2010 Urban Water Management Plan

Water Facilities Authority

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PREFACE

The Water Facilities Authority (WFA) is pleased to present the 2010 Urban Water Management Plan (UWMP). The WFA is responsible for imported water treatment and distribution to its member agencies in southwest San Bernardino County.

The 2010 UWMP is a statement of the goals, objectives and strategies needed to maintain a high quality, reliable imported water supply for the benefit of the member agencies WFA serves. It is intended to be consistent with regional planning efforts of the Chino Basin Watermaster, Inland Empire Utilities Agency (IEUA), and the Metropolitan Water District of Southern California.

The preparation of this UWMP was primarily done by IEUA staff. However, it was completed as part of the regional planning efforts of the cities and water agencies of the area. To all of those who contributed to these efforts, the staff and the Board of Directors of WFA thank you.

Terry Catlin, General Manager
Water Facilities Authority

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Executive Summary
2010 Urban Water Management Plan
Water Facilities Authority

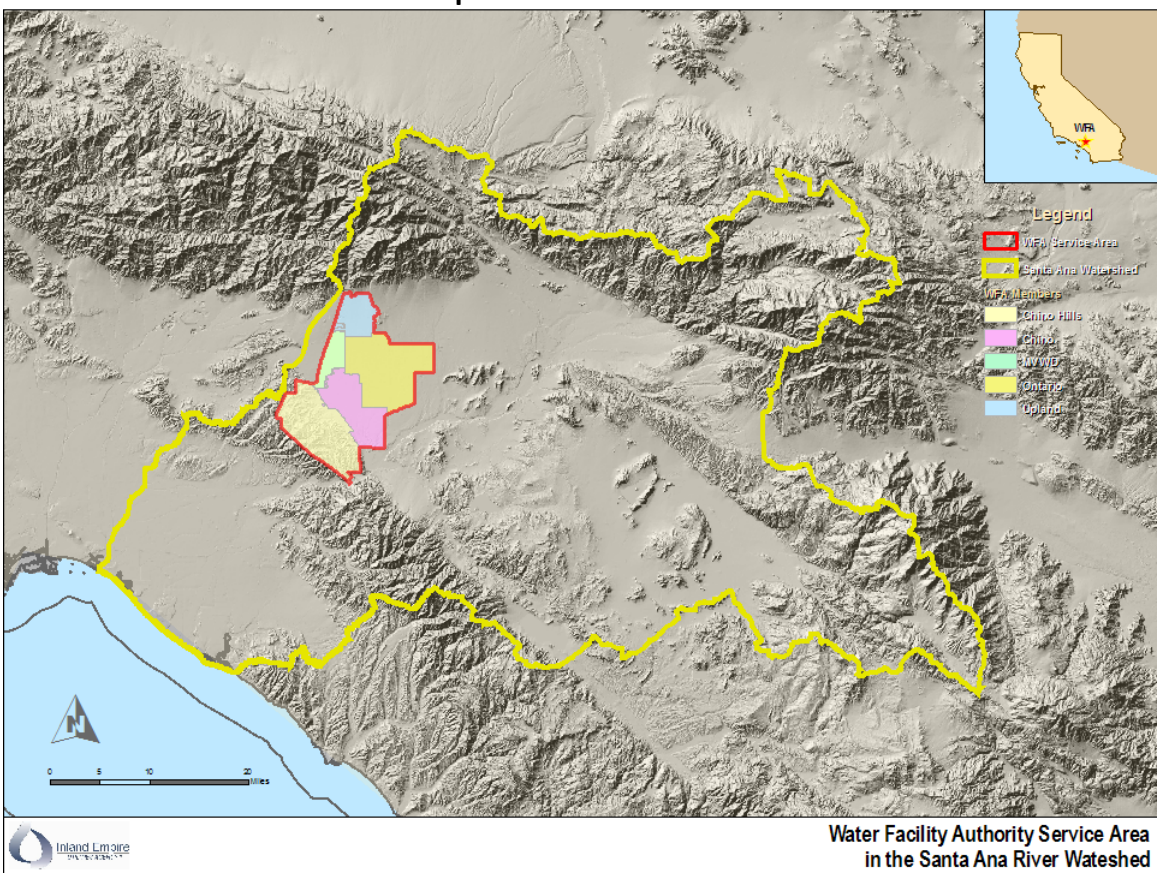
The Water Facilities Authority (WFA) 2010 Urban Water Management Plan (UWMP) was prepared by the Inland Empire Utilities Agency (IEUA) as a companion document to the IEUA regional UWMP. This is the second UWMP prepared specifically for the WFA and its service area. In preceding years, the WFA participated in the development of the regional UWMP produced by IEUA.

This 2010 UWMP provides an overview of current and projected water supplies and demands over the next twenty-five years, a description of the water conservation and water management activities that are planned and addresses the topics of reliability, water quality and opportunities to maximize local water sources, including conservation, groundwater and recycled water, and to minimize the need for additional imported water supplies within WFA's service area.

The Plan was prepared in close coordination with the retail agencies within WFA's service area as well as with the Metropolitan Water District of Southern California (MWD), Chino Basin Watermaster, the Chino Basin Desalter Authority and other cities and agencies within the watershed. The water demand and supply information was based upon projections provided by the area's retail agencies, Chino Basin Watermaster and MWD.

The WFA is a public agency that treats and supplies currently about 30,000 acre-feet per year of State Water Project water that is purchased from MWD. This imported water serves as a supplemental source of supply to approximately 500,000 residents in the west end of San Bernardino County. The WFA provides services to the cities of Chino, Chino Hills, Ontario, and Upland and the Monte Vista Water District. These member agencies are encompassed in IEUA's service area as shown in Figure ES-1.

Figure ES-1
Map of WFA Service Area



Water Facility Authority Service Area
in the Santa Ana River Wateshed

Population Growth

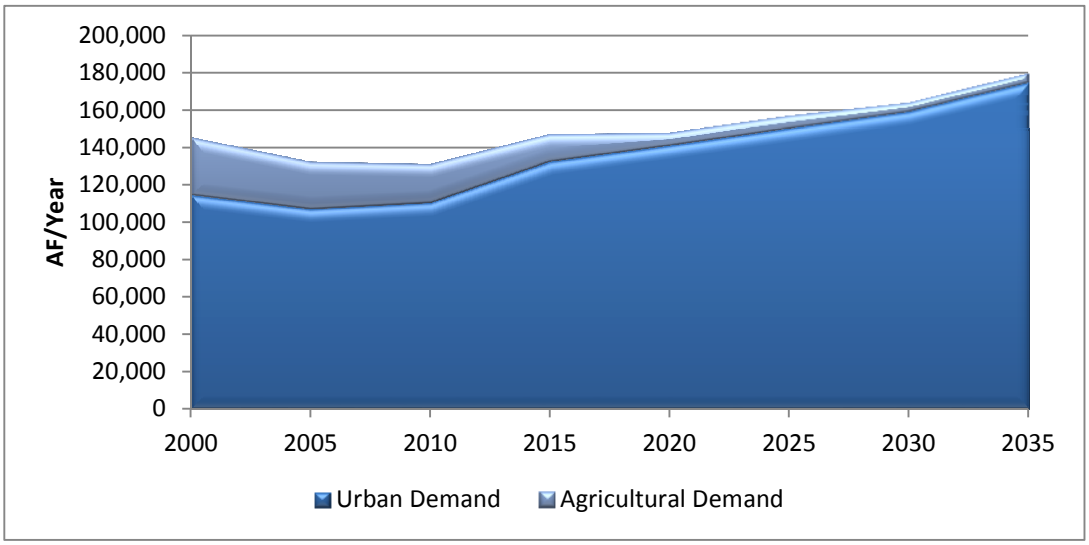
The WFA's service area has experienced rapid growth over the past ten years. Population within the service area was approximately 467,000 in 2000. By 2005, the area had grown to a population of about 485,000 and to 499,000 in 2010.

Water Demand

Total water demand in the WFA service area in 2010 was about 131,000 acre-feet. Despite the increase in population, the level of demand is slightly lower than it was in 2005. Regional conservation programs were significantly expanded during this time and contributed to the area's improved water use efficiency.

Looking ahead, population within the WFA service area is expected to reach over 725,000 people by 2035. Projected water needs are expected to increase by approximately 2,400 acre-feet per year (from 131,000 acre-feet per year to about 179,000 acre feet per year). This represents a potential 37% increase in the areas water need if *no* additional improvements in local water use efficiency occur during the next twenty-five years. The future water demand forecasts are conservative. Figure ES-2 presents projected total water demands.

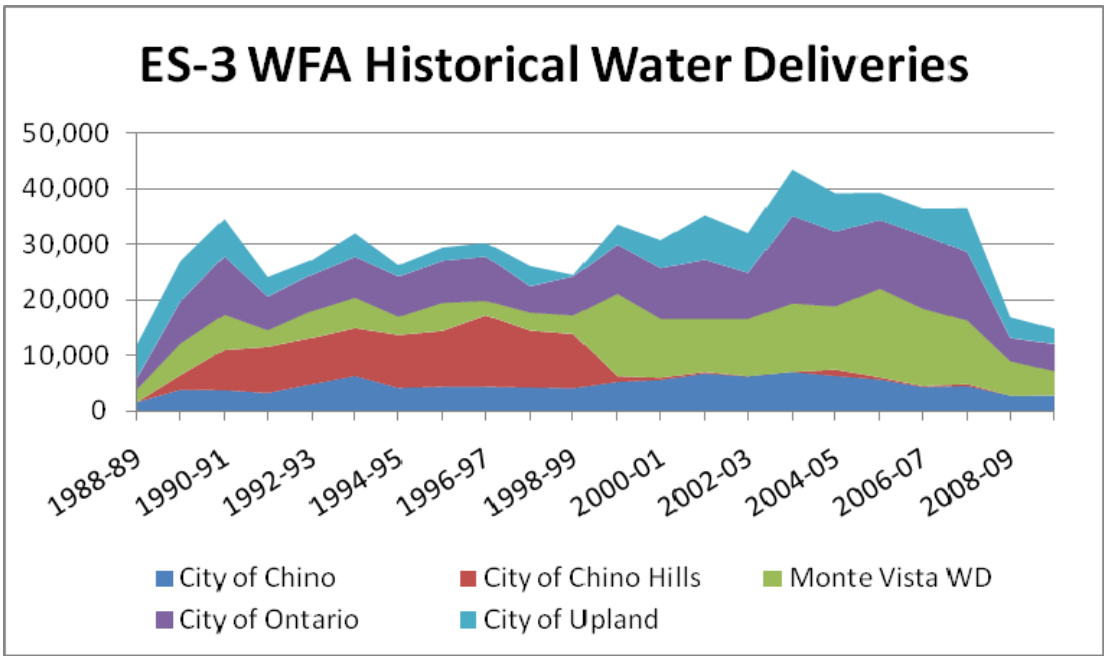
Figure ES-2
2000-2035 Projected Water Use within WFA's Service Area



Water Supplies

The water used within WFA's service area comes from both imported and local resources. Imported water is purchased by WFA from MWD (through IEUA) and is primarily comprised of State Water Project (SWP) deliveries. Groundwater is the predominate source of supply within WFA's service area, meeting about 60% of the water demand. Imported water is the next largest category, and ranges from 20-30% of the water supply within the service area depending upon the water year. About 10-20% comes from recycled and desalted sources, which is a growing source of supply for the area.

The WFA made its first purchase of imported SWP water from MWD in 1988, delivering about 12,000 acre-feet. Firm full service purchases of imported water by WFA have fluctuated over the past ten-years, ranging from 25,000 acre-feet to 40,000 acre-feet. The running average over the past ten-years is about 35,000 acre-feet per year. Figure ES-3 shows the historic water deliveries to WFA's member agencies.

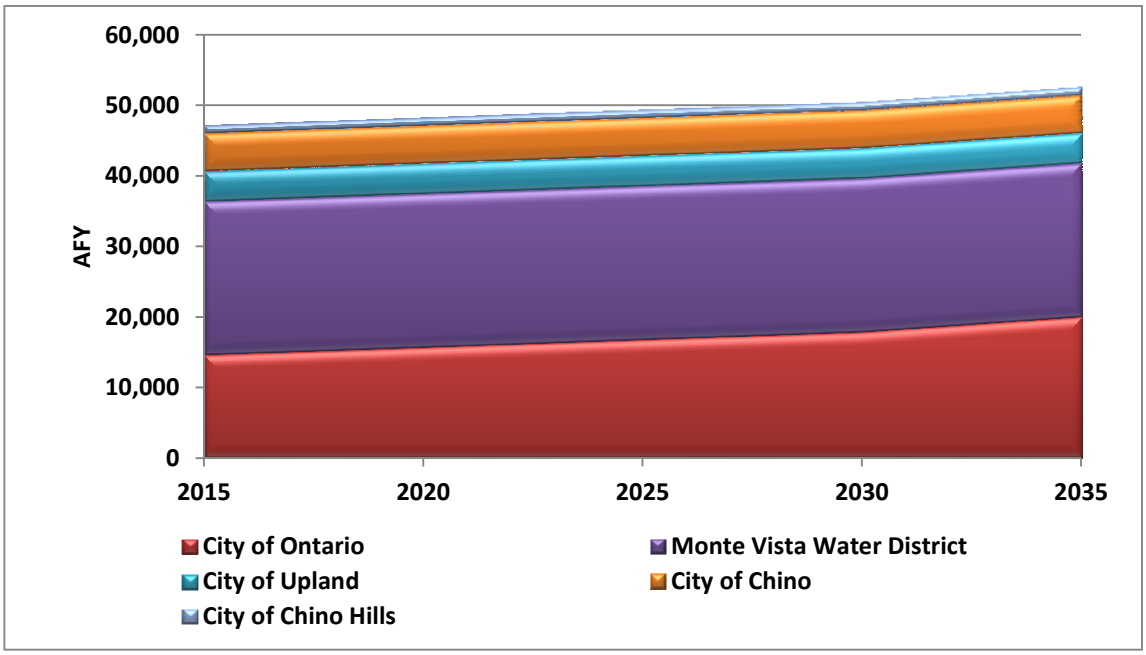


The regional water management strategy within the WFA's service area is to maximize the use of local water supplies and minimize the need for additional imported water, especially during dry years and other emergencies when imported water is less reliable.

Hundreds of millions of dollars has been invested, and will continue to be invested, in the development of regional facilities that will maximize the availability of local supplies to WFA's service area, including groundwater recharge, desalting, recycled water and water use efficiency programs.

As a result of these investments, local water supplies (including conservation) are expected to meet almost 85% of the water needs within the WFA service area. The overall need for full service imported water is expected to remain at approximately the same level of demand compared to recent years. Figure ES-4 shows the projected supplies of imported water by WFA's member agencies over the next twenty-five years.

Figure ES-4
WFA Imported Water Supply Projections



Water Reliability

The available water supplies and water needs for WFA's service area were analyzed to assess the region's ability to meet demands for three scenarios: a normal water year, single dry year and multiple dry years. Key assumptions included:

- Reliance on assurances provided by the Metropolitan Water District of Southern California in its 2010 Regional Urban Water Management Plan that it could meet 100% of projected supplemental full service water supply demands through 2035;

- Implementation of the Chino Basin Dry Year Yield Program consistent with the contractual shift obligations of the participating agencies of up to 33,000 acre-feet in a twelve month period; and

- A 10% conservation rate is achieved during drought scenarios.

The conclusion of the 2010 UWMP is that WFA will be able to meet 100% of its retail agencies' imported water demand under every scenario.

Other Water Planning Issues

Protection and enhancement of water quality is a priority within WFA's service area. Overall, the water quality of the SWP water is high. Imported water quality issues recognized by MWD include total organic carbon, bromides and salinity. The WFA

identified the high potential for the creation of Trihalmethanes from the imported water and uses alternative treatment technologies to minimize the possible formation of this disinfection byproduct. The WFA produces high quality potable water that meets all state and federal regulations.

Planning for water shortages and catastrophic interruptions are also a priority within WFA's service area. Regional coordination, infrastructure connections, local ordinances and mutual aid programs have been developed to minimize the potential for interruption of water supplies.

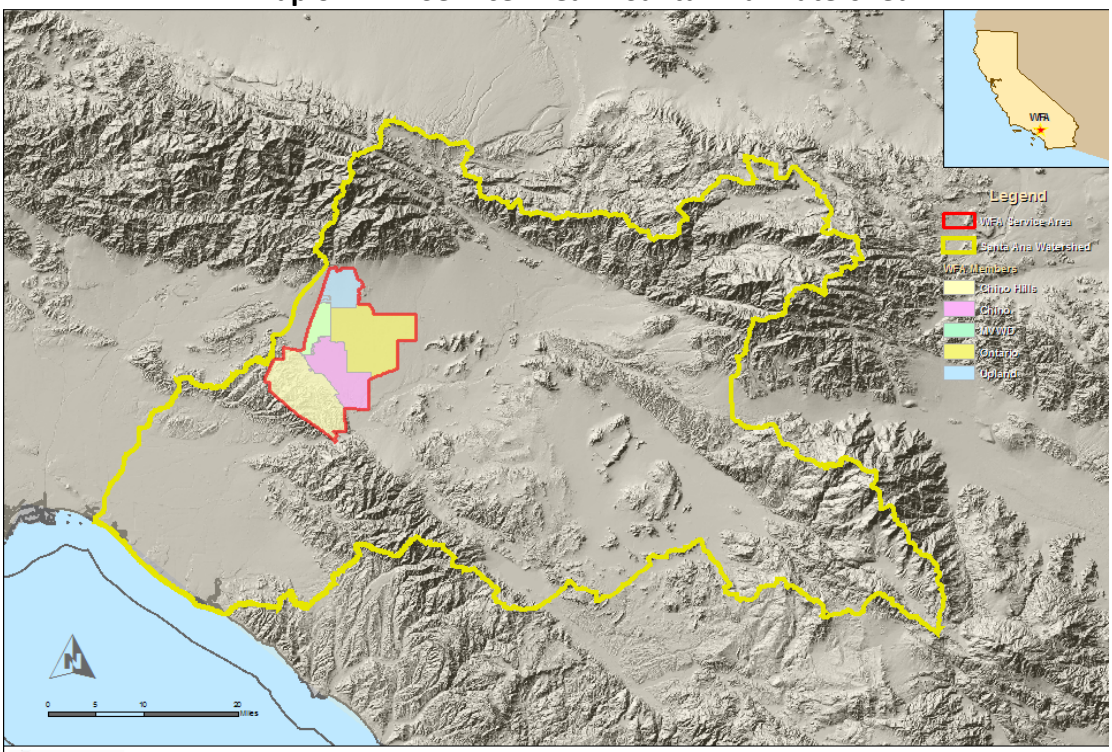
CHAPTER 1
INTRODUCTION

1.1 Overview

This volume presents the Urban Water Management Plan 2010 (Plan) for the Water Facilities Authority (WFA). As a public agency that treats and supplies on a wholesale basis currently about 30,000 acre-feet per year of water, which serves as a supplemental source of supply to other urban retail water suppliers that provide direct water service to approximately 500,000 residents in the west end of San Bernardino County, the WFA is required to prepare an Urban Water Management Plan (UWMP).

The WFA 2010 UWMP was prepared by the Inland Empire Utilities Agency (IEUA) as a companion document to the IEUA Regional Urban Water Management Plan (IEUA 2010 UWMP) and will be included as an appendix in the IEUA 2010 UWMP. IEUA is a member agency of the Metropolitan Water District of Southern California and wholesales imported water to WFA, the Cucamonga Valley Water District and the Fontana Water Company, as 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.

Figure 1-1
Map of WFA Service Area in Santa Ana Watershed



Water Facility Authority Service Area
in the Santa Ana River Wateshed

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 minimum 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, the 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 (i.e., 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. 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 2010 UWMP.

This is the second Plan prepared specifically for the WFA and its service area (the first being the 2005 UWMP). In years prior to 2005, the WFA participated in the development of 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-five 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 its cities and counties 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 March 2011, IEUA sent out notices regarding the IEUA 2010 UWMP 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 2010 regional UWMP. Copies of the notifications are included in the IEUA 2010 UWMP, Appendix E, and are included herein as Appendix B.

Table 1-1 provides a list of local and regional agencies and their level of involvement in preparation of this WFA 2010 UWMP.

Table 1-1
Local and Regional Agencies Involved in Preparation of the WFA 2010 UWMP[1]

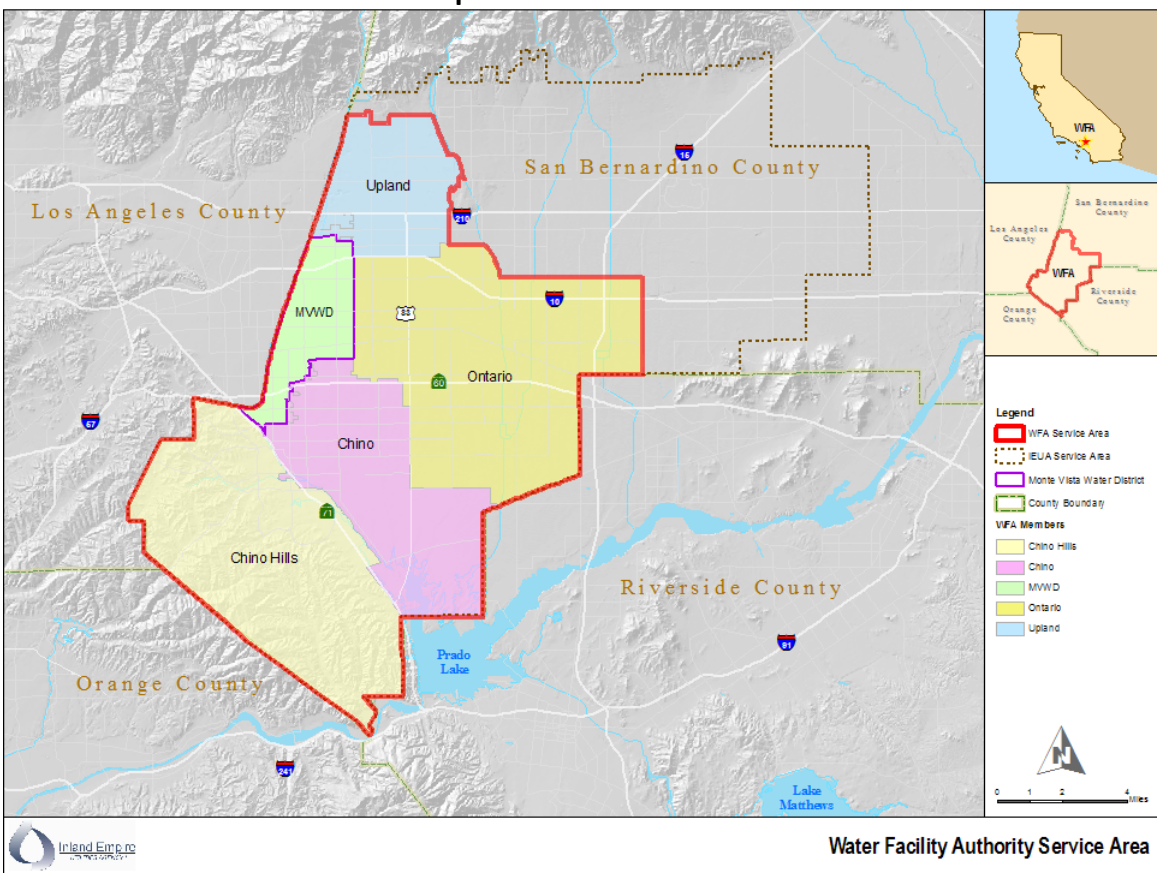
	Participated in UWMP Development	Commented on UWMP Draft	Attended Public Meetings	Contacted for Assistance	Received Copy of Draft UWMP[2]	Sent Notice of Intention to Adopt
City of Chino	X	X	X	X	X	X
City of Chino Hills	X		X	X	X	X
City of Ontario	X		X	X	X	X
City of Upland	X		X	X	X	X
Monte Vista WD	X	X	X	X	X	X
City of Montclair					X	X
Chino Basin Desalter Auth.	X		X	X	X	X
Metropolitan Water District of Southern California	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]Development of the WFA UWMP and participation of the local agencies was indirectly through the development of the IEUA UWMP.
[2]WFA members received copies of the UWMP via email notification. All others were referred to the IEUA website through newspaper and/or email notifications.

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 on a wholesale basis 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 1-2
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 SWP 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 500,000 residents 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 84,000 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 175,000 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 75,000 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 3-5 of the IEUA 2010 UWMP.

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 and again in 2010. 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 2010 UWMP and this Plan were developed with and rely upon the information provided from MWD's RUWMP (November 2010). (See Water Code section 10631(k).)

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. MWD pays the lesser of one-half the program cost or the equivalent of $195 per acre-foot of water saved through conservation. A variation of this policy provides funding for member agency administered programs.

Inland Empire Utilities Agency

WFA purchases imported water from MWD through 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 850,000. 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 two (primary and alternative) commission members 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.

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.

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. Out of the $235 million approved for the Santa Ana River Watershed, the Chino Basin has received approximately $87 million for the construction of groundwater desalters, groundwater recharge facilities, and new wells.

In early 2009, SAWPA completed a new integrated water management plan for the region known as "One Water One Watershed," or OWOW. Part of the impetus for starting the OWOW planning process was the passage of Proposition 84 by the California voters in 2006. Proposition 84 allocated $1 billion to regions with qualifying integrated watershed plans. The OWOW plan provides the basis for seeking Proposition 84 grant funds from DWR and will help to address the significant water supply crisis which has arisen throughout the state. The goal of OWOW is a sustainable watershed that is drought-proofed, salt-balanced, and supports economic and environmental vitality.

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 Chapter 3, Figure 3-4 of the IEUA 2010 UWMP) 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 2010, Chapter 7 – Groundwater Management Programs). The OBMP encourages the increased use of local supplies to help "drought proof" the Chino Basin.

In July 2000, the Watermaster adopted the "Peace Agreement" that ended over 15 years of litigation within the Chino Basin. The Peace Agreement outlined the schedule and actions for implementing the OBMP.

In December 2007, the Watermaster adopted the "Peace II Agreement" which redefines the future programs and actions required to implement the OBMP, based on the past nine years of experience and accomplishments in implementing the OBMP.

Throughout 2009 – 2010, the Watermaster updated the Groundwater Recharge Master Plan in response to changes in demand, recharge capacity, safe yield, and other factors. The Watermaster was required, consistent with the Peace II agreement and court deadline, to prepare an update of the Master Plan Update for the Chino Basin by July 2010. The proposed Groundwater Recharge Master Plan includes an assessment of safe yield changes and a revised safe yield projection as well as identified opportunities for enhanced storm water, recycled water and imported water recharge (including low impact development, new recharge projects and integrated storm water and supplemental water facilities).

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 SARWQCB completed the Water Quality Control Plan (Plan) for the Upper portion of the Santa Ana Watershed. The plan outlined specific water quality management actions to address water quality and salt (total dissolved solids) build up within the Chino Groundwater Basin. These included the construction of a large well field and desalters in the lower part of the Basin to extract and treat poor quality water, the construction of a pipeline to export brines from the upper Basin to the ocean; and the use of large volumes of low TDS water for groundwater recharge.

Since 1975, a brine line (known as the Santa Ana River Interceptor or [SARI] line) has been built and is in operation. In addition, two groundwater desalting plants (Chino I and II) are in place. The 2000 Optimum Basin Management Plan by the Chino Basin Watermaster has been developed to meet the requirements of the 1975 plan.

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 Chapters 2 and 3 of the IEUA 2010 UWMP.

2.2 Service Area Geography and Climate

WFA's service area covers about 135 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 (Fº)	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 (Fº)	95	94.4	91.3	83	73.6	68.3	79.4

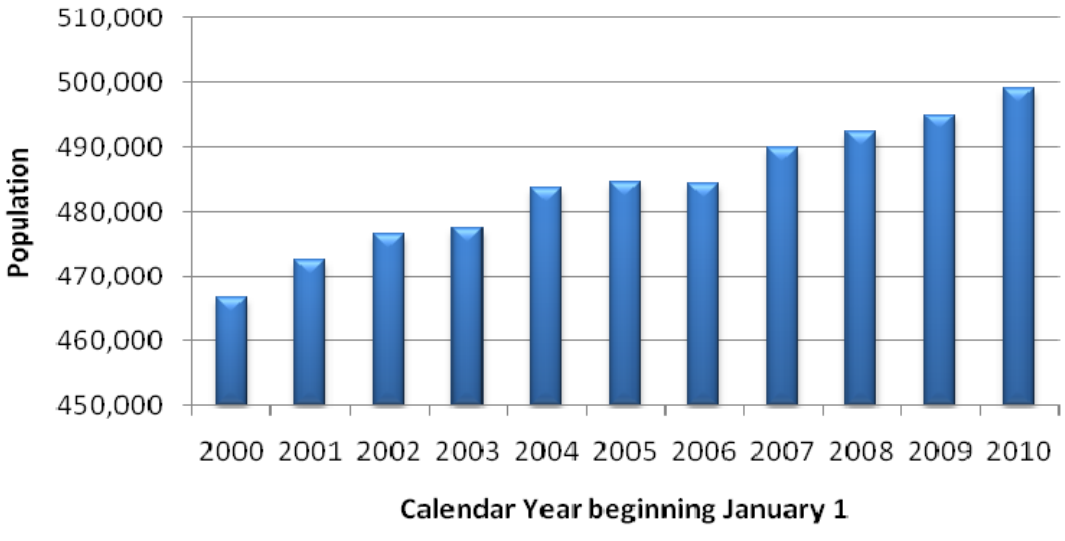
[1]Data provided by NOAA and CIMIS websites

As described in the IEUA 2010 UWMP, per capita water usage within San Bernardino County is higher than in San Diego, Orange County or Los Angeles Counties. This 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 467,000 in 2000. By 2005, the area had grown to a population of about 485,000 and by 2010 to an estimated population of almost 500,000.

Figure 2-1
2000-2010 Population within WFA's Service Area



The annual rate of increase over the ten year period has been about 1%. The City of Chino experienced the highest rate of growth during this time, with an estimated annual rate of increase of 2.1%. As shown in Table 2-2, the largest cities served within the WFA service area are Ontario, Chino and Chino Hills.

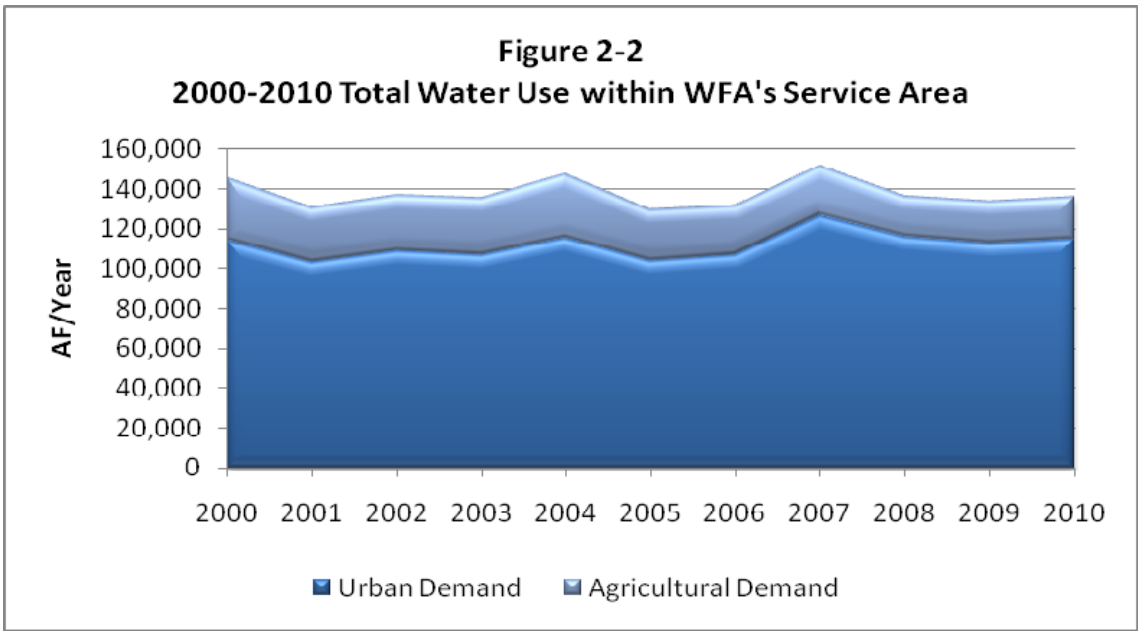
Table 2-2
WFA Service Area Population

Agency	2000	2001	2002	2003	2004	2005
Chino	67,168	67,736	69,152	70,850	75,865	77,926
Chino Hills	66,787	68,545	71,394	73,211	76,584	77,699
Ontario	158,007	159,461	163,275	166,169	168,322	170,111
Upland	68,393	69,338	70,929	72,030	72,880	73,580
Montclair	48,281	49,214	50,148	50,650	51,244	52,222
Unincorporated	58,125	58,227	51,610	44,488	38,777	33,066
Total	**466,761**	**472,521**	**476,508**	**477,398**	**483,672**	**484,604**

Agency	2006	2007	2008	2009	2010
Chino	79,795	81,165	82,481	84,053	84,742
Chino Hills	77,719	78,307	78,465	78,597	78,971
Ontario	170,567	171,911	172,608	172,908	174,536
Upland	73,860	74,823	74,668	74,914	76,106
Montclair	52,307	53,666	54,159	54,415	54,673
Unincorporated	30,000	30,000	30,000	30,000	30,000
Total	**484,248**	**489,872**	**492,381**	**494,887**	**499,028**

Note: the unincorporated population is an estimate for the 2006-2010.

Currently about 85% 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 15% 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 and is therefore not served through wholesale water provided by WFA.



The overall trend in the area's water demand in the past ten years has essentially flat-lined. In 2007, the water demand peaked at approximately 151,000 acre-feet. However, in the last three years water demand has decreased (see Figure 2-2). The continuing downward trend in overall water use is an excellent indicator of how well the WFA member agencies have responded to the current water supply challenges including; a third consecutive year of drought, MWD's call for stored water under the Chino Basin Dry Year Yield Program; Judge Wanger's Delta Decision which significantly restricted diversions from the delta, the Governor's declaration of a Statewide Water Emergency, MWD's adoption of a Water Supply Allocation Plan and its call for both voluntary conservation and implementation of mandatory water conservation ordinances.

Despite the flat-lined water use trend over the past ten years, the annual demand within the area has fluctuated with dry and wet year cycles. The early 1990's were characterized by an intense drought (1988-1992) that sharply increased demand and then, as a result of the region's conservation efforts, decreased the area's water usage. Similarly, dry conditions prevailed between 2007 and 2010, fiscal year 2007 being a record-breaking dry year for California with the Agency's service area receiving less than 5 inches of rain – far below the 13-inch average rainfall for the region, and the region saw a short sharp increase in demand followed by a longer lasting decrease in demand.

As shown in Table 2-3, the retail agencies with the largest demand within the WFA service area in 2010 are city of Ontario (about 33,000 acre-feet per year), City of Upland (about 21,000 acre-feet per year) and the city of Chino Hills (about 16,000 acre-feet per year).

Table 2-3
2000-2010 Water Use within WFA's Service Area

Agency	2000	2001	2002	2003	2004	2005
City of Chino	15,764	14,463	15,447	15,006	16,037	15,012
City of Chino Hills	17,333	16,608	15,242	15,800	18,402	15,228
City of Ontario	46,420	40,340	43,836	43,349	46,146	42,632
City of Upland	23,038	20,289	22,496	20,864	22,563	19,847
Monte Vista Water District	11,924	11,735	12,026	12,036	12,448	11,418
Urban Sub-Total	***114,479***	***103,435***	***109,047***	***107,055***	***115,596***	***104,137***
Agricultural	44,242	39,285	38,196	35,168	38,192	31,505
Total[3]	**158,721**	**142,720**	**147,243**	**142,223**	**153,788**	**135,642**

Agency	2006	2007	2008	2009	2010
City of Chino	15,786	20,181	20,329	20,876	15,601
City of Chino Hills	16,518	20,534	19,542	18,695	16,002
City of Ontario	42,219	49,868	43,720	40,973	33,188
City of Upland	21,024	23,806	20,261	22,144	20,841
Monte Vista Water District	11,517	12,375	12,330	10,114	10,085
Urban Sub-Total	***107,064***	***126,764***	***116,182***	***112,802***	***95,717***
Agricultural	30,253	29,653	23,539	23,277	21,043
Total[3]	**137,317**	**156,417**	**139,721**	**136,079**	**116,760**

Within the urban sector, more than half (58%) of the water used within WFA's service area is for single family homes. 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 2010 are unchanged from the estimated uses in 2005, and are consistent with uses within IEUA's service area as a whole (see IEUA 2010 UWMP, Chapter 2).

2.4 Future Population, Employment, Housing and Water Demand

Population

The population within IEUA's service area is expected to continue to grow over the next twenty-five years, however, when the expected growth actually occurs will depend on how long the economic recession lasts. The projected population for the area in 2035 is 726,773 people (Table 2-4). This represents an increase of almost 260,000 people over the next twenty-five years, with an average annual growth rate of about 4%.

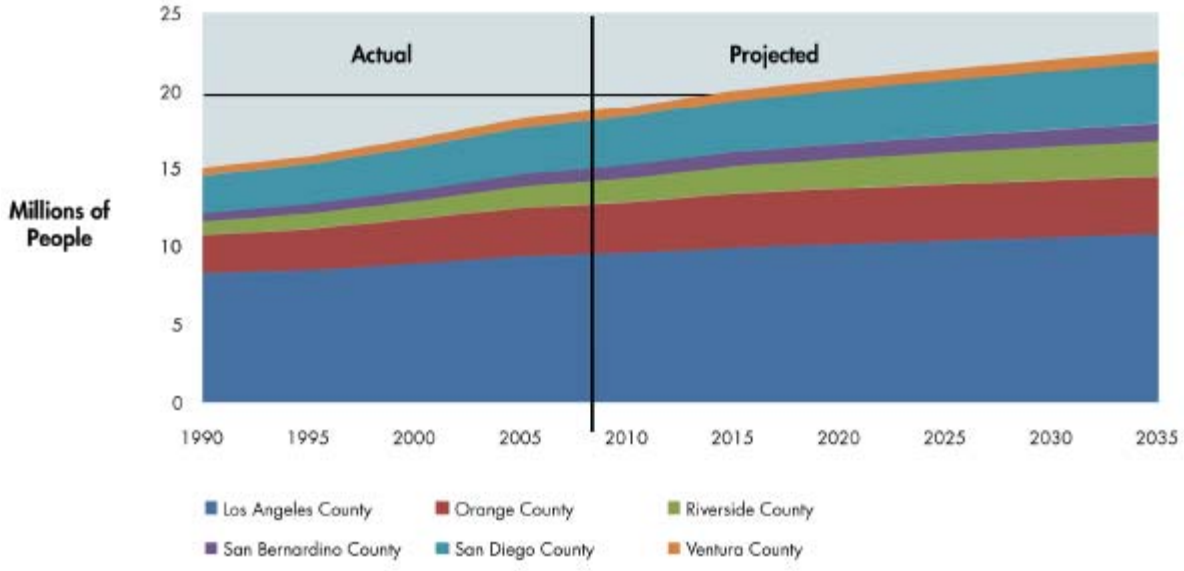
Table 2-4
Projected Population by Communities within WFA's Service Area

	2000	2005	2010	2015	2020	2025	2030	2035
CHINO	67,168	77,926	84,742	90,737	106,053	121,369	136,686	136,686
CHINO HILLS	66,787	77,699	78,971	81,916	83,636	85,284	86,784	88,284
MONTE VISTA	45,454	49,164	52,488	54,731	56,555	58,108	59,384	61,150
ONTARIO	158,394	172,408	174,536	213,839	246,304	277,799	318,035	358,270
UPLAND	70,393	73,235	76,106	75,200	75,300	75,400	75,500	76,600
Total	**408,196**	**450,432**	**466,843**	**516,423**	**567,848**	**617,960**	**676,389**	**720,990**

Note: Data sources from local agencies UWMP's are variable and include Department of Finance, municipal planning departments and interpolation as further provided herein and in the IEUA 2010 UWMP and MWD RUWMP.

According to SCAG and SANBAG estimates, the population in MWD's service area will reach 18.9 million in 2010, 21.4 million in 2025, and 22.5 million by 2035 (Figure 2-3).While Los Angeles County leads in total population, the inland areas of Riverside and San Bernardino counties are projected to grow at the fastest rates over the next ten years. Generally speaking, however, annual growth rates will slow for all counties between 2010 and 2035. In part this is due to changing patterns of migration. It also reflects the effects of the recession of the late 2000's and the ongoing restructuring of the Southern California economy (MWD's 2010 RUWMP).

Figure 2-3 Actual and Projected Population (MWD's 2010 UWMP)



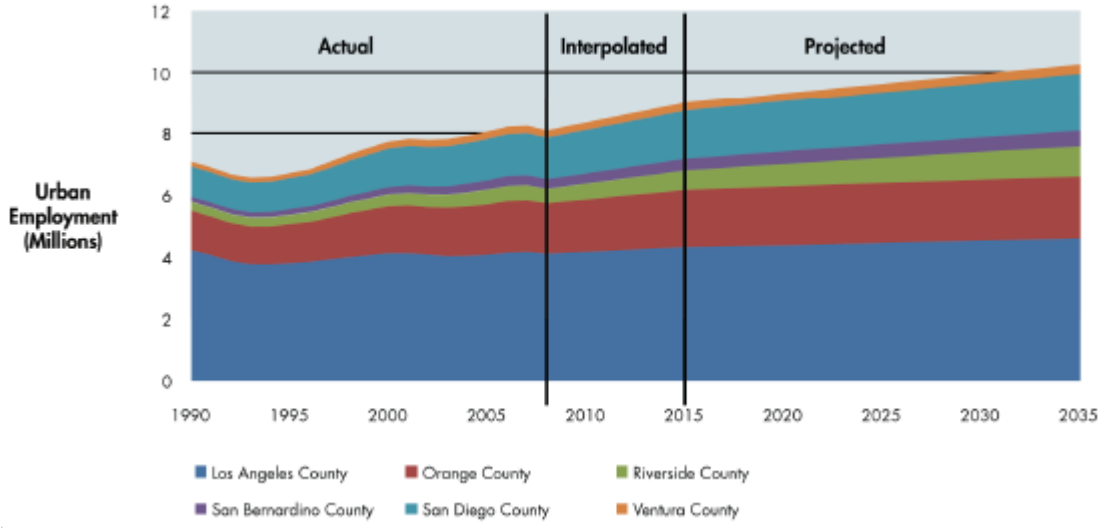
Employment

Economic trends are important drivers of water demand. MWD and IEUA capture economic trends by tracking regional employment growth and the changing mix of industries comprising the Southern California economy.

Unfortunately, regional job growth has slowed again in response to the economic recession that began in 2007. Southern California suffered more than most regions during this period due to the combination of housing and economic declines occurring during the post-2007 period. Within MWD's service area, employment growth is likely to occur unevenly across the six counties. Over the twenty-five year period between 2010 and 2035, the greatest employment increases are expected to occur in Riverside, San Diego and Los Angeles Counties. However, relative to existing employment, Riverside and San Bernardino Counties are expected to have the highest growth rate for employment (MWD's 2010 RUWMP).

Figure 2-4 summarizes the projected employment growth in each of MWD's six counties. MWD's overall service area is expected to increase by approximately 23% over the next twenty-five years. In comparison, San Bernardino County is expected to increase by over 52% over the same twenty-five year period.

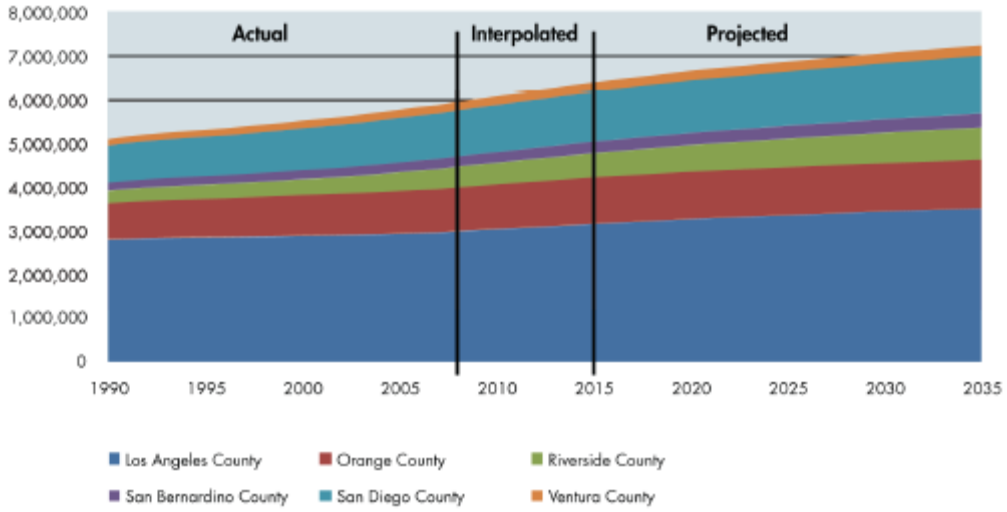
Figure 2-4 Actual and Projected Urban Employment (MWD's 2010 UWMP)



Residential Housing

Southern California regional planning agencies have forecast residential housing growth in all parts of the MWD service area. The total occupied housing stock is expected to increase more than 19% between 2010 and 2035. In comparison, San Bernardino County is expected to increase by approximately 34% during the same period (Figure 2-5). The effect of economic recessions can clearly be seen over time in conjunction with the fall in housing construction, the most recent occurring in 2007.

Figure 2-5 Actual and Projected Households (MWD's 2010 UWMP)

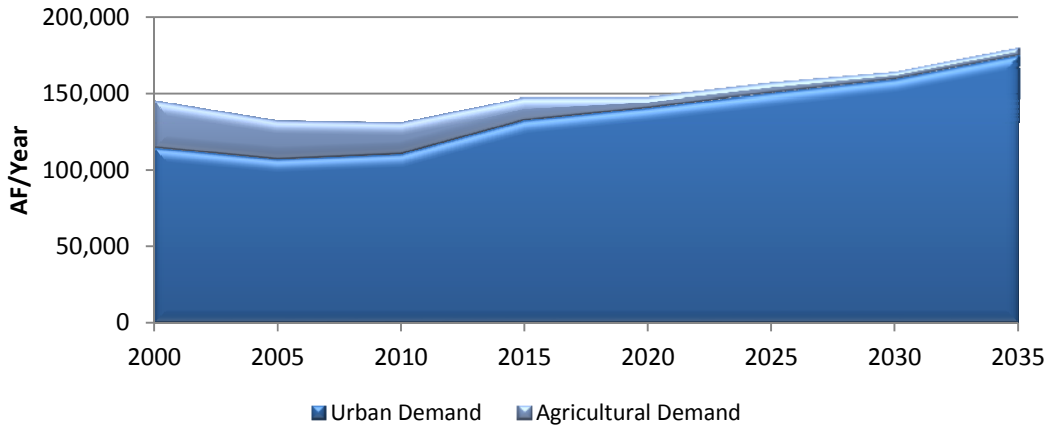


Employment within the service area is forecasted by the Southern California Association of Governments to increase by over 100,000 jobs in the next twenty years (see Figure 2-4). This corresponds to an average annual increase of almost 3%. Housing stock is expected to increase by a projected 76,000 occupied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

Water Demand

Based upon these future expected land uses, water used for agricultural purposes is expected to decline from 16% of the water demand to less than 3% of the demand, as shown in Figure 2-6.

Figure 2-6
2000-2035 Projected Water Use within WFA's Service Area



Projected total water needs within WFA's service area by 2035 are expected to increase by approximately 48,000 acre-feet (from about 131,000 acre-feet per year in 2010 to about 179,000 acre-feet in 2035). This represents a potential 37% increase in the area water needs if *no* additional improvements in local water use efficiency occur during the next twenty-five years, including no increase in state and/or federal regulatory standards for development and landscaping, and no implementation of new demand side management and conservation programs within WFA's service area.

Table 2-5
Projected Water Use by WFA Member Agencies

	2000	2005	2010	2015	2020	2025	2030	2035
City of Chino	15,396	15,012	15,601	16,602	17,401	18,874	19,954	20,990
City of Chino Hills	17,204	15,228	16,002	20,800	21,400	21,400	21,400	21,400
City of Ontario	42,903	42,632	33,188	44,413	49,647	54,889	60,127	70,966
City of Upland	23,038	19,847	20,841	20,330	20,330	20,330	20,330	20,330
Monte Vista Water District	11,924	11,418	10,085	12,100	11,140	11,440	11,690	12,020
Subtotal	***110,465***	***104,137***	***95,717***	***114,245***	***119,918***	***126,933***	***133,501***	***145,706***
Recycled Water Demand	4,015	2,814	14,569	18,065	20,612	23,059	25,506	29,103
Agricultural Demand	30,993	25,593	21,043	15,000	7,000	7,000	5,000	5,000
Total Demand	**145,473**	**132,544**	**131,329**	**147,310**	**147,530**	**156,992**	**164,007**	**179,809**

WFA and IEUA, as urban wholesale water suppliers, are not required to develop a baseline or set reduction targets to achieve a 20% reduction in gallons per capita day by 2020 as written under SB X 7-7. However, as the statute does require urban retail water suppliers to comply, the WFA supports IEUA's position of preparing a regional approach establishing a baseline and setting targets based on regional demands and in support of IEUA's eight retail member agencies that must comply.

IEUA and all of its member agencies are signatories to the Memorandum of Understanding regarding Urban Water Conservation in California and are members of the California Urban Water Conservation Council. As one of the original signatories to the MOU in 1991, IEUA's highest conservation priority has been to ensure that good-faith efforts are made on behalf of the member agencies in implementing Best Management Practices, locally.

Over the last nineteen years, IEUA has been committed to developing and implementing many core regional conservation programs that have been designed on the foundation of BMPs, and these programs continue to serve as a key component in the overall regional water resource management portfolio for the region. (see Chapter 4 for more details.)

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CHAPTER 3
WATER SUPPLIES WITHIN WFA'S SERVICE AREA

3.1 Overview

This chapter describes the past, current 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 2010 UWMP.

3.2 Historic Water Supplies within WFA's Service Area

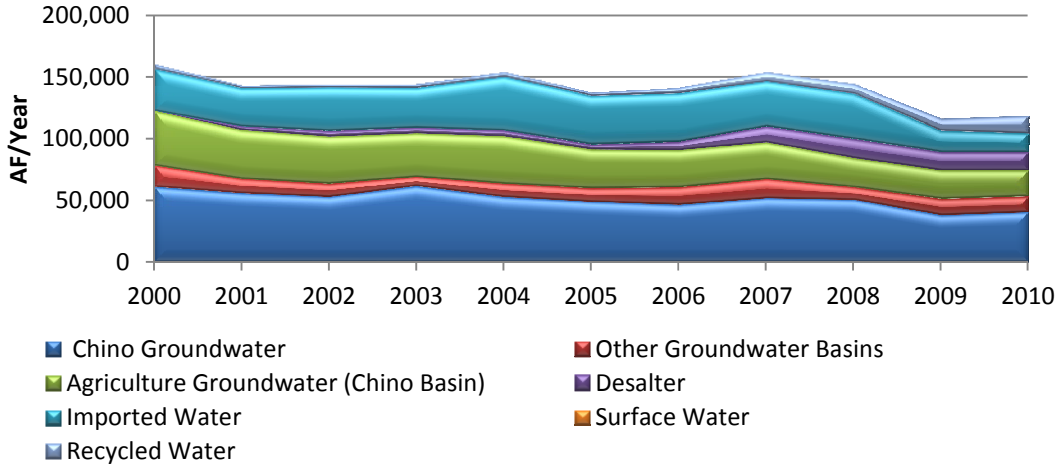
The urban water used in WFA's service area comes from both imported and local sources. Imported water is purchased by WFA through MWD (via IEUA) and is comprised primarily of State Water Project deliveries. WFA provides treatment to the imported water before delivering this wholesale supplemental supply 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	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Chino Basin Groundwater	61,183	55,931	53,027	61,601	52,873	49,062
Other Basin Groundwater	17,406	11,684	10,609	7,532	10,930	10,947
Surface Water	346	1,999	1,499	1,155	1,364	467
Imported Water	33,617	30,813	35,292	32,094	43,517	39,240
Recycled Water	4,014	1,863	2,398	2,922	3,762	2,814
Desalter	0	3,213	4,519	4,778	4,696	3,904
Agricultural use	44,242	39,285	38,196	35,168	38,192	31,505
Total	**160,809**	**144,789**	**145,540**	**145,250**	**155,334**	**137,939**
	Fiscal Year Ending June 30					
Water Source	**2006**	**2007**	**2008**	**2009**	**2010**	
Chino Basin Groundwater	46,572	51,914	50,616	38,241	40,835	
Other Basin Groundwater	14,211	15,495	10,330	13,148	12,680	
Surface Water	467	2,199	2,074	1,589	1,992	
Imported Water	39,366	36,503	33,572	16,936	14,864	
Recycled Water	4,286	7,624	8,129	9,965	14,569	
Desalter	6,449	12,904	15,301	14,810	14,810	
Agricultural use	30,253	29,653	23,539	23,277	21,043	
Total	**141,604**	**156,291**	**143,561**	**117,966**	**120,793**	

Over the past ten year period, total water use within the WFA service area has ranged from a low of 118,000 acre-feet per year to a high of 160,000 acre-feet per year. The relative contribution of groundwater, surface, imported, recycled and desalter water is shown in Figure 3-1.

Figure 3-1
Historical Water Use Within the WFA Service Area (AFY)



Although not served by WFA, groundwater is the predominate source of water supply used in WFA's service area, and provided about 60-70% of the water supply on average over the past ten years. Imported water is the next largest category, and ranges from 20-30% of the water supplies with WFA's service area depending on the water year. About 5-10% of the water supply comes from recycled water 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 2010 UWMP 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 local water production by source between 2000 and 2010.

Table 3-2 (a)-(e)
Historical Local Water Production within WFA Service Area

(a) Chino Basin Groundwater Supply (AFY) Within WFA Service Area

Entity	Fiscal Year Ending June 30					
	2000	2001	2002	2003	2004	2005
City of Chino	10,201	7,147	5,613	6,020	6,282	6,096
City of Chino Hills	4,264	4,063	3,398	6,799	7,671	6,108
City of Ontario	36,523	33,988	31,968	35,050	29,214	28,620
City of Upland	1,570	1,566	2,390	5,026	1,926	1,674
Monte Vista Water District	8,626	9,166	9,658	8,707	7,781	6,668
Total Chino Basin Groundwater	**61,184**	**55,930**	**53,027**	**61,602**	**52,874**	**49,166**

Entity	Fiscal Year Ending June 30				
	2006	2007	2008	2009	2010
City of Chino	5,932	8,909	7,608	8,489	7,808
City of Chino Hills	2,314	5,190	5,460	7,491	7,591
City of Ontario	29,788	28,014	25,988	31,531	23,003
City of Upland	1,394	1,271	2,967	3,674	3,410
Monte Vista Water District	7,145	8,530	8,592	8,875	9,637
Total Chino Basin Groundwater	**46,573**	**51,914**	**50,615**	**60,060**	**51,449**

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

Entity	Fiscal Year Ending					
	2000	2001	2002	2003	2004	2005
City of Upland	17,706	11,684	10,609	7,532	10,930	10,947
Total Other Groundwater	**17,706**	**11,684**	**10,609**	**7,532**	**10,930**	**10,947**

Entity	Fiscal Year Ending				
	2006	2007	2008	2009	2010
City of Upland	14,211	15,495	10,330	12,680	10,573
Total Other Groundwater	**14,211**	**15,495**	**10,330**	**12,680**	**10,573**

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

Entity	Fiscal Year Ending					
	2000	2001	2002	2003	2004	2005
City of Upland	346	1,999	1,499	1,155	1,364	467
Total Surface Water	**346**	**1,999**	**1,499**	**1,155**	**1,364**	**467**

Entity	Fiscal Year Ending				
	2006	2007	2008	2009	2010
City of Upland	467	2,199	2,074	1,589	1,992
Total Surface Water	**467**	**2,199**	**2,074**	**1,589**	**1,992**

(d) Recovered Water Supply from CDA Desalters (AFY) Within WFA Service Area

Entity	Fiscal Year Ending					
	2000	2001	2002	2003	2004	2005
City of Chino	0	1,488	2,773	2,835	2,802	2,654
City of Chino Hills	0	1,725	1,746	1,944	1,895	1,250
City of Ontario	0	0	0	0	0	0
Total Recycled Water	**0**	**3213**	**4519**	**4779**	**4697**	**3904**

Entity	Fiscal Year Ending				
	2006	2007	2008	2009	2010
City of Chino	4263	4690	5456	5,045	5039
City of Chino Hills	2095	3253	4431	4,508	4395
City of Ontario	92	4,962	5,415	5,257	5,304
Total Recycled Water	**6,450**	**12,905**	**15,302**	**14,810**	**14,738**

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

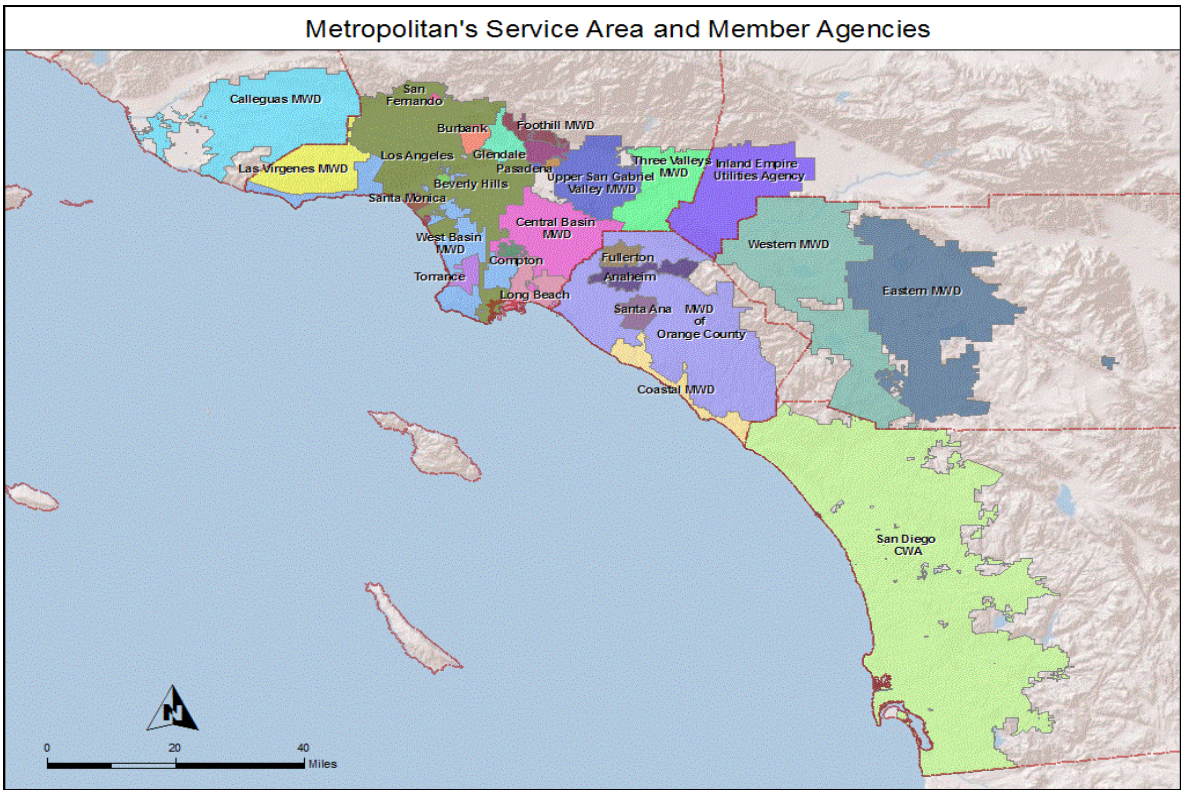
Entity	Fiscal Year Ending					
	2000	2001	2002	2003	2004	2005
City of Chino	368	293	368	958	1,544	830
City of Chino Hills	129	569	798	767	1,058	815
City of Ontario	3,517	1,001	1,232	1,197	1,160	1,169
City of Upland	0	0	0	0	0	0
Monte Vista Water District	0	0	0	0	0	0
Total Recycled Water	**4,014**	**1,863**	**2,398**	**2,922**	**3,762**	**2,814**

Entity	Fiscal Year Ending				
	2006	2007	2008	2009	2010
City of Chino	1,752	2,304	2,897	4,626	7,157
City of Chino Hills	948	1,631	1,479	1,285	1,494
City of Ontario	1,587	3,673	3,753	3,955	5,678
City of Upland	0	17	0	0	0
Monte Vista Water District	0	0	0	100	240
Total Recycled Water	**4,286**	**7,624**	**8,129**	**9,966**	**14,569**

3.3 WFA Water Supply Sources

As previously discussed, 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. The MWD Service Area is shown in Figure 3-2.

Figure 3-2 MWD Service Area Map



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 2010 Regional Urban Water Management Plan provides a detailed description of its facilities and the availability and reliability of its imported water supplies, including the SWP. Through its Plan and related planning documents, including the 2010 Integrated Resources Plan, MWD provides assurance that all full service demands will be satisfied under all "foreseeable hydrologic" conditions. In accordance with Water Code section 10631(k), the information, analyses and conclusions regarding the availability and reliability of imported water supplies from MWD to its member agencies (including IEUA and, in turn, to WFA) during normal, single-dry and multiple-dry year periods over the next 20-year planning horizon and beyond are expressly relied upon by WFA and this 2010 Plan and are incorporated herein.

Historic MWD deliveries to WFA are presented in Table 3-3 and shown on Figure 3-3. WFA made its first purchase of SWP water in 1988, delivering about 12,000 acre-feet

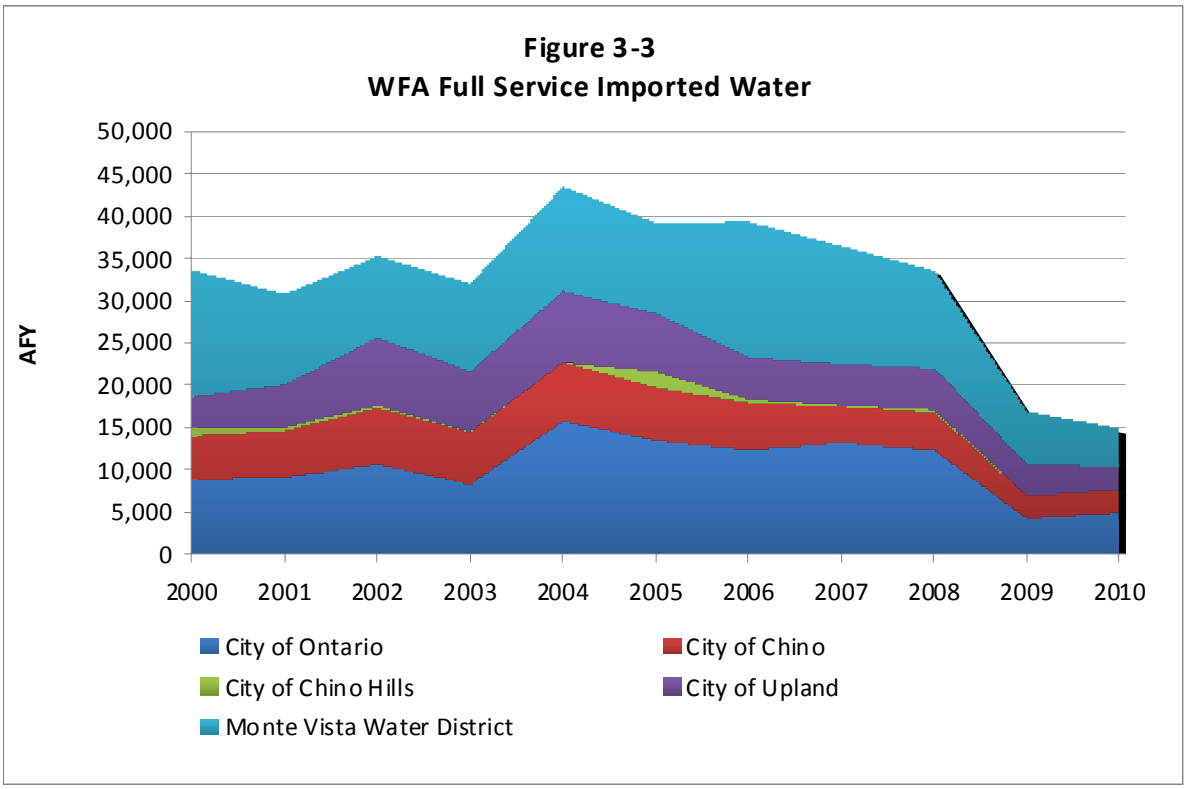
per year. Firm full service purchases of SWP by WFA have grown from about 26,500 acre-feet per year in 1995 to approximately 40,000 acre-feet per year in 2005. The running average over the past seventeen years is about 30,000 acre-feet per year.

Table 3-3
Full Service Imported Water Supply (AFY) From MWD used Within WFA Service Area

Entity	Fiscal Year Ending June 30					
	2000	2001	2002	2003	2004	2005
City of Chino	5,195	5,534	6,693	6,152	6,953	6,263
City of Chino Hills	1,013	423	291	60	28	1,879
City of Ontario	8,824	9,096	10,636	8,292	15,772	13,454
City of Upland	3,648	5,032	7,998	7,150	8,344	6,905
Monte Vista Water District	14,937	10,728	9,674	10,440	12,420	10,739
Total Full Service Imported	**33,617**	**30,813**	**35,292**	**32,094**	**43,517**	**39,240**

Entity	Fiscal Year Ending June 30				
	2006	2007	2008	2009	2010
City of Chino	5,592	4,280	4,443	2,721	2,756
City of Chino Hills	416	180	364	0	0
City of Ontario	12,340	13,222	12,328	4,191	4,883
City of Upland	4,952	4,818	4,891	3,731	2,759
Monte Vista Water District	16,066	14,003	11,546	6,293	4,466
Total Full Service Imported MWD Water	**39,366**	**36,503**	**33,572**	**16,936**	**14,864**

Figure 3-3
WFA Full Service Imported Water



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.

As discussed in the IEUA 2010 UWMP, 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 presents these projected water supplies. The quantities of these local supplies for urban use are projected to increase by about 57,000 acre-feet per year (41%) over the next twenty-five years (from 137,000 acre-feet per year in 2010 to an expected supply of 219,000 acre-feet per year in 2035).

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

Source of Water Use	Fiscal Year Ending June 30					
	2010	2015	2020	2025	2030	2035
Chino Basin Groundwater	64,813	77,676	83,382	89,287	94,726	104,629
Other Basin Groundwater	6,420	6,420	6,420	6,420	6,420	6,420
Imported Water	28,792	47,187	48,272	49,356	50,440	52,609
Surface Water	8,034	8,290	8,290	8,290	8,290	8,290
Recycled Water	15,030	18,941	21,532	23,979	26,426	30,023
Desalter Water	14,600	17,733	17,733	17,733	17,733	17,733
Total	**137,689**	**176,247**	**185,628**	**195,065**	**204,035**	**219,704**

The source of water supply by agency is presented in Table 3-5 for groundwater, recovered water by the Chino Basin Desalters, other basin groundwater, surface water, recycled water, and imported (MWD) water.

Over the next twenty-five years, overall need for full service imported water as a supplemental supply within WFA's service area is expected to increase from 26,800 to 52,600 AFY.

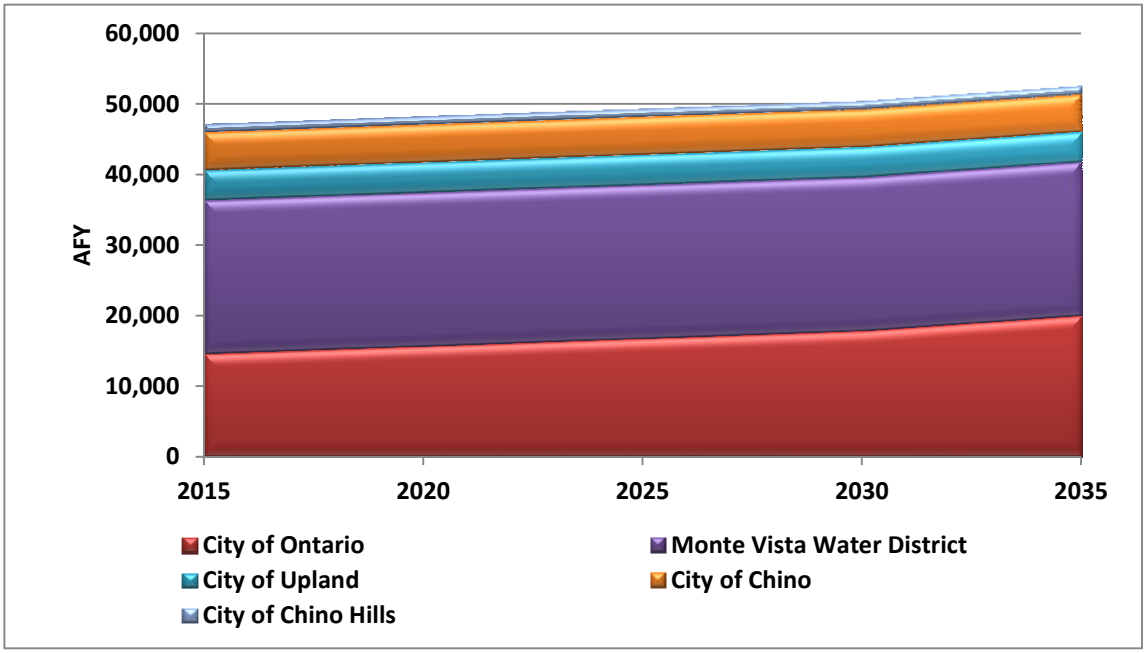
Over the past ten years, hundreds of millions of dollars has been spent to expand local supplies within the WFA service area. In particular the recycled water program and desalter program. These programs will continue to expand but nowhere near the same rate as they have in recent history. Chapter 3 of the IEUA 2010 UWMP provides a detailed description of each of the future local water supply sources.

Table 3-5
Projected Water Supply by Source for WFA Service Area (AFY)

Agency	Fiscal Year Ending June 30					
	2010	2015	2020	2025	2030	2035
Chino Basin Groundwater Supply						
Chino, City of	12,418	8,574	9,526	11,278	12,563	13,796
Chino Hills, City of	14,200	15,400	16,000	16,000	16,000	16,000
Monte Vista Water District	15,774	30,260	30,260	30,260	30,260	30,260
Ontario, City of	20,281	21,302	25,456	29,609	33,763	42,433
Upland, City of	2,140	2,140	2,140	2,140	2,140	2,140
Total	**64,813**	**77,676**	**83,382**	**89,287**	**94,726**	**104,629**
Chino Basin Desalter Water Supply (AFY)						
City of Chino	5,000	5,000	5,000	5,000	5,000	5,000
City of Chino Hills	4,200	4,200	4,200	4,200	4,200	4,200
City of Ontario	5,400	8,533	8,533	8,533	8,533	8,533
Total	**14,600**	**17,733**	**17,733**	**17,733**	**17,733**	**17,733**
Other Basin Groundwater Supply						
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	6,420	6,420	6,420	6,420	6,420	6,420
Total	**6,420**	**6,420**	**6,420**	**6,420**	**6,420**	**6,420**
Surface Water Supply						
Chino, City of	0	0	0	0	0	0
Chino Hills, City of	0	0	0	0	0	0
Monte Vista Water District	544	800	800	800	800	800
Ontario, City of	0	0	0	0	0	0
Upland, City of	7,490	7,490	7,490	7,490	7,490	7,490
Total	**8,034**	**8,290**	**8,290**	**8,290**	**8,290**	**8,290**
Recycled Water Supply						
Chino, City of	8,393	8,190	7,987	7,784	7,581	7,379
Chino Hills, City of	1,700	2,400	2,500	2,500	2,500	2,500
Monte Vista Water District	542	1,306	1,350	1,350	1,350	1,350
Ontario, City of	3,325	5,975	8,625	11,275	13,925	17,724
Upland, City of	1,070	1,070	1,070	1,070	1,070	1,070
Total Recycled Water	**15,030**	**18,941**	**21,532**	**23,979**	**26,426**	**30,023**
Full Service Imported Water Supply						
Chino, City of	5,353	5,353	5,353	5,353	5,353	5,353
Chino Hills, City of	1,200	1,200	1,200	1,200	1,200	1,200
Monte Vista Water District	4,465	21,776	21,776	21,776	21,776	21,776
Ontario, City of	13,494	14,578	15,663	16,747	17,831	20,000
Upland, City of	4,280	4,280	4,280	4,280	4,280	4,280
Total	**28,792**	**47,187**	**48,272**	**49,356**	**50,440**	**52,609**

Note: MVWD's surface water supply is purchased from San Antonio Water Company and may be a blend of surface and/or groundwater.

Figure 3-4
Projected Full Service Imported Water Supply



3.5 Future Reliability of Imported Water Supplies

The amount of State Water Project (SWP) available to MWD each year (and thus to WFA) is dependent upon a number of factors such as 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 challenges with respect to the quantity and quality of imported water that is available from the SWP and the Colorado River Aqueduct (CRA) 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, the California Department of Water Resources and other state and federal agencies to develop and implement programs to increase the reliable yield from the SWP and CRA.

MWD has extensively evaluated the availability and reliability of these supplies and concluded that the combination of imported water and expanding local resource programs would ensure its service area's demands would be met in the future. WFA and IEUA expressly rely upon MWD's 2010 UWMP and other water supply planning

documents in estimating future imported water availability and reliability to its service area (see Chapter 11). (Water Code section 10631(k).)

Metropolitan's Board of Directors has adopted the Water Surplus and Drought Management Plan (WSDM). The guiding principle of the WSDM Plan is to manage Metropolitan's water resources and management programs to maximize management to wet year supplies and minimize adverse impacts of water shortages to retail customers. From this guiding principle come the following supporting principles:

- Encourage efficient water use and economical local resource programs
- Coordinate operations with member agencies to make as much surplus water as possible available for use in dry years
- Pursue innovative transfer and banking programs to secure more imported water for use in dry years.
- Increase public awareness about water supply issues.

In February of 2008, Metropolitan's Board of Directors adopted the Water Supply Allocation Plan (WSAP). The WSAP was developed in consideration of the principles and guidelines described in the WSDM Plan, with the objective of creating an equitable needs-based allocation in the event of an MWD-declared shortage. The WSAP formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of MWD supplies of up to 50%.

The potential impact of global warming on SWP supplies has also been extensively 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 has projected that 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. MWD's 2010 UWMP contains additional and comprehensive information and analysis concerning the potential effects of global climate change and other legal, regulatory, and environmental factors on MWD's water supply portfolio. That information and analysis, including MWD's conclusions regarding the availability and reliability of its supplies are relied upon by WFA and incorporated herein. (See additional discussion in Chapter 7.)

CHAPTER 4
WATER CONSERVATION PROGRAM 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'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 recently written a Water Conservation Long-Term Business Plan that is outlined in Chapter 4 of the IEUA 2010 UWMP. This section outlines the historical programs and related water savings, as well as the future programs and projected savings. This chapter also serves as an assessment of WFA's present and proposed future measures, programs, and policies to help achieve the water use reduction requirements imposed on urban retail water suppliers under SBX7-7.

4.2 COMMITMENT TO CONSERVATION

Water Conservation programs are a significant part of the WFA's Water Resources Program and, in light of that, the WFA members recognized early on that water conservation would play a fundamental role in sustaining and meeting future water supply needs.

In September 1991, IEUA became one of the first water agencies to sign the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation (MOU), accepting and supporting to implement a prescribed set of urban water conservation Best Management Practices (BMPs).

As the regional wholesale supplier of water for the area, IEUA has assumed the role of coordinating the region's activities and programs over the last ten years to reduce demand. IEUA has worked closely with the WFA members to facilitate the installation of thousands of water saving devices throughout the region and develop a long term business plan that provides a roadmap for the next five years.

The WFA is committed to promoting and implementing measures that will save water within its service area. That is why the WFA makes implementing the BMPs the cornerstone of its conservation programs and a key element in the overall regional water resource management strategy for the region.

Moving forward, the WFA will continue to implement active and code-based BMP related activities utilizing strategies identified in the recently completed long term business plan and as set forth by IEUA's BMPs. The WFA and other IEUA member agencies have agreed to implement parallel programs that have complementary approaches. The strategies identified seek to leverage assets through regional funding opportunities, inter-agency partnerships, and grants in order to provide a greater return on the region's investment in conservation and maintain financially sustainable conservation programs.

4.3 LEGISLATIVE AND REGULATORY REQUIREMENTS

The strategies and programs included in this Chapter have been prepared to meet the compliance requirements of the following, except to the extent those WFA member agencies will individually comply with these requirements:

- California Urban Water Conservation Council's Best Management Practices
- Assembly Bill 1420-Implementation of Demand Management Measures
- Senate Bill X 7-7-Governor's call for 20% per capita water use reduction by 2020

California Urban Water Conservation Council

The California Urban Water Conservation Council (CUWCC) was created to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. The CUWCC's goal is to integrate voluntary urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources.

A Best Management Practice (BMP) means a policy, program, practice, rule, regulation or ordinance, or the use of devices, equipment or facilities, which meets either of the following criteria:

a) An established and generally accepted practice among water suppliers that results in more efficient use or conservation of water;

b) A practice for which sufficient data are available from existing water conservation projects to indicate that significant conservation or conservation related benefits can be achieved; that the practice is technically and economically reasonable and not environmentally or socially unacceptable; and that the practice is not otherwise unreasonable for most water suppliers to carry out.

Implementation

"Implementation" means achieving and maintaining the staffing, funding and, in general, the priority levels necessary to achieve the level of activity called for in the descriptions of the various BMPs and to satisfy the commitment by the signatories to use good faith efforts to optimize savings from implementing BMPs as described in the MOU entered by CUWCC members.

Table 4-1 List of Best Management Practices

RETAILER BMPS			***WHOLESALER BMPS***	
Foundational			***Foundational***	
BMP 1	**Utility Operations**		BMP 1	**Utility Operations**
BMP 1.1	Conservation Coordinator		BMP 1.1	Conservation Coordinator
BMP 1.2	Water Waste Prevention		BMP 1.3	Wholesale Agency Assistance Programs
BMP 1.4	System Water Audits, Leak Detection and Repair		BMP 1.4	System Water Audits, Leak Detection and Repair
BMP 1.5	Metering with Commodity Rates For All New Connections and Retrofit of Existing Connections		BMP 2	**Education Programs**
BMP 1.6	Retail Conservation Pricing		BMP 2.1	Public Information Programs
BMP 2	**Education Programs**		BMP 2.2	School Education

BMP 2.1	Public Information Programs
BMP 2.2	School Education

Programmatic	
BMP 3	**Residential Programs**
BMP 3.1	Residential Landscape Water Survey Program
BMP 3.2	Residential Leak Assistance Program
BMP 3.3	High Efficiency Clothes Washers
BMP 3.4	WaterSense Specification Toilets
BMP 4	**Commercial, Institutional, Industrial**
BMP 5	**Landscape**

Assembly Bill 1420 (Laird/Feuer)

Effective January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures (DMMs). DMMs are equivalent to water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable, beneficial, and efficient use and reuse of available supplies (CUWCC BMP activities).

The Department of Water Resources (DWR) must consider whether an agency is implementing or has scheduled to implement the DMM activities that an agency has identified in its Urban Water Management Plan in evaluating applications for grants and loans financed by specified bond funds.

The Water Conservation Act of 2009 (SBX 7-7)

Enacted in November 2009, SBX 7-7 establishes a statewide urban per capita water use reduction goals of 20% by 2020 and 15% by 2015. This initiative applies to all urban retail water suppliers directly serving a minimum of 3,000 customers or supplying 3,000 acre-feet or more on a retail basis. Urban retail water suppliers must establish a baseline daily per capita water use (GPCD) and other water use data and report it in their 2010 urban water management plans by July 1, 2011.

WFA's retail member agencies are required to comply with SBX7-7. Because WFA is an urban wholesale water supplier, it is not required to comply with the new requirements that SBX7-7 imposes upon urban retail water suppliers.

Assembly Bill 1881 (2006)

AB 1881 (Laird 2006), the Water Conservation in Landscaping bill, requires certain agencies to update and adopt local landscaping ordinances by January 1, 2010. The adopted landscaping ordinances must be "at least as effective as" the State Model Landscape Ordinance (SMO) developed by the Department of Water Resources.

Key elements in the updated ordinances include: a water budget approach and applies to large, new and redeveloped landscapes which require a permit, reducing the evapotranspiration adjustment factor used in the calculation of a the water budget to at least 0.7, increasing the public's awareness of the importance of water use efficiency in landscaping, requiring Smart Controllers, and adopting and enforcing statewide prohibitions on overspray and runoff. As a wholesale water supply agency, WFA is not required to comply with AB 1881, although the law is being implemented by other agencies throughout WFA's service area.

Summary

The WFA, as an urban wholesale water supplier, is not required to develop a baseline or set reduction targets to achieve a 20% reduction in gallons per capita day by 2020 as written under SB X 7-7. However, as the statute does require urban retail water suppliers to comply, the WFA supports the position taken by IEUA of preparing a regional approach establishing a baseline and setting targets based on regional demands and in support of its eight retail member agencies that must comply. All member agencies within IEUA's service area have agreed to the formation of a regional alliance, and will continue to cooperatively participate in developing programs and meeting water conservation goals (see Chapter 4 of IEUA's 2010 UWMP for additional information regarding the regional alliance for purposes of SBX7-7).

IEUA and its member agencies devised a strategy to meet all compliance requirements in the most cost-effective manner feasible. Below is a chart showing the compliance requirements and associated strategies for each:

Compliance Requirements

Regulatory Agency or State Organization	***Requirements***	***Approach***
20x2020	Reduce per capita water use by 10% by 2015 AND Reduce per capita water use by 20% by 2020	By implementing Active Water Use Programs, Policy Initiatives, and increasing Recycled Water Supply, IEUA and its agencies are projected to be on track to meet per capita water reduction goals for both target years.

CUWCC	Reduce per capita water use by 18% by 2018*	IEUA and its agencies will utilize CUWCC's new GPCD option, which offers a per capita methodology to track compliance. This will align with the requirements of 20x2020 as well.
AB 1420	Fulfill BMP commitments	Lines up with actions taken to meet CUWCC BMP compliance.

As indicated above, IEUA and all of its member agencies are signatories to the Memorandum of Understanding regarding Urban Water Conservation in California and are members of the California Urban Water Conservation Council. As one of the original signatories to the MOU in 1991, IEUA's highest conservation priority has been to ensure that good-faith efforts are made on behalf of the member agencies in implementing Best Management Practices, locally.

Over the last nineteen years, the WFA has been committed to developing and implementing many core regional conservation programs that have been designed on the foundation of BMPs, and these programs continue to serve as a key component in the overall regional water resource management portfolio for the region.

4.4 FIVE YEAR CONSERVATION PLAN

The WFA member agencies recognize that a sound, fact-based plan is needed to guide water use efficiency program implementation over the upcoming years. The WFA and its member agencies, working with other IEUA member agencies, created a Regional Water Use Efficiency Partnership Workgroup and initiated an eight-step process that resulted in the creation of a regional *Water Use Efficiency Business Plan*.

The Plan includes the following information:

- The current water supply situation and usage patterns;
- Specific market opportunities;
- A strategy for reaching water savings goals;
- Recommended programs with budgets, water savings, costs, marketing and operational details;
- A program implementation plan and schedule; and,
- A system for tracking and reporting performance over time.

STRATEGY OVERVIEW

The strategy developed for goal achievement:

- **Target markets with highest water savings opportunity**- Comprising 69% of IEUA's total water demand, landscape usage is the key market to address. Residential landscape water usage, at 66% of the single family consumption, is clearly the prime opportunity for water savings.

  Landscape water reduction for the commercial market is another viable prospect as well with 57-94% of commercial demand. This includes homeowners associations and commercial properties with large landscape areas.

- **Provide program innovation to transform the landscape market** - For years, Southern California water agencies have overlooked outdoor water savings opportunities because retrofit technologies and services were expensive and unreliable. Over the last several years, however, there have been major advancements in product designs and performance. By studying the successes and shortfalls of historical landscape programs, the WFA members and other IEUA member agencies have devised a cost-effective array of programs to capture outdoor water savings.

  Currently, smart controllers, high efficiency sprinkler nozzles and turf removal are the most likely measures to yield water savings in landscaped areas. Since these measures are not well known to most customers, they must be persuaded and enticed to participate. This will be accomplished through offers of free products and free installations whenever cost effective.

  Once the products are well established in the market, it will no longer be necessary to provide them at water agency expense. Today, however, the customer is unlikely to invest in unknown technologies and services unless the offer is "too good to pass up."

- **Secure outside funding for programs**- Grants and funding will be pursued whenever possible in order to drive down the WFA members cost per acre-foot of water saved. There are some funding sources available to the proactive and prepared water agency. Funding sources may include Federal grants offered through the United States Bureau of Reclamation; efficiency grants offered through State agencies such as the Department of Water Resources and the State Water Resources Control Board; and regional grants and incentives offered by the Metropolitan Water District of Southern California (MWD).

IEUA, on behalf of the WFA members, in addition to applying for the competitive offerings of State and Federal agencies, will pursue all MWD incentives and programs available including:

- SoCal Water$mart Program for single family residential water efficient measures.
- Save A Buck Program for commercial water efficient measures

- **Provide sustained education and outreach to customers –** The WFA members will communicate the continued and urgent need for water use efficiency and direct customers to available programs. This will be accomplished through school education, regional public outreach and campaigns, and communication regarding local ordinances.

- **Advocate for State and regionally appropriate rules, regulations and ordinances for the efficient use of water-** Legislation requiring enhanced water efficiency product performance, as well as implementation of local, state, and national ordinances can significantly aid water demand reduction. The WFA members will advocate for responsible passive savings initiatives.

SELECTED PROGRAMS

The selected programs, with their heavy emphasis on landscape opportunities, will integrate the following elements:

- **High Efficiency Nozzle Installations** – Retrofitting pop-up spray heads with high efficiency rotary nozzles is a low cost measure and delivers high water savings. The saturation rate of high efficiency nozzles is extremely low, and the sheer volume of spray heads offers a prime market opportunity.

- **Smart Controllers in Combination with High Efficiency Nozzle Installations for Larger Landscape Sites** – Smart controllers are cost-effective for sites with large landscape areas. By combining controllers with high efficiency nozzles, significant and cost-effective water savings can be achieved.

- **Turf Removal** – Although turf removal delivers extremely high water savings in most retrofit projects, it is not yet deemed cost-effective for IEUA to fund a turf removal "direct" incentive program at this time, unless substantially funded through outside sources. By offering a low interest financing option customers would not be required to pay for up-front costs and should be able to realize substantial water savings. As a result, IEUA will be driving a market

transformation—away from high water use turf and towards regional plants with low precipitation rates and minimal irrigation needs.

- **Water Budgets** – A "water budget" is the calculated amount of water a site would require over a particular time period (usually a month, billing cycle, or year) based on the lot size and local weather conditions. A Water Budget Program would educate customers about their water consumption patterns as compared to their budget. The savvy customer is now armed with a tool to better understand their usage and then independently make modifications to reduce their water use. The program is extremely cost effective because the educated customer makes the changes on their own thereby transforming the market.

- **Landscape Evaluations** – Comprehensive landscape evaluations provide customer education and information on landscape and irrigation system upgrades specific to each individual site. Intended to drive customers to make improvements in their landscape irrigation efficiency, the evaluations will direct customers to SoCalWater$mart, Save A Buck or other customer incentives, as applicable.

- **MWD's SoCalWater$mart and Save A Buck Programs** – These programs are slated to continue for at least three to five years, providing the WFA members with continued outside funding and program administration. Moving forward, IEUA will add additional funding to landscape water use efficiency products to provide increased customer response.

- **Multi-family HET Direct Installation Program** – This program leverages Department of Water Resources (DWR) grant funding, as well as MWD incentives. The program will continue until the DWR grant and MWD funding ends.
- **Education and Outreach Programs** – The WFA members will continue to provide regional educational and outreach programs. Current regional education and outreach programs include the following:

    - National Theatre for Children
    - Garden in Every School
    - Residential Landscape Training Workshops
    - Water Wise Landscape Contest
    - Annual Water Fair
    - Water Education Water Awareness Committee

- Regional Water Use Efficiency Outreach
- No Water Waste Ordinance

On an annual basis, the WFA members and other IEUA member agencies will review the effectiveness and desirability of regional educational and outreach programs. Budget priority will be given to programs that assist member agencies in meeting state mandates.

4.5 VALUE OF CONSERVATION

Over the last five years, the WFA members and other IEUA member agencies have developed a strong partnership and a coordinated approach to conservation management measures that reduce water use. Conservation has multiple benefits, one of which is the value of conservation to the region's ratepayers. Conservation saves money to the ratepayer.

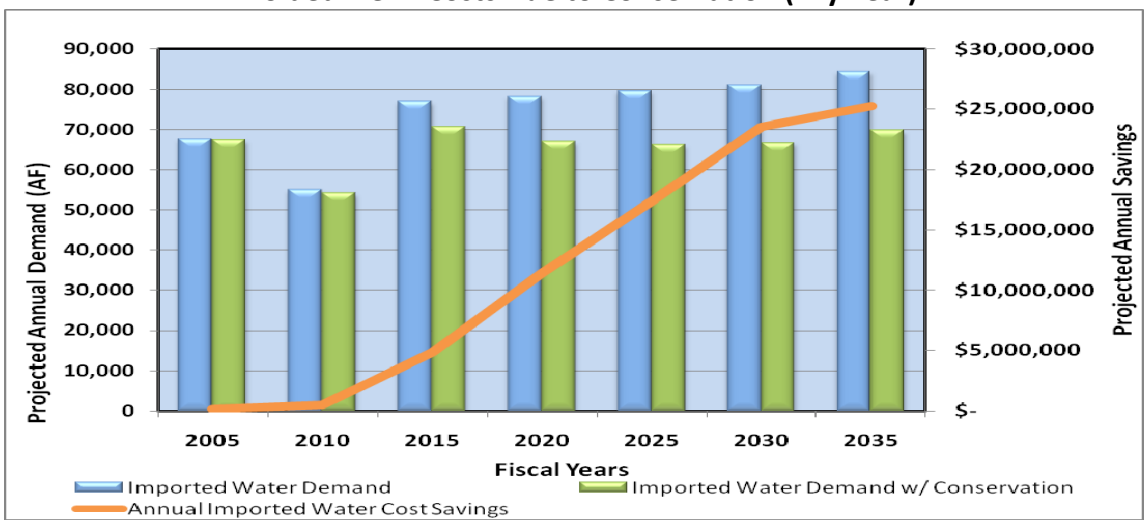
The WFA members and other IEUA member agencies developed a strong working accord and accomplished the following as a result of the planning process:

- Agreement on a regional strategy to focus on landscape water use efficiency as well as a portfolio of regional programs;
- Completion of a documented plan that provides the implementation steps necessary to launch the programs as well as clearly defined roles/responsibilities between the WFA members, IEUA and other IEUA member agencies; and,
- Commitment from IEUA to administer the regional programs with retail agencies responsible for implementing and possibly augmenting programs within their individual service areas.

Many agencies may need to develop an individual plan for their own agency in order to understand their specific compliance requirements and to address the local needs of their respective service areas.

Figure 4-1 shows the projected cumulative amount of "new" water that is projected to be conserved over the next twenty-five years (not including saved prior to 2005) and how that affects the WFA members and the other IEUA member agencies financially. The avoided imported water purchases, at MWD's Tier II rate, are projected to be more than 60,000 AF which is equivalent to more than $83 million saved.

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



Source: Conservation projections from Table 2-4 & MWD's Long Range Finance Plan and MWD staff projections

Below is a summary of some of the additional benefits of conservation:

- Ratepayers save money on their water utility bills;
- Reduced urban runoff from improved irrigation efficiency;
- Avoidance of purchasing additional expensive imported water; and
- Environmental benefits

Another regional benefit for maintaining a strong support for conservation is the reduced dependence on imported water from the California Bay-Delta (Bay-Delta). The Bay-Delta is one of the most important links in California's water supply system. Two major water supply projects, the State Water Project (SWP) and the Central Valley Project convey Bay-Delta water to more than 22 million Californians and 7 million acres of farmland. The WFA service area receives a significant portion of its supply (about 30 percent) from the SWP via Metropolitan Water District. Local water supply projects such as conservation help limit the amount of water taken out of the Bay-Delta for water supply, thus enhancing Bay-Delta water supply, water quality and environmental protection. Conservation also helps increase irrigation efficiency which reduces runoff and the associated damage to the asphalt of roads and parking lots that can be very expensive to repair.

Finally, conservation also benefits the region through energy savings. Whenever water moves from one point to another, energy is involved. Electricity to pump water is the single greatest use of power in the state amounting to about 19 percent of all power used in California. When water deliveries are reduced, significant energy is saved.

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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 primary source of imported MWD 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 constituents, changing understanding of the health effects of previously known as well as new constituents, 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 Public Health (DPH).

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 8 mgd during the lower demand winter months. The purpose of the water treatment plant 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. Certified 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 quality issues, including potential impacts on groundwater and recycled water supplies within WFA's service area (although not served by WFA) are addressed in IEUA's 2010 UWMP.

5.2 SWP Water Quality

As further described in MWD's 2010 Regional UWMP, 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 conveyed to the west and east branch. WFA receives water from the east branch out of the Silverwood Lake Reservoir in the San Bernardino

Mountains. From the reservoir, the water travels through the ten-foot diameter Rialto Pipeline 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 effects 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 ozone and 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.

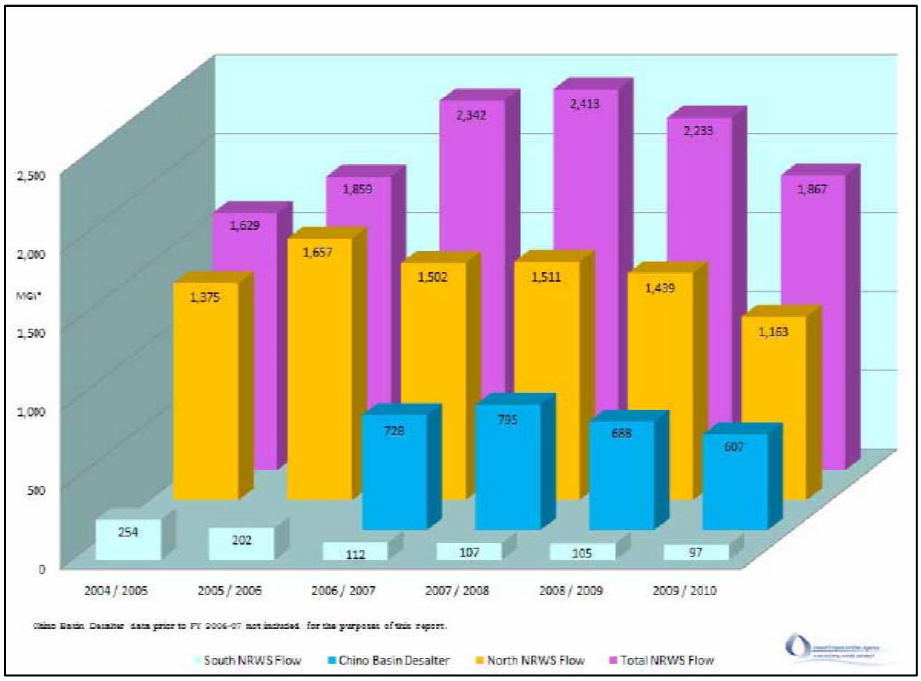
MWD has identified the existing level of total organic carbon and bromide as presenting concerns about maintaining safe drinking water supplies. Although the State of California, through the CALFED process, has adopted goals for total organic carbon and bromide for the SWP and has called for an array 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.

5.3 Water Quality Impacts on Reliability

Under scenarios evaluated by MWD in its 2010 Regional Urban Water Management Plan, 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.

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 2010 UWMP, The Regional Basin Plan regulates the amount of salt that may enter the groundwater. Hundreds of millions of dollars have 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 supplies are not expected to impact the ability to use this water supply or to impact other sources of water supply within the area.

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CHAPTER 6
WATER SHORTAGE CONTINGENCY PLAN

6.1 OVERVIEW

As part of an urban water supplier's water shortage contingency planning process, it is important to recognize that water supplies may be interrupted or reduced significantly in a number of ways, 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 in the event that such an event may occur so that water demands continue to be met promptly and adequately.

6.2 COORDINATED PLANNING

MWD, IEUA, 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 or 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.

In April 2007, the area experienced a one-week unplanned shutdown of the Rialto Pipeline. The coordinated response among the agencies worked well, and all agencies were able to achieve the necessary reduction in water use during the shutdown.

6.3 ESTIMATE OF MINIMUM SUPPLY

As indicated above and as fully set forth in MWD's Regional UWMP, MWD has adopted the Water Surplus and Drought Management Plan 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.

In February 2008, in anticipation of possible water supply shortages due to a prolonged condition of statewide drought, the MWD Board of Directors adopted the Water Supply Allocation Plan (MWD WSAP). The MWD WSAP provides guidance for allocating limited water supplies to Member Agencies should the need arise. In 2009 MWD implemented its WSAP which established water budgets for each of its member agencies and charged higher rates for purchases in excess of the budgeted amounts. The program was extremely effective and successful.

In response to MWD's WSAP, the Inland Empire Utilities Agency (IEUA) developed a Drought Plan for the purpose of implementing the MWD WSAP, within the IEUA's service area in a manner that is fair and equitable to IEUA's Member Agencies. The IEUA Drought Plan is consistent with and supplements the MWD WSAP for specific IEUA service area drought planning issues. All MWD WSAP definitions, policies, principals and program provisions are incorporated here by reference and are considered to be a part of the IEUA Drought Plan. For example, if IEUA is not imposed a penalty from MWD then IEUA would not impose a penalty on a member agency within IEUA's service area. In addition, MWD does not allow resale or "marketing" of MWD WSAP allocation credits and IEUA will not allow IEUA Drought Plan credits to be sold internally within IEUA's service area or externally without IEUA's approval. A complete copy of the adopted IEUA Drought Plan and MWD WSAP is provided as an Appendix in IEUA's 2010 UWMP.

IEUA's Drought Plan is consistent with and contributes to the existing IEUA imported water policies and programs. For example, the IEUA's Drought Plan principles encourage development and full utilization of local water resources, such as recycled water and conservation measures. The IEUA Drought Plan also addresses MWD's Chino Basin Groundwater Storage Dry Year Yield (DYY) program and the need for best management of DYY program "shift" obligations concurrent with MWD WSAP reductions of imported water supplies to IEUA. In 2011, following a record high year of precipitation, MWD determined it was no longer necessary to implement the WSAP.

Consistent with the requirements of the UWMP Act, the following scenario describes the supply availability over 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 Table 6-1, Table 6-2 and Table 6-3.

Table 6-1
Projected Supply During Multiple Dry Year Period Between 2011 and 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1]	**2011**	**2012**	**2013[2]**	**2014[2]**	**2015[2])**
Groundwater	110,075	113,274	135,109	137,624	140,074
Recycled Water	15,812	16,594	17,377	19,067	20,835
Surface Water	8,085	8,136	4,012	6,921	6,383
Imported Water	32,471	36,150	19,915	21,754	23,594
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	50%	50%	50%

Notes:
(1) Supply values extrapolated from 2011 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. Assume 50% of dry year yield
(3) Projected Normal Use from Table 7-3.

Table 6-2
Projected Demand During Multiple Dry Year Period Between 2011 and 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2011	**2012**	**2013**	**2014**	**2015**
Demand	134,525	137,721	140,918	144,114	147,310
Conservation[1]	0	0	-14,092	-14,411	-14,731
Adjusted Demand	134,525	137,721	126,826	129,702	132,579
% 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 7-5.

Table 6-3
Projected Supply and Demand Comparison During Multiple Dry Year Period Between 2011 and 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2011	**2012**	**2013**	**2014**	**2015**
Supply Totals	166,444	174,155	176,412	185,365	190,886
Demand Totals	134,525	137,721	126,826	129,702	132,579
Difference (Supply minus Demand)	31,918	36,434	49,587	55,663	58,307
Difference as % of Supply	19%	21%	28%	30%	31%
Difference as % of Demand	24%	26%	39%	43%	44%

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. Under these conditions, as discussed above and in IEUA's 2010 UWMP, the managed framework of the Chino Basin area allows for additional groundwater production to meet dry year demands, insofar as all forms of extra ordinary water conservation are also implemented during those conditions.

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

Please refer to IEUA 2010 UWMP for a detailed description of the steps to be undertaken by MWD and WFA's members in responding to water shortages.

Table 6-4
Drought Stage Definitions by Agency

Drought Stage	Agency			
	Chino	**Chino Hills**	**MVWD**	**Ontario**
1	Demand estimated to be ≤10% in excess of available production of quality water	Total storage capacity reduced by 20-25%; not replenished within 48 hours	Current or near-term water supply shortage conditions require a 10 to 25 percent demand reduction	Estimated shortage of up to 10% of water supplies
2	Demand estimated to be 10-15% in excess of available production of quality water	Total storage capacity reduced by 25-30% and not replenished within 48 hours	Current or near-term water supply shortage conditions require a 25 to 40 percent demand reduction	Estimated shortage of 10-20% of water supplies
3	Demand estimated to be ≥15% in excess of available production of quality water	no definition	Due to emergency circumstances, current or near-term water supply shortage conditions require a 40 percent or higher demand reduction	Estimated shortage of >20% of water supplies
4	no definition	no definition	no definition	no definition

MVWD = Monte Vista Water District

6.6 FINANCIAL IMPLICATIONS TO WFA FOR 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 member agencies 10 year average, 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.

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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 demand 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 on a wholesale basis 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 such as hydrologic conditions in northern California, the amount of water in SWP storage reservoirs at the beginning of the year, legal and environmental issues, 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 Resources to support the continued provision of reliable water supplies from the SWP.

As indicated above, MWD's 2010 Regional UWMP includes a comprehensive set of data analysis, and conclusions regarding the degrees to which various factors affect the availability and reliability of it s SWP and Colorado River supplies during normal, single-dry and multiple-dry year periods over the 20-year planning horizon and beyond. With specific regard to its SWP supplies, MWD provides extensive analysis based upon expert opinion and standards prepared by DWR in its 2009 SWP Delivery Reliability Report and

other documentation concerning the SWP. Among other factors, DWR and MWD have evaluated: the potential ongoing effects of climate change; SWRCB Decision D-1641; the most recent Biological Opinion prepared by the U.S. Fish & Wildlife Service concerning the effects of SWP operations on delta smelt; the most recent Biological Opinion prepared by the National Marine Fisheries Service regarding the effects of SWP operations on anadromous species; federal court litigation concerning those Biological Opinions; other endangered species of concern in the Delta; water quality concerns; new regulatory approaches for Delta operations; earthquake levee failure, and other potential emergency issues; and others. In full consideration and analysis of these and other factors having the potential to affect the availability and reliability of SWP supplies, MWD's 2010 Regional UWMP concludes it can meet the entire projected demands for imported water of its member agencies (including IEUA and hence WFA) during normal, single-dry and multiple-dry year periods over the 20-year planning projection and beyond. As provided by the UWMP Act, WFA is authorized to and does rely upon MWD's conclusions regarding SWP reliability, and incorporates MWD's analyses and conclusions in this UWMP. (Water Code section 10631(k).)

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 2010 Integrated Regional Plan outlines 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 references MWD's Comprehensive Supplemental Supply Plan, which if implemented, would provide MWD with the capability to reliably meet projected supplemental water demands through 2030. In its Regional Urban Water Management Plan (November, 2010), 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 2035. As indicated above, 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 MWD 2010 Regional UWMP and IEUA 2010 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 7-1 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**
Groundwater	100%	117%	118%	117%	117%
Recycled Water	100%	100%	100%	105%	110%
Surface Water[1]	100%	31%	49%	84%	77%
Imported Water	100%	55%	54%	54%	55%

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 Metropolitan Water District's (MWD) 2010 UWMP. Metropolitan has documented the capability to reliably meet 100 percent of projected supplemental water demands through 2035.
(3) MWD's 2010 UWMP provides information for three consecutive dry years.

The historical basis for the supply reliability data is presented in Table 7-2, 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 MWD's Draft UWMP (Sept 2005).

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 7-5, it is projected 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	2030	2035
Groundwater[2]	106,876	122,872	128,578	134,483	139,922	149,825
Recycled Water	15,030	18,941	21,532	23,979	26,426	30,023
Surface Water	8,034	8,290	8,290	8,290	8,290	8,290
Imported Water	28,792	47,187	48,272	49,356	50,440	52,609
% of Normal Year[3]						
Groundwater	133%	153%	160145%	168%	232%	271%
Recycled Water	1420%	1791%	2035%	2266%	2498%	2838%
Surface Water	669%	690%	690%	690%	690%	690%
Imported Water	68%	111%	113%	116%	118%	123%

Notes:
(1) Assumes zero conservation.
(2) Includes groundwater from Chino Basin (inc. CDA supply) and other basins.
(3) From Table 7-2.

Table 7-4 summarizes the WFA service area's demands during a normal year over the next twenty-five years. It is estimated that water demands will increase to approximately 179,000 AF by the year 2035. 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	2030	2035
Demand	131,329	147,310	147,530	156,992	164,007	179,809
% of Year 2005	123%	112%	112%	120%	125%	137%

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 2035, with an annual surplus ranging from approximately 50,000 to 60,000 AF.

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

	2010	2015	2020	2025	2030	2035
Supply Totals	131,329	197,290	206,671	216,108	225,078	240,747
Demand Totals	131,329	147,310	147,530	156,992	164,007	179,809
Difference (Supply minus Demand)	0	49,980	59,141	59,116	61,071	60,938
Difference as % of Supply	0%	25%	29%	27%	27%	25%
Difference as % of Demand	0%	34%	40%	38%	37%	34%

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[1]. 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 rights within the Chino Basin have been adjudicated and the average safe-yield of the Basin is 140,000 AFY. The legal and mandated framework in place for the Chino Basin provides 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.

[1] MWD's 2010 RUWMP, NOVEMBER 2010.

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 117 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 direct reuse of recycled water with in the WFA service area is approximately 15,000 AFY and is expected to increase to nearly 30,000 AF by 2035. During a single dry year, it has been assumed that recycled water will be 100 percent reliable.

Imported Water

Southern California expects to have a reliable water supply for the foreseeable future due to the integrated resources planning effort of the MWD and its member agencies. As a water wholesaler, MWD supplies imported water to IEUA to meet the water needs of its service area at the lowest possible cost. MWD's Draft 2010 Integrated Regional Plan establishes the framework for the policies, projects and programs that will ensure that Southern California has an adequate and reliable water supply for our future residential, commercial and environmental needs. The proposed 2010 IRP is an adaptive resources management plan that can change in response to the many challenges and uncertainties facing the regional water supply. The proposed 2010 IRP strategies focus on three key components: core resources, supply buffer and foundational actions.[2]

As a result, during a single dry year event, MWD will have the resources to supply IEUA with 100 percent of their imported water demands. However, as discussed previously, with the DYY Program in effect, as well as the MWD Water Supply Allocation Plan (WSAP), several of IEUA's member agencies will reduce their imported water demand by

[2] MWD's 2010 IRP, JULY 2010

their DYY Program shift and allocation, thus reducing demands on Metropolitan. During a dry year, imported water demands are expected to decrease to approximately 58 percent.

Tables 7-7 through 7-9 summarize the projected single dry year water supply and demand for the years 2010 through 2035.

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

Supply	2015	2020	2025	2030	2035
Groundwater	141,303	147,865	154,655	160,910	172,299
Recycled Water	18,941	21,532	23,979	26,426	30,023
Surface Water	2,570	2,570	2,570	2,570	2,570
Imported Water	25,953	26,549	27,146	27,742	28,935
% of Normal Year					
Groundwater	115%	115%	115%	115%	115%
Recycled Water	100%	100%	100%	100%	100%
Surface Water	31%	31%	31%	31%	31%
Imported Water	55%	55%	55%	55%	55%

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

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

	2015	2020	2025	2030	2035
Demand	147,310	147,530	156,992	164,007	179,809
Conservation[1]	-14,731	-14,753	-15,699	-16,401	-17,981
Adjusted Demand	132,579	132,777	141,293	147,606	161,828
% of Projected Normal[2]	90%	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)

	2015	2020	2025	2030	2035
Supply Totals	188,767	198,516	208,350	217,648	233,827
Demand Totals	132,579	132,777	141,293	147,606	161,828
Difference (Supply minus Demand)	56,188	65,739	67,057	70,042	71,999
Difference as % of Supply	30%	33%	32%	32%	31%
Difference as % of Demand	42%	50%	47%	47%	44%

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[3]. 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 117 percent reliable during dry years.

Recycled Water

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 7-24 summarize the projected multiple dry year water supply and demand for five-year periods during the years 2010 through 2035. Each five year period is contains three consecutive dry years where the DYY Program and conservation programs are implemented.

[3] MWD's UWMP (Nov 2010)

Tables 7-10 through 7-12: 2011-2015

Table 7-10
Projected Supply During Multiple Dry Year Period Ending in 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1]	**2011**	**2012**	**2013[2]**	**2014[2]**	**2015[2]**
Groundwater	110,075	113,274	135,109	137,624	140,074
Recycled Water	15,812	16,594	17,377	19,067	20,835
Surface Water	8,085	8,136	4,012	6,921	6,383
Imported Water	32,471	36,150	23,898	26,540	29,256
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	60%	61%	62%

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 7-11
Projected Demand During Multiple Dry Year Period Ending in 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2011	**2012**	**2013**	**2014**	**2015**
Demand	134,525	137,721	140,918	144,114	147,310
Conservation[1]	0	0	-14,092	-14,411	-14,731
Adjusted Demand	134,525	137,721	126,826	129,702	132,579
% 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 2015 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2011	**2012**	**2013**	**2014**	**2015**
Supply Totals	166,444	174,155	180,395	190,151	196,549
Demand Totals	134,525	137,721	126,826	129,702	132,579
Difference (Supply minus Demand)	31,918	36,434	53,570	60,449	63,970
Difference as % of Supply	19%	21%	30%	32%	33%
Difference as % of Demand	24%	26%	42%	47%	48%

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

Table 7-13
Projected Supply During Multiple Dry Year Period Ending in 2020 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1][2]	**2016**	**2017**	**2018**	**2019**	**2020**
Groundwater	124,013	125,154	146,503	146,552	146,579
Recycled Water	19,459	19,977	20,495	22,064	23,685
Surface Water	8,290	8,290	4,062	6,964	6,383
Imported Water	47,404	47,621	28,703	29,313	29,928
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	60%	61%	62%

Notes:
(1) Supply values extrapolated from 2015and 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 7-14
Projected Demand During Multiple Dry Year Period Ending in 2020 (AFY)

	(normal)	(dry)	(dry)	(dry)	(normal)
	2016	**2017**	**2018**	**2019**	**2020**
Demand	147,354	147,398	147,442	147,486	147,530
Conservation[1]	0	0	-14,744	-14,749	-14,753
Adjusted Demand	147,354	147,398	132,698	132,737	132,777
% of Projected Normal[2]	100%	100%	90%	90%	90%

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 2020 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2016	**2017**	**2018**	**2019**	**2020**
Supply Totals	199,166	201,043	199,763	204,894	206,576
Demand Totals	147,354	147,398	132,698	132,737	132,777
Difference (Supply minus Demand)	51,812	53,645	67,065	72,156	73,799
Difference as % of Supply	26%	27%	34%	35%	36%
Difference as % of Demand	35%	36%	51%	54%	56%

Tables 7-16 through 7-18: 2021-2025

Table 7-16
Projected Supply During Multiple Dry Year Period Ending in 2025 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1][2]	**2021**	**2022**	**2023**	**2024**	**2025**
Groundwater	129,759	130,940	153,260	153,297	153,311
Recycled Water	22,021	22,511	23,000	24,664	26,377
Surface Water	8,290	8,290	4,062	6,964	6,383
Imported Water	48,489	48,705	29,353	29,975	30,601
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	60%	61%	62%

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 Table7-3.

Table 7-17
Projected Demand During Multiple Dry Year Period Ending in 2025 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2021	**2022**	**2023**	**2024**	**2025**
Demand	149,422	151,315	153,207	155,100	156,992
Conservation[1]	0	0	-15,321	-15,510	-15,699
Adjusted Demand	149,422	151,315	137,886	139,590	141,293
% of Projected Normal[2]	100%	100%	90%	90%	90%

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 2025 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2021	**2022**	**2023**	**2024**	**2025**
Supply Totals	208,559	210,446	209,676	214,900	216,671
Demand Totals	149,422	151,315	137,886	139,590	141,293
Difference (Supply minus Demand)	59,136	59,131	71,789	75,310	75,378
Difference as % of Supply	28%	28%	34%	35%	35%
Difference as % of Demand	40%	39%	52%	54%	53%

Tables 7-19 through 7-21: 2026-2030

Table 7-19
Projected Supply During Multiple Dry Year Period Ending in 2030 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1][2]	**2026**	**2027**	**2028**	**2029**	**2030**
Groundwater	135,571	136,659	159,786	159,659	159,511
Recycled Water	24,468	24,957	25,447	27,233	29,068
Surface Water	8,290	8,290	4,062	6,964	6,383
Imported Water	49,573	49,790	30,004	30,636	31,273
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	60%	61%	62%

Notes:
(1) Supply values extrapolated from 2025and 2030 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 2030 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2026	**2027**	**2028**	**2029**	**2030**
Demand	158,395	159,798	161,201	162,604	164,007
Conservation[1]	0	0	-16,120	-16,260	-16,401
Adjusted Demand	158,395	159,798	145,081	146,344	147,606
% of Projected Normal[2]	100%	100%	90%	90%	90%

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 2030 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2026	**2027**	**2028**	**2029**	**2030**
Supply Totals	217,902	219,696	219,299	224,492	226,236
Demand Totals	158,395	159,798	145,081	146,344	147,606
Difference (Supply minus Demand)	59,507	59,898	74,218	78,149	78,629
Difference as % of Supply	27%	27%	34%	35%	35%
Difference as % of Demand	38%	37%	51%	53%	53%

Tables 7-22 through 7-24: 2031-2035

Table 7-22
Projected Supply During Multiple Dry Year Period Ending in 2035 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
Supply[1][2]	**2031**	**2032**	**2033**	**2034**	**2035**
Groundwater	141,903	143,883	169,202	170,021	170,801
Recycled Water	27,145	27,865	28,584	30,769	33,026
Surface Water	8,290	8,290	4,062	6,964	6,383
Imported Water	50,874	51,308	31,045	31,827	32,618
% of Projected Normal[3]					
Groundwater	100%	100%	116%	115%	114%
Recycled Water	100%	100%	100%	105%	110%
Surface Water	100%	100%	49%	84%	77%
Imported Water	100%	100%	60%	61%	62%

Notes:
(1) Supply values extrapolated from 2030 and 2035 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 7-23
Projected Demand During Multiple Dry Year Period Ending in 2035 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2031	**2032**	**2033**	**2034**	**2035**
Demand	167,167	170,328	173,488	176,649	179,809
Conservation[1]	0	0	-17,349	-17,665	-17,981
Adjusted Demand	167,167	170,328	156,139	158,984	161,828
% of Projected Normal[2]	100%	100%	90%	90%	90%

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

Table 7-24
Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2035 (AFY)

	(normal)	(normal)	(dry)	(dry)	(dry)
	2031	**2032**	**2033**	**2034**	**2035**
Supply Totals	228,212	231,346	232,893	239,581	242,827
Demand Totals	167,167	170,328	156,139	158,984	161,828
Difference (Supply minus Demand)	61,044	61,018	76,754	80,597	80,999
Difference as % of Supply	27%	26%	33%	34%	33%
Difference as % of Demand	37%	36%	49%	51%	50%

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 supplied 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 worked with WFA, IEUA and other agencies to identify key points along the Rialto Feeder where isolation valves have been installed. These valves 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 2010 UWMP.

8.2 UMWP PREPARATION AND REVIEW

The process for formally adopting the WFA 2010 UWMP and submitting it to the California Department of Water Resources is prescribed in Water Code section 10640 through 10645. As this is the second UWMP to be adopted by the WFA, this Plan reviews changes that were made to conservation programs and water recycling plans since 2005. By reference, WFA adopts the review provided in the MWD 2010 Regional UWMP and the IEUA 2010 UWMP.

The WFA 2010 UWMP was prepared as a companion Plan to the IEUA 2010 UWMP, 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.

Public review of the UWMP included notification to the County of San Bernardino and all cities within which WFA provides water supplies, and began with notifications in the local newspaper (Daily Bulletin) regarding the date for a formal public hearing. The published notification was also e-mailed out to all WFA members and other constituents. WFA members received the notice as well as a copy of the draft UWMP.

The public hearing was conducted on May 19, 2011 in accordance with applicable legal requirements. There were no comments provided by the general public or by other agencies. The WFA Board of Directors then approved the resolution on that date which formally adopted the WFA 2010 UWMP.

8.3 UMWP IMPLEMENTATION

WFA will work closely with its member agencies, IEUA, Chino Basin Watermaster, and MWD to implement the 2010 UWMP and achieve the water management goal of maximizing the local water supplies and minimizing the need for additional imported supplies.

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