA
PROPOSED 6.0 MG ZONE 3 TANK
OC-77 TURNOUT W/MODIFICATIONS TO ZONE 4
78" AMP
39" BAKER PIPELINE
20" INLET/OUTLET CONNECTED TO 48" PIPELINE
SIPHON RESERVOIR
PA 6
ZONE 4 TO ZONE 4R PRV
ZONE 3 TO ZONE 4 BPS
PORTOLA PARKWAY
CULVER DRIVE
YALE AVENUE
PA 5B
PA 9B
48" ZONE 3 RELOCATION
PA 9C
IRVINE BLVD
12" ZONE 4R TO CONNECT TO EXIST. 20" PIPE
P-9 ZONE 3 TO 3R
EXISTING PRV (P5) ZONE 3 TO 2
P-8 ZONE 3 TO 3R
JEFFREY ROAD
PA 9A
SAND CANYON AVE.
16" PIPE TO BE RELOCATED
BRYAN AVENUE
PA 8A
TRABUCO ROAD
P-2
P-7
P-1
P-3
SPECTRUM 8
EASTERN TRANSPORTATION CORRIDOR
P-4
P-5
SANTA ANA FREEWAY (I-5)
FORMER EL TORO MARINE CORPS AIR STATION
SCALE: 1" = 2200'

DISCONNECT EXISTING 10" ZONE 1 PIPE IN TRUMAN STREET FROM 24" PIPELINE IN TRABUCO RD AND CONVERT TO ZONE 2 WITH CONNECTION TO THE CONVERTED 12" ZONE 2 PIPELINE IN ROOSEVELT.

CONVERT EXISTING 12" ZONE 1 PIPE IN ROOSEVELT ST TO ZONE 2 BETWEEN JEFFREY RD AND TRUMAN ST. DISCONNECT FROM 36" PIPELINE IN JEFFREY RD AND 12" PIPELINE WESTERLY IN ROOSEVELT.

ZONE	PAD ELEVATION BELOW WHICH INDIVIDUAL PRV REQUIRED
3R	195
3	285
4R	375
4	455

LEGEND

- PROPOSED ZONE 2 (355 HGL) PIPELINES
- PROPOSED ZONE 3R (380 HGL) PIPELINES
- PROPOSED ZONE 3 (470 HGL) PIPELINES
- PROPOSED ZONE 4R (540 HGL) PIPELINES
- FUTURE ZONE 4 (640 HGL) PIPELINES
- EXISTING ZONE 1 PIPELINES
- EXISTING ZONE 2 PIPELINES
- EXISTING ZONE 3 PIPELINES
- EXISTING ZONE 3 PIPELINE TO BE CONVERTED TO THE NON-POTABLE WATER SYSTEM
- ZONE 1 TO 2 CONVERSION PIPELINE
- NCCP NATURE RESERVE
- PRESSURE REDUCING STATION
- STORAGE TANK
- BOOSTER PUMP STATION
- PRIMARY FEED

NOTE:
ALL PIPELINES ARE 8" DIAMETER UNLESS OTHERWISE SHOWN.

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IRVINE RANCH WATER DISTRICT

PLANNING AREAS 5B, 8A, 9A, AND SPECTRUM 8 SAMP UPDATE DOMESTIC WATER SYSTEM FACILITIES

FIGURE 3-3

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This map is not intended to replace a survey by a Lic-California Surveyor. Stantec does not certify the accuracy of the data. This map is for reference only and should not be used for construction.

2.5 MG ZONE 6 STORAGE TANK
6.0 MG ZONE 3 STORAGE TANK
3.5 MB ZONE 4 STORAGE TANK
ZONE 4 TO 6 BPS
NCCP NATURE RESERVE
FOOTHILL TRANSPORTATION CORRIDOR SR-241
OC-72 TURNOUT W/MODIFICATIONS TO ZONE 4
IRWD
PROP 30" PIPE TO CONNECT TO EXIST. 48" PIPE
EXISTING 16" TO BE CONVERTED TO RW ZONE C
NB1
NB2
NB3
NB4A
NB4B
NB5A
NB5B
NB5C
NB6
N.A.P.
LAMBERT SISTERS
LAMBERT RANCH
PORTOLA PARKWAY
TOMATO SPRINGS
NATIVE SPRINGS PARKWAY
PORTOLA SPRINGS
P-1
P-2
P-3
P-4
P-5
P-6
P-7
P-8
P-9
ZONE 3 TO 4 BPS & ZONE 4 TO 4R PRV CONNECT TO DISCHARGE OF PRV
ZONE 4 TO 4R PRV PER PA30 & 51 SAMP
GREAT PARK NEIGHBORHOODS
MARSHBURN DETENTION BASIN
U.C. REGENTS
WALKING STICK
STILL NIGHT
MODJESKA
LAMBERT ROAD
SAND CANYON AVE
EASTERN TRANSPORTATION CORRIDOR SR-133
ALT. CONNECTION TO GREAT PARKS NEIGHBORHOODS
ALT. CONNECTION TO IRVINE BLVD
IRVINE BLVD
FUTURE 8" CONNECTION TO THE GREAT PARK DEVELOPMENT
FUTURE 8" CONNECTION TO THE GREAT PARK DEVELOPMENT
66" ALLEN-McCULLOCH PIPELINE (AMP)
39" BAKER PIPELINE
EXIST. OC-73
TURNOUT EXIST. EAST IRVINE 2.5 MG ZONE 4 STORAGE TANK
ALTON PARKWAY
ZONE 4 18" DW
EXIST. 4 TO 6 BPS
EXIST. EAST IRVINE 5.0 & 7.0 MG ZONE 3 STORAGE TANKS
EXIST. EAST IRVINE ZONE 3 TO 4 BPS
CONNECT TO EXIST. ZONE 4 PIPELINE

LEGEND

- PA6 BOUNDARY
- NEIGHBORHOOD BOUNDARY
- EXISTING ZONE 3 (470 HGL)
- EXISTING ZONE 4 (640 HGL)
- EXISTING\OFFSITE ZONE 4R (540 HGL)
- PROPOSED ZONE 4R PIPELINES (540 HGL)
- PROPOSED ZONE 4 PIPELINES (640 HGL)
- PROPOSED ZONE 5R PIPELINES (700 HGL)
- PROPOSED ZONE 5 PIPELINES (735 HGL)
- PROPOSED ZONE 6 PIPELINES (850 HGL)
- FUTURE ZONE 5 PIPELINE - GREAT PARK
- PRV
- BOOSTER PUMP STATION (BPS)
- RESERVOIR TANK
- SAMPLING STATION
- ZONE 4R (525 HGL)
- ZONE 4 (640 HGL)
- ZONE 5R (700 HGL)
- ZONE 5 (735 HGL)
- ZONE 6R (675 HGL)
- ZONE 6 (850 HGL)

NOTE:
ALL PIPE DIAMETERS ARE 8-INCH, UNLESS OTHERWISE NOTED.

Geographic Information Systems

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE CA 92618
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stantec.com

0 750 1,500 3,000 Feet

SCALE: 1" = 1,500'

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 6 SAMP UPDATE FOR NB3 AND NB6 DOMESTIC WATER SYSTEM FACILITIES

FIGURE 3-3

V:\PROJECTS\20424920\0\record\exhibits\gis\samp\V\PROJECTS\20424920\0\record\exhibits\gis\samp\pa6 samp figure 3-3 dw facilities 20130523.pdf

PROPOSED GATEWAY PARK (SEE FIGURE 3-4)

SIPHON RESERVOIR

PROPOSED 30" ZONE 3 TRANSMISSION MAIN PER PA 9A, 5B, 8A & SPECTRUM 8 SAMP

8" CROSS REDUCED TO 4" FOR DW SERVICE TO PARK

PA 5B

PA 6

JEFFREY ROAD

BEE CANYON ACCESS ROAD

PORTOLA PARKWAY

SAND CANYON AVENUE

SR-133 CORRIDOR

EX. 12" ZONE 4R

36" ZONE 4

ZONE 4 TO 4R PRV

ZONE 3 TO 4 BPS

IRVINE BOULEVARD

EX. 12" ZONE 4R

PROPOSED 12" ZONE 3 IN JEFFREY ROAD PER PA 9A, 5B, 8A AND SPECTRUM 8 SAMP

GROVELAND

FUTURE ZONE 3 TO SERVE OC GREAT PARK DEVELOPMENT

PA 9A

EXIST. 16" TO BE ABANDONED / RELOCATED ICDC COST

EXIST. ZONE 1 TO 3 BPS

EXIST. CENTRAL ZONE 1 TANK

TRABUCO ROAD

EX. 42" ZONE 1

LEGEND

- PROPOSED ZONE 3 PIPELINES
- PROPOSED ZONE 4R PIPELINES
- EXISTING ZONE 1 PIPELINES
- EXISTING ZONE 2 PIPELINES
- EXISTING ZONE 3 PIPELINES
- EXISTING ZONE 3R PIPELINES
- EXISTING ZONE 4R PIPELINES
- PRESSURE REDUCING STATION
- STORAGE TANK
- BOOSTER PUMP STATION
- SAMPLING STATION
- NCCP NATURE RESERVE

ALL PIPELINES ARE 8" DIAMETER UNLESS OTHERWISE SHOWN.

GRAPHIC SCALE

800 0 400 800 1600

(IN FEET)
1 INCH = 800'

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IRVINE, CA 92618
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PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 9B, 9C SAMP UPDATES

DOMESTIC WATER FACILITIES

FIGURE 3-3

V:\PROJECTS\2040476900\dwg\ FIG3-3.dwg 02/25/10_15:15

SCALE: 1" = 1000'

ZONE	PAD ELEVATION BELOW WHICH INDIVIDUAL PRV REQUIRED
3R	195
3	285
4R	375
4	455

STAGING AREA

EXISTING 42" AUFDENKAMP TRANSMISSION MAIN

EXIST 36"

PRV-1

EXIST 24"

SHADY CANYON DRIVE

QUAIL HILL PARKWAY

I-405 FWY

SCE EASEMENT

SPECTRUM 9

*TEMPORARY 10" PIPELINE CONNECTION

*TEMPORARY BOOSTER PUMP STATION

PA 39

SR-133

LAGUNA CANYON ROAD

PRV-2

PROPOSED AUFDENKAMP TURNOUT & PRESSURE REGULATING FACILITY

PA-17 TRACT BOUNDARY

NCCP (NATURE RESERVE)

16" KNOLL CREST DRIVE

SHADY CANYON PA 22

*TEMPORARY CONNECTION FROM 16" ZONE 3 PIPELINE TO 10" ZONE 4R PIPELINE IN SERPENTINE

PRV-3

PRV-4

PROPOSED ZONE 3 RESERVOIR (470' HWL) PROPOSED ZONE 3 TO 4 BPS

**INTERIM ZONE NONPOTABLE WATER SUPPLY CONNECTION, TO ZONE 4

FUTURE 10" CONNECTION FROM PA 22 TO ZONE 4

PRV-5

PROPOSED ZONE 4 RESERVOIR (640' HWL)

BOULDER VIEW

CANYON CREEK

PA 18

EXISTING AU-01 TURNOUT FACILITY

NOTE:
ALL PIPELINES DIAMETERS ARE 8-INCH UNLESS OTHERWISE NOTED.

LEGEND

- EXISTING ZONE 3 DOMESTIC WATER PIPELINES
- EXISTING 42" AUFDENKAMP TRANSMISSION MAIN
- PROPOSED ZONE 3 (470) PIPELINES
- PROPOSED SUB-ZONE 3R (380) PIPELINES
- PROPOSED ZONE 4 (640) PIPELINES
- PROPOSED SUB-ZONE 4R (560) PIPELINES
- PROPOSED BOOSTER PUMPING STATION
- PROPOSED RESERVOIR TANK
- PROPOSED PRESSURE REDUCING STATION
- PROPOSED WATER SAMPLING STATION
- PRESSURES ABOVE 80 PSI

*TO BE REMOVED WHEN ZONE 3 RESERVOIR AND ZONE 3-4 BPS COME ON LINE.

**TO BE REMOVED UPON COMPLETION OF ZONE C PIPELINE CONNECTION TO SHADY CANYON.

NOTE:
THE STAGING AREA AND PARK ALONG SHADY CANYON DRIVE WILL BE SERVED FROM THE EXISTING 24-INCH ZONE 3 PIPELINE

REVISED 02/20/2003

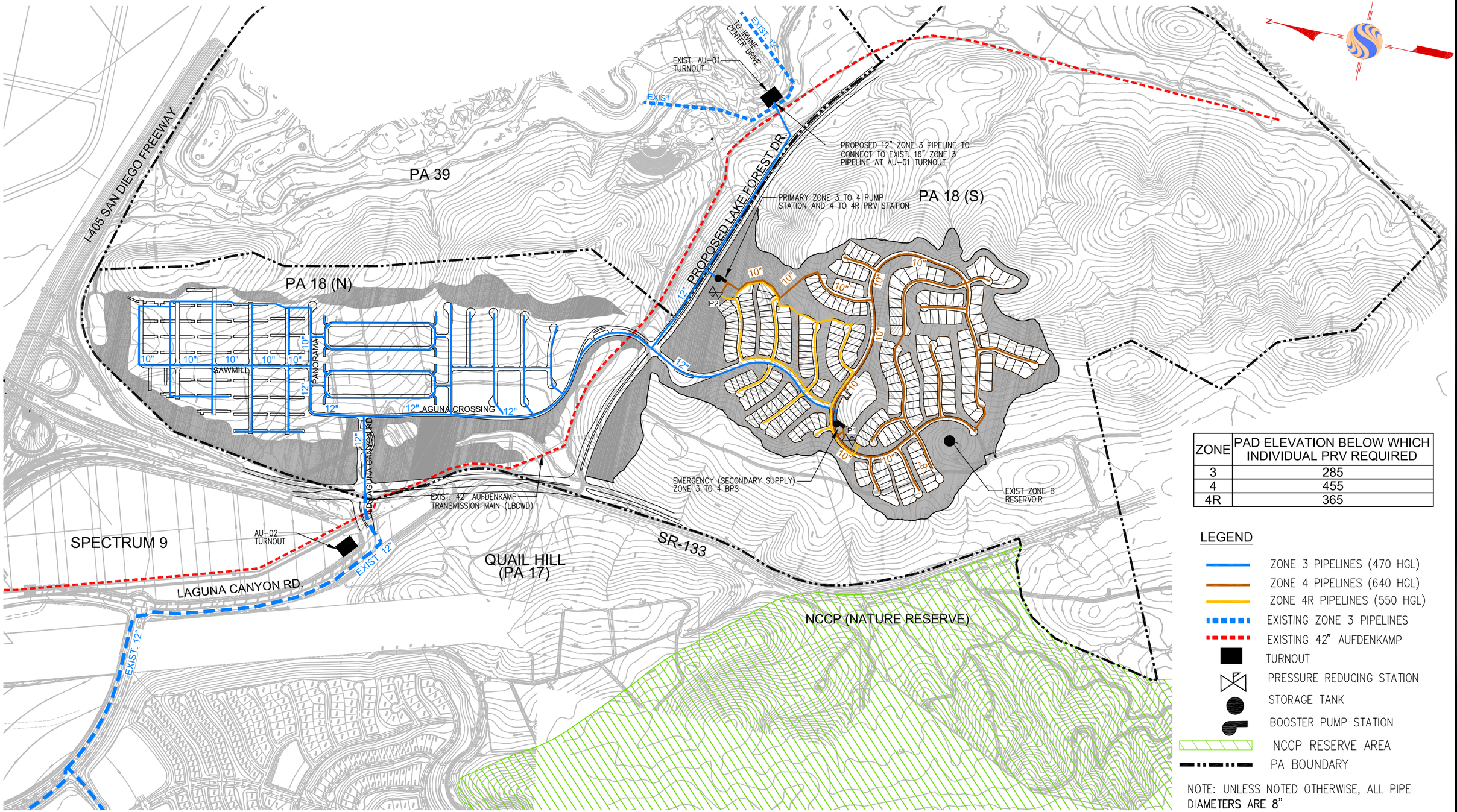
QUAIL HILL SAMP

e Keith Companies TKC
5 Red Hill Avenue, Costa Mesa, CA 92626 (714) 540-0800

PREPARED FOR:
IRVINE RANCH WATER DISTRICT

QUAIL HILL (PA 17) SAMP
DOMESTIC WATER SYSTEM FACILITIES

FIG 3-3



ZONE	PAD ELEVATION BELOW WHICH INDIVIDUAL PRV REQUIRED
3	285
4	455
4R	365

LEGEND

- ZONE 3 PIPELINES (470 HGL)
- ZONE 4 PIPELINES (640 HGL)
- ZONE 4R PIPELINES (550 HGL)
- EXISTING ZONE 3 PIPELINES
- EXISTING 42" AUFDENKAMP
- TURNOUT
- PRESSURE REDUCING STATION
- STORAGE TANK
- BOOSTER PUMP STATION
- NCCP RESERVE AREA
- PA BOUNDARY

NOTE: UNLESS NOTED OTHERWISE, ALL PIPE DIAMETERS ARE 8"

PREPARED BY: Stantec

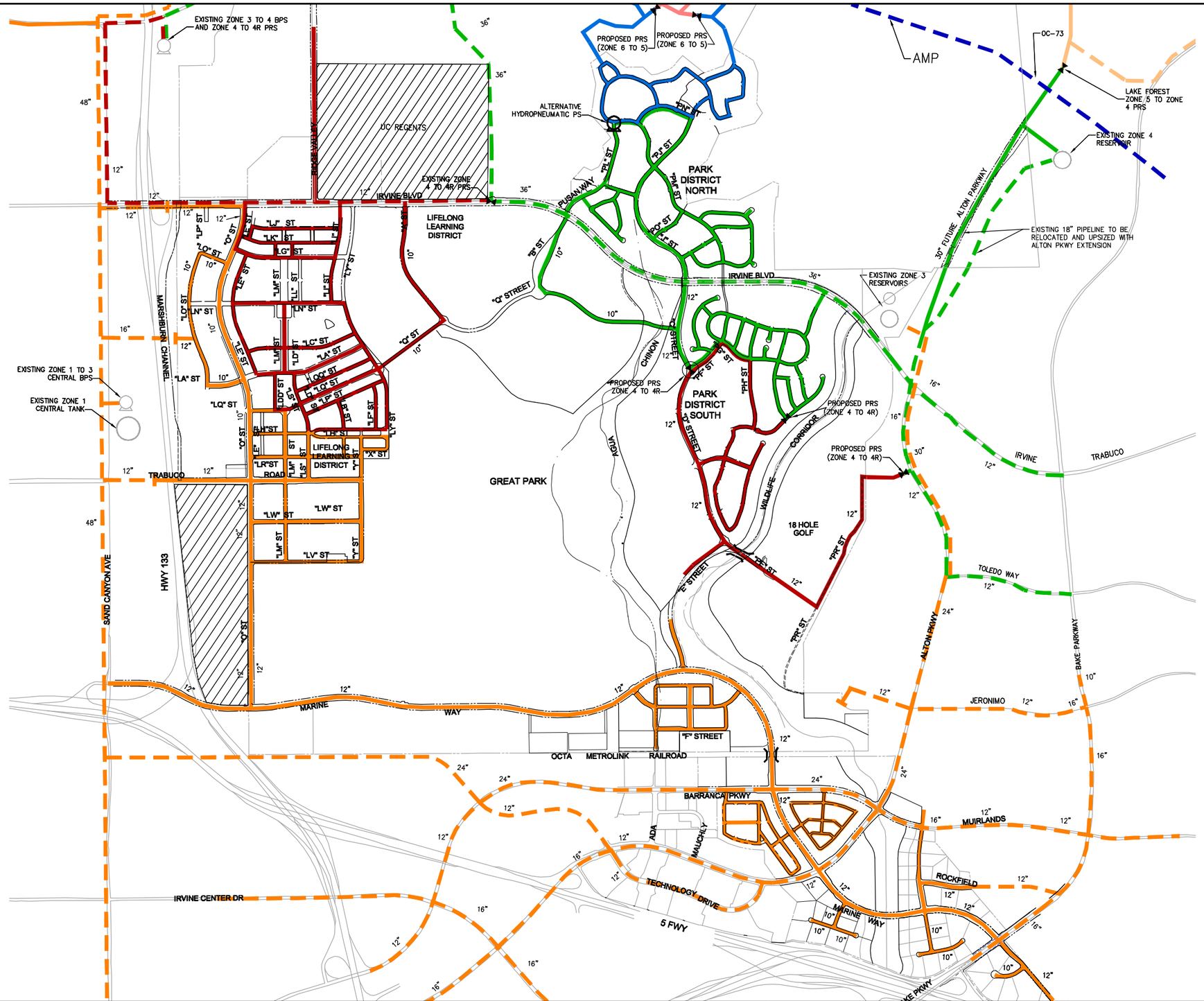
PREPARED FOR: IRVINE RANCH WATER DISTRICT

PLANNING AREA 18 SAMP UPDATE

PROPOSED DOMESTIC WATER FACILITIES

FIGURE 3-3

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NOTES:

1. THE DOMESTIC WATER FACILITIES WITHIN THE GREAT PARK ARE NOT SHOWN ON THIS FIGURE. AT THE TIME OF THE SAMP PREPARATION, THE REQUIRED DOMESTIC WATER DISTRIBUTION FACILITIES WERE NOT KNOWN. ONCE THE LAND USE PLAN IS FINALIZED, THE DOMESTIC WATER DISTRIBUTION SYSTEM WILL REQUIRE ANALYSIS AND APPROPRIATE LEVEL OF SAMP UPDATE OR ADDENDUM WILL BE REQUIRED. ADDITIONALLY, AT THE TIME, A DETERMINATION WILL BE MADE AS TO WHICH FACILITIES WILL BE PUBLIC AND WHICH WILL BE PRIVATE.
2. AS PART OF THE AGREEMENT WITH THE DEPARTMENT OF DEFENSE, THE LEAD ENTITY CONSTRUCTING BURIED PIPELINES WITHIN THE FORMER MARINE CORPS AIR STATION, EL TORO MUST SUBMIT A PROJECT ENVIRONMENT REVIEW FORM (PERF) TO THE NAVY AND THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES.
3. ALL PIPELINES ARE 8" UNLESS SHOWN.
4. ONE WATER QUALITY SAMPLING STATION SHALL BE INSTALLED PER PRESSURE ZONE. THE LOCATION OF THE STATION SHALL BE ESTABLISHED DURING THE DESIGN PROCESS.

LEGEND

	PROPOSED	EXISTING
ZONE 5 (735 HGL)		
ZONE 4 (640 HGL)		
ZONE 4R (540 HGL)		
ZONE 3 (470 HGL)		

SECONDARY PRESSURE REDUCING STATION

PRIMARY PRESSURE REDUCING STATION W/ TELEMETRY

AECOM

AECOM USA, INC.
1501 QUAIL STREET
NEWPORT BEACH, CA 92660
PHONE (949) 476-3300

PREPARED FOR:

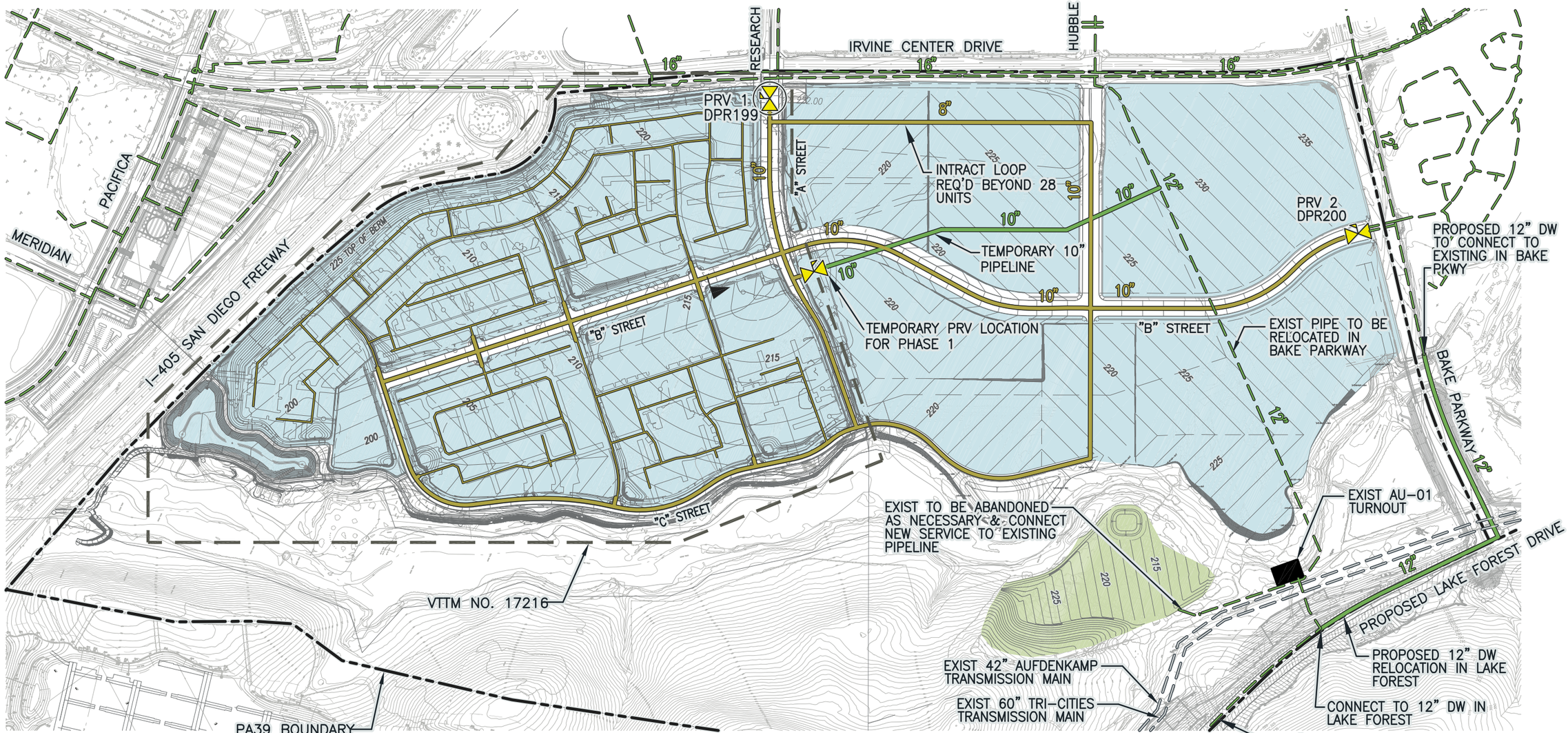
IRVINE RANCH WATER DISTRICT

IRVINE RANCH WATER DISTRICT
GREAT PARK / GREAT PARK NEIGHBORHOODS
SUB-AREA MASTER PLAN

PROPOSED DOMESTIC WATER FACILITIES

FIG. 3-3

PATH/FILENAME: M:\PROJECTS\TETRA TECH, INC\VERTIAGE FIELDS & GREAT PARK SAMP\BACKGROUND INFORMATION\2.7.08 SAMP KICKOFF\DW MST PLAN_M-E2.DWG
LAST UPDATE: Wednesday, January 21, 2009 4:24:52 PM
PLOT DATE: Friday, March 06, 2009 10:35:24 AM
ANSI D - 3-8-05



LEGEND

- ZONE 3 (470 HGL)
- ZONE 3R (370 HGL)
- PROPOSED BACKBONE ZONE 3 PIPELINE
- PROPOSED BACKBONE ZONE 3R PIPELINE
- PROPOSED IN-TRACT ZONE 3R PIPELINE
- EXISTING ZONE 3 PIPELINE
- PRESSURE REDUCING VALVE
- PRV W/ TELEMETRY
- SAMPLING STATION

NOTE:
ALL PIPES ARE 8-INCH UNLESS OTHERWISE NOTED.

SCALE: 1"=500'

GRAPHIC SCALE

500 0 250 500 1000

1 inch = 500 ft.

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PREPARED FOR THE:
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PLANNING AREA 39 SAMP

PROPOSED DOMESTIC WATER FACILITIES

FIGURE 3-2

DRAWING: v:\projects\2040482400\dwg\prex0003.dwg PLOTTED: 8/12/2011 12:23 PM BY: Fontenot, Jon

CONNECT TO EX 12" STUB
WOODBURY (PA 9A)
CONNECT TO EX 12"
EXISTING ZONE 3 TO 3R PRV (DPR171)
(PA 9C)
CONNECT TO EXISTING STUB
OCFA TEMP FIRE STATION NO. 20
TRABUCO ROAD
JEFFREY ROAD
J.O.S.T.
VISIONS ST
BAY TREE
C-STREET
P-7
IN TRACT 10" LOOP
IN TRACT 10" LOOP
133
SAND CANYON
EASTERN TRANSPORTATION CORRIDOR
FUTURE "O" ST
ORANGE COUNTY GREAT PARK (PA 30 & 51)
ROOSEVELT RD
J.O.S.T.
10" IN-TRACT LOOP
EX 10" PIPE SLEEVE
8" IN-TRACT LOOP
EX 10" PIPE SLEEVE
PROPOSED ZONE 3 TO 3R PRV (DPR 198)
P-3
PROPOSED CALTRANS MAINTENANCE YARD
NIGHTMIST RD
NIGHTMIST RD
EXISTING IRVINE SCHOOL DISTRICT BUS FACILITY
EXISTING CALTRANS MAINTENANCE YARD
P-1
EXISTING ORANGE COUNTY TRANSIT DISTRICT FACILITIES
NEW ZONE 3 TO 2 PRV PER IRWD CODE 5398 (DPR 196)
FUTURE MARINE WAY
133
MARINE WAY
WALNUT AVE
SANTA ANA FREEWAY (I-5)
VTPM 97-184
EXISTING OAK CREEK GOLF COURSE
FUTURE MARINE WAY ALIGNMENT SHOWN. IF PIPELINE IS REQ'D PRIOR TO FUTURE MARINE WAY REALIGNMENT, PIPE WILL BE CONSTRUCTED IN MARINE WAY AND RELOCATED AS NECESSARY
BURT ROAD
NEW ALIGNMENT PER IRWD CODE 5398
OCTA METROLINK/AT&SF RAIL ROAD
JACK & BORE TO CONNECT TO EXIST 12"
16" (NEW)
16" (ABAND)

LEGEND

- PROPOSED ZONE 2 (355 HGL) PIPELINES
- PROPOSED ZONE 3 (470 HGL) PIPELINES
- PROPOSED ZONE 3R (380 HGL) PIPELINES
- EXISTING ZONE 1 PIPELINES
- EXISTING ZONE 2 PIPELINES
- EXISTING ZONE 3 PIPELINES
- EXISTING ZONE 3R PIPELINES
- PRESSURE REDUCING STATION
- STORAGE TANK
- BOOSTER PUMP STATION
- SAMPLING LOCATION

ZONE	PAD ELEVATION BELOW WHICH INDIVIDUAL PRV REQUIRED
2	170
3R	195
3	285

SCALE: 1" = 700'

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PREPARED FOR THE:
IRVINE RANCH WATER DISTRICT

PLANNING AREA 40 SAMP

DOMESTIC WATER SYSTEM FACILITIES

FIGURE 3-4

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 153. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

ID No. 153 has existing authorized bonds in the amount of $237,300,000 none of which have been issued.

Table V-1
Bond Authorization Summary
Improvement District 153

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Local Subtotal	**$5,056,953**	**$7,173,731**	**$33,974,946**	**$0**	**$46,205,630**
Escalated Regional Subtotal	**$9,095,127**	**$22,617,334**	**$4,863,023**	**$1,878**	**$36,577,362**
Escalated Sub-Regional Subtotal	**$3,739,230**	**$0**	**$0**	**$0**	**$3,739,230**
Contingency (10%)	**$1,789,131**	**$2,979,107**	**$3,883,797**	**$188**	**$8,652,222**
Bond Reserve (6%)	**$1,180,826**	**$1,966,210**	**$2,563,306**	**$124**	**$5,710,467**
Funded Reserve (6%)	**$1,180,826**	**$4,766,570**	**$2,563,306**	**$124**	**$5,710,467**
Bond Discount (2%)	**$631,604**	**$3,574,928**	**$854,435**	**$41**	**$1,903,489**
Bond Issuance Costs (1%)	**$315,802**	**$3,574,928**	**$427,218**	**$21**	**$951,744**
Bond Authorization Total	**$22,989,500**	**$46,652,808**	**$49,130,031**	**$2,375**	**$109,450,611**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The reorganization of ID Nos. 153 and 253 is part of an overall restructuring of the District's improvement districts, which also includes the consolidation of ID Nos. 125 and 225 and the formation of ID Nos. 185 and 285. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations and reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;
- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-

50 allocation as a fair means of sharing improvement district debt servi ce costs between the aggregate contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital –project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward buildout. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plan of Works for ID No. 153's predecessor, ID No. 1 of Santiago County Water District (SCWD), contemplated that its ultimate population of about 38,000 would be furnished with a domestic

water supply through participation in the Allen-McColloch Pipeline (AMP). A portion of the AMP capacity would be purchased, and it was also proposed that SCWD's existing untreated capacity, delivered to a filtration plant jointly owned by SCWD, IRWD and East Orange County Water District, be exchanged for AMP capacity. As the consolidated successor district, IRWD has incorporated the SCWD imported water capacity and delivery system into its regional system. The 1978 plans of works for the improvement districts from which most of the lands annexed into the reorganized ID No. 153 originated, primarily ID Nos. 130 and 150, similarly contemplated a water supply obtained through the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County groundwater basin. The lands reorganized as ID No. 153 are therefore on equivalent footing in terms of the regional supply system from which they will be served. This includes jointly constructed delivery and storage capacity to serve the territory of existing ID No. 153 as well as development in former ID No. 150. The original plan of works for SCWD's ID No. 1 further contemplated two pressure zone systems, one for the area north of Irvine Lake and one for the area south of Irvine Lake. All of the current planned development included in the reorganized ID No. 153 is located in the south area pressure zone.

The majority of the imported water feeder system and IRWD's delivery system components and the groundwater production and delivery facilities are in place. Based on its ultimate demands, ID No. 153 will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 153 were formerly within ID Nos. 130, 150, 153 and other improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas reorganized as ID No. 153 originated are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 153 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County

groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 153 and 185, these distinctions are no longer prominent. The regional delivery system and its integrated supply sources provide uniform benefit to all of the component areas of ID No. 153 by satisfying basic supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 153 among its various planned development areas in proportion to their benefit.

The areas within the reorganized ID No. 153 have shared imported water and groundwater facilities through the regional split. Notwithstanding that some of ID No. 153's territory is not within the boundary of the Orange County Water District and that under OCWD practices, the demand of this area does not increase the quantity of groundwater produced by IRWD without a BEA impact, groundwater is considered to reduce IRWD's dependence on imported supply and thus all areas participate proportionally in the regional supply source mix. All areas of ID No. 153 receive the base allocation melded water rate which provides the benefit of reduced cost through the supply mix.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 153 as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 125

In parallel with the reorganization of ID No. 153 itself, ID No. 153's territory will be retained as part of the reorganization of several improvement districts to form a consolidated improvement district designated ID No. 125. All of the developing areas reorganized into ID Nos. 153 are retained or reorganized within the boundaries of the underlying improvement district, ID No. 125. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." This assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as storage reservoirs, previously built with the proceeds of bonds of one of the improvement districts consolidated in the underlying improvement district.

Like ID No. 153, ID No. 125 will continue to share proportionally in the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete, and future regional projects will add components necessary to provide basic reliability, benefitting the

developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 125 will exclude demands of 153, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within 153, between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered to be the case for the various geographic areas comprising ID No. 153. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 153.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 153, 185, 188, existing ID Nos. 112 and 113, and the consolidated developed ID No. 125 is considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

6.7 IMPROVEMENT DISTRICT NO. 153 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 153 in several ways: (1) similarities or differences in future service needs among the areas identified for inclusion by annexation to, or by retention in, the reorganized as ID No. 153; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 153; and (3) regional cost allocation among ID No. 153 and other areas receiving benefit from the regional facilities. Also evaluated were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 153 comprise several non-contiguous planned development areas that were previously in different improvement districts. Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including source of water supply that would warrant exclusion from the ID No. 153 territory. The areas included in the reorganized ID No. 153 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated groundwater and imported water supplies. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use,

it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 153 lands within the underlying improvement district, ID No. 125, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as storage reservoirs, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 153 demands from the ID No. 125 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated 50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 153 would receive benefit from ID No. 153 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 105, 130 and other improvement districts which will, instead, be included in the reorganized ID No. 125, open space, and areas contained within another developing improvement district. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 125 . The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 153. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because, through the reorganized ID No. 125, their allocation of the cost of the regional system benefits will continue to be proportional.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 153, 125 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 112, 113, 153, 185, and 188 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the [other] separate developing improvement districts from ID No. 153 will facilitate the allocation of local

facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of some areas in both ID No. 153 or other overlying improvement districts and underlying ID No. 125. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1 (201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the 1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125 and 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Water Resources Master Plan. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 153 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in development phasing, changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

The authorized and unissued bonds of the reorganized ID No. 153 are estimated to be sufficient to accomplish this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in development phasing, changes in technology and refinements in master planning and subarea master planning.

REVISED
PLAN OF WORKS
PROVIDING FOR SEWAGE COLLECTION, TREATMENT AND DISPOSAL
AND DOMESTIC WATER SUPPLY, STORAGE, TRANSMISSION AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 253

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Revised Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

The Wastewater Treatment Master Plan ("WTMP") and its predecessor planning documents have accomplished the planning of the District's wastewater collection and treatment. The Sewage Collection System Master Plan (SCSMP) also addresses the planning of the collection system. Recycled water supply, which is within the fiscal requirements of sewer plans of works, including this Plan of Works, is part of the scope of the Water Resources Master Plan ("WRMP"). Sub-area master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owners and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WTMP, WRMP, SCSMP, and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and it has also occurred in conjunction with improvement district reorganization. This Plan of Works has been prepared in connection with the reorganization of Improvement District No. 253 to include a number of planned development areas within the improvement districts concurrently consolidated as Improvement District No. 225. See Section 1.3.

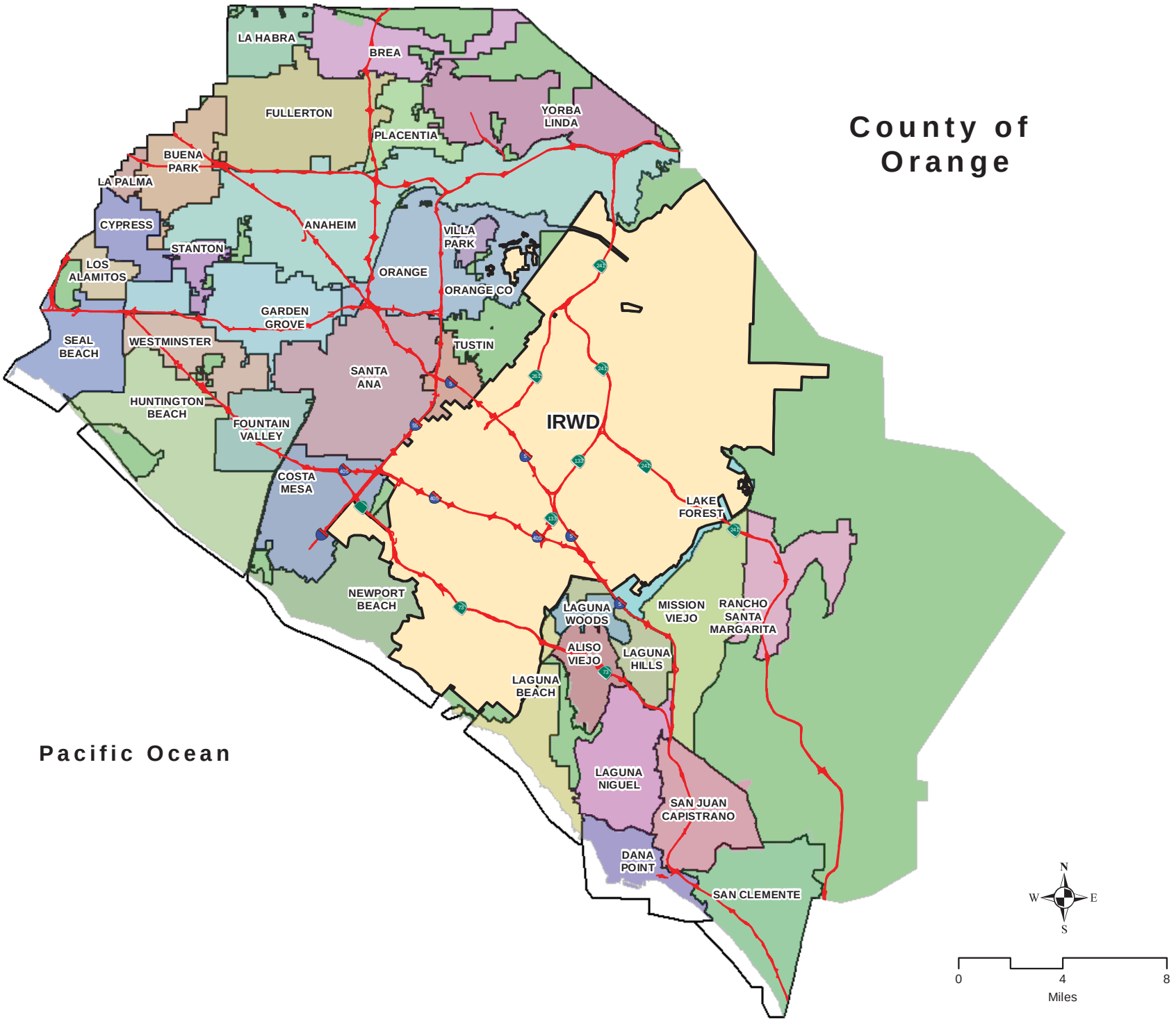
The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the wastewater collection and treatment and recycled water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects that provide wastewater collection and treatment and recycled water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the capital facilities for the wastewater system; (2) provide a revised plan of works to supersede and replace the existing plan of works of the improvement district being reorganized; and (3) evaluate the benefit of the revised plan of works to the territory of the reorganized improvement district.

The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional wastewater collection and treatment, and recycled water facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. See **Figure I-1** for a location Map of IRWD.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
E
S
0
4
8
Miles

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 108,000 water and approximately 103,500 sewer service connections.

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilitiesto be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size,

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

location and phasing of sewer collection and recycled water delivery facilities to be constructed from the existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid- to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation

District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the improvement districts formed before 1978, each sewer improvement district preceded its water counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in [1986], over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

Regional Allocation. As regional water system have been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently modified, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. As a result an improvement district can reach full development, but its regional system funding participation will continue. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding

approach also recognizes that at any point in time prior to full buildout, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" and "210" areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas and benefit received from future capital facilities.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to buildout and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140. Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing

structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the buildout of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210" areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Irvine Ranch Water District
2014 Potable Water System
Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 153
ID = 188
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 153
ID = 110
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

ID = 225

No ID

ID = 210

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an areawide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980s.

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing irrigation system would provide agricultural water until no longer needed. The cost of the untreated water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies.

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water

standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed

to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area. Under an agreement entered into between the District and OCSD, the District acquired equity interests in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the

wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to buildout, the District has incorporated in its system planning efforts the updating of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 253

2.1 DESCRIPTION OF THE STUDY AREA

ID No. 253, as originally formed, represented the majority of the territory of ID No. 1 of the former Santiago County Water District, the area extending northward from Loma Ridge to the Fremont Canyon area. As a result of the current reorganization of ID No. 253, the land included in the improvement district consists of planned future development areas in portions of former ID No. 253 as well as planned future developments within other former improvement districts (principally former ID Nos. 230 and 250) that have been added to ID No. 253 by annexation. Areas of former ID No. 253 that contained permanent open space, including approximately 13,400 acres near the Lomas de Santiago ridgeline, have been excluded. The resulting Improvement District No. 253 is a developing improvement district that will function in tandem with existing ID Nos. 212 (former MCAS El Toro), 213 (former MCAS Tustin) and 288 (Portola Center) and new ID No. 285, where development is underway, to provide equitable regional capital cost sharing by the District's developing areas.

To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. The District expects future development of the reorganized ID No. 253 to be predominantly residential with supporting commercial development, and expects development in ID No. 253 to continue through at least 2035.

Figure II-1 shows the boundaries of reorganized ID No. 253, encompassing about _____ acres.

The reorganized ID No. 253 includes portions of the following planned development areas as depicted on **Figures II-1a through II-1e**:

- **Figure II-1a** depicts portions of Planning Areas 1 and 2 (north of Portola Parkway, between the Eastern Transportation Corridor and Jeffrey Road), Planning Areas 5B, and 9B (north of the Irvine Blvd to Portola Parkway, bisected by Jeffrey Road);

- **Figure II-1b** depicts portions of Planning Area 6 (southeast of the intersection of the Eastern Transportation Corridor and the Foothill Transportation Corridor), Planning Areas 30 (northeast of the intersection of I-5 and I-405), and Planning Area 40 (north of I-5 generally bounded by Trabuco Road, Future O Street, and Jeffrey Road) ;

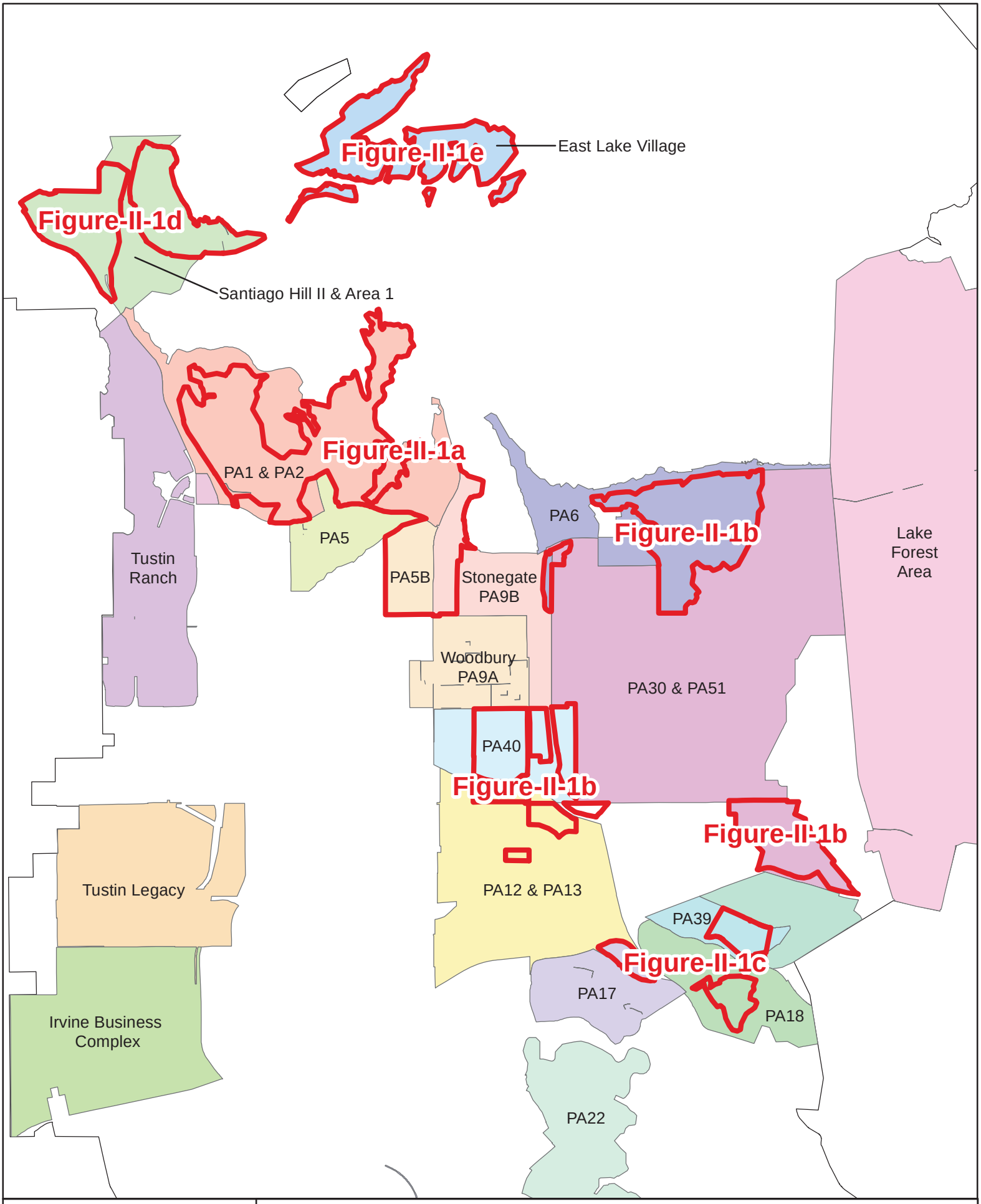
- **Figure II-1c** depicts portions of Planning Area 17 (southwest of the intersection of I-405 and SR-133), Planning Area 18 (south-east of the intersection SR-133 and I-405), Planning Area 39 (south of Irvine Center Drive, between I-405 and Bake Parkway);

- **Figure II-1d** depicts Santiago Hills II and East Orange Area 1 (east of Jamboree Road and north of the intersection of SR-241/Santiago Canyon Road and SR-261); supplemented by Santiago Hills Integration Study ;

- **Figure II-1e** depicts East Orange General Plan ("Lake Village" -- north of Santiago Canyon Road and southeast of Irvine Lake; also supplemented by Santiago Hills Integration Study);

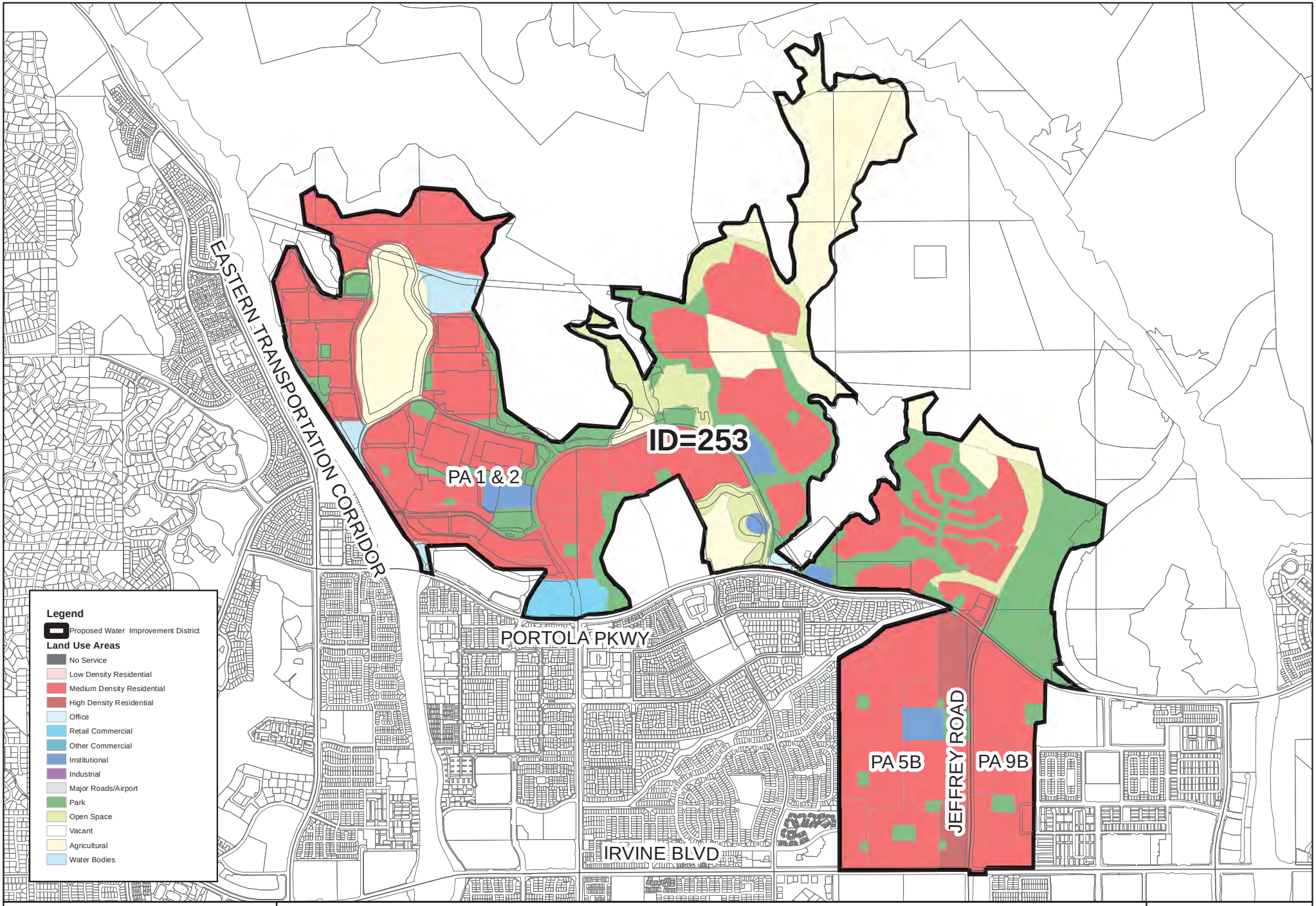
Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.



IRVINE RANCH WATER DISTRICT

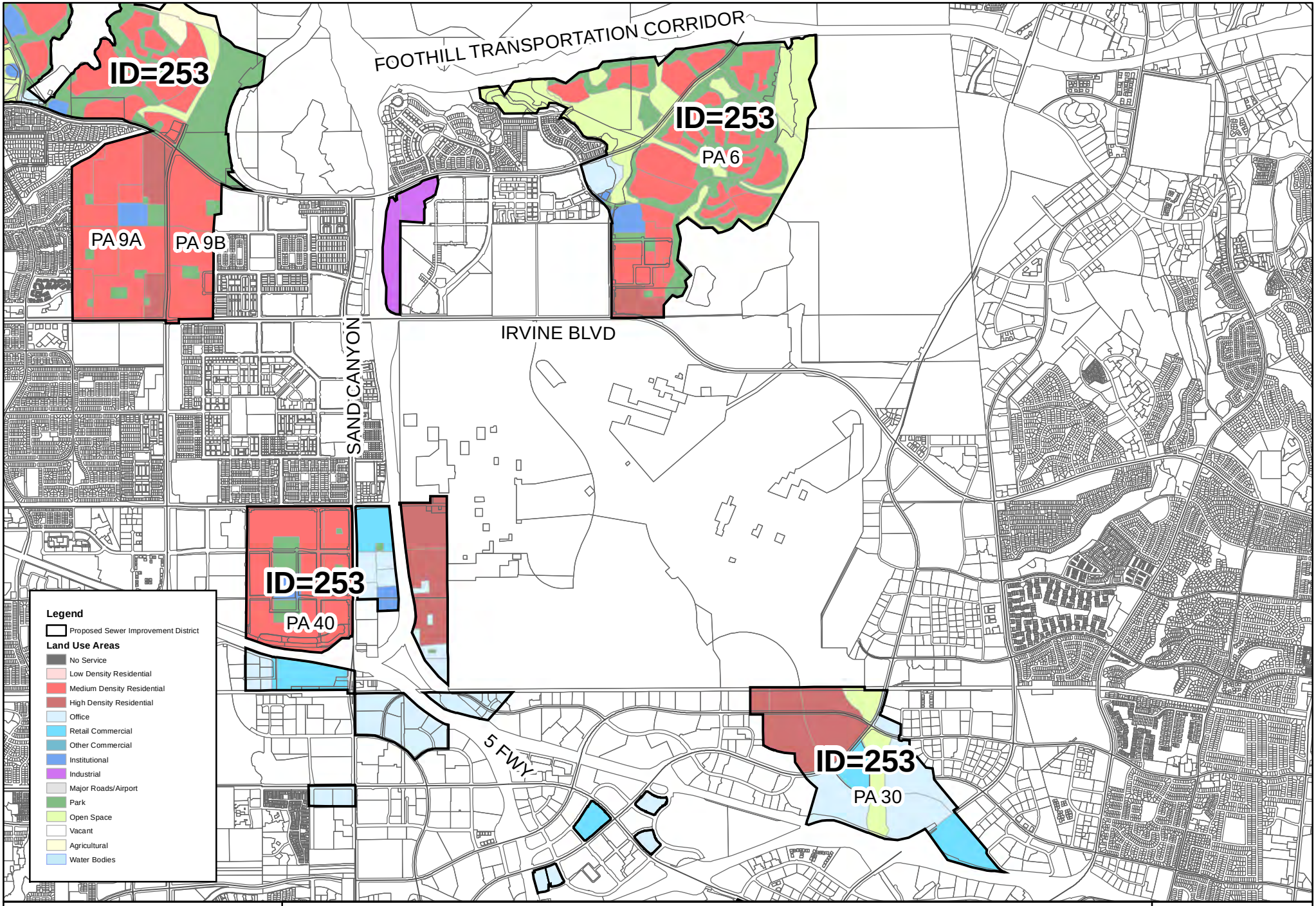
SEWER ID-253 LAND USE PLAN INDEX



IRVINE RANCH WATER DISTRICT

SEWER IMPROVEMENT DISTRICT 253
PLANNING AREAS 1, 2, 5B, AND 9B PROPOSED LAND USE

FIGURE-II-1a



IRVINE RANCH WATER DISTRICT

SEWER IMPROVEMENT DISTRICT 253
PA 6, PA 30, PA 40, PA 51 PROPOSED LAND USE

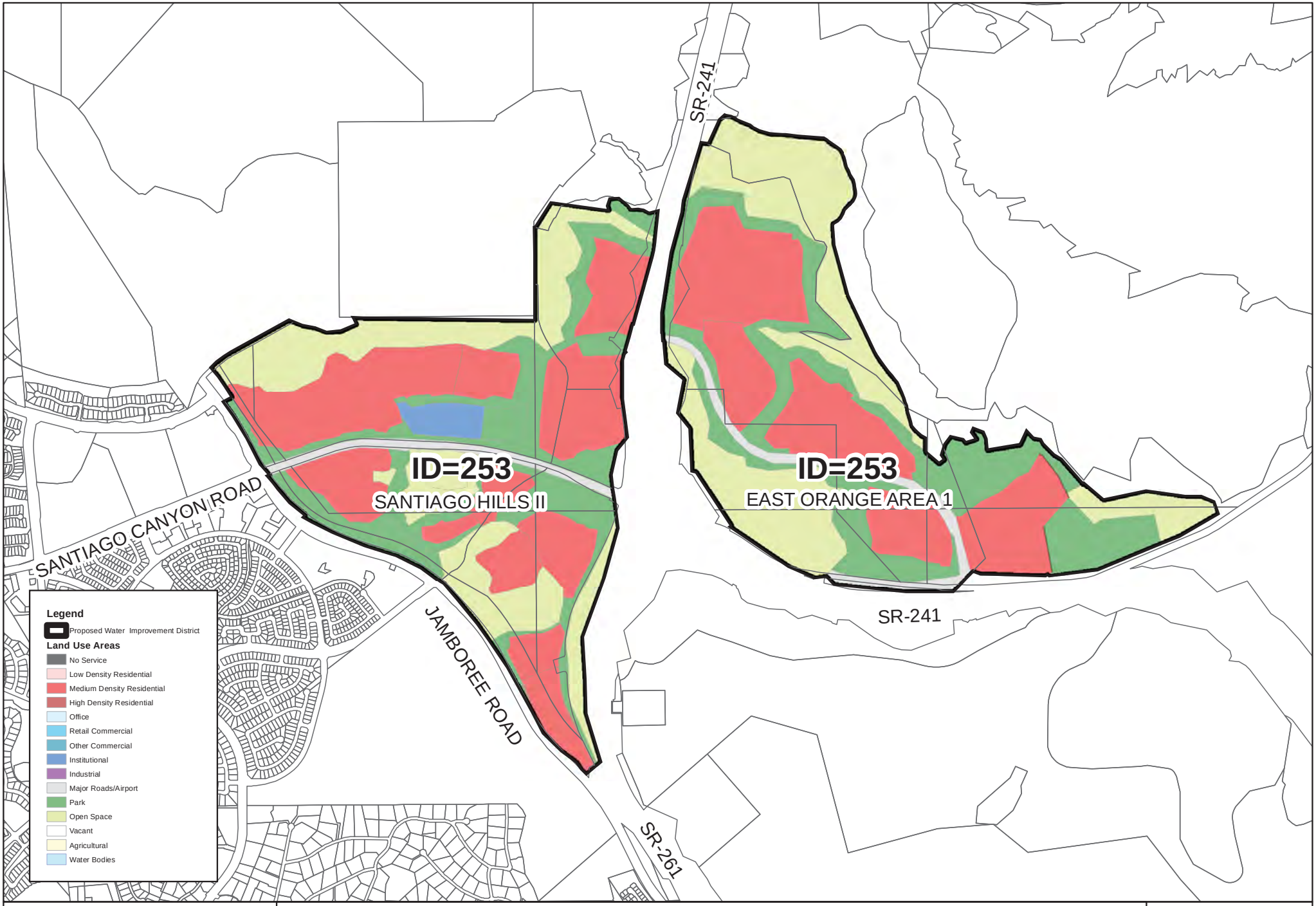
FIGURE-II-1b



IRVINE RANCH WATER DISTRICT

SEWER IMPROVEMENT DISTRICT 253
PLANNING AREA 17, 18 AND 39 PROPOSED LAND USE

FIGURE-II-1c



IRVINE RANCH WATER DISTRICT

SEWER IMPROVEMENT DISTRICT 253
SANTIAGO HILL II AND EAST ORANGE AREA 1 PROPOSED LAND USE

FIGURE-II-1d



IRVINE RANCH WATER DISTRICT

SEWER IMPROVEMENT DISTRICT 253
EAST LAKE VILLAGE AREA

FIGURE-II-1e

2.3 DEMAND AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2** and **Table II-3**.

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 - **Sewage Generation:** Tabulates the average daily wastewater flow at build-out (2035) within the reorganized ID No. 253 service area, using the District's ***demand forecasting tool***.

PA	Land Use Code	Description	2035 Sewer Flows (MGD)
Planning Area EO-3A, 3B, 6A - Santiago Hills, East Lake Village			
EO-03A	1131	Low Density	0.15
	1141	Low-Medium Density	0.09
	1161	Medium Density	0.14
	1260	School	0.00
EO-03B	1131	Low Density	0.07
	1141	Low-Medium Density	0.13
EO-06A	1131	Low Density	0.24
	1141	Low-Medium Density	0.08
	1230	Commercial Recreation	0.01
	1290	Hotel	0.01
		Subtotal	0.92
Planning Area 1 and 2 - Orchard Hills			
I-01,02	1132	Low Density	0.29
	1162	Medium Density	0.25
	1172	Medium-High Density	0.17
	1210	General Office	0.00
	1221	Community Commercial	0.03
	1240	Institutional	0.00
	1260	School	0.00
		Subtotal	0.75
Planning Area 5B			
I-05B	1132	Low Density	0.07
	1162	Medium Density	0.17
	1172	Medium-High Density	0.05
	1182	High Density	0.06
	1260	School	0.00
		Subtotal	0.35
Planning Area 6 - Portola Springs			
I-06	1132	Low Density	0.05
	1162	Medium Density	0.16
	1172	Medium-High Density	0.08
	1182	High Density	0.07
	1210	General Office	0.02
	1240	Institutional	0.00

PA	Land Use Code	Description	2035 Sewer Flows (MGD)
	1260	School	0.00
	1310	Industrial - Light	0.06
		Subtotal	0.45
		Planning Area 9B - Stonegate	
I-09B	1132	Low Density	0.04
	1162	Medium Density	0.08
		Subtotal	0.12
		Planning Area 17 and 18 - Quail Hill and Hidden Canyon	
I-17	1310	Industrial - Light	0.08
I-18	1132	Low Density	0.07
		Subtotal	0.14
		Planning Area 30 - Great Park Neighborhoods	
I-30	1182	High Density	0.55
	1210	General Office	0.11
	1221	Community Commercial	0.06
		Subtotal	0.72
		PA-31, 32, 33a, and 35 - Spectrum Area	
I-31	1210	General Office	0.06
I-32	1210	General Office	0.02
I-33a	1192	High Rise Density	0.10
I-35	1210	General Office	0.00
		Subtotal	0.18
		Planning Area 39	
I-39	1172	Medium-High Density	0.12
	1182	High Density	0.17
	1230	Commercial Recreation	0.00
	1260	School	0.00
		Subtotal	0.29
		Planning Area 12 and 40 - Cypress Village	
I-12	1210	General Office	0.03
	1221	Community Commercial	0.04
I-40	1162	Medium Density	0.11
	1172	Medium-High Density	0.15
	1182	High Density	0.18
	1210	General Office	0.04

PA	Land Use Code	Description	2035 Sewer Flows (MGD)
	1221	Community Commercial	0.03
	1240	Institutional	0.00
	1260	School	0.00
		Subtotal	0.58

Total ID 253 Sewer Flows **4.48**

Table II-3 - Recycled Water Demands: Tabulates the average daily Recycled Water Demands at build-out (2035) within the reorganized ID No. 253 service area, using the District's ***demand forecasting tool***.

PA	Land Use Code	Description	2035 Demands (AFY)
Planning Area 1 and 2 - Orchard Hills			
I-1,2	1132	Low Density	222.58
	1162	Medium Density	66.03
	1172	Medium-High Density	120.86
	1210	General Office	2.19
	1221	Community Commercial	20.22
	1240	Institutional	6.66
	1260	School	29.84
	1820	Community Park	109.87
	1830	Regional Park	348.98
	2120	Low-Irrigated AG Recycled	300.29
		Subtotal	1,227.52
Planning Area 5B			
I-5B	1132	Low Density	29.80
	1162	Medium Density	47.56
	1172	Medium-High Density	15.27
	1182	High Density	24.61
	1260	School	14.32
	1820	Community Park	29.98
		Subtotal	161.53
Planning Area 6 - Portola Springs			
I-6	1132	Low Density	30.99
	1162	Medium Density	58.39
	1172	Medium-High Density	59.90
	1182	High Density	15.73
	1210	General Office	10.53
	1240	Institutional	1.82
	1260	School	20.63
	1310	Industrial - Light	29.36
	1820	Community Park	37.26
	1830	Regional Park	397.29
	1840	Fuel Modification Zone	79.75
		Subtotal	741.66

PA	Land Use Code	Description	2035 Demands (AFY)
		Planning Area 9B - Stonegate	
I-9B	1132	Low Density	28.57
	1162	Medium Density	35.57
	1820	Community Park	16.25
		Subtotal	80.39
		Planning Area 17 and 18 - Quail Hill and Hidden Canyon	
I-17	1310	Industrial - Light	45.49
I-18	1132	Low Density	23.78
	1820	Community Park	3.00
	1840	Fuel Modification Zone	56.28
		Subtotal	128.54
		Planning Area 30 - Great Park Neighborhoods	
I-30	1182	High Density	73.49
	1210	General Office	69.87
	1221	Community Commercial	42.89
		Subtotal	186.26
		PA-31, 32, 33a, and 35 - Spectrum Area	
I-31	1210	General Office	37.36
I-32	1210	General Office	9.25
I-33	1192	High Rise Density	9.22
	1820	Community Park	3.12
I-35	1210	General Office	0.65
		Subtotal	59.60
		Planning Area 39	
I-39	1172	Medium-High Density	23.69
	1182	High Density	29.45
	1230	Commercial Recreation	3.04
	1260	School	13.54
	1820	Community Park	23.29
		Subtotal	93.01
		Planning Area 12 and 40 - Cypress Village	
I-12	1210	General Office	19.32
	1221	Community Commercial	28.96
I-40	1162	Medium Density	47.67
	1172	Medium-High Density	87.76
	1182	High Density	59.32
	1210	General Office	26.58

PA	Land Use Code	Description	2035 Demands (AFY)
	1221	Community Commercial	22.17
	1240	Institutional	8.69
	1260	School	18.80
	1820	Community Park	67.81
		Subtotal	387.08

Total ID 253 Recycled Water Demand **3,065.61**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the reorganization consolidation process, 10 of IRWD's 18 sewer improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed, as well as certain remaining lands proposed for development that are also included in reorganized ID No. 253, newly formed 285 and existing 288. Existing ID Nos. 1(201), 212, 213, 240, 252, and 256 are not included in the reorganization or consolidation actions. Regional sewer and recycled water project costs will continue to be allocated to each sewer improvement district based on that improvement district's pro-rata shares of the ultimate IRWD wastewater and recycled water demands.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full buildout, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed wastewater collection and treatment and recycled water supply, storage and distribution facilities needed to provide an adequate and reliable wastewater and recycled water system meeting the ultimate needs of ID No. 253.

Periodically, IRWD revises its sewer improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence wastewater treatment and recycled water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal wastewater and recycled water demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

Based on the total IRWD sewage generation, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 9.6%. Based on the total IRWD recycled water demands, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 10.3%.

A description and cost estimate of the proposed regional sewer and recycled water facilities share allocated to ID No. 253 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 253

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20113	OCSD CORF 12/13	Regional	9.6%	$35,640	$35,640	$0	$0	$0
20114	OCSD CORF 13/14	Regional	9.6%	$202,643	$202,643	$0	$0	$0
20115	OCSD CORF 14/15	Regional	9.6%	$238,111	$186,425	$51,685	$0	$0
20116	OCSD CORF 15/16	Regional	9.6%	$254,379	$0	$254,379	$0	$0
20117	OCSD CORF 16/17	Regional	9.6%	$332,146	$0	$332,146	$0	$0
20118	OCSD CORF 17/18	Regional	9.6%	$437,771	$0	$437,771	$0	$0
20119	OCSD CORF 18/19	Regional	9.6%	$351,140	$0	$351,140	$0	$0
20120	OCSD CORF 19/20	Regional	9.6%	$414,994	$0	$323,194	$91,800	$0
20214	MWRP EXPANSION PHASE II	Regional	9.6%	$4,731	$4,731	$0	$0	$0
20356	OCSD CORF 20/21	Regional	9.6%	$476,739	$0	$0	$476,739	$0
20357	OCSD CORF 21/22	Regional	9.6%	$536,888	$0	$0	$536,888	$0
20358	OCSD CORF 22/23	Regional	9.6%	$597,464	$0	$0	$597,464	$0
20360	OCSD CORF 23/24	Regional	9.6%	$664,899	$0	$0	$664,899	$0
20362	OCSD CORF 24/25	Regional	9.6%	$739,755	$0	$0	$574,046	$165,709
20468	FOOTHILL SEWER DIVERSION TO LAWRP	Regional	9.6%	$108,894	$17,330	$91,564	$0	$0
20540	LONG TERM SEWER SYSTEM FLOW MONITORING	Regional	9.6%	$40,355	$19,011	$21,344	$0	$0
20587	OCSD EQUITY 12/13	Regional	9.6%	$0	$0	$0	$0	$0
20588	OCSD EQUITY 13/14	Regional	9.6%	$11	$11	$0	$0	$0
20589	OCSD EQUITY 14/15	Regional	9.6%	$133,619	$85,958	$47,660	$0	$0
20593	OCSD EQUITY 15/16	Regional	9.6%	$208,663	$0	$208,663	$0	$0
20621	OCSD EQUITY 16/17	Regional	9.6%	$243,520	$0	$243,520	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20715	OCSD EQUITY 17/18	Regional	9.6%	$586,328	$0	$586,328	$0	$0
20716	OCSD EQUITY 18/19	Regional	9.6%	$655,351	$0	$655,351	$0	$0
20717	OCSD EQUITY 19/20	Regional	9.6%	$658,965	$0	$421,840	$237,126	$0
20718	OCSD EQUITY 20/21	Regional	9.6%	$442,887	$0	$0	$442,887	$0
20719	OCSD EQUITY 21/22	Regional	9.6%	$281,822	$0	$0	$281,822	$0
20720	OCSD EQUITY 22/23	Regional	9.6%	$159,892	$0	$0	$159,892	$0
20733	OCSD EQUITY 23/24	Regional	9.6%	$176,186	$0	$0	$176,186	$0
20734	OCSD EQUITY 24/25	Regional	9.6%	$194,160	$0	$0	$123,800	$70,360
20798	OCSD EQUITY 25/26	Regional	9.6%	$206,874	$0	$0	$0	$206,874
20799	OCSD EQUITY 26/27	Regional	9.6%	$188,047	$0	$0	$0	$188,047
20802	OCSD CORF 25/26	Regional	9.6%	$822,527	$0	$0	$0	$822,527
20803	OCSD CORF 26/27	Regional	9.6%	$913,004	$0	$0	$0	$913,004
20811	OCSD SOLIDS HANDLING 13/14	Regional	4.1%	$57,421	$57,421	$0	$0	$0
20812	OCSD SOLIDS HANDLING 14/15	Regional	4.1%	$69,507	$69,507	$0	$0	$0
20959	SEWER GEN SYS MODS 14/15	Regional	9.6%	$32,037	$32,037	$0	$0	$0
21055	ENG PLANNING STUDY RESERVE 13/14	Regional	9.6%	$18,174	$18,174	$0	$0	$0
21056	ENG PLANNING STUDY RESERVE 14/15	Regional	9.6%	$19,991	$19,991	$0	$0	$0
21057	ENG PLANNING STUDY RESERVE 15/16	Regional	9.6%	$21,997	$0	$21,997	$0	$0
21096	GIS SUPPORT APPLICATIONS 13/14	Regional	9.6%	$6,357	$6,357	$0	$0	$0
21097	GIS SUPPORT APPLICATIONS 14/15	Regional	9.6%	$6,993	$6,993	$0	$0	$0
21129	HYDRAULIC MODELING 13/14	Regional	9.6%	$4,657	$4,657	$0	$0	$0
21131	HYDRAULIC MODELING 14/15	Regional	9.6%	$5,123	$5,123	$0	$0	$0
21133	UNIVERSITY LS ODOR CONTROL SYSTEM	Regional	9.6%	$26,970	$26,970	$0	$0	$0
21134	MANHOLE CONST MAIN AND SKY PARK SOUTH	Regional	9.6%	$5,143	$5,143	$0	$0	$0
21146	MWRP BIOSOLIDS AND ENERGY RECOVERY	Regional	4.1%	$10,310,431	$4,461,454	$5,848,977	$0	$0
21147	LAWRP SYSTEM UPGRADES	Regional	9.6%	$77,658	$43,341	$34,317	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
21248	MWRP EXPANSION PHASE 3	Regional	9.6%	$2,872,925	$0	$1,477,330	$1,395,595	$0
21339	AUTOMATION SYSTEM IMPROVEMENTS SEWER	Regional	9.6%	$13,926	$8,826	$5,100	$0	$0
21455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	9.6%	$32,141	$32,141	$0	$0	$0
21578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	9.6%	$164,100	$0	$164,100	$0	$0
21655	SKYLIGHT PROTECTION	Regional	9.6%	$3,696	$3,696	$0	$0	$0
21742	LTFP ID CONSOLIDATION	Regional	9.6%	$8,233	$8,233	$0	$0	$0
30214	MWRP EXPANSION PHASE II	Regional	10.3%	$3,784	$3,784	$0	$0	$0
30331	IRVINE LAKE SEISMIC STABILITY STUDY	Regional	10.3%	$3,104	$3,104	$0	$0	$0
30342	LAWRP SYSTEM UPGRADES	Regional	10.3%	$115,042	$61,890	$53,152	$0	$0
30374	SYPHON RESERVOIR INTERIM IMPROVEMENTS	Regional	10.3%	$21,391	$21,391	$0	$0	$0
30380	SALT MANAGEMENT PLAN DEVELOPMENT	Regional	10.3%	$12,486	$12,486	$0	$0	$0
30382	SYPHON RESERVOIR EXPANSION	Regional	10.3%	$10,130,256	$270,609	$9,859,647	$0	$0
30396	RW SITE INSPECTION & TESTING COMPUTER	Regional	10.3%	$5,620	$5,620	$0	$0	$0
30398	RW CONVERSION GRANTS FOR ON-SITE 13/14	Regional	10.3%	$28,404	$28,404	$0	$0	$0
30399	RW CONVERSION FOR OFF-SITE 13/14	Regional	10.3%	$16,564	$16,564	$0	$0	$0
30400	HEALTH DEPT FEES FOR 13/14	Regional	10.3%	$9,619	$9,619	$0	$0	$0
30408	MULTI-ZONE REGIONAL PS - ZONE A TO SYPHON	Regional	10.3%	$422,032	$41,190	$380,842	$0	$0
30412	SYPHON RESERVOIR EXPANSION - ENV.	Regional	10.3%	$25,978	$12,241	$13,737	$0	$0
30415	CATHODIC PROTECTION FOR GAP PIPE SEGMENT	Regional	10.3%	$13,789	$13,789	$0	$0	$0
30418	MWRP MBR LEAP AERATION CONVERSION	Regional	10.3%	$132,458	$0	$132,458	$0	$0
30422	PA9 JEFFREY RD PIPELINES, 36" ZNA, 36" SYPHON	Regional	10.3%	$177,416	$177,416	$0	$0	$0
30517	LAKE FOREST CONTROL AND TELEMETRY SYS	Regional	10.3%	$4,045	$4,045	$0	$0	$0
31055	ENG PLANNING STUDY RESERVE 13/14	Regional	10.3%	$19,997	$19,997	$0	$0	$0
31056	ENG PLANNING STUDY RESERVE 14/15	Regional	10.3%	$21,997	$21,997	$0	$0	$0
31057	ENG PLANNING STUDY RESERVE 15/16	Regional	10.3%	$24,204	$0	$24,204	$0	$0
31096	GIS SUPPORT APPLICATIONS 13/14	Regional	10.3%	$6,821	$6,821	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
31097	GIS SUPPORT APPLICATIONS 14/15	Regional	10.3%	$7,503	$7,503	$0	$0	$0
31129	HYDRAULIC MODELING 13/14	Regional	10.3%	$4,997	$4,997	$0	$0	$0
31131	HYDRAULIC MODELING 14/15	Regional	10.3%	$5,496	$5,496	$0	$0	$0
31248	MWRP EXPANSION PHASE 3	Regional	10.3%	$1,945,134	$0	$974,851	$970,283	$0
31339	AUTOMATION SYSTEM IMPROVEMENTS RW	Regional	10.3%	$27,332	$17,321	$10,011	$0	$0
31384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	10.3%	$50,809	$50,809	$0	$0	$0
31578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	10.3%	$176,065	$0	$176,065	$0	$0
31582	GEN SYS MODS 13/14	Regional	10.3%	$6,628	$6,628	$0	$0	$0
31648	GEN SYS MODS 14/15	Regional	10.3%	$7,291	$7,291	$0	$0	$0
31655	SKYLIGHT PROTECTION	Regional	10.3%	$3,966	$3,966	$0	$0	$0
31697	GEN SYS MODS 15/16	Regional	10.3%	$8,023	$0	$8,023	$0	$0
				$38,504,132	**$6,196,792**	**$23,211,393**	**$6,729,426**	**$2,366,521**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving one or more of the planned development areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s). For the purpose of this POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

The proposed local master plan facilities for ID No. 253 are detailed in **Table IV-1** and shown on **Figure IV-1a** though **IV-1j** (sewer) and **Figure IV-1k** though **IV-1t** (recycled water). The figures, taken from the sub-area master plans, show both facilities inside and outside the improvement district's boundary, and some facilities shown may have already been constructed. The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 253

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20425	EAST ORANGE LAKE VILLAGE GRAVITY SEWER	Local	100.0%	$2,570,933	$0	$2,570,933	$0	$0
20426	EAST ORANGE LAKE VILLAGE SEWER LIFT	Local	100.0%	$1,996,510	$0	$1,996,510	$0	$0
20427	EAST ORANGE LAKE VILLAGE FORCE MAIN	Local	100.0%	$2,960,435	$0	$2,960,435	$0	$0
21125	PA 9B SEWER IMPROVEMENTS	Local	100.0%	$990	$990	$0	$0	$0
21138	SANTIAGO HILLS II SEWER FACILITIES	Local	100.0%	$5,898,108	$0	$838,143	$5,059,965	$0
21605	PA 40 PHASE 3-5 SS FACILITIES	Sub-Regional	79.0%	$2,023,478	$0	$2,023,478	$0	$0
30144	PA 5B RW PIPELINES	Local	100.0%	$943,159	$509,399	$433,760	$0	$0
30245	PA1 SETTLERS RW PIPELINES - PHASE II	Local	100.0%	$1,086,607	$0	$1,083,392	$3,215	$0
30246	PA1 WOLF TRAIL RW PIPELINES - PHASE II	Local	100.0%	$881,703	$0	$879,131	$2,572	$0
30280	PA9B PHASE 5 GATEWAY PARK RW PIPES	Local	100.0%	$729,399	$8,954	$720,445	$0	$0
30389	PA9 JEFFREY RD PIPELINES, 16" ZONE B AND 6"	Local	100.0%	$467,170	$467,170	$0	$0	$0
30390	PA 9B RW AND SYPHON LATERAL PIPELINE,	Sub-Regional	10.3%	$14,944	$14,944	$0	$0	$0
30409	MULTI-ZONE REGIONAL PS - ZONE B	Sub-Regional	75.4%	$2,614,920	$270,451	$2,344,469	$0	$0
30410	MULTI-ZONE REGIONAL PS - ZONE C	Sub-Regional	72.5%	$3,604,047	$336,545	$3,267,502	$0	$0
30416	PA 40 PHASE 3B RW CAPITAL FACILITIES	Local	100.0%	$137,940	$137,940	$0	$0	$0
30446	PA18 ZN B-C BPS	Local	100.0%	$1,696,024	$1,696,024	$0	$0	$0
30797	PA6 RW PIPELINES	Local	100.0%	$928,222	$671,605	$256,617	$0	$0
31138	SANTIAGO HILLS II RW FACILITIES	Local	100.0%	$8,929,298	$0	$774,810	$8,154,488	$0
31605	PA 40 PHASE 2 RW FACILITIES	Local	100.0%	$678,923	$357,819	$321,104	$0	$0
31633	PA 40 PHASE 3-5 RW FACILITIES	Sub-Regional	79.0%	$5,750,775	$0	$5,750,775	$0	$0
31640	PA 39 PHASE 2 RW FACILITIES	Local	100.0%	$329,510	$0	$329,510	$0	$0
31641	PA 18 SOUTH RW FACILITIES	Local	100.0%	$1,809,782	$958,914	$850,868	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
31739	PA 18S HIDDEN CANYON 36" ZONE B & 8" ZONE	Local	100.0%	$268,950	$268,950	$0	$0	$0
32316	EAST ORANGE AREA I PH3 ZNF RES (0.6MG)	Local	100.0%	$1,495,697	$0	$1,495,697	$0	$0
32322	SANTIAGO HILLS ILP CONN/ZNF BPS	Local	100.0%	$3,526,437	$0	$3,526,437	$0	$0
32324	SANTIAGO HILLS ZNF RES	Local	100.0%	$1,560,590	$0	$1,560,590	$0	$0
32331	EAST ORANGE AREA I PH3 ILP CONN & ZONE F-G	Local	100.0%	$4,603,262	$0	$279,251	$4,324,011	$0
				$57,507,813	**$5,699,705**	**$34,263,856**	**$17,544,252**	**$0**



NOTE: Facilities shown here **AND** less than 12-inch diameter are considered back bone facilities but not reimbursement facilities. (8-inch force main is reimbursable).

ENGINEERING & PLANNING
NOV 28 2005
IRVINE RANCH WATER DISTRICT

SANTIAGO HILLS II AND EAST ORANGE AREA I
EXHIBIT FOR REIMBURSEMENT AGREEMENT

Wastewater System

RBF CONSULTING

0 1000'

8/30/05 JN 10-104353-12158

see Exhibit 7A

Proposed E01 Lift Station

70/70A

SANTIAGO CANYON RD.

Proposed EOLV Lift Station

SR-241

78 8" 79 8" 77 8" 71 15" 72 10" 80 8" 86 8" 81 8" 82 8" 83 8" 85 8" 84 8" 87 8" 73 12" 74 12" 75 10" 88 8" 89 8" 90 8" 91 8" 94 8" 93 8" 92 8" 76 8"

SANTIAGO CANYON RD.

- Proposed Trunk Sewer System
- Proposed Force Main
- Direction of Flow
- 10 Facility Number
- 10" Pipe Sizes

RBF CONSULTING

0 1200'

12/29/04 JN 10-103212-11554

EAST ORANGE LAKE VILLAGE SAMP

Proposed Wastewater Collection System

Exhibit 7B

THE WEST VILLAGE
NEIGHBORHOOD 1

THE NORTH VILLAGE
NEIGHBORHOOD 3

THE CENTRAL VILLAGE
NEIGHBORHOOD 2

THE EAST VILLAGE
NEIGHBORHOOD 4

66" ALLEN–McCOLLOCH PIPELINE (AMP)
39" BAKER PIPELINE

54" IRVINE LAKE PIPELINE (ILP)

N.A.P.

AVOCADO
ORCHARDS

EASTERN TRANSPORTATION CORRIDOR R261

RATTLESNAKE
RESERVOIR

NORTHWOOD
HIGH
SCHOOL

TUSTIN RANCH DRIVE

JAMBOREE RD

SPRING VALLEY

GATE PARK

GLIVER DR

PORTOLA PKWY

YALE

ARBORWOOD

CHAMPION WAY

MEADOW VALLEY

SCALE: 1" = 1250'

LEGEND

- PROPOSED SEWER FACILITIES
- EXISTING OFFSITE TRUNK SEWER
- NCCP NATURE RESERVE
- WATER BODY

NOTE:
ALL PROPOSED PIPELINES ARE 8", UNLESS OTHERWISE NOTED.

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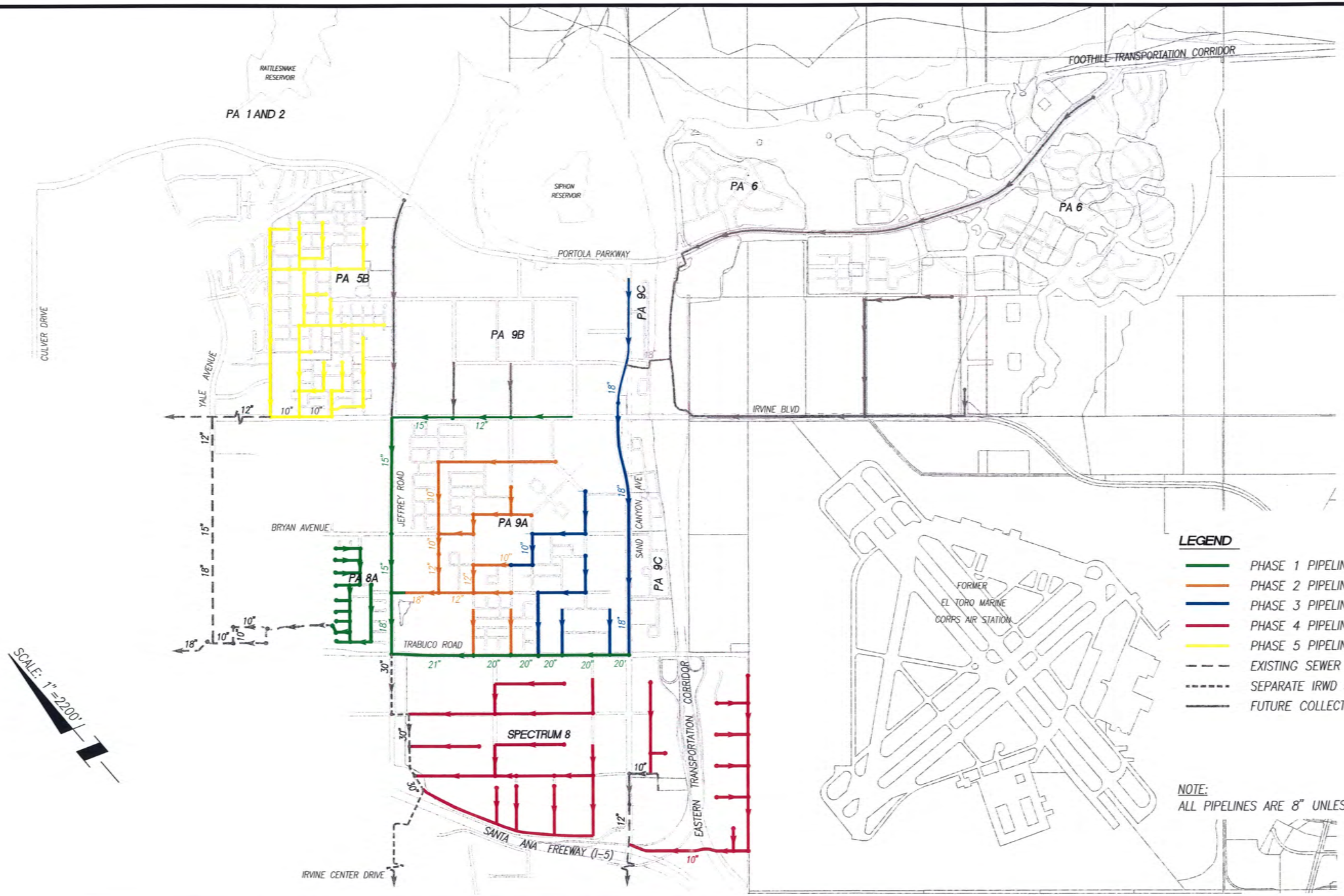
Tettemer & Associates
A Division of The Keith Companies

19 TECHNOLOGY DRIVE
IRVINE, CA 92618
949.923.6277

PREPARED FOR:
IRVINE RANCH
WATER DISTRICT

PLANNING AREAS 1 AND 2 SAMP
SEWER COLLECTION SYSTEM FACILITIES

FIGURE 4-1



Tettemer & Associates
A Division of The Keith Companies
19 TECHNOLOGY DRIVE
IRVINE, CA 92618
949.923.6277

PREPARED FOR:
IRVINE RANCH WATER DISTRICT

PLANNING AREAS 5B, 8A, 9A, AND SPECTRUM 8 SAMP UPDATE SEWER COLLECTION SYSTEM FACILITIES PHASING

FIGURE 8-8

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This map is not intended to replace a survey by a Lic.California Surveyor. Stantec does not certify the accuracy of the data. This map is for reference only and should not be used for construction.

NCCP NATURE RESERVE

FOOTHILL TRANSPORTATION CORRIDOR SR-241

IRWD

NB1

NB4A

NB4B

N.A.P.

NB5B

NB5A

NB5C

NB2

NB6

NB3

LAMBERT SISTERS

LAMBERT RANCH

TOMATO SPRINGS

NATIVE SPRING

PORTOLA PARKWAY

PORTOLA SPRINGS

SAND CANYON AVE

EASTERN TRANSPORTATION CORRIDOR SR-133

LAMBERT ROAD

MODJESKA

IRVINE BLVD

WALKING STICK

STILL NIGHT

GREAT PARK NEIGHBORHOODS

U.C. REGENTS

MARSHBURN DETENTION BASIN

10"

12"

15"

18"

LEGEND

- PA6 BOUNDARY
- NEIGHBORHOOD BOUNDARY
- GRAVITY SEWER

NOTE:
ALL GRAVITY SEWERS ARE 8-INCH DIAMETER, UNLESS OTHERWISE NOTED.

Geographic Information Systems

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE CA 92618
(949) 923-6000
stantec.com

0 450 900 1,800 Feet

SCALE: 1" = 900'

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 6 SAMP UPDATE FOR NB3 AND NB6 SEWER COLLECTION SYSTEM FACILITIES

FIGURE 4-1

V:\PROJECTS\204249200\record\exhibits\gis\samp\V:\PROJECTS\204249200\record\exhibits\gis\samp\pa6 samp figure 4-1 pro ss 20130823.pdf

PROPOSED GATEWAY PARK (SEE FIGURE 4-2)

8" JACK AND BORE ACROSS PORTOLA PKWY

BEE CANYON ACCESS ROAD

SIPHON RESERVOIR

POTENTIAL FUTURE SEWER CONNECTION W/ AIRGAP FOR IRWD FACILITIES

OPTION 2: LPSS OR GRAVITY SEWER LINE

OPTION 1: LPSS WITH 2" FORCE MAIN AND 8" GRAVITY SEWER

PA 5B

PA 6

JEFFREY ROAD

PORTOLA PARKWAY

SR-133 CORRIDOR

ODOR /CORROSION CONTROL TREATMENT SYSTEM @ TIE-IN

IRVINE BOULEVARD

GROVELAND

PA 9A

SAND CANYON AVENUE

8" STUBOUT FOR DRAIN LINE FOR IRWD ZONE 1 RESERVOIR FACILITIES

TRABUCO ROAD

LEGEND

- PROPOSED GRAVITY SEWER
- EXISTING GRAVITY SEWER
- EXISTING RCB STORM DRAIN
- NCCP NATURE RESERVE

ALL PIPELINES ARE 8" DIAMETER UNLESS OTHERWISE SHOWN.

GRAPHIC SCALE

800 0 400 800 1600

(IN FEET)

1 INCH = 800'

PREPARED BY:

STANTEC CONSULTING INC.
19 TECHNOLOGY DRIVE
IRVINE, CA 92618
949.923.6000
stantec.com

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 9B, 9C SAMP UPDATES

SEWER SYSTEM

FIGURE 4-1

V:\PROJECTS\2040476900\dwg\ FIG4-1.dwg 02/25/10_14:38

SCALE: 1" = 1000'

STAGING AREA

EXISTING 42" SAN DIEGO CREEK INTERCEPTOR SEWER

EXISTING 12x6 RCB SD CULVERT

I-405 FWY

SHADY CANYON DRIVE

QUAIL HILL PARKWAY

KNOLL CREST DRIVE

SCE EASEMENT

SPECTRUM 9

LAGUNA CANYON ROAD

SR-133

PERENNIAL

PA-17 TRACT BOUNDARY

NCCP (NATURE RESERVE)

SHADY CANYON
PA 22

PA 39

SPIGLOSS
TREEHOUSE
WEATHERVANE
WINDCHIME
SYMPHONY
RETREAT
MOSAIC
AMBIANCE
PAGEANTRY
LUMINOUS
SILHOUETTE
DRAMA LIGHT
TWILIGHT
BALCONY
SERPENTINE
TAPESTRY
FRESCO
MOMENTO
MIDNIGHT SUN
PINE NEEDLES
BOTTLEBRUSH
CRABAPPLE
TEAROSE

LEGEND

PROPOSED GRAVITY SEWER PIPELINES

REVISED 02/20/2003

QUAIL HILL SAMP

The Keith Companies TKC

55 Red Hill Avenue, Costa Mesa, CA 92626 (714) 540-0800

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

QUAIL HILL (PA 17) SAMP
SEWER COLLECTION SYSTEM FACILITIES

FIG 4-1

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PA 39

PA 18 (N)

PA 18 (S)

I-405 SAN DIEGO FREEWAY

PROPOSED LAKE FOREST DR.

EXISTING 42" SAN DIEGO INTERCEPTOR SEWER

PROPOSED 12" SEWER TO BE JACK AND BORED ACROSS SR-133 EASEMENT TO BE ACQUIRED

PROPOSED ALIGNMENT PER PA 17 SAMP AND PRELIMINARY DESIGNED AS 16" DIP BY BENDER AND ASSOCIATES

JACK AND BORE ACROSS I-405 FWY, EASEMENT TO BE AQUIRED

SAWMILL

PANORAMA

LAGUNA CROSSING

OLD LAGUNA CANYON RD.

EXIST SEWER NOT IN SERVICE (MH LID'S HAVE BEEN WELDED) REPLACED WITH 12" CROSSING TO THE NORTH

EXIST ZONE B RESERVOIR

SPECTRUM 9

QUAIL HILL (PA 17)

LAGUNA CANYON RD.

SR-133

NCCP (NATURE RESERVE)

42"

16"

12"

8"

LEGEND

PROPOSED SEWER LINES

EXISTING SEWER LINES

NCCP RESERVE AREA

PA BOUNDARY

NOTE: UNLESS NOTED OTHERWISE, ALL PIPE DIAMETERS ARE 8"

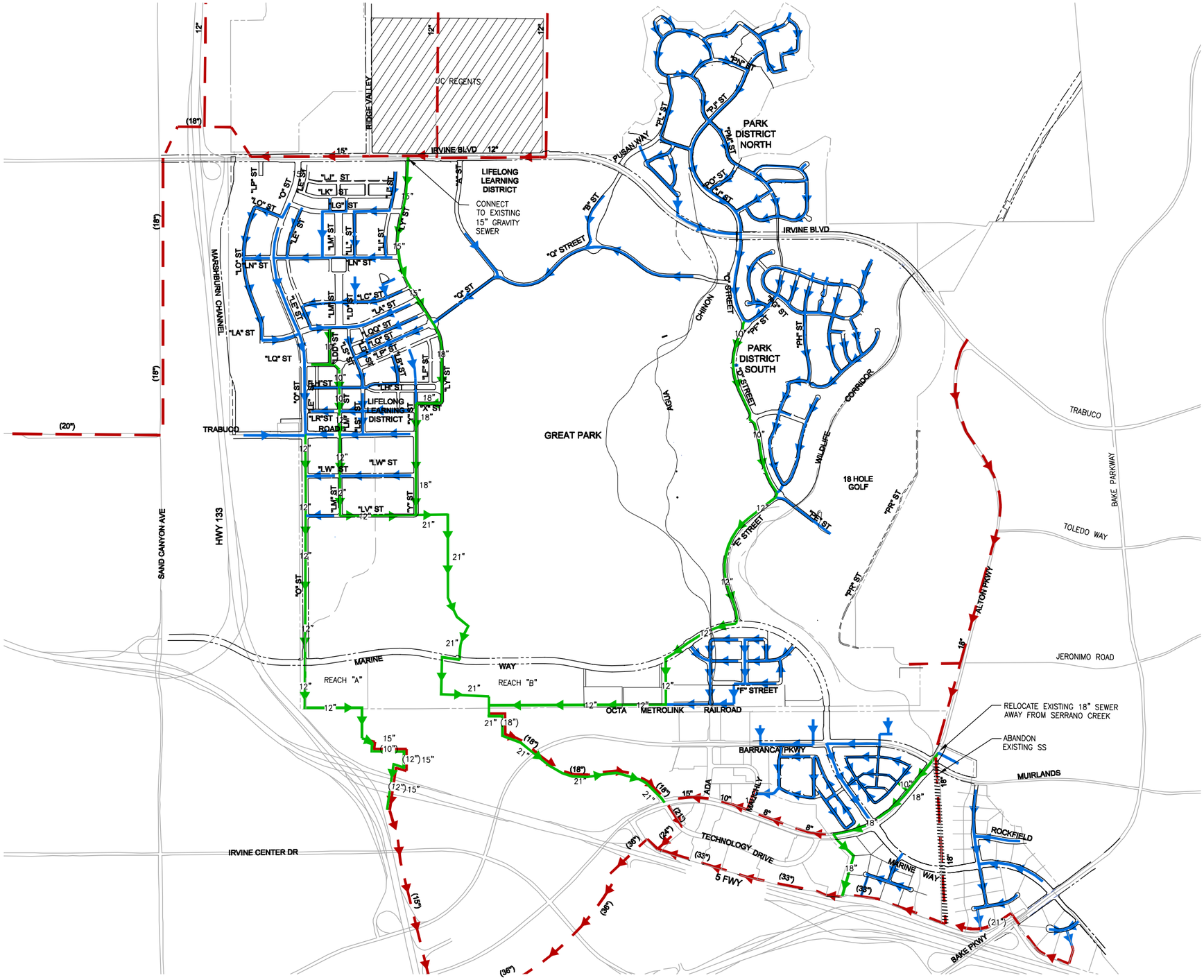
PREPARED BY: Stantec

PREPARED FOR: IRVINE RANCH WATER DISTRICT

PLANNING AREA 18 SAMP UPDATE

PROPOSED WASTEWATER COLLECTION SYSTEM

FIGURE 4-1



NOTES:

1. THE WASTEWATER FACILITIES WITHIN THE GREAT PARK ARE NOT SHOWN ON THIS FIGURE. AT THE TIME OF THE SAMP PREPARATION, THE REQUIRED WASTEWATER COLLECTION FACILITIES WERE NOT KNOWN. ONCE THE LAND USE PLAN IS FINALIZED, THE WASTEWATER SYSTEM WILL REQUIRE ANALYSIS AND APPROPRIATE LEVEL OF SAMP UPDATE OR ADDENDUM WILL BE REQUIRED. ADDITIONALLY, AT THE TIME, A DETERMINATION WILL BE MADE AS TO WHICH FACILITIES WILL BE PUBLIC AND WHICH WILL BE PRIVATE.
2. AS PART OF THE AGREEMENT WITH THE DEPARTMENT OF DEFENSE, THE LEAD ENTITY CONSTRUCTING BURIED PIPELINES WITHIN THE FORMER MARINE CORPS AIR STATION, EL TORO MUST SUBMIT A PROJECT ENVIRONMENT REVIEW FORM (PERF) TO THE NAVY AND THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES.
3. ALL PIPELINES ARE 8" UNLESS SHOWN.

LEGEND

- EXISTING SANITARY SEWER — (12")
- PROPOSED SANITARY SEWER (LARGER THAN 8 INCH) — 12"
- 8" PROPOSED SANITARY SEWER (SIZE NOT LABELED)

AECOM
AECOM USA, INC.
1501 QUAIL STREET
NEWPORT BEACH, CA 92660
PHONE (949) 476-3300

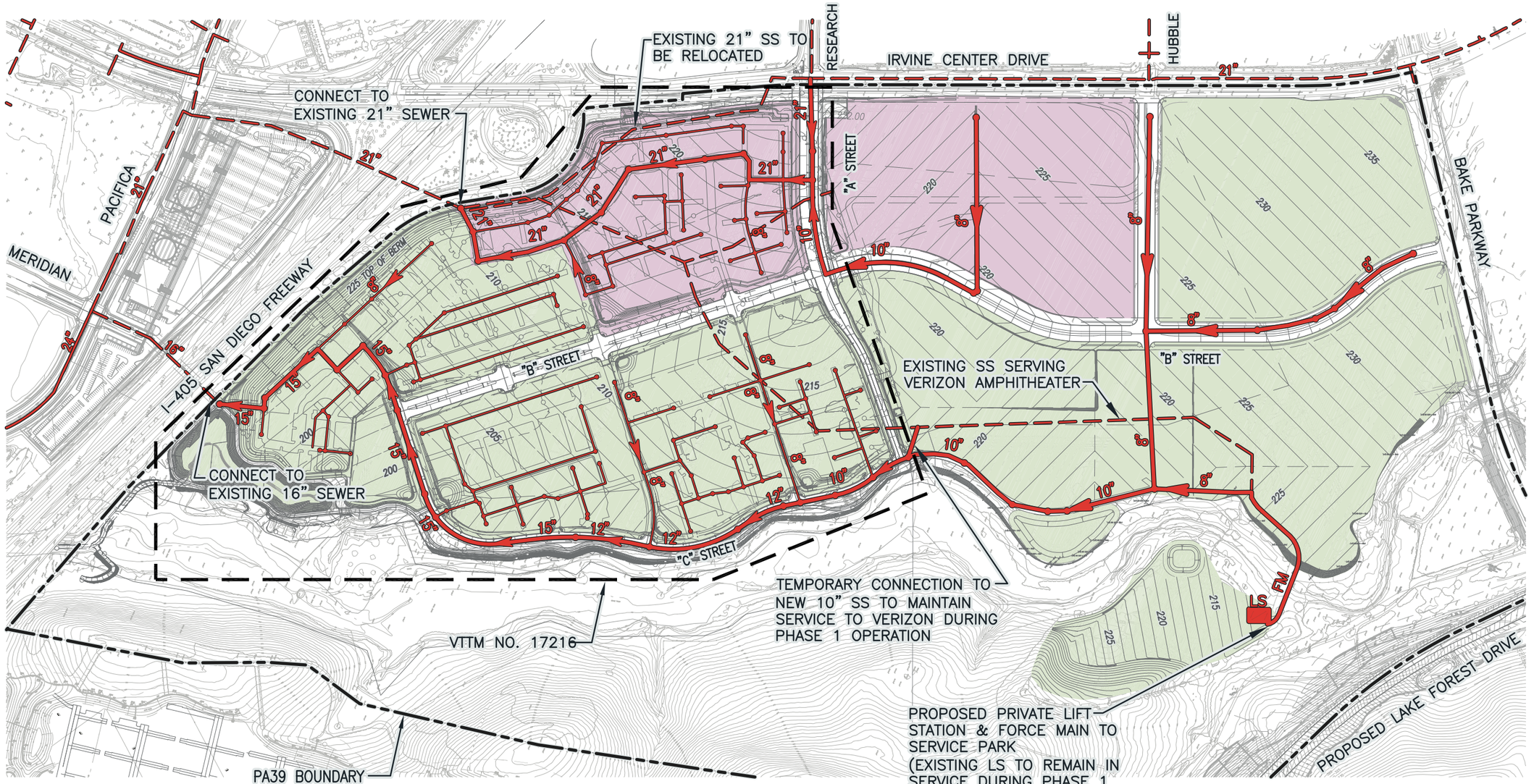
PREPARED FOR:
IRVINE RANCH WATER DISTRICT

IRVINE RANCH WATER DISTRICT
GREAT PARK / GREAT PARK NEIGHBORHOODS
SUB-AREA MASTER PLAN

PROPOSED SEWER COLLECTION FACILITIES

FIG. 4-1

PATH/FILENAME: M:\PROJECTS\TETRA TECH, INC\HERITAGE FIELDS & GREAT PARK SAMP\BACKGROUND INFORMATION\2.7.08 SAMP KICKOFF\SS MST PLAN_M-E4.DWG
LAST UPDATE: Friday, March 06, 2009 3:09:14 PM
PLOT DATE: Friday, March 06, 2009 3:44:37 PM
ANSI D - 3-8-05



N
SCALE: 1"=500'

GRAPHIC SCALE

500 0 250 500 1000

1 inch = 500 ft.

LEGEND

- PROPOSED BACKBONE SANITARY SEWER PIPELINE
- PROPOSED IN-TRACT SANITARY SEWER PIPELINE
- EXISTING SANITARY SEWER PIPELINE
- SEWER DRAINAGE AREA "A"
- SEWER DRAINAGE AREA "B"

NOTE:
ALL PIPES ARE 8-INCH UNLESS OTHERWISE NOTED.

Stantec
19 Technology Drive, Irvine, CA 92618 Phone 949.923.6249 Fax 949.923.6188 www.stantec.com

PREPARED FOR THE:
IRVINE RANCH WATER DISTRICT

PLANNING AREA 39 SAMP

PROPOSED SANITARY SEWER FACILITIES

FIGURE 4-1

DRAWING: v:\projects\2040482400\dwg\prex0004.dwg PLOTTED: 8/2/2011 11:59 AM BY: Fontenot, Jon

WOODBURY (PA 9A)

(PA 9C)

OCFA TEMP. FIRE STATION NO. 20

TRABUCO ROAD

ORANGE COUNTY GREAT PARK

J.O.S.T

VISIONS ST

BAY TREE

C-STREET

SAND CANYON

EASTERN TRANSPORTATION CORRIDOR

133

ROOSEVELT RD

30" TRUNK SEWER RELOCATION FOR ROOSEVELT UNDER CROSSING

JEFFREY ROAD

NIGHTMIST RD

NIGHTMIST RD

PROPOSED CALTRANS MAINTENANCE YARD

EXISTING IRVINE SCHOOL DISTRICT BUS FACILITY

EXISTING CALTRANS MAINTENANCE YARD

EXISTING ORANGE COUNTY TRANSIT DISTRICT FACILITIES

MARINE WAY

FUTURE "O" ST

NTS STORM DRAIN

WALNUT AVE

SANTA ANA FREEWAY (I-5)

VTPM 97-184

EXISTING OAK CREEK GOLF COURSE

EX MARINE WAY

BURT ROAD

OCTA METROLINK/AT&SF RAIL ROAD

PROPOSED SAND CANYON ALIGNMENT

12" TO CONTINUE ON TO EXISTING SEWER AS PROPOSED BY OC GREAT PARK SAMP

LEGEND

PROPOSED SEWER ALIGNMENT

EXISTING SEWER ALIGNMENT

NOTE: ALL PIPES ARE 8" UNLESS OTHERWISE NOTED.

SCALE: 1"=700'

DRAWING: v:\projects\2040478900\dwg\prex0004.dwg PLOTTED: 1/19/2011 1:56 PM BY: Fontenot, Jon

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PREPARED FOR THE:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 40 SAMP

SEWER COLLECTION SYSTEM FACILITIES

FIGURE 4-1



- Proposed Zone E Main
- Proposed Zone F Main
- Project Boundary
- 6.14 Facility Number (Reimbursable)
- 6.14 Facility Number (Non-Reimbursable)
- Zone Break
- Phase I Construction
- Phase II Construction
- Phase III Construction
- Backflow Preventer Interconnection with Potable Water System
- Indicates Reimbursement Facilities

NOTE: **ALL** pipeline facilities shown are back bone and reimbursement facilities.

ENGINEERING & PLANNING
NOV 28 2005
IRVINE RANCH WATER DISTRICT

RBF CONSULTING

0 1000'

10/25/05 JN 10-104353-12158

SANTIAGO HILLS II AND EAST ORANGE AREA I
EXHIBIT FOR REIMBURSEMENT AGREEMENT

Non-Potable Water System

see Exhibit 10A

SR-241

SANTIAGO CANYON RD.

Pontential Irvine Lake Pump Station

F.70

F.28 8"

F.30 8"

F.20 12"

F.21 12"

F.29

F.22 12"

8"

F.40

F.23 12"

F.24

F.25 12"

8"

F.31

F.60 Potential 0.88 MG Zone F Reservoir

G.30 Potential Zone G Pump Station

10"

12"

G.1

G.40

F.27

10"

G.2

12"

F.26

G.10

8"

G.9 8"

10"

G.3

F.32 8"

G.8 8"

G.4 10"

G.7 8"

F.41

F.33 8"

F.36 8"

8"

G.5

8"

G.6

F.34 8"

F.37 8"

G.41

F.35 8"

8"

F.38

ZONE 8 (Reduced) ZONE 8

ZONE 8 ZONE 8 (Reduced)

- Proposed Zone F Main
- Proposed Zone G Main
- Project Boundary
- F.30 Facility Number
- 8" Pipe Sizes
- Backflow Preventor Interconnection with Potable Water System

RBF CONSULTING

0 1200'

12/27/04 JN 10-103212-11554

EAST ORANGE LAKE VILLAGE SAMP

Proposed Non-Potable Water Distribution System

Exhibit 10B

TO PETERS CANYON RESERVOIR

24"

TO AVOCADO ORCHARDS

EXIST. CONNECTION TO ILP ZONE C PRS, P-5

POTENTIAL FUTURE ZONE C BPS

16"

PROPOSED ILP TURNOUT NO. 1 LOCATION

THE WEST VILLAGE NEIGHBORHOOD 1

THE NORTH VILLAGE NEIGHBORHOOD 3

N.A.P.

66" ALLEN-McCOLLOCH PIPELINE (AMP)

39" BAKER PIPELINE

19"

12" ILP

POTENTIAL FUTURE ZONE B TO B+ BPS TO FILL PETER'S CANYON RESERVOIR

EXIST. ZONE C TO B PRS

16"

AVOCADO ORCHARDS

54" IRVINE LAKE PIPELINE (ILP)

EXISTING RW ZONE B RESERVOIR

SCALE: 1" = 625'

EASTERN TRANSPORTATION CORRIDOR 7261

THE CENTRAL VILLAGE NEIGHBORHOOD 2

THE EAST VILLAGE NEIGHBORHOOD 4

20"

12"

6"

PROPOSED 54" ILP RELOCATION

RATTLESNAKE RESERVOIR

JAMBOREE RD

GATE PARK

CULVER DR

NORTHWOOD HIGH SCHOOL

EXISTING IRWD DW & RW RESERVOIR INLET/OUTLET PIPELINES TO BE RELOCATED WITHIN CULVER DR LOOP ROAD

A TO C BOOSTER PUMP STATION

EXISTING ILP TURNOUT NO. 2 WITH MODIFICATIONS

PORTOLA PKWY

38"

EXISTING ZONE A RESERVOIR & RATTLESNAKE ZONE B PUMP STATION COMPLEX

EXIST. 16-INCH ZONE 3 TO BE CONVERTED TO ZONE C

LEGEND

- EXIST ZONE A FACILITIES
- EXIST ZONE B FACILITIES
- PROP. IRWD ZONE B – 460 HGL
- PROP. IRWD ZONE C – 640 HGL
- POTENTIAL FUTURE PETERS CANYON RESERVOIR FACILITIES
- IRVINE LAKE PIPELINE (ILP)
- ILP RELOCATION
- AVOCADO ORCHARDS
- NCCP NATURE RESERVE
- WATER BODY
- PRESSURE REDUCING STATION
- REDUCER
- SAMPLING STATION

NOTE:
ALL PIPELINES ARE 4", UNLESS OTHERWISE NOTED.

Tettemer & Associates
A Division of The Keith Companies
19 TECHNOLOGY DRIVE
IRVINE, CA 92618
949.923.6277

PREPARED FOR:
IRVINE RANCH WATER DISTRICT

PLANNING AREAS 1 AND 2 SAMP NONPOTABLE WATER SYSTEM FACILITIES

FIGURE 5-3

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ZONE B NORTHWOOD RESERVOIR

ZONE D RESERVOIR LOCATION

RATTLESNAKE RESERVOIR

EXISTING ZONE B RATTLESNAKE 75-1 BPS

EXISTING ZONE A RESERVOIR

PROPOSED ZONE A TO C BPS

PA 1 and 2

EXISTING ZONE B+ 6" PIPELINE

TO BE REALIGNED

EXISTING 16" DOMESTIC WATER LINE TO BE CONNECTED TO NON-POTABLE ZONE C

FUTURE CONNECTION TO SIPHON RESERVOIR FOR SEASONAL STORAGE

SIPHON RESERVOIR

ZONE C RESERVOIR LOCATION

78" AMP

39" BAKER PIPELINE

PURPOSED 27" PIPELINE RELOCATION ALIGNMENT & UPGRADE TO 36"

PA 6

PORTOLA PARKWAY

PA 5B

PA 9B

CULVER DRIVE

YALE AVENUE

JEFFREY ROAD

NP-1

PA 9C

IRVINE BLVD

ALTERNATIVE INTERIM SUPPLY CONNECTION FROM ILP TO 12" ZONE B PIPELINE IN SAND CANYON AVE. FOR PHASE 1 & 2 DEVELOPMENTS(PA 8A & 9A)

SAND CANYON AVE.

BRYAN AVENUE

PA 9A

PA 8A

TRABUCO ROAD

SPECTRUM 8

FORMER EL TORO MARINE CORPS AIR STATION

SCALE: 1" =2200'

LEGEND

- PROPOSED ZONE A (330 HGL) PIPELINES
- PROPOSED ZONE B (460 HGL) PIPELINES
- PROPOSED ZONE C (640 HGL) PIPELINES
- EXISTING ZONE A PIPELINES
- EXISTING ZONE B PIPELINES
- EXISTING ILP PIPELINES
- SEPARATE IRWD PROJECT, ZONE A PIPELINE
- NCCP NATURE RESERVE
- STORAGE TANK
- BOOSTER PUMP STATION
- PRESSURE REDUCING STATION

NOTE:
ZONE B+ PIPELINE IN PORTOLA PARKWAY IS DESIGNED TO 530 HGL. HOWEVER, IT CURRENTLY OPERATES AT THE ZONE B HGL.

ALL PIPELINES ARE 4" DIAMETER UNLESS OTHERWISE SHOWN.

V:\projects\13699.80\DWG\Fig0213.dwg 01/21/2005 10:49:48 AM PST

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949.923.6277

PREPARED FOR:
IRVINE RANCH WATER DISTRICT

PLANNING AREAS 5B, 8A, 9A, AND SPECTRUM 8 SAMP UPDATE NON-POTABLE WATER SYSTEM FACILITIES

FIGURE 5-3

This map is not intended to replace a survey by a Lic.California Surveyor. Stantec does not certify the accuracy of the data. This map is for reference only and should not be used for construction.

V:\PROJECTS\204292000\record\exhibits\gis\samp\V:\PROJECTS\204292000\record\exhibits\gis\samp\pa6_samp_figure_5-3_rw_facilities_20130621.pdf

0.66 MG ZONE D
STORAGE TANK, HWL 850

2.2MG ZONE C
STORAGE TANK, HWL 640

ZONE C TO D BPS

NCCP NATURE RESERVE

FOOTHILL TRANSPORTATION CORRIDOR SR-241

IRWD

LAMBERT SISTERS

LAMBERT RANCH

NB1

NB2

NB3

NB4A

NB4B

NB5A

NB5B

NB5C

NB6

N.A.P.

TOMATO SPRINGS

NATIVE SPRINGS PARKWAY

PORTOLA PARKWAY

PORTOLA SPRINGS

CONNECT TO
EXISTING 16"
ZONE C PIPELINE

SAND CANYON AVE

EASTERN TRANSPORTATION CORRIDOR SR-133

GREAT PARK
NEIGHBORHOODS

MARSHBURN
DETENTION
BASIN

U.C. REGENTS

LAMBERT ROAD

24" ILP

MODJESKA

WALKING STICK

STILL NIGHT

IRVINE BLVD

54" ZONE C

FUTURE CONNECTION
TO THE GREAT PARK
DEVELOPMENT

NCCP
NATURE
RESERVE

EXISTING LF
ZONE B WEST
7.8 MG RESERVOIR
860-FT HWL

66" ALLEN-McCULLOCH PIPELINE (AMP)

39" BAKER PIPELINE

ALTON PARKWAY

LF ZONE B 12" RW

NP-1

LEGEND

- PA6 BOUNDARY
- NEIGHBORHOOD BOUNDARY
- EXISTING ZONE B
- EXISTING ZONE C
- PROPOSED ZONE C (640 HGL)
- PROPOSED ZONE D (850 HGL)
- 54" ZONE C
- FUTURE ZONE D PIPELINE - GREAT PARK PLAN
- PRV
- BOOSTER PUMP STATION (BPS)
- RESERVOIR TANK
- ZONE C (640 HGL)
- ZONE D (850 HGL)

NOTE:
ALL PIPE DIAMETERS ARE 4-INCH, UNLESS OTHERWISE NOTED.

Geographic Information Systems

Stantec
38 TECHNOLOGY DRIVE, SUITE 100
IRVINE CA 92618
(949) 923-6000
stantec.com

0 750 1,500 3,000 Feet

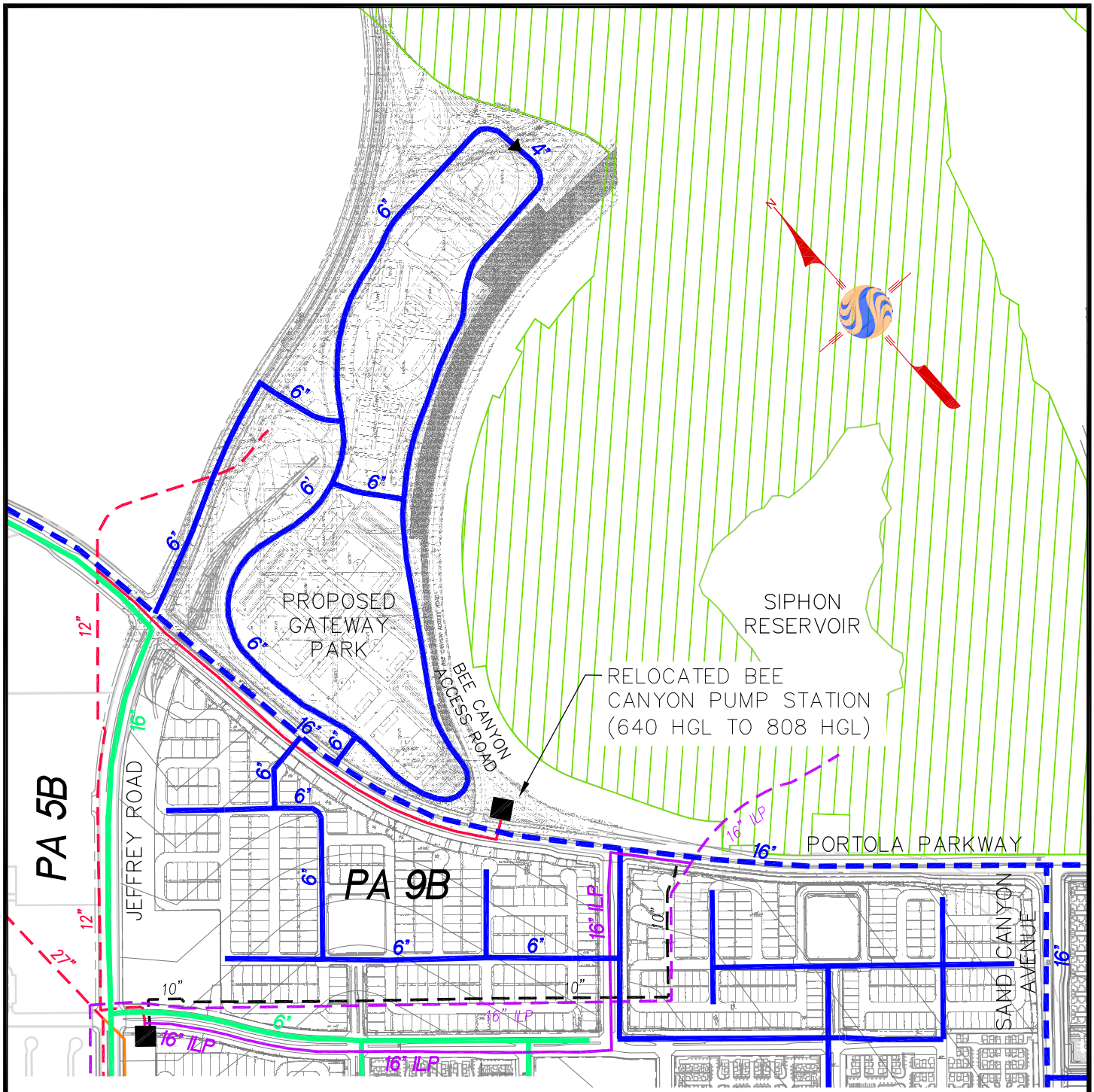
SCALE: 1" = 1,500'

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 6 SAMP UPDATE FOR NB3 AND NB6 NONPOTABLE WATER FACILITIES

FIGURE 5-3



LEGEND

PROPOSED ZONE C PIPELINES

NCCP NATURE RESERVE

ALL PIPELINES ARE 4" DIAMETER UNLESS OTHERWISE SHOWN.

GRAPHIC SCALE

800 0 400 800 1600

(IN FEET)

1 INCH = 800'

PREPARED BY:

STANTEC CONSULTING INC.
19 TECHNOLOGY DRIVE
IRVINE, CA 92618
Stantec 949.923.6000

PREPARED FOR:

IRVINE RANCH WATER DISTRICT

PA 9B, 9C SAMP GATEWAY PARK NON-POTABLE WATER

FIGURE 5-4

SCALE: 1" = 1000'

STAGING AREA

TO EXISTING SYSTEM AT IRVINE CENTER DRIVE AND TO IRVINE DESALTER

JACK AND BORE UNDER FREEWAY

I-405 FWY

SHADY CANYON DRIVE

QUAIL HILL PARKWAY

SCE EASEMENT

SPECTRUM 9

LAGUNA CANYON ROAD

SR-133

PA 39

PA-17 TRACT BOUNDARY

NCCP (NATURE RESERVE)

SHADY CANYON
PA 22

6" KNOLL CREST DRIVE

BOTTLEBRUSH
CRABAPPLE
IRONWOOD
PINE NEEDLES
TREEHOUSE
WEATHERVANE
BALCONY
SERPENTINE
TAPESTRY
FRESCO
MOWERTO
MIDNIGHT SUN
LUMINOUS
WROUGHT
SYMPHONY
RETREAT
MUSEUM
ENTRANCE
PAGEANTRY
SUNDIAL
GRANDIOSE
TWILIGHT

6" REQ'D FOR ULTIMATE CONDITION, 8" REQ'D DURING INTERIM PHASE 2 CONDITION

FUTURE 8" CONNECTION FROM PA 22 TO ZONE C

INTERIM ZONE 4 DOMESTIC WATER SUPPLY CONNECTION

NOTE:
ALL PIPELINES DIAMETERS ARE 4-INCH UNLESS OTHERWISE NOTED.

BOULDER VIEW

CANYON CREEK

NPRV-1

PA 18

TO EXIST ZONE B 24-INCH PIPELINE AND LAGUNA CANYON RESERVOIR

LEGEND

- EXISTING NONPOTABLE WATER PIPELINES
- PROPOSED ZONE B (460) PIPELINES
- PROPOSED ZONE C (640) PIPELINES
- FUTURE PRESSURE REDUCING STATION

REVISED 02/20/2003

QUAIL HILL SAMP

e Keith Companies TKC
5 Red Hill Avenue, Costa Mesa, CA 92626 (714) 540-0800

PREPARED FOR:
IRVINE RANCH WATER DISTRICT

QUAIL HILL (PA 17) SAMP
NON-POTABLE WATER SYSTEM FACILITIES

FIG 5-3

DRAWING: v:\projects\2040460701\dwg\prpx0002.dwg PLOTTED: 8/16/2011 3:14 PM BY: Allison, Ryan

I-405 SAN DIEGO FREEWAY

PA 39

PA 18 (N)

PA 18 (S)

EXISTING 42" AUFDENKAMP TRANSMISSION MAIN (LBCWD)

PROPOSED LAKE FOREST DR.

EXISTING 24" RW PIPE TO BE RELOCATED (LAKE FOREST DR. TO ZONE B TANK)

SAWMILL

PANORAMA

LAGUNA CROSSING

OLD LAGUNA CANYON RD

ALTERNATE SITE FOR ZONE B TO C BPS

PROPOSED 36" RELOCATION ALIGNMENT

PROPOSED B TO C BPS

EXISTING ZONE B 460 HGL

SPECTRUM 9

LAGUNA CANYON RD.

SR-133

QUAIL HILL (PA 17)

NCCP (NATURE RESERVE)

LEGEND

- PROPOSED ZONE B (460 HGL) PIPELINES
- EXISTING ZONE B PIPELINES
- PROPOSED ZONE C (640 HGL) PIPELINES
- EXIST 42" AUFDENKAMP TRANSMISSION MAIN
- STORAGE TANK
- BOOSTER PUMP STATION
- WATER SAMPLING STATION
- NCCP RESERVE AREA
- PA BOUNDARY

NOTE: UNLESS NOTED OTHERWISE, ALL PIPE DIAMETERS ARE 4"

PREPARED BY: Stantec

PREPARED FOR: IRVINE RANCH WATER DISTRICT

PLANNING AREA 18 SAMP UPDATE

PROPOSED NON-POTABLE WATER FACILITIES

FIGURE 5-3

NOTES:

1. THE RECLAIMED WATER FACILITIES WITHIN THE GREAT PARK ARE NOT SHOWN ON THIS FIGURE. AT THE TIME OF THE SAMP PREPARATION, THE REQUIRED RECLAIMED WATER DISTRIBUTION FACILITIES WERE NOT KNOWN. ONCE THE LAND USE PLAN IS FINALIZED, THE RECLAIMED WATER DISTRIBUTION SYSTEM WILL REQUIRE ANALYSIS AND APPROPRIATE LEVEL OF SAMP UPDATE OR ADDENDUM WILL BE REQUIRED. ADDITIONALLY, AT THE TIME, A DETERMINATION WILL BE MADE AS TO WHICH FACILITIES WILL BE PUBLIC AND WHICH WILL BE PRIVATE.
2. AS PART OF THE AGREEMENT WITH THE DEPARTMENT OF DEFENSE, THE LEAD ENTITY CONSTRUCTING BURIED PIPELINES WITHIN THE FORMER MARINE CORPS AIR STATION, EL TORO MUST SUBMIT A PROJECT ENVIRONMENT REVIEW FORM (PERF) TO THE NAVY AND THE DEPARTMENT OF TOXIC SUBSTANCES CONTROL PRIOR TO COMMENCEMENT OF EXCAVATION ACTIVITIES.
3. ALL PIPELINES ARE 4" UNLESS SHOWN.

LEGEND

	PROPOSED	EXISTING
ZONE D (850 HGL)		
ZONE C (640 HGL)		
ZONE B (460 HGL)		

AECOM USA, INC.
1501 QUAIL STREET
NEWPORT BEACH, CA 92660
PHONE (949) 476-3300

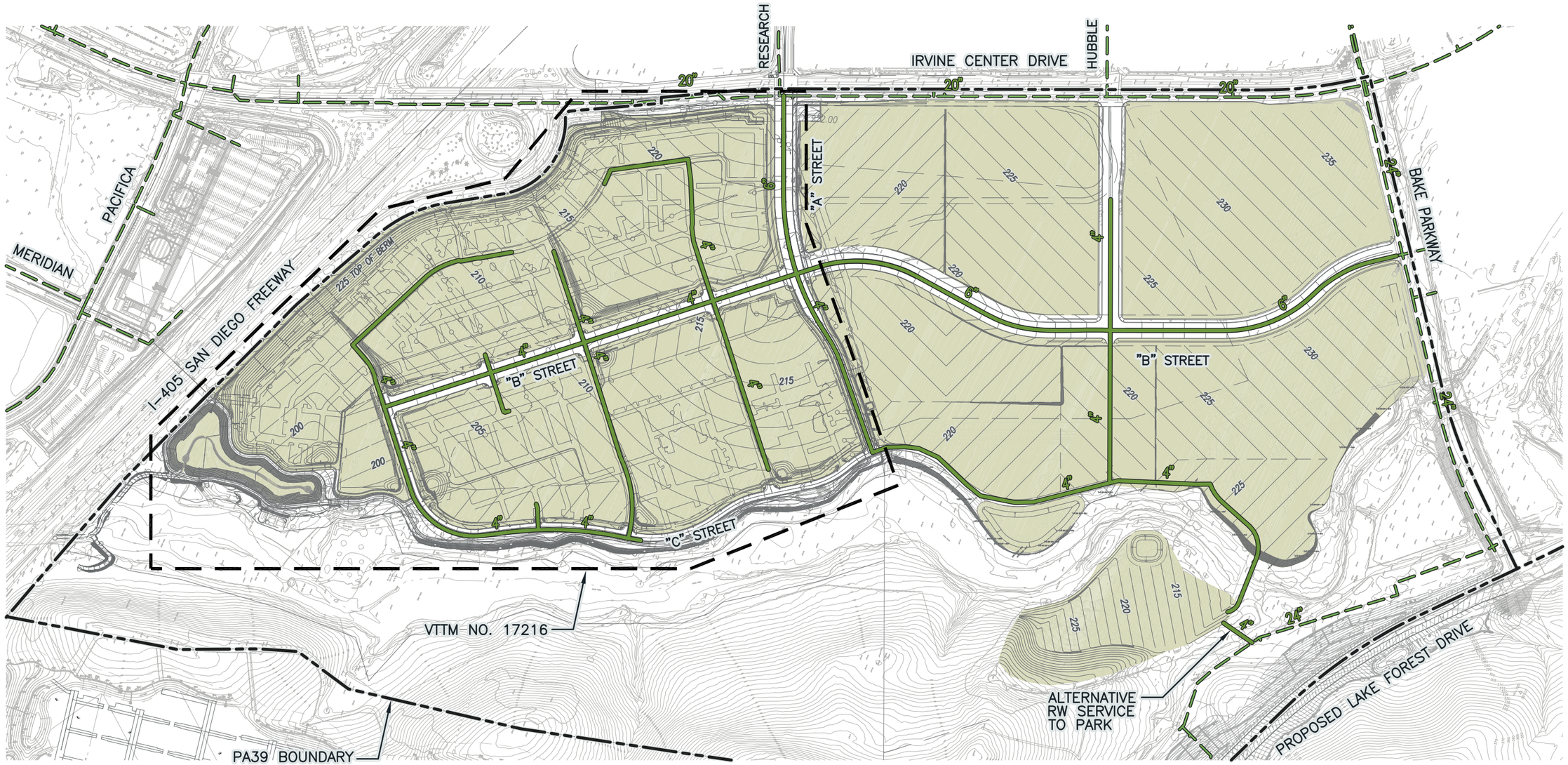
PREPARED FOR:
IRVINE RANCH WATER DISTRICT

IRVINE RANCH WATER DISTRICT
GREAT PARK / GREAT PARK NEIGHBORHOODS
SUB-AREA MASTER PLAN

PROPOSED NON-POTABLE WATER FACILITIES

FIG. 5-3

PATH/FILENAME: M:\PROJECTS\TETRA TECH, INC\HERITAGE FIELDS & GREAT PARK SAMP\BACKGROUND INFORMATION\2.7.08 SAMP KICKOFF\PW MST PLAN_M-E.DWG
LAST UPDATE: Friday, March 06, 2009 3:09:19 PM
PLOT DATE: Friday, March 06, 2009 3:47:07 PM
ANSI D - 3-8-05



GRAPHIC SCALE

500 0 250 500 1000

1 inch = 500 ft.

SCALE: 1"=500'

LEGEND

- PROPOSED ZONE (460 HGL)
- EXISTING ZONE B (460 HGL)
- ZONE B (460 HGL)

DRAWING: v:\projects\2040482400\dwg\prex0005.dwg PLOTTED: 8/2/2011 12:01 PM BY: Fontenot, Jon

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19 Technology Drive, Irvine, CA 92618 Phone 949.923.6249 Fax 949.923.6188 www.stantec.com

PREPARED FOR THE:
IRVINE RANCH WATER DISTRICT

PLANNING AREA 39 SAMP

PROPOSED NON-POTABLE WATER FACILITIES

FIGURE 5-2

EX 20" ZONE A TO BE CONVERTED TO ZONE B

CONNECT TO EX 4" STUB

WOODBURY (PA 9A)

CONNECT TO EX 8" STUB

(PA 9C)

OCFA TEMP. FIRE STATION NO. 20

ORANGE COUNTY GREAT PARK (PA 30 & 51)

JEFFREY ROAD

J.O.S.T.

VISIONS ST

TRABUCO ROAD

BAY TREE

C-STREET

EX 4" STUB

133

CORRIDOR

TRANSPORTATION

EASTERN

FUTURE "O" ST

EX 6" PIPE SLEEVE

ROOSEVELT RD

SAND CANYON

EX 6" PIPE SLEEVE

NIGHTMIST RD

NIGHTMIST RD

NIGHTMIST RD

PROPOSED CALTRANS MAINTENANCE YARD

EXISTING IRVINE SCHOOL DISTRICT BUS FACILITY

EXISTING CALTRANS MAINTENANCE YARD

EXISTING ORANGE COUNTY TRANSIT DISTRICT FACILITIES

WALNUT AVE

SANTA ANA FREEWAY (I-5)

VTPM 97-184

EXISTING OAK CREEK GOLF COURSE

FUTURE MARINE WAY

EX MARINE WAY

BURT ROAD

PROPOSED 6" TO CONNECT TO PROPOSED 16"

PROPOSED SAND CANYON ALIGNMENT

OCTA METROLINK AT&SF. RAIL ROAD

SEE FIG 5-3 FOR CONTINUATION

ALIGNMENT IN MARINE WAY AS SHOWN IS FUTURE. IF PIPELINES ARE REQUIRED PRIOR TO REALIGNMENT, PIPES WILL BE CONSTRUCTED IN EXISTING MARINE WAY AND RELOCATED AS NECESSARY.

LEGEND

- PROPOSED ZONE B (460 HGL) PIPELINES
- EXISTING ZONE A
- EXISTING ZONE B
- PRESSURE REDUCING STATION
- STORAGE TANK
- BOOSTER PUMP STATION

SCALE: 1" = 700'

DRAWING: v:\projects\2040478900\dwg\prex0009.dwg PLOTTED: 1/19/2011 1:51 PM BY: Fontenot, Jon

Stantec

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PREPARED FOR THE:

IRVINE RANCH WATER DISTRICT

PLANNING AREA 40 SAMP

NON-POTABLE WATER SYSTEM FACILITIES

FIGURE 5-4

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 253. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

ID No. 253 has existing authorized bonds in the amount of $122,700,000, none of which have been issued.

Table V-1
Bond Authorization Summary
Improvement District 253

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Local Subtotal	**$5,077,765**	**$20,877,631**	**$17,544,252**	**$0**	**$43,499,648**
Escalated Regional Subtotal	**$6,196,792**	**$23,211,393**	**$6,729,426**	**$2,366,521**	**$38,504,132**
Escalated Sub-Regional Subtotal	**$621,940**	**$13,386,224**	**$0**	**$0**	**$14,008,164**
Contingency (10%)	**$1,189,650**	**$5,747,525**	**$2,427,368**	**$236,652**	**$9,601,194**
Bond Reserve (6%)	**$785,169**	**$3,793,366**	**$1,602,063**	**$156,190**	**$6,336,788**
Funded Reserve (6%)	**$785,169**	**$9,196,040**	**$1,602,063**	**$156,190**	**$6,336,788**
Bond Discount (2%)	**$1,173,298**	**$6,897,030**	**$534,021**	**$52,063**	**$2,112,263**
Bond Issuance Costs (1%)	**$586,649**	**$6,897,030**	**$267,010**	**$26,032**	**$1,056,131**
Bond Authorization Total	**$16,416,431**	**$90,006,240**	**$30,706,203**	**$2,993,649**	**$121,455,110**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from sewer and recycled water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant treatment and disposal capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The reorganization of ID Nos. 153 and 253 is part of an overall restructuring of the District's improvement districts, which also includes the consolidation of ID Nos. 125 and 225 and the formation of ID Nos. 185 and 285. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations

and reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;
- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses

connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-50 allocation as a fair means of sharing improvement district debt service costs between the aggregate contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital –project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward buildout. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plan of Works for ID No. 253's predecessor, ID No. 1 of Santiago County Water District (SCWD), contemplated that the sewage collection, treatment and disposal needs of its ultimate population of about 38,000 would be furnished through a trunk sewer system that would discharge sewage from the southern portion of the improvement district to Limestone and Santiago Canyons and into a proposed SCWD tertiary wastewater reclamation plant that would also received flows pumped from the Fremont Canyon area. Reclaimed water produced by the plant and untreated water that could, by agreement with IRWD, be received from the Santiago Lateral through Irvine Lake were the contemplated sources to be used to supply irrigation demands. In 1985, when the reorganization of Orange County Sanitation District No. 14 was undertaken to include much of IRWD's territory, a portion of SCWD's ID No. 1 was also included. At that time the remainder of ID No. 1 now included in IRWD's ID No. 253 was designated within OCSD's sphere of influence. The OCSD-sphere portion of ID No. 1 (ID No. 253) was annexed to OCSD in 2006, in conjunction with the consolidation of SCWD with IRWD. These organizational changes formed the groundwork for serving ID No. 253 through MWRP and OCSD's Revenue Area 14, thus integrating the regional system for ID No. 253 within the regional system that serves most of IRWD.

The majority of the regional wastewater treatment, disposal and reclamation facilities exist. Based on its ultimate demands, ID No. 253] will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional MWRP capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 253 were primarily within former ID Nos. 230, 250, 253 and to a lesser extent, other improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas reorganized as ID No. 153 originated are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 253 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination

with participation in the construction of the District's own well field in the main Orange County groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 253 and 285, these distinctions are no longer prominent. The regional system and its integrated treatment and reclamation facilities provide uniform benefit to all of the component areas of ID No. 253 by satisfying basic treatment, disposal and recycled water supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 153 [253] among its various planned development areas in proportion to their benefit.

Through the regional split, the areas within the reorganized ID No. 253 have shared the cost of IRWD's regional reclamation plants, as well as the treatment and disposal facilities of Orange County Sanitation District and its Revenue Area 14 under agreements between the District and OCSD. Not all of ID No. 253's and other improvement districts' service areas are tributary to all of the plants. However, the plants and their tributary regional collection systems are considered to function as one regional system and optimize the District's sewage collection and water reclamation systems and provide dual or backup treatment capability to for various parts of the service area. The District is continuing to develop its capability for multiple discharge options among the tributary areas of the plants. Thus all areas participate proportionally in the regional system. All areas receive the uniform sewer rate, which provides the benefit of reduced cost through treatment options. An exception to this is ID No. 240, which is sewered only to OCSD's regional plant and is not within OCSD's Revenue Area 14 nor tributary to the MWRP, LAWRP, or Chiquita plants. IRWD does provide sewage collection and recycled water service to ID No. 240. ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. ID Nos. 240, 252 and 256 are not included in the current reorganization and consolidation of improvement districts.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 253 as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 225

In parallel with the reorganization of ID No. 253 itself, ID No. 253's territory will be retained as part of the reorganization of several improvement districts to form a consolidated improvement district designated ID No. 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations

and Reorganizations." All of the developing areas reorganized into ID Nos. 253 are retained or reorganized within the boundaries of the underlying improvement district, ID No. 225. This assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as sewer trunk facilities, previously built with the proceeds of bonds of one of the improvement districts consolidated in the underlying improvement district.

Like ID No. 253, ID No. 225 will continue to share proportionally in the cost of completing the regional system, such as treatment plant expansion costs and the new capital portion of the cost of solids handling facilities. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete, and future regional projects will add components necessary to provide basic reliability, benefitting the developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 225 will exclude demands of 253, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within ID No. 253, between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered to be the case for the various geographic areas comprising ID No. 253. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 253.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 253, 285, 288, existing ID Nos. 212 and 213, and the consolidated developed ID No. 225 is considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

6.7 IMPROVEMENT DISTRICT NO. 253 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 253 in several ways: (1) similarities or differences in future service needs among the areas identified for inclusion by annexation to, or by retention in, the reorganized as ID No. 253; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 253; and (3) regional cost allocation among ID No. 253 and other areas receiving benefit from the regional facilities. Also evaluated

were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 253 comprise several non-contiguous planned development areas that were previously in different improvement districts. Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including treatment and disposal) , that would warrant exclusion from the ID No. 253 territory. The areas included in the reorganized ID No. 253 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated wastewater collection and treatment and recycled water systems. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use, it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 253 lands within the underlying improvement district, ID No. 225, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as trunk sewers, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 253 demands from the ID No. 225 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated 50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 253 would receive benefit from ID No. 253 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 105, 130 [230, 250] and other improvement districts which will, instead, be included in the reorganized ID No. 125 [225], open space, and areas contained within another developing improvement district. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 225. The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 253. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because, through the reorganized ID No. 225, their allocation of the cost of the regional system benefits will continue to be proportional.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 253, 225 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 253, 212, 213, 285 and 288 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the [other] separate developing improvement districts from ID No. 253 will facilitate the allocation of local facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full buildout, a portion of the cost of the development of the regional system has been born by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of areas in both ID No. 253 and underlying ID No. 225. A similar regional allocation would be applied to replacements and enhancement projects, to the extent funded by the improvement districts. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1(201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the 1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125

and 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is

applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Wastewater Treatment Master Plan and Sewer Collection System Master Plan, as to wastewater system facilities, and its Water Resources Master Plan, as to recycled water system facilities. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 253 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in development phasing, changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

The authorized and unissued bonds of the reorganized ID No. 253 are estimated to be sufficient to accomplish this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in development phasing, changes in technology and refinements in master planning and subarea master planning.

REVISED
PLAN OF WORKS
PROVIDING FOR SEWAGE COLLECTION, TREATMENT AND DISPOSAL
AND WATER SUPPLY, STORAGE, TRANSMISSION AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 185

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

For the overall District, the planning of the water supply, storage and distribution system has been accomplished by the Water Resources Master Plan ("WRMP") and its predecessor planning documents. The WRMP describes the facilities and entitlements needed to provide for ultimate demands and reliability over the entire District, both for the existing population and future development. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute and focused on specific elements. However, the WRMP is a comprehensive compilation of data and analyses that IRWD considers necessary for its planning needs, and as such, IRWD considers the WRMP its primary water planning document. The WRMP also includes recycled water supply, which is within the fiscal requirements of the sewer plans of works.] Subarea master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owner and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WRMP and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and it has also occurred in conjunction with improvement district reorganization. This Plan of Works has

been prepared in connection with the reorganization of Improvement District No. 153 to include a number of planned development areas within the improvement districts concurrently consolidated as Improvement District No. 125. This Plan of Works has been prepared in connection with the formation of Improvement District No. 285 including a number of planned development areas within the former Improvement District No. 135; Improvement District No. 135 and 235 and other improvement districts are being reorganized and consolidated as Improvement District No. 125 and 225. See Section 1.3.

The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the domestic water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects which provide domestic water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the water system capital facilities; (2) provide a revised plan of works to supersede and replace the existing plan of works of the improvement district being reorganized; and (3) evaluate the benefit of the revised plan of works to the territory of the reorganized improvement district.

The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional domestic water supply, storage and transmission facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by

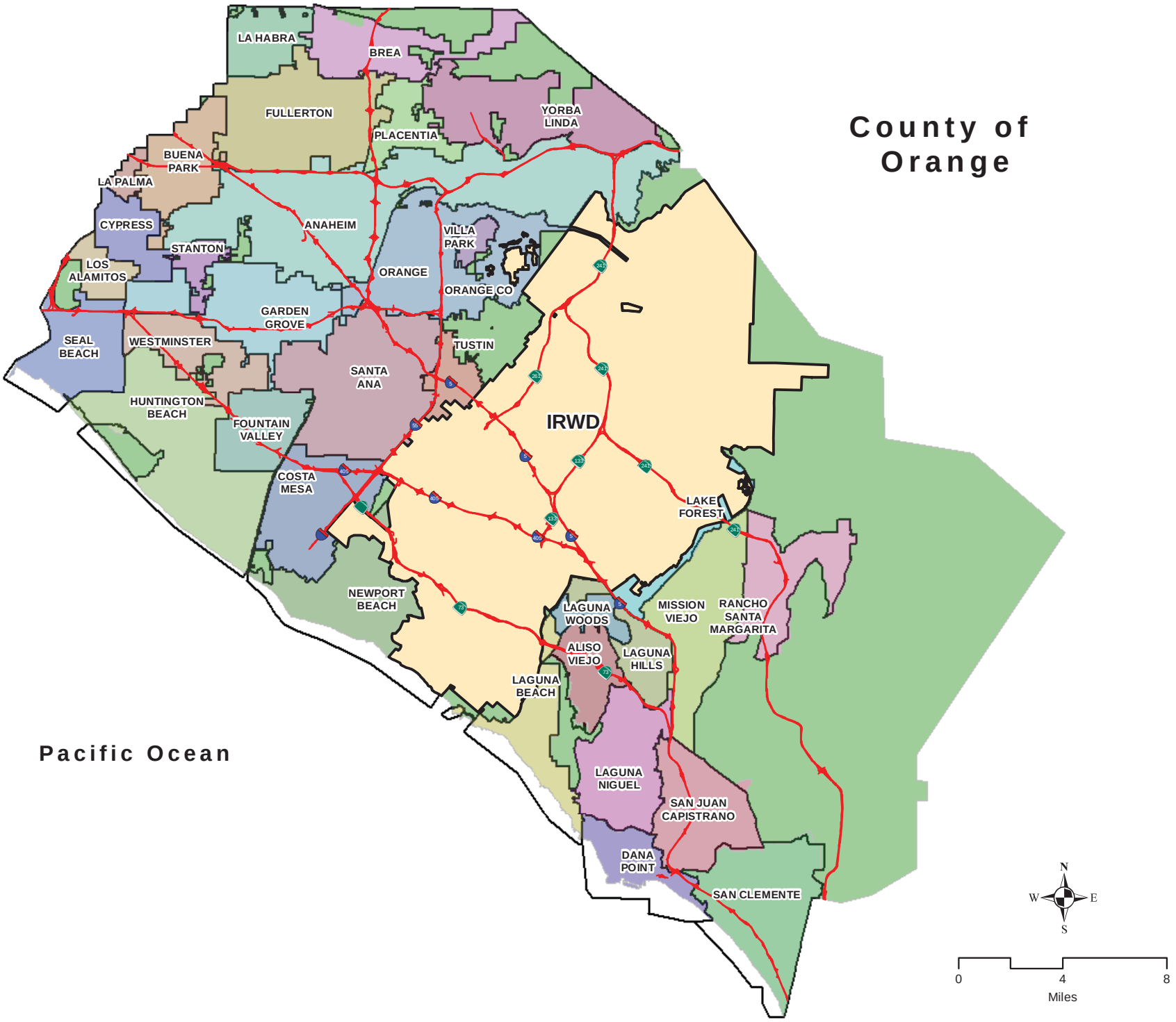
regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. . See **Figure I-1** for a location Map of IRWD.

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 105,000 water and approximately 100,400 sewer service connections.

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
E
S
0
4
8
Miles

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilities to be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size, location and phasing of sewer collection and recycled water delivery facilities to be constructed from the existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid- to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1 became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the improvement districts formed before 1978, each sewer improvement district preceded its water

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in 1986, over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

Regional Allocation. As the regional water system has been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently discontinued, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers

and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to build-out and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140. Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the build-out of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210" areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

No ID

ID = 210

ID = 225

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

Irvine Ranch Water District
2014 Potable Water System Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 188
ID = 153
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 110
ID = 153
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an areawide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980s.

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing irrigation system would provide agricultural water until no longer needed. The cost of the untreated

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the water system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern

County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area. Under an agreement entered into between the District and OCSD, the District acquired equity interests

in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to build-out, the District has incorporated in its system planning efforts the updating

of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 285

2.1 DESCRIPTION OF THE STUDY AREA

ID No. 185, represented the majority of the future development area of ID 135 (former Los Alisos Water District). The development areas included in the newly formed ID No. 185 include development areas identified in the City of Lake Forest's Opportunity Study Area, which identified properties zoned predominately as commercial and industrial but as a result of the closing of the El Toro Marine Corp Air Station were eligible to be converted to residential. The resulting Improvement District No. 185 is a developing improvement district that will function in tandem with existing ID Nos. 212 (former MCAS El Toro), 113 (former MCAS Tustin) and 188 (Portola Center) and new ID No. 153, where development is underway, to provide equitable regional capital cost sharing by the District's developing areas.

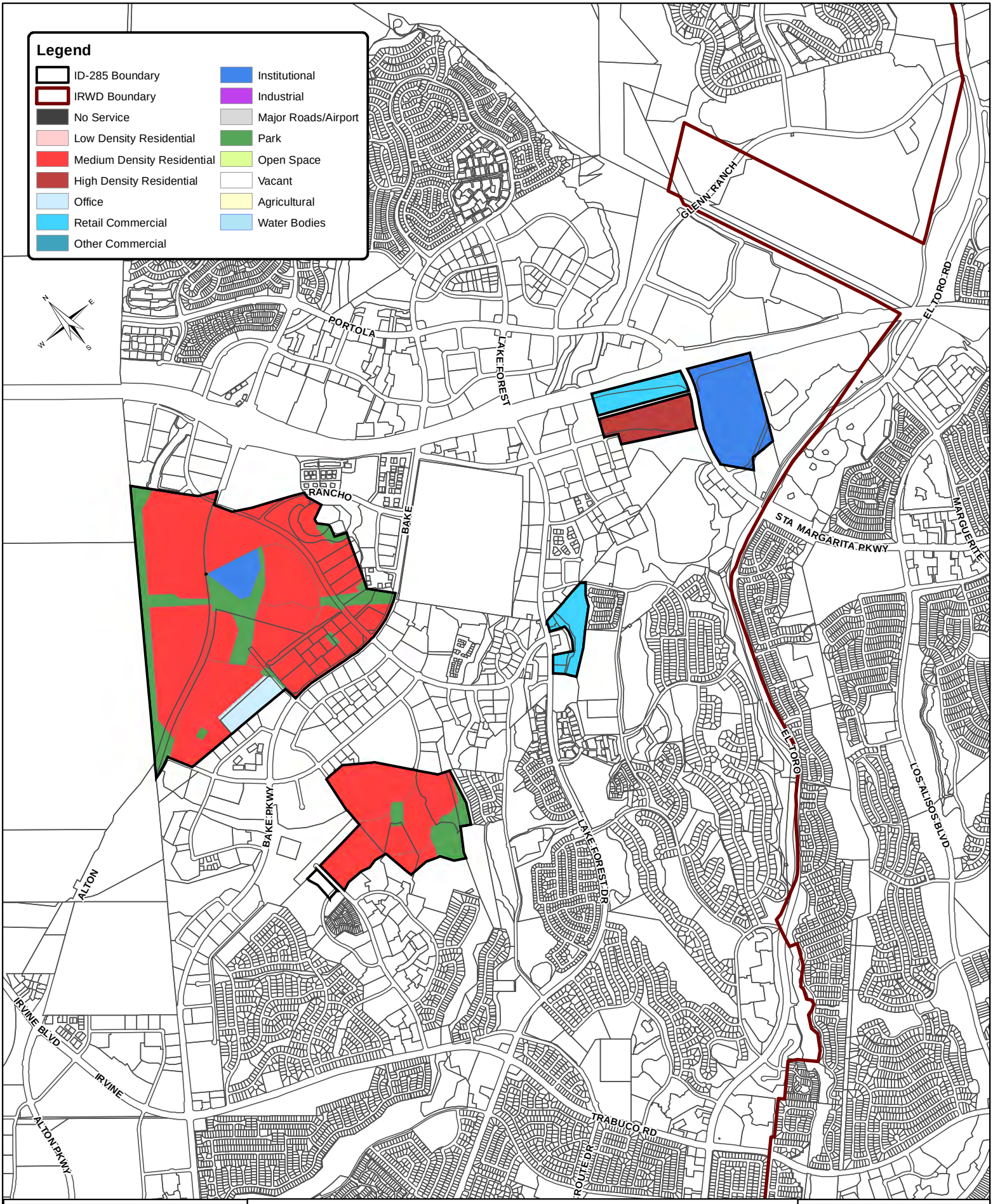
To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. The District expects future development of the reorganized ID No. 185 to be predominantly residential with supporting commercial development, and expects development in ID No. 285 to continue through at least 2035. **Figure II-1** shows the boundaries and proposed land use of newly formed ID No. 185, encompassing about 578 acres.

Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.



IRVINE RANCH WATER DISTRICT

ID-185 LANDUSE

FIGURE-II-1

2.3 DEMAND AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2**

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 - Treated Water Demand: Tabulates the average daily water demand at build-out (2035) within the reorganized ID No. 153 [185] service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Recycled Water Demands (AFY)
Residential			
1135	Suburban Density	County	184.7
1136	Low Density	Lake Forest	422.7
1166	Medium Density	Lake Forest	155.5
1176	Medium-High Density	Lake Forest	92.7
1186	High Density	Lake Forest	66.5
Commercial			
1210	General Office		11.5
1221	Community Commercial		44.8
1240	Institutional		22.4
1260	School		4.3
Other			
1820	Community Park		0.3
1830	Regional Park		0.6
2200	High-Irrigated AG Potable		336.7
Total			**1,342.6 AFY**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the current consolidation process, 11 of IRWD's 16 water improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed, as well as certain remaining lands proposed for development that are also included in reorganized ID No. 153 and newly formed 185. Existing water ID Nos. 112, 113,154 and 188 are not included in the reorganization or consolidation actions. Regional water project costs will continue to be allocated to each water improvement district based on that improvement district's pro-rata share of the ultimate IRWD treated water demand.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed treated water supply, storage and transmission facilities needed to provide an adequate and reliable water system meeting the ultimate needs of ID No. 185.

Periodically, IRWD revises its treated water improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence treated water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal water demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

A description and cost estimate of the proposed regional domestic water facilities share allocated to ID No. 185 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 185

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
10204	LAKE FOREST WELL 8 DRILLING	Regional	1.6%	$8,883	$4,193	$4,689	$0	$0
10205	LAKE FOREST WELL 8 WELLHEAD	Regional	1.6%	$9,008	$3,582	$5,426	$0	$0
10294	LAKE FOREST WELL 6 DRILLING	Regional	1.6%	$8,883	$4,193	$4,689	$0	$0
10295	LAKE FOREST WELL 6 WELLHEAD	Regional	1.6%	$9,008	$3,582	$5,426	$0	$0
10391	DATS & WELL 77 LEASE PAYMENT 13/14	Regional	1.6%	$7,499	$7,499	$0	$0	$0
10392	DATS & WELL 77 LEASE PAYMENT 14/15	Regional	1.6%	$8,577	$8,577	$0	$0	$0
10393	DATS & WELL 77 LEASE PAYMENT 15/16	Regional	1.6%	$9,865	$683	$9,181	$0	$0
10394	DATS & WELL 77 LEASE PAYMENT 16/17	Regional	1.6%	$11,393	$0	$11,393	$0	$0
10395	DATS & WELL 77 LEASE PAYMENT 17/18	Regional	1.6%	$13,101	$0	$13,101	$0	$0
10396	DATS & WELL 77 LEASE PAYMENT 18/19	Regional	1.6%	$15,098	$0	$15,098	$0	$0
10397	DATS & WELL 77 LEASE PAYMENT 19/20	Regional	1.6%	$17,400	$0	$17,303	$96	$0
10428	51 & 52 WELLHEADS, PIPELINE & TREATMENT	Regional	1.6%	$646,579	$0	$646,579	$0	$0
11055	ENG PLANNING STUDY RESERVE 13/14	Regional	1.6%	$3,494	$3,494	$0	$0	$0
11056	ENG PLANNING STUDY RESERVE 14/15	Regional	1.6%	$3,843	$3,843	$0	$0	$0
11057	ENG PLANNING STUDY RESERVE 15/16	Regional	1.6%	$4,228	$0	$4,228	$0	$0
11096	GIS SUPPORT APPLICATIONS 13/14	Regional	1.6%	$1,060	$1,060	$0	$0	$0
11097	GIS SUPPORT APPLICATIONS 14/15	Regional	1.6%	$1,165	$1,165	$0	$0	$0
11129	HYDRAULIC MODELING 13/14	Regional	1.6%	$776	$776	$0	$0	$0
11131	HYDRAULIC MODELING 14/15	Regional	1.6%	$854	$854	$0	$0	$0
11163	CROSS VALLEY CANAL CAPACITY PURCHASE	Regional	1.6%	$1,522	$1,522	$0	$0	$0
11218	BAKER WTP	Regional	1.6%	$1,435,739	$916,594	$519,145	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11271	OCWD ANNEXATION FEE 14/15	Regional	1.6%	$8,282	$8,282	$0	$0	$0
11275	OCWD ANNEXATION FEE 15/16	Regional	1.6%	$9,386	$0	$9,386	$0	$0
11277	OCWD ANNEXATION FEE 16/17	Regional	1.6%	$10,631	$0	$10,631	$0	$0
11278	OCWD ANNEXATION FEE 17/18	Regional	1.6%	$12,047	$0	$12,047	$0	$0
11279	OCWD ANNEXATION FEE 18/19	Regional	1.6%	$13,649	$0	$13,649	$0	$0
11280	OCWD ANNEXATION FEE 19/20	Regional	1.6%	$15,932	$0	$15,836	$96	$0
11281	OCWD ANNEXATION FEE 20/21	Regional	1.6%	$18,054	$0	$0	$18,054	$0
11282	OCWD ANNEXATION FEE 21/22	Regional	1.6%	$20,456	$0	$0	$20,456	$0
11284	OCWD ANNEXATION FEE 22/23	Regional	1.6%	$23,178	$0	$0	$23,178	$0
11285	OCWD ANNEXATION FEE 23/24	Regional	1.6%	$26,266	$0	$0	$26,266	$0
11286	OCWD ANNEXATION FEE 24/25	Regional	1.6%	$29,762	$0	$0	$29,491	$271
11289	STRAND RANCH FACILITIES AND MONITORING	Regional	1.6%	$5,830	$5,819	$11	$0	$0
11325	IDP WELLS,PIPELINES,TREATMENT PLNT IMPR	Regional	1.6%	$2,552	$2,552	$0	$0	$0
11331	TIC WELLS 109/112/114	Regional	1.6%	$421,457	$0	$0	$421,457	$0
11339	AUTOMATION SYSTEM IMPROVEMENTS DW	Regional	1.6%	$4,246	$2,691	$1,555	$0	$0
11368	WATER BANKING EXPANSION	Regional	1.6%	$51,549	$32,669	$18,880	$0	$0
11384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	1.6%	$4,479	$4,479	$0	$0	$0
11455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	1.6%	$13,664	$13,664	$0	$0	$0
11473	WELL 106 REPLACEMENT DRILLING & SITE	Regional	1.6%	$41,030	$41,030	$0	$0	$0
11560	LAKE FOREST DW OFFSITE IMPROVEMENTS	Regional	1.6%	$21,594	$11,717	$9,878	$0	$0
11578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	1.6%	$27,350	$0	$27,350	$0	$0
11582	GEN SYS MODS 13/14	Regional	1.6%	$2,388	$2,388	$0	$0	$0
11596	WATER BANKING AGREEMENTS	Regional	1.6%	$2,114	$2,114	$0	$0	$0
11627	WELL 115 REPLACEMENT WELL/WELLHEAD &	Regional	0.9%	$39,206	$39,206	$0	$0	$0
11631	GROUNDWATER DISPOSAL SYSTEM CONCEPT	Regional	1.6%	$5,257	$5,257	$0	$0	$0
11637	JACKSON RANCH SOLAR PROJECT	Regional	1.6%	$1,510	$1,510	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11645	STOCKDALE WEST RANCH JOINT BANKING	Regional	1.6%	$100,813	$94,656	$6,156	$0	$0
11648	GEN SYS MODS 14/15	Regional	1.6%	$2,627	$2,627	$0	$0	$0
11655	SKYLIGHT PROTECTION	Regional	1.6%	$616	$616	$0	$0	$0
11665	SJM BUILDING CAMPUS MOLD REMEDIATION	Regional	0.8%	$370	$370	$0	$0	$0
11675	MANNING BPS PERMANENT GENERATOR	Regional	1.6%	$3,935	$3,935	$0	$0	$0
11686	EOCWD - IRWD JOINT WELL PLANNING REPORT	Regional	1.6%	$857	$857	$0	$0	$0
11687	RMS AT 5 DOMESTIC WATER RESERVOIRS	Regional	1.6%	$49,733	$37,494	$12,239	$0	$0
11697	GEN SYS MODS 15/16	Regional	1.6%	$2,891	$0	$2,891	$0	$0
11726	STRAND RANCH KERN RIVER EXPORTABILITY	Regional	1.6%	$2,087	$2,087	$0	$0	$0
11738	WATER BANKING PLANNING	Regional	1.6%	$4,854	$4,854	$0	$0	$0
11742	LTFP ID CONSOLIDATION	Regional	1.6%	$1,372	$1,372	$0	$0	$0
12326	SCWD INTEGRATION STUDY REGIONAL PIPES	Regional	1.6%	$416,918	$0	$416,918	$0	$0
12328	SCWD INTEGRATION STUDY REGIONAL PUMPS	Regional	1.6%	$143,829	$0	$143,829	$0	$0
12329	SCWD INTEGRATION STUDY PIPES FOR 150 / 153	Regional	1.6%	$457,017	$0	$457,017	$0	$0
15051	WELLS 51/52/53 TREATMENT ALTERNATIVES	Regional	1.6%	$2,350	$2,350	$0	$0	$0
15052	JOINT WELL FIELD WITH ANAHEIM - WELLHEADS	Regional	1.6%	$482,157	$0	$320,274	$161,883	$0
15423	TUSTIN LEGACY WELLS 1, 2, 3 & 4	Regional	1.6%	$498,405	$0	$498,405	$0	$0
15428	WELL 53 SITE ACQUISITION & WELL DRILLING	Regional	1.6%	$49,284	$22,340	$26,944	$0	$0
19420	OCWD ANNEXATION	Regional	1.6%	$2,455	$2,455	$0	$0	$0
				$5,272,413	**$1,311,009**	**$3,260,156**	**$700,976**	**$271**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving one or more of the planned development areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s). For the purpose of this POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

The proposed local master plan facilities for ID No. 185 are detailed in **Table IV-1** and shown on **Figure IV-1a** through **IV-1j**. These figures, taken from the sub-area master plans, show both facilities inside and outside the improvement district's boundary, and some facilities shown may have already been constructed. The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 185

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
11562	LAKE FOREST DW OPPORTUNITY AREAS	Local	100.0%	$4,647,917	$2,571,118	$2,076,799	$0	$0
11661	BAKER RANCH PHASE 1 DW ZONE 3R & ZONE 2	Local	100.0%	$350,460	$350,460	$0	$0	$0
11662	BAKER RANCH PHASE 2 DW ZONE 3R & 2	Local	100.0%	$354,530	$354,530	$0	$0	$0
				$5,352,907	**$3,276,108**	**$2,076,799**	**$0**	**$0**

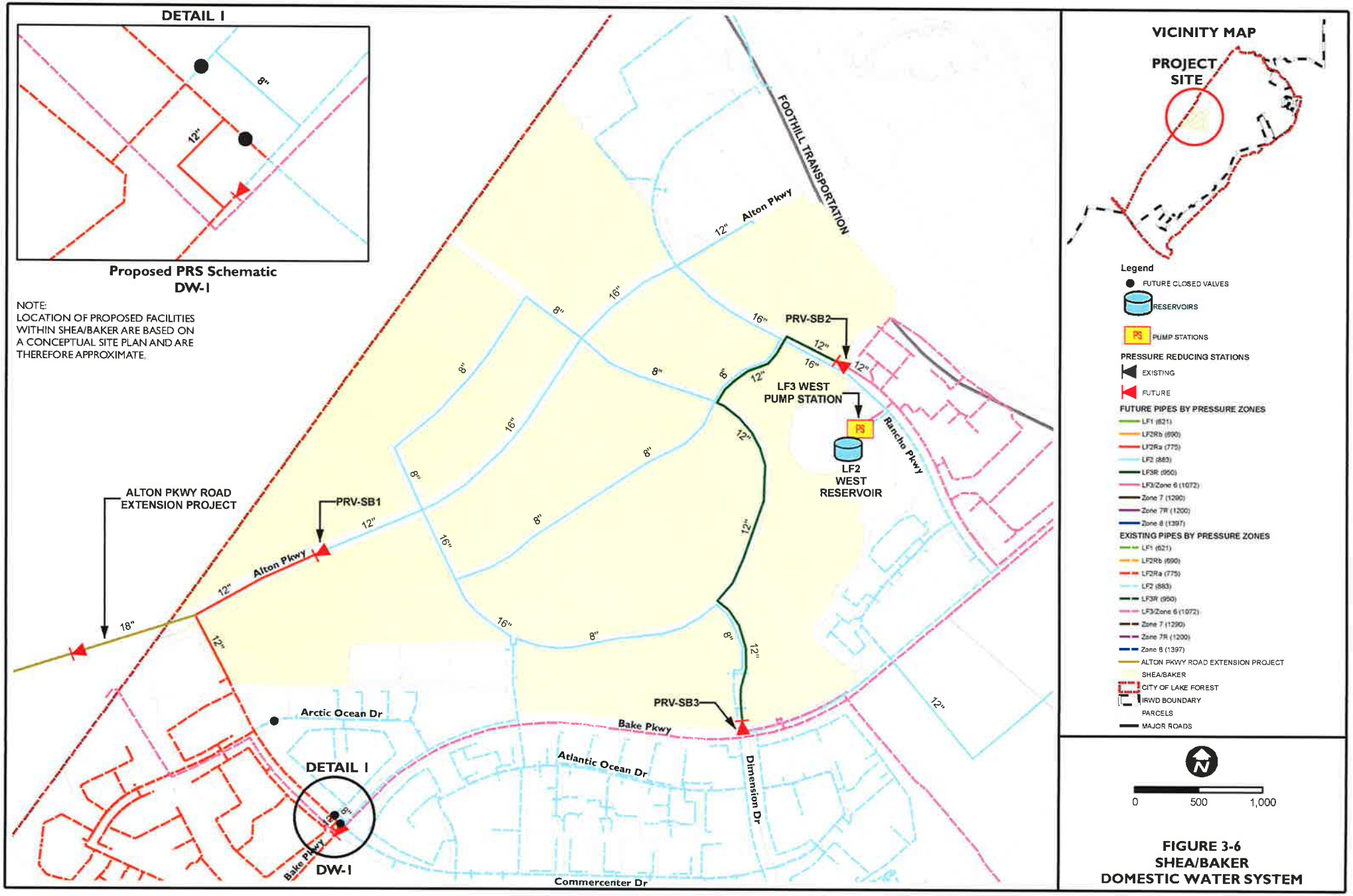


FIGURE 3-6
SHEA/BAKER
DOMESTIC WATER SYSTEM

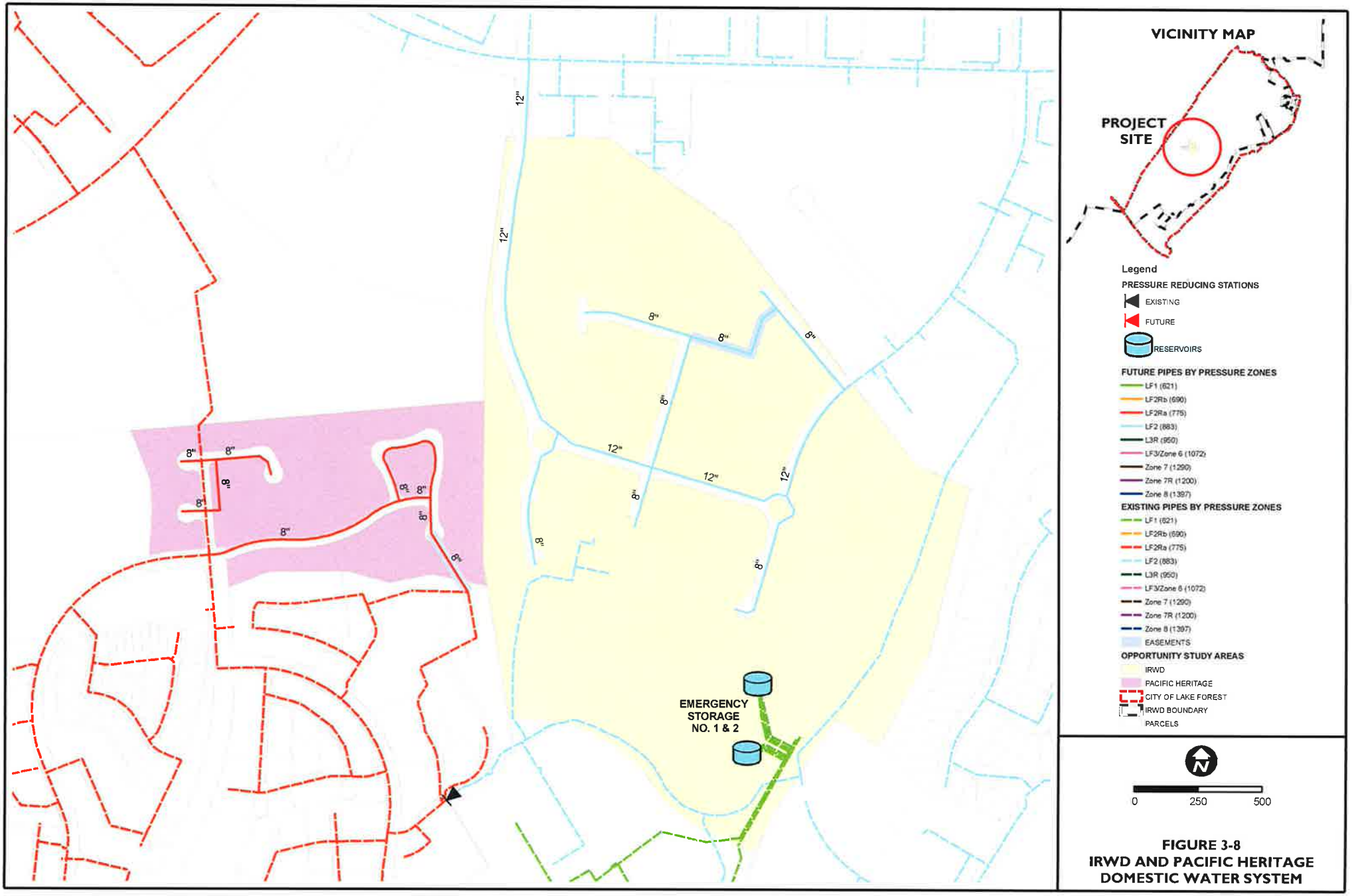


FIGURE 3-8
IRWD AND PACIFIC HERITAGE DOMESTIC WATER SYSTEM

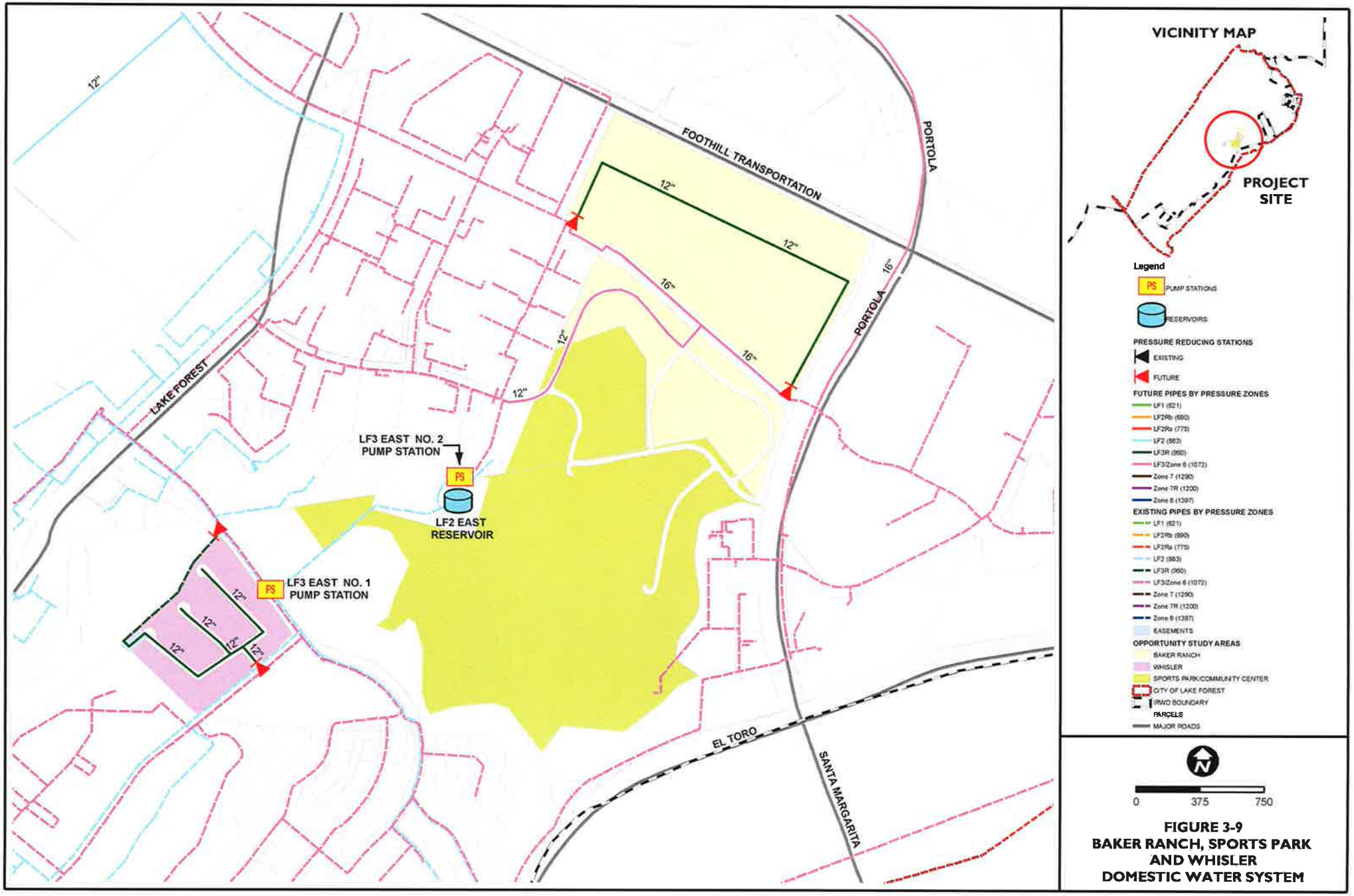


FIGURE 3-9
BAKER RANCH, SPORTS PARK AND WHISLER DOMESTIC WATER SYSTEM

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 185. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

It is proposed that bonds in the amount of $13,500,000 be authorized for ID No. 185.

Table V-1
Bond Authorization Summary
Improvement District 185

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Local Subtotal	**$3,276,108**	**$2,076,799**	**$0**	**$0**	**$5,352,907**
Escalated Regional Subtotal	**$1,311,009**	**$3,260,156**	**$700,976**	**$271**	**$5,272,413**
Contingency (10%)	**$458,712**	**$533,696**	**$70,098**	**$27**	**$1,062,532**
Bond Reserve (6%)	**$302,750**	**$352,239**	**$46,264**	**$18**	**$701,271**
Funded Reserve (6%)	**$302,750**	**$853,913**	**$46,264**	**$18**	**$701,271**
Bond Discount (2%)	**$115,913**	**$640,435**	**$15,421**	**$6**	**$233,757**
Bond Issuance Costs (1%)	**$57,957**	**$640,435**	**$7,711**	**$3**	**$116,879**
Bond Authorization Total	**$5,825,199**	**$8,357,672**	**$886,735**	**$342**	**$13,441,030**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The formation of ID Nos. 185 and 285 is part of an overall restructuring of the District's improvement districts, which also includes the reorganization of ID Nos. 153 and 253 and the consolidation of ID Nos. 125 and 225. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;
- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-50 allocation as a fair means of sharing improvement district debt service costs between the aggregate

contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital –project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward build-out. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plan of Works for ID No. 153's predecessor, ID No. 1 of Santiago County Water District (SCWD), contemplated that its ultimate population of about 38,000 would be furnished with a domestic water supply through participation in the Allen-McColloch Pipeline (AMP). A portion of the AMP capacity would be purchased, and it was also proposed that SCWD's existing untreated capacity, delivered to a filtration plant jointly owned by SCWD, IRWD and East Orange County Water District, be exchanged for AMP capacity. SCWD eventually relinquished the untreated capacity – confirm? delete?. As the consolidated successor district, IRWD has incorporated the SCWD imported water capacity and delivery system into its regional system. The 1978 plans of works for the improvement districts from which most of the lands annexed into the reorganized ID No. 153 originated, primarily ID Nos. 130 and 150, similarly contemplated a water supply obtained through the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County groundwater basin. The lands reorganized as ID No. 153 are therefore on equivalent footing in terms of the regional supply system from which they will be served. This includes jointly constructed delivery and storage capacity to serve the territory of existing ID No. 153 as well as development in former ID No. 150. The original plan of works for SCWD's ID No. 1 further contemplated two pressure zone systems, one for the area north of Irvine Lake and one for the area south of Irvine Lake. All of the current planned development included in the reorganized ID No. 153 is located in the south area pressure zone.

The majority of the imported water feeder system and IRWD's delivery system components and the groundwater production and delivery facilities are in place. Based on its ultimate demands, ID No. 185 will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 153 were formerly within ID Nos. 130, 150, 153 and other improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas reorganized as ID No. 153 originated are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 185 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared

with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 153 and 185, these distinctions are no longer prominent. The regional delivery system and its integrated supply sources provide uniform benefit to all of the component areas of ID No. 185 by satisfying basic supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 185 among its various planned development areas in proportion to their benefit.

The areas within the reorganized ID No. 153 have shared imported water and groundwater facilities through the regional split. Notwithstanding that some of ID No. 153's territory is not within the boundary of the Orange County Water District and that under OCWD practices, the demand of this area does not increase the quantity of groundwater produced by IRWD without a BEA impact, groundwater is considered to reduce IRWD's dependence on imported supply and thus all areas participate proportionally in the regional supply source mix. All areas of ID No. 153 receive the base allocation melded water rate which provides the benefit of reduced cost through the supply mix. ID No. 185, which is within the planning area containing the former ID No. 135, will receive the base allocation melded water rate which provides the benefit of reduced cost through the supply mix, once the planning area's rate structure is placed on a parity with the IRWD melded rate structure.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 185 as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 125

In parallel with the reorganization of ID No. 185 itself, ID No. 185's territory will be retained as part of the reorganization of several improvement districts to form a consolidated improvement district designated ID No. 125. All of the developing areas reorganized into ID Nos. 185 are retained or reorganized within the boundaries of the underlying improvement district, ID No. 125. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." This assures

that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as storage reservoirs, previously built with the proceeds of bonds of one of the improvement districts consolidated in the underlying improvement district.

Like ID No. 185, ID No. 125 will continue to share proportionally in the cost of completing the regional system, including any expansion such as the acquisition of additional Allen-McColloch Pipeline capacity and groundwater production capacity. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete, and future regional projects will add components necessary to provide basic reliability, benefitting the developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 125 will exclude demands of 185, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within 185, between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered to be the case for the various geographic areas comprising ID No.185. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 185.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 153, 185, 188, existing ID Nos. 112 and 113, and the consolidated developed ID No. 125 is considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

6.7 IMPROVEMENT DISTRICT NO. 185 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 185 in several ways: (1) similarities or differences in future service needs among the areas identified for inclusion by annexation to, or by retention in, the reorganized as ID No. 185; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 185; and (3) regional cost allocation among ID No. 185 and other areas receiving benefit from the regional facilities. Also evaluated

were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 185 comprise several non-contiguous planned development areas [that were previously in different improvement districts][delete for 185 285]. [Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including source of water supply that would warrant exclusion from the ID No.185 territory. The areas included in the reorganized ID No. 185 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated groundwater and imported water supplies. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use, it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 185 lands within the underlying improvement district, ID No. 225, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as storage reservoirs, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 185demands from the ID No. 225 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated 50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 153 [185] [285] would receive benefit from ID No. 185 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 105, 130 [230, 250] and other improvement districts 135 which will, instead, be included in the reorganized ID No. 125 open space, and areas contained within another developing improvement district. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 125. The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 185. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because, through the reorganized ID No. 125, their allocation of the cost of the regional system benefits will continue to be proportional.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 153, 125 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 112, 113, 153, 185, and 188 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the [other] separate developing improvement districts from ID No. 185 will facilitate the allocation of local facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of some areas in both ID No. 153 or other overlying improvement districts and underlying ID No. 125 [225]. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1 (201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the 1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125 and

225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 is contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is

applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Water Resources Master Plan. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance [authorization] of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 185 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in development phasing, changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

It is proposed that elections will be held and conducted in the manner provided in Section 36420 of the California Water Code for the purpose of authorizing bonds in the estimated amount of the cost of accomplishing this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in development phasing, changes in technology and refinements in master planning and subarea master planning.

REVISED
PLAN OF WORKS
PROVIDING FOR SEWAGE COLLECTION, TREATMENT AND DISPOSAL
AND WATER SUPPLY, STORAGE, TRANSMISSION
AND DISTRIBUTION FACILITIES FOR
IRVINE RANCH WATER DISTRICT
IMPROVEMENT DISTRICT NO. 285

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SECTION 1 INTRODUCTION

1.1 OBJECTIVES

This Revised Plan of Works is a means by which the fiscal requirements of the Improvement District are identified, including bond authorization, in order to provide for the construction, planning and design of facilities necessary to provide service within the Improvement District. The obligation of the Irvine Ranch Water District ("IRWD" or the "District") is to plan to meet the projected service needs of the specific property within the Improvement District.

The Wastewater Treatment Master Plan ("WTMP") and its predecessor planning documents have accomplished the planning of the District's wastewater collection and treatment. The Sewage Collection System Master Plan (SCSMP) also addresses the planning of the collection system. Recycled water supply, which is within the fiscal requirements of sewer plans of works, including this Plan of Works, is part of the scope of the Water Resources Master Plan ("WRMP"). Sub-area master plans ("SAMP") are created to plan in more detail the local facilities needed for development planning areas that may overlie all or part of an improvement district. SAMPs are generally prepared as the property owners and the city planning agency begin the development process.

Plans of works are used to describe local facilities and proportional participation in regional facilities that the improvement districts will need, relying on the WTMP, WRMP, SCSMP, and SAMPs for the detailed engineering and planning analysis. The role of the plan of works is founded in statute (Water Code 35950 *et seq*.) and is to define a plan for the facilities needed to serve the improvement district and make an estimate of their cost as necessary to support the voter authorization and issuance of general obligation bonds of the District for the improvement district. The plan of works thus provides the linkage between the engineering plan and the corresponding financial requirements by setting forth the basis for a determination by the Board of Directors in a noticed hearing that the plan benefits all the territory within the improvement district including any territory that has been annexed to it.

Plans of Works incorporate generalized facilities descriptions and some flexibility in the selection of specific projects. This allows the District to accommodate changes in development phasing, changes in technology and facilities planning developed through IRWD's ongoing master planning and subarea master planning, and corresponding changes in costs of acquisition, construction, replacement, reconstruction and additions to facilities. The Board of Directors may determine that it is necessary to change a previously adopted plan of works. This has occurred in some instances in conjunction with a revision in the cost estimate making it necessary to propose a supplemental authorization of bonds, and it has also occurred in conjunction with improvement district reorganization. This Plan of Works has been prepared in connection with the reorganization of Improvement District No. 253 to include a number of planned development areas within the improvement districts concurrently consolidated as Improvement District No. 225. See Section 1.3.

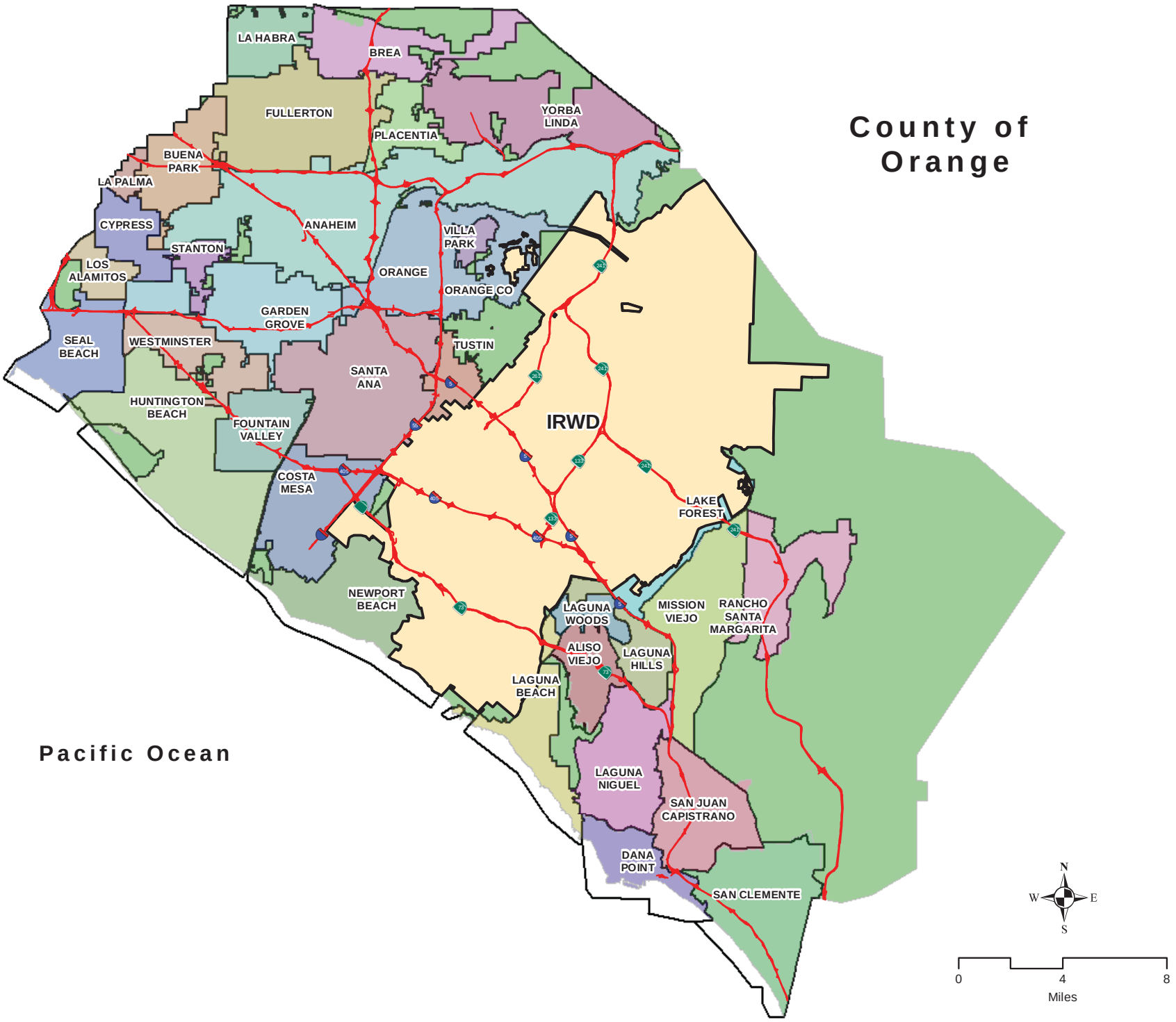
The facilities generally identified in this Plan of Works may also change without a modification of the Plan of Works, in order to substitute other facilities to accommodate land use planning or development phasing determinations as they evolve, or in accordance with facilities planning modifications and refinements identified through IRWD's ongoing master planning and subarea master planning. The general purpose of the facilities in the Plan of Works is to meet the wastewater collection and treatment and recycled water requirements of the Improvement District, including basic system redundancy and reliability in accordance with the policies of the District. As the facilities are needed, IRWD will choose those projects that provide wastewater collection and treatment and recycled water services most economically. Projects may include acquisition, construction, reconstruction and addition to facilities. The fiscal requirements identified in the Plan of Works include the development phase, during which the system will be expanded and a share of the existing regional system will be acquired as needed to serve the Improvement District, and will continue thereafter, representing the Improvement District's participation along with other improvement districts in the completion of the IRWD regional system.

This Plan of Works has the following general objectives: (1) update the description of the capital facilities for the wastewater system; (2) provide a revised plan of works to supersede and replace the existing plan of works of the improvement district being reorganized; and (3) evaluate the benefit of the revised plan of works to the territory of the reorganized improvement district.

The further objectives of this Plan of Works are to determine logical planning areas and the need for facilities. This includes (1) a proportionate share of regional wastewater collection and treatment and recycled water facilities; and (2) adequate local planning and system layouts based on the projected ultimate development within the improvement district.

1.2 DESCRIPTION OF THE IRVINE RANCH WATER DISTRICT

The District was established in January, 1961, as a California Water district under the provisions of Section 34000 *et seq.* of the California Water Code (the "Act"). Presently the District has four primary services – supplying potable water, collecting and treating wastewater, producing and distributing recycled and other non-potable water and implementing urban runoff treatment programs. Historically, the District has provided agricultural water service as needed until residential or commercial development occurs, and provided potable and recycled water services and sewage collection and treatment service when development occurs. Recycled water is used for irrigation of agricultural areas, parks, parkways, greenbelt areas and school grounds, and is used for individual yard landscaping in certain areas, industrial processing, toilet and urinal flushing and other purposes permitted by regulations. IRWD has also implemented a plan for natural treatment system service to divert urban runoff of water used for irrigation and other outdoor uses and treat the runoff by natural processes in water quality wetlands and similar facilities. See **Figure I-1** for a location Map of IRWD.


County of Orange
LA HABRA
BREA
FULLERTON
YORBA LINDA
PLACENTIA
BUENA PARK
LA PALMA
CYPRESS
ANAHEIM
VILLA PARK
STANTON
LOS ALAMITOS
ORANGE
ORANGE CO
GARDEN GROVE
SEAL BEACH
WESTMINSTER
TUSTIN
SANTA ANA
HUNTINGTON BEACH
FOUNTAIN VALLEY
IRWD
COSTA MESA
LAKE FOREST
NEWPORT BEACH
LAGUNA WOODS
MISSION VIEJO
RANCHO SANTA MARGARITA
ALISO VIEJO
LAGUNA HILLS
LAGUNA BEACH
LAGUNA NIGUEL
SAN JUAN CAPISTRANO
DANA POINT
SAN CLEMENTE
Pacific Ocean
N
W
E
S
0
4
8
Miles

The District serves a 178-square-mile area extending from the Pacific Ocean and over a central flat, alluvial plain to the foothills, which includes all of the City of Irvine and portions of the cities of Tustin, Newport Beach, Costa Mesa, Orange and Lake Forest, as well as certain unincorporated areas of the County. The District serves a total estimated population of approximately 340,000 through approximately 105,000 water and approximately 100,400 sewer service connections.

1.3 THE IMPROVEMENT DISTRICTS

Historical Background. At the time of the District's initial formation, the District's objective was to secure a supplemental water supply for irrigation and domestic use from The Metropolitan Water District of Southern California ("MWD"). This was accomplished through the installation of regional water transmission pipelines in cooperation with other districts in and the construction of the San Joaquin Reservoir, financed by the sale in 1961 and 1963 of general obligation waterworks bonds of the overall District aggregating $10,500,000.

After the initial authorization of waterworks bonds for the overall District, all water and sewer bonds were authorized within improvement districts formed by the District to encompass specific geographic areas. The first improvement district formation occurred in 1965, when sewage collection and treatment were added to the District's powers and Improvement District No. 1, a sewer improvement district, was formed to provide financing for the District's first collection, treatment and reclamation systems. Between 1965 and 2008, the District formed 18 water improvement districts and 16 sewer improvement districts covering specific areas within the District's boundaries, some of them overlapping.

The District formed the improvement districts[1] in order to allocate funding responsibility for capital facilities to the areas which would benefit from such capital facilities. Local facilities addressed particular needs that varied by geographic area, proximity to existing infrastructure, elevation and other factors. Improvement districts were also used to separate areas based on projected timing of development so that local capital facilities construction could be matched to development approval decisions as they occurred. In addition, improvement districts served as a mechanism to share the funding of the District's regional facilities to be used by improvement districts in common, such as major water importation facilities and water and wastewater treatment plants. The plans of works derived information from District planning documents and from land development plans as the basis for determining, for water improvement districts, the water requirements and the size, location and phasing of water delivery facilities to be constructed from the existing feeders and supply sources, and, for sewer improvement districts, the sewage generation and recycled water requirements and the size,

[1] Most of the improvement districts were formed by the District's Board of Directors, but Improvement district formation was in some cases accomplished by the District's predecessor district or the Orange County Local Agency Formation Commission, in the case of certain areas included in the District by annexation or consolidation with another district.

location and phasing of sewer collection and recycled water delivery facilities to be constructed from the existing trunk sewers and recycled water distribution system to serve the various planning areas and service elevations or zones. As changes occurred in development planning, annexations and detachments were used to modify the boundaries of some of the improvement districts.

Water Improvement Districts. The initial financing of the District's water facilities was undertaken in the early 1960s with bonds of the District. During the 1970s, the District formulated a water facilities master plan and formed many of the water improvement districts that have existed until the current reorganization and consolidation. The first water improvement district to be formed was Improvement District ("ID") No. 104, formed in 1972, followed by the formation of ID Nos. 103 and 105 in 1974, and ID Nos. 102, 106 and 109 in 1976. When water improvement districts were formed, the District excluded lands (sometimes referred to collectively with the shorthand reference "110" in keeping with the District's numbering system for designating improvement districts) that were determined to have funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s.

ID No. 104 incorporated the coastal area of the District from the Pacific Ocean to the crest of the San Joaquin Hills. ID No. 103 covered the planned industrial and commercial developments, then known as the Irvine Center Planned Community or "Regional Triangle" and the Irvine Industrial Complex-East, in the vicinity of the intersection of the Santa Ana and San Diego Freeways and adjacent to the Marine Corps Air Station, El Toro. ID No. 105, containing about 22,000 acres in the northernmost portion of the District extending from the Santa Ana Freeway to the northerly, easterly and westerly boundaries of IRWD, was formed initially to build a pipeline to replace the Highline Canal System for the delivery of water from Irvine Lake for agricultural irrigation purposes; its first plan of works contemplated that these untreated water facilities would be augmented with later phases of works to deliver domestic water. ID No. 102 was formed to include the central part of Irvine, between the Santa Ana and San Diego Freeways. ID No. 106 encompassed the Turtle Rock, Quail Hill and Bonita Canyon areas of the San Joaquin Hills, extending north to the San Diego Freeway. ID No. 109 covered the portion of the San Joaquin Hills extending eastward from proposed Sand Canyon Avenue to the eastern boundary of the District.

As urban growth continued, further phases were added to the District's planned water system in the mid- to late 1970s, and it became necessary to increase the authorization of bonds to finance them. To accomplish that objective for some of the initial water improvement districts, the District revised the plans of works and elections were conducted to obtain supplemental bond authorizations (ID No. 103 in 1976, 1977 and 1978, ID No. 105 in 1976 and 1978, and ID No. 109 in 1978). In other improvement districts, the District formed overlapping improvement districts with new bond authorizations: ID Nos. 121, 141 and 142, and 161 were formed in 1978, overlapping portions of ID Nos. 102, 104, and 106, respectively.

Beginning in the late 1980s, other water improvement districts were formed as areas were added to the District by annexation and consolidation and as former military bases were closed and underwent reuse planning. In 1988, ID Nos. 182 and 184 were formed over the Foothill Ranch (Whiting Ranch) area located in the foothills and canyons north of El Toro in eastern Orange County, an area that was annexed to IRWD in 1982. ID No. 182 covered the northern, predominantly residential portion of this planning area and ID No. 184 covered the southern, predominantly commercial portion. Later in 1988, ID Nos. 186 and 188 were formed over the annexed Glenn Ranch area lying to the east of Foothill Ranch and including a portion of the community of Portola Hills. ID No. 186 covered the northern, predominantly residential portion of this planning area and ID No. 188 covered the southern, predominantly commercial portion.

Irvine Ranch Water District

Prior To 2013 Reorganization Potable Water System Improvement District

PA 155
ID 154
ID 150
ID 110
PA 156
ID 153
UNINCORPORATED
Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
John Wayne Airport
University of California Irvine
San Joaquin Reservoir
ID 121
ID 113
PA 115
ID 112
ID 135
PA GPN1
ID 130
PA LC/LCS
ID 182
ID 186
ID 188
ID 184
ID 161
ID 140
PA 189
ID 160
ID 120
ID 110
YORBA LINDA
ANAHEIM
ORANGE
TUSTIN
IRVINE
LAKE FOREST
MISSION VIEJO
RANCHO SANTA MARGARITA
LAGUNA WOODS
LAGUNA HILLS
ALISO VIEJO
LAGUNA BEACH
COSTA MESA
NEWPORT BEACH
HUNTINGTON BEACH
SANTA ANA
LA PALMA
SANTA ANA CANYON
WEIR CANYON
OAK CANYON
SERRANO AV
CANYON RIM RD
NOHL RANCH RD
IMPERIAL
SERRANO
SANTIAGO CANYON RD
CANNON ST
HEWES ST
BOND AV
CHAPMAN
CANYON VIEW AV
CRAWFORD CANYON
NEWPORT AV
HEWES
FOOTHILL BLVD
DODGE
ESPLANADE
17TH
TUSTIN ST
FAIRHAVEN
FAIRHAVEN AV
STA CLARA AV
YORBA
HOLT
17TH ST
TUSTIN AV
1ST ST
CHESTNUT AV
GRAND
MC FADDEN AV
EL CAMINO REAL
BRYAN AV
BRYAN
YALE
SOUTHWOOD
IRVINE
CULVER
TRABUCO
JEFFREY RD
SAND CANYON
PORTOLA
TUSTIN RANCH RD
RED HILL AV
WALNUT
WALNUT AV
EDINGER
CULVER DR
LE VANDO
WARNER
WARNER AV
GRAND AV
DYER RD
FLOWER
BROADWAY
FIRST
ALTON AV
ALTON PKWY
BARRANCA
ALTON
BARRANCA PKWY
EAST YALE LOOP
WEST YALE LOOP
VON KARMAN AV
MAIN ST
MAIN
RAITT ST
RAITT
FLOWER ST
BRISTOL
SEGERSTROM AV
FAIRVIEW
MICHELSON
UNIVERSITY DR
UNIVERSITY
RIDGELINE DR
MACARTHUR
HARVARD
CARLSON AV
JAMBOREE
CAMPUS DR
TURTLE ROCK DR
IRVINE BLVD
TRABUCO
BAKE PKWY
LAKE FOREST DR
TOLEDO WY
TRABUCO RD
ALICIA PKWY
JERONIMO
JERONIMO RD
MUIRLANDS BLVD
ROCKFIELD BLVD
TECHNOLOGY
IRVINE CENTER
LAGUNA CANYON
LAKE FOREST
BAKE
MOULTON PKWY
EL TORO
PASEO DE VALENCIA
ALICIA
LOS ALISOS BLVD
MARGUERITE
ALISO CREEK
LAGUNA HILLS
PACIFIC PARK
WOOD CANYON
EL TORO RD
SAND CANYON AV
QUAIL HILL
SAN JOAQUIN HILLS RD
SAN JOAQUIN HILLS
NEWPORT COAST
NEWPORT CENTER
JAMBOREE RD
AVOCADO
MARGUERITE
SAN MIGUEL
MACARTHUR BLVD
FORD RD
BONITA CANYON
BISON
EASTBLUFF DR
NEWPORT BLVD
DEL MAR
22ND ST
22ND
17
16
MESA
IRVINE AV
BIRCH
BIRCH ST
JAMBOREE
SUNFLOWER
SUNFLOWER AV
MAC ARTHUR BLVD
ANTON BLVD
HARBOR
HARBOR BLVD
SOUTH COAST DR
BEAR
BEAR ST
FAIRVIEW RD
BAKER
BRISTOL ST
ADAMS
ADAMS AV
MESA VERDE
MERRIMAC WY
FAIR
FAIR DR
ARLINGTON DR
PLACENTIA AV
PLACENTIA
WILSON
WILSON ST
VICTORIA
BROOKHURST ST
INDIANAPOLIS AV
ATLANTA
BUSHARD ST
HAMILTON AV
NEWLAND ST
PACIFIC COAST HWY
COAST HWY
BAYSIDE DR
SUPERIOR AV
17TH ST
18TH ST
Newport Bay
BALBOA
COAST
Pacific Ocean
San Joaquin Res
0
0.5
1
Miles

Irvine Ranch Water District

Prior To 2013 Reorganization Sewer System Improvement District

ID 250
ID 253
ID 252
PA 256
ID 210
ID 221
ID 220
ID 213
ID 215
ID 212
ID 230
ID 261
ID 240
ID 235
ID 284
ID 282
ID 286
ID 288
ID 289
ID 260

Irvine Lake Reservoir
Peters Canyon Reservoir
Rattlesnake Reservoir
Syphon Reservoir
Sand Canyon Reservoir
San Joaquin Reservoir
John Wayne Airport
University of California Irvine

YORBA LINDA
ANAHEIM
VILLA PARK
ORANGE
TUSTIN
SANTA ANA
COSTA MESA
HUNTINGTON BEACH
UNINCORPORATED
IRVINE
NEWPORT BEACH
LAGUNA WOODS
LAGUNA HILLS
LAGUNA BEACH
LAKE FOREST
MISSION VIEJO
ALISO VIEJO
LAGUNA NIGUEL
RANCHO SANTA MARGARITA

Pacific Ocean

0 0.65 1.3
Miles

ID No. 135, encompassing the territory of the former Los Alisos Water District ("LAWD"), was formed as part of the proceedings for LAWD's consolidation with IRWD on December 31, 2000, to provide a vehicle for issuing and servicing LAWD's remaining water bond authorization. ID No. 135 lies to the northeast of the intersection of the Santa Ana and San Diego Freeways, and covers a majority portion of the City of Lake Forest.

ID No. 113 was formed in 2004 over the property within the former Marine Corps Air Station Tustin, a facility established in 1942 to support U.S. Navy lighter-than-air aircraft (blimps) conducting anti-submarine patrol off the California coast during World War II and later used to support Marine Corps helicopter operations until its closure in 1999. The former helicopter base, now known as Tustin Legacy, is currently being redeveloped with residential, commercial, institutional and recreational uses.

The formation of ID Nos. 153 and 154 took place in conjunction with the July 1, 2006 consolidation of the former Santiago County Water District (SCWD) with IRWD, to serve as the successors to two improvement districts formed by SCWD in 1978, ID No. 1 (water and sewer) in the area extending northward from Loma Ridge to the Fremont Canyon area, and ID No. 2 (water) including portions of Black Star, Baker and Hall Canyons. As part of the district consolidation, the majority of the territory of SCWD's ID No. 1 became ID No. 153 (with respect to ID No. 1's water bond authorization), and all of the territory of SCWD's water ID No. 2 became ID No. 154 of IRWD.

The most recent IRWD water improvement district formation took place in 2008, when the District formed ID No. 112 over the lands in the eastern portion of the District north of the Santa Ana Freeway, within the former Marine Corps Air Station El Toro, a base originally established in 1942 to support U.S. Marine Corps aviation activities during World War II, and encompassing the planning areas now known as Heritage Field and the Great Park.

Sewer Improvement Districts. The first sewer improvement district to be formed by the District was Improvement District No. 1, in 1965. ID No. 1 encompassed an area lying south of the San Diego Freeway and ranging from two to seven miles inland from the Pacific Ocean, including most of the University of California Irvine campus. ID No. 1 assumed the obligations of Orange County Sanitation District No. 14 for the cost of a nucleus collection system when District No. 14 was disbanded,[2] and ID No. 1's planned works also included a treatment plant and IRWD's initial reclamation and reclaimed water storage facilities. ID No. 1 is presently known as ID No. 1(201) or "210." Like "110", the "210" area was excluded from later improvement district formations based on initial contribution.

After ID No. 1, sewer improvement district formations generally paralleled the water improvement district formations discussed in the preceding section. In the case of most of the

[2] The disbanded Sanitation District was the original "District No. 14." Another District No. 14 of the Orange County Sanitation Districts was formed in 1986, over much of IRWD's territory (except for the coastal portion within Orange County Sanitation District No. 5), for the purpose of acquiring regional collection, treatment and disposal capacity in the OCSD facilities to augment IRWD's Michelson Water Reclamation Plant. See Section 1.4.

improvement districts formed before 1978, each sewer improvement district preceded its water counterpart by a few years; after that, each water improvement district and its corresponding sewer improvement district were generally formed concurrently and were coterminous.

In 1971, sewer ID Nos. 2 (subsequently known as 202) and 3 (subsequently known as 203) were formed over areas generally corresponding to the areas that, a few years later, were included in water ID Nos. 102 and 103, described above. Their plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet weather treated wastewater disposal. ID No. 204 was formed in 1972 at the same time as the corresponding water ID No. 104. ID No. 204's plan of works initially envisioned two systems delivering sewage from the coastal area, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system was instead designed to deliver all of the sewage flow from ID No. 204 (and from the later-formed ID Nos. 241 and 242) to the interceptor and trunk sewers and regional treatment facilities financed by Orange County Sanitation District No. 5. ID No. 206 was formed in 1975, covering the area corresponding to ID No. 106 which was formed the following year.

As happened in the water system, the addition of further phases of facilities to the planned wastewater system in the late 1970s made it necessary to increase the authorized bonds to finance them. In 1978, the District formed ID Nos. 221, 241, 242, 250, 261 and 290 (coterminous with the counterpart water ID Nos. 121, 141, 142, 105, 161 and 109, respectively).

Beginning in the 1980s, the addition of areas to the District by annexations and consolidations and the closure of former military bases generally led to the formations of sewer improvement districts at the same time as the corresponding water improvement district formations, described above.[3] ID Nos. 282, 284, 286 and 288 were formed in 1988 (coterminous with ID Nos. 182, 184, 186 and 188, respectively). ID No. 235, encompassing the territory of the former LAWD and coterminous with ID No. 135, was formed upon LAWD's consolidation with IRWD on December 31, 2000, to issue and service LAWD's remaining sewer bond authorization. Upon the July 1, 2006 consolidation of the former Santiago County Water District with IRWD, ID No. 253 (coterminous with ID No. 153) was formed as the successor to Santiago County Water District ID No. 1's 1978 sewer bond authorization). ID Nos. 213 (coterminous with ID No. 113) and 212 (coterminous with ID No. 112) were formed in 2004 and 2008, respectively. In 2008, ID No. 256 was formed through annexation proceedings that were conducted to include the former territory of Orange Park Acres Mutual Water Company in IRWD. ID No. 256 has no authorized bonds, but was formed to provide a potential vehicle for such authorization if and when the residents of the area, now served predominantly by septic tanks, determine to finance a public sewer collection system to allow a conversion to sewer service.

[3] An improvement district unrelated to the addition of service area to the District, ID No. 252, was formed in 2005, encompassing a small portion of the area formerly within ID No. 250.

Regional Allocation. As regional water system have been built, buy-ins and allocations among the improvement districts have been utilized to maintain proportionate sharing of regional system costs. Allocations among the improvement districts have similarly been utilized to maintain proportionate cost allocation of regional sewer system costs. Regional potable water and regional sewer allocations are based on demands. For the portion of the regional costs relating to the reclamation system, historically allocation was weighted, with two-thirds of the cost of the storage, transmission and disposal facilities making up the regional irrigation system allocated based on the improvement districts' prorated shares of the sewage generation and one-third of the cost prorated based on their share of irrigation water demands. That practice was subsequently discontinued, and the District instituted its current practice of establishing separate regional allocations for sewer facilities, based on sewage generation, and recycled water facilities, based on recycled water demand, for each sewer improvement district. Cost variations among tributary collection system areas have also been factored into the regional wastewater allocation. The regional split for the area within ID No. 240 reflects that ID No. 240 has participated in the financing of the Orange County Sanitation District's treatment facilities and does not discharge wastewater to the MWRP collection system.

Regional allocation includes facilities serving all improvement districts as well as sub-regional facilities serving two or more, but not all, improvement districts. Consistent with regional allocation, as certain areas were added to IRWD's service area through annexations, consolidations, and military base conversions, in some areas acquisition balances were established to recover regional system cost, and in others new improvement districts were formed to assure that those areas would contribute proportionately to regional facilities and pay for local facilities and expanded regional facilities to serve their demands. Regional allocation will continue to be used with the reorganized improvement districts to assure proportionate cost-sharing of the District's regional system.

Under the District's historic and continuing methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. As a result an improvement district can reach full development, but its regional system funding participation will continue. A similar regional allocation would be applied to replacement and enhancement projects, to the extent funded by the improvement districts. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

As discussed in more detail in Section 6, the District will also allocate future regional cost sharing to "110" and "210" areas excluded from earlier improvement district capital funding, based upon an analysis of historic cost contributions of these areas and benefit received from future capital facilities.

Consolidation of Improvement Districts. As development progresses to completion in improvement districts and the need for having separate improvement districts to match capital facilities

construction timing and other specific local facilities needs of different geographic areas diminishes, consolidation of various improvement districts can produce efficiencies for the District, its customers and property owners. The California Water Code allows the Board of Directors, in a noticed hearing process, to reorganize its improvement district boundaries and to consolidate coterminous improvement districts. The statutory provisions for the consolidation of improvement districts specify that a consolidated improvement district may levy and collect the assessments and charges necessary to satisfy the obligations of its predecessor improvement districts, and that the authorized and unissued bonds of the predecessor improvement districts may be issued and sold as the bonds of the consolidated improvement district.

Ultimately, the District envisions a succession plan that would reduce the number of its improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The current reorganizations and consolidations significantly advance this plan. The timing of the remainder of this plan will be dictated by various factors relating to the preservation of equitable cost sharing as development continues to buildout and as the regional system benefits for various geographic areas are merged.

Previous Consolidations. Under the statutory consolidation provisions, some of the original improvement districts described in the preceding sections have been consolidated. The consolidations that were implemented prior to the current consolidation included two groups of the original improvement districts. The first of these consolidations took place in the coastal area. In 1989, after completing annexations to and detachments from ID Nos. 104, 141 and 142 to exclude permanent open space areas and create coterminous boundaries for the improvement districts' remaining territories, they were consolidated, with the resulting consolidated improvement district designated as ID No. 140. Simultaneously, ID Nos. 204, 241 and 242 were consolidated as coterminous improvement districts, with the resulting consolidated improvement district designated ID No. 240. Following a similar process in 2008, ID Nos. 103 and 109 were consolidated and designated as ID No. 130 and ID Nos. 3(203) and 290 were consolidated and designated as ID No. 230.

The Current Consolidations and Reorganizations. With the 1989 and 2008 improvement district consolidations, the District began to implement a transition of its improvement district financing structure from a developing to a developed condition. The current consolidations continue that transition. Based on the District's investigation of the merits of implementing further reorganization and consolidation of its improvement districts, the current reorganization and consolidation have been formulated on a comprehensive, District-wide basis, to provide a sustainable platform for capital funding through the buildout of the District and the completion of the system. The current reorganization and consolidation preserve the District's long-term funding approach in which regional facilities and capacity are acquired incrementally by all improvement districts until the regional system as a whole is complete and regional cost allocations are used to maintain equitable cost-sharing. The interrelated consolidation actions, expected to be effective January 1, 2014, include the following key components:

- Reorganization and consolidation of the substantially developed and certain partially developing improvement districts into a single water improvement district and a single sewer improvement district, ID Nos. 125 and 225;
- Reorganization of several remaining developing areas into one existing and one new water improvement district (ID Nos. 153 and 185) and one existing and one new sewer improvement district (ID Nos. 253 and 285). These developing areas are also retained within the improvement districts reorganized and consolidated as ID Nos. 125 and 225,with the effect that ID Nos. 125 and 225 will underlay these developing improvement districts and ensure cost participation of these developing improvement districts in local and sub-regional facilities already built by the former improvement districts being consolidated (see Chapter 6);
- Retention of existing ID Nos. 112, 113, 188, 212, 213 and 288 as separate developing improvement districts;
- Retention of existing ID Nos. 154, 252 and 256 pending future evaluation of applicable equity considerations;
- Establishment of a planning area over the area of former ID No. 135, consolidated within the developed water improvement district ID No. 125, until completion of financial programs currently in progress to place the former ID No. 135's user rates under the same structure as other developed areas;
- Retention of existing ID No. 240 as a separate improvement district, unless and until separate regional wastewater cost allocations are no longer necessary;
- Implementation of separate charges or other mechanisms, as necessary, to recover a proportional allocation of cost for future regional facilities from the "110" and "210" areas that are not participating in proportional regional cost allocation by inclusion in an improvement district.

Irvine Ranch Water District

2014 Sewer System Improvement District

ID = 256

ID = 253

ID = 253

ID = 225

ID = 288

ID = 253

ID = 253

ID = 285

ID = 210

ID = 212

No ID

ID = 210

ID = 225

ID = 213

ID = 225

ID = 210

ID = 225

ID = 240

Pacific Ocean

Sewer Improvement Districts

210	225	256
212	240	285
213	253	288
		No ID

0 1 2

Miles

Irvine Ranch Water District
2014 Potable Water System Improvement District

ID = 110
ID = 154
ID = 153
ID = 110
ID = 153
ID = 188
ID = 153
ID = 153
ID = 185
ID = 110
ID = 112
ID = 125
ID = 110
ID = 153
ID = 153
ID = 113
ID = 125
ID = 110
ID = 125
ID = 110

Water Improvement Districts

110	125	185
112	153	188
113	154	No ID

Pacific Ocean

0 1 2
Miles

Throughout the construction of the District's capital facilities, the District has separated the financing of its water and sewer (including recycled water) systems. The District believes this historical separation continues to be justified, based on differences between the two systems in terms of the factors that govern the allocation of benefits and cost responsibilities among the areas served by each system. For this reason, the above described actions do not include any consolidations of water improvement districts with sewer improvement districts, and the District has no plans at this time to do so. The separation can be reexamined in the future.

1.4 THE WATER, WASTEWATER AND RECYCLED WATER SYSTEMS

The Water System. The initial domestic water system included the San Joaquin Reservoir[4] and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, financed by the sale of general obligation waterworks bonds of the overall District in the 1960s. The District also acquired from the U.S. Government an 18-inch transmission main used to deliver a water supply to the Tustin and El Toro military bases from Metropolitan Water District's East Orange County Feeder and later from East Orange County Feeder No. 2. For the delivery of untreated water supplies, the District acquired capacity in the regional untreated delivery system of the Santiago Aqueduct Commission.

The District's Water Resources Master Plan ("WRMP"), initially formulated in 1972 and updated periodically, sought to provide for ultimate demands and reliability. With the formation of the first few improvement districts and the authorization and sale of improvement district bonds in the early 1970s, the system was expanded, adding local master planned facilities for each of the developing areas as development progressed and building the regional system in which the improvement districts participated in proportion to their demands. Through cooperative efforts with Municipal Water District of Orange County ("MWDOC"), neighboring water districts and cities, an area wide system was acquired, storage was constructed and transmission pipelines were acquired and installed to receive Colorado River imports via MWD facilities. This supplemental source of water was augmented by northern California supplies with commencement of deliveries through the State Water Project system in July, 1976.

In 1978, additional water capacity needed to serve the District was estimated at 140 cubic feet per second ("cfs") (ultimate peak month demand). A supplementary water source plan envisioned in the 1970s and embodied in the 1978 plans of works consisted of the purchase of a 60 cfs share of a proposed regional pipeline (then known as the "Diemer Intertie" and now known as the Allen McColloch Pipeline or "AMP") and an 80 cfs wellfield in the main Orange County groundwater basin. The AMP was constructed by MWDOC, with 79 cfs participation by IRWD, and IRWD constructed two transmission mains capable of supplying 45 cfs from AMP into the distribution system. These facilities, along with two wells in the Tustin area with a combined capacity of 4 cfs, and the Zone 1 Reservoir to provide

[4] The San Joaquin Reservoir was initially constructed as a domestic water facility. Due to water quality considerations, that use was eventually discontinued, and IRWD acquired the facility from its agency partners and converted it to a recycled water seasonal storage facility.

internal operational storage and avoid the need to supply peak hour demands from feeder connections, comprised the first phase of the domestic water system. Construction of the 80 cfs wellfield, known as the "Dyer Road Wellfield," took place in the 1980's.

As the domestic water system was built, it was anticipated that commercial agriculture would be phased out by residential, industrial and commercial development, and it was assumed that the existing irrigation system would provide agricultural water until no longer needed. The cost of the untreated water system and its supply, storage and transmission facilities, consisting of the Irvine lake Pipeline and improvements to Irvine Lake, were apportioned primarily to ID No. 105. In the 1970s, the ID No. 105 plans of works noted that the Irvine Lake Pipeline supply would require treatment for use as a domestic water supply, and an untreated delivery system from Irvine Lake, through either the Santiago Aqueduct Commission facilities or a new Irvine Lake Pipeline, as well as a treatment plant identified in the 1972 WRMP, were included in the planned works for that improvement district.

In the early to mid 1980s, as the district's water supply needs were updated, other regional system improvements were planned and financed by the improvement districts, including the continued construction of the regional supply, transmission and storage facilities, administration and operations facilities and telemetry.

The AMP, Dyer Road Wellfield and major delivery facilities were completed as contemplated in the existing plans of works. With those core imported and groundwater supply and delivery facilities and the associated distribution system in place, the District's current WRMP targets a reliable water supply mix and includes the development of sufficient groundwater production capacity to pump up to the District's basin production percentage set by the Orange County Water District.

In accordance with current IRWD policy, basic operational reliability and redundancy for the water system is evaluated with reference to the capacity needed to sustain an outage of a major supply system component, assuming demand reduction obtainable through customer cooperation.

Wells in addition to those in the Dyer Road Wellfield have been constructed or improved in Orange Park Acres, Lake Forest and Irvine to provide additional groundwater supplies. The groundwater production and treatment components of the Irvine Desalter Project produce both domestic and recycled water supplies

In 2009-10, the District commenced the engineering design for a new water treatment plant, the Baker Water Treatment Plant (the "Baker WTP"). Construction of the Baker WTP is anticipated to be complete in July 2015. This project, to be constructed by the District in cooperation with neighboring water districts, will improve operational supply capacity and regional reliability through the treatment of local and imported raw water sources to drinking water standards. When constructed, the Baker WTP is expected to treat to drinking water standards approximately 28 million gallons per day ("mgd") of raw imported water purchased from MWD. During emergencies and planned raw imported water outages, water from Irvine Lake is expected to be supplied to the Baker WTP for treatment to drinking water

standards. The Baker WTP will utilize microfiltration and ultraviolet disinfection as the primary treatment processes.

In addition to developing its water treatment, local groundwater and recycled water systems, the District is diversifying its water supply portfolio by developing water banking projects for dry year reliability. These projects include the Strand Ranch Integrated Banking Project and the Stockdale Integrated Banking Project, situated on groundwater recharge lands that overlie the regional Kern County groundwater basin. The District has also secured access to certain participation rights in the Kern Water Bank to store water. The purpose of developing banking facilities is to improve the District's water supply reliability by enabling the District to store lower cost water it can acquire during wet hydrologic periods for use during dry periods. The District has entered into arrangements to acquire water for banking, including unbalanced exchanges and other transactions. The banking facilities will enhance the District's ability to respond to drought conditions and potential water supply interruptions and will provide the District the ability to reduce the cost of water delivered under such conditions. The District has also entered into an agreement with MWD and MWDOC to provide a means to deliver banked water to the District's service area.

The Wastewater System. The District's powers did not include sewage collection and treatment when the District was formed. When the District's principal act, the California Water District Law, was amended to permit California water districts to provide sewage services subject to voter approval, voters of the District approved the added scope of services at an election held in March, 1965.

The District began the construction of a wastewater system with the bonds of ID No. 1 issued in 1966 and subsequent bonds issued on behalf of ID Nos. 2(202) and 3(203). In addition to the nucleus sewage collection system acquired from Orange County Sanitation District No. 14, the original planned works included a treatment plant, reclamation and reclaimed water storage facilities. Subsequent plans of works contemplated an expansion of the Michelson Water Reclamation Plant, dual collection and treatment systems for reclaimable domestic wastewater and non-reclaimable industrial discharges, reclaimed water distribution facilities and wet-weather treated wastewater disposal.

The Michelson Water Recycling Plant ("MWRP"), then known as the Michelson Water Reclamation Plant, has been expanded in phases. The most recent expansion, anticipated to be completed during fiscal year 2014, will bring its capacity from 18 to 28 mgd. The District's wastewater system also includes facilities and contractual entitlements to serve the portions of its service area in the coastal, Lake Forest and Santa Margarita ("Chiquita") areas not tributary to MWRP, as well as regional treatment capacity in the facilities of Orange County Sanitation District for the sewage from the MWRP-tributary area that is in excess of its needs for production of recycled water.

The wastewater system to serve the coastal area not tributary to MWRP was first envisioned as two systems, one discharging to a regional treatment and disposal system and the other to a local treatment plant to be built. Ultimately, the collection system for the coastal area was instead designed

to deliver all of the sewage flow to the regional collection and treatment facilities of Orange County Sanitation District No. 5.

During fiscal year 1986, the District cooperated with Orange County Sanitation District ("OCSD") to form Sanitation District 14 (functionally replaced by "Revenue Area 14" of OCSD, upon the 1998 consolidation of the several sanitation districts comprising OCSD's predecessor, the County Sanitation Districts of Orange County), which overlays much of the District's territory other than the coastal area. Under an agreement entered into between the District and OCSD, the District acquired equity interests in OCSD's sewage processing facilities (the percentage of interest will vary over time pursuant to a formula set forth in the agreement between OCSD and the District). The agreement also provides for the purchase by the District of additional capacity in OCSD sewage processing facilities on an as-needed-basis determined from annual flows. These equity purchase costs are included in the costs regionally allocated to the improvement districts.

In 2000, as part of the consolidation of Los Alisos Water District with the District, the Los Alisos Water Reclamation Plant ("LAWRP") was added to the wastewater system. Currently, approximately 85% of the District's wastewater is treated by the MWRP and LAWRP operated by the District, and approximately 14% is treated by OCSD.

A future MWRP expansion up to 33 mgd has undergone environmental review and is planned by 2025, as needed to meet demand. Ultimately, the District plans to expand capacity for its treatment facilities to approximately 40.5 mgd in order to: (i) increase recycled water production and utilization; (ii) decrease exposure to external treatment costs and operational constraints; and (iii) decrease dependencies on imported water supplies.

The construction of IRWD's regional sewer system also includes the network of gravity sewers, force mains, wastewater lift stations and siphons that convey wastewater to each treatment facility, which was developed as the system was expanded.

The processes for treating sewage and producing recycled water generate solids residuals. After evaluating alternative approaches to handling its wastewater solids, the District is proceeding with the construction of facilities for handling MWRP solids, currently conveyed to Fountain Valley for treatment by OCSD, as well as solids from the District's LAWRP. The solids handling capital project is underway and is anticipated to be completed in fiscal year 2017.

The Recycled Water System. In addition to the water reclamation facilities described under the preceding subheading, the recycled water system consists of a dual system for distribution of the recycled water, primarily for irrigation, and seasonal storage to allow production in the low-demand winter season for use in the high-demand summer season. These facilities presently include the District's Sand Canyon, Rattlesnake Canyon, and San Joaquin Reservoirs, which are recycled water reservoirs with capacities of 750 acre feet, 1,100 acre feet, and 2,500 acre feet respectively. In addition to the future expansion of reclamation capacity, based on demand as described above relative to the

wastewater system, the District plans to increase seasonal storage capacity. At this time, the expansion of Syphon Reservoir is being evaluated for that purpose. The cost of the Syphon expansion or a comparable seasonal storage project is included in the proposed sewer plans of works. As stated above, the recycled water system regional and local costs comprise a part of regional and local sewer costs under the plans of works.

Enhancement and Replacement. Apart from the ongoing system expansion and completion that will continue to buildout, the District has incorporated in its system planning efforts the updating of its infrastructure to meet the needs of existing and future customers. These system enhancement efforts will include capital projects that provide service cost savings and projects that provide reliability or redundancy beyond that necessary to satisfy the District's policy for basic reliability. Replacement and refurbishment improvements consist of repairs and restoration to existing water, recycled water and sewer system facilities. The District presently funds enhancement and replacement costs from reserves set aside for that purpose with contributions from user rates, general 1% tax levy revenues and other sources. The District may also evaluate the funding of enhancement and replacement costs through the improvement districts to the extent authorized general obligation bonds are available for such purposes and the enhancement and replacement costs are allocable among improvement districts and other funding sources in a fair and equitable manner.

SECTION 2 IMPROVEMENT DISTRICT NO. 285

2.1 DESCRIPTION OF THE STUDY AREA

ID No. 285, represented the majority of the future development area of ID 235 (former Los Alisos Water District). The development areas included in the newly formed ID No. 285 include development areas identified in the City of Lake Forest's Opportunity Study Area, which identified properties zoned predominately as commercial and industrial but as a result of the closing of the El Toro Marine Corp Air Station were eligible to be converted to residential. The resulting Improvement District No. 285 is a developing improvement district that will function in tandem with existing ID Nos. 212 (former MCAS El Toro), 213 (former MCAS Tustin) and 288 (Portola Center) and new ID No. 253, where development is underway, to provide equitable regional capital cost sharing by the District's developing areas.

To simplify the text of this report, "north" refers to "Irvine north" running parallel to Sand Canyon Avenue. North arrows on exhibits show true north.

2.2 LAND USE AND DEVELOPMENT PHASING

Land Use. The District expects future development of the reorganized ID No. 285 to be predominantly residential with supporting commercial development, and expects development in ID No. 285 to continue through at least 2035. **Figure II-1** shows the boundaries and proposed land use of newly formed ID No. 285, encompassing about 578 acres.

Development Phasing. This Plan of Works follows and incorporates the phasing used in the subarea master plans applicable to the various planned development areas.

Phasing of development is subject to change. Depending upon real estate markets, city planning decisions and other factors, some phases or portions of phases could occur simultaneously rather than sequentially. The phasing of bond issues discussed in Section 5, have been selected to allow reasonable flexibility in phasing priorities.

[INSERT LAND USE MAPS]

Figure II-1

2.3 DEMANDS AND PEAKING FACTORS

Water Use Factors. Table II-1 reflects most recently adopted duty factors from the IRWD Water Resources Master Plan (WRMP), summarizing the District's standard interior and exterior water use factors. The District employ local interior water use factors, shown in the table, as its sewer duty factors. Irrigation factors used to determine recycled water demands are also shown in the table. The factors in **Table II-1** were also used to develop **Table II-2** and **Table II-3**.

Peaking Factors. Potable water peaking factors, irrigation peaking factors, applied in calculation for sizing respective facilities, are set forth in the WRMP. Sewer peaking, applied in calculation for sizing sewer collection and treatment facilities, are set forth in the SCSMP.

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Table 3-1 Land Use and Water Use Factors (September 2012)

Code	Land Use Description	Land Use Agency	Land Use Density		Local Demands			Irrigation Demands	
			Average	Units	Local - Interior	Local - Exterior	Total Local	% Irrigated Area	Irrigation Factor
1100	***Residential***					***Gal/DU/Day***			***Gal/Acre/Day***
1111	Rural Density	Orange	0.3	du/acre	250	170	420	0%	1,000
1112	Rural Density	Irvine	0.3	du/acre	250	750	1,000	5%	2,800
1115	Rural Density	County	0.26	du/acre	300	350	650	5%	2,800
1121	Estate Density	Orange	1.2	du/acre	300	350	650	5%	2,800
1122	Estate Density	Irvine	0.5	du/acre	300	225	525	5%	2,800
1126	Estate Density	Lake Forest	0.5	du/acre	300	350	650	7%	3,000
1131	Low Density	Orange	4	du/acre	300	350	650	8%	2,500
1132	Low Density	Irvine	3	du/acre	225	180	405	16%	2,200
1133	Low Density	Newport Beach	1	du/acre	290	220	510	17%	2,800
1134	Low Density PC	Tustin	4.5	du/acre	450	1,550	2,000	17%	2,800
1135	Suburban Density	County	9.25	du/acre	165	95	260	15%	2,500
1136	Low Density	Lake Forest	3	du/acre	270	150	420	20%	2,800
1141	Low-Medium Density	Orange	10.5	du/acre	235	145	380	15%	2,500
1146	Low-Medium Density	Lake Forest	11	du/acre	205	150	355	10%	3,000
1153	Medium-Low Density	Newport Beach	2.75	du/acre	400	350	750	10%	2,800
1161	Medium Density	Orange	19.5	du/acre	200	150	350	15%	2,800
1162	Medium Density	Irvine	7.5	du/acre	200	100	300	15%	2,800
1163	Medium Density	Newport Beach	5	du/acre	225	205	430	20%	2,800
1164	Medium Density PC	Tustin	11.8	du/acre	155	95	250	15%	2,800
1166	Medium Density	Lake Forest	7.5	du/acre	140	60	200	15%	2,800
1172	Medium-High Density	Irvine	17.5	du/acre	130	30	160	22%	2,400
1175	Urban Density	County	29	du/acre	140	45	185	20%	2,800
1176	Medium-High Density	Lake Forest	17.5	du/acre	145	70	215	17%	2,500
1182	High Density	Irvine	32.5	du/acre	130	13	143	20%	2,800
1183	High Density	Newport Beach	12.25	du/acre	115	10	125	20%	3,200
1184	High Density PC	Tustin	17.4	du/acre	115	10	125	15%	2,800
1186	High Density	Lake Forest	32.5	du/acre	115	10	125	20%	2,800
1191	High Rise Density	Orange	35	du/acre	115	10	125	20%	2,800
1192	High Rise Density	Irvine	40	du/acre	115	10	125	20%	2,800
1200	***Commercial***					***Gal/KSF/Day***			***Gal/Acre/Day***
1210	General Office		20	ksf/acre	62	10	72	20%	2,500
1221	Community Commercial		9	ksf/acre	142	33	175	20%	3,500
1222	Regional Commercial		10	ksf/acre	130	10	140	20%	3,500
1230	Commercial Recreation		8	ksf/acre	41	20	61	30%	3,000
1235	Hotel		45	rooms/acre	110	50	160	30%	2,800
1240	Institutional		8	ksf/acre	30	15	45	30%	2,750
1244	Hospital		9	ksf/acre	165	65	230	30%	2,850
1260	School		10	ksf/acre	20	8.0	28.0	50%	2,500
1261	UCI		10	ksf/acre	215	15	230	40%	3,800
1273	Military Air Field		0	ksf/acre	0	0	0	0%	0
1290	Hotel		45	rooms/acre	110	50	160	30%	2,800
1300	Industrial		9.091		600	25	625	20%	2,800
1310	Industrial - Light		18	ksf/acre	60	10	70	20%	2,800
1320	Industrial - Heavy		25	ksf/acre	2,000.0	18	2,018	20%	2,800
	Open Space and Other								***Gal/Acre/Day***
1411	Airports		0	acre/acre	0	0	0	0%	0
1413	Freeways & Major Road		0	acre/acre	0	0	0	0%	0
1820	Community Park		1	acre/acre	0	0	0	86%	2,200
1830	Regional Park		1	acre/acre	0	0	0	75%	2,200
1840	Fuel Modification Zone		1	acre/acre	0	0	0	100%	1,000
1850	Wildlife Preserve		0	acre/acre	0	0	0	0%	0
1880	Open Space (Rec)		0	acre/acre	0	0	0	0%	0
1900	Vacant		1	acre/acre	0	0	0	0%	0
4100	Water		0		0	0	0	0%	0
2000	***Agriculture***			***acre/acre***					***Gal/Acre/Day***
2100	Low-Irrigated AG Potable		1	acre/acre	0	0	0	80%	1,800
2110	Low-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	1,800
2120	Low-Irrigated AG Recycled		1	acre/acre	0	0	0	80%	1,800
2200	High-Irrigated AG Potable		1	acre/acre	0	0	0	80%	3,100
2210	High-Irrigated AG Untreated		1	acre/acre	0	0	0	80%	3,100
2220	High-Irrigation AG Recycled		1	acre/acre	0	0	0	80%	3,100

Table II-2 - **Sewage Generation:** Tabulates the average daily wastewater flow at build-out (2035) within the reorganized ID No. 253 service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Sewer Flows (MGD)
Residential			
1135	Suburban Density	County	0.10
1136	Low Density	Lake Forest	0.23
1166	Medium Density	Lake Forest	0.09
1176	Medium-High Density	Lake Forest	0.06
1186	High Density	Lake Forest	0.05
Commercial			
1221	Community Commercial		0.03
1240	Institutional		0.01
Total			**0.58 MGD**

Table II-3 - Recycled Water Demands: Tabulates the average daily Recycled Water Demands at build-out (2035) within the reorganized ID No. 253 service area, using the District's ***demand forecasting tool***.

Land Use Code	Description	Land Use Agency	2035 Recycled Water Demands (AFY)
Residential			
1135	Suburban Density	County	23
1136	Low Density	Lake Forest	137
1166	Medium Density	Lake Forest	31
1176	Medium-High Density	Lake Forest	16
1186	High Density	Lake Forest	14
Commercial			
1210	General Office		7
1221	Community Commercial		25
1240	Institutional		44
1260	School		15
Other			
1820	Community Park		76
1830	Regional Park		64
Total			**450 AFY**

SECTION 3 REGIONAL FACILITIES

3.1 DESCRIPTION

Through the reorganization consolidation process, 10 of IRWD's 18 sewer improvement districts will be consolidated into a single improvement district, containing both lands where development is essentially completed, as well as certain remaining lands proposed for development that are also included in reorganized ID No. 253, newly formed 285 and existing 288. Existing ID Nos. 1(201), 212, 213, 240, 252, and 256 are not included in the reorganization or consolidation actions. Regional sewer and recycled water project costs will continue to be allocated to each sewer improvement district based on that improvement district's pro-rata shares of the ultimate IRWD wastewater and recycled water demands.

Under the District's methodology for achieving equitable cost allocation, the improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional systems has been borne by ad valorem assessments on lands not yet fully developed and receiving service.

For purposes of maintaining equity in facilities cost allocation, IRWD employs multiple treated water regional splits. For example, one regional split may include all IDs; another may include some IDs and exclude one or more IDs (sometimes referred to as a "sub-regional project"). In the latter instance, that split is applied to the cost of all projects that provide no benefit to the excluded improvement district(s); an improvement district would be included only in the regional splits for the projects from which it does derive benefit.

In this Plan of Works, the appropriate regional split has been applied to existing and proposed wastewater collection and treatment and recycled water supply, storage and distribution facilities needed to provide an adequate and reliable wastewater and recycled water system meeting the ultimate needs of ID No. 285.

Periodically, IRWD revises its sewer improvement district regional allocation to reflect changes in demand factors, land use planning, phasing of planned development and other factors which may influence wastewater treatment and recycled water demands, either within a specific improvement district or throughout IRWD. Revised regional splits are applied prospectively. The regional cost allocations known as regional splits are calculated based on IRWD's internal wastewater and recycled water demand forecasting tool.

3.2 COST ESTIMATES AND REGIONAL ALLOCATION

Based on the total IRWD sewage generation, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 9.6%. Based on the total IRWD recycled water demands, the demands of ID No. 253 as calculated by the District's demand forecasting tool would yield a regional allocation 10.3%.

A description and cost estimate of the proposed regional sewer and recycled water facilities share allocated to ID No. 285 is shown in **Table III-1**.

As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing. For purposes of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table III-1 Regional Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 285

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20113	OCSD CORF 12/13	Regional	1.3%	$4,826	$4,826	$0	$0	$0
20114	OCSD CORF 13/14	Regional	1.3%	$27,441	$27,441	$0	$0	$0
20115	OCSD CORF 14/15	Regional	1.3%	$32,244	$25,245	$6,999	$0	$0
20116	OCSD CORF 15/16	Regional	1.3%	$34,447	$0	$34,447	$0	$0
20117	OCSD CORF 16/17	Regional	1.3%	$44,978	$0	$44,978	$0	$0
20118	OCSD CORF 17/18	Regional	1.3%	$59,281	$0	$59,281	$0	$0
20119	OCSD CORF 18/19	Regional	1.3%	$47,550	$0	$47,550	$0	$0
20120	OCSD CORF 19/20	Regional	1.3%	$56,197	$0	$43,766	$12,431	$0
20214	MWRP EXPANSION PHASE II	Regional	1.3%	$641	$641	$0	$0	$0
20356	OCSD CORF 20/21	Regional	1.3%	$64,558	$0	$0	$64,558	$0
20357	OCSD CORF 21/22	Regional	1.3%	$72,704	$0	$0	$72,704	$0
20358	OCSD CORF 22/23	Regional	1.3%	$80,907	$0	$0	$80,907	$0
20360	OCSD CORF 23/24	Regional	1.3%	$90,038	$0	$0	$90,038	$0
20362	OCSD CORF 24/25	Regional	1.3%	$100,175	$0	$0	$77,735	$22,440
20468	FOOTHILL SEWER DIVERSION TO LAWRP	Regional	1.3%	$14,746	$2,347	$12,399	$0	$0
20540	LONG TERM SEWER SYSTEM FLOW MONITORING	Regional	1.3%	$5,465	$2,574	$2,890	$0	$0
20587	OCSD EQUITY 12/13	Regional	1.3%	$0	$0	$0	$0	$0
20588	OCSD EQUITY 13/14	Regional	1.3%	$1	$1	$0	$0	$0
20589	OCSD EQUITY 14/15	Regional	1.3%	$18,094	$11,640	$6,454	$0	$0
20593	OCSD EQUITY 15/16	Regional	1.3%	$28,256	$0	$28,256	$0	$0
20621	OCSD EQUITY 16/17	Regional	1.3%	$32,977	$0	$32,977	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
20715	OCSD EQUITY 17/18	Regional	1.3%	$79,399	$0	$79,399	$0	$0
20716	OCSD EQUITY 18/19	Regional	1.3%	$88,745	$0	$88,745	$0	$0
20717	OCSD EQUITY 19/20	Regional	1.3%	$89,235	$0	$57,124	$32,111	$0
20718	OCSD EQUITY 20/21	Regional	1.3%	$59,974	$0	$0	$59,974	$0
20719	OCSD EQUITY 21/22	Regional	1.3%	$38,163	$0	$0	$38,163	$0
20720	OCSD EQUITY 22/23	Regional	1.3%	$21,652	$0	$0	$21,652	$0
20733	OCSD EQUITY 23/24	Regional	1.3%	$23,858	$0	$0	$23,858	$0
20734	OCSD EQUITY 24/25	Regional	1.3%	$26,292	$0	$0	$16,765	$9,528
20798	OCSD EQUITY 25/26	Regional	1.3%	$28,014	$0	$0	$0	$28,014
20799	OCSD EQUITY 26/27	Regional	1.3%	$25,465	$0	$0	$0	$25,465
20802	OCSD CORF 25/26	Regional	1.3%	$111,384	$0	$0	$0	$111,384
20803	OCSD CORF 26/27	Regional	1.3%	$123,636	$0	$0	$0	$123,636
20811	OCSD SOLIDS HANDLING 13/14	Regional	0.6%	$7,776	$7,776	$0	$0	$0
20812	OCSD SOLIDS HANDLING 14/15	Regional	0.6%	$9,412	$9,412	$0	$0	$0
20959	SEWER GEN SYS MODS 14/15	Regional	1.3%	$4,338	$4,338	$0	$0	$0
21055	ENG PLANNING STUDY RESERVE 13/14	Regional	1.3%	$2,461	$2,461	$0	$0	$0
21056	ENG PLANNING STUDY RESERVE 14/15	Regional	1.3%	$2,707	$2,707	$0	$0	$0
21057	ENG PLANNING STUDY RESERVE 15/16	Regional	1.3%	$2,979	$0	$2,979	$0	$0
21096	GIS SUPPORT APPLICATIONS 13/14	Regional	1.3%	$861	$861	$0	$0	$0
21097	GIS SUPPORT APPLICATIONS 14/15	Regional	1.3%	$947	$947	$0	$0	$0
21129	HYDRAULIC MODELING 13/14	Regional	1.3%	$631	$631	$0	$0	$0
21131	HYDRAULIC MODELING 14/15	Regional	1.3%	$694	$694	$0	$0	$0
21133	UNIVERSITY LS ODOR CONTROL SYSTEM	Regional	1.3%	$3,652	$3,652	$0	$0	$0
21134	MANHOLE CONST MAIN AND SKY PARK SOUTH	Regional	1.3%	$696	$696	$0	$0	$0
21146	MWRP BIOSOLIDS AND ENERGY RECOVERY	Regional	0.6%	$1,396,204	$604,155	$792,049	$0	$0
21147	LAWRP SYSTEM UPGRADES	Regional	1.3%	$10,516	$5,869	$4,647	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
21248	MWRP EXPANSION PHASE 3	Regional	1.3%	$389,042	$0	$200,055	$188,987	$0
21339	AUTOMATION SYSTEM IMPROVEMENTS SEWER	Regional	1.3%	$1,886	$1,195	$691	$0	$0
21455	IRWD PIPELINES RELOCATION FOR SC GRADE	Regional	1.3%	$4,352	$4,352	$0	$0	$0
21578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	1.3%	$22,222	$0	$22,222	$0	$0
21655	SKYLIGHT PROTECTION	Regional	1.3%	$501	$501	$0	$0	$0
21742	LTFP ID CONSOLIDATION	Regional	1.3%	$1,115	$1,115	$0	$0	$0
30214	MWRP EXPANSION PHASE II	Regional	1.5%	$551	$551	$0	$0	$0
30331	IRVINE LAKE SEISMIC STABILITY STUDY	Regional	1.5%	$452	$452	$0	$0	$0
30342	LAWRP SYSTEM UPGRADES	Regional	1.5%	$16,754	$9,013	$7,741	$0	$0
30374	SYPHON RESERVOIR INTERIM IMPROVEMENTS	Regional	1.5%	$3,115	$3,115	$0	$0	$0
30380	SALT MANAGEMENT PLAN DEVELOPMENT	Regional	1.5%	$1,818	$1,818	$0	$0	$0
30382	SYPHON RESERVOIR EXPANSION	Regional	1.5%	$1,475,280	$39,409	$1,435,871	$0	$0
30396	RW SITE INSPECTION & TESTING COMPUTER	Regional	1.5%	$818	$818	$0	$0	$0
30398	RW CONVERSION GRANTS FOR ON-SITE 13/14	Regional	1.5%	$4,137	$4,137	$0	$0	$0
30399	RW CONVERSION FOR OFF-SITE 13/14	Regional	1.5%	$2,412	$2,412	$0	$0	$0
30400	HEALTH DEPT FEES FOR 13/14	Regional	1.5%	$1,401	$1,401	$0	$0	$0
30408	MULTI-ZONE REGIONAL PS - ZONE A TO SYPHON	Regional	1.5%	$61,461	$5,999	$55,462	$0	$0
30412	SYPHON RESERVOIR EXPANSION - ENV.	Regional	1.5%	$3,783	$1,783	$2,000	$0	$0
30415	CATHODIC PROTECTION FOR GAP PIPE SEGMENT	Regional	1.5%	$2,008	$2,008	$0	$0	$0
30418	MWRP MBR LEAP AERATION CONVERSION	Regional	1.5%	$19,290	$0	$19,290	$0	$0
30422	PA9 JEFFREY RD PIPELINES, 36" ZNA, 36" SYPHON	Regional	1.5%	$25,837	$25,837	$0	$0	$0
30517	LAKE FOREST CONTROL AND TELEMETRY SYS	Regional	1.5%	$589	$589	$0	$0	$0
31055	ENG PLANNING STUDY RESERVE 13/14	Regional	1.5%	$2,912	$2,912	$0	$0	$0
31056	ENG PLANNING STUDY RESERVE 14/15	Regional	1.5%	$3,203	$3,203	$0	$0	$0
31057	ENG PLANNING STUDY RESERVE 15/16	Regional	1.5%	$3,525	$0	$3,525	$0	$0
31096	GIS SUPPORT APPLICATIONS 13/14	Regional	1.5%	$993	$993	$0	$0	$0

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
31097	GIS SUPPORT APPLICATIONS 14/15	Regional	1.5%	$1,093	$1,093	$0	$0	$0
31129	HYDRAULIC MODELING 13/14	Regional	1.5%	$728	$728	$0	$0	$0
31131	HYDRAULIC MODELING 14/15	Regional	1.5%	$800	$800	$0	$0	$0
31248	MWRP EXPANSION PHASE 3	Regional	1.5%	$283,272	$0	$141,969	$141,303	$0
31339	AUTOMATION SYSTEM IMPROVEMENTS RW	Regional	1.5%	$3,980	$2,523	$1,458	$0	$0
31384	HYDRAULIC MODEL UPDATE / CALIBRATION -	Regional	1.5%	$7,399	$7,399	$0	$0	$0
31578	OPS CENTER IMPROVEMENTS PH2 (WAREHOUSE)	Regional	1.5%	$25,641	$0	$25,641	$0	$0
31582	GEN SYS MODS 13/14	Regional	1.5%	$965	$965	$0	$0	$0
31648	GEN SYS MODS 14/15	Regional	1.5%	$1,062	$1,062	$0	$0	$0
31655	SKYLIGHT PROTECTION	Regional	1.5%	$578	$578	$0	$0	$0
31697	GEN SYS MODS 15/16	Regional	1.5%	$1,168	$0	$1,168	$0	$0
				$5,351,365	**$847,678**	**$3,262,034**	**$921,187**	**$320,466**

SECTION 4 LOCAL MASTER PLAN FACILITIES

4.1 DESCRIPTION

The facilities detailed in the following section represent local facilities serving one or more of the planned development areas within the improvement district, based on the respective subarea master plans, as well as sub-regional projects serving this improvement district and other improvement district(s) For the purpose of this POW, local facilities include both local and sub-regional projects.

4.2 COST ESTIMATES

The proposed local master plan facilities for ID No. 285 are detailed in **Table IV-1** and shown on **Figure IV-1a** though **IV-1c** (sewer) and **Figure IV-1d** though **IV-1f** (recycled water). The figures, taken from the Lake Forest Area sub-area master plan, show both facilities inside and outside the improvement district's boundary, and some facilities shown may have already been constructed. The amounts shown in Table IV-1 reflect the facilities or portions there-of allocable to the improvement district. As noted in the Introduction, the projects identified here may change to reflect changes in land use and development phasing.

For the purpose of determining the allowance for deferred costs, the project costs have been escalated at 10% per year.

Table IV-1 Local Projects
Proposed Facilities and Estimated Escalated Costs
Improvement District 285

Project No.	Project Title	Proj.Type (Reg / Local)	% Share	Total Escalated Amt	2013-2015	2016-2020	2021-2025	2026-2035
21560	LAKE FOREST WW OFFSITE IMPROVEMENTS	Local	100.0%	$5,107,993	$2,817,914	$2,290,079	$0	$0
21562	LAKE FOREST WW OPPORTUNITY AREAS	Local	100.0%	$2,077,658	$1,147,036	$930,622	$0	$0
30390	PA 9B RW AND SYPHON LATERAL PIPELINE,	Sub-Regional	1.5%	$2,176	$2,176	$0	$0	$0
31562	LAKE FOREST RW OPPORTUNITY AREAS	Local	100.0%	$3,953,302	$2,183,258	$1,770,044	$0	$0
31661	BAKER RANCH PHASE 1 RW ZONE B & C	Local	100.0%	$172,040	$172,040	$0	$0	$0
31662	BAKER RANCH PHASE 2 RW ZONE B & C	Local	100.0%	$142,890	$142,890	$0	$0	$0
				$11,456,059	**$6,465,314**	**$4,990,744**	**$0**	**$0**

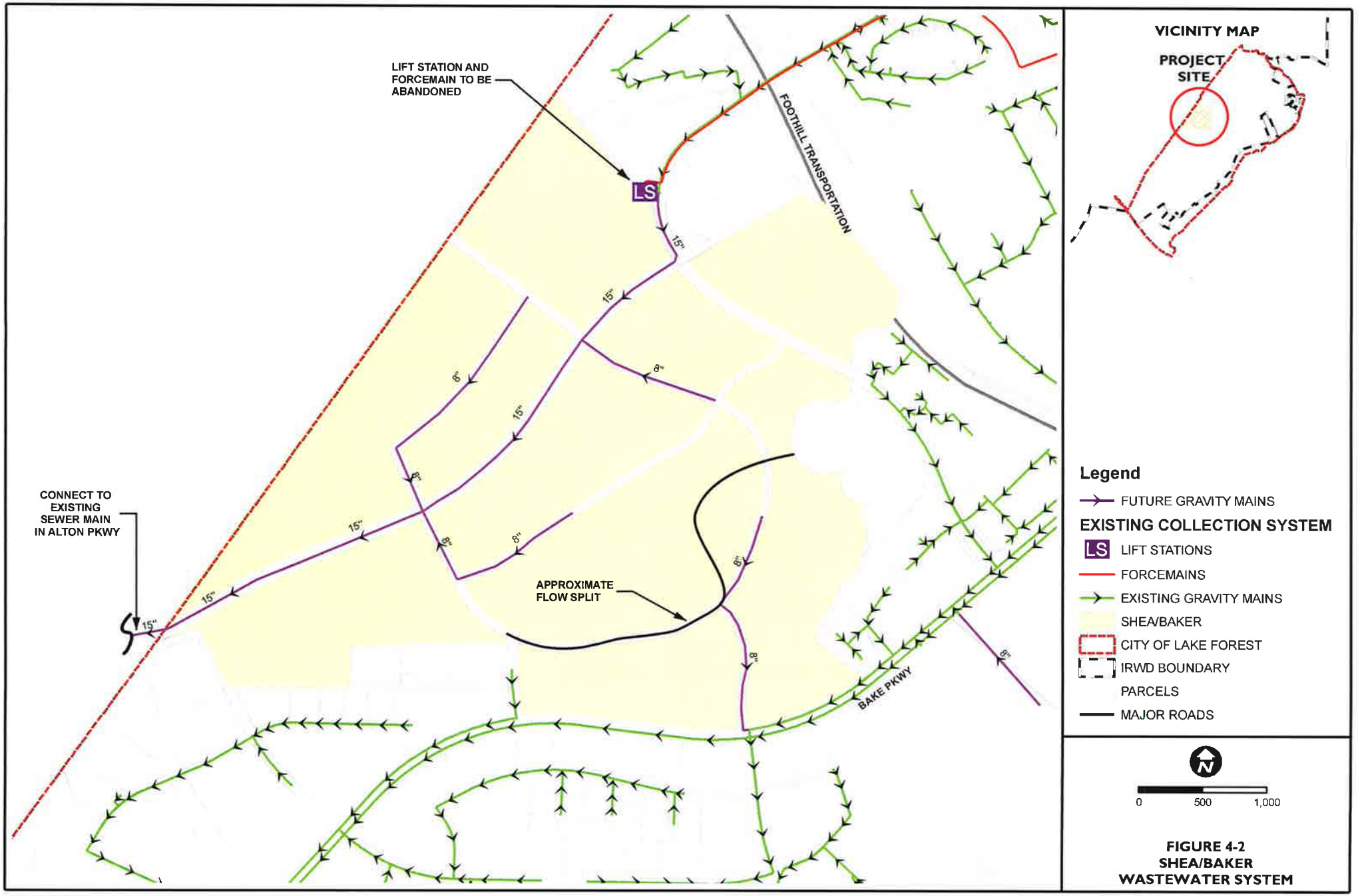


FIGURE 4-2
SHEA/BAKER
WASTEWATER SYSTEM

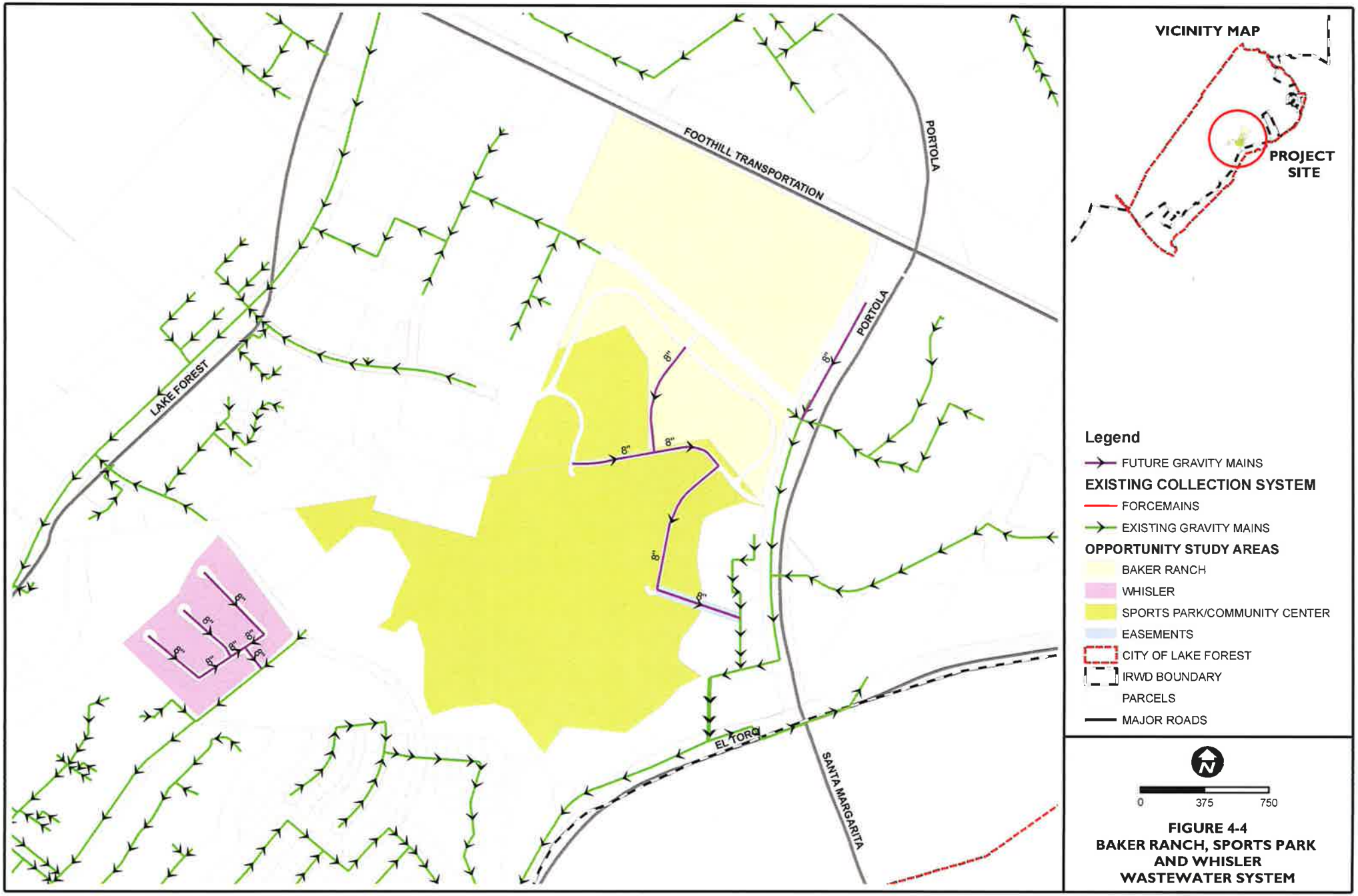


FIGURE 4-4
BAKER RANCH, SPORTS PARK AND WHISLER WASTEWATER SYSTEM

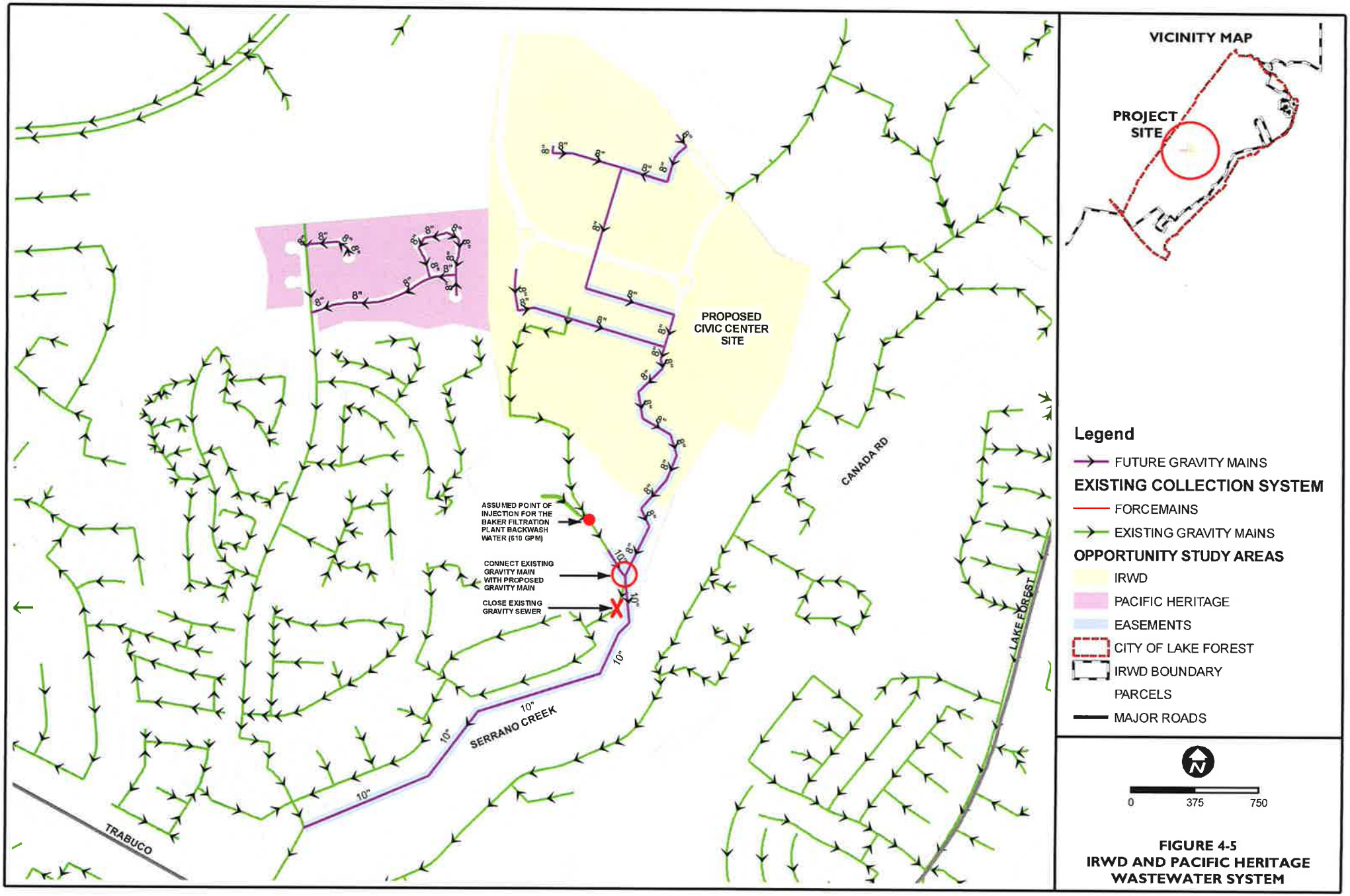


FIGURE 4-5
IRWD AND PACIFIC HERITAGE WASTEWATER SYSTEM

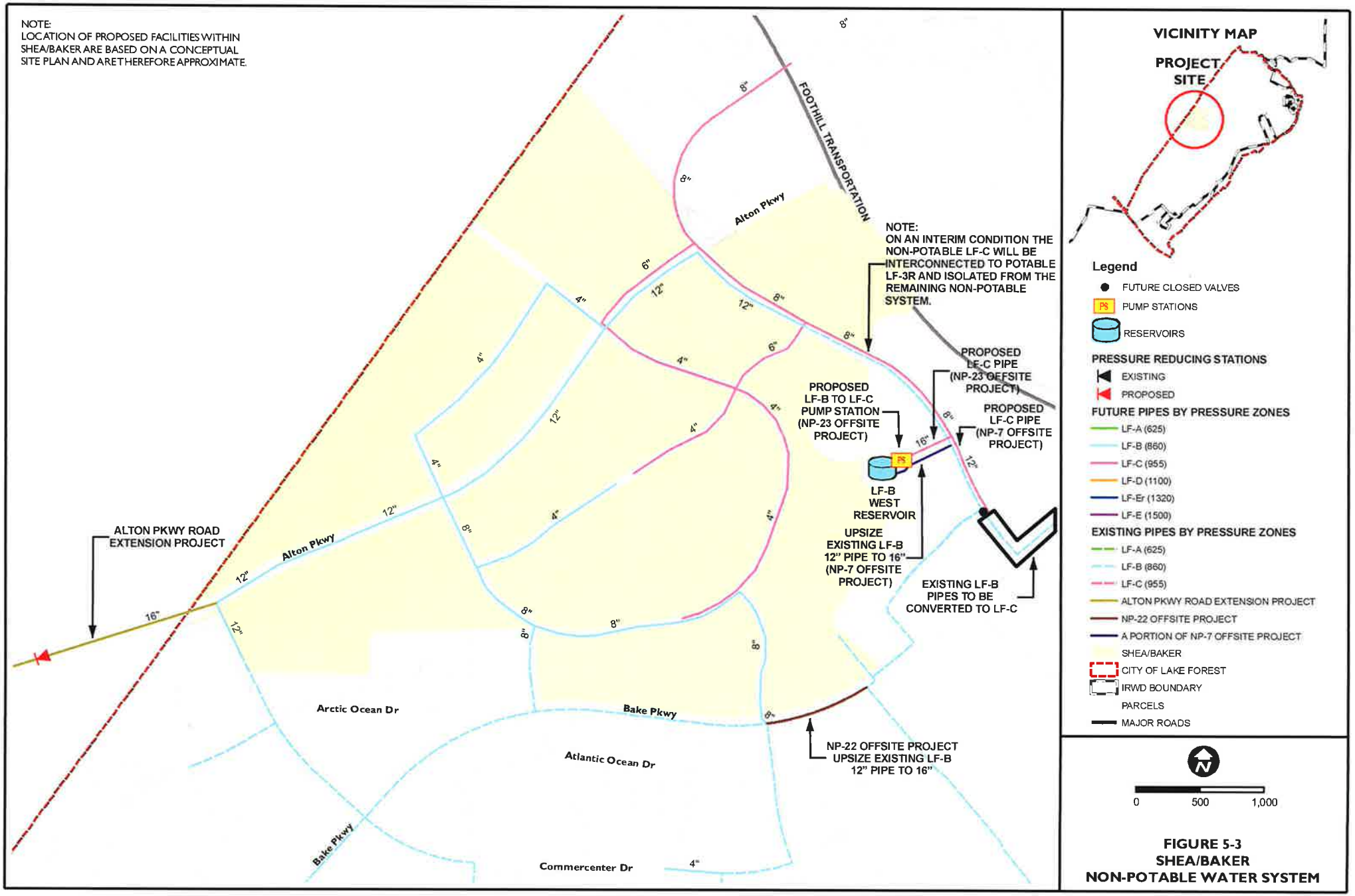


FIGURE 5-3
SHEA/BAKER
NON-POTABLE WATER SYSTEM

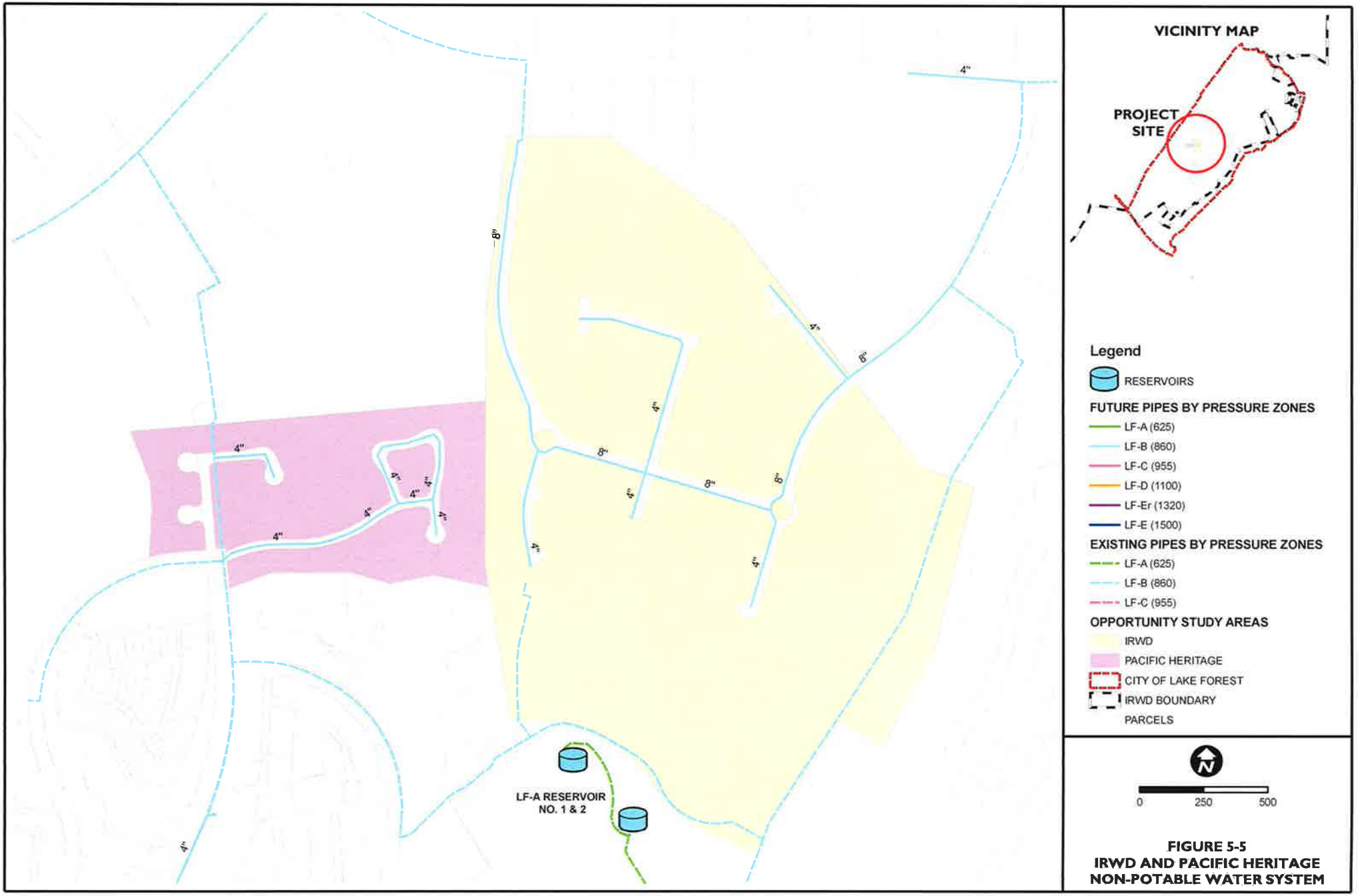


FIGURE 5-5
IRWD AND PACIFIC HERITAGE NON-POTABLE WATER SYSTEM

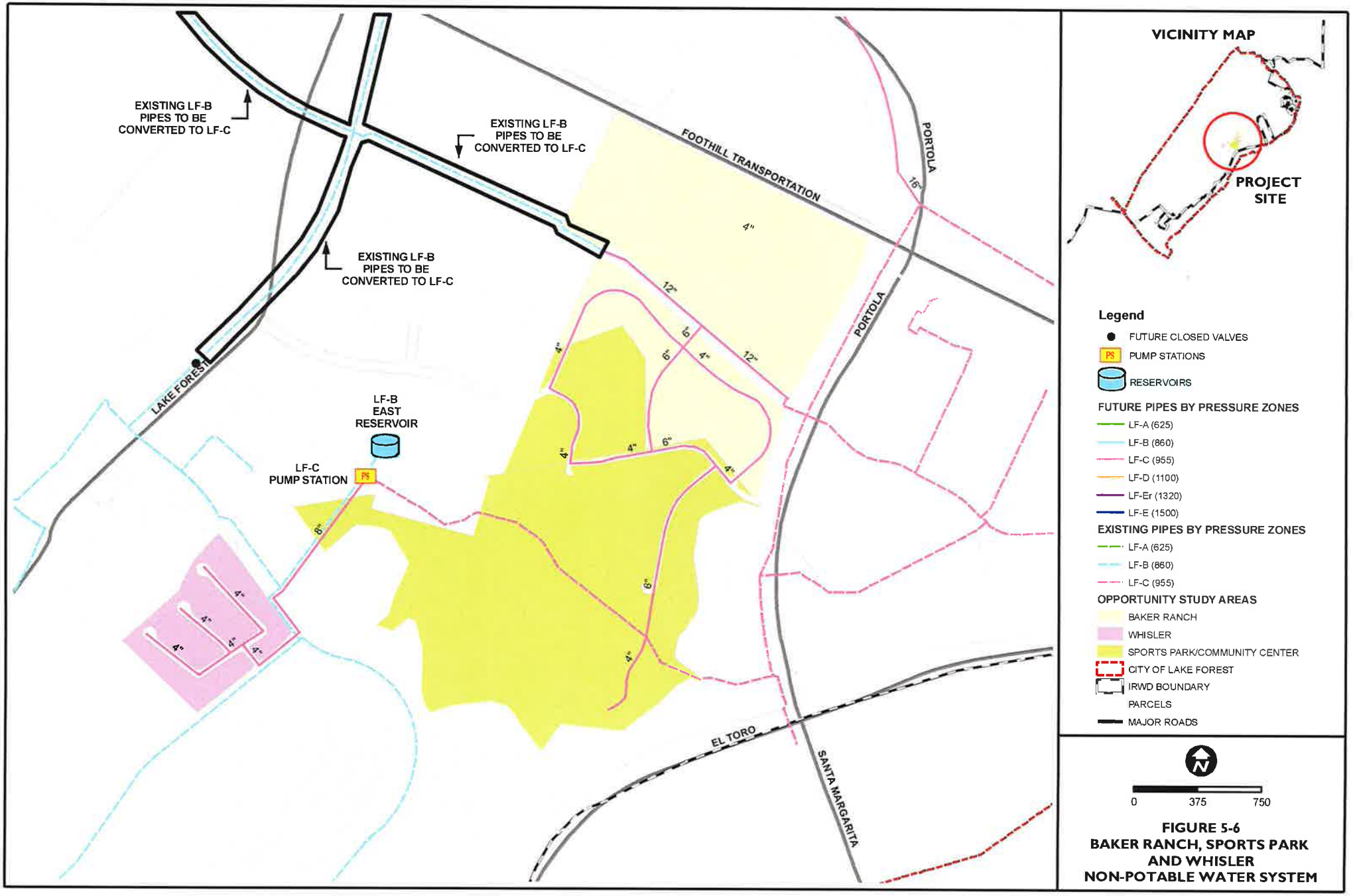


FIGURE 5-6
BAKER RANCH, SPORTS PARK AND WHISLER NON-POTABLE WATER SYSTEM

DUDEK

SECTION 5 FINANCIAL PHASING SUMMARY

This section summarizes the phasing of the financial requirements in ID No. 285. A schedule of financial phasing requirements based on projected phasing of facilities is shown in **Table V-1**. Also shown in the table is the general class of items that will be covered in these projected amounts.

Table V-1 includes a 10% contingency to allow for unexpected inflation as well as changes in land use and development density.

It should be noted that this table does not represent actual bond issues. As facilities are needed which warrant or require bond funding, actual bond issuance needs will be determined.

It is proposed that bonds in the amount of $21,300,000 be authorized for ID No. 285.

Table V-1
Bond Authorization Summary
Improvement District 285

	2013-2015	2016-2020	2021-2025	2026-2035	Total Escalated Amt
Escalated Local Subtotal	**$6,463,138**	**$4,990,744**	**$0**	**$0**	**$11,453,882**
Escalated Regional Subtotal	**$847,678**	**$3,262,034**	**$921,187**	**$320,466**	**$5,351,365**
Escalated Sub-Regional Subtotal	**$2,176**	**$0**	**$0**	**$0**	**$2,176**
Contingency (10%)	**$731,299**	**$825,278**	**$92,119**	**$32,047**	**$1,680,742**
Bond Reserve (6%)	**$482,657**	**$544,683**	**$60,798**	**$21,151**	**$1,109,290**
Funded Reserve (6%)	**$482,657**	**$1,320,444**	**$60,798**	**$21,151**	**$1,109,290**
Bond Discount (2%)	**$179,682**	**$990,333**	**$20,266**	**$7,050**	**$369,763**
Bond Issuance Costs (1%)	**$89,841**	**$990,333**	**$10,133**	**$3,525**	**$184,882**
Bond Authorization Total	**$9,279,129**	**$12,923,850**	**$1,165,302**	**$405,390**	**$21,261,391**

SECTION 6 BENEFIT OF THE PLAN OF WORKS TO THE LANDS IN THE IMPROVEMENT DISTRICT

6.1 OVERVIEW

Under the California Water Code, the plan of works for an improvement district provides a plan and an estimate of the cost of the works that are needed to serve the improvement district and that will be financed through District-issued bonds, and reflects the determination by the District's Board of Directors that the territory within the improvement district will benefit from the works. To the extent practical, a plan of works will incorporate generalized facilities descriptions and flexibility in the selection of specific projects, so that a revised or supplemented plan will not be needed. If a revised or supplemented plan is adopted, it must benefit the territory within the improvement district. Similarly, when territory is annexed to or detached from an improvement district, including annexations and detachments implemented for the purpose of reorganizing improvement districts to be consolidated as coterminous improvement districts, there must be an accompanying evaluation of territory that will benefit by inclusion within the plan and therefore should be included, and territory that will not benefit and therefore should be excluded.

The benefits that lands receive from sewer and recycled water works are derived from multiple considerations. Primary is the ability of lands to receive service currently or when needed in the future. Other examples of benefits are system or facilities reliability through supply diversification, redundant treatment and disposal capacity, storage capability, system looping or other characteristics; regulatory compliance; environmental protection; and regional cost efficiencies in operation and maintenance. In the case of a consolidation of improvement districts, other benefits may include economies of scale, administrative simplification and enhancement of credit and reduced borrowing cost or debt service cost.

For purposes of evaluating benefit of improvement district consolidations, cost allocation is dictated in part by the requirements contained in the Water Code for structuring consolidations. In accordance with these requirements, the remaining authorized, unissued bonds of the consolidating improvement districts will become the authorized bonds that can be issued on behalf of the consolidated successor improvement district. Upon the consolidation, debt service for the outstanding bonds of the consolidating improvement districts will become obligations of the consolidated successor improvement district.

6.2 DESCRIPTION OF THE STUDY APPROACH

The formation of ID Nos. 185 and 285 is part of an overall restructuring of the District's improvement districts, which also includes the reorganization of ID Nos. 153 and 253 and the consolidation of ID Nos. 125 and 225. See Section 1.3, "THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." In this regard, the District has undertaken a comprehensive evaluation and study of its long-term financial requirements, including:

- a detailed planning, engineering and financial assessment of the total costs of existing and future facilities in the water and wastewater systems;
- available bond authorization and other revenue sources to finance facilities to serve future development ("new capital"), augment system reliability and meet upgraded regulatory requirements for both existing and future demands ("enhancement") and replace and refurbish the existing systems ("replacement");
- debt service;
- simplification of the improvement district structure; and
- assurance of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

The existing improvement district structure has served the District for more than 40 years as the system was built and growth patterns necessitated a means of maintaining equity in the financing of facilities. Using the mechanisms of periodic formation of new improvement districts and authorization of bonds as well as regional cost allocations and system buy-ins, the District has been able to maintain fair and equitable cost sharing while accommodating both intense growth within its boundaries and several acquisitions of adjacent service areas. Construction and expansion of the systems were the key features of this financial structure. Although growth will continue for several more years, going forward the completion of the regional systems and provision for system reliability and replacement will become the predominant driver of the financial requirements. The District's comprehensive evaluation of its financial requirements indicates that a simplification of the improvement district structure and related actions will provide a sustainable methodology for equitable cost allocation in the future.

As described in Section 1.3, a succession plan for the improvement district structure would reduce the number of improvement districts, ideally to one water improvement district and one sewer improvement district, through consolidations and reorganizations to be implemented as and when considerations for separation of the various improvement districts no longer remain. The District's financial review identified steps that were currently feasible in achieving that objective as well as the parts of the current structure which need to be maintained at this time until factors relating to the preservation of equitable cost sharing merit the evaluation of further consolidation steps.

General obligation bonds have been the District's principal tool for financing facilities. Under this form of financing, the obligation for repayment of bonds issued on behalf of an improvement district is secured by the power of the District to levy and collect *ad valorem* assessments without limitation as to rate or amount on land only (enforceable by customary rights to foreclose and sell property for delinquent assessments) or, in lieu of assessments, in the District's discretion, charges for water or sewer service, as applicable, all within the subject improvement district. The District also uses connection charge revenues to pay a portion of the debt service costs. For new capital cost within developing improvement districts, the District plans to continue its historical practice of targeting a 50-

50 allocation as a fair means of sharing improvement district debt service costs between the aggregate contributions of connection charge revenues and property tax revenues. The evaluation of financial requirements and modifications of the District's improvement district structure therefore involve an examination of outstanding and future bond debt service, bonding authority, allocation of costs, and resultant contributions of connection charges and *ad valorem* property taxes over time.

6.3 LONG-TERM FINANCIAL REQUIREMENTS MODELING

As introduced in the preceding section, the foundation of the evaluation of the benefit of the Plan of Works to the lands in the Improvement District is the District's comprehensive review of its long-term financial requirements. To assist the District in this evaluation, the District employed modeling of a baseline condition defined by the improvement district structure as it existed prior to the current reorganization and consolidation steps. The baseline modeling facilitated various aspects of the long-term financial requirements evaluation:

- refinement of capital cost allocations according to the functional benefits (e.g., development expansion, reliability, regulatory compliance, environmental protection, system refurbishment) of the facilities to various areas and user categories;
- use of existing bond proceeds and available bond authorization and other revenue sources for the financing of future facilities within the new capital expansion, enhancement and replacement project classifications;
- use of the District's allocation of the general 1% *ad valorem* property tax levy;
- benefit of the simplification of the improvement district structure and the aggregated regional and local systems;
- identification of areas where the structure must be retained or modified to equitably address special considerations; and
- measurement of equitable and fair sharing of regional and local cost between existing and future users and among the areas that have comprised the various existing improvement districts and other geographic areas served by the system.

Modeling of modified aspects of the baseline enabled the District to test the effectiveness of modifications to various capital – project related fiscal and financing practices in developing a new improvement district and cost allocation structure to effectively maintain equity as the development phase within the District progresses toward build-out. Details of the modeling process described in this section, including review and analysis of interim results and identification of refined and additional modeling efforts, are compiled in a Technical Appendix that serves as a reference document for this Plan of Works.

6.4 REGIONAL SYSTEM BENEFIT

The Plan of Works for ID No. 253's predecessor, ID No. 1 of Santiago County Water District (SCWD), contemplated that the sewage collection, treatment and disposal needs of its ultimate population of about 38,000 would be furnished through a trunk sewer system that would discharge sewage from the southern portion of the improvement district to Limestone and Santiago Canyons and into a proposed SCWD tertiary wastewater reclamation plant that would also received flows pumped from the Fremont Canyon area. Reclaimed water produced by the plant and untreated water that could, by agreement with IRWD, be received from the Santiago Lateral through Irvine Lake were the contemplated sources to be used to supply irrigation demands. In 1985, when the reorganization of Orange County Sanitation District No. 14 was undertaken to include much of IRWD's territory, a portion of SCWD's ID No. 1 was also included. At that time the remainder of ID No. 1 now included in IRWD's ID No. 253 was designated within OCSD's sphere of influence. The OCSD-sphere portion of ID No. 1 (ID No. 253) was annexed to OCSD in 2006, in conjunction with the consolidation of SCWD with IRWD. These organizational changes formed the groundwork for serving ID No. 253 through MWRP and OCSD's Revenue Area 14, thus integrating the regional system for ID No. 253 within the regional system that serves most of IRWD.

The majority of the regional wastewater treatment, disposal and reclamation facilities exist. Based on its ultimate demands, ID No. 285 will need to contribute its proportional share of the cost of completing the regional system, including any expansion such as the acquisition of additional MWRP capacity, and including new components necessary to provide basic reliability. The areas reorganized within ID No. 253 were primarily within former ID Nos. 230, 250, 253 and to a lesser extent, other improvement districts. At this stage of completion of IRWD's regional system, former distinctions among the improvement districts from which the areas reorganized as ID No. 153 originated are no longer material in regard to service from the regional system. Historically, these distinctions included the extent and duration of individual improvement districts' reliance on the untreated system to serve agricultural water, proximity to different completed and yet-to-be-completed segments of the treated water feeders, interceptor and trunk sewers and treatment facilities, uncertainties in the progression (location and pace) of development, and planning determinations that were yet to be made by the District in the elements of the major facilities components and supply sources, such as pipeline and well field capacity. All of these factors have either disappeared or diminished in importance, and the regional benefits among the areas reorganized within ID No. 285 are now essentially uniform.

As one example of the gradual diminishing of the earlier distinctions among the individual improvement districts' plans for supply and delivery alternatives, the 1974 plans of works initially contemplated separate treatment plants connected to the untreated delivery system for each of ID Nos. 103 and 105. In 1977, the initial plan for local (or regional) treatment of raw water in ID No. 103 (shared with ID No. 109), was shifted to a backup alternative, in favor of ID No. 103's pro rata participation in the District's capacity to be obtained in the proposed regional treated water system now known as the Allen McColloch Pipeline (AMP) to serve its supplemental water needs. By 1978, this was again modified to include participation by ID No. 103 in the District's acquisition of capacity in the AMP in combination with participation in the construction of the District's own well field in the main Orange County

groundwater basin as a more economical and preferred domestic supply alternative source. The local treatment plants as originally contemplated were not built, but the District is presently participating in the construction of the Baker Plant as a regional treatment plant that will benefit the entire service area.

This progression continued, with the distinctions becoming fewer as the planning of the regional system evolved and the system was constructed. With only approximately 10-12 percent of the equivalent dwelling units (EDUs) remaining to be built in ID Nos. 253 and 285, these distinctions are no longer prominent. The regional system and its integrated treatment and reclamation facilities provide uniform benefit to all of the component areas of ID No. 285 by satisfying basic treatment, disposal and recycled water supply and peaking needs and providing protection against emergency outages. Connection fees, adjusted by planning areas if and to the extent necessary to differentiate the fee amounts to adjust for varying local and sub-regional project benefits, and ad valorem taxation will adequately allocate the cost share of ID No. 285 among its various planned development areas in proportion to their benefit.

Through the regional split, the areas within the reorganized ID No. 253 have shared the cost of IRWD's regional reclamation plants, as well as the treatment and disposal facilities of Orange County Sanitation District and its Revenue Area 14 under agreements between the District and OCSD. Not all of ID No. 285 and other improvement districts' service areas are tributary to all of the plants. However, the plants and their tributary regional collection systems are considered to function as one regional system and optimize the District's sewage collection and water reclamation systems and provide dual or backup treatment capability for various parts of the service area. The District is continuing to develop its capability for multiple discharge options among the tributary areas of the plants. Thus all areas participate proportionally in the regional system. All areas receive the uniform sewer rate which provides the benefit of reduced cost through treatment options. An exception to this is ID No. 240, which is sewered only to OCSD's regional plant and is not within OCSD's Revenue Area 14 nor tributary to the MWRP, LAWRP, or Chiquita plants. IRWD does provide sewage collection and recycled water service to ID No. 240. ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. ID Nos. 240, 252 and 256 are not included in the current reorganization and consolidation of improvement districts.

As described in Section 3, the District uses a demand forecasting tool to allocate regional system costs among improvement districts. This ensures that ID No. 285 as a whole will be allocated a share of the regional system costs in proportion to the benefit it will receive from the system. See **Table III-1**.

6.5 REGIONAL COST ALLOCATION – INCLUSION IN IMPROVEMENT DISTRICT NO. 225

In parallel with the reorganization of ID No 285 itself, ID No. 285's territory will be retained as part of the reorganization of several improvement districts to form a consolidated improvement district

designated ID No. 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations." All of the developing areas reorganized into ID Nos. 285 are retained or reorganized within the boundaries of the underlying improvement district, ID No. 225. This assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as sewer trunk facilities, previously built with the proceeds of bonds of one of the improvement districts consolidated in the underlying improvement district.

Like ID No. 253, ID No. 285 will continue to share proportionally in the cost of completing the regional system, such as treatment plant expansion costs and the new capital portion of the cost of solids handling facilities. This occurs because under the District's incremental approach, although the regional system provides service prior to its completion, it remains incomplete, and future regional projects will add components necessary to provide basic reliability, benefitting the developed areas as well as future development. To prevent overpayment by the areas included within both improvement districts' regional allocations, the regional allocation for ID No. 225 will exclude demands of ID No. 285, and the 50/50 allocation of debt service responsibilities between connection fees and property taxes will be applied on an aggregated basis for the area within ID No. 285 between the overlying and underlying improvement districts.

6.6 LOCAL FACILITIES COST ALLOCATION

Historically, planned developments within a geographic area have been grouped together in an improvement district notwithstanding the fact that each development may be served by distinct local facilities, as the cost of these are generally uniform over the improvement district. This is also considered to be the case for the various geographic areas comprising ID No. 285. To the extent necessary to achieve fair and equitable allocation of local facilities costs, planning areas can be used to recognize any unequal costs of sub-regional and local facilities benefiting only one, or some but not all, of the planned developments in the territory of the consolidated ID No. 253.

As with regional system benefits discussed above, connection fees, adjusted by planning areas if and to the extent necessary to reflect unique local facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the ID among its various planned development areas in proportion to their benefit. The segregation between the ID Nos. 253, 285, 288, existing ID Nos. 212 and 213, and the consolidated developed ID No. 225 is considered adequate to ensure that capital cost allocation recognizes the area-specific local facilities costs yet to be incurred in the planned development areas.

6.7 IMPROVEMENT DISTRICT NO. 285 BENEFIT

The District has reviewed and analyzed benefit to the lands from the reorganized ID No. 285 in several ways: (1) similarities or differences in future service needs among the areas identified for

inclusion by annexation to, or by retention in, the reorganized as ID No. 285; (2) the benefit or lack of benefit to the areas identified for exclusion from the reorganized as ID No. 285; and (3) regional cost allocation among ID No. 285 and other areas receiving benefit from the regional facilities. Also evaluated were (4) areas not included in any improvement district and (5) certain areas retained as separate improvement districts.

(1) Included areas. The areas reorganized as ID No. 285 comprise several non-contiguous planned development areas that were previously in different improvement districts. Therefore, it is appropriate to assess whether any one or more of these areas possess essential distinctions, in terms of benefit from the planned local facilities or regional facilities (including treatment and disposal), that would warrant exclusion from the ID No. 285 territory. The areas included in the reorganized ID No. 285 are described in Section 2. With respect to regional facilities, all areas will be benefitted by the integrated wastewater collection and treatment and recycled water systems. Based on the available planning information for the expected development of each planned area, all of which are predominantly residential with other use, it is concluded that the areas are similarly benefited by the Plan of Works and that the *ad valorem* assessments for debt service and connection fees for the classifications applicable to the anticipated uses will fairly allocate cost within the ID based on demands. Connection fees, which can be adjusted through planning areas if and to the extent necessary to reflect unique local or sub-regional facilities costs not fairly allocable to the entire improvement district, and *ad valorem* taxation will adequately allocate the cost share of the improvement district among its various planned development areas in proportion to their benefit. Simultaneous inclusion of the ID No. 285 lands within the underlying improvement district, ID No. 225, assures that the developing areas will share in the cost of existing local and sub-regional facilities from which they benefit, such as trunk sewers, previously built with the proceeds of bonds of one or more of the improvement districts consolidated in the underlying improvement district. The exclusion of ID No. 285 demands from the ID No. 225 regional split, and allocation of debt service responsibilities between connection fees and property taxes on an aggregated 50/50 basis between the overlying and underlying improvement districts will prevent overpayment as a result of inclusion within both improvement districts' regional allocations.

(2) Excluded areas. The District also analyzed whether any areas proposed to be excluded from the reorganized ID No. 285 would receive benefit from ID No. 285 planned works, and should not be excluded. The areas excluded consist of substantially developed areas of ID Nos. 230, 250 and other improvement districts 235 which will, instead, be included in the reorganized ID No. 225, open space, and areas contained within another developing improvement district. Also excluded are the areas not included in any improvement district and certain areas retained as separate improvement districts, discussed under separate headings below.

The excluded developed areas will contribute their regional cost share for the completion of the regional system and for the previously constructed local facilities through ID No. 225. The developed areas will continue to be benefitted by the regional facilities financed and to be financed by ID No. 285. However, it is concluded that exclusion of the developed areas is justified in terms of benefit, because,

through the reorganized ID No. 225, their allocation of the cost of the regional system benefits will continue to be proportional.

The 13,400 acres reserved as permanent open space near the Lomas de Santiago ridgeline, which is not proposed to remain within any improvement district, and other smaller permanent open space areas will not receive benefit from the planned works and are excluded from ID No. 253, 225 and other improvement districts. This is warranted by the fact that the area will have no demand served by the system.

Finally, areas contained within developing ID Nos. 253, 212, 213, 285 and 288 are logically maintained as separate improvement districts based on their separate local facilities costs and stages of development. To the extent there are sub-regional facilities from which any of these improvement districts benefit in common, they will share the cost of those facilities with the other participating improvement districts through a proportionate allocation based on benefit received. Exclusion of the other separate developing improvement districts from ID No. 253 will facilitate the allocation of local facilities costs. Having these remain separate improvement districts does not negatively impact the regional cost allocation or bond authorization, nor would combining them produce any advantage.

(3) Regional cost allocation. Also considered was whether the reorganization achieves equity in relation to the other cost allocations within the regional split. Under the District's historic and continuing methodology for achieving equitable cost allocation, all improvement districts will continue to be allocated proportional shares of regional system project costs until the regional systems are complete; individual improvement districts are not relieved of that obligation although they may receive service through the regional systems prior to their completion. This incremental funding approach also recognizes that at any point in time prior to full build-out, a portion of the cost of the development of the regional system has been born by ad valorem assessments on lands not yet fully developed and receiving service. Adjustment of this methodology will be applied as discussed in Section 6.5 to recognize inclusion of areas in both ID No. 253 and underlying ID No. 225. A similar regional allocation would be applied to replacements and enhancement projects, to the extent funded by the improvement districts. Contribution by areas not included in an improvement district is discussed in the heading below.

(4) Areas not included in an improvement district. The District's regional cost allocation approach took into consideration that some areas (referred to collectively with the shorthand references "110" and "210" in keeping with the District's numbering system for designating improvement districts) funded a portion of the District's earliest regional system costs through payment of debt service on general obligation waterworks bonds of the overall District in the 1960s (e.g., original construction of the San Joaquin Reservoir and IRWD's capacity in the East Orange County Feeder No. 2 and other transmission facilities, Frances Mutual Water Company wells, the Aufdenkamp Transmission Main and the original sewage treatment and reclamation system components financed by ID. No. 1 (201). Based on their initial financial participation in the original waterworks bonds and sewer ID No. 1 bonds, these earlier-developing areas were not included in the improvement districts formed during the

1970s. Similarly, certain areas added to the District through annexation and consolidation have funded a proportionate share of existing regional facilities costs, sometimes referred to as "acquisition balances," through user rate components. The "110" and "210" areas as excluded from ID Nos. 125 and 225. See Section 1.3,"THE IMPROVEMENT DISTRICTS – The Current Consolidations and Reorganizations."

The District has performed calculations to determine whether historic allocations of cost, to the areas included in the improvement districts and the excluded areas, require future cost participation by excluded areas in order to ensure that the improvement districts do not bear a disproportionate cost of the system. Included in this evaluation are costs of the service delivery systems as well as other regional costs such as administrative headquarters and telemetry. Based on this evaluation, the District has determined that funding of future regional facilities costs of the District, (i.e., costs other than those costs financed by previous bonds and outstanding bonds assumed as obligations of the improvement districts being consolidated) should include participation of the areas that comprise "110" and "210," in proportionate amounts that will be determined taking into account revenue contribution, and benefit received from future capital facilities.

(5) Retention of certain improvement districts. Individual cost allocation considerations dictate that certain improvement districts be retained as separate improvement districts at this time.

ID No. 154 contains an area in which general planning information shows that some development could occur. However, the owner indicates no plans beyond current uses.

ID No. 240 discharges wastewater only to OCSD's regional plant and is not tributary to the MWRP, LAWRP, or Chiquita plants. For that reason it is not within OCSD's Revenue Area 14. IRWD does provide sewage collection and recycled water service to ID No. 240, and collection system and recycled water system costs are proportionately allocated to ID No. 240.

ID No. 256 in large part remains on individual septic systems, and it is uncertain whether and when that community will desire to convert to a public sewer system. If and when this occurs, the District will evaluate the appropriate method for recovering the cost of the conversion from the benefitted area, such as retention of the separate improvement district and/or an underlying improvement district.

ID No. 252 is not tributary to IRWD plants but may benefit from future recycled water facilities. This requires retention of the improvement district so that applicable recycled water system costs can be separately allocated. The ID No. 252 formation conditions provided for this through the allocation of a proportionate share of ID No. 250 debt service costs. With the consolidation of ID No. 250 as part of ID No. 225, ID No. 225's debt service costs would be used for this allocation.

6.8 REDEVELOPMENT COST

In recent years, some areas of the District have begun to experience redevelopment activity. This has necessitated the consideration of the fair allocation of cost that should be borne by these areas, and how demands should be included in the demands of the improvement districts. The District is applying methodology to ensure proportional cost contributions for regional system and for added local system needs generated by redevelopment.

SECTION 7 IMPLEMENTATION OF PLAN OF WORKS

7.1 GENERAL

The Plan of Works has been prepared by IRWD pursuant to the provisions of California Water Code Section 36410 *et seq*.

It is by this means that IRWD implements the various portions of its Wastewater Treatment Master Plan and Sewer Collection System Master Plan, as to wastewater system facilities, and its Water Resources Master Plan, as to recycled water system facilities. IRWD, from time to time as needed, will issue increments of the propose bonds and construct the described facilities in order to meet its responsibility to have facilities available to serve the needs of approved development.

As hereinafter discussed, this Plan of Works will be implemented on a phased basis. Accomplishment of this obligation by IRWD necessitates issuance authorization of bonds in the amount estimated in this Plan of Works.

It is acknowledged that, from time to time, the means of accomplishing the purposes of ID No. 285 may be altered and projects identified in this Plan of Works may be changed or replaced by other projects, by reason of changes in development phasing, changes in technology and refinements to facilities planning developed through IRWD's ongoing master planning and subarea master planning. Costs may include acquisition, construction, replacement, reconstruction and additions to facilities.

7.2 AUTHORIZATION AND ISSUANCE OF BONDS

It is proposed that elections will be held and conducted in the manner provided in Section 36420 of the California Water Code for the purpose of authorizing bonds in the estimated amount of the cost of accomplishing this Plan of Works. Authorized bonds may be sold and the proceeds used only as specified in the Plan of Works, subject to changes in the projects or substitutions of other projects to reflect changes in development phasing, changes in technology and refinements in master planning and subarea master planning.