

Water Supply Assessment Information

Purpose of Assessment

Irvine Ranch Water District ("IRWD") has been identified by the City as a public water system that potentially will supply water service (both potable and nonpotable) to the project identified on the cover page of this assessment (the "Project"). As the public water system, IRWD is required by Section 10910 *et seq.* of the Water Code to provide the City with an assessment of water supply availability ("assessment") for defined types of projects. The Project has been found by the City to be a project requiring an assessment. The City is required to include this assessment in the environmental document for the Project, and, based on the record, make a determination whether projected water supplies are sufficient for the Project and existing and planned uses.

Water Code Section 10910 (the "Assessment Law") contains the requirements for the information to be set forth in the assessment.

Prior Water Supply Assessments

IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area. Because of IRWD's aggregation of demands and supplies, although each assessment completed by IRWD will be prepared as a new document, each assessment is expected to be generally similar to the most recent assessment, with changes as needed to take into account changes, if any, in demands and supplies. An assessed project's water demand will have been included in previous water supply assessments for other projects to the extent of any water demand information for the project that was available to IRWD.

The Project's water demand (Santiago Hills Phase II and East Orange Planned Community Area 1 only) was included (as part of IRWD's "full build-out" demand) in previous water supply assessments performed by IRWD, based on land use planning information then available to IRWD. In this water supply assessment, the Project demand will be revised in accordance with updated information provided by the applicant and included in the "with project" demand. This assessment supersedes the assessment dated January 26, 2004, to adjust the demand figures as shown in Figures 1 through 8 to change the development phasing as requested by letter from the City of Orange dated February 23, 2004.

Supporting Documentation

IRWD prepares two planning documents to guide water supply decision-making. IRWD's principal planning document is IRWD's "Water Resources Master Plan" ("WRMP"). The WRMP is a comprehensive document compiling data and analyses that IRWD considers necessary for its planning needs. IRWD also prepares an Urban Water Management Plan ("UWMP"), a document required by statute. The UWMP is based on the WRMP, but contains defined elements as listed in the statute (Water Code Section 10631, *et seq.*), and as a result, is more limited than the WRMP in the treatment of supply and demand issues. Therefore, IRWD primarily relies on its most recent WRMP. (The UWMP is required to be updated in years ending with "five" and "zero," and IRWD's next update of that document is anticipated in 2005. With changes that have occurred in land uses since the last update of the UWMP in 2000, IRWD's year 2020 water demand, as reflected by the WRMP, is currently projected to be approximately 9% lower than the projected demand shown in the 2000 UWMP.)

The land use changes incorporated in the WRMP since the date of the 2000 UWMP include the following:

- In 2001, IRWD consolidated with the neighboring Los Alisos Water District (LAWD), thereby adding the majority of the City of Lake Forest to IRWD's service area. IRWD has now integrated the supplies and demands of the two districts.

- In late 2001, The Irvine Company announced the planned dedication of a large area as permanent open space. The majority of this land is located in the northwestern portion of IRWD (City of Orange sphere of influence), with an additional area near Laguna Canyon Road. IRWD has made appropriate reductions in its demand calculations.

- Proposed development uses have replaced agricultural uses previously used to compute demand for portions of the Project and the adjacent Northern Sphere Area project.

- The alternative proposals for reuse of the MCAS-El Toro property that preceded the current Project had different water demands. To ensure that IRWD would be able to provide a sufficient water supply capacity irrespective of which reuse proposal was implemented, the 1999 WRMP assumed the highest water-demand generating land use plan for the property. This plan, the "Millennium Plan," was subsequently replaced by a non-aviation "great park" alternative. The park proposal resulted in lower overall demand, but higher nonpotable demand (for irrigation) than the Millennium Plan. In the most recent WRMP, the updated water demand information for the Project has been substituted for the previous information related to the park proposal.

- All other refinements of future land uses have been included in the WRMP, along with updated information on existing land uses.

In addition to the WRMP and the 2000 UWMP mentioned above, other supporting documentation referenced herein is found in Section 6 of this assessment.

Due to the number of contracts, statutes and other documents comprising IRWD's written proof of entitlement to its water supplies, in lieu of attachment of such items, they are identified by title and summarized in Section 2(b) of this assessment (written contracts/proof of entitlement). Copies of the summarized items have been provided to the City and can be obtained from IRWD.

Assessment Methodology

Water use factors; dry-year increases. IRWD employs water use factors to enable it to assign water demands to the various land use types and aggregate the demands. The water use factors are based on average water use and incorporate the effect of IRWD's tiered-rate conservation pricing and its other water conservation programs. The factors are derived from historical usage (billing data) and a detailed review of water use factors within the IRWD service areas conducted as a part of the WRMP. Water demands also reflect normal hydrologic conditions (precipitation). Lower levels of precipitation and higher temperatures will result in higher water demands, due primarily to the need for additional water for irrigation. To reflect this, base (normal) WRMP water demands have been increased 7% in the assessment during both "single-dry" and "multiple-dry" years. This is consistent with IRWD's 2000 UWMP and historical regional demand variation as documented in the Metropolitan Water District of Southern California's ("MWD's") Integrated Resources Plan (1996) (Volume 1, page 2-10).

Planning horizon. For consistency with IRWD's WRMP, the assessment reviews demands and supplies through the year 2025, which is considered to represent build-out or "ultimate development". This exceeds the 20-year projection required by the statute (see Water Code Sections 10631 and 10910).

Assessment of demands. Water demands are reviewed in this assessment for three development projections (to 2025):

- Existing and committed demand (without the Project) ("baseline"). This provides a baseline condition as of the date of this assessment, consisting of demand from existing development, plus demand from development that has both approved zoning and (if required by the Assessment Law) an adopted water supply assessment.
- Existing and committed demand, plus the Project ("with-project"). This projection adds the Project water demands to the baseline demands.
- Full WRMP build-out ("full build-out"). In addition to the Project, this projection adds potential demands for all presently undeveloped areas of IRWD based on current general plan information, modified by more specific information available to IRWD, as more fully described in Chapter 2 of the WRMP.

Assessment of supplies. For comparison with demands, water supplies are classified as *currently available* or *under development*:

- *Currently available* supplies include those that are presently operational, and those that will be operational within the next several years. Supplies expected to be operational in the next several years are those having completed or substantially completed the environmental and regulatory review process, as well as having necessary contracts (if any) in place to move forward. These supplies are in various stages of planning, design, or construction.
- In general, supplies *under development* may necessitate the preparation and completion of environmental documents, regulatory approvals, and/or contracts prior to full construction and implementation.

IRWD is also evaluating the development of additional supplies that are not included in either *currently available* or *under-development* supplies for purposes of this assessment. As outlined in the WRMP, prudent water supply and financial planning dictates that development of supplies be phased over time consistent with the growth in demand.

Water supplies available to IRWD include several sources: groundwater pumped from the Orange County groundwater basin (including the Irvine Subbasin); captured local (native) surface water; reclaimed wastewater, and supplemental imported water supplied by MWD through the Municipal Water District of Orange County ("MWDOC"). The supply-demand comparisons in this assessment are broken down among the various sources, and are further separated into potable and nonpotable water sources.

Comparison of demand and supply. The three demand projections noted above (baseline, with-project and full build-out) are compared with supplies in the following ways:

- On a total *annual* quantity basis (stated in acre-feet per year (AFY)).
- On a *peak-flow* (maximum day) basis (stated in cubic feet per second (cfs)).
- Under three climate conditions: base (normal) conditions and single-dry and multiple-dry year conditions. (Note: These conditions are compared for *annual* demands and not for *peak-flow* demands. *Peak-flow* is a measure of a water delivery system's ability to meet the highest day's demand of the fluctuating demands that will be experienced in a year's time. Peak demands occur during the hot, dry season and as a result are not appreciably changed by dry-year conditions; dry-year conditions do affect *annual* demand by increasing the quantity of water needed to supplement normal wet-season precipitation.)

Summary of Results of Demand-Supply Comparisons

Listed below are Figures provided in this assessment, comparing projected potable and nonpotable water supplies and demands under the three development projections:

- Figure 1: Normal Year Supply and Demand – Potable Water
- Figure 2: Single Dry-Year Supply and Demand – Potable Water
- Figure 3: Multiple Dry-Year Supply and Demand – Potable Water
- Figure 4: Maximum-Day Supply and Demand – Potable Water
- Figure 5: Normal Year Supply and Demand – Nonpotable Water
- Figure 6: Single Dry-Year Supply and Demand – Nonpotable Water
- Figure 7: Multiple Dry-Year Supply and Demand – Nonpotable Water
- Figure 8: Maximum-Day Supply and Demand – Nonpotable Water

It can be observed in the Figures that IRWD's *supplies* remain essentially constant between normal, single-dry and multiple-dry years. This result is due to the fact that groundwater and MWD imported water account for all of IRWD's potable supply, and reclaimed water, groundwater and imported water comprise most of IRWD's nonpotable supply. Groundwater production typically remains constant or increases in cycles of dry years, even if overdraft of the basin temporarily increases, as groundwater producers reduce their demand on imported supplies to secure reliability. (See Section 4 herein.) As to imported water, MWD projects that through the continued implementation of MWD's supplies under development, it can meet 100 percent of its member agencies' supplemental water demands over the next 20 years, even in a repeat of the worst drought. (See Section 2(b)(1) "IMPORTED SUPPLY - ADDITIONAL INFORMATION," below, for a summary of information provided by MWD.) Reclaimed water production also remains constant, and is considered "drought-proof" as a result of the fact that sewage flows remain virtually unaffected by dry years. Only a small portion of IRWD's nonpotable supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years. The foregoing factors also serve to explain why there is no difference in IRWD's supplies between single-dry and multiple-dry years.

A review of the Figures indicates the following:

- *Currently available* supplies of potable water are adequate to meet projected annual demands for both the *baseline* and *with-project* demand projections under the normal and both dry-year conditions through the year 2025. (Figures 1 through 3.)

- Sufficient *currently available* potable supplies are also available to meet annual *full build-out* demands under normal conditions. (Figure 1.)
- Meeting both single- and multiple-dry-year annual demands for *full build-out* will require the completion of a small amount of the *under-development* supplies. (Figures 2 and 3.)
- Adequate *currently available* potable water supply capacity is available to meet *peak-flow* (maximum day) demands for all demand projections including full build-out. (Figure 4.)
- With respect to nonpotable water, *currently available* supplies are more than adequate to meet all demand projections including full build-out, under both annual and peak-flow (maximum day) conditions, in both normal and dry years. However, IRWD is proceeding with the implementation of *under-development* nonpotable supplies, as shown in the Figures, to improve local reliability during dry-year conditions. (Figures 5 through 8.)

The foregoing Figures provide an overview of IRWD potable and nonpotable water supply capabilities. More detailed information on the anticipated development and use of supplies, which incorporates source costs and reliability issues, is provided in the WRMP.

Margins of safety. The Figures and other information described in this assessment show that IRWD’s assessment of supply availability contains several margins of safety or buffers:

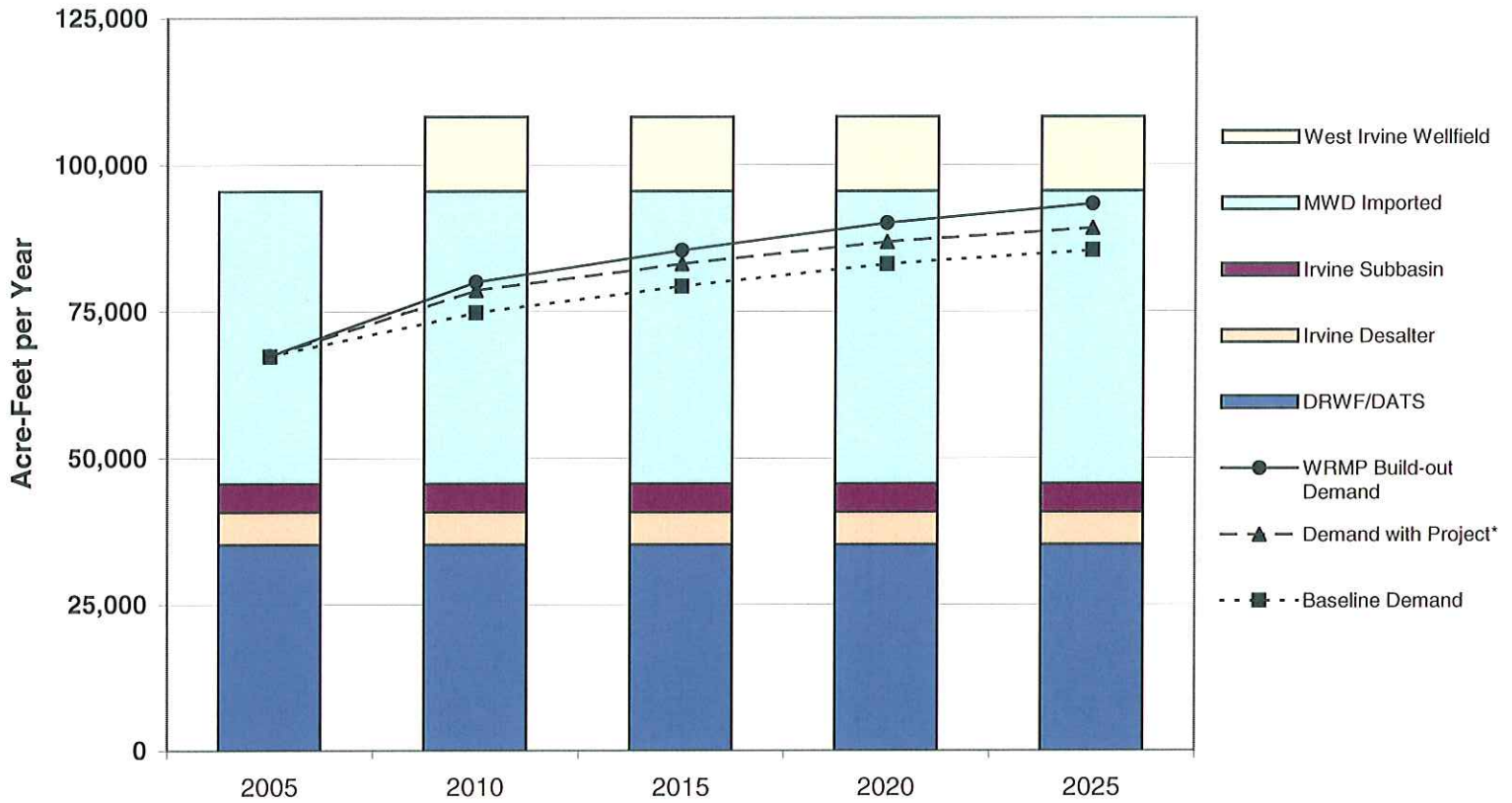
- Significant quantities of “reserve” water supplies (excess of supplies over demands) will be available to serve as a buffer against inaccuracies in demand projections, future changes in land use, or alterations in supply availability.
- The potential exists for the treatment and conversion of some reserve nonpotable supplies to potable water.
- Conservative estimates of annual potable and nonpotable *imported* supplies have been made based on connected delivery capacity (by application of peaking factors as described below in Section 2, footnote 1); additional supplies are expected to be available from these sources, based on legal entitlements, historical uses and information provided by MWD. It is noted that this assessment does not include additional supplies or connected delivery capacity that IRWD might be permitted or required to acquire in conjunction with the annexation of the project to IRWD.
- Information provided by MWD, as the imported water supplier, concerning the adequacy of its regional supplies, summarized herein, demonstrates MWD’s inclusion of margins of safety and reserves in its regional supply assessments.
- Although groundwater supply amounts shown in this assessment assume production levels within applicable basin production percentages described herein, production of groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or emergencies.

Detailed Assessment

1. **Supply and demand comparison**

Comparisons of IRWD's average annual and peak (maximum day) demands and supplies, under *baseline* (existing and committed demand, without the Project), *with-project* (baseline plus Project), and *full build-out* development projections, are shown in the following Figures 1 - 4 (potable water) and Figures 5 - 8 (nonpotable water):

**Figure 1
IRWD Normal-Year Supply & Demand - Potable Water**



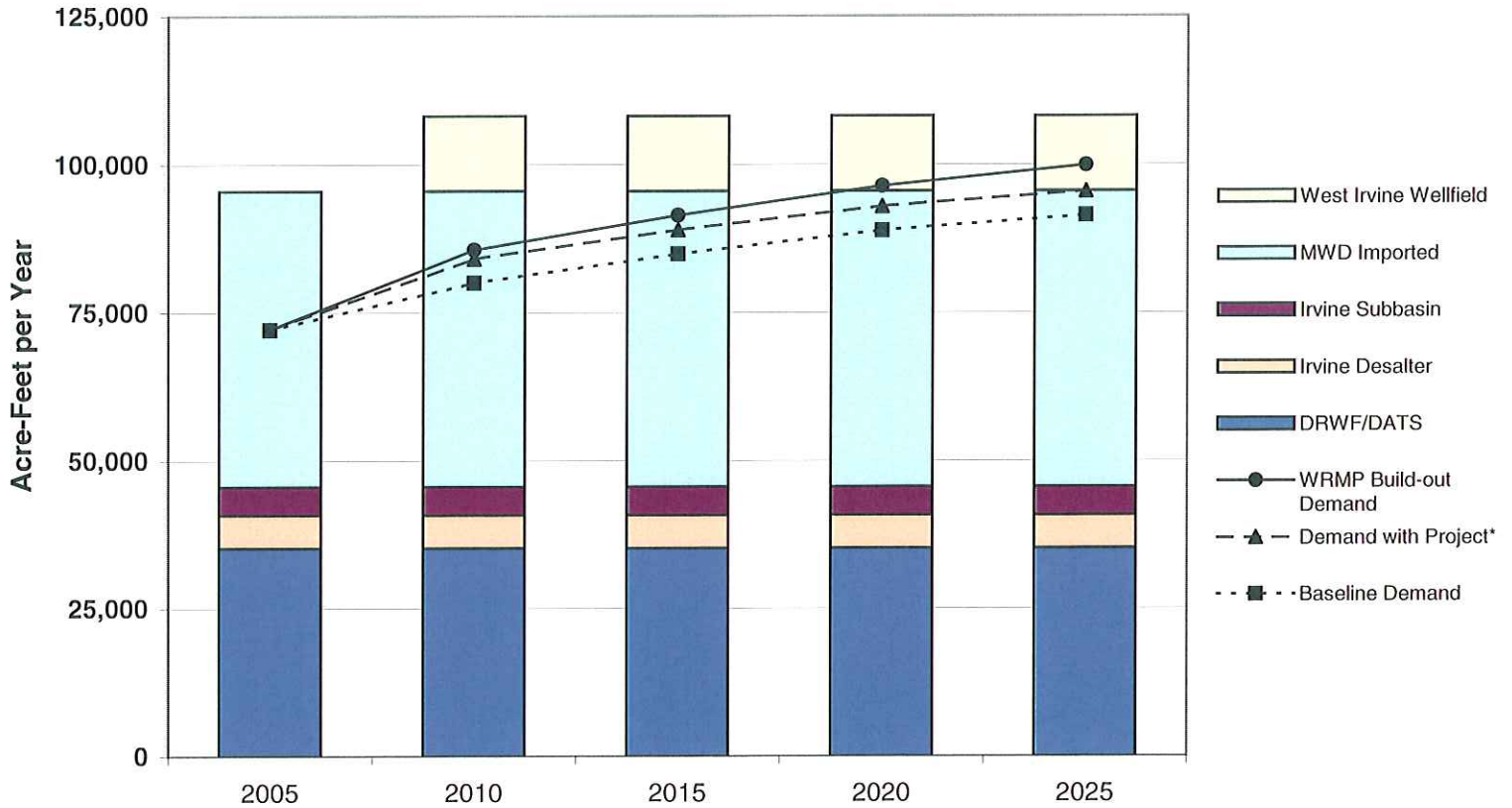
(in acre-feet per year)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	5,568	5,568	5,568	5,568	5,568
Supplies Under Development					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	95,484	108,184	108,184	108,184	108,184
Baseline Demand	67,395	74,821	79,343	83,069	85,451
Demand with Project*	67,395	78,603	83,125	86,851	89,233
WRMP Build-out Demand	67,434	80,009	85,465	90,053	93,340
Reserve Supply with Project	28,089	29,581	25,059	21,333	18,951

*Demands broken out by project

Santiago Hills Phase II	-	1,185	1,185	1,185	1,185
East Orange Area 1	-	905	905	905	905
East Orange Areas 2, & 3	-	1,692	1,692	1,692	1,692

Notes: By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

**Figure 2
IRWD Single Dry-Year Supply & Demand - Potable Water**



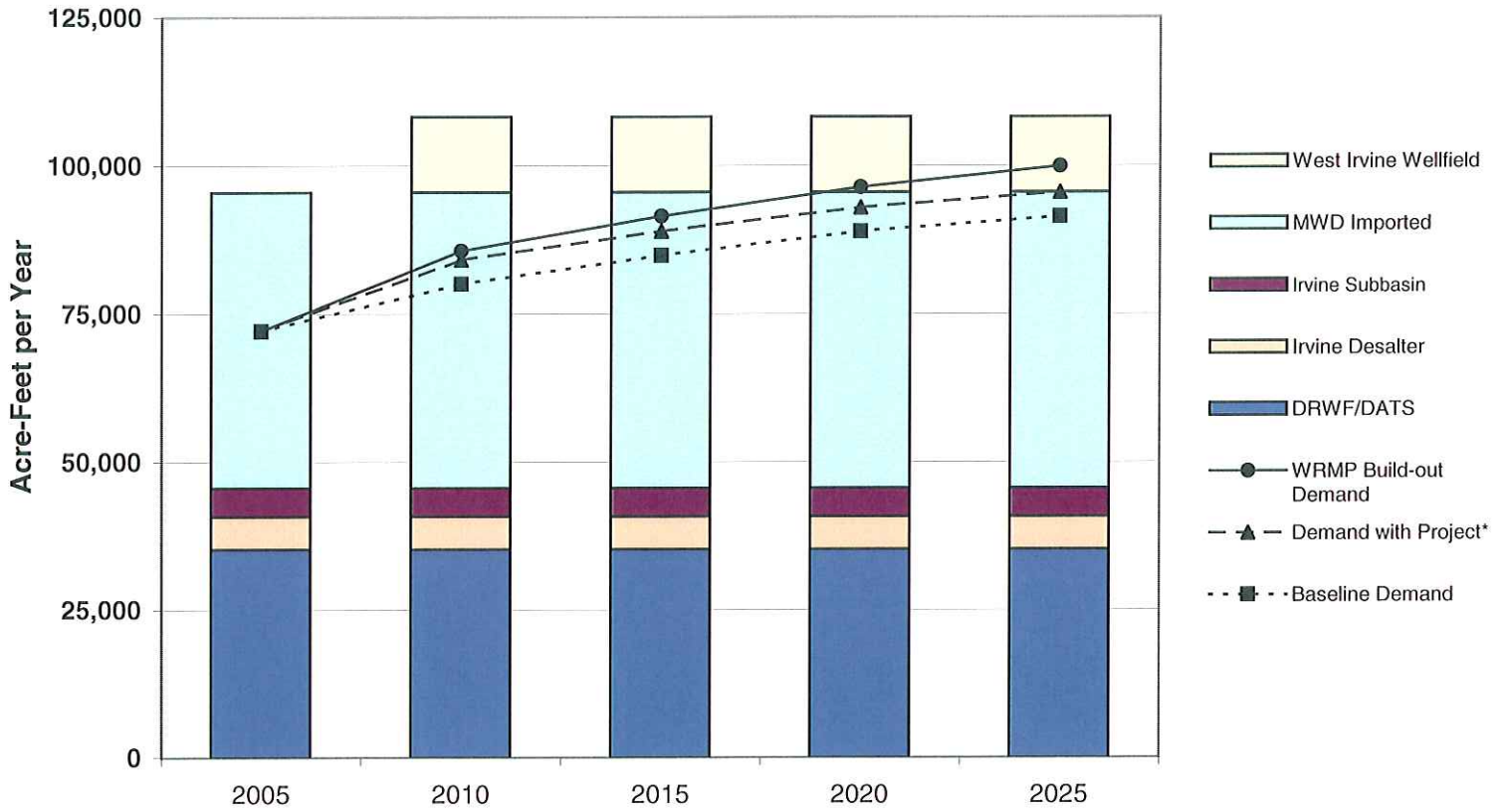
(in acre-feet per year)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	5,568	5,568	5,568	5,568	5,568
Supplies Under Development					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	95,484	108,184	108,184	108,184	108,184
Baseline Demand	72,112	80,059	84,897	88,884	91,432
Demand with Project*	72,112	84,105	88,944	92,931	95,479
WRMP Build-out Demand	72,154	85,610	91,448	96,357	99,873
Reserve Supply with Project	23,371	24,078	19,240	15,253	12,705

*Demands broken out by project

Santiago Hills Phase II	-	1,268	1,268	1,268	1,268
East Orange Area 1	-	968	968	968	968
East Orange Areas 2, & 3	-	1,810	1,810	1,810	1,810

Notes: Supplies identical to Normal-Year based on Report on Metropolitan's Water Supplies (3/25/03) and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

**Figure 3
IRWD Multiple Dry-Year Supply & Demand - Potable Water**



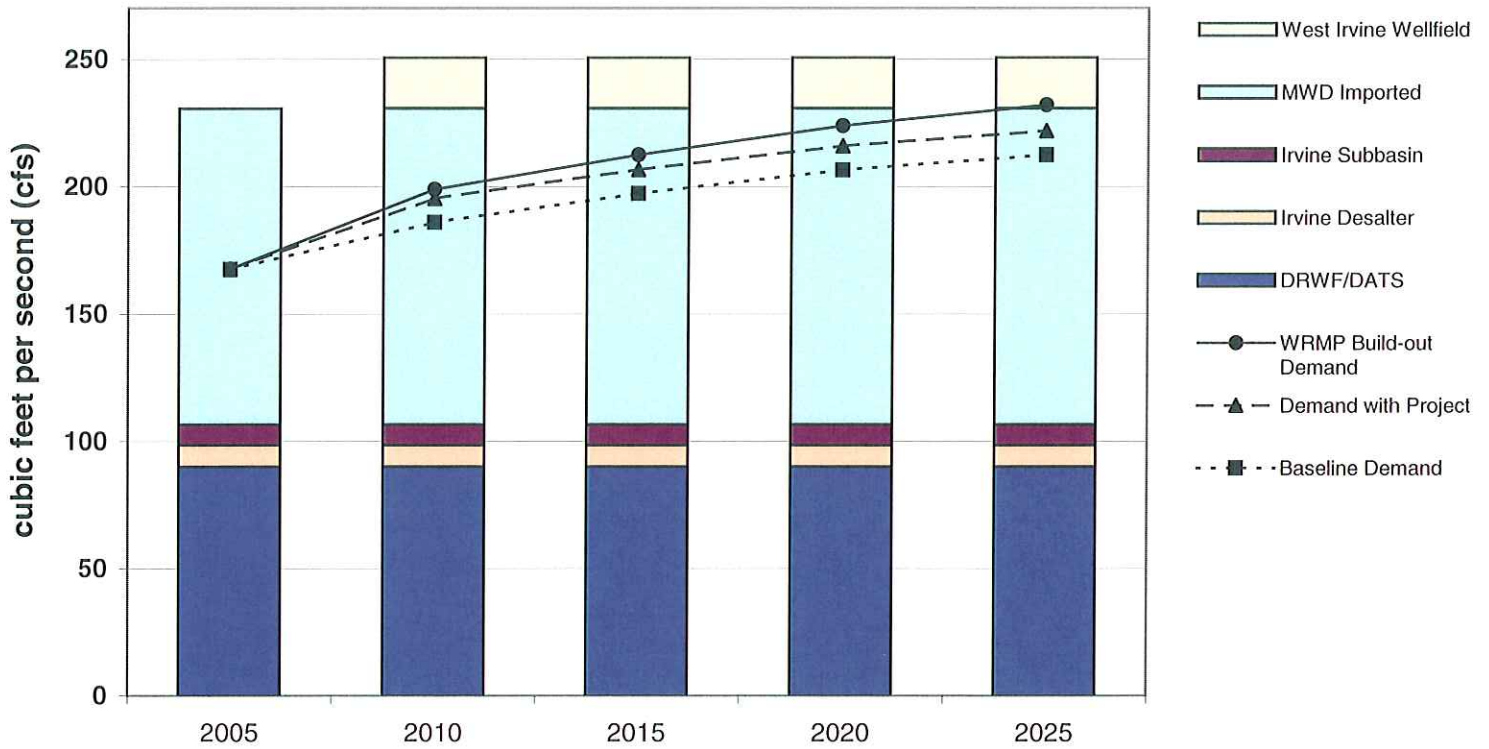
(in acre-feet per year)	2005	2010	2015	2020	2025
Current Potable Supplies					
MWD Imported (EOCF#2, AMP, OCF)	49,916	49,916	49,916	49,916	49,916
DRWF/DATS	35,200	35,200	35,200	35,200	35,200
Irvine Subbasin	4,800	4,800	4,800	4,800	4,800
Irvine Desalter	5,568	5,568	5,568	5,568	5,568
Supplies Under Development					
West Irvine Wellfield	-	12,700	12,700	12,700	12,700
Maximum Supply Capability	95,484	108,184	108,184	108,184	108,184
Baseline Demand	72,112	80,059	84,897	88,884	91,432
Demand with Project*	72,112	84,105	88,944	92,931	95,479
WRMP Build-out Demand	72,112	85,610	91,448	96,357	99,873
Reserve Supply with Project	23,371	24,078	19,240	15,253	12,705

*Demands broken out by project

Santiago Hills Phase II	-	1,268	1,268	1,268	1,268
East Orange Area 1	-	968	968	968	968
East Orange Areas 2, & 3	-	1,810	1,810	1,810	1,810

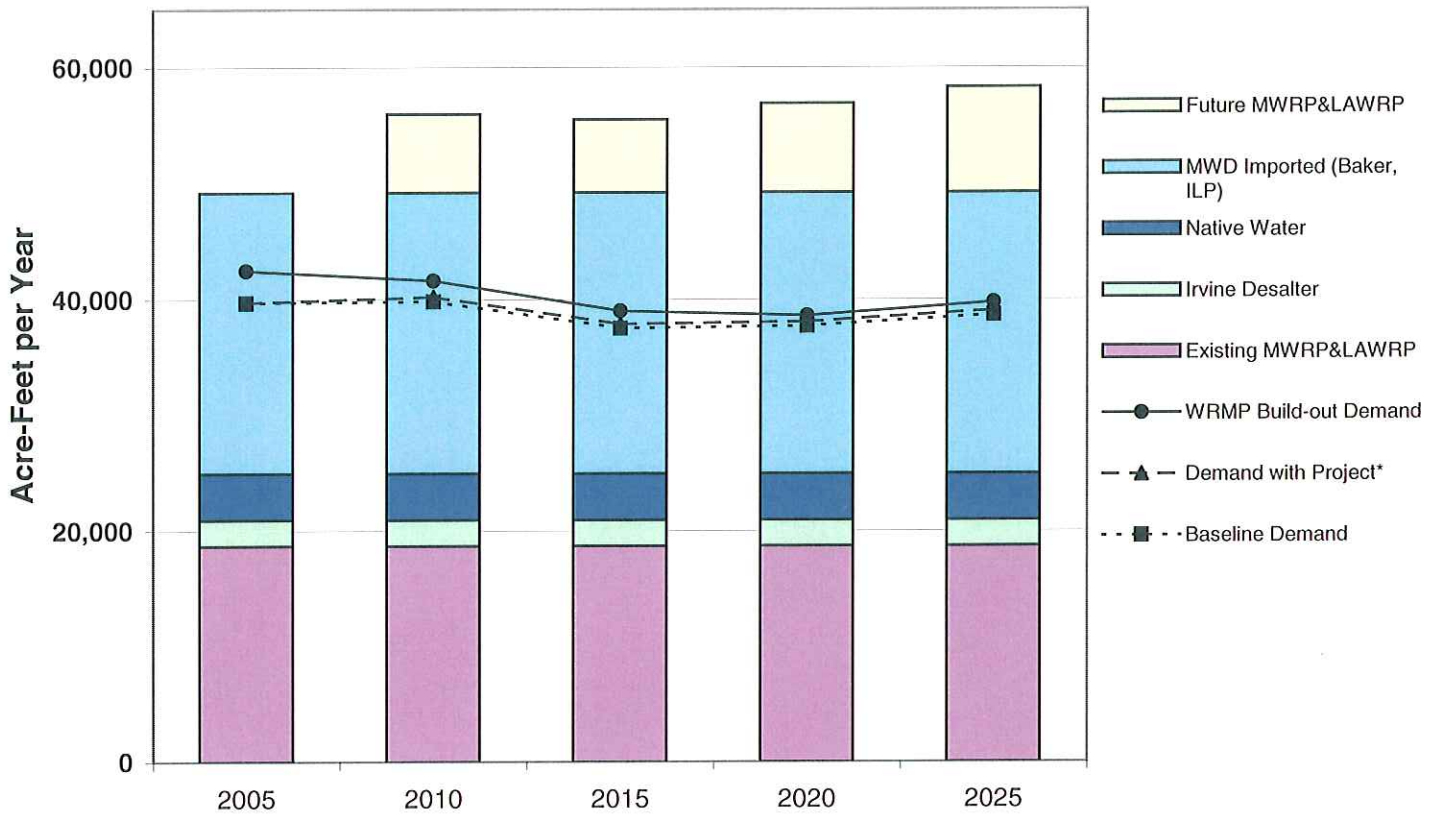
Notes: Supplies identical to Normal-Year based on Report on Metropolitan's Water Supplies (3/25/03) and usage of groundwater under drought conditions (OCWD Master Plan). Demands increased 7% from Normal-Year. By agreement, IRWD is required to count the production from the Irvine Subbasin in calculating available supplies for TIC developments (see Potable Supply-Groundwater).

Figure 4
IRWD Maximum-Day Supply & Demand - Potable Water



(in cfs)	2005	2010	2015	2020	2025
<u>Current Potable Supplies</u>					
MWD Imported (EOCF#2, AMP, OCF)	124.1	124.1	124.1	124.1	124.1
DRWF/DATS	90.0	90.0	90.0	90.0	90.0
Irvine Subbasin	8.0	8.0	8.0	8.0	8.0
Irvine Desalter	8.5	8.5	8.5	8.5	8.5
<u>Supplies Under Development</u>					
West Irvine Wellfield	-	20.0	20.0	20.0	20.0
Maximum Supply Capability	230.6	250.6	250.6	250.6	250.6
Baseline Demand	167.6	186.0	197.3	206.5	212.4
Demand with Project	167.6	195.4	206.7	215.9	221.8
WRMP Build-out Demand	167.7	198.9	212.5	223.9	232.1
Reserve Supply with Project	69.8	55.2	43.9	34.7	28.8

Figure 5
IRWD Normal-Year Supply & Demand - Nonpotable Water



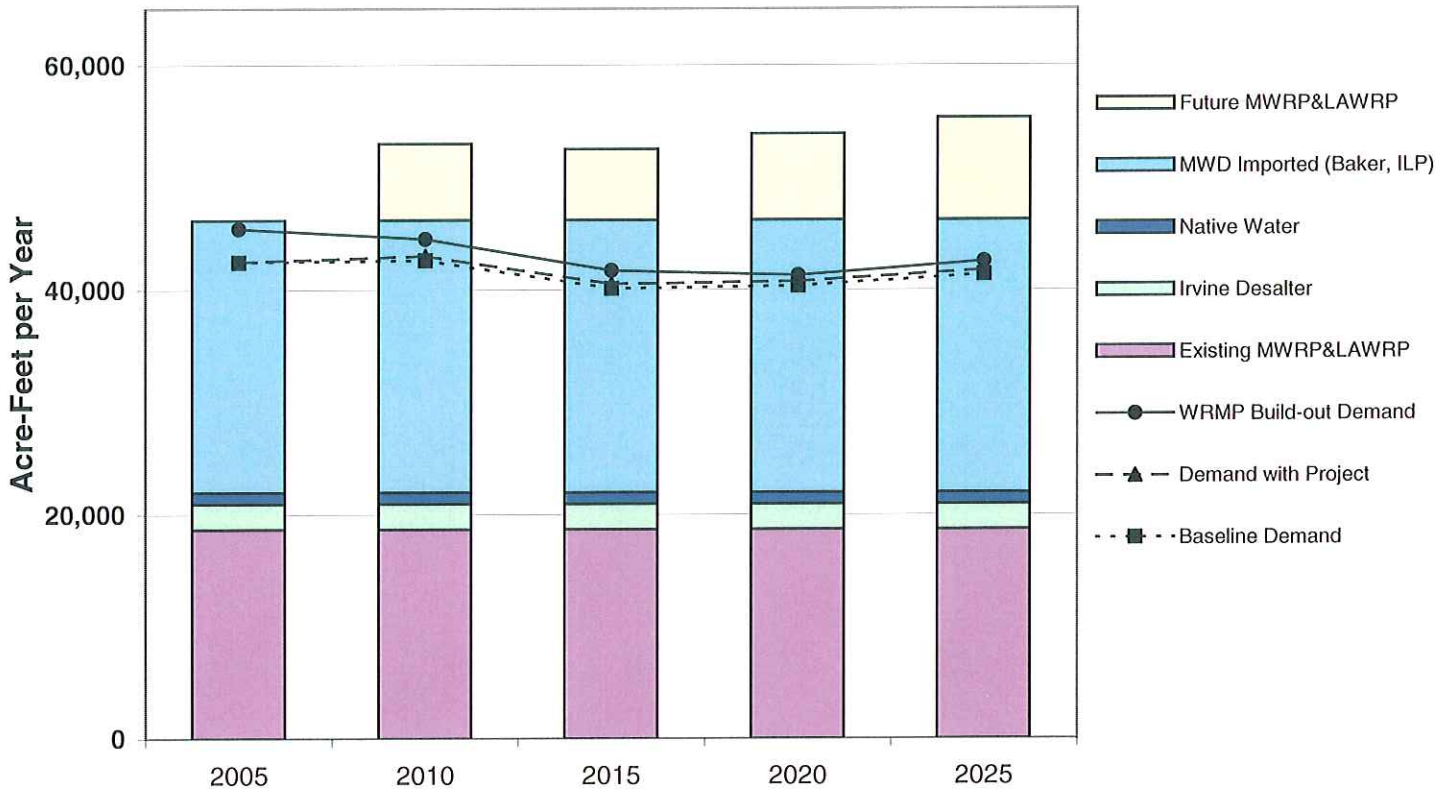
(in acre-feet per year)	2005	2010	2015	2020	2025
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	4,000	4,000	4,000	4,000	4,000
<u>Supplies Under Development</u>					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	49,201	55,995	55,512	56,888	58,308
Baseline Demand	39,711	39,828	37,508	37,699	38,674
Demand with Project*	39,711	40,195	37,876	38,067	39,042
WRMP Build-out Demand	42,459	41,605	38,985	38,585	39,743
Reserve Supply with Project	9,490	15,799	17,636	18,821	19,266

*Demands broken out by project

Santiago Hills Phase II	-	-	-	-	-
East Orange Area 1	-	-	-	-	-
East Orange Areas 2, & 3	-	368	368	368	368

Note: Downward trend reflects reduction in agricultural use over time.

Figure 6
IRWD Single Dry-Year Supply & Demand - Nonpotable Water



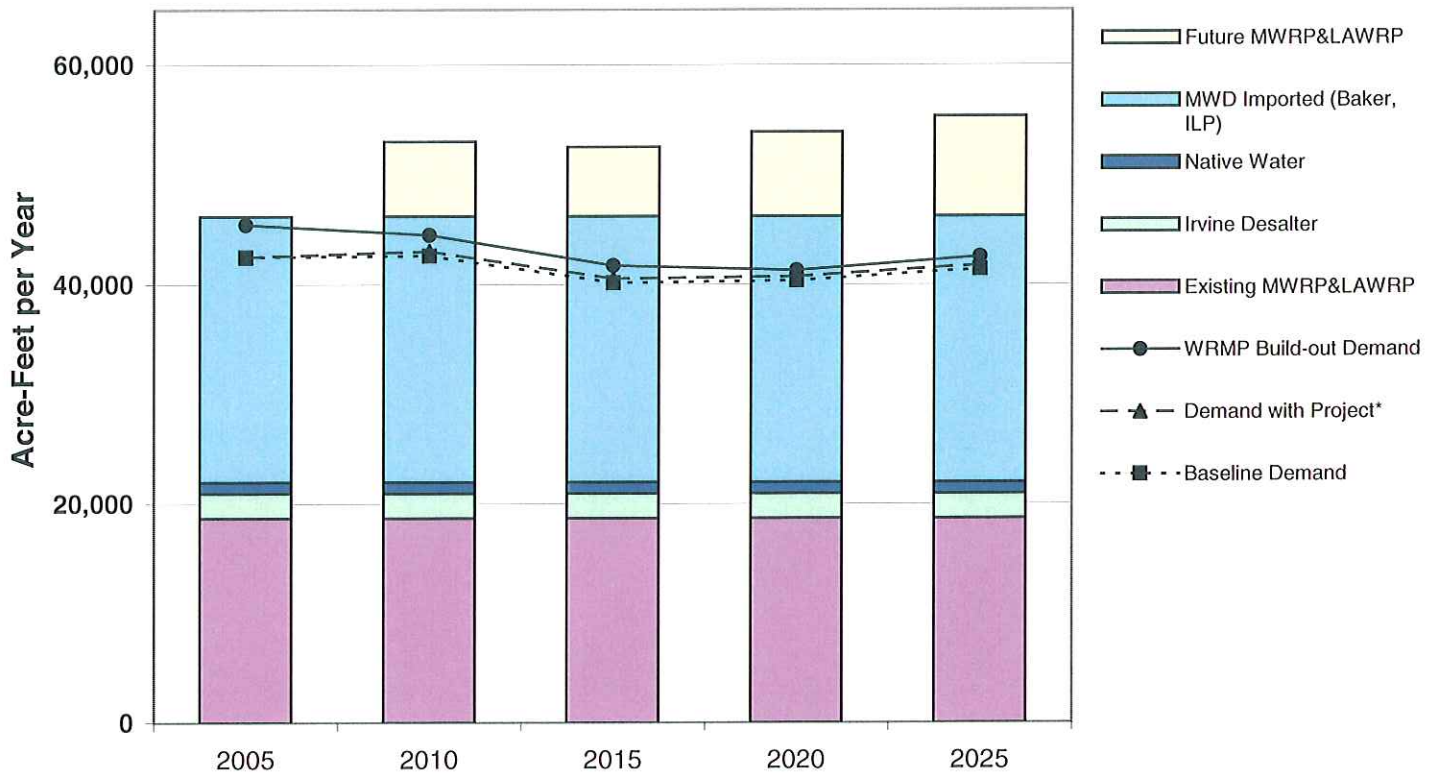
(in acre-feet per year)	2005	2010	2015	2020	2025
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	1,000	1,000	1,000	1,000	1,000
<u>Supplies Under Development</u>					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	46,201	52,995	52,512	53,888	55,308
Baseline Demand	42,490	42,616	40,134	40,338	41,382
Demand with Project	42,490	43,009	40,527	40,732	41,775
WRMP Build-out Demand	45,431	44,517	41,714	41,286	42,525
Reserve Supply with Project	3,711	9,986	11,985	13,156	13,533

*Demands broken out by project

Santiago Hills Phase II	-	-	-	-	-
East Orange Area 1	-	-	-	-	-
East Orange Areas 2 & 3	-	393	393	393	393

Note: Downward trend reflects reduction in agricultural use over time.

Figure 7
IRWD Multiple Dry-Year Supply & Demand - Nonpotable Water



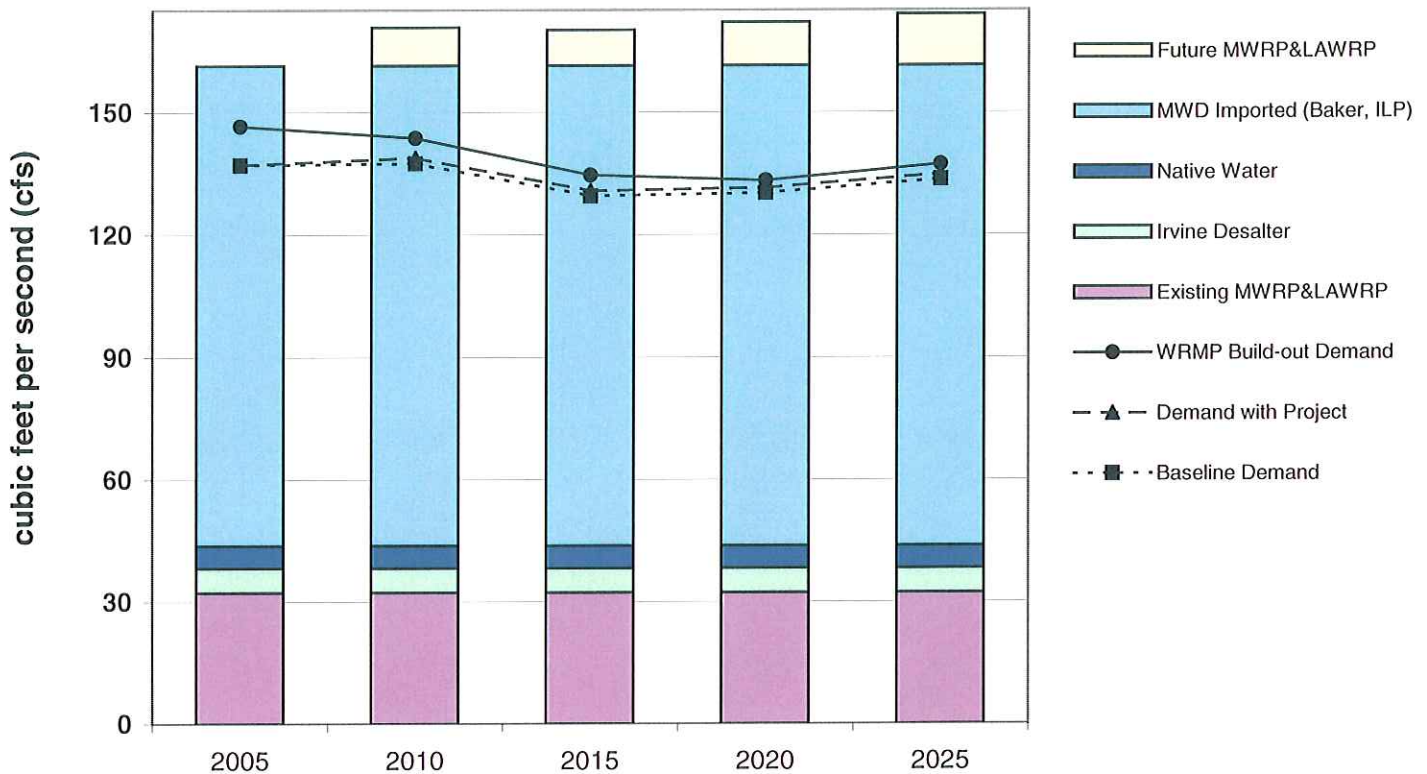
(in acre-feet per year)	2005	2010	2015	2020	2025
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	18,657	18,657	18,657	18,657	18,657
MWD Imported (Baker, ILP)	24,262	24,262	24,262	24,262	24,262
Irvine Desalter	2,282	2,282	2,282	2,282	2,282
Native Water	1,000	1,000	1,000	1,000	1,000
<u>Supplies Under Development</u>					
Future MWRP&LAWRP	-	6,794	6,311	7,687	9,107
Maximum Supply Capability	46,201	52,995	52,512	53,888	55,308
Baseline Demand	42,490	42,616	40,134	40,338	41,382
Demand with Project*	42,490	43,009	40,527	40,732	41,775
WRMP Build-out Demand	45,431	44,517	41,714	41,286	42,525
Reserve Supply with Project	3,711	9,986	11,985	13,156	13,533

*Demands broken out by project

Santiago Hills Phase II	-	-	-	-	-
East Orange Area 1	-	-	-	-	-
East Orange Areas 2, & 3	-	393	393	393	393

Note: Downward trend reflects reduction in agricultural use over time.

Figure 8
IRWD Maximum-Dry Supply & Demand - Nonpotable Water



(in cfs)	2005	2010	2015	2020	2025
<u>Current Nonpotable Supplies</u>					
Existing MWRP&LAWRP	32.2	32.2	32.2	32.2	32.2
Irvine Desalter	6.0	6.0	6.0	6.0	6.0
Native Water	5.5	5.5	5.5	5.5	5.5
MWD Imported (Baker, ILP)	117.7	117.7	117.7	117.7	117.7
<u>Supplies Under Development</u>					
Future MWRP&LAWRP	-	9.4	8.7	10.6	12.6
Maximum Supply Capability	161.4	170.8	170.1	172.0	174.0
Baseline Demand	137.1	137.5	129.5	130.2	133.5
Demand with Project	137.1	138.8	130.8	131.4	134.8
WRMP Build-out Demand	146.6	143.7	134.6	133.2	137.2
Reserve Supply with Project	24.3	32.0	39.3	40.6	39.2

Note: Downward trend reflects reduction in agricultural use over time.

2. Information concerning supplies

(a)(1) Existing sources of identified water supply for the proposed project:

IRWD does not allocate particular supplies to any project, but identifies total supplies for its service area, as shown in the following table:

	Max Day (cfs)	Avg. Annual (AFY)	Annual by Category (AFY)
Current Supplies			
Potable - Imported			
East Orange County Feeder No. 2	41.4	16,652	1
Allen-McColloch Pipeline	64.7	26,024	1
Orange County Feeder	18.0	7,240	1
Potable - Groundwater			
Dyer Road Wellfield	80.0	28,000	2
Deep Aquifer Treatment System-DATS	10.0	7,200	2
Irvine Desalter	8.5	5,568	3
Irvine Subbasin	8.0	4,800	3
Total Potable Current Supplies	230.6		95,484
Nonpotable - Reclaimed Water			
MWRP (18 mgd)	23.9	17,340	4
LAWRP (5.5 mgd)	8.3	5,975	4
Nonpotable - Imported			
Baker Aqueduct	52.7	15,262	5
Irvine Lake Pipeline	65.0	9,000	6
Nonpotable - Groundwater			
Irvine Desalter-Nonpotable	6.0	2,282	7
Nonpotable Native			
Irvine Lake	5.5	4,000	8
Total Nonpotable Current Supplies	161.4		53,859
Total Combined Current Supplies	392.0		149,343
Supplies Under Development			
Potable Groundwater - West Irvine Wellfield	20.0	12,700	9
Nonpotable Reclaimed - Future MWRP&LAWRP Reclaimed	20.0	14,450	10
Total Supplies (Current and Under Development)			
Potable Supplies	250.6		108,184
Nonpotable Supplies	181.4		68,309
Total Supplies	432.0		176,493

1 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 1.8 (see Footnote 1, page 18).

2 Contract amount - See Potable Supply-Groundwater(iii).

3 Contract amount - See Potable Supply-Groundwater (iv) and (v). Maximum day well capacity (cfs) is compatible with contract amount.

4 MWRP 18.0 mgd treatment capacity (17,400 AFY RW production) and LAW RP 5.5 mgd tertiary treatment capacity (5,975 AFY)

5 Based on converting maximum day capacity to average by dividing the capacity by a peaking factor of 2.5 (see Footnote 1, page 18).

6 Based on IRWD's proportion of Irvine Lake imported water storage; Actual ILP capacity would allow the use of additional imported water from MWD through the Santiago Lateral.

7 Contract amount - See Nonpotable Supply-Groundwater (i) and (ii). Maximum day well capacity (cfs) is compatible with contract amount.

8 Based on 69 years historical average of Santiago Creek Inflow into Irvine Lake.

9 Estimated combined capacity of wells.

10 Future estimated MWRP & LAW RP reclaimed water production.

(2) Quantities received in prior years from existing sources identified in (a)(1):

Source	1980	1985	1990	1995	2000
Potable - imported	29,510	43,320	44,401	28,397	36,777
Potable - groundwater	827	38	10,215	20,020	20,919
Nonpotable - reclaimed	9,196	12,399	11,589	10,518	14,630
Nonpotable - imported*	9,556	12,260	24,899	2,333	16,343
Nonpotable - groundwater	-	36	816	1,834	2,890
Nonpotable - native	11,909	3,587	2,778	5,980	4,949
Total	60,998	71,639	94,699	69,082	96,508

*Includes water purchased for delivery to storage in Irvine Lake.

(Source: water purchase and production records.)

(b) Required information concerning currently available and under-development water supply entitlements, water rights and water service contracts:

(1) Written contracts or other proof of entitlement.^{1 2}

• POTABLE SUPPLY - IMPORTED³

Potable imported water service connections (currently available).

(i) Potable imported water is delivered to IRWD at various service connections to the imported water delivery system of The Metropolitan Water District of Southern California ("MWD"): service connections CM-01A and OC-7 (Orange County Feeder); CM-10, CM-12, OC-38, OC-39, OC-57, OC-58, OC-63 (East Orange County Feeder No. 2); and OC-68, OC-71, OC-72, OC-73/73A, OC-74, OC-75, OC-83, OC-84, OC-87 (Allen-McColloch Pipeline). IRWD's entitlements regarding service from the MWD delivery system facilities are described in the following paragraphs and summarized in the above Table ((2)(a)(1)). IRWD receives imported water service through Municipal Water District of Orange County ("MWDOC"), a member agency of MWD.

Allen-McColloch Pipeline ("AMP") (currently available).

(ii) Agreement For Sale and Purchase of Allen-McColloch Pipeline, dated as of July 1, 1994 (Metropolitan Water District Agreement No. 4623) ("AMP Sale Agreement"). Under the AMP Sale Agreement, MWD purchased the Allen-McColloch Pipeline (formerly known as the "Diemer Intertie") from MWDOC, the MWDOC Water Facilities Corporation and certain agencies, including IRWD and Los Alisos Water District ("LAWD"),⁴ identified as "Participants" therein. Section 5.02 of the AMP Sale Agreement obligates MWD to meet IRWD's and the other Participants' requests for deliveries and specified minimum hydraulic grade lines at each connection serving a Participant, subject to availability of water. MWD agrees to operate the AMP as any other MWD pipeline. MWD has the right to operate the AMP on a "utility basis," meaning that MWD need not observe

¹ In some instances, the contractual and other legal entitlements referred to in the following descriptions are stated in terms of flow capacities, in cubic feet per second ("cfs"). In such instances, the cfs flows are converted to volumes of AFY for purposes of analyzing supply sufficiency in this assessment, by dividing the capacity by a peaking factor of 1.8 (potable) or 2.5 (nonpotable), consistent with maximum day peaking factors used in the WRMP. The resulting reduction in assumed available annual AFY volumes through the application of these factors recognizes that connected capacity is provided to meet peak demands, and that seasonal variation in demand and limitations in local storage prevent these capacities from being utilized at peak capacity on a year-round basis. However, the application of these factors produces a conservatively low estimate of annual AFY volumes from these connections; additional volumes of water are expected to be available from these sources.

² In the following discussion, contractual and other legal entitlements are characterized as either potable or nonpotable, according to the characterization of the source of supply. Some of the nonpotable supplies surplus to nonpotable demand could potentially be rendered potable by the addition of treatment facilities; however, IRWD has no current plans to do so.

³ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

⁴ IRWD has succeeded to LAWD's interests in the AMP and other LAWD water supply facilities and rights mentioned in this assessment, by virtue of the consolidation of IRWD and LAWD on December 31, 2000.

capacity allocations of the Participants but may use available capacity to meet demand at any service connection.

The AMP Sale Agreement obligates MWD to monitor and project AMP demands and to construct specified pump facilities or make other provision for augmenting MWD's capacity along the AMP, at MWD's expense, should that be necessary to meet demands of all of the Participants (Section 5.08).

(iii) Agreement For Allocation of Proceeds of Sale of Allen-McColloch Pipeline, dated as of July 1, 1994 ("AMP Allocation Agreement"). This agreement, entered into concurrently with the AMP Sale Agreement, provided each Participant, including IRWD, with a capacity allocation in the AMP, for the purpose of allocating the sale proceeds among the Participants in accordance with their prior contractual capacities adjusted to conform to their respective future demands. IRWD's capacity under the AMP Allocation Agreement (including its capacity as legal successor agency to LAWD) is 64.69 cfs at IRWD's first four AMP connections, 49.69 cfs at IRWD's next five downstream AMP connections and 35.01 and 10.00 cfs, respectively at IRWD's remaining two downstream connections. The AMP Allocation Agreement further provides that if a Participant's peak flow exceeds its capacity, the Participant shall "purchase" additional capacity from the other Participants who are using less than their capacity, until such time as MWD augments the capacity of the AMP. The foregoing notwithstanding, as mentioned in the preceding paragraph, the allocated capacities do not alter MWD's obligation under the AMP Sale Agreement to meet all Participants' demands along the AMP, and to augment the capacity of the AMP if necessary. Accordingly, under these agreements, IRWD can legally increase its use of the AMP beyond the above-stated capacities, but would be required to reimburse other Participants from a portion of the proceeds IRWD received from the sale of the AMP.

(iv) Improvement Subleases (or "FAP" Subleases) [MWDOC and LAWD; MWDOC and IRWD], dated August 1, 1989; 1996 Amended and Restated Allen-McColloch Pipeline Subleases [MWDOC and LAWD; MWDOC and IRWD], dated March 1, 1996. IRWD subleases its AMP capacity, including the capacity it acquired as successor to LAWD. To facilitate bond financing for the construction of the AMP, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership of the pipeline, and the Participants would be sublessees. As is the case with the AMP Sale Agreement, the subleases similarly provide that water is subject to availability.

East Orange County Feeder No. 2 ("EOCF#2") (currently available).

(v) Agreement For Joint Exercise of Powers For Construction, Operation and Maintenance of East Orange County Feeder No. 2, dated July 11, 1961, as amended on July 25, 1962 and April 26, 1965; Agreement Re Capacity Rights In Proposed Water Line, dated September 11, 1961 ("IRWD MWDOC Assignment Agreement"); Agreement Regarding Capacity Rights In the East Orange County Feeder No. 2, dated August 28, 2000 ("IRWD Coastal Assignment Agreement"). East Orange County Feeder No. 2 ("EOCF#2"), a feeder linking Orange County with MWD's feeder system, was constructed pursuant to a joint powers agreement among MWDOC (then called Orange County Municipal Water District), MWD, Coastal Municipal Water District ("Coastal"), Anaheim and Santa

Ana. A portion of IRWD's territory is within MWDOC and the remainder is within the former Coastal (which was consolidated with MWDOC in 2001). Under the IRWD MWDOC Assignment Agreement, MWDOC assigned 41 cfs of capacity to IRWD in the reaches of EOCF#2 upstream of the point known as Coastal Junction (reaches 1 through 3), and 27 cfs in reach 4, downstream of Coastal Junction. Similarly, under the IRWD Coastal Assignment Agreement, prior to Coastal's consolidation with MWDOC, Coastal assigned to IRWD 0.4 cfs of capacity in reaches 1 through 3 and 0.6 cfs in reach 4 of EOCF#2. Delivery of water through EOCF#2 is subject to the rules and regulations of MWD and MWDOC, and is further subject to application and agreement of IRWD respecting turnouts.

Orange County Feeder (currently available)

(vi) Agreement, dated March 13, 1956. This 1956 Agreement between MWDOC's predecessor district and the Santa Ana Heights Water Company ("SAHWC"), provides for delivery of MWD imported supply to the former SAHWC service area. SAHWC's interests were acquired on behalf of IRWD through a stock purchase and IRWD annexation of the SAHWC service area in 1997. The supply is delivered through a connection to MWD's Orange County Feeder designated as OC-7.

(vii) Agreement For Transfer of Interest In Pacific Coast Highway Water Transmission and Storage Facilities From The Irvine Company To the Irvine Ranch Water District, dated April 23, 1984; Joint Powers Agreement For the Construction, Operation and Maintenance of Sections 1a, 1b and 2 of the Coast Supply Line, dated June 9, 1989; Agreement, dated January 13, 1955 ("1955 Agreement"). The jointly constructed facility known as the Coast Supply Line ("CSL"), extending southward from a connection with MWD's Orange County Feeder at Fernleaf Street in Newport Beach, was originally constructed pursuant to a 1952 agreement among Laguna Beach County Water District ("LBCWD"), The Irvine Company (TIC) and South Coast County Water District. Portions were later reconstructed. Under the above-referenced transfer agreement in 1984, IRWD succeeded to TIC's interests in the CSL. The CSL is presently operated under the above-referenced 1989 joint powers agreement, which reflects IRWD's ownership of 10 cfs of capacity. The 1989 agreement obligates LBCWD, as the managing agent and trustee for the CSL, to purchase water and deliver it into the CSL for IRWD. LBCWD purchases such supply, delivered by MWD to the Fernleaf connection, pursuant to the 1955 Agreement with Coastal (now MWDOC).

• **POTABLE SUPPLY - GROUNDWATER**

(i) Orange County Water District Act, Water Code App., Ch. 40 ("Act"). IRWD is an operator of groundwater-producing facilities in the Orange County Groundwater Basin (the "Basin"). Although the rights of the producers within the Basin vis a vis one another have not been adjudicated, they nevertheless exist and have not been abrogated by the Act (§40-77). The rights consist of municipal appropriators' rights and may include overlying and riparian rights. The Basin is managed by OCWD under the Act, which functions as a statutorily-imposed physical solution. The Act empowers OCWD to impose replenishment assessments and basin equity assessments on production and to require

registration of water-producing facilities and the filing of certain reports; however, OCWD is expressly prohibited from limiting extraction unless a producer agrees (§ 40-2(6)(c)) and from impairing vested rights to the use of water (§ 40-77). Thus, producers may install and operate production facilities under the Act; OCWD approval is not required. OCWD is required to annually investigate the condition of the Basin, assess overdraft and accumulated overdraft, and determine the amount of water necessary for replenishment (§40-26). OCWD has studied the Basin replenishment needs and potential projects to address growth in demand until 2020. This is described in detail in the OCWD Master Plan Report, dated April, 1999.

(ii) Irvine Ranch Water District v. Orange County Water District, OCSC No. 795827. A portion of IRWD is outside the jurisdictional boundary of OCWD. IRWD is eligible to annex the Santa Ana River Watershed portion of this territory to OCWD, under OCWD's current annexation policy (Resolution No. 86-2-15, adopted on February 19, 1986 and reaffirmed on June 2, 1999), and anticipates doing so. However, this September 29, 1998, Superior Court ruling indicates that IRWD is entitled to deliver groundwater from the Basin to the IRWD service area irrespective of whether such area is also within OCWD.

***Dyer Road Wellfield (DRWF) / Deep Aquifer Treatment System (DATS)
(currently available)***

(iii) Agreement For Water Production and Transmission Facilities, dated March 18, 1981, as amended May 2, 1984, September 19, 1990 and November 3, 1999 (the "DRWF Agreement"). The DRWF Agreement, among IRWD, OCWD and Santa Ana, concerns the development of IRWD's Dyer Road Wellfield ("DRWF"), within the Basin. The DRWF consists of 16 wells pumping from the non-colored water zone of the Basin and 2 wells (with colored-water treatment facilities) pumping from the deep, colored-water zone of the Basin (the colored-water portion of the DRWF is sometimes referred to as the Deep Aquifer Treatment System or "DATS".) Under the DRWF Agreement, an "equivalent" basin production percentage (BPP) has been established for the DRWF, currently 28,000 AFY of non-colored water and 8,000 AFY of colored water, provided any amount of the latter 8,000 AFY not produced results in a matching reduction of the 28,000 AFY BPP. Although typically IRWD production from the DRWF does not materially exceed the equivalent BPP, the equivalent BPP is not an extraction limitation; it results in imposition of monetary assessments on the excess production. The DRWF Agreement also establishes monthly pumping amounts for the DRWF.

Irvine Subbasin / Irvine Desalter (currently available)

(iv) First Amended and Restated Agreement, dated March 11, 2002, restating May 5, 1988 agreement ("Irvine Subbasin Agreement"). TIC has historically pumped agricultural water from the Irvine Subbasin. (As in the rest of the Basin of which this subbasin is a part, the groundwater rights have not been adjudicated, and OCWD provides governance and management under the Act.) The 1988 agreement between IRWD and TIC provided for the joint use and management of the Irvine Subbasin. The 1988 agreement further provided that the 13,000 annual yield of the Irvine Subbasin would be allocated 1,000 AFY to IRWD and 12,000 AFY to TIC. Under the restated Irvine Subbasin Agreement,

the foregoing allocations have been superseded as a result of TIC's commencement of the building its Northern Sphere Area project, with the effect that the Subbasin production capability, wells and other facilities, and associated rights will be transferred from TIC to IRWD, and IRWD will assume the production from the Subbasin. In consideration of the transfer, IRWD is required to count the supplies attributable to the transferred Subbasin production in calculating available supplies for the Northern Sphere Area project and other TIC development and has agreed that they will not be counted toward non-TIC development.

A portion of the existing Subbasin water production facilities produce water which is of potable quality. IRWD plans to treat some of the water produced from the Subbasin for potable use, by means of the Desalter and other projects. Although, as noted above, the Subbasin has not been adjudicated and is managed by OCWD, TIC has reserved water rights from conveyances of its lands as development over the Subbasin has occurred, and under the Irvine Subbasin Agreement TIC will transfer its rights to IRWD.

(v) Second Amended and Restated Agreement Between Orange County Water District and Irvine Ranch Water District Regarding the Irvine Desalter Project, dated June 11, 2001, and other agreements referenced therein. This agreement provides for the extraction and treatment of subpotable groundwater from the Irvine Subbasin, a portion of the Basin. As is the case with the remainder of the Basin, IRWD's entitlement to extract this water is not adjudicated, but the use of the entitlement is governed by the OCWD Act. (See also, discussion of Irvine Subbasin in the preceding paragraph.) A portion of the product water will be delivered into the IRWD potable system, and the remainder will be delivered into the IRWD nonpotable system.

West Irvine Wells (under development)

(vi) IRWD is pursuing the installation of production facilities in the west Irvine portion of the Basin, located approximately between the 55 freeway and Peters Canyon Channel. This supply is considered to be under development; however, one well has been drilled (1992), a site for an additional well and treatment facility has been acquired by IRWD, and IRWD is in negotiation for the purchase of a third well site. The production facilities can be constructed and operated under the Act; no statutory or contractual approval is required to do so. See discussion of the Act under Potable Supply - Groundwater, paragraph (i), above.

•NONPOTABLE SUPPLY - RECLAIMED

Water Reclamation Plants (currently available)

Water Code Section 1210. IRWD supplies its own reclaimed water from wastewater collected by IRWD and delivered to IRWD's Michelson Water Reclamation Plant (MWRP) and Los Alisos Water Reclamation Plant (LAWRP). MWRP currently has a permitted capacity of 18 million gallons per day (MGD) and LAWRP currently has a permitted capacity of 5.5 MGD. Water Code Section 1210 provides that the owner of a wastewater treatment plant operated for the purposes of treating wastes from a sanitary sewer system holds the exclusive right to the treated effluent as against anyone who has supplied the water

discharged into the sewer system. IRWD's permits for the operation of MWRP and LAWRP allow only irrigation and other customer uses of reclaimed water, and do not permit stream discharge of reclaimed water; thus, no issue of downstream appropriation arises, and IRWD is entitled to deliver all of the effluent to meet contractual and customer demands.

Water Reclamation Plant Expansion (under development)

IRWD has prepared its Waste Water Management and Action Program Final Environmental Impact Report (November, 1979) to address impacts associated with its Wastewater Management and Action Program (WMAP). IRWD plans to increase its capacity on the existing plant sites to produce sufficient reclaimed water to meet the projected demand in the year 2025. (Initial capacity increases that are within existing permit authorizations and CEQA compliance are underway.) Additional reclamation capacity will augment local nonpotable supplies and improve reliability.

• **NONPOTABLE SUPPLY - IMPORTED**⁵

Baker Pipeline (currently available)

Santiago Aqueduct Commission Joint Powers Agreement, dated September 11, 1961, as amended December 20, 1974, January 13, 1978, November 1, 1978, September 1, 1981, October 22, 1986, and July 8, 1999 (the "SAC Agreement"); Agreement Between Irvine Ranch Water District and Carma-Whiting Joint Venture Relative to Proposed Annexation of Certain Property to Irvine Ranch Water District, dated May 26, 1981 (the "Whiting Annexation Agreement"). Service connections OC-13/13A, OC-33/33A. The imported untreated water pipeline initially known as the Santiago Aqueduct and now known as the Baker Pipeline was constructed under the SAC Agreement, a joint powers agreement. The Baker Pipeline is connected to MWD's Santiago Lateral. IRWD's capacity in the Baker Pipeline includes the capacity it subleases as successor to LAWD, as well as capacity rights IRWD acquired through the Whiting Annexation Agreement. (To finance the construction of AMP parallel untreated reaches which were incorporated into the Baker Pipeline, replacing original SAC untreated reaches that were made a part of the AMP potable system, it was provided that the MWDOC Water Facilities Corporation, and subsequently MWDOC, would have ownership, and the participants would be sublessees.) IRWD has 52.70 cfs in the first reach, 12.50 cfs in each of the second, third and fourth reaches and 7.51 cfs in the fifth reach of the Baker Pipeline. Water is subject to availability from MWD.

⁵ See Imported Supply - Additional Information, below, for information concerning the availability of the MWD supply.

•NONPOTABLE SUPPLY - NATIVE

Irvine Lake (currently available)

(i) Permit For Diversion and Use of Water (Permit No. 19306) issued pursuant to Application No. 27503; License For Diversion and Use of Water (License 2347) resulting from Application No. 4302 and Permit No. 3238; License For Diversion and Use of Water (License 2348) resulting from Application No. 9005 and Permit No. 5202. The foregoing permit and licenses, jointly held by IRWD (as successor to The Irvine Company (TIC) and Carpenter Irrigation District (CID)) and Serrano Water District (SWD), secure appropriative rights to the flows of Santiago Creek. Under Licenses 2347 and 2348, IRWD and SWD have the right to diversion by storage at Santiago Dam (Irvine Lake) and a submerged dam, of a total of 25,000 AFY. Under Permit No. 19306, IRWD and SWD have the right to diversion by storage of an additional 3,000 AFY by flashboards at Santiago Dam (Irvine Lake). (Rights under Permit No. 19306 may be junior to an OCWD permit to divert up to 35,000 AFY of Santiago Creek flows to spreading pits downstream of Santiago Dam.) The combined total of native water that may be diverted to storage under these licenses and permit is 28,000 AFY. A 1996 amendment to License Nos. 2347, 2348 and 2349 [replaced by Permit No. 19306 in 1984] limits the withdrawal of water from the Lake to 15,483 AFY under the licenses. This limitation specifically references the licenses and doesn't reference water stored pursuant to other legal entitlements. The use and allocation of the native water is governed by the agreements described in the next paragraph.

(ii) Agreement, dated February 6, 1928 ("1928 Agreement"); Agreement, dated May 15, 1956, as amended November 12, 1973 ("1956 Agreement"); Agreement, dated as of December 21, 1970 ("1970 Agreement"); Agreement Between Irvine Ranch Water District and The Irvine Company Relative to Irvine Lake and the Acquisition of Water Rights In and To Santiago Creek, As Well As Additional Storage Capacity in Irvine Lake, dated as of May 31, 1974 ("1974 Agreement"). The 1928 Agreement was entered into among SWD, CID and TIC, providing for the use and allocation of native water in Irvine Lake. Through the 1970 Agreement and the 1974 Agreement, IRWD acquired the interests of CID and TIC, leaving IRWD and SWD as the two co-owners. TIC retains certain reserved rights. The 1928 Agreement divides the stored native water by a formula which allocates to IRWD one-half of the first 1,000 AF, plus increments that generally yield three-fourths of the amount over 1,000 AF.⁶ The agreements also provide for evaporation and spill losses and carryover water remaining in the Lake at the annual allocation dates. Given the dependence of native water on rainfall, for purposes of this assessment only a small portion of IRWD's share of the 28,000 AFY of native water rights (4,000 AFY in normal years and 1,000 AFY in single and multiple-dry years) is shown in currently available supplies, based on averaging of historical data. However, IRWD's ability to supplement Irvine Lake storage with its imported untreated supplies, described herein, water offsets the uncertainty associated with the native water supply.

⁶ The 1956 Agreement provides for facilities to deliver MWD imported water into the Lake, and grants storage capacity for the imported water. By succession, IRWD owns 9,000 AFY of this 12,000 AFY imported water storage capacity. This storage capacity does not affect availability of the imported supply, which can be either stored or delivered for direct use by customers.

• NONPOTABLE SUPPLY - GROUNDWATER

Irvine Subbasin / Irvine Desalter (currently available)

(i) IRWD's entitlement to produce nonpotable water from the Irvine Subbasin is included within the Irvine Subbasin Agreement. See discussion of the Irvine Subbasin Agreement under Potable Supply - Groundwater, paragraph (iv), above.

(ii) See discussion of the Irvine Desalter project under Potable Supply - Groundwater, paragraph (v), above. The Irvine Desalter project will produce nonpotable as well as potable water.

• IMPORTED SUPPLY - ADDITIONAL INFORMATION

As described above, the imported supply from MWD is contractually subject to availability. To assist local water providers in assessing the adequacy of local water supplies that are reliant in whole or in part on MWD's imported supply, MWD has provided information concerning the availability of the supplies to its entire service area. This report, entitled "Report on Metropolitan's Water Supplies" (March 25, 2003) ("MWD Report"), is consistent with MWD's Regional Urban Water Management Plan (December, 2000) ("RUWMP"). The MWD Report indicates that MWD's regional water demand projections used in the RUWMP are 6% to 16% percent higher than the aggregated projections of MWD's member agencies. As stated in the MWD Report, "this difference indicates that Metropolitan's supplies, developed in accordance with this water supply update, provide a level of "margin of safety" or flexibility to accommodate delays in local resource development or adjustments in development plans."

The MWD Report is intended to serve four primary purposes, described therein

"Address recent changes in demand and supply conditions as compared to Metropolitan's December 2000 Regional Urban Water Management Plan and February 11, 2002 *Report on Metropolitan's Supplies*."

"Demonstrate Metropolitan's abilities to meet projected demands over the next 20 years and provide additional resource reserves as a "margin-of-safety" that mitigates against uncertainties in demand projections and risks in implementing supply programs."

"Demonstrate that Metropolitan has a blueprint for water supply reliability and is implementing a comprehensive plan to secure reliable water supplies in accordance with policy principles and objectives established by Metropolitan's Board of Directors."

"Provide a planning tool for local and retail agencies providing local water supplies."

The MWD Report finds "Metropolitan has and will continue to have the capability to develop supplies that are available at least ten years in advance of need and ensure water supply reliability." Furthermore, demand and supply comparisons "demonstrate that sufficient supplies can be reasonably relied upon to meet

projected supplemental demands and that additional reserve supplies could provide a “margin of safety” to mitigate against uncertainties in demand projections and risks in fully implementing all supply programs under development.”

More particularly, MWD has documented sufficient *currently available* supplies to meet 100% of MWD’s member agencies’ supplemental water demands for 20 years under average-year conditions, for 15 years under multiple dry-year conditions (with 8-26% reserve capacity), and for 15 years under single dry-year conditions (with 8-25% reserve capacity). With the addition of *supplies under development*, MWD will be able to meet 100% of its agencies’ supplemental water needs under all supply and demand conditions through 2030 with 20-25% reserve capacity. Reference is made to the MWD Report for more detailed discussion. It is anticipated that MWD will revise its regional supply availability analysis annually to supplement its RUWMP in years when the RUWMP is not being updated.

IRWD is permitted by the statute to rely upon the water supply information provided by the wholesaler concerning a wholesale water supply source, for use in preparing its UWMPs. In turn, the Assessment Law provides for the use of UWMP information to support water supply assessments. In accordance with these provisions, IRWD is entitled to rely upon the conclusions of the MWD Report. IRWD has not been made aware of any significant changes that would adversely affect those conclusions. In a detailed May 14, 2003 report, San Diego County Water Authority (SDCWA) questioned several conclusions of the MWD Report. MWD has provided a reply dated July 17, 2003, containing a general response that SDCWA’s assertions are based on outdated water resource management strategies. MWD’s reply discusses several MWD supply capabilities which MWD states were overlooked by SDCWA, and is accompanied by MWD’s detailed responses to the specific criticisms.

MWD’s margin of safety in its demand projections and MWD’s reserve supplies, together with the fact that IRWD relies on MWD supplies as supplemental supplies that need not be used to the extent IRWD operates *currently available* and *under-development* local supplies, build a margin of safety into IRWD’s supply availability.

(2) Adopted capital outlay program to finance delivery of the water supplies.

All necessary delivery facilities currently exist for the use of the *currently available* and *under-development* supplies assessed herein, with the exception of west Irvine wells, MWRP expansion and IRWD sub-regional and developer-dedicated conveyance facilities necessary to complete the local distribution systems for the Project. IRWD’s turnout at each MWD connection and IRWD’s regional delivery facilities are sufficiently sized to deliver all of the supply to the subregional and local distribution systems.

With respect to west Irvine wells (PR Nos. 15421 and 15427) and the MWRP expansion (PR Nos. 20276 and 20214), IRWD has adopted its fiscal year 2003/04 capital budget on June 9, 2003 (Resolution No. 2003-17), budgeting portions of the funds for such projects. (A copy is available from IRWD on request.) For these facilities, as well as unbuilt IRWD sub-regional conveyance

facilities, the sources of funding are previously authorized general obligation bonds, revenue-supported certificates of participation and/or capital funds held by IRWD Improvement Districts. IRWD has maintained a successful program for the issuance of general obligation bonds and certificates of participation on favorable borrowing terms, and IRWD has received AA public bond ratings. IRWD has approximately \$500 million (water) and \$720 million (wastewater) of unissued, voter-approved bond authorization. Certificates of participation do not require voter approval. Proceeds of bonds and available capital funds are expected to be sufficient to fund all IRWD facilities for delivery of the supplies under development. Tract-level conveyance facilities are required to be donated to IRWD by the Applicant or its successor(s) at time of development.

(3) Federal, state and local permits for construction of delivery infrastructure.

Most IRWD delivery facilities are constructed in public right-of-way or future right-of-way. State statute confers on IRWD the right to construct works along, under or across any stream of water, watercourse, street, avenue, highway, railway, canal, ditch or flume (Water Code Section 35603). Although this right cannot be denied, local agencies may require encroachment permits when work is to be performed within a street. If easements are necessary for delivery infrastructure, IRWD requires the developer to provide them. The crossing of watercourses or areas with protected species requires federal and/or state permits as applicable.

(4) Regulatory approvals for conveyance or delivery of the supplies.

See response to preceding item (3). In addition, reclamation plant expansion will require approval of amendments to IRWD's permits issued by the Regional Water Quality Control Board.

3. Other users and contractholders (identified supply not previously used).

For each of the water supply sources identified by IRWD, if no water has been received from that source(s), IRWD is required to identify other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, that source(s):

Water has been received from all listed sources. Water has not been produced from the Irvine Desalter, which has not been constructed, but other Irvine Subbasin water has been produced by IRWD. As described under Potable Supply - Groundwater, paragraph (iv), TIC also holds water rights and contractual entitlements to the Irvine Subbasin groundwater, but existing contract provides that those rights and entitlements will be transferred to IRWD. A small quantity of Subbasin water is used by Woodbridge Village Association for the purpose of supplying its North and South Lakes. There are no other public water systems or water service contractholders that receive a water supply from, or have existing water supply entitlements, water rights and water service contracts to, the Irvine Subbasin.

4. Information concerning groundwater included in the supply identified for the Project:

(a) Relevant information in the Urban Water Management Plan (UWMP):

See Irvine Ranch Water District 2000 UWMP, section III-3.

(b) Description of the groundwater basin(s) from which the Project will be supplied:

The Orange County Groundwater Basin ("Basin") is described at pages 3-1 through 3-14 of the OCWD Master Plan Report, dated April, 1999 ("MPR"). The rights of the producers within the Basin vis a vis one another have not been adjudicated. The Basin is managed by the Orange County Water District (OCWD) for the benefit of municipal, agricultural and private groundwater producers. OCWD is responsible for the protection of water rights to the Santa Ana River in Orange County as well as the management and replenishment of the Basin. Current production from the Basin is approximately 363,000 AFY.

The Department of Water Resources has not identified the Basin as overdrafted in its most current bulletin that characterizes the condition of the Basin, Bulletin 118 (2003). The efforts being undertaken by OCWD to eliminate long-term overdraft in the Basin are described in the OCWD MPR, including in particular, Chapters 4, 5, 6, 14 and 15 of the MPR. Although the water supply assessment statute (Water Code Section 10910(f)) refers to elimination of "long-term overdraft," overdraft includes conditions which may be managed for optimum basin storage, rather than eliminated. OCWD's Act defines annual groundwater overdraft to be the quantity by which production exceeds the natural replenishment of the Basin. Accumulated overdraft is defined in the OCWD Act to be the quantity of water needed in the groundwater basin forebay to prevent landward movement of seawater into the fresh groundwater body. However, seawater intrusion control facilities have been constructed by OCWD since the Act was written, and have been effective in preventing landward movement of seawater. These facilities allow greater utilization of the storage capacity of the Basin.

OCWD has invested over \$250 million in seawater intrusion control (injection barriers), recharge facilities, laboratories, and Basin monitoring to effectively manage the Basin. Consequently, although the Basin is defined to be in an "overdraft" condition, it is actually managed to allow utilization of up to 500,000 acre-feet of storage capacity of the basin during dry periods, acting as an underground reservoir and buffer against drought. OCWD also operates the basin to keep the target dewatered basin storage at 200,000 acre-feet as an appropriate accumulated overdraft. If the Basin is too full, artesian conditions can occur along the coastal area, causing rising water and water logging, an adverse condition. Since the formation of OCWD in 1933, OCWD has made substantial investment in facilities, Basin management and water rights protection, resulting in the elimination and prevention of adverse long-term "mining" overdraft conditions. OCWD continues to develop new replenishment supplies, recharge capacity and basin protection measures to meet projected production from the basin during normal rainfall and drought periods. (Source: 2001-2002 Engineer's Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District; OCWD MPR, *supra*.)

OCWD's efforts include ongoing replenishment programs and planned capital improvements. It should be noted under OCWD's management of overdraft to maximize its use for annual production and recharge operations, overdraft varies over time as the Basin is managed to keep it in balance over the long term. The Basin is not operated on an annual safe-yield basis. (OCWD MPR, section 3.2)

(c) Description and analysis of the amount and location of groundwater pumped by IRWD from the Basin for the past five years:

The following table shows the amounts pumped, by groundwater source:

(In AFY)

Year (ending 6/30)	DRWF/DATS	Irvine Subbasin (IRWD)	Irvine Subbasin (TIC)	LAWD ⁷
2003	24,040	2,132	4,234	598
2002	25,855	2,533	5,075	744
2001	20,377	1,687	3,967	543
2000	20,580	2,890	4,862	346
1999	20,432	1,035	3,845	404

(d) Description and analysis of the amount and location of groundwater projected to be pumped by IRWD from the Basin:

IRWD has a developed groundwater supply of 35,200 AFY from the its Dyer Road Wellfield (including the Deep Aquifer Treatment System), in the main portion of the Basin.

Although TIC's production from the Subbasin has declined as its use of the Subbasin for agricultural water has diminished, OCWD's and other historical production records for the Subbasin show that production has been as high as 13,000 AFY. Under the Irvine Subbasin Agreement, all of the Subbasin production capability will be turned over by TIC to IRWD. Plans are also underway to expand IRWD's main Orange County Groundwater Basin supply, with wells in the West Irvine Wellfield (characterized as *under-development* supplies herein). (IRWD anticipates the development of additional production facilities within both the main Basin and the Irvine Subbasin. However, such additional facilities have not been included or relied upon in this assessment. Additional groundwater development will provide an additional margin of safety as well as reduce future water supply costs to IRWD.)

⁷ The water produced from IRWD's Los Alisos wells is not included in this assessment. IRWD is presently evaluating the future use of these wells.

The following table summarizes future IRWD groundwater production from currently available and under-development supplies.

(In AFY)

Year (ending 6/30)	DRWF ⁸	W Irvine ⁹	Subbasin ¹⁰	IDP (Potable)	IDP (Nonpotable)
2005	35,200	0	4,800	5,568	2,282
2010	35,200	12,700	4,800	5,568	2,282
2015	35,200	12,700	4,800	5,568	2,282
2020	35,200	12,700	4,800	5,568	2,282
2025	35,200	12,700	4,800	5,568	2,282

(e) If not included in the UWMP, analysis of the sufficiency of groundwater projected to be pumped by IRWD from the Basin to meet to meet the projected water demand of the Project:

See responses to 4(b) and 4(d).

The OCWD MPR examined future Basin conditions and capabilities, water supply and demand, and identified projects to meet increased replenishment needs of the basin. According to the OCWD MPR, production from the Basin can be maintained at 75% of the Basin producers' 2020 demand level, including demands from areas in IRWD and other producers to be annexed to OCWD.¹¹

Sufficient replenishment supplies are projected by the OCWD MPR to be available to OCWD to meet the increasing demand on the Basin. These supplies include capture of increasing Santa Ana River flows, purchases of replenishment water from MWD, and development of new local supplies. OCWD is moving forward with a number of replenishment supply projects, including the Groundwater Replenishment System project ("GWRS"). The OCWD MPR indicates that the GWRS will produce over 100,000 afy of new replenishment supply from recycled water.

Production of groundwater can exceed applicable basin production percentages on a short-term basis, providing additional reliability during dry years or emergencies. Additional groundwater production is anticipated by OCWD in the

⁸ See Potable Supply - Groundwater, paragraph (iii), above. DRWF non-colored production above 28,000 AFY and colored water production above 8,000 AFY are subject to contractually-imposed assessments. In addition, seasonal production amounts apply.

⁹ Under development.

¹⁰ Subbasin potable water production (other than Irvine Desalter Project). Amounts shown are available as potable-quality production, without treatment.

¹¹ Although OCWD has adopted a FY2003 reduction of the basin production percentage from the current 75% to 66% and could be further reduced, this is anticipated by IRWD to be a temporary measure employed by OCWD to encourage lower pumping levels as OCWD implements other measures to reduce the current accumulated overdraft in the Basin. This reduction is not expected to affect any of IRWD's currently available groundwater supplies listed in this assessment, which are subject to a contractually-set equivalent basin production percentage as described, or are exempt from the basin production percentage.

Basin in dry years, as producers reduce their use of imported supplies, and the Basin is “mined” in anticipation of the eventual availability of replenishment water. (OCWD MPR, section 14.6.)

See also, Figures 1-8. IRWD assesses sufficiency of supplies on an aggregated basis, as neither groundwater nor other supply sources are allocated to particular projects or customers. Under the Irvine Subbasin Agreement, IRWD is contractually obligated to attribute the Subbasin supply only to TIC development projects for assessment purposes; however, the agreement does not allocate or assign rights in the Subbasin supply to any project.

5. This Water Supply Assessment is being completed for a project included in a prior water supply assessment. Date of prior assessment: _____ . Check all of the following that apply:

- Changes in the Project have substantially increased water demand.
- Changes in circumstances or conditions have substantially affected IRWD’s ability to provide a sufficient water supply for the Project.
- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment.

6. References

Water Resources Master Plan, Irvine Ranch Water District, March, 2002 (supplemented January, 2004)

2000 Urban Water Management Plan, Irvine Ranch Water District/Los Alisos Water District, December, 2000

The Regional Urban Water Management Plan for the Metropolitan Water District of Southern California, December, 2000

Southern California’s Integrated Resources Plan, Metropolitan Water District of Southern California, March, 1996

Report on Metropolitan’s Water Supplies, Metropolitan Water District of Southern California, March 25, 2003

Master Plan Report, Orange County Water District, April, 1999

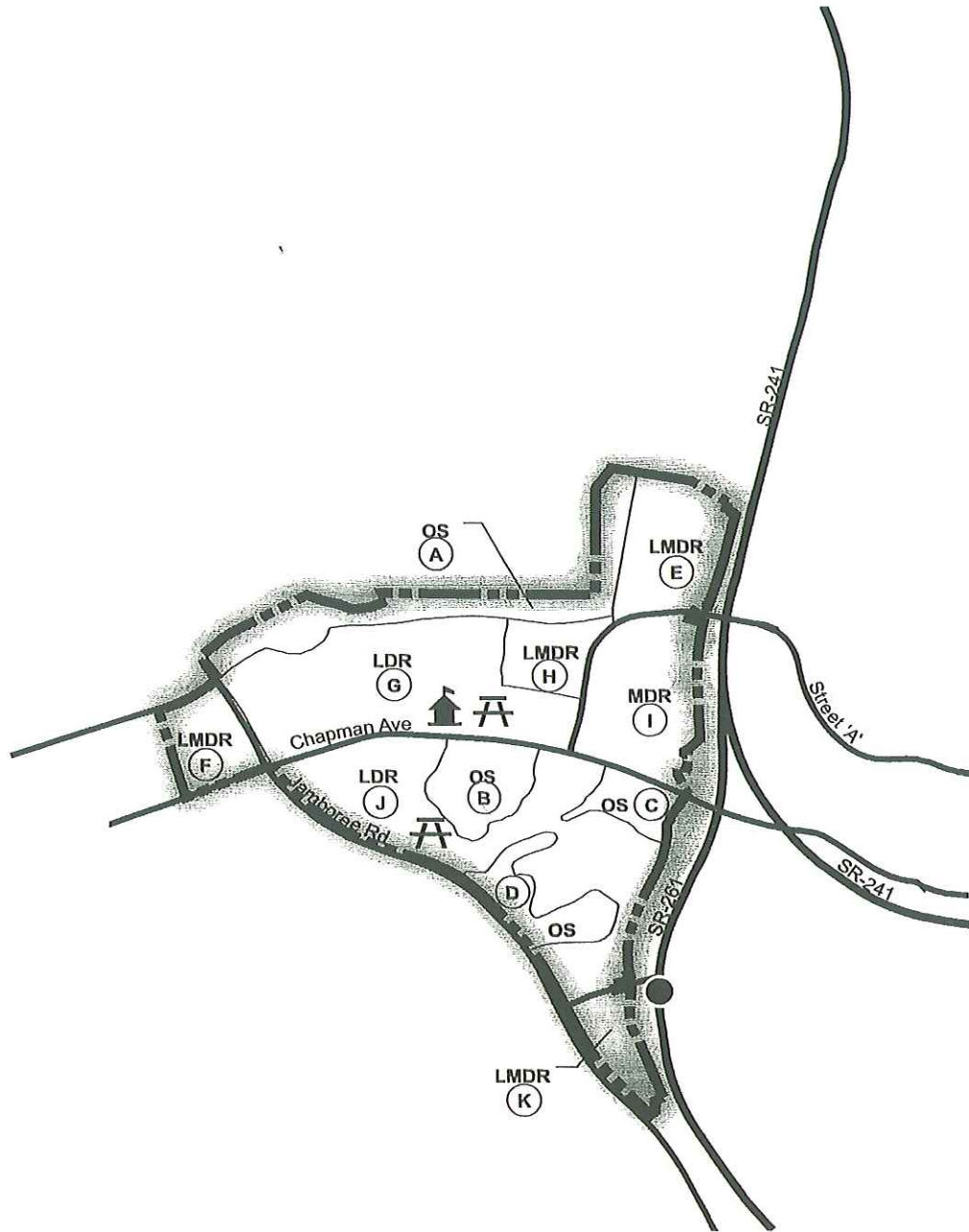
2001-2002 Engineer’s Report on Groundwater Conditions, Water Supply and Basin Utilization in the Orange County Water District, Orange County Water District

Review of Report on Metropolitan’s Water Supplies, San Diego County Water Authority Water Policy Committee board letter, May 14, 2003

Response to San Diego County Water Authority Review of the “Report on Metropolitan’s Water Supplies”, Metropolitan Water District of Southern California letter, July 17, 2003

Exhibit A

Depiction of Project Area



Legend

- | | | |
|--|----------------------|-------------------|
| LDR Low Density Residential | OS Open Space | Neighborhood Park |
| LMDR Low Medium Density Residential | (D) Sector | School |
| MDR Medium Density Residential | | Interchange |

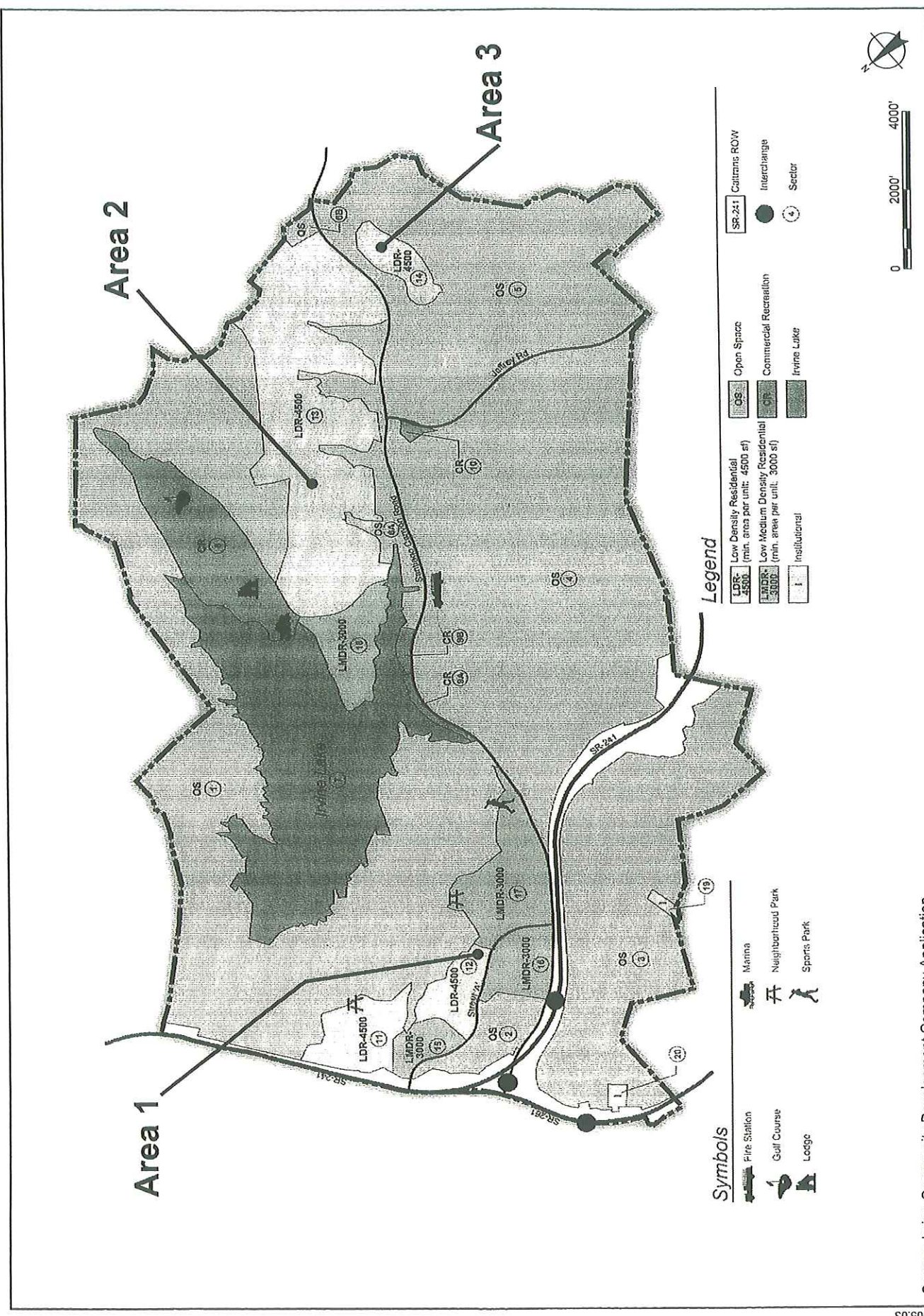


03005.03

Source: Irvine Community Development Company Application.

September 19, 2003

Figure 4
Santiago Hills II Zoning Map



Source: Irvine Community Development Company Application.
September 19, 2003

Figure 5
Areas 1, 2 and 3 General Plan and Zoning Designations

Exhibit B

Uses Included in Project



CITY OF ORANGE

COMMUNITY DEVELOPMENT DEPARTMENT

www.cityoforange.org

FAX (714) 744-7222

ADMINISTRATION
(714) 744-7240

PLANNING DIVISION
(714) 744-7220

BUILDING DIVISION
(714) 744-7200

October 9, 2003

Irvine Ranch Water District
15600 Sand Canyon Avenue
P.O. Box 57000
Irvine, CA 92619-7000

ENGINEERING AND PLANNING
OCT 10 2003
IRVINE RANCH
WATER DISTRICT

Re: Request for Water Supply Availability Assessment (Water Code §10910 *et seq.*)

The City of Orange hereby requests an assessment of water supply availability for the below-described project. The City has determined that the project is a "project" as defined in Water Code §10912, and has determined is required for the project.

Proposed Project Information

Project Title: Santiago Hills Phase II and East Orange Planned Communities Areas 1, 2, & 3

Location of project: Corner of Chapman Ave. and Jamboree Road, east along Chapman Ave. (north and south of Chapman), transition to Santiago Canyon Road to the vicinity of Irvine Lake, on the north and south side of Santiago Canyon Road.

- (For projects requiring a new assessment under Water Code §10910 (h).) Previous Water Supply Assessment including this project was prepared on: _____. This application requests a new Water Supply Assessment, due to the following (check all that apply):
- Changes in the project have substantially increased water demand
- Changes in circumstances or conditions have substantially affected IRWD's ability to provide a sufficient water supply for the project
- Significant new information has become available which was not known and could not have been known at the date of the prior Water Supply Assessment

Type of Development:

- Residential: No. of dwelling units: 4,096
- Shopping center or business: No. of employees _____ Sq. ft. of floor space _____
- Commercial office: No. of employees _____ Sq. ft. of floor space _____
- Hotel or motel: No. of rooms 100
- Industrial, manufacturing, processing or industrial park: No. of employees _____
No. of acres _____ Sq. ft. of floor space _____
- Mixed use (check and complete all above that apply)
- Other: _____

Total acreage of project: 1,924

Acreage devoted to landscape:
Greenbelt TBD at subdivision golf course Approx. 192 parks TBD at subdivision

Agriculture _____ other landscaped areas TBD at subdivision

Number of schools One (K-6) Number of public facilities Fire Station

Other factors or uses that would affect the quantity of water needed, such as peak flow requirements or potential uses to be added to the project to reduce or mitigate environmental impacts:

What is the current land use of the area subject to a land use change under the project?
Santiago Hills II and East Orange Area 1 are vacant. East Orange Area 2 and 3 are vacant with the exception of concession and recreation areas associated with Irvine Lake.

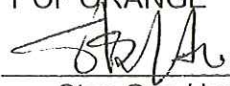
Is the project included in the existing General Plan? Yes (East Orange General Plan)

If no, describe the existing General Plan Designation _____

The City acknowledges that IRWD's assessment will be based on the information hereby provided to IRWD concerning the project. If it is necessary for corrected or additional information to be submitted to enable IRWD to complete the assessment, the request will be considered incomplete until IRWD's receipt of the corrected or additional information. If the project, circumstances or conditions change or new information becomes available after the issuance of a Water Supply Assessment, the Water Supply Assessment may no longer be valid. The City will request a new Water Supply Assessment if it determines that one is required.

The City acknowledges that the Water Supply Assessment shall not constitute a "will-serve" or in any way entitle the project applicant to service or to any right, priority or allocation in any supply, capacity or facility. Further, the issuance of the Water Supply Assessment shall not affect IRWD's obligation to provide service to its existing customers or any potential future customers including the project applicant. In order to receive service, the project applicant shall be required to file a completed Application(s) for Service and Agreement with the Irvine Ranch Water District on IRWD's forms, together with all fees and charges, plans and specifications, bonds and conveyance of necessary easements, and meet all other requirement as specified therein.

CITY OF ORANGE

By: 
Stan Soo Hoo, Planning Manager


REQUEST RECEIVED:

Date: 11/3/03

By: 
Irvine Ranch Water District

REQUEST COMPLETE:

Date: 11/10/03

By: 
Irvine Ranch Water District