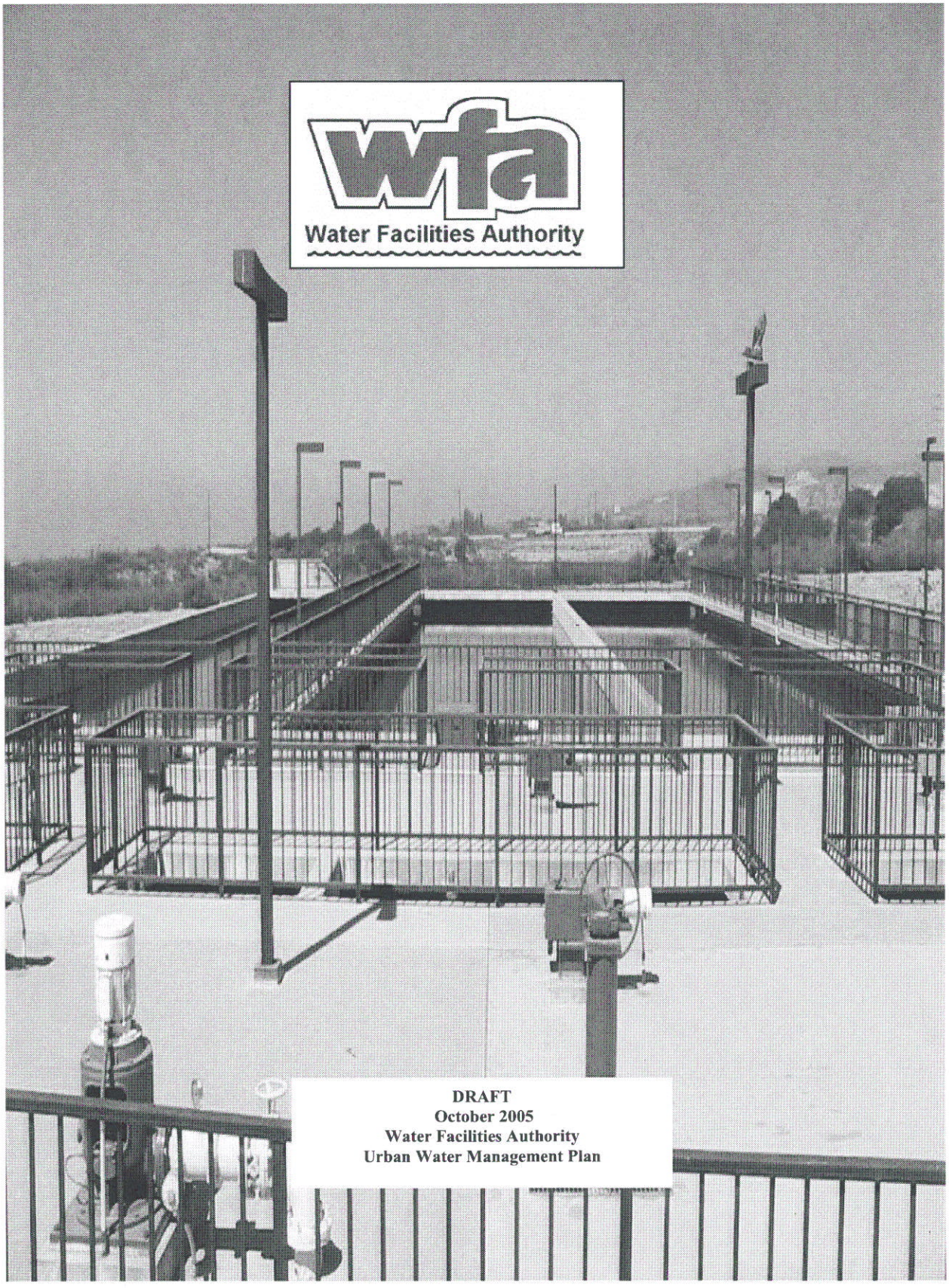
Appendix U

Water Facilities Authority
2005 Urban Water Management Plan



DRAFT
October 2005
Water Facilities Authority
Urban Water Management Plan

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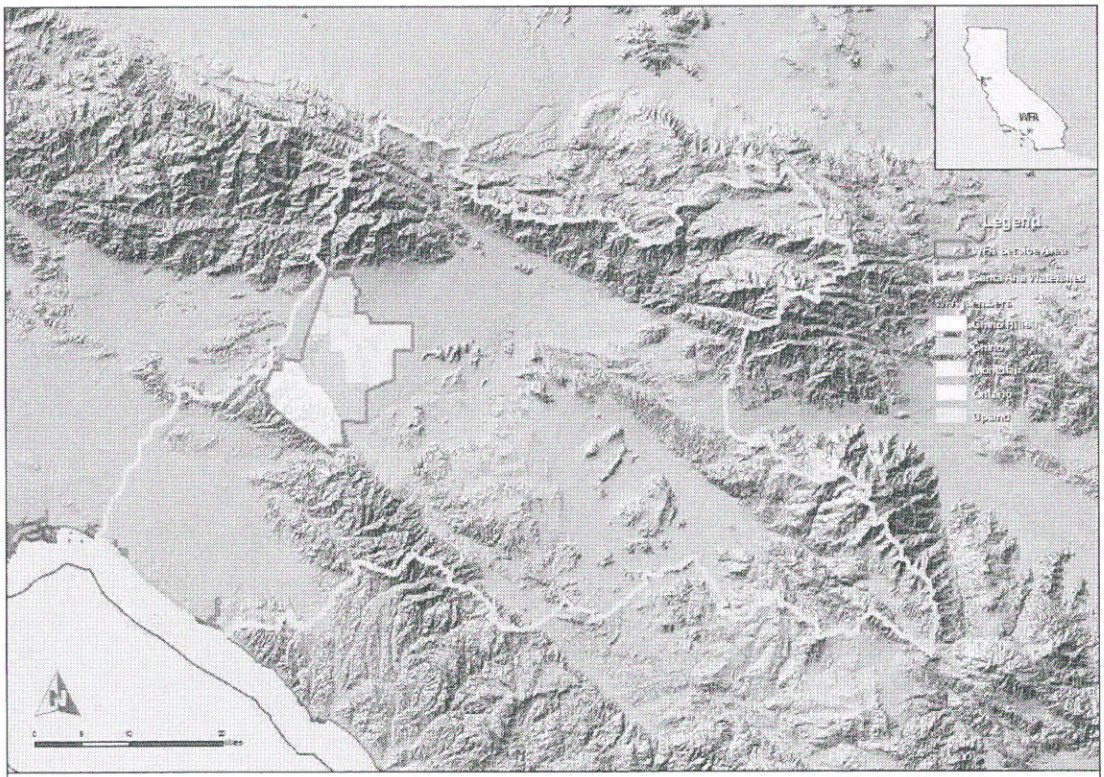
CHAPTER 1
INTRODUCTION

1.1 Overview

This volume presents the Urban Water Management Plan 2005 (Plan) for the Water Facilities Authority (WFA). As a public agency that treats and supplies currently about 40,000 acre-feet per year of water which serves as a supplemental source of supply to over 430,000 residents in the west end of San Bernardino County, WFA is required to prepare an Urban Water Management Plan.

The WFA Plan 2005 was prepared by the Inland Empire Utilities Agency (IEUA) as a companion document to the IEUA Regional Urban Water Management Plan (UWMP 2005) and will be included as an appendix in the UWMP 2005. IEUA is a member agency of the Metropolitan Water District of Southern California and wholesales imported water to WFA and the Cucamonga Valley Water District well as provides other utility services to the cities located within its service area. The member agencies served by the WFA are encompassed in IEUA's service area.



Water Facility Authority Service Area
in the Santa Ana River Watershed

This chapter describes the general purpose of the Urban Water Management Plan, discusses the Plan preparation, and provides general information about WFA, its members and the array of agencies with which the WFA closely collaborates in achieving integrated water supply reliability, water quality and watershed management goals for the Chino Basin, Santa Ana River watershed and the Southern California region.

1.2 Purpose of the Urban Water Management Plan

An Urban Water Management Plan (UWMP) is a planning tool that provides guidance to water management agencies for the development of reliable water supplies to meet the needs of their communities. The Plan requires a detailed assessment of a number of planning issues including:

- The water supplies necessary to meet demands over a 20-year period in a single year, and multi-year drought and average year conditions;
- The stages of actions that need to be taken to address up to a 50% reduction in water supplies;
- The actions to be taken to address a catastrophic interruption in water supplies; and,
- The opportunities to maximize conservation and the use of recycled water, local groundwater supplies and other water supplies to reduce the need for imported supplies.

Since its passage in 1983, California Water Urban Water Management Planning Act (Act) has been amended several times. The significant additions to the act include requirements to:

- Identity and evaluate water management tools that maximize local resources and minimize imported water supplies;
- Notify all cities and counties within the service area that a plan or plan amendment is being prepared and of the date and location of the public hearing on the plan adoption. Further, the final plan or plan amendment must be filed with all cities and counties within the service area.
- Describe specific water supply projects and implementation schedules to meet projected demands over the 20-year planning horizon;
- Share data between contracting water supplies (ie., wholesale, intermediate and retail agencies) with a provision allowing suppliers to rely on information provided by a wholesale agency; and,
- Evaluate water quality over the 20-year planning horizon;

The California Department of Water Resources (DWR) recognizes the Urban Water Management Plan as a building block for the development of an Integrated Regional Water Management Plan (IRWP). An urban water supplier that

coordinates preparation of its Plan with other water suppliers within the regional or watershed is acknowledged by DWR as improving regional planning efficiencies and laying the foundation for the development of an IRWMP (footnote: DWR, 2005 "Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan" pg. vi). DWR may consider a water supplier's compliance with the plan requirements, including achievements and implementation plans for water conservation, when determining eligibility of receiving any funds from DWR-administered programs. A copy of the Act is included in Appendix A of the IEUA UWMP, June 2005.

This is the first Plan prepared specifically for the WFA and its service area. In preceding years, WFA participated in the development the regional UWMP prepared by IEUA. The WFA Plan has been prepared consistent with the requirements of the Act and the guidance provided by DWR. This Plan documents and supports the work of WFA and its member agencies in achieving the integrated water supply reliability, water quality and watershed management goals for the Chino Basin, Santa Ana River watershed and the Southern California region. One of the benefits of this Plan is that the agencies within the WFA's service area will maximize the development and use of local water supplies and minimize the need for additional full service imported water supplies over the next twenty years.

1.3 Plan Preparation and Coordination

WFA's Plan was prepared by IEUA in consultation with WFA and its members: the cities of Chino, Chino Hills, Ontario, Upland and the Monte Vista Water District. The water demand and supply projections used in the Plan are based upon information provided by these agencies. Additional involvement in the preparation of the Plan included the Santa Ana Watershed Project Authority (SAWPA), the Chino Basin Watermaster (CBWM), and Chino Basin Water Conservation District. The Metropolitan Water District of Southern California (MWD) and Chino Basin Desalter Authority are also reviewers of this document.

As required by the Act, WFA notified all cities and counties in October 2005 that an Urban Water Management Plan was being prepared and that this plan was consistent with the regional Urban Water Management Plan being updated by IEUA. In June 2005, IEUA sent out notices regarding the IEUA UWMP 2005 to the County of San Bernardino and seven cities in the IEUA service area. The WFA Plan has been incorporated as an appendix within IEUA's regional UWMP 2005. Copies of the notifications are included in the IEUA UWMP 2005, Appendix D.

Table 1-1 provides a list of local and regional agencies and their level of involvement in preparation of this CDA UWMP 2005.

Table 1-1:

Local and Regional Agencies Involved in

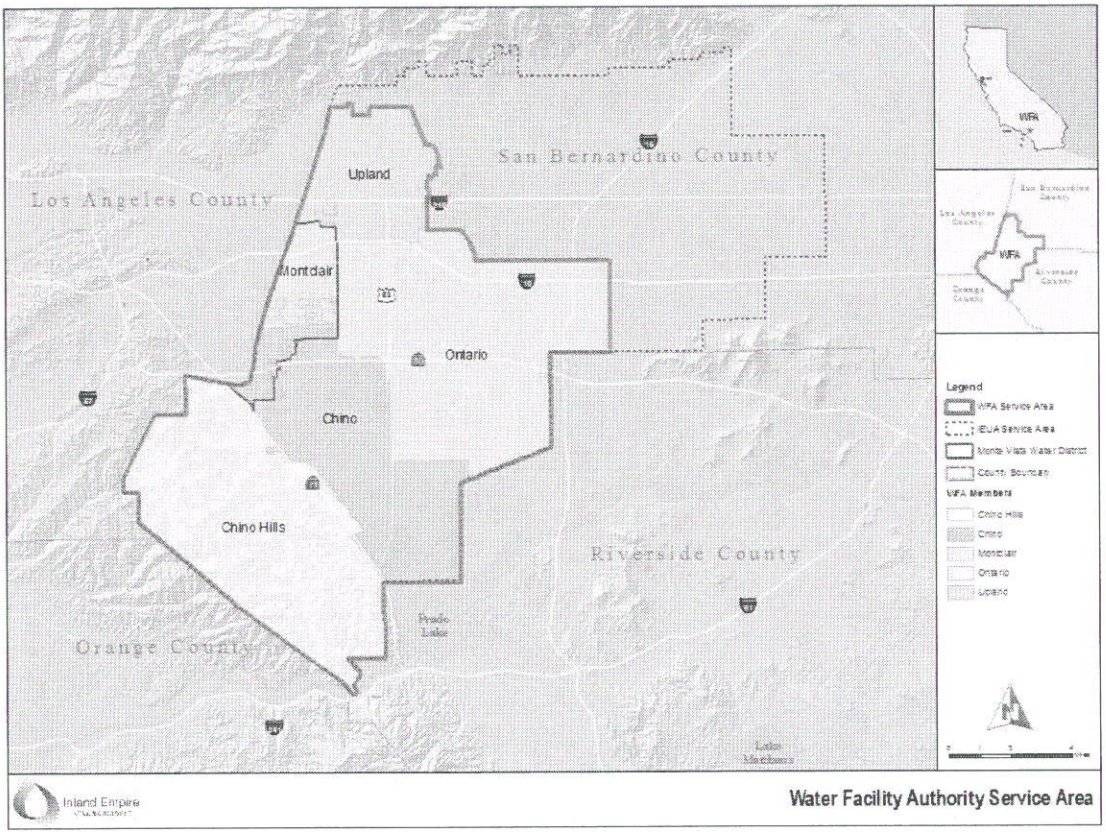
Preparation of the WFA UWMP 2005

	Participated in UWMP Development	Commented on UWMP Draft	Attended Public Meetings	Contacted for Assistance	Received Copy of Draft UWMP	Sent Notice of Intention to Adopt
City of Chino	X	X	X	X	X	X
City of Chino Hills	X	X	X	X	X	X
City of Ontario	X	X	X	X	X	X
City of Upland	X	X	X	X	X	X
Monte Vista WD	X	X	X	X	X	X
City of Montclair					X	X
Chino Basin Desalter Auth.	X	X	X	X	X	X
Metropolitan Water District of Southern California	X	X	X	X	X	X
Santa Ana Watershed Project Authority	X				X	X
Santa Ana Regional Water Quality Board	X				X	X
Chino Basin Water Conservation District	X				X	X
County of San Bernardino	X				X	X

1.4 Water Facilities Authority and its Member Agencies

The Water Facilities Authority (WFA) was formed in 1980 to construct and operate water treatment facilities that provide a supplemental supply of potable water to its member agencies. The WFA was formed as a Joint Powers Authority and is governed by the five water retail agencies its serves: The cities of Chino, Chino Hills, Ontario and Upland and the Monte Vista Water District. Descriptions of these agencies are provided in Table 1-2.

Figure 1-1
Map of WFA Service Area



WFA owns and operates the Agua de Lejos Treatment Plant, a conventional surface water treatment facility that treats and disinfects imported water supplies, primarily state project water that is purchased from the Metropolitan Water District of Southern California through the Inland Empire Utilities Agency. This plant is located on sixteen acres in Upland. It began operations in 1988 and has the capacity to treat 81 million gallons per day (mgd). Recent historical flows through the treatment plant is in the range of 60-70 mgd during the peak summer months and can be as low as 12 mgd during the lower demand winter months.

The WFA is guided by a five-member board of Directors. Each member of the Authority appoints, by Resolution of its governing body, one member of its governing body to act as its representative on the Board. Through its members, the WFA serves approximately 430,000 in the west-end of San Bernardino County.

Table 1-2
Retail Water Agencies Served by WFA

City of Chino	The City of Chino serves water to approximately 73,000 residents of the city and to some unincorporated areas in San Bernardino County
City of Chino Hills	The City of Chino Hills provides water to approximately 79,000 residents of the City within its 46 square mile service area. The City's service area also includes small portions of the cities of Chino and Pomona.
City of Ontario	The City of Ontario supplies water to approximately 169,000 residents of the City and some unincorporated areas of San Bernardino County. The City of Ontario also serves a small portion of the City of Rancho Cucamonga.
City of Upland	The City of Upland encompasses 15 square miles and serves water to approximately 73,000 residents
Monte Vista Water District	Monte Vista Water District is a county water district founded in 1927 that provides retail water agencies to a population of about 47,000 who are located in the City of Montclair, portions of the City of Chino, and in unincorporated areas of San Bernardino County between the cities of Chino, Ontario and Pomona. The District is also a wholesale water supplier to the city of Chino Hills, providing up to 21 million gallons of water per day.

1.5 Regional Collaboration

WFA works closely with its member agencies and other agencies within the region to achieve water supply reliability, water quality and watershed management goals for the Chino Basin, Santa Ana River watershed and the Southern California region. Key agencies, described below, include the Metropolitan Water District of Southern California, Inland Empire Utilities Agency, Santa Ana Watershed Project Authority, Chino Basin Watermaster, Chino Basin Water Conservation District, Santa Ana Regional Water Quality Control Board, and the Chino Basin Desalter Authority.

Metropolitan Water District of Southern California

WFA purchases imported water through the Inland Empire Utilities Agency from Metropolitan Water District of Southern California (MWD). MWD is a public

agency that provides supplemental imported water from Northern California (State Water Project) and the Colorado River to 26 member agencies located in the coastal plains of Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties. Nearly 90% of the population within these counties, about 18 million people, resides within MWD's 5,200 square mile service area. A map of MWD's service area is shown in Chapter 3, Figure 3-3 of the IEUA UWMP 2005.

MWD's primary goal is to provide reliable imported water supplies in conjunction with local supplies to meet the water needs of its service area at the lowest possible cost. To address these challenges, MWD and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996, updated in 2003. The overall objective of the IRP process is the selection and implementation of a Preferred Resource Mix (or strategy) consisting of complementary investments in local water resources, imported supplies, and demand-side management, meeting the region's desired reliability goal in a cost-effective and environmentally sound manner.

MWD prepares its own Regional Urban Water Management Plan (RUWMP). IEUA's UWMP 2005 and this Plan were developed with the information provided from MWD's draft RUWMP (October 2005).

Finally, MWD provides financial support for local water projects implemented by its member agencies that contribute to an increase in the reliable regional water supplies available to the region. Currently, MWD provides financial and technical assistance to its member agencies for implementing water conservation measures, known as Best Management Practices (BMPs). The BMPs are an element of the statewide Memorandum of Understanding regarding Urban Water Management Practices. The Conservation Credits Program (CCP) was established in 1988 by MWD. Currently MWD pays the lesser of one-half the program cost or the equivalent of $154 per acre-foot of water saved through conservation.

Inland Empire Utilities Agency

WFA purchases imported water from the Inland Empire Utilities Agency (IEUA). The Agency was formed as a municipal water district by popular vote of its residents in June 1950 to become a member agency of the Metropolitan Water District of Southern California (MWD) for the purpose of importing water to the area. In recent years, the Agency has expanded its mission to include the provision of regional wastewater treatment services with domestic and industrial disposal systems and energy/production facilities. In addition, IEUA has also become a recycled water supplier and a biosolids/compost service provider as well as being a leader in water quality management and environmental protection.

IEUA's service area covers about 242 square miles in the southwestern corner of San Bernardino County, and serves a population of approximately 700,000. Communities served by IEUA include the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga and Upland, as well as the Monte Vista and Cucamonga Valley Water Districts.

The Agency is governed by a five-member Board of Directors. Each Board member is publicly elected by division to serve a four-year term. The Agency has one representative on MWD's board of directors and three representatives on the Santa Ana Watershed Project Authority Commission.

Santa Ana Watershed Project Authority

WFA's service area is encompassed by the Santa Ana Watershed Project Authority (SAWPA) as a result of IEUA's membership in SAWPA. Formed in 1972, SAWPA is a Joint Exercise Powers Agency (JPA) that coordinates regional planning within the Santa Ana Watershed to address water quality and supply improvements. SAWPA is comprised of the five major water supply and wastewater management agencies within the Santa Ana Watershed: Inland Empire Utilities Agency, Eastern Municipal Water District, Orange County Water District, San Bernardino Valley Municipal Water District and Western Municipal Water District.

In collaboration with its member agencies and regional partnerships, SAWPA completed an Integrated Water Resources Plan for the Santa Ana Watershed in 2002 and updated this plan, consistent with the requirements of an Integrated Regional Water Management Plan, in 2005. SAWPA administers the State Water Bond Act (Prop. 13) funds, approved in March, 2000, for the development of water quality and improvement projects within the Watershed. This Bond Measure provides significant funding for the construction of new water supply and treatment infrastructure within the region.

Since the early 1970's, SAWPA has also played a key role in the development and update of the Regional Basin Plan for the Santa Ana Regional Water Quality Control Board. SAWPA conducts water-related investigations and planning studies, and builds facilities needed for regional water supply, wastewater treatment, or water quality remediation. SAWPA is the owner of a "brine line" known as the Santa Ana River Interceptor (SARI) line, which was constructed to convey high brine wastewater out of the upper Santa Ana River Basin, delivering the wastes to the Orange County Sanitation District for treatment prior to being discharged to the Pacific Ocean. The operation of the SARI line is vital to the removal of salts from the Chino Basin and the protection of this groundwater supply.

Chino Basin Watermaster

The Chino Basin Watermaster (Watermaster) was established in 1978, by a judgment entered by the Superior Court of California. The Judgment requires that the Watermaster develop a management plan for the Chino Groundwater Basin (see Figure 1-2) that meets water quality and water quantity objectives for the region. Groundwater is a core source of supply for WFA's member agencies.

In 1998, the Chino Basin Watermaster developed an integrated set of water management goals and actions for the Basin. Known as the Optimum Basin Management Program (OBMP), this document describes nine program elements to meet the water quality and local production objectives in the Chino Groundwater Basin (See IEUA UWMP 2005, Chapter 6 – Groundwater Management Programs). The OBMP encourages the increased use of local supplies to help "drought proof" the Chino Basin.

In July 2000, the Watermaster's planning process culminated with the adoption of a "Peace Agreement" that ended over 15 years of litigation within the Chino Basin. The Peace Agreement outlines the schedule and actions for implementing the OBMP.

Chino Basin Water Conservation District

The Chino Basin Water Conservation District (CBWCD) was established in 1949 to protect and replenish the Chino Groundwater Basin with rainfall and storm water runoff from the San Gabriel Mountains. CBWCD uses an extensive system of percolation ponds and spreading grounds to augment the natural capacity of the region to capture runoff for the recharge of the groundwater basin. CBWCD also promotes water conservation through its demonstration water conserving garden and an array of public education programs. WFA and its member agencies work closely with the CBWCD.

Santa Ana Regional Water Quality Control Board

The Santa Ana Regional Water Quality Control Board (SA-RWQCB) is responsible for the development and enforcement of water quality objectives to meet the requirements of the Federal Clean Water Act, California Porter-Cologne Act, and the National Pollution Discharge Elimination System (NPDES). WFA meets water quality objectives through its treatment plant.

In 1975, the SA-RWQCB completed the Water Quality Control Plan (Plan) for the Upper portion of the Santa Ana Watershed, with the latest update being issued as a DRAFT in May 2005. The plan addresses specific water quality management actions to manage and control water quality and salt (total dissolved solids) buildup within the lower Chino Groundwater Basin.

Chino Basin Desalter Authority

The "Chino Basin Desalter Authority" (CDA) was formed under a Joint Exercise of Powers Agreement (JPA), creating the CDA, the 25th day of September 2001. The CDA was formed by and among the Jurupa Community Services District (JCSD), the Santa Ana River Water Company (SARWC), the Cities of Chino, Chino Hills, Norco and Ontario and the Inland Empire Utilities Agency (IEUA). Several of WFA's member agencies are members of the CDA (the cities of Chino, Chino Hills and Ontario). The operation of the Chino Basin desalters is vital to the sustainable management of the groundwater supplies in the Chino Basin.

Under the JPA, a six-member Board of Directors leads the CDA; each director is designated and appointed by the governing body of the entity that he or she represents by resolution; an alternate director is also designated to act in the absence of the designated director. IEUA's representative serves as an ex-officio member.

CHAPTER 2
WATER DEMAND WITHIN WFA'S SERVICE AREA

2.1 Overview

The WFA service area is located within one of the most rapidly growing regions of California. The warmer temperature that is characteristic of this interior area of southern California impacts the amount of water needed to meet the growing needs of WFA's member agencies as does the type of development and the level of water efficiency that is incorporated into future construction.

This chapter describes WFA's service area characteristics, including climate, population, land use and water usage including projected levels of water conservation by its member agencies. For more detailed information on area's population, land use and water use trends, please refer to Chapter 2 of the IEUA UWMP 2005.

2.2 Service Area Geography and Climate

WFA's service area covers about **xx** square miles within the upper Santa Ana River watershed. The service area is located within the boundary of the Chino Basin at the west end of San Bernardino County. This is an alluvial valley that is relatively flat from east to west and slopes along a north south grade. The service area is bounded to the north by the San Gabriel Mountains and on the west by the Chino Hills. The principal drainage within the Chino Basin is the Santa Ana River which flows along the southern Chino boundary to the Prado Flood Control Reservoir where it is eventually discharged through the outlet at Prado Dam and ultimately to the Pacific Ocean.

WFA's service area is located within the desert climate zone of southern California. The region receives an average annual rainfall of about 15 inches. Monthly average temperature ranges from a low of 67 degrees in January to a high of 95 degrees in July. Daily records show summer temperature has been as high as 114 degrees. During the fall and winter, dry Santa Ana winds can greatly impact the need for landscape irrigation. Table 2-1 shows monthly average evapotranspiration (ETo), rainfall and temperature within the service area.

Table 2-1
WFA Service Area Climate[1]

	Jan	Feb	Mar	Apr	May	June
Standard Monthly Average Eto	2	2.28	3.43	4.62	4.99	6.04
Average Rainfall (inches)	3.65	2.85	2.8	1.13	0.26	0.04
Average Temperature (F°)	66.8	69.4	70.1	74.5	79.9	86.7

	July	Aug	Sept	Oct	Nov	Dec	Annual
Standard Monthly Average Eto	6.98	6.97	5.27	3.96	2.65	2.06	51.25
Average Rainfall (inches)	0.01	0.11	0.34	0.34	1.72	2.07	15.32
Average Temperature (F°)	95	94.4	91.3	83	73.6	68.3	79.4

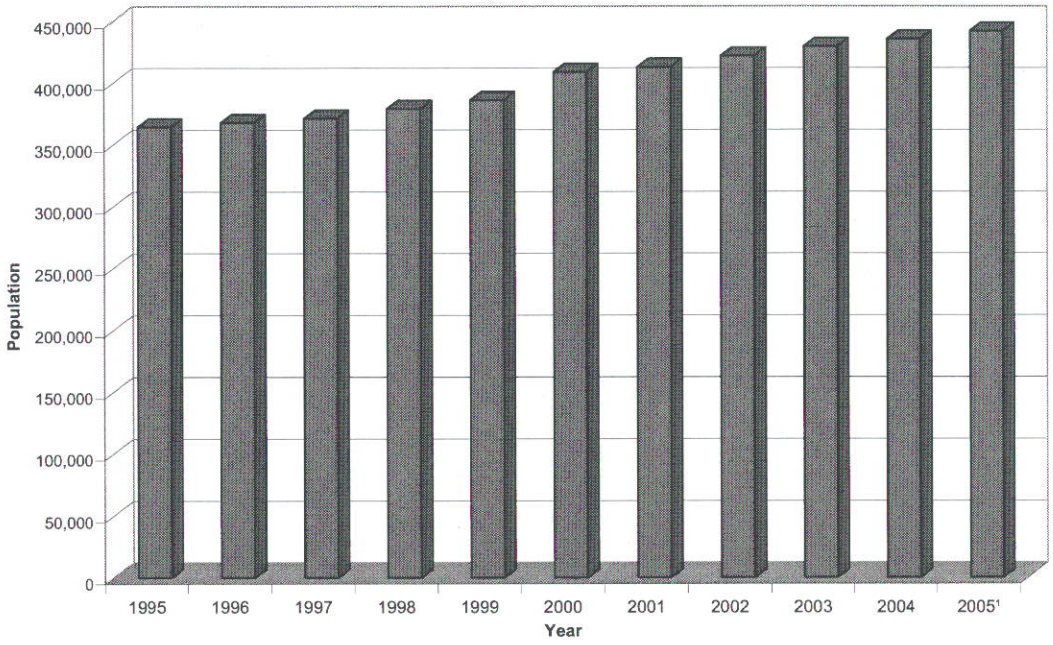
[1]Data provided by NOAA and CIMIS websites

As described in the IEUA UWMP 2005 (page 2-11), per capita water usage within San Bernardino County is higher than in San Diego, Orange County or Los Angeles Counties. This is can be largely attributed to climate differences, with San Bernardino County experiencing much warmer temperatures than the comparatively cooler areas located closer to the ocean.

2.3 Past Population and Water Use

WFA's service area has experienced rapid growth over the past ten years (see Figure 2-1). Population within the service area was approximately 365,000 in 1995. By 2000, the area had grown to a population of about 409,000 and by 2005 to an estimated population of 442,000.

Figure 2-1
1995-2005 Population within WFA's Service Area



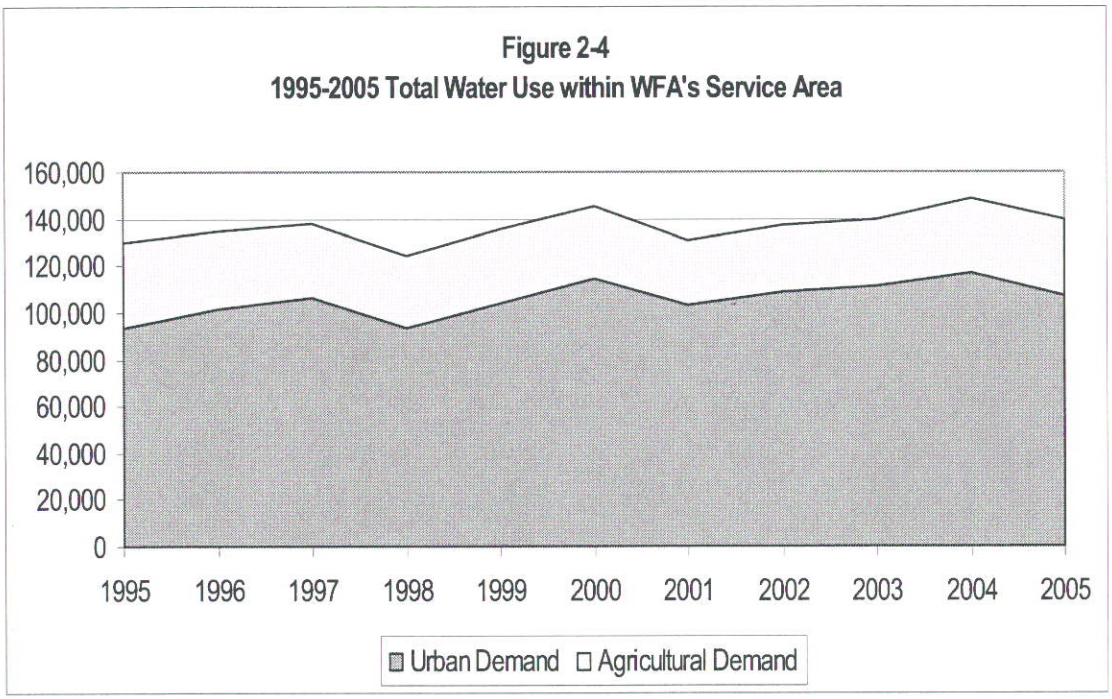
The annual rate of increase over the ten year period has been about 2%. The city Chino Hills experienced the highest rate of growth during this time, with an estimated annual rate of increase of 6.4%. As shown in Table 2-2, the largest cities served within the WFA service area are Ontario, Chino and Chino Hills.

Table 2-2: 1995 - 2005 Population within WFA's Service Area

	1995	1996	1997	1998	1999
CHINO	62,685	63,295	63,275	64,844	65,862
CHINO HILLS	47,791	49,689	51,982	54,966	58,271
MONTCLAIR	29,731	29,923	30,058	30,298	30,625
ONTARIO	141,581	142,229	143,140	145,533	147,423
UPLAND	65,940	66,133	66,450	67,377	68,112
UNINCORPORATED	16,769	16,577	16,442	16,202	15,875
Total	364,497	367,846	371,347	379,220	386,168
	2000	**2001**	**2002**	**2003**	**2004**
CHINO	67,168	67,958	69,271	70,983	72,054
CHINO HILLS	66,787	68,798	71,532	73,366	76,401
MONTCLAIR	33,049	33,553	34,130	34,478	34,729
ONTARIO	158,007	160,046	163,589	166,518	167,921
UPLAND	68,393	69,592	71,066	72,183	72,709
UNINCORPORATED	15,590	12,947	12,370	12,022	11,771
Total	408,994	412,894	421,958	429,550	435,585

Currently about 80% of the water use within WFA's service area is for urban (residential, commercial, industrial and institutional uses), as shown in Figure 2-2. The remaining 20% of the water has been used for agricultural purposes. All of the water used for urban purposes is distributed through the five retail agencies that serve the population within WFA's service area. Water used for agricultural purposes is pumped directly from private wells.

Figure 2-2 1995 – 2005 Total Water Use within WFA's Service Area



The overall trend in the area's water demand over the past ten years has been one of growth, reflecting the increase in population and resulting urban uses. Total water usage (urban and agricultural) has ranged between about 130,000 acre-feet per year in 1995 and a peak of approximately 138,000 acre-feet per year in 2005. During this same period, water used for agriculture decreased by about 6,000 acre-feet per year, consistent with the conversion of these lands to urban development as described in the IEUA UWMP 2005 (see pages 2-4 – 2-6). The cities of Ontario and Chino are expected to experience the greatest conversion of these lands.

In 2005, the trend toward increasing water usage was reversed. The 2005 total water demand was 138,000 acre-feet which was lower than the 2000 demand of 145,500 acre-feet despite significant population growth during this period. Fiscal year 2005 was the second wettest year on record (within the last hundred years)

which contributed to the reduced demand. In addition, regional conservation programs were significantly expanded during this five year period and contributed to the area's reduced water usage.

As shown in Table 2-3, the retail agencies with the largest demand within the WFA service area in 2005 are city of Ontario (about 44,000 acre-feet per year), city of Upland (about 20,000 acre-feet per year) and the city of Chino Hills (about 17,000 acre-feet per year).

Table 2-3

1995-2005 Water Demand by Retail Agencies & Agricultural Water Use within WFA's Service Area[1]

Agency	1995	1996	1997	1998	1999	2000	2001	2002[2]	2003[2]	2004[2]	2005[2]
City of Chino	12,638	13,695	14,556	13,003	14,252	15,764	14463	15,447	15,888	17,494	15,759
City of Chino Hills	13,088	14,134	15,050	13,185	14,102	17,333	16,608	15,242	16,567	18,402	16,726
City of Ontario	37,551	41,401	42,866	38,841	42,614	46,420	40,340	43,836	45,778	46,146	43,802
City of Upland	19,871	21,318	21,730	18,397	20,653	23,038	20,289	22,496	20,813	22,426	19,847
Monte Vista Water District	10,525	11,250	11,818	10,138	12,076	11,924	11,735	12,026	12,149	12,448	11,418
Agriculturual	35,966	32,941	31,814	30,775	32,336	30,993	27,397	27,878	28,429	31,790	31,790
Total	129,639	134,739	137,834	124,339	136,033	145,472	130,832	136,925	139,624	148,706	139,342

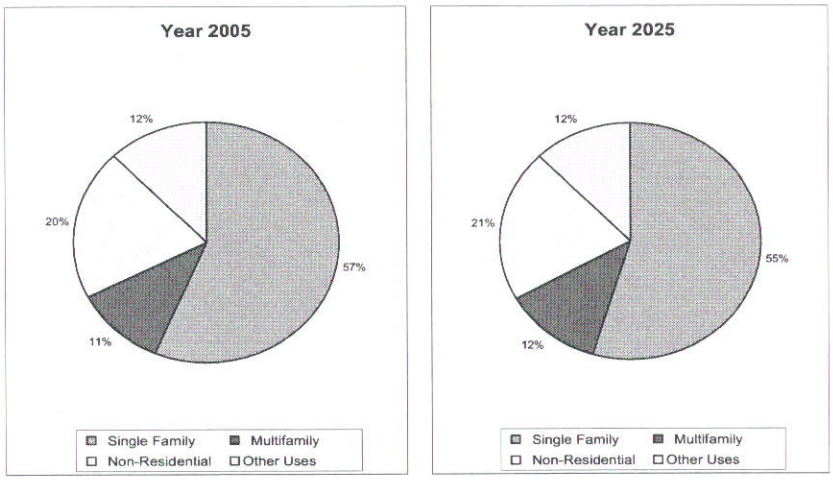
[1]Data from Chino Basin Watermaster Assesment Tables. All values are fiscal year totals.

[2]Data from IEUA Annual Production Reports

[3]Estimated value

Within the urban sector, more than half (58%) of the water used within WFA's service area is for single family homes (see figure 2-3). The remaining demand is divided among non-residential (commercial/industrial) uses (20%), multi-family (11%) and unmetered uses and system losses (12%). These estimated uses for 2005 are unchanged from the estimated uses in 2000, and are consistent with uses within IEUA's service area as a whole (see IEUA UWMP 2005, page 2-9).

Figure 2-3 Total Urban Water Demand by Sector of Use for 2000 and 2005



Source: All information from MWD Main tables.

2.4 Future Population and Water Demand

As a result of the current strong housing market in southern California, population is expected to grow over the next twenty years at about the same pace than experienced in the last fifteen years. The projected population within WFA's service area in 2025 is about 642,000 people. This represents an increase of about 199,000 people over the twenty year period, with an annual growth rate of 2.2%. The rate of growth for the WFA service area is slightly higher than the rate of 1.7% projected for the IEUA service area due to the high levels of expected development within the cities of Chino and Ontario.

Table 2-4

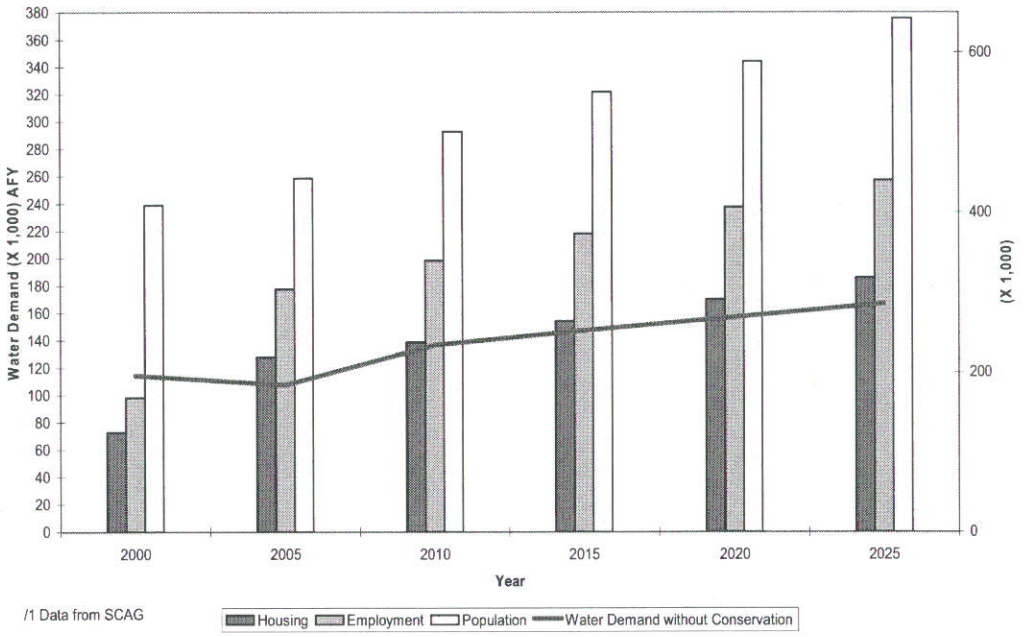
2000-2025 Projected Population by Communities within WFA's Service Area[1]

	2000	2005	2010	2015	2020	2025
CHINO	67,168	73,125	91,090	114,978	124,476	126,646
CHINO HILLS	66,787	79,436	78,307	80,126	81,916	106,500
MONTCLAIR	33,049	34,980	34,709	34,808	34,904	34,997
ONTARIO	158,007	169,324	204,645	226,182	250,811	275,440
UPLAND	68,393	73,235	80,143	82,563	84,949	87,239
UNICORPORATED	15,590	12,041	11,791	11,692	11,596	11,503
Total	**408,994**	**442,141**	**500,685**	**550,349**	**588,652**	**642,325**

[1]Data from Southern California Area Governments (SCAG).

Employment within the service area is forecasted by the Southern California Association of Governments to increase by over 100,000 jobs in the next twenty years (see Figure 2-4). This corresponds to an average annual increase of almost 3%. Housing stock is expected to increase by a projected 76,000 occupied units, representing an average annual increase of 3.2%.

Figure 2-4
2000-2025 Population, Housing and Employment Projections for WFA's Service Area

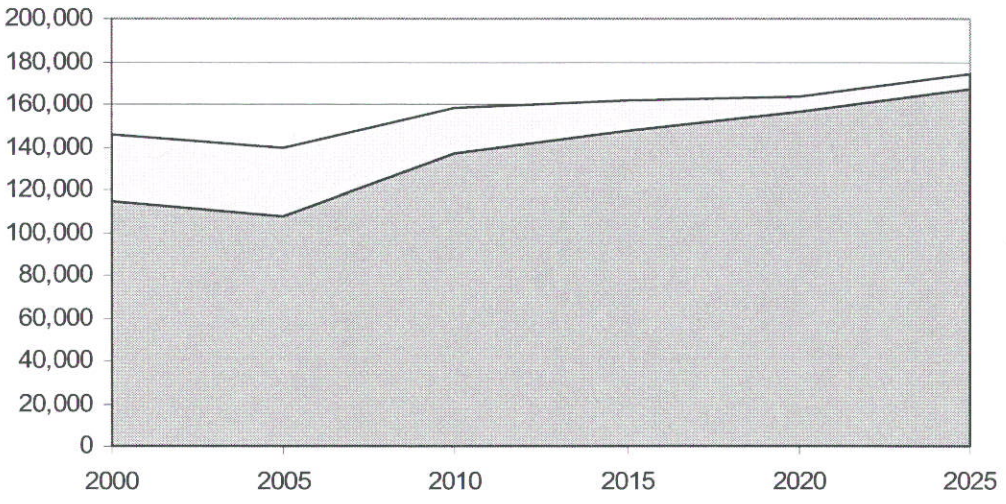


/1 Data from SCAG

The largest amount of growth within WFA's service is expected to occur in the cities of Chino and Ontario. The expected 2025 population is about 276,000 people in Ontario and about 127,000 people in Chino. These two cities have annexed dairy and other agricultural lands within the southern portion of the Chino Basin with the expectation that a majority of these lands will convert to urban uses. Many of these areas will become master planned communities with predominantly single family, multi-family and commercial land uses. At the same time, a small portion of the dairy industry is expected to remain in the Chino Basin. This will likely occur on the lands that are below the 566 foot elevation which are zoned for agricultural and open space uses compatible with the Prado Basin flood plain.

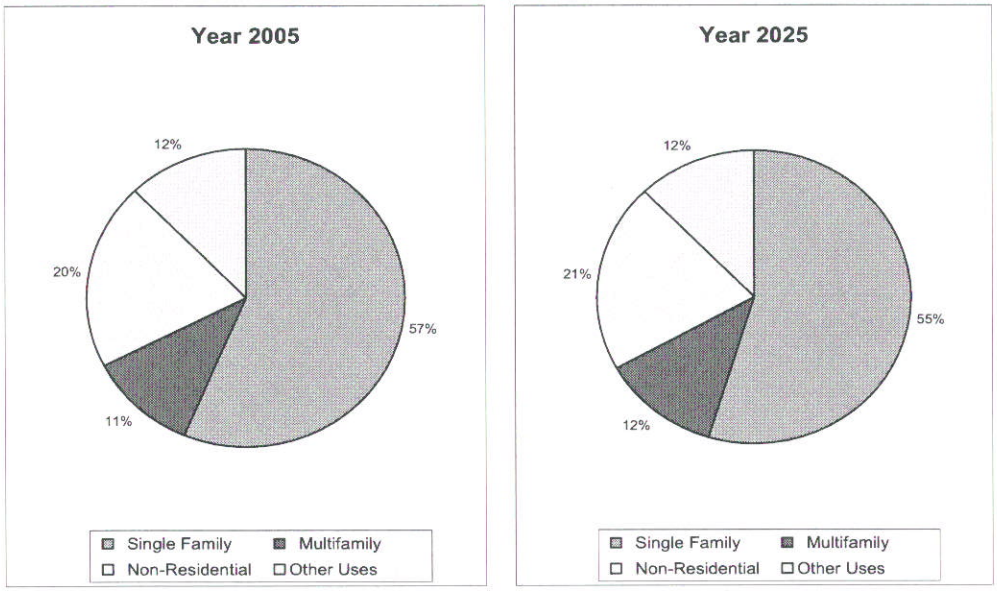
Based upon these future expected land uses, water used for agricultural purposes is expected to decline from 20% of the water demand to less than 6% of the demand, as shown in Figure 2-5.

Figure 2-5
1995-2005 Total Water Use within WFA's Service Area



With urban sector, the types of water usage are not expected to change significantly from the current categories of use. Overall, 76% of the water demand within WFA's service area by 2025 is forecasted to come from single family and multi-family homes as shown in Figure 2-6. This is roughly equivalent to the 78% of the demand attributable to single and multi family homes in 2005.

Figure 2-6 Total Urban Water Demand by Sector of Use for 2005 and 2025



Source: All information from MWD Main tables.

Projected total water needs *without conservation* within WFA's service area by 2025 are expected to increase by about 38,000 acre-feet (from about 140,000 acre-feet per year in 2005 to about 178,000 acre-feet in 2025). This represents a potential 27% increase in the area water needs if no additional improvements in local water use efficiency occur during the next twenty years, including no increase in state and/or federal regulatory standards for development and landscaping and now implementation of new demand side management and conservation programs within WFA's service area.

As described in the IEUA UWMP 2005, the conservative nature of these future demand projections is underscored when compared with the demand forecast made by MWDSC for IEUA's service (see page 2-14). Overall, IEUA's urban water demand projections are as much as 16% higher than those forecasted by MWD's model, despite reliance on the same future population and economic growth estimates.

Table 2-5
Projected Water Demand without Conservation
By WFA Member Agencies

	2000	2005	2010	2015	2020	2025
City of Chino	15,764	15,759	24,597	27,506	29,834	31,834
City of Chino Hills	17,333	16,726	20,191	20,796	21,420	22,063
City of Ontario	46,420	43,802	56,950	63,150	69,250	75,950
City of Upland	23,038	19,847	21,644	21,944	21,944	21,944
Monte Vista Water District	11,924	11,418	13,100	13,730	14,365	15,000
Subtotal	114,479	107,552	136,482	147,126	156,813	166,791
Agricultural Demand[2]	30,993	31,790	22,000	15,000	7,000	7,000
Total Demand[3]	145,472	139,342	158,482	162,126	163,813	173,791

	2000	2005	2010	2015	2020	2025
MWD M&I Demand[4]	89,424	101,430	117,110	124,224	135,681	145,726

[1]Local Agency Projection – Black & Veatch (2005)
[2]OBMP Projection – Chino Basin Watermaster assumed portion in IEUA service area
[3]Does not include conservation
[4]Comparison only – MWD Draft UWMP

	2000	2005	2010	2015	2020	2025
IEUA Total Demand	220,884	226,700	283,500	302,500	322,400	343,600
IEUA Agricultural Demand	30,993	30,000	28,900	19,700	10,000	10,000

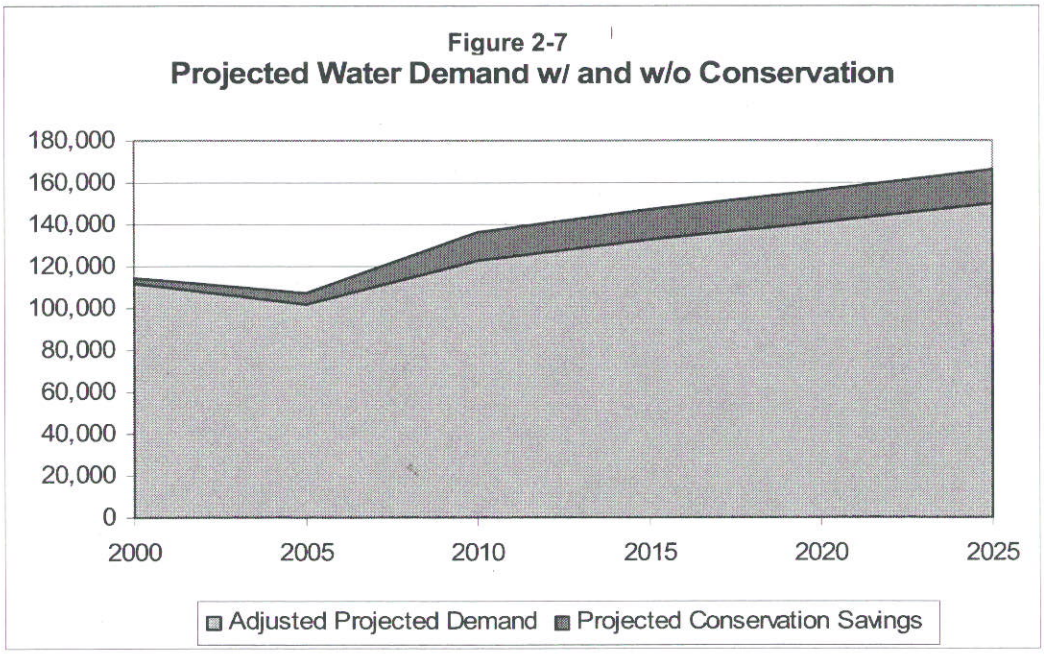
Projected total water needs *with a 10% conservation* rate within WFA's service area by 2025 are expected to increase by about 22,500 acre-feet (from about 134,500 in 2005 to 157,000 acre-feet in 2025). This rate of conservation is consistent with the regional goal established in the IEUA UWMP 2005. The regional conservation program includes full implementation of the Conservation Best Management Practices plus additional programs and policies to ensure that all sectors of water use maximize water efficiency (see Chapter 4, Water Conservation). Table 2-6 shows a comparison of total urban demand with and without conservation.

Table 2-6
2000-2025 Projected Water Demand with Conservation
By WFA Member Agencies

	2000	2005	2010	2015	2020	2025
City of Chino	15,764	15,759	24,597	27,506	29,834	31,834
City of Chino Hills	17,333	16,726	20,191	20,796	21,420	22,063
City of Ontario	46,420	43,802	56,950	63,150	69,250	75,950
City of Upland	23,038	19,847	21,644	21,944	21,944	21,944
Monte Vista Water District	11,924	11,418	13,100	13,730	14,365	15,000
Subtotal	114,479	107,552	136,482	147,126	156,813	166,791
Projected Conservation Savings	3,000	5,500	13,648	14,713	15,681	16,679
Adjusted Projected Demand	111,479	102,052	122,834	132,413	141,132	150,112

Per capita water usage is impacted within WFA's service area by both the regional conservation and recycled water programs. Without additional conservation and the use of recycled water, per capita water usage within WFA's service area is expected to increase to more than 239 gallons per capita daily. With project conservation and recycled water programs, per capita water usage is expected to decrease to 118 per capita daily, one of the lowest water usage rates within the interior area of Southern California and under the state average of 221 GPCD projected by California Department of Water Resources in the California Water Plan.

Figure 2-7
Projected Water Demand w/ and w/o Conservation



CHAPTER 3
WATER SUPPLIES WITHIN WFA'S SERVICE AREA

3.1 Overview

This chapter describes the past and future water resources available to the WFA and to its retail agencies. For more detailed information on area's historic water supply trends and past, current and future local supplies, please refer to Chapter 3 of the IEUA UWMP 2005.

3.2 Historic Water Supplies within WFA's Service Area

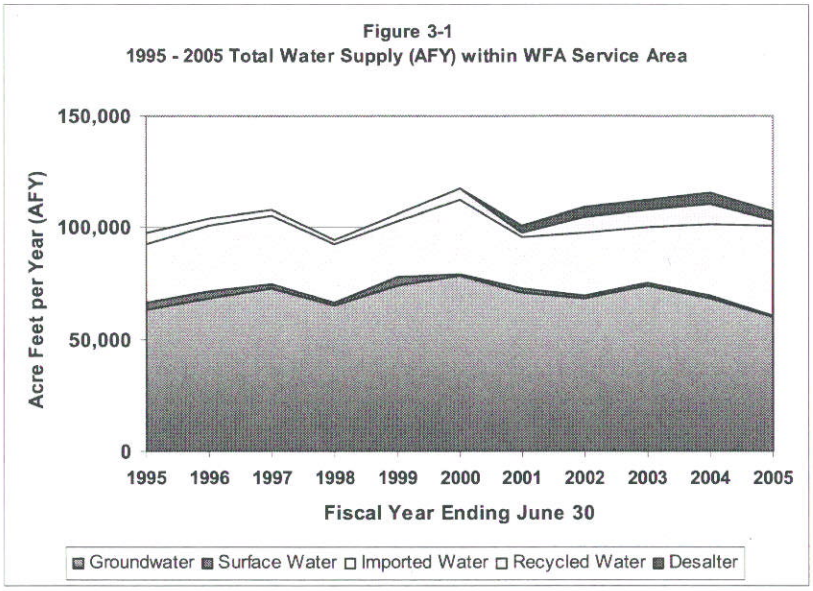
The urban water used in WFA's service area comes from both imported and local sources. Imported water is purchased by WFA and is comprised of State Water Project deliveries. WFA provides treats the imported water before delivering this supplemental supply to its member agencies. Local sources of water supply for WFA's member agencies include groundwater, surface water, desalinated water and recycled water. Total water production by source, including agricultural water pumping, within WFA's service area is summarized in Table 3-1.

Table 3-1 Total Water Production (AFY) by Source Within WFA Service Area

	Fiscal Year Ending June 30					
Water Source	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Chino Basin Groundwater	52,638	54,982	57,773	53,835	59,839	61,183
Other Basin Groundwater	10,383	13,036	14,705	11,478	14,071	17,406
Surface Water	3,345	3,334	2,353	1,257	4,115	346
Imported Water	26,341	29,468	30,287	26,167	24,564	33,616
Recycled Water	4,687	3,212	2,884	1,950	3,647	4,660
Desalter	0	0	0	0	0	0
Agricultural use	35,986	32,941	31,814	30,775	32,336	30,923
Total	**133,380**	**136,972**	**139,816**	**125,463**	**138,572**	**148,134**
	Fiscal Year Ending June 30					
Water Source	**2001**	**2002**	**2003**	**2004**	**2005**	
Chino Basin Groundwater	55,931	53,027	61,601	52,873	49,062	
Other Basin Groundwater	11,684	10,609	7,532	10,930	10,947	
Surface Water	1,999	1,499	1,155	1,364	467	
Imported Water	22,653	27,986	25,096	31,549	40,359	
Recycled Water	1,863	6,768	7,576	9,264	2,814	
Desalter	3,213	4,519	4,778	4,696	3,904	
Agricultural use	27,397	27,878	28,429	31,790	31,790	
Total	**124,740**	**132,286**	**136,168**	**142,466**	**139,342**	

Over the ten year period, total urban water supplies within the WFA service area have ranged from a low of 95,000 acre-feet per year to a high of 115,000 acre-feet per year. The relative contribution of groundwater, surface, imported, recycled and desalter water is shown in Figure 3-1.

Figure 3-1
1995 - 2005 Total Water Supply (AFY) within WFA Service Area



Groundwater is the predominate source of the urban water used in WFA's service area, and provided about 55-60%% of the water supply on average over the past ten years. Imported water is the next largest category, and ranges from 30-35% of the water supplies with WFA's service area depending on the water year. About 6-9% of the water supply comes from recycled and desalted sources which is a growing source of new supply for the area. Surface water from the San Gabriel Mountains comprises a small portion of the water used within the service area. Chapter 3 in the IEUA UWMP 2005 provides a detailed description of each of these sources of water.

The following tables provide a break out by each WFA member agency on the water production by source between 1995 and 2005.

Table 3-2 (a)-(e) 1995-2005 Water Production within WFA Service Area

(a) Chino Basin Groundwater Supply (AF/yr) Within WFA Service Area

Entity	Fiscal Year Ending June 30					
	1995	1996	1997	1998	1999	2000
City of Chino	8,530	9,373	10,231	8,821	10,081	10,201
City of Chino Hills	3,430	4,059	2,202	2,909	4,343	4,264
City of Ontario	29,404	32,909	34,096	33,426	34,603	36,523
City of Upland	4,139	2,512	2,119	1,851	2,189	1,570
Monte Vista Water District	7,134	6,128	9,126	6,829	8,624	8,626
Total Chino Basin GW	**52,638**	**54,982**	**57,773**	**53,835**	**59,839**	**61,183**

Entity	Fiscal Year Ending June 30				
	2001	2002	2003	2004	2005
City of Chino	7,147	5,613	6,020	6,282	6,096
City of Chino Hills	4,063	3,398	6,799	7,671	6,108
City of Ontario	33,988	31,968	35,050	29,214	28,620
City of Upland	1,566	2,390	5,026	1,926	1,674
Monte Vista Water District	9,166	9,658	8,707	7,781	6,668
Total Chino Basin Ground Water	**55,931**	**53,027**	**61,601**	**52,873**	**49,166**

(b) Groundwater Supply (AFY) from Other Basins Used Within WFA Service Area

Entity	Fiscal Year Ending					
	1995	1996	1997	1998	1999	2000
City of Upland	10,383	13,036	14,705	11,478	14,071	17,406
Total Other Groundwater	**10,383**	**13,036**	**14,705**	**11,478**	**14,071**	**17,406**

Entity	Fiscal Year Ending				
	2001	2002	2003	2004	2005
City of Upland	11,684	10,609	7,532	10,930	10,947
Total Other Groundwater	**11,684**	**10,609**	**7,532**	**10,930**	**10,947**

(c)Surface Water Supply (AFY) Within WFA Service Area

Entity	Fiscal Year Ending					
	1995	1996	1997	1998	1999	2000
City of Upland	3,345	3,334	2,353	1,257	4,115	346
Total Surface Water	**3,345**	**3,334**	**2,353**	**1,257**	**4,115**	**346**

Entity	Fiscal Year Ending				
	2001	2002	2003	2004	2005
City of Upland	1,999	1,499	1,155	1,364	467
Total Surface Water	**1,999**	**1,499**	**1,155**	**1,364**	**467**

(d) Recovered Water Supply from CDA (AF/yr) Within WFA Service Area

Entity	Fiscal Year Ending June 30				
	2001	2002	2003	2004	2005
City of Chino	1,488	2,773	2,835	2,802	2,654
City of Chino Hills	1,725	1,746	1,944	1,895	1,250
City of Ontario	0	0	0	0	0
City of Upland	0	0	0	0	0
Monte Vista Water District	0	0	0	0	0
Total Desalter Water	**3,213**	**4,519**	**4,778**	**4,696**	**3,904**

(e) Recycled Water Supply (AFY) Within WFA Service Area

Entity	Fiscal Year Ending 1995	1996	1997	1998	1999	2000
City of Chino	0	0	0	0	100	368
City of Chino Hills	0	0	0	0	0	129
City of Ontario	893	920	809	690	1,003	1,073
City of Upland	0	0	0	0	0	0
Total Recycled Water	**893**	**920**	**809**	**690**	**1,103**	**1,570**

Entity	Fiscal Year Ending 2001	2002	2003	2004	2005
City of Chino	293	368	958	1,544	830
City of Chino Hills	569	798	767	1,058	815
City of Ontario	1,001	1,232	1,197	1,160	1,169
City of Upland	0	0	88	0	0
Total Recycled Water	**1,863**	**2,398**	**3,009**	**3,762**	**2,814**

Insert table 3-2 e on desalter supplies

3.3 WFA Water Supply Sources

The source water supply to WFA is State Water Project (SWP) water purchased from the Metropolitan Water District of Southern California through the Inland Empire Utilities Agency. WFA's treatment plant is connected to MWD's distribution system through the Rialto Feeder Pipeline. The water purchased by WFA is categorized as a "full service" supply.

Insert Figure 3 – 2 MWD Service Area Map from IEUA UWMP

The SWP is California's state-built water and power development and conveyance system. It includes pumping and power plants; reservoirs, lakes and storage tanks, canals, tunnels and pipelines that capture, store and convey water from northern California to southern California. The original State Water Contract called for an ultimate delivery capacity of 4.2 million acre-feet, with Metropolitan holding a contract for delivery capacity of about 2 million acre-feet.

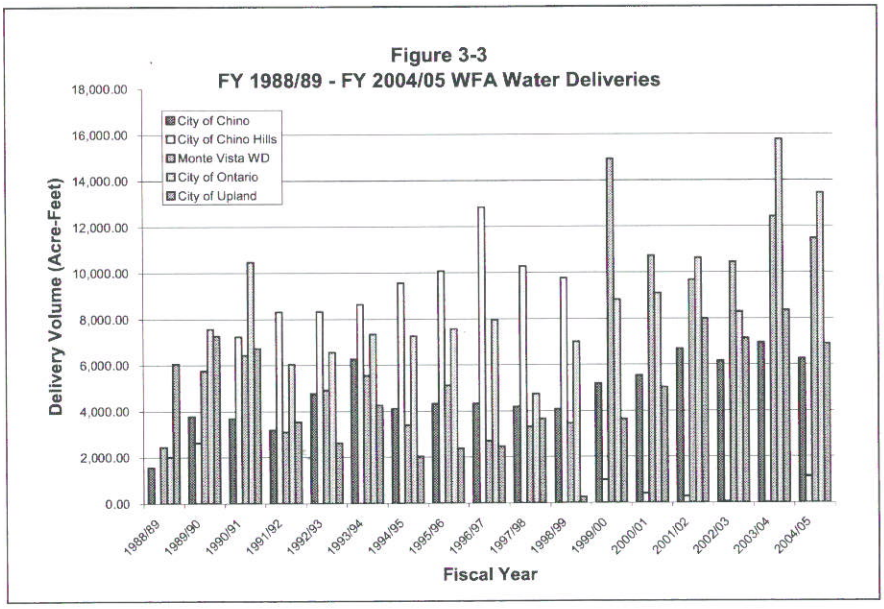
MWD's Regional Urban Water Management Plan (draft October 2005) provides a detailed description of its facilities and imported water supplies, including the SWP. Through its Plan and related planning documents including the 1996 Integrated Resources Plan, MWD provides assurance that all full service demands will be satisfied under all "foreseeable hydrologic" conditions (MWD 2005 RUWMP, page II-7).

Historic MWD deliveries to WFA are shown in Table 3 – 2. WFA made its first purchase of SWP water in 1988, delivering about 12,000 acre-feet per year. Firm full service purchases of SWP by WFA have grown from about 26,500 acre-feet per year in 1995 to approximately 40,000 acre-feet per year in 2005. The running average over the past seventeen years is about 30,000 acre-feet per year.

Table 3-3 Imported Water Supply (AF/yr) Within WFA Service Area

Entity	Fiscal Year Ending June 30					
	1995	1996	1997	1998	1999	2000
City of Chino	4,108	4,322	4,325	4,182	4,071	5,195
City of Chino Hills	9,658	10,075	12,848	10,276	9,759	12,940
City of Ontario	7,254	7,573	7,961	4,726	7,009	8,824
City of Upland	2,004	2,435	2,553	3,811	278	3,717
Monte Vista Water District	3,390	5,122	2,692	3,309	3,452	3,298
Total Imported MWD Water	**26,414**	**29,527**	**30,378**	**26,304**	**24,569**	**33,973**

Entity	Fiscal Year Ending June 30				
	2001	2002	2003	2004	2005
City of Chino	5,534	6,693	6,076	3,601	4,288
City of Chino Hills	10,251	9,300	7,058	6,278	7,053
City of Ontario	5,351	10,636	9,531	8,577	14,012
City of Upland	5,039	7,998	7,012	8,206	6,902
Monte Vista Water District	2,569	2,368	3,442	452	0
Total Imported MWD Water	**28,744**	**36,995**	**33,119**	**27,114**	**32,255**



3.4 Future Water Supply Strategy Within WFA's Service Area

The regional water management goal within both WFA's and IEUA's service areas is to maximize the use of local water supplies and minimize the need for additional imported water, especially during dry years and other emergencies when imported water is less reliable.

Figure 3-4
2000 - 2025 Projected Water Supply Needed to Meet Urban Demand

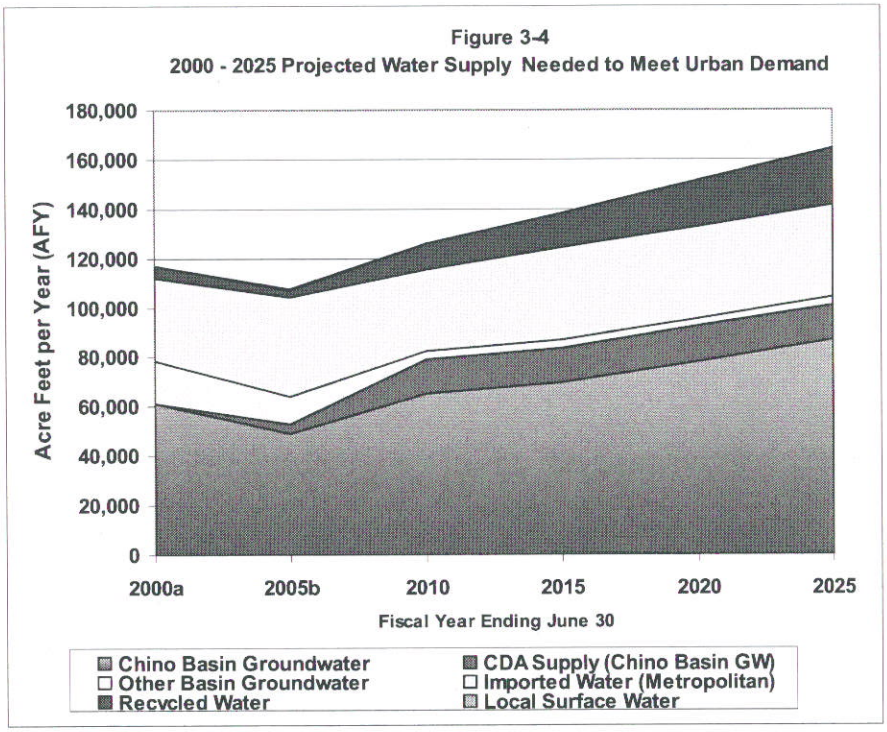


Table 3-4 Projected Urban Water Supply In WFA Service Area By Source (AFY)

Source of Water Use	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino Basin Groundwater	61,183	49,062	64,992	69,407	78,047	86,743
CDA Supply (Chino Basin GW)	0	3,904	14,200	14,200	14,200	14,200
Other Basin Groundwater	17,406	10,947	3,311	3,311	3,311	3,311
Imported Water (Metropolitan)	33,616	40,259	32,990	37,208	36,985	37,118
Recycled Water	4,700	2,814	10,570	14,340	19,210	23,300
Local Surface Water	346	467	0	0	0	0
Total [c]	**117,251**	**107,453**	**126,063**	**138,466**	**151,753**	**164,672**

[a] Actual Values [b]Estimated Values based on Wet Year [c]Rounded to nearest hundered

As discussed in the IEUA UWMP 2005, the majority of the additional water supplies needed to meet the area's growing water needs will come primarily from groundwater, desalinated water and recycled water. Table 3-4 shows a summary chart of these projected water supplies. The quantities of these local

supplies are projected to increase by 186% over the next two decades (from 67,000 acre-feet per year in 2005 to an expected supply of 127,000 acre-feet per year in 2025).

Table 3-5(a – e) 2005 – 2025 Water Production within WFA Service Area

(a) Projected Chino Basin Groundwater Production Used in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	10,201	6,096	9,599	10,874	11,959	13,200
Chino Hills, City of	4,264	6,108	3,610	3,610	3,610	3,610
Monte Vista Water District	8,626	6,668	16,050	17,290	17,745	18,200
Ontario, City of	36,523	28,620	31,900	33,800	40,900	47,900
Upland, City of	1,570	1,569	3,833	3,833	3,833	3,833
Total [c]	**61,183**	**49,062**	**64,992**	**69,407**	**78,047**	**86,743**

[a] Actual Values [b]Estimated Values based on Wet Year [c]Rounded to nearest hundred

(b) Projected Chino Basin Groundwater Production Used in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	10,201	6,096	9,599	10,874	11,959	13,200
Chino Hills, City of	4,264	6,108	3,610	3,610	3,610	3,610
Monte Vista Water District	8,626	6,668	16,050	17,290	17,745	18,200
Ontario, City of	36,523	28,620	31,900	33,800	40,900	47,900
Upland, City of	1,570	1,569	3,833	3,833	3,833	3,833
Total [c]	**61,183**	**49,062**	**64,992**	**69,407**	**78,047**	**86,743**

[a] Actual Values [b]Estimated Values based on Wet Year [c]Rounded to nearest hundred

(c) Projected Chino Basin Desalter Water Supply (AFY) Used in WFA Service Area (AFY)

Agency	Contracted Volume	Fiscal Year Ending June 30				
		2005[b]	2010	2015	2020	2025
City of Chino	5,000	2,654	5,000	5,000	5,000	5,000
City of Chino Hills	4,200	1,250	4,200	4,200	4,200	4,200
City of Ontario	5,000	0	5,000	5,000	5,000	5,000
Subtotal for IEUA	**14,200**	**3,904**	**14,200**	**14,200**	**14,200**	**14,200**
Jurpa Community Services District	8,200	8,200	8,200	10,700	10,700	10,700
Santa Ana River Water Company	1,200	0	1,200	1,200	1,200	1,200
City of Norco	1,000	0	1,000	1,000	1,000	1,000
Subtotal for WMWD	**10,400**	**8,200**	**10,400**	**12,900**	**12,900**	**12,900**
Total [c]	**24,600**	**12,104**	**24,600**	**27,100**	**27,100**	**27,100**

[b]Estimated Values based on Wet Year [c]Rounded to nearest hundred

(d) Projected Other Basin Groundwater Supply in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	0	0	0	0	0	0
Chino Hills, City of	0	0	0	0	0	0
Monte Vista Water District	0	0	0	0	0	0
Ontario, City of	0	0	0	0	0	0
Upland, City of	17,406	10,947	3,311	3,311	3,311	3,311
Total [c]	**17,406**	**10,947**	**3,311**	**3,311**	**3,311**	**3,311**

[a] Actual Values

[b] Estimated Values based on Wet Year

[c] Rounded to nearest hundred

Table 3-4(d) Projected Surface Water Production Used in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	0	0	0	0	0	0
Chino Hills, City of	0	0	0	0	0	0
Monte Vista Water District	0	0	0	0	0	0
Ontario, City of	0	0	0	0	0	0
Upland, City of	346	467	0	0	0	0
Total [c]	**346**	**467**	**0**	**0**	**0**	**0**

[a] Actual Values

[b] Estimated Values based on Wet Year

[c] Rounded to nearest hundred

(e) Projected Recycled Water Production Used in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	368	830	4,600	6,300	7,500	8,300
Chino Hills, City of	129	815	1,020	1,815	2,610	3,000
Monte Vista Water District	0	0	550	825	1,100	1,400
Ontario, City of	1,073	1,169	4,400	5,400	8,000	10,600
Upland, City of	0	0	0	0	0	0
Subtotal	**1,570**	**2,814**	**10,570**	**14,340**	**19,210**	**23,300**
IEUA	3,090	4,586	14,215	17,330	19,395	22,850
Total Recycled Water Direct Use	**4,700**	**7,400**	**28,600**	**37,100**	**45,900**	**46,150**
Future Recycled Water Supply						
Direct Use	4,700	7,400	39,000	49,000	58,000	69,000
Groundwater Replinishement (IEUA)		1,000	22,000	25,000	28,000	35,000
Total Recycled Water Use[c]	**4,700**	**8,400**	**61,000**	**74,000**	**86,000**	**104,000**

[a] Actual Values

[b] Estimated Values based on Wet Year

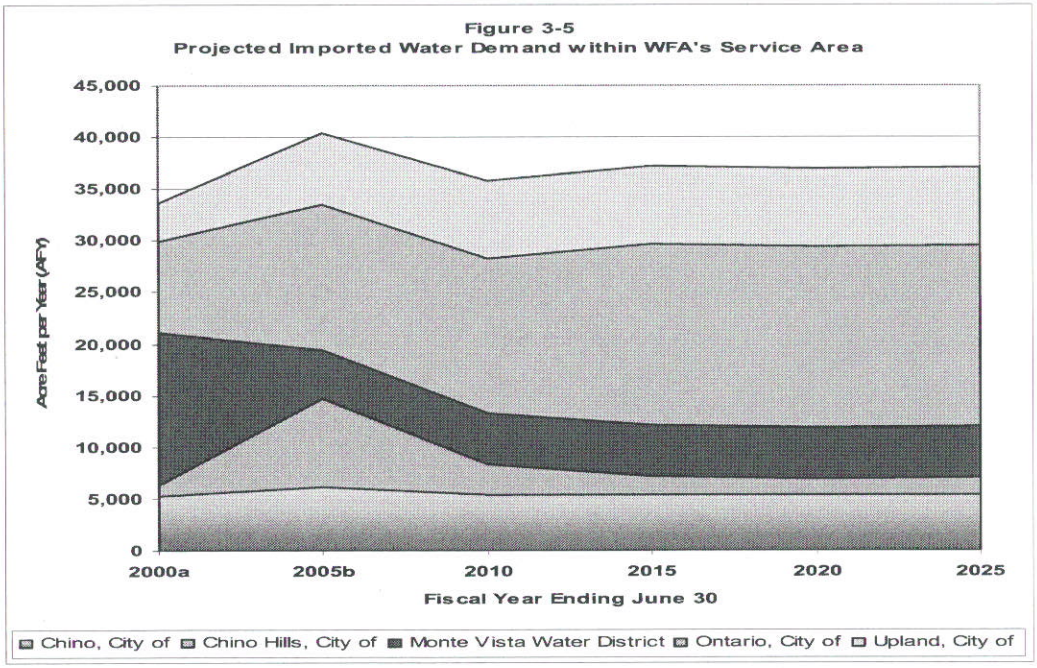
[c] Rounded to nearest hundred

Over the next twenty years, overall need for full service imported water as a supplemental supply within WFA's service area is expected to stay at the same level or slightly below as in 2005. Table 3-5 summarizes the projected imported water needs.

Table 3-5 2000 – 2025 Projected Imported Water Used in WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2000[a]	2005[b]	2010	2015	2020	2025
Chino, City of	5,195	6,180	5,398	5,332	5,375	5,375
Chino Hills, City of	1,013	8,553	2,861	1,786	1,520	1,653
Monte Vista Water District	14,937	4,750	5,000	5,000	5,000	5,000
Ontario, City of	8,824	14,012	15,000	17,500	17,500	17,500
Upland, City of	3,647	6,863	7,590	7,590	7,590	7,590
Total [c]	**33,616**	**40,359**	**35,849**	**37,208**	**36,985**	**37,118**

[a] Actual Values [b]Estimated Values based on Wet Year [c]Rounded to nearest hundred



A significant local investment in regional facilities is required in order to maximize the use of local supplies. These include regional capital expenditures of about $110 million for recycled water projects over the next 10 years, $50 million for construction of groundwater recharge basins, $150 million for desalting facilities and $28 million for the MWD dry year yield. In total, the region is spending almost $350 million to enhance local supplies and reduce future dependence on additional imported water supplies. The majority of these projects will be completed within the next ten years. Section 3.5 in Chapter 3 of the IEUA UWMP 2005 provides a detailed description of each of the future local water supply sources.

3.5 Future Reliability of Imported Water Supplies

The amount of State Water Project (SWP) available to WFA each year is dependent upon a number of factors including hydrologic conditions in northern California, the amount of water in SWP storage reservoirs at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by contractors. Storage reservoirs help to make imported water available during low water months so that the amount of supply is not unduly impacted by the seasons.

Increasing conflicts over the quantity and quality of imported water that is available from the SWP have increased the costs of these supplemental supplies in Southern California as well as reduced their potential reliability. MWD is working with the State Water Project Contractors and the California Department of Water Resources to develop and implement programs to increase the reliable yield from the SWP.

The potential impact of global warming on SWP supplies has also been evaluated by the California Department of Water Resources. It is difficult to predict the impact of the rising temperatures on the amount of rainfall that will occur in the future in California. Current modeling efforts show that significant increases in the amount of precipitation are possible but equally probable is a significant decrease in precipitation. However, it warming temperature will result in the loss of the snow pack at lower elevations and possibly in earlier runoff patterns. Both scenarios could reduce the future amount of water available from the SWP or change the timing when this water might be available. The regional water supply strategy being implemented with its emphasis on the development of additional future local water supplies will help ensure that WFA's service area has a balance of water resources available to it in the future.

As a water wholesaler, MWD supplies imported water to WFA (through IEUA) to meet the water needs of its service area at the lowest possible cost. MWD's *Report on Metropolitan's Water Supplies*, dated March 25, 2003, describes how MWD has created a diverse resource portfolio and aggressive conservation program to protect the reliability of the entire system. MWD demonstrates that sufficient supplies can be reasonably relied upon to meet projected supplemental demands. The report outlines MWD's Comprehensive Supplemental Supply Plan, which if implemented, would provide MWD with the capability to reliably meet projected supplemental water demands through 2030.[1] In its draft Regional Urban Water Management Plan (September, 2005), MWD also describes its supply availability at the regional level. The Regional Urban Water Management Plan developed by MWD assures the reliability of full service imported water supply to its member agencies through a multiple-year drought or

[1] *Report on Metropolitan's Water Supplies, A Blueprint for Reliability*, March 25, 2003. Page 24 of 29.

single dry year through 2030. WFA relied upon this assurance in the development of this Plan.

CHAPTER 4
WATER CONSERVATION WITHIN WFA'S SERVICE AREA

4.1 Overview

Conservation within the WFA service area is an important component of water resource management for all of WFA's member agencies as well as for the rest of the Chino Basin and Santa Ana watershed.

Imported water purchases made by WFA provide core funding for the regional conservation program in which its member agencies participate. A $4 surcharge is currently paid by WFA for each acre-foot of imported water purchased. This funding supports an array of conservation programs and education activities that are implemented by the WFA member agencies through the regional Water Conservation Partnership in collaboration with IEUA, the Cucamonga Valley Water District, Fontana Water Company, San Antonio Water Company, Chino Basin Watermaster and the Chino Basin Water Conservation District.

The cities of Ontario and Upland and the Monte Vista Water District within the WFA, along with IEUA, are signatories to the Memorandum of Understanding (MOU) regarding Urban Water Conservation in California and are members of the California Urban Water Conservation Council (CUWCC). IEUA and the regional Water Conservation Partnership have made the 14 Best Management Practices (BMP's) the cornerstone of their respective conservation programs and a key element in the overall water resource management strategy for the area.

Members of the CUWCC are required to provide BMP "Activity Reports" every two years. These reports provide specific details of IEUA and WMWD's efforts to implement each particular BMP. The BMPs are functionally equivalent to the Demand Management Measures (DMM) written in Water Code Section 10631 of the Urban Water Management Planning Act (Act). The Act requires an agency to describe each of the DMMs that have been implemented unless the agency is a signatory to the MOU. The Act allows an agency to provide the BMP Activity Report in-lieu of describing each of the DMMs. IEUA has included its Fiscal Year (FY) 2001-02 and FY 2003-04 BMP Activity Reports in the appendix of the IEUA UWMP 2005.

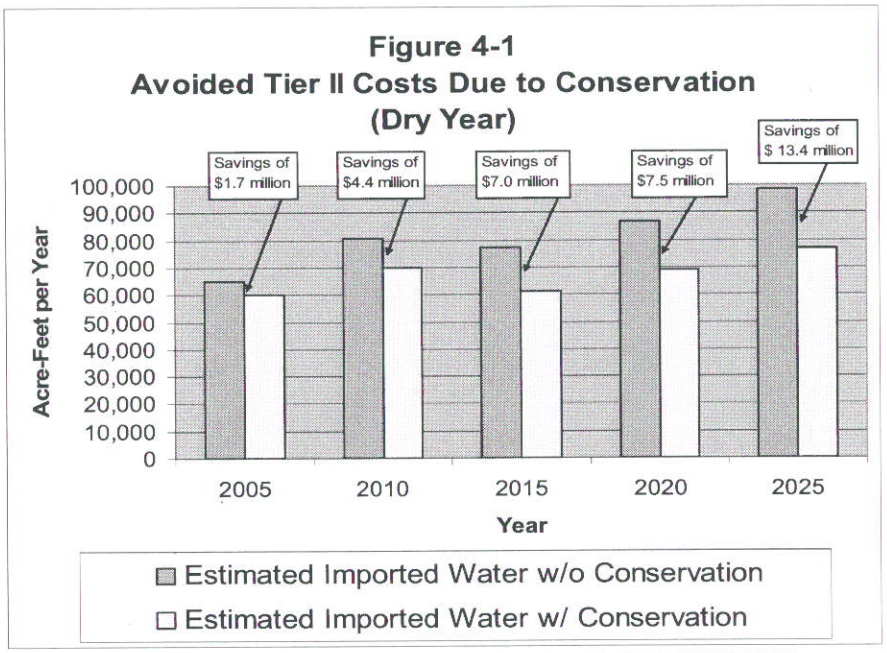
4.2 Value of Conservation

When MWD changed its rate structure in 2003 for the purchase of imported water, the Agency created a two-tier rate system. Each member agency can

purchase imported water up to an amount equal to a base allocation which is Tier I. Additional purchases fall into Tier II which is about 20 percent higher than the Tier I rate. The purpose of the tiered rate structure is to create a financial incentive for member agencies to stay within their Tier I allocation. For WFA and its member agencies, the difference between the cost of Tier II imported water and the amount of water saved is the financial value of conservation to the region.

IEUA quantified the value of conservation to the region by comparing projected imported water purchases verses projected water conservation savings for its service area, as shown in figure 4-1. Using conservation savings estimates for the next twenty years, the region can save an estimated $34 million by reducing the amount of imported water purchased.

Figure 4-1
Avoided Tier II Costs Due to Conservation
(Dry Year)



Source: Conservation projections from Table 2-4 in IEUA's 2005 UWMP,MWD's Long Range Finance Plan and MWD staff projections

Another regional benefit for maintaining a strong support for conservation is the opportunity to reduce conflicts within the SWP system. The California Bay-Delta is the single most important link in California's water supply system and currently faces significant challenges. By limiting the amount of additional imported SWP water supplies needed within WFA's service area for imported water, the Agency and its member agencies are helping to increase the flexibility of this source of supply and to enhance long term water quality and environmental protection.

4.3 Water Conservation Programs

Over the last five years, the regional Water Conservation Partnership has dramatically developed the conservation programs from a minimal ultra-low flush (ULF) toilet distribution program to a diverse series residential, commercial, industrial, institutional (CII), and school education incentive programs. These programs have been designed to meet and exceed, where possible, the requirements of the MOU requirements for implementing conservation Best Management Practices. Best Management Practices (BMP).

Implementing the BMPs

One of the highest conservation priorities within the Water Conservation Partnership is seeing that good-faith efforts are being made to implement the BMP's locally in the CDA's service area. The 14 BMP's are listed below in Table 4-2 which breaks out those BMP's that are retail water agency and/or wholesale water agency related.

Table 4-1

List of Best Management Practices 1

Water Retailer BMPs	
BMP 1	Water Survey Programs For Single Family Residential and Multi-Family Residential Customers
BMP 2	Residential Plumbing Retrofit
BMP 3	System Water Audits
BMP 4	Metering with Commodity Rates For All New Connections and Retrofit of Existing Connection
BMP 5	Large Landscape Conservation Programs
BMP 6	High Efficiency Clothes Washing Machine Financial Incentive Programs
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 9	Conservation Program For Commercial, Industrial, and Institutional (CII) Accounts
BMP 11	Conservation Pricing
BMP 12	Conservation Coordinator
BMP 13	Water Waste Prohibition

BMP 14	Residential ULFT Replacement Programs
	Water Wholesaler BMPs
BMP 3	System Water Audits
BMP 7	Public Information Programs
BMP 8	School Education Programs
BMP 10	Wholesale Agency Assistance Programs
BMP 11	Conservation Pricing
BMP 12	Conservation Coordinator

Below is a list of the conservation programs being implemented within WFA's service area. ***Please refer to IEUA's UWMP for conservation programs. We will incorporate the final language from into this section so that conservation programs for each WFA member are listed.***

CHAPTER 5
WATER QUALITY

5.1 Overview

The quality of any natural water is dynamic. This is particularly true for the State Water Project (SWP) that is the source of water supply for the WFA. During periods of intense rainfall or snow melt, routes of surface water movement are changed; new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over the course of a year.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to drinking water standards set by the federal Environmental Protection Agency (EPA) and the California Department of Healthy Services (DHS).

WFA has the capacity to treat 81 million gallons per day (mgd), although the normal treatment flow is 60-70 mgd during the peak summer months and can be as low as 12 mgd during the lower demand winter months. The purpose of the water treatment plan is to produce safe and pleasant drinking water. The plant utilizes coagulation, flocculation, sedimentation and filtration processes to produce a continuous and reliable supply of pure, wholesome and potable water. Competent operators ensure the plant continuously meets all current drinking water quality standards.

This chapter addresses the water quality of the source waters for WFA and the potential impacts on water supply reliability. Other water qualify issues, including potential impacts on groundwater and recycled water supplies within WFA's service area are addressed in IEUA's UWMP 2005.

5.2 SWP Water Quality

The source of SWP water is rain and snow of the Sierra Nevada, Cascade and Coastal mountain ranges. This water travels to the San Francisco Bay/Sacramento-San Joaquin River Delta (Bay Delta) through a series of rivers and various SWP structures. There it is pumped into a series of canals and reservoirs, which provides water to urban and agricultural users throughout the Bay Area and central and southern California. When the SWP is pumped over the Tehachapis, the water is split into the west and east branch. WFA receives

water from the east branch out of the Silver Lake Reservoir in the San Bernardino Mountains. From the reservoir, the water travels through the ten-foot diameter Rialto Pipelines to the Agua De Lejos Treatment Plant.

Overall, SWP is of a high quality. An annual Consumer Confidence Report is prepared by the Metropolitan Water District for all purchasers of its water supplies, demonstrating compliance with all state and federal regulations.
Water quality issues on the SWP system identified by MWD include total inorganic carbon, bromides and salinity. When the SWP passes through the Bay Delta, it picks up organic materials from the large masses of plants and peat soils. In addition, salts -- notably bromide and chloride – also enter the water. Additional impacts to the water quality are caused by local runoff entering the California Aqueduct below the Bay Delta.

Generally, SWP is low in dissolved minerals, such as calcium, magnesium sodium, potassium, iron, manganese, nitrate and surface. The chloride content of the SWP water varies widely from a low of 40 mg/L to well over 400 mg/L, depending upon Bay Delta conditions.

While none of these chemicals are harmful in themselves, the bromide and total organic carbon can react with disinfectants such as chlorine to create disinfection byproducts (DBPs). There are a variety of health-based concerns with these by-products, as they have been linked to cancer as well as reproductive and developmental effects. In 1998, the Environmental Protection Agency adopted more stringent regulations for DBPs and is expected to promulgate even more stringent regulations in the near future.

MWD has identified the existing level of total organic carbon and bromide as presenting concerns about maintaining safe drinking water supplies. Although the State of California, through the CALFED process, has adopted goals for total organic carbon and bromide for the SWP and has called for an array of actions to improve this water supply, MWD has encouraged the State to adopt more aggressive water quality improvement milestones. Source water quality protection, development of projects that improve the quality of the water within the Bay Delta and the development of alternative source waters including the possibility of water exchanges in northern California are all examples of the projects advocated by MWD.

WFA has identified a high potential for the creation of Trihalomethanes from the SWP water that comes from MWD's Silverwood Lake reservoir. To reduce the possible formation of this disinfection byproduct, WFA employs an alternative means of disinfection using chloramines. WFA produces high quality potable water that meets all state and federal regulations.

Raw water turbidity spikes exceeding the 5.0 ntu turbidity standard have occurred on a number of occasions with the SWP delivered to WFA. Normal

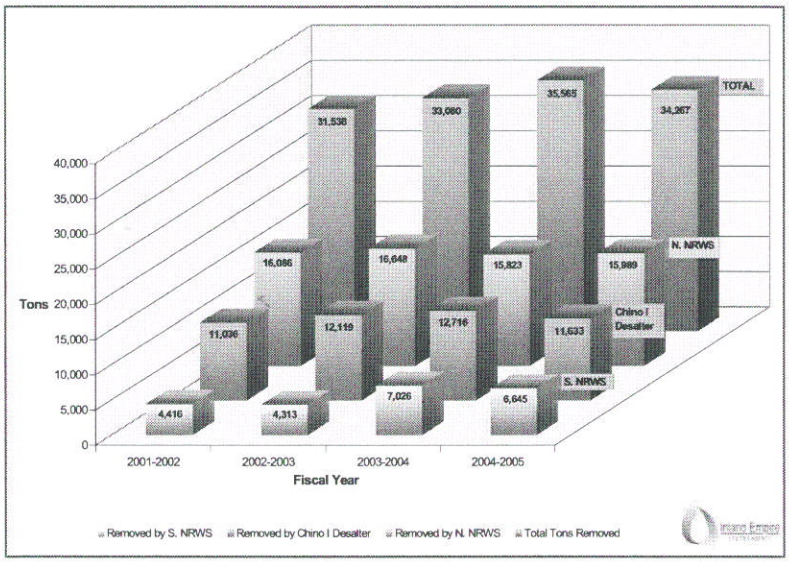
turbidity episodes can be handled by flocculation, sedimentation and filtration processes. In the event of extreme turbidity levels, the plant has automatic shutdown controls. Extended turbidity episodes are extremely rare and to not pose a significant challenge in furnishing an adequate supply of treated water.

The coliform content of the raw SWP may occasionally be in excess of one organism per one hundred milliliters standard. However, these bacteria are readily removed by filtration and easily disinfected by the use of chloramines.

5.3 Water Quality Impacts on Reliability

Under scenarios evaluated by MWD in its Regional Urban Water Management Plan 2005, quality of the SWP system did not impact its availability to deliver water from northern California. MWD's recommendations for improving SWP water quality improvements will help reduce the costs of treating the raw water for use within the service area. In addition, water quality improvements in SWP's Bay Delta water supplies are an important part of MWD's program to meet, in a cost effective manner, its 500 Mg/L salinity blending objective for other sources of water served by the Agency.

However, the salinity level of the SWP supply is a potential concern for the member agencies in WFA's service area because of the potential impacts on the regional recycled and groundwater programs. As described in chapter 5 and 6 of the IEUA 2005 UWMP, The Regional Basin Plan regulates the amount of salt that may enter the groundwater. Over $100 million has been invested regionally in salinity management and removal including desalination plants and other salt reduction programs to ensure that regional recycled water and groundwater supplies can be fully used in future years.



With the implementation of these salt management programs, the expected salinity levels within SWP are not expected to impact the ability to use this water supply or to impact other sources of water supply within the area.

CHAPTER 6
WATER SHORTAGE CONTINGENCY PLAN

6.1 Overview

Water supplies may be interrupted or reduced significantly in a number of water, such as when a drought limits supplies, an earthquake damages water delivery or storage systems or a toxic spill impacts water quality. The SWP is particularly vulnerable to catastrophic events as the California Aqueduct crosses the San Andreas Fault and is bisected by many other fault lines. This chapter describes how WFA and its member agencies plan to respond to such emergencies so that these needs are met promptly and adequately.

6.2 Coordinated Planning

MWD, WFA, its member agencies, and other the water agencies within the Chino Basin have coordinated efforts in the past to meet water shortages and to anticipate catastrophic events. The cities of Chino, Chino Hills, Montclair, Ontario and Upland and the Inland Empire Utilities Agency and the Monte Vista Water District have a Mutual Aid Agreement that, in the event of any disruption of damage to the ability of either IEUA or the other agencies to provide the public or their customers water service, sewage service or sewage treatment service, the other parties will cooperate to the maximum extent possible to provide mutual aid assistance as requested.

Since this plan was prepared, the area experienced a one-week unplanned shutdown of the Rialto Pipeline in June 2004. The coordinated response among the agencies worked well, and most agencies achieved a 50-60% reduction in water use during the shutdown.

6.3 Estimate of Minimum Supply

MWD has adopted the Water Surplus and Drought Management Plan (WSDM, 1998) which addresses both surplus and shortage operating strategies. Under this plan, MWD anticipates that it can meet full-service water needs except in extreme shortages or emergencies by using stored water and/or water transfers. Under severe shortages, MWD may call for extraordinary conservation and may have to curtail Interim Agricultural Water Program deliveries (which would not impact the WFA). Only under a condition of extreme shortage would MWD be forced to limit full service allocations.

Consistent with the requirements of the UWMP Act, the following scenario describes the supply availability over the next three years using the driest 3-year period in the recent record (1990 – 1992 hydrology). Conservative assumptions include significantly lower imported water supplies than actually used in 2005 and a 10% level of voluntary conservation effort. Based upon the regional development of groundwater, dry year yield program and recycled water program, the WFA service area would be able to meet its water needs even with a 50% cut back in imported water deliveries as show in Tables 6-1, Table 6-2 and Table 6-3.

Table 6-1
Projected Supply During Multiple Dry Year Period
Between 2006 and 2008 (AFY)

			(dry)	(dry)	(dry)
Supply[1]	**Normal Use**		**2006**	**2007**	**2008**
Groundwater	68,130		83,800	83,119	91,260
Recycled Water	13,720		13,720	14,385	14,956
Surface Water	0		0	0	0
Imported Water	33,229		16,282	16,614	16,747
Groundwater	100%		123%	122%	121%
Recycled Water	100%		100%	105%	109%
Surface Water	n/a		n/a	n/a	n/a
Imported Water	100%		49%	50%	51%

Notes:
(1) Supply values extrapolated from 2005 and 2010 data.
(2) DYY Program assumed to begin in year 2008 according to the Master Agreement. DYY Program in effect during multiple dry years. Assume 50% of dry year yield (8,823 acre-feet)
(3) Projected Normal Use from Table 7-3.

Table 6-2
Projected Demand During Multiple Dry Year Period
Between 2006 and 2008 (AFY)

	(normal)		(dry)	(dry)	(dry)
	2006		**2006**	**2007**	**2008**
Demand	114,449		121,686	125,304	128,922
Conservation[1]	0		(12,169)	(12,530)	(12,892)
Adjusted Demand	114,449		109,517	112,773	116,030
% of Projected Normal[2]	100%		90%	90%	90%

Notes:
(1) Assumed 10% conservation of demand for dry years. Refer to Chapter 4, Water Conservation Program.
(2) Projected Normal Use from Table 7-4.

Table 6-3
Projected Supply and Demand Comparison During Multiple Dry Year Period Between 2006 and 2008(AFY)

	(normal)		(dry)	(dry)	(dry)
	2006		**2006**	**2007**	**2008**
Supply Totals	115,079		113,802	114,118	122,963
Demand Totals	114,449		109,517	112,773	116,030
Difference (Supply minus Demand)	630		4,285	1,345	6.933
Difference as % of Supply	1%		4%	1%	6%
Difference as % of Demand	1%		4%	1%	6%

6.4 Dry Year Water Management Program

WFA's members, in partnership with IEUA and other water agencies have developed a water management strategy that relies upon the use of local groundwater, desalter water, recovery of injected water, and conservation during dry years and enables the area to voluntarily reduce its need for SWP water under drought conditions.

In 2002, MWD executed an agreement with the Inland Empire Utilities Agency and the area's retail agencies to use the Chino Basin for dry year storage of up to 100,000 acre-feet of surplus imported water. The Dry-Year Yield program is a conjunctive use project that consists of infrastructure investments including well head treatment facilities, new wells and conveyance pipeline improvements.

Under this program, WFA members are contributing approximately 53% of the water that will be stored in the Chino Groundwater Basin for dry year use. When MWD calls for this water during a drought, the amount of imported water processed through the plant will be reduced while the amount of groundwater production will increase. The Chino Basin Dry Year Yield (DYY) obligation to MWD will result in a reduction in the amount of water available to WFA for treatment of up to 17,647 acre-feet in a twelve month period. This cutback in full service imported water supplies is consistent with the 50% reduction scenario required to be evaluated under the Urban Water Management Plan Act. The program is scheduled to be available to produce dry year water in 2008.

6.5 Stages of Action to Respond to Water Shortages

MWD and WFA's member agencies have developed coordinated water shortage contingency plans that cover an array of potential disasters. These include emergency drought or water shortage ordinances that address:

- Catastrophic Interruption Plan

- Consumption Reduction Methods
- Contingency Plan
- Emergency Fund
- Mandatory Prohibition of Water Use
- Rationing Allocation Method
- Reduction Measuring Mechanism

The drought planning provisions approved by each agency listed in table 6-4 Please refer to IEUA UWMP 2005 for a detailed description of the steps to be undertaken by MWD and WFA's members in responding to water shortages.

6.6 Financial Implications to WFA of Water Shortages

A reduction of imported water supply will increase the unit cost of treatment for each member agency, depending on the proportionate water deliveries. The WFA has a mixture of cost recovery mechanisms based on entitlement, flow and 50% flow/entitlement, and maintains a reserve for annual capital cost replacements with some limited funds to cover operating expenses for a short period of time. WFA plans to review its reserve policy and consider additional actions that will make the Authority's finances less vulnerable to unexpected and drastic reductions in water supply.

CHAPTER 7
WATER RELIABILITY

7.1 Overview

The California Urban Water Management Planning Act (Act) requires urban water suppliers to assess water supply reliability that compares total projected water used with the expected water supply over the next twenty years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This chapter presents the reliability assessment for WFA's service area.

7.2 Reliability of Imported Water Supplies

WFA treats imported State Water Project (SWP) water purchased from the Metropolitan Water District and serves this water as a supplemental supply to the Cities of Chino, Chino Hills, Ontario and Upland and to the Monte Vista Water District.

Variability in SWP supplies has the potential to impact the ability of the agencies within WFA's service area to meet overall water supply needs. As part of the integrated water supply planning for the area, each agency is working in partnership with the Chino Basin Watermaster, Inland Empire Utilities Agency, and other water agencies within the Chino Basin to develop local water sources that will ensure overall supply reliability.

The amount of SWP available each year is dependent upon a number of factors including hydrologic conditions in northern California, the amount of water in SWP storage reservoirs at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by contractors. Storage reservoirs help to make imported water available during low water months so that the amount of supply is not unduly impacted by the seasons. In addition, as described in Chapter 3, global warming may adversely impact the availability of SWP supplies in the future. Actions are being taken by MWD and the California Department of Water Resource to support the continued provision of reliable water supplies from the SWP.

As a water wholesaler, MWD supplies imported water to WFA (through IEUA) to meet the water needs of its service area at the lowest possible cost. MWD's *Report on Metropolitan's Water Supplies*, dated March 25, 2003, describes how MWD has created a diverse resource portfolio and aggressive conservation program to protect the reliability of the entire system. MWD demonstrates that sufficient supplies can be reasonably relied upon to meet projected supplemental

demands. The report outlines MWD's Comprehensive Supplemental Supply Plan, which if implemented, would provide MWD with the capability to reliably meet projected supplemental water demands through 2030.[1] In its draft Regional Urban Water Management Plan (September, 2005), MWD also describes its supply availability at the regional level. The Regional Urban Water Management Plan developed by MWD assures the reliability of full service imported water supply to its member agencies through a multiple-year drought or single dry year through 2030. WFA relied upon this assurance in the development of this Plan.

7.3 Reliability During a Drought

The available supplies and water demands for WFA's service area were analyzed to assess the region's ability to satisfy demands during three scenarios: a normal water year, single dry year, and multiple dry years. Consistent with the IEUA 2005 Urban Water Management Plan, it is expected that WFA's service area will be able to meet 100 percent of its dry year demand under every scenario.

The following Table 10-1 presents the supply reliability, as percentages of normal water year supplies, for the WFA area during normal, single dry, and multiple dry water years.

Table 7-1
Supply Reliability as Percentage of Normal Water Year Supply

			Multiple Dry Water Years[2]			
	Normal Water Year	Single Dry Water Year	Year 1	Year 2	Year3	Year 4[3]
Groundwater	100%	119%	120%	120%	119%	
Recycled Water	100%	100%	100%	105%	110%	
Surface Water[1]	100%	31%	49%	84%	77%	
Imported Water	100%	52%	51%	52%	52%	

Notes:
(1) Estimated decrease in surface water availability per Prado region 1970-2003 rainfall data. Surface water does not constitute a significant portion of the water supply.
(2) Chino Basin Dry-Year Yield (DYY) Program facilities provide for 100,000 AF of storage and 33,000 AFY of additional groundwater production for use in-lieu of Imported Water during dry years. The DYY Program is in effect during dry years between 2008 and 2025. Percentages reflect decrease in imported water and associated increase in groundwater production. From Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability, March 25, 2003, Metropolitan has documented the capability to reliably meet 100 percent of projected supplemental water demands through 2030. Per the Fiscal Year 2004/2005 Chino Basin Watermaster Assessment Package, agencies have approximately 150,000 AF in storage.
(3) Metropolitan's Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability, March 25, 2003, provides information for three consecutive dry years.

[1] *Report on Metropolitan's Water Supplies, A Blueprint for Reliability*, March 25, 2003. Page 24 of 29.

The historical basis for the supply reliability data is presented in Table 10-2, which summarizes the base years for normal, single dry, and multiple dry water years.

Table 7-2
Basis of Water Year Data

Water Year Type	Base Year(s)	Historical Sequence
Normal Water Year	FY 2004	1922-2004[2]
Single Dry Water Year[1]	1977[2]	
Multiple Dry Water Years[1]	1990-1992[2]	

Notes:
(1) Rainfall data from Prado region (1970-2003) used as basis for surface water reliability.
(2) From *Report on Metropolitan's Water Supplies, A Blueprint for Water Reliability*, March 25, 2003, page 10.

The following subsections describe the region's water supply and demand during each of the three scenarios for the next twenty years.

Normal Water Year

The area's water supply is broken down into four categories: groundwater, recycled water, surface water, and imported water. With emphasis on local water supply development within WFA's service area, including an increase in the availability of recycled water, it is anticipated that WFA's member agencies will not need additional imported water supplies above existing deliveries. As summarized in Table 7-1, it is projected that predicts that 100 percent of local and imported supplies will be available to meet the WFA's service area demands during a normal water year.

The following Table 7-3 presents the projected water supply available to WFA's service area during a normal year.

Table 7-3
Projected Normal Year Water Supply[1] (AFY)

Supply	2010	2015	2020	2025
Groundwater[2]	82,503	86,918	95,558	104,254
Recycled Water	39,000	49,000	58,000	69,000
Surface Water	0	0	0	0
Imported Water	35,849	37,208	36,985	37,118
% of Normal Year[3]				
Groundwater	103%	108%	119%	130%
Recycled Water	3686%	4631%	5482%	6522%
Surface Water	n/a	n/a	n/a	n/a
Imported Water	84%	88%	87%	87%

Notes:
(1) Assumes zero conservation.
(2) Includes groundwater from Chino Basin (inc. CDA supply) and other basins.
(3) From Table 10-2.

Table 7-4 summarizes the WFA service area's demands during a normal year over the next twenty years. It is estimated that water demands will increase to approximately 167,000 AF by the year 2025. However, as additional recycled water supplies become available and local agencies connect to the recycled water system, the region's dependability on imported water supplies will decrease.

Table 7-4
Projected Normal Year Water Demand (AFY)

	2010	2015	2020	2025
Demand	128,922	138,466	151,753	164,672
% of Year 2005	116%	129%	137%	149%

The comparison between supply and demand for a normal water year is presented in Table 7-5. In a normal year, zero water conservation has been assumed, providing a more conservative assessment of the region's supplies. The region is expected to meet 100 percent of water demands through the year 2025, with an annual surplus ranging from approximately 28,000 to 46,000 AF.

Table 7-5
Projected Normal Year Supply and Demand Comparison (AFY)

	2010	2015	2020	2025
Supply Totals	157,352	173,126	190,543	210,372
Demand Totals	128,922	138,466	151,753	164,672
Difference (Supply minus Demand)	28,430	34,660	38,790	45,700
Difference as % of Supply	18%	20%	20%	22%
Difference as % of Demand	22%	25%	26%	28%

Single Dry Year

The water demands and supplies for WFA's service area over the next twenty years were analyzed in the event that a single dry year occurs, similar to the drought that occurred in California in 1977[2]. The development of groundwater storage, recycled water systems, surface water supplies, and improvements in water quality and conservation, will greatly reduce the need for imported water supplies during dry years. The following paragraphs describe the available water supply to WFA's service area:

Groundwater

Groundwater supplies represent a significant supplemental source of water for water agencies within WFA's service area. The majority of groundwater is produced from the Chino Basin with additional water produced from other local groundwater basins. The Chino Basin is the largest groundwater basin in the Upper Santa Ana Watershed, currently containing 5,000,000 AF of water in storage with an unused storage capacity of approximately 1,000,000 AF. Water

[2] *Report on Metropolitan's Water Supplies, A Blueprint for Reliability*, March 25, 2003. Page 10 of 29.

rights within the Chino Basin have been adjudicated and the average safe-yield of the Basin is 140,000 AFY. It is anticipated that when over-pumping is required during a single dry year event, additional groundwater pumped beyond the safe yield of the Basin will be replenished during wet or normal years with imported water purchased from the Metropolitan Water District of Southern California (MWD) and with supplemental water from recycled and/or surface supplies.

The Chino Basin Watermaster (Watermaster), in partnership with IEUA and MWD have developed the Chino Basin Dry-Year Yield Program (DYY Program) to help alleviate demands on imported water during dry years by pumping additional groundwater. Three Valleys Municipal Water District is also a signatory to the Program. The DYY Program is the first step in a phased plan to develop and implement a comprehensive conjunctive use program to allow maximum use of imported water available during wet years and stored groundwater in the Chino Basin during dry years. Imported water deliveries to participants would increase during wet or normal (or "put") years, and purchase of imported water would decrease during dry (or "take") years. Collectively, the eight DYY participants, five of which are member agencies of WFA, would meet predetermined amounts to achieve a 25,000 AFY "put" and a 33,000 AFY "take". Each of the local retail agencies volunteered to produce excess groundwater during a dry year in-lieu of normal imported water deliveries. In exchange, they received funding for new groundwater treatment and well facilities that would allow excess groundwater production during dry years. Overall imported water demands within WFA's service area during dry years would decrease by 17,647 acre-feet per year, which equals the portion of the 33,000 acre-feet per year of the DYY shift obligation for WFA's member agencies, as shown in Table 7-6.

Table 7-6
Participating Agencies DYY Shift Obligations
(WFA member agencies in italics)

Local Retail Agency	DYY Program Shift Obligation (AFY)
City of Chino	*1,159*
City of Chino Hills	*1,448*
Cucamonga Valley Water District	11,353
Jurupa Community Services District(1)	2,000
Monte Vista Water District	*3,963*
City of Ontario	*8,076*
City of Pomona(1)	2,000
City of Upland	*3,001*
Total	**33,000**

Notes:
(1) Agencies not within the IEUA service area.

During dry years when the DYY Program is active, groundwater production will increase to approximately 116 percent of a normal year.

Recycled Water

Recycled water is becoming an increasingly important source of local water for the region. Recycled water is a critical component of the Optimum Basin Management Plan (OBMP), developed in 2000, to address water quality issues in the Chino Basin. Current use of recycled water with in the region is approximately 7,000 AFY and is expected to increase to nearly 69,000 AF by 2025. During a single dry year, it has been assumed that recycled water will be 100 percent reliable.

Imported Water

Consistent with the Section 7-2 on the reliability of imported water supplies, MWD expects to have a reliable water supply for the foreseeable future due to the integrated resources planning effort of the District and its member agencies. As a water wholesaler, MWD supplies imported water to WFA (through IEUA) to meet the water needs of its service area at the lowest possible cost. MWD's *Report on Metropolitan's Water Supplies*, dated March 25, 2003, describes how MWD has created a diverse resource portfolio and aggressive conservation program to protect the reliability of the entire system. MWD demonstrates that sufficient supplies can be reasonably relied upon to meet projected supplemental demands. The report outlines MWD's Comprehensive Supplemental Supply Plan, which if implemented, would provide MWD with the capability to reliably meet projected supplemental water demands through 2030.[3] As a result, during a single dry year event, MWD will have the resources to supply WFA with 100 percent of its full service imported water demands. However, as discussed previously, with the DYY Program in effect, several of IEUA's retail agencies will reduce their imported water demand by their DYY Program shift, thus reducing demands on Metropolitan. During a dry year, imported water demands are expected to decrease to approximately 65 percent overall, with WFA members providing 53% of the shift.

Tables 7-7 through 10-9 summarize the projected single dry year water supply and demand for the years 2010 through 2025.

Table 7-7
Projected Single Dry Year Water Supply (AFY)

Supply	2010	2015	2020	2025
Groundwater	100,150	104,565	113,205	121,901
Recycled Water	39,000	49,000	58,000	69,000
Surface Water	0	0	0	0
Imported Water	18,202	19,561	19,338	19,471
% of Normal Year				
Groundwater	121%	120%	118%	117%
Recycled Water	100%	100%	100%	100%
Surface Water	n/a	n/a	n/a	n/a

[3] *Report on Metropolitan's Water Supplies, A Blueprint for Reliability*, March 25, 2003. Page 24 of 29.

Imported Water	51%	53%	52%	52%

Notes:
(1) Projected normal use from Table 7-3.

Table 7-8
Projected Single Dry Year Water Demand (AFY)

	2010	2015	2020	2025
Demand	128,922	138,466	151,753	164,672
Conservation[1]	(12,892)	(13,847)	(15,175)	(16,467)
Adjusted Demand	116,030	124,619	136,578	148,205
% of Projected Normal[2]	90%	90%	90%	90%

Notes:
(1) Assumed 10% conservation of demand for single dry years.
(2) Projected Normal Use from Table 7-4.

Table 7-9
Projected Single Dry Year Supply and Demand Comparison (AFY)

	2010	2015	2020	2025
Supply Totals	157,352	173,126	190,543	210,372
Demand Totals	116,030	124,619	136,578	148,205
Difference (Supply minus Demand)	41,322	48,507	53,965	62,167
Difference as % of Supply	26%	28%	28%	30%
Difference as % of Demand	36%	39%	40%	42%

Multiple Dry Years

The water demands and supplies for WFA's service area over the next twenty years were analyzed in the event that a multiple dry year occurs, similar to the drought that occurred during the years 1990-1992[4]. The following paragraphs describe the available water supply to WFA during a multiple dry year period.

Groundwater

Similar to the Single Dry Year scenario described previously, implementing the DYY Program requires local retail agencies to produce additional groundwater in-lieu of accepting imported water deliveries. Each agency pumps additional groundwater in the amount of their shift obligation. Production in excess of the safe yield of the Basin is replaced with replenishment water during wet or normal years. With the DYY Program in place, groundwater has been assumed to be approximately 116 percent reliable during dry years.

Recycled Water

[4] *Report on Metropolitan's Water Supplies, A Blueprint for Reliability*, March 25, 2003. Page 10 of 29.

During multiple dry years, the use of recycled water for irrigation and other purposes helps reduce overall water demands. It has been assumed that during multiple dry years, the production of recycled water will gradually increase from 100 percent during the first dry year to 105 and 110 percent, respectively, during the next two subsequent dry years as more customers become connected to the recycled water system.

Imported Water

During multiple dry years, local agencies reduce their imported water demands by increasing groundwater production in accordance with the DYY Program. The DYY Program reduces imported water demands by approximately 53 percent within WFA's service area, thereby conserving Metropolitan's supplies during a drought.

The following Tables 7-10 through 7-12 summarize the projected multiple dry year water supply and demand for five-year periods during the years 2010 through 2025. Each five year period is contains three consecutive dry years where the DYY Program and conservation programs are implemented.

Tables 7-10 through 7-12: 2006-2010

Table 7-10
Projected Supply During Multiple Dry Year Period Ending in 2010 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1]	**2006**	**2007**	**2008[2]**	**2009[2]**	**2010[2]**
Groundwater	68,130	71,723	92,964	96,557	100,150
Recycled Water	13,720	20,040	26,360	34,314	42,900
Surface Water	0	0	0	0	0
Imported Water	33,229	33,884	16,892	17,547	18,202
% of Projected Normal[3]					
Groundwater	100%	100%	123%	122%	121%
Recycled Water	100%	100%	100%	105%	109%
Surface Water	n/a	n/a	n/a	n/a	n/a
Imported Water	100%	100%	49%	50%	51%

Notes:
(1) Supply values extrapolated from 2005 and 2010 data.
(2) DYY Program assumed to begin in year 2008 according to the Master Agreement. DYY Program in effect during multiple dry years.
(3) Projected Normal Use from Table 7-3.

Table 7-11
Projected Demand During Multiple Dry Year Period Ending in 2010 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2006	**2007**	**2008**	**2009**	**2010**
Demand	114,449	118,068	121,686	125,304	128,922
Conservation[1]	0	0	(12,169)	(12,530)	(12,892)
Adjusted Demand	114,449	118,068	109,517	112,773	116,030

% of Projected Normal[2]	100%	100%	90%	90%	90%

Notes:
(1) Assumed 10% conservation of demand for dry years. Refer to Chapter 4, Water Conservation Program.
(2) Projected Normal Use from Table 7-4.

Table 7-12
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2010 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2006	**2007**	**2008**	**2009**	**2010**
Supply Totals	115,079	125,647	136,216	148,418	161,252
Demand Totals	114,449	118,068	109,517	112,773	116,030
Difference (Supply minus Demand)	630	7,580	25,699	35,644	45,222
Difference as % of Supply	1%	6%	20%	24%	28%
Difference as % of Demand	1%	6%	24%	32%	39%

Tables 7-13 through 7-15: 2011-2015

Table 7-13
Projected Supply During Multiple Dry Year Period Ending in 2015 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
Supply[1][2]	**2011**	**2012**	**2013**	**2014**	**2015**
Groundwater	83,386	101,916	102,799	103,682	86,918
Recycled Water	41,000	43,000	47,250	51,700	49,000
Surface Water	0	0	0	0	0
Imported Water	36,121	18,746	19,017	19,289	37,208
% of Projected Normal[3]					
Groundwater	100%	117%	117%	116%	100%
Recycled Water	100%	100%	105%	110%	100%
Surface Water	n/a	n/a	n/a	n/a	n/a
Imported Water	100%	52%	52%	52%	100%

Notes:
(1) Supply values extrapolated from 2010 and 2015 data.
(2) DYY Program assumed to begin in year 2008 according to the Master Agreement. DYY Program in effect during multiple dry years.
(3) Projected Normal Use from Table 7-3.

Table 7-14
Projected Demand During Multiple Dry Year Period Ending in 2015 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2011	**2012**	**2013**	**2014**	**2015**
Demand	130,831	132,740	134,646	136,557	138,466
Conservation[1]	0	(13,274)	(13,465)	(13,656)	0
Adjusted Demand	130,831	119,466	121,184	122,901	138,466
% of Projected Normal[2]	100%	90%	90%	90%	100%

Notes:
(1) Assumed 10% conservation of demand for multiple dry years.
(2) Projected Normal Use from Table 7-4.

Table 7-15
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2015 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2011	**2012**	**2013**	**2014**	**2015**
Supply Totals	160,507	163,662	169,066	174,671	173,126
Demand Totals	130,831	119,466	121,184	122,901	138,466
Difference (Supply minus Demand)	29,676	44,196	47,883	51,770	34,660
Difference as % of Supply	18%	27%	28%	30%	20%
Difference as % of Demand	23%	37%	40%	42%	25%

Tables 7-16 through 7-18: 2016-2020

Table 7-16
Projected Supply During Multiple Dry Year Period Ending in 2020 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
Supply[(1)(2)]	**2016**	**2017**	**2018**	**2019**	**2020**
Groundwater	88,646	108,021	109,749	111,477	95,558
Recycled Water	50,800	52,600	57,120	61,820	58,000
Surface Water	0	0	0	0	0
Imported Water	37,163	19,472	19,427	19,383	36,985
% of Projected Normal[(3)]					
Groundwater	100%	120%	119%	119%	100%
Recycled Water	100%	100%	105%	110%	100%
Surface Water	n/a	n/a	n/a	n/a	n/a
Imported Water	100%	52%	52%	52%	100%

Notes:
(1) Supply values extrapolated from 2015 and 2020 data.
(2) DYY Program assumed to begin in year 2008 according to the Master Agreement. DYY Program in effect during multiple dry years.
(3) Projected Normal Use from Table 7-3.

Table 7-17
Projected Demand During Multiple Dry Year Period Ending in 2020 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2016	**2017**	**2018**	**2019**	**2020**
Demand	141,123	143,781	146,438	149,096	151,753
Conservation[(1)]	0	(14,378)	(14,644)	(14,910)	0
Adjusted Demand	141,123	129,403	131,794	134,186	151,753

% of Projected Normal[2]	100%	90%	90%	90%	100%

Notes:
(1) Assumed 10% conservation of demand for multiple dry years.
(2) Projected Normal Use from Table 7-4.

Table 7-18
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2020 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2016	**2017**	**2018**	**2019**	**2020**
Supply Totals	176,609	180,093	186,296	192,680	190,543
Demand Totals	141,123	129,403	131,794	134,186	151,753
Difference (Supply minus Demand)	35,486	50,690	54,502	58,494	38,790
Difference as % of Supply	20%	28%	29%	30%	20%
Difference as % of Demand	25%	39%	41%	44%	26%

Tables 7-19 through 7-21: 2021-2025

Table 7-19
Projected Supply During Multiple Dry Year Period Ending in 2025 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
Supply[1][2]	**2021**	**2022**	**2023**	**2024**	**2025**
Groundwater	97,297	116,683	118,423	120,162	104,254
Recycled Water	60,200	62,400	67,830	73,480	69,000
Surface Water	0	0	0	0	0
Imported Water	37,012	19,391	19,418	19,444	37,118
% of Projected Normal[3]					
Groundwater	100%	118%	118%	117%	100%
Recycled Water	100%	100%	105%	110%	100%
Surface Water	n/a	n/a	n/a	n/a	n/a
Imported Water	100%	52%	52%	52%	100%

Notes:
(1) Supply values extrapolated from 2020 and 2025 data.
(2) DYY Program assumed to begin in year 2008 according to the Master Agreement. DYY Program in effect during multiple dry years.
(3) Projected Normal Use from Table 7-3.

Table 7-20
Projected Demand During Multiple Dry Year Period Ending in 2025 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2021	**2022**	**2023**	**2024**	**2025**
Demand	154,337	156,921	159,504	162,088	164,672
Conservation[1]	0	(15,692)	(15,950)	(16,209)	0
Adjusted Demand	154,337	141,229	143,554	145,897	164,672

% of Projected Normal[2]	100%	90%	90%	90%	100%

Notes:
(1) Assumed 10% conservation of demand for multiple dry years.
(2) Projected Normal Use from Table 7-4.

Table 7-21
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2025 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2021	**2022**	**2023**	**2024**	**2025**
Supply Totals	194,504	198,475	205,670	213,086	210,372
Demand Totals	154,337	141,229	143,554	145,879	164,672
Difference (Supply minus Demand)	40,172	57,246	62,116	67,207	45,700
Difference as % of Supply	21%	29%	30%	32%	22%
Difference as % of Demand	26%	41%	43%	46%	28%

7.4 Water Agency Interconnection

Several local agencies have had the ability to provide neighbor agencies with water supplies during periods of extraordinary high demand or temporary disruptions in imported supply. Other agencies provide water supplies to other agencies as a matter of routine business. These interconnections are extremely important because the ability to move water around the Chino Basin provides an important level of supply reliability for agencies within WFA's service area.

Current interconnections include the Monte Vista Water District which provides an annual supplementary water supply to the City of Chino Hills. This totals as much as 10,000 acre-feet each year. Additional important interconnections have been established between the City of Ontario and the City of Chino as well as between the Chino Desalter Authority and cities served within WFA's service area.

7.5 MWD Service Line Capital Improvements

The WFA service area is supply imported water solely through the Rialto Feeder, making the service susceptible to emergency interruptions. This was evident in June 2004 when MWD had to conduct an unplanned shutdown of the Rialto Feeder to make emergency repairs. Agencies served by WFA suffered as much as 50% loss of supply for one week while MWD conducted repair operations.

MWD recognized the vulnerability of the pipeline to disruption and is working with WFA, IEUA and other agencies to identify key points along the Rialto Feeder

where isolation valves could be installed. These valves will contribute to a greater level of future reliability for agencies served by this pipeline. In the event of a break in the Rialto Feeder, only a portion of the pipeline may need to be shutdown instead of closing down the approximately 30 miles of line from Devils Canyon Forebay to LaVerne. Interconnections and mutual aid agreements will also help ensure that there are adequate supplies during an emergency.

7.6 Mutual Aid Agreements

The cities of Chino, Chino Hills, Montclair, Ontario and Upland and the Inland Empire Utilities Agency and the Monte Vista Water District have a Mutual Aid Agreement that, in the event of any disruption of damage to the ability of either IEUA or the other agencies to provide the public or their customers water service, sewage service or sewage treatment service, the other parties will cooperate to the maximum extent possible to provide mutual aid assistance as requested.

CHAPTER 8
URBAN WATER MANAGEMENT PLAN ADOPTION AND IMPLEMENTATION

8.1 Overview

This chapter describes the adoption and the implementation of the WFA UWMP 2005.

3.1 UMWP Preparation and Review

The process for formally adopting the WFA UWMP 2005 and submitting it to the California Department of Water Resources is prescribed in Water Code section 10640 through 106045. As this is the first UWMP to be adopted by the WFA, this Plan does not review changes that were made to conservation programs and water recycling plans since 2000. By reference, WFA adopts the review provided in the IEUA UWMP 2005.

The WFA UWMP 2005 was prepared as a companion Plan to the IEUA UWMP 2005, and the water supply and demand projections in both documents are based upon the same information provided by WFA's member agencies and the other retail agencies within IEUA's service area along with MWD, Chino Basin Watermaster and Chino Basin Desalting Authority.

Complete section based with info about public review and final public hearing.