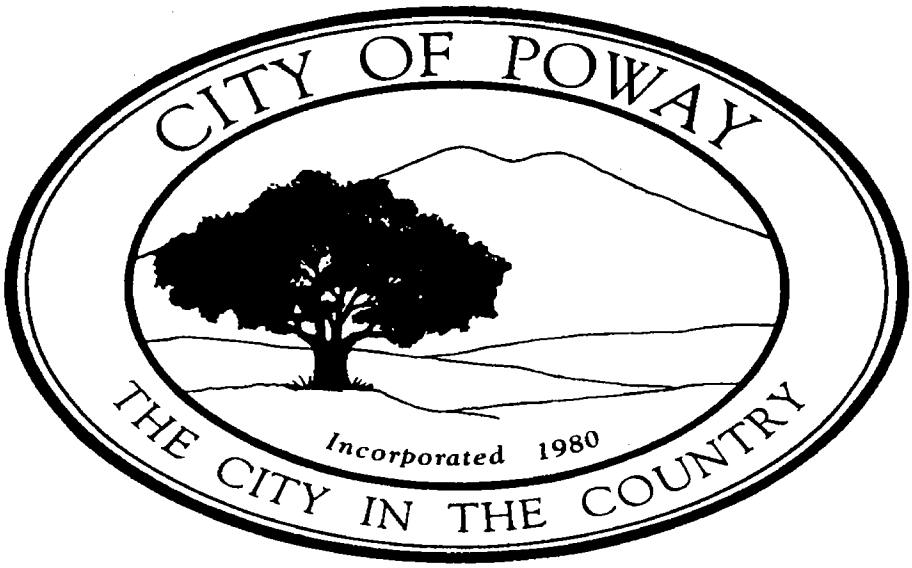
CITY OF POWAY
2005
URBAN WATER MANAGEMENT PLAN



City of Poway
2005 URBAN WATER MANAGEMENT PLAN

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City of Poway
2005 Urban Water Management Plan

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SECTION 1. INTRODUCTION AND AGENCY COORDINATION

1.1 INTRODUCTION

The California Water Code (Appendix A) requires all urban water suppliers in the state to prepare urban water management plans and update them every five years to satisfy the requirements of the California Urban Water Management Planning Act of 1983 and amendments. The Act requires that each urban water supplier that provides water for municipal purposes whether directly or indirectly to more than 3,000 customers or supplies more than 3,000 acre-feet of water per year shall prepare, update, and adopt its Urban Water Management Plan (UWMP) at least once every five years. The UWMP reviews water use trends, supply and demand projections for the next twenty years. The City of Poway is an urban water supplier providing service to 14,058 connections, all metered. The UWMP is a planning document for the City of Poway and regional decision makers, and it will provide the public with information about water service. The previous UWMP was approved by the City Council on December 19, 2000, by Resolution No. 00-118. The 2005 UWMP adopted on November 29, 2005, and submitted to the Department of Water Resources. A copy of Poway's 2005 Urban Water Management Plan is available for review at the City Clerk's Office in Poway. A copy of the Notice of Public Hearing and the Resolution of adoption is included in Appendices B and C.

1.2 AGENCY COORDINATION

The San Diego County Water Authority (SDCWA) is the region's water wholesaler. It is comprised of 23 member agencies including Poway. Its UWMP addresses the regional issues concerning San Diego County water demands and supplies. The Metropolitan Water District of Southern California provides data on projected imported water deliveries.

While preparing the 2005 UWMP, Poway coordinated its efforts with a number of agencies to ensure that data and issues are presented accurately: the San Diego County Water Authority, the Water Authority Reclamation Advisory Committee, the City of San Diego Metropolitan Wastewater Division, and the City of San Diego Water Department. Poway used the Department of Water Resources' *Guidebook to Assist Water Suppliers in the Preparation of a 2005 Urban Water Management Plan.* As required by the Water Code, Poway sent a copy of its adopted UWMP to the California Department of Water Resources, the California State Library, and the San Diego County Water Authority.

Table 1. Poway Coordinated with Agencies to Prepare 2005 UWMP.

Agency	UWMP Meetings	Commented on Draft	Contacted for Assistance	Received Final	Sent Notice of Intent to Adopt
CA Dept of Water Resources	X	X	X	X	
CA State Library				X	
SDCWA	X		X	X	
City of San Diego Metro Wastewater			X		
County San Diego					X

SECTION 2. URBAN WATER MANAGEMENT PLAN

2.1 LEVEL OF PLANNING FOR CITY OF POWAY

The scope of the planning measures presented in the UWMP corresponds with the size of the City of Poway's water utility and reflects the community's individual characteristics.

The City of Poway is the water supplier within its jurisdiction. The City owns and operates the Lester J. Berglund Water Treatment Plant to provide all the potable water for the City. The City manages its water system 24-hours per day with staff and computer SCADA systems to maximize water resources and minimize importation of raw water. The raw, untreated water is purchased from the San Diego County Water Authority. The distribution system in the City includes sixteen (16) reservoirs for localized storage. These potable water reservoirs range in capacity from 500,000 gallons to 10 million gallons and exist to maintain adequate supplies during peak demand, for fire flow, or other emergencies. All of these reservoirs are covered to prevent losses from evaporation and reduce pollution or contamination risks. These reservoirs are constructed of plate steel, one is a concrete DYK design structure, and one 10 MG clearwell reservoir is an earthen excavation, polyethylene lined, with a hypolon rubberized fabric-floating cover. In addition, Lake Poway is a reservoir for raw water.

Since urban growth is closely tied with water supply, the UWMP is a planning tool for the City of Poway when evaluating future land use and development options. The California Urban Water Management Planning Act of 1983 with amendments requires urban water suppliers to update and submit an UWMP to the Department of Water Resources every five years to be eligible for certain State grants and drought assistance.

2.2 CITY OF POWAY SERVICE AREA WITH 20-YEAR PROJECTIONS

The Metropolitan Water District of Southern California, formed in 1928, supplies water to approximately 17 million people in a service area that includes portions of Ventura, Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties. The San Diego County Water Authority is one of 27 Metropolitan member agencies and is the largest agency in terms of deliveries, purchasing 25% of the water Metropolitan delivered in FY 04. Metropolitan's 2005 UWMP and Integrated Resources Plan states it will provide 100 percent reliability for full-service water demands to meet future demands.

SDCWA's 2005 UWMP determined that there will be adequate water supplies to meet demand in the SDCWA service area through 2030 during normal water years, single dry, or multiple dry water years. SDCWA is also pursuing development of potential supplies including additional seawater desalination, construction of storage facilities, and acquiring out-of-region supplies.

The SDCWA was established pursuant to legislation adopted by the California State Legislature in 1943 to provide a supplemental supply of water as the San Diego region's civilian and military population expanded. Due to the strong military presence, the federal government arranged for water from the Colorado River in the 1940s. In 1947 water began to be imported from the Colorado River via a single pipeline that connected to Metropolitan

Water District of Southern California's Colorado River Aqueduct located in Riverside County. To meet the water demand for a growing population and economy, SDCWA constructed four additional pipelines between the 1950s and early 1980s that are all connected to Metropolitan's distribution system and deliver water to San Diego County.

In the Poway area, water has always been crucial. Early settlers and ranchers in the late 1800s depended on wells. Water service became formal in the Poway area in 1954 when the San Diego County Water Authority's aqueduct came in and the Poway Municipal Water District was formed. In 1971 the directors of the water district made expanded water treatment and made plans for emergency storage capacity. Voters in the district approved a bond to construct the Lake Poway Dam. Lake Poway became operational as a water reservoir and recreational area in 1972. Major modifications to the plant were completed in 1974. Poway incorporated as a general law city on December 1, 1980, and merged the Poway Municipal Water District and the Pomerado County Water District to establish a municipality. A Council-City Manager form of government administers the City. The Mayor and four Councilmembers are non-partisan and are elected to serve staggered four-year terms. The Council appoints the City Manager to run the daily municipal operations.

Poway is one of twenty-three (23) member water agencies of the San Diego County Water Authority. SDCWA is a wholesaler of imported water it purchases from MWD and transports through five SDCWA pipelines to member agency service connections. Poway purchases raw, untreated water from SDCWA. The water is delivered via pipeline from Lake Skinner in Riverside County and is then treated at the City's Lester J. Berglund Water Treatment Plant for distribution to Poway's customers. The City's largest reservoir, Lake Poway, is a man-made surface storage reservoir. It is a regular holding source of raw water, an emergency source, and is used to buffer the effects of peak seasonal water demands. Poway's water treatment and distribution system is continuously monitored to ensure the highest standards. The infrastructure is maintained daily and is regularly upgraded. The City's Water Master Plan, scheduled for update in 2006, describes the plans for modifications to existing infrastructure (e.g. pipelines, storage reservoirs, and pumping stations) and new infrastructure to accommodate the City's water demands.

Water conservation is a key component in Southern California's strategy to meet water demand. The City of Poway has been proactive in supporting water conservation programs and conservation through City and SDCWA programs. Poway has water conservation and reclamation measures in the development review process in order to implement strategies set forth in the Poway General Plan. The City closely examines the impact of land use on its ability to maintain water supply, quality, and service to the community. Poway purchases recycled water from the City of San Diego for irrigation at the South Poway Business Park. In addition, since 1997 Poway has been a signatory to the California Urban Water Conservation Council and prepares Best Management Practices reports every two years. The latest reports are included in Appendix D.

2.2.1 Population

The population in the City of Poway grew from 49,287 in 2000 to 50,632 in 2005. The increase of 2.7 percent is consistent with UWMP projections. Per the General Plan, Poway is expected to reach build out by 2030 with a population of 56,000.

According to statistics from the San Diego Association of Governments, the number of single family, multi-family, and mobile home households in Poway in 2005 was 15,933. Single-family homes represented 80 percent of the total housing stock, multi-family homes represented 15 percent, and mobile homes accounted for 5 percent. Over the next twenty years from 2005 to 2025, the City's housing stock is estimated to increase by 6 percent to 16,921. The distribution of housing units is expected to remain the same, with single-family homes comprising the majority of Poway's housing stock. The average number of people per household in Poway is three, and this average is not expected to change over the next 20 years. The SANDAG forecast is consistent with the City's land use policies.

Table 2. Poway Population and Housing Projections.

Population and Housing Projections* City of Poway					
	2005	**2010**	**2015**	**2020**	**2025**
Service Area Population	50,632**	51,814	53,144	54,468	55,009
Service Area Total Housing Units	15,933	16,397	16,597	16,730	16,921

*SANDAG 2030 Forecast **State Dept. of Finance 2005 est.

2.2.2 Geography

The City of Poway encompasses 39 square miles and is located in San Diego County, 20 miles north of downtown San Diego and 125 miles south of Los Angeles. The City of San Diego communities of Scripps Ranch to the south and Sabre Springs, Rancho Penasquitos and Rancho Bernardo to the west border Poway. The City of Escondido is to the north, and the unincorporated community of Ramona is to the east. Poway is one mile east of Interstate 15, which links San Diego, Riverside, Los Angles and Orange Counties. The elevation of Poway ranges from 480 to 2,250 feet above sea level. A map of the City of Poway is attached in Appendix F.

2.2.3 Climate

Poway's climate is typical of a Southern California coastal valley. Located approximately 10 miles from the Pacific Ocean, Poway enjoys mild-to-moderate temperatures, marine breezes, and low humidity. The average temperature is 72 degrees, and the average annual rainfall is 9 to 14 inches. However, in 1998 and again in 2004 the rainfall exceeded 24 inches due to heavy winter storms. Variations in weather affect short-term water consumption and sales. Poway's water treatment plant, reservoirs, distribution, and billing system are all designed to accommodate variations in weather-related demand.

Table 3. 2005 Climate Data for Poway Area: Evaporation Factor, Rainfall, and Temperature.

	January	February	March	April	May	June
Standard Average ETo	2.81	2.76	3.78	5.31	6.1	6.97
Average Rainfall	3.18	3.64	3	1.2	0.27	0.14
Average Temperature	68.9	69.2	70.4	74.5	76.7	82.4

	July	August	Sept.	October	Nov.	Dec.	Annual
Standard Average ETo	7.08	6.83	5.67	4.15	3.31	2.56	**57.33**
Average Rainfall	0.07	0.03	0.22	0.67	1.31	1.75	**15.48**
Average Temperature	87.3	88.7	86.6	80.2	73.5	69	**77.28**

2.2.4 Land Use

The City of Poway's General Plan and land use priority is to preserve a balance between the community's rural character and well-planned residential/commercial/industrial development. The General Plan, adopted in November 1991, calls for maintaining nearly 70 percent of the City's land as open space to provide the community with a natural buffer. An additional 5 percent is agricultural. The majority of open space is located in the foothills that surround Poway. Other open space areas include Lake Poway, Blue Sky Ecological Reserve, and the Twin Peaks and Boulder Mountain areas.

2.2.5 Commercial and Industrial Development

Poway experienced a significant increase in commercial and light industrial development over the past ten years. The majority has taken place in the South Poway Business Park, a 700-acre complex offering tenants high-quality infrastructure, numerous amenities, and plenty of open space in keeping with the City's rural surroundings. The Business Park meets the needs of light industrial and manufacturing, warehousing and distribution, and research and development businesses. There are 7.8 million square feet of building space, and some development capacity remains. Currently, over 460 businesses with more than 16,500 employees are located in the Business Park. All of the landscape in the South Poway Business Park uses recycled water purchased from the City of San Diego and piped through a dedicated meter and distribution system. City staff routinely inspects the 12-mile recycled water distribution system for excess runoff and other discrepancies to ensure adherence to Poway's Rules and Regulations for Recycled Water Use, adopted by the City Council on September 30, 1997.

2.3 WATER SOURCES

This Section identifies existing and planned water supply sources and the current and planned quantities available to Poway. The SDCWA ensures that an adequate supply of

water will be available to satisfy future water requirements for the San Diego Region. The proposed new sources of water are detailed in the SDCWA's 2005 UWMP.

Table 4. Current and Planned Water Supply Sources (AF/Y).

Water Supply Sources	2005	2010	2015	2020	2025
Wholesale Provider: San Diego County Water Authority	16,323	16,372	16,890	17,448	17,986
Surface runoff into Lake Poway During Rain Event	780	650	300	700	500
Recycled Water Purchased from City of San Diego for Irrigation at South Poway	425	425	425	425	425

2.3.1 San Diego County Water Authority

The City of Poway purchases untreated raw water from the San Diego County Water Authority (SDCWA), then treats, stores, and distributes the water in Poway. The City of Poway's water treatment plant has the capacity to readily meet the City's water needs over the next 30 years, and the SDCWA's 2005 UWMP reports it will have enough raw water to sell to the member agencies.

2.3.2 Storage Reservoirs, Lake Poway

The City of Poway has sixteen storage reservoirs ranging in size from 500,000 gallons to 10 million gallons. Lake Poway is the City's largest reservoir. It was originally built by the Poway Municipal Water District in 1971/1972 and serves the City of Poway as a raw water storage reservoir and regional park and recreation facility. It has a 160-foot high earthen dam that contains its 60 surface acres with 3,400 acre-feet of water. The Lake is normally maintained at an elevation of 936 feet, two feet below the spillway. The Lake level fluctuates at the 936-foot elevation throughout the year except during summer months when it is drawn down to use up to 750 acre-feet of seasonal storage water from SDCWA. It is estimated that in an emergency with stringent water use controls, the Lake Poway reservoir could provide Poway customers with essential water in excess of 30 days.

2.3.3 Lester J. Berglund Water Treatment Plant

The City operates a modern water treatment plant, transmission and storage system infrastructure with a design capacity of 24 million gallons per day (mgd). The City has the capability to provide some treated water to the San Diego County Water Authority (SDCWA) in the event of treated water shutdowns. The maximum amount of water that Poway could deliver to SDCWA would depend on water treatment plant flow. In most cases, Poway would be able to deliver up to 4 mgd of treated water through an emergency use agreement with SDCWA.

The water delivered to Poway from SDCWA has historically been a blend of 60 percent Colorado River Aqueduct Water and 40 percent State Project Water. This blending of water dilutes the high salt concentration of the former and high nutrient content of the

latter. Therefore, the City's mixed raw water quality is high. The blended water substantially surpasses Federal and State standards once treated at the Lester J. Berglund Water Treatment Plant in the City of Poway.

Due to the City's varied topography, water service is provided to elevations between 420 feet and 1,420 feet above sea level. This 1,000-foot elevation range requires both pumping and pressure regulating zones to provide average service pressures of approximately 80 pounds per square inch. There are eighteen pressure zones and approximately 267 miles of water mains (greater than 4-inch diameter) distribution pipelines serving 14,058 services. All water services are metered.

An inter-tie exists between the distribution system of the City of Poway and the San Diego County Water Authority to enable the City of Poway to provide treated water to the Authority in the event of treated water shutdowns by the Authority. The inter-tie prevents disruption of treated water service when SDCWA aqueducts are being maintained, inspected, or repaired. The water available from Poway for this purpose is limited due to Poway's demands and its water treatment plant capacity.

2.3.4 Surface Water and Watersheds

The City's Lake Poway surface storage reservoir is used to store raw water, buffer peak seasonal demands, and is available as an emergency water supply. The Lake's ecologic conditions are monitored daily by treatment plant staff to assure maximum water quality.

Poway lies amidst a regional drainage system of westward-tending streams, which convey surface water toward the Pacific Ocean. Two major watersheds divide the City. Surface water flows into the San Dieguito River and Lake Hodges from the northern portion of Poway, while water from the southern areas of the City flows into Los Penasquitos Creek. These channels not only carry floodwaters, but also serve as natural recreational and open space linkages within the community.

A minimal amount of surface run-off occurs in the 1200-acre watershed upstream of Lake Poway. The City of San Diego has prior water rights in this watershed. Therefore, by agreement 50 percent of the seasonal stream flow into Lake Poway must be passed on to the City of San Diego unless San Diego's Lake Hodges spills.

2.3.5 Groundwater

Groundwater is not a significant supply for Poway, and it is not used in the community water treatment and distribution system. Private wells are used in limited foothill areas that are not served by the community water system. The wells are privately constructed and maintained for potable water and/or crop irrigation. The absence of a community water distribution infrastructure in the undeveloped areas, together with minimal groundwater supply, prevents dense development there. The City closely monitors and regulates all land use applications in these areas to ensure that the supply of groundwater remains adequate.

2.3.6 Water Service Administration

The City of Poway Public Works Department is responsible for the operation and maintenance of all water supply and distribution facilities. It also administers the water conservation program. The Development Services Department provides assistance with the design and inspection of major capital improvement projects. The entire distribution system is metered. The Administrative Services Department bills customers bi-monthly at a uniform rate. In 2005 that rate was $2.019 per hundred cubic feet of potable water and $1.817 for recycled water that is used for specific landscape irrigation in the South Poway Business Park.

The Poway General Plan discusses the City's policy on the active conservation of water resources in the community. The policy states that water resources in the City should be managed through: retention of the natural drainage systems; protection of limited groundwater resources; promotion of domestic water conservation measures; development of a reclaimed water supply and distribution system; and preservation of water quality at or better than acceptable public health standards. The General Plan and its final Environmental Impact Report contains implementation strategies and mitigation measures that focus on water conservation and recycling. The City has incorporated water conservation and reclamation measures into the development application review process. The City also closely examines the impact of land use changes on its ability to maintain its present quality of water supply and service to the community.

2.3.7 Capital Improvement Program

The City of Poway has an ongoing capital improvement program to improve and maintain its water infrastructure. Water system improvements are based on the Water System Master Plan and projects identified by staff working in the field. The following is a summary of key projects from 2000 to 2005.

2000: The City of Poway made interior and exterior repairs to five steel potable water reservoirs. Improvements included cathodic protection to nine steel potable water reservoirs, modernizing the Safety Climb systems, and adding earthquake piping to each reservoir. One additional pump was added to a pump station to increase overall pumping capability. The City replaced the floating cover on the 10-million gallon potable water clearwell as a scheduled second replacement.

2001: The City of Poway completed additional security measures at the Water Treatment Plant. The City also installed one new chlorine residual analyzer for use with the pending ammonia system under design.

2002: The City constructed one new pumping station and one new steel potable water storage reservoir. Additional security cameras were installed at water system locations. A new ten-inch steel replacement water line was installed at one pumping station.

2003: The City completed and activated a new ammonia feed system. A water main was replaced to increase fire protection on Ezra Lane. The City also completed fire

protection upgrades by replacing small water lines and adding fire hydrants in the Green Valley area.

2004: The City replaced one existing pumping station and built one new steel potable water storage reservoir.

2005: The City added one steel potable water reservoir. The City completed additional fire protection upgrades by replacing small water lines and adding fire hydrants on Jackrabbit Road in the Green Valley area.

2.4 RELIABILITY OF SUPPLY

This Section describes the reliability of the water supply and vulnerability to seasonal or climatic shortage. The City of Poway receives wholesale water from San Diego County Water Authority. Therefore, the SDCWA addresses Water Supply Reliability in their 2005 UWMP based on a normal year, a single-dry year, and a multiple-dry year period. The following information is from the SDCWA 2005 UWMP.

The last major drought in California occurred between 1987 and 1992 and caused severe water supply shortages throughout the state. This experience prompted water agencies to develop comprehensive plans to prepare for future water shortages.

Since the City of Poway obtains its water from the San Diego County Water (SDCWA), which in turn obtains the majority of its water from the Metropolitan Water District of Southern California, any shortages of water that are imposed on the MWD will have a "ripple effect" and translate into a water shortage for SDCWA and for the City of Poway.

During the supply shortages in 1991-92, SDCWA was able to lessen the conservation requirement imposed on the City of Poway and other member agencies by purchasing transfer supplies and by using water stored in local surface reservoirs. Following the drought, the SDCWA continued its efforts to ensure San Diego County achieves a cost-effective, safe, reliable water supply mix by adopting a Water Resources Plan in 1993. The plan, which was updated in 1997, describes steps SDCWA is taking to enhance local water supply programs and water transfers. On October 10, 2003, the SDCWA entered into a Quantification Settlement Agreement to provide increased water reliability for the region. Details of the Quantification Settlement Agreement are provided in the San Diego County Water Authority's 2005 Urban Water Management Plan.

In summer it is common for the SDCWA's Lake Skinner water treatment plant to be pushed to peak operations, sometimes resulting in SDCWA press releases in San Diego County asking their customers to adjust landscape watering times. However, this situation does not impact Poway or several other water agencies in the County that have their own water treatment plants. As mentioned previously, the City of Poway purchases raw water from SDCWA, not potable water. Poway treats and distributes water to Poway customers. The City also has the Lake Poway reservoir, which would buffer any dramatic change in the availability of raw water from SDCWA. In addition, an emergency potable water connection is being planned for Poway to have access to SDCWA potable water if there were ever an emergency need in Poway.

2.5 TRANSFER AND EXCHANGE OPPORTUNITIES

The purpose of this Section would be to describe any water transfer or exchange agreements. The City of Poway does not have transfer or exchange agreements.

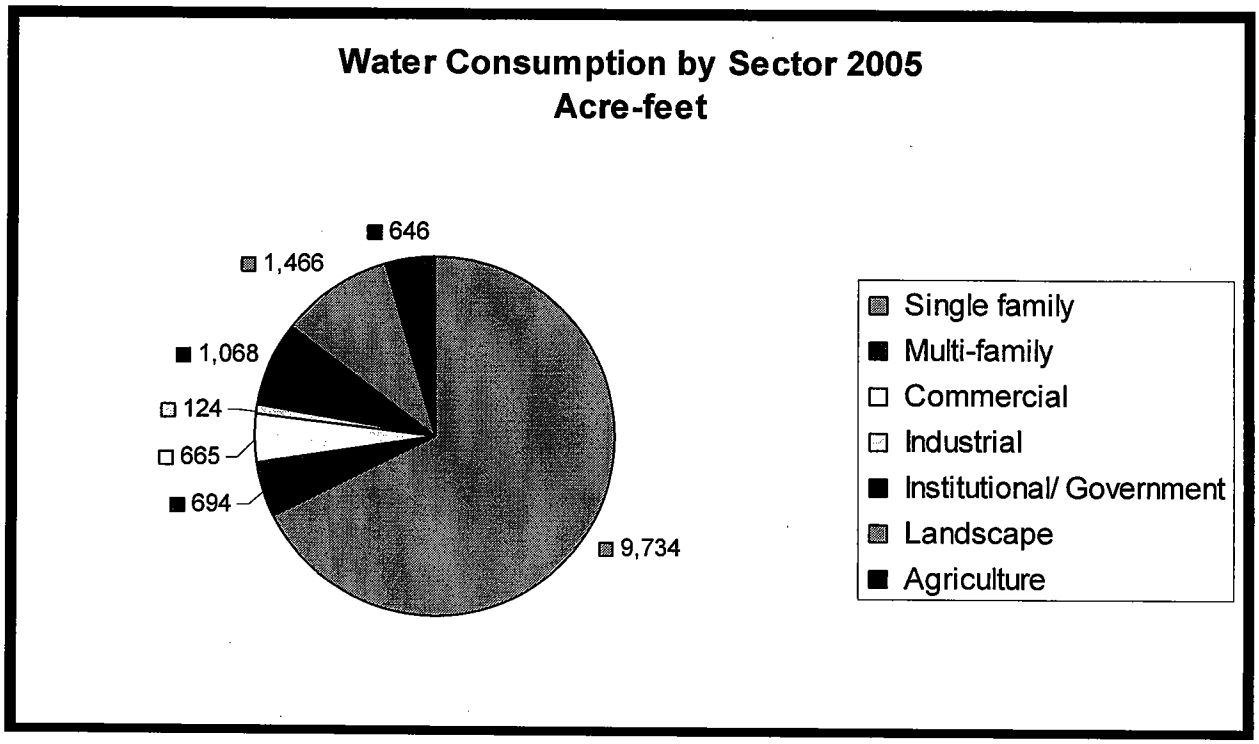
2.6 WATER USE BY CUSTOMER TYPE: PAST, CURRENT AND FUTURE

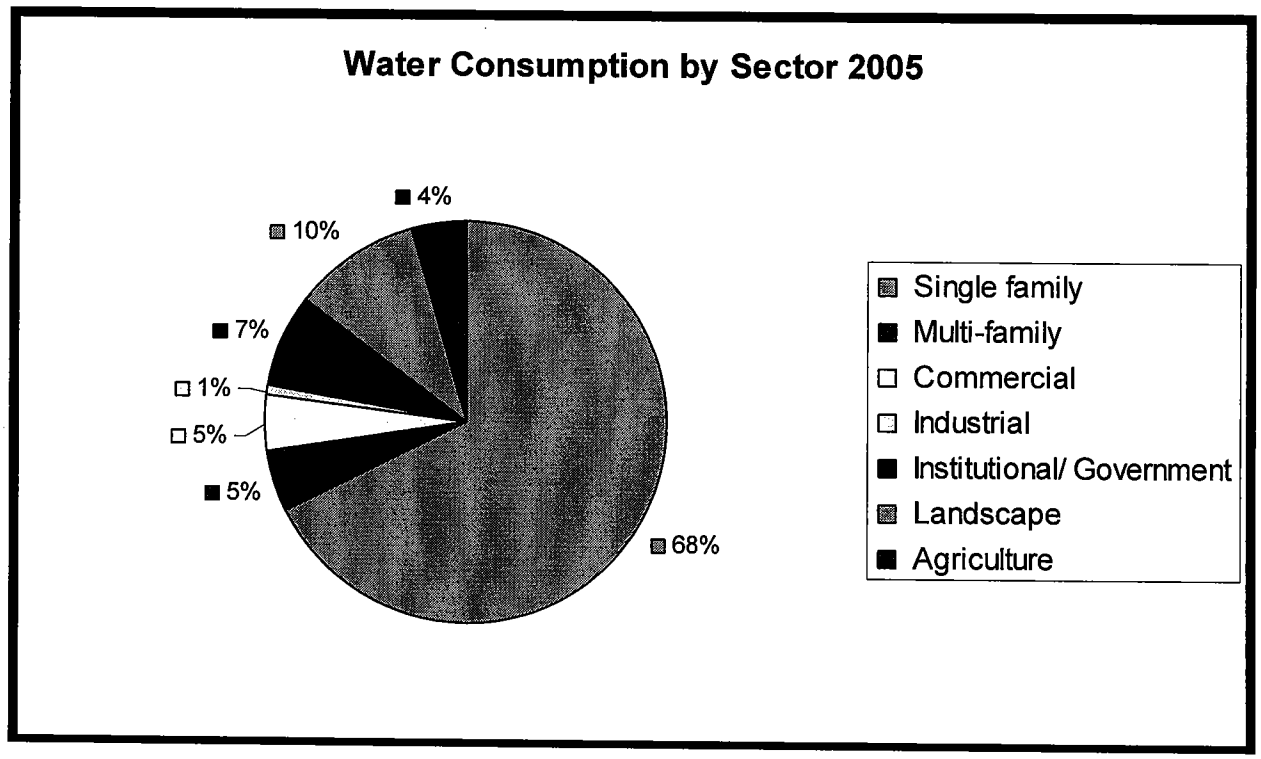
The past, current, and projected water use by sector is an effective way to show growth patterns and future demand. Poway water use includes domestic (serving residential and commercial users) and agricultural irrigation. Water consumption data is separated into the following account sectors: Single-Family Residential; Multi-Family Residential; Commercial; Industrial; Institutional and Governmental; Landscape Irrigation; and Agricultural (Commercial Farming). Projected water deliveries are shown in the table and pie charts below.

Table 5. Past, Current and Projected Water Deliveries.

	2000		2005		2010	
	All Metered		All Metered		All Metered	
Water Use Sectors	# of accounts	Deliveries AF/YR	# of accounts	Deliveries AF/YR	# of accounts	Deliveries AF/YR
Single family	12,319	9,181	12,587	9,734	13,030	10,685
Multi-family	150	658	153	694	167	755
Commercial	532	438	558	665	584	695
Industrial	49	150	50	124	55	136
Institutional/ Government	164	976	180	1,068	185	1,097
Landscape	354	1,862	427	1,466	450	1,550
Agriculture	96	550	103	646	80	650
Total	**13,664**	**13,815**	**14,058**	**14,397**	**14,551**	**15,568**

	2015		2020		2025	
Water Use Sectors	# of accounts	Deliveries AF/YR	# of accounts	Deliveries AF/YR	# of accounts	Deliveries AF/YR
Single family	13,160	10,791	13,228	10,847	13,368	10,962
Multi-family	171	773	174	789	176	799
Commercial	610	726	636	756	636	756
Industrial	60	148	65	161	65	161
Institutional/ Government	190	1,126	190	1,126	190	1,126
Landscape	475	1,600	475	1,600	475	1,600
Agriculture	90	675	90	675	90	675
Total	**14,756**	**15,839**	**14,858**	**15,954**	**15,000**	**16,079**


Water Consumption by Sector 2005
Acre-feet
646
1,466
1,068
124
665
694
9,734
Single family
Multi-family
Commercial
Industrial
Institutional/ Government
Landscape
Agriculture


Water Consumption by Sector 2005
4%
10%
7%
1%
5%
5%
68%
Single family
Multi-family
Commercial
Industrial
Institutional/ Government
Landscape
Agriculture

2.7 DEMAND MANAGEMENT MEASURES

The Water Code defines "Demand Management" as water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies. Water conservation can be a relatively low-cost way to augment water supply. It is a critical part of the region's long-term strategy for meeting water demand. Section 10631(i) of the Water Code states "Urban water suppliers that are members of the California Urban Water Conservation Council (CUWCC) and submit annual reports to that Council in accordance with the 1991 Memorandum of Understanding Regarding Urban Water Conservation, may submit the annual reports identifying water demand management measures currently being implemented, or scheduled for implementation, to satisfy the requirements of subdivisions f and g." The City of Poway has been a signatory to the MOU since 1997 and meets the Demand Management Measures by implementing the Best Management Practices. Poway's Annual BMP Reports for FY 2003 and FY 2004 are included in Appendix D.

2.8 EVALUATION OF DEMAND MANAGEMENT MEASURES NOT IMPLEMENTED

The City of Poway, along with the other 23 member agencies of the San Diego County Water Authority, implements the Demand Management Measures of the Water Code by participating in the CUWCC and other conservation programs. See UWMP Section 3 and the Appendix for information and copies of BMP Coverage Reports. BMPs 1 and 9 are not implemented by member agencies because SDCWA determined the surveys are not cost effective. Virtually all of the member agencies are considering the costs and methods of implementing BMP 5 to include water budgets. The City of Poway has implemented all the conditions of BMP 5 except water budgets for commercial dedicated irrigation meter customers. Factors such as cost, staff time, computer software compatibility, and administration logistics are being considered. The majority of commercial dedicated landscape meters are located in the South Poway Business Park and use 100% recycled water, not potable water.

2.9 PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

The City of Poway purchases raw, untreated water from SDCWA. Therefore, Poway does not have water supply projects. Poway does have a plan to construct a treated water connection from a SDCWA potable water line to a Poway distribution line to be used in case of emergency.

2.10 DEVELOPMENT OF DESALINATED WATER

The City of Poway is not a water wholesaler. Poway purchases raw water from SDCWA. Therefore, Poway does not have water supply projects to develop desalinated water.

2.11 CURRENT OR PROJECTED SUPPLY INCLUDES WHOLESALE WATER

The City of Poway receives wholesale raw water from SDCWA. This Section of the UWMP projects the amount of water Poway will purchase from SDCWA over the next 20 years in five-year increments.

Table 6. Poway's Demand Projections for SDCWA Wholesale Water – AF/Year.

Poway's Demand from SDCWA	2010	2015	2020	2025
	16,890	17,448	17,986	18,317

2.11.1 Purchased Supply

The City of Poway's raw water is purchased from the San Diego County Water Authority (SDCWA), which imports 90 percent from the Metropolitan Water District (MWD). The imported water is a combination of Colorado River Aqueduct Water and State Project Water. The other 10 percent of the water is supplied by local agencies impounding run-off in their reservoirs and pumping from groundwater basins. The 90/10 split between local and imported supplies can vary widely from year to year depending on runoff into local reservoirs and groundwater recharge.

SECTION 3. DETERMINATION OF DMM IMPLEMENTATION

The City of Poway is committed to water use efficiency and conservation. DMM implementation is accomplished each year by adhering to the Best Management Practices and goals of the SDCWA and the California Urban Water Conservation Council (CUWCC). Poway is a member agency of SDCWA and has been a signatory to the California Urban Water Conservation Council since 1997.

Poway participates and finances voucher programs and public outreach. In FY 05 the total amount budgeted for all conservation programs within the San Diego County Water Authority jurisdiction was $5.7 million. The SDCWA budgeted $972,000 for the conservation programs, and the remaining funds came from DWR, MWD, and SDCWA member agencies. It is anticipated that 68,000 acre-feet per year of water will be conserved over the useful life of the measures funded. Poway implements the water demand management measures of the Water Code. A copy of the FY 2003 and FY 2004 BMP Coverage Reports are attached as Appendix E.

BMPs 1 and 9 are not implemented by member agencies because SDCWA determined the surveys are not cost effective. Virtually all of the member agencies are considering the costs and methods of implementing BMP 5 to include water budgets. The City of Poway has implemented all the conditions of BMP 5 except water budgets for commercial dedicated irrigation meter customers. Factors such as cost, staff time, computer software compatibility, and administration logistics are being considered. The majority of commercial dedicated landscape meters are located in the South Poway Business Park and use 100% recycled water, not potable water.

The City has always been proactive in its water conservation programs, including establishing a City Drought Assistance Response Team during the drought of the early 1990s. The City of Poway, along with the other member agencies of SDCWA, implements all of the BMPs and is committed to the purposes of water conservation.

SECTION 4. WATER SHORTAGE CONTINGENCY PLAN

4.1. STAGES OF ACTION

Water Code section 10632 requires urban water suppliers to perform a water shortage contingency analysis that includes stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

The City of Poway's Water Conservation Plan, Chapter 8.94 of the Poway Municipal Code, is attached as Appendix G. It was adopted by the City Council on March 16, 1993, as Ordinance 408. It identifies conservation stages of action, up to 50 percent reduction, in response to a water supply shortage. The mandatory reductions in water use by customers of the City of Poway would be triggered under one or more of the following circumstances:

A. There is a general water supply shortage;
B. There is limited capacity in the San Diego County Water Authority distribution facilities;
C. The potential for a major failure of the supply and distribution facilities of the Metropolitan Water District of Southern California, the San Diego County Water Authority, or the City, exists;
D. The conditions prevailing in the San Diego County area require that the water resources available be put to the maximum beneficial use to the extent in which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water, be prevented and the conservation of such water is to be extended and encouraged for the benefit of the public welfare.

The Ordinance designates seven conservation stages that could be declared by the City Manager, and ratified by the City Council, in response to water shortages as outlined above. The water conservation measures apply to all City domestic water service connections.

4.2 ESTIMATE OF MINIMUM SUPPLY FOR NEXT THREE YEARS

The City of Poway is one of 23 member agencies of the SDCWA, which provides Poway with wholesale raw water. The SDCWA performed a detailed analysis to estimate the minimum supply of water that might be available to the San Diego Region over the next three years (2006-2008) based on the driest three-year historic sequence of 1987-1992. The SDCWA analysis is included in their 2005 UWMP.

4.3 CATASTROPHIC SUPPLY INTERRUPTION PLAN

The Water Code requires the UWMP to describe the actions that would be taken by the water supplier to prepare for a catastrophic interruption of water supply including but not limited to a regional power outage, earthquake, or other disaster. The City of Poway has a catastrophic supply interruption plan that includes the vulnerability of the source of raw

water from SDCWA, as well as interruption of Poway's delivery and distribution systems.

Table 7. Catastrophic Supply Interruption Plan.

Possible Catastrophe	Summary of Action
Regional Power Outage	Use emergency generators at critical facilities.
Earthquake affecting Poway's supply of raw water	Use stored water in Lake Poway and implement Water Conservation Plan.
System Failure affecting Poway's supply of raw water	Use stored water in Lake Poway and implement Water Conservation Plan.
System Failure at Poway Water Treatment Plant	Isolate problem areas of plant and operate plant manually.
System Failure in Poway distribution system	Isolate problem areas and restore service from the treatment plant out.

The City of Poway meets federal and state guidelines for planning for potential hazards. Poway has a catastrophic water supply interruption plan that includes non-drought related events. In 2004 the City completed a Hazard Mitigation Plan as part of the County of San Diego's Hazard Mitigation Plan submitted to the State of California Office of Emergency Services. The City of Poway also completed a vulnerability assessment of its water system and submitted it and the emergency response plan to the Environmental Protection Agency and the State of California.

If a major catastrophe affected the ability of SDCWA to provide Poway with raw water, Poway would still have some potable and raw water in reservoirs. For example, assuming that Lake Poway is at its maximum operating level, and the City Manager activated the 20 percent level of the Water Conservation Plan, the City could provide water to its customers for up to four months (9 mgd). If major regional raw water supply deficiencies occurred, the extent to which Poway could meet water demand from its customers would be proportional to conservation. For example, if Poway's supply of imported raw water was totally disrupted, and if Poway instituted 50 percent conservation, it is estimated that the City could supply potable water to Poway customers up to 6 months (5 mgd).

Currently, Poway's Water Treatment Plant is its only source of potable water. To address this, the City of Poway and the San Diego County Water Authority are discussing a mutual aid agreement to create a connection to bring potable water to Poway in times of emergency. The proposed 7 mgd treated water connection could also be used by Poway to sell excess treated water to SDCWA. In addition, it could be possible to procure emergency water from the City of San Diego and the Ramona Municipal Water District because Poway shares service boundaries with them. Poway's active leadership and participation with SDCWA ensures that the priority water needs of the City and the region are adequately met.

4.4 PROHIBITIONS, PENALTIES, AND CONSUMPTION REDUCTION METHODS

Section 4.1 of the UWMP and Chapter 8.94 of the Poway Municipal Code (Appendix G) address the prohibitions, penalties, and consumption reduction methods for water use practices during water shortages. The City has the capability of monitoring accounts

through its computerized billing system to identify customers with high or excessive water usage, and to ascertain whether or not an account is meeting prescribed conservation levels when imposed. If an account does not meet prescribed conservation levels, there could be penalties enacted according to the enforcement provisions of the City's Water Conservation Ordinance.

4.5 ANALYSIS OF REVENUE IMPACTS OF REDUCED SALES DURING SHORTAGES

This Section describes how Poway's planned consumption reduction methods are likely to impact revenues. It also describes how the implementation of a water shortage program will impact expenditures for additional supply of raw water, changes to computer programs, and changes to the billing process.

If the City of Poway implemented its Water Conservation Plan (Chapter 8.94 of the Poway Municipal Code), there are seven stages of mandatory conservation, from 10% up to 50%. Reductions in potable water sales would result. The impact would depend on the amount of sales reduction and the length of the water shortage conditions. For example, if sales declined by ten percent for a period of months, the impact on revenue and operations would be mild. If a severe water shortage occurred, and all seven stages of mandatory conservation were met, the City would advance to the Stage VII mandatory 50% reduction in potable water use. If this stage lasted for several months, the impact on revenue would be substantial. Measures to overcome revenue impacts would include purchasing less raw water from SDCWA and processing less water at the water treatment plant. Potable water in reservoirs would be sold first, and the raw water in the Lake Poway reservoir would be accessed for treatment. The City Council would consider adjustments to water rates and billing strategy. Rates are adopted by Resolution of the City Council. Tiered rates could be instituted by the City Council. An example from Poway's history is the DART team. During the drought in the 1990s, the City formed a Drought Assistance Response Team, commonly referred to as the D.A.R.T. program. The D.A.R.T. program included public education, conservation retrofit/rebate programs, code compliance, and landscape irrigation programs. The water customers in Poway were so cooperative and the D.A.R.T program was so effective that the City of Poway suspended the tiered water pricing structure earlier than originally planned. The City of Poway may reactivate tiered pricing and the D.A.R.T. program if conservation requirements are imposed in the future.

All water sales in Poway, both potable and recycled, are metered. Customers receive water bills bimonthly and the charge is based on metered use. The rate includes components for treatment, delivery, pumping, capital replacement, debt service, and administration. Millions of dollars have been invested in the water treatment plant, reservoirs, and distribution system. The fixed costs and maintenance expenses occur regardless of customer usage. The "capacity" and "commodity" billing structure provides financial stability for the water system even in times of drought or heavy rain. Conservation, even during a water shortage, will not have a significant financial impact over the long-term because the City Council acts to adjust rates to balance the "capacity" costs and the "commodity" costs of providing water service.

4.6 ORDINANCE AND USE MONITORING PROCEDURE

Refer to Section 4.1 of the UWMP and the Appendix for Poway's Water Conservation Plan Ordinance. The City's water billing system can monitor water use by customers. Each bill includes statistics of water use from the previous month and the previous year. If would be possible to keep customers informed about water usage and call for increased conservation by inserting information in bills. Other means of communication include the media, press releases, and public forum. Poway has historic evidence from the drought of the early 1990s that customers will adjust water usage.

SECTION 5. RECYCLED WATER PLAN

5.1 COORDINATION

This Section identifies the agencies that participated in developing a plan for Poway's use of recycled water in its service area. The City of Poway coordinated with the City of San Diego Water Department and SDCWA to develop a recycled water plan for the South Poway Business Park landscape irrigation. The developers of the Business Park paid for the recycled water infrastructure, and the City maintains it. Poway purchases the recycled water from San Diego, then sells it to the Business Park customers for irrigation of their landscape by using dedicated recycled water systems and meters.

5.2 WASTEWATER QUANTITY, QUALITY, AND CURRENT USES

This Section describes the wastewater collection system in the City of Poway's service area, and the Recycled Water Uses in the City of Poway.

Wastewater. The City of Poway's wastewater treatment is provided by the City of San Diego's Metropolitan Wastewater Department. The City of Poway's wastewater collection system is made up of gravity piping systems and pumping stations to transport raw sewage to the City of San Diego. Poway does not own or operate a wastewater treatment facility. Through an agreement, 100% of Poway's wastewater flows to the City of San Diego where it is treated at the Point Loma Wastewater Treatment facility. The City's average daily flow of wastewater to the City of San Diego is 3.7 million gallons. The current contract authorizes 5.83 million gallons of wastewater per day to be discharged into the City of San Diego's collection system.

The City of Poway owns, operates, and maintains 175 miles of collection system piping and five sewage lift stations. The collection system piping is a combination of vitrified clay and plastic pipe. Each station is designed to lift sewage from a low-lying service area through a force main to a connection to the gravity system. The sewage lift stations are monitored by City staff 24-hours per day with a computer SCADA system to track flow, wet-well levels, and other data. In addition, the City maintains approximately 3,200 manholes.

The City's Public Works Department administers the Cross-Connection Control Program. The purpose is to protect public health by ensuring the potable water system is not compromised by improper or illegal connections or plumbing that could cause accidental contamination from wastewater or recycled water.

The City has a Fat-Oil-and Grease Prevention Program (FOG) as part of its Wastewater Division. FOG can clog sewer lines and cause sewage backups and overflows. City staff work with restaurants to educate them about proper grease disposal. A no-cost permit program was established along with inspections to monitor compliance with BMPs for grease handling procedures.

The City has an Inflow and Infiltration Program to detect and repair defects in the wastewater collection system (often caused by cracks and roots). Poway pumps its wastewater to the City of San Diego for treatment, and San Diego charges Poway for that

service. Poway charges its customers for the wastewater fees. Currently, Poway produces approximately 3.7 mgd of wastewater. It is estimated that up to 1.5 mgd is actually groundwater that leaks into the wastewater pipe system. The goal of the Inflow and Infiltration Program is to eliminate 50 percent of the infiltration, which will save the City and its customers some sewage treatment expenses.

Table 8. City of Poway Wastewater Collection and Treatment.

	2000	2005	2010	2015	2020	2025
Wastewater Collection and Treatment AF/Y	6,796	4,327	4,475	4,519	4,552	4,591

Recycled Water. Poway purchases 425 Acre-Feet per Year of tertiary treated recycled water from the City of San Diego. It is used exclusively for landscape irrigation at the South Poway Business Park. The recycled water system began construction in the 1990s, and the first recycled water was received in 1997. The Business Park developers paid for the recycled water infrastructure, and the City maintains the system, and sells the recycled water to customers. The City's 12-mile recycled water distribution system is routinely inspected for excess runoff and other discrepancies to ensure that all sites adhere to Poway's Rules and Regulations for Recycled Water Use adopted by the City Council on September 30, 1997.

5.3 POTENTIAL AND PROJECTED USE

The City of Poway purchases approximately 425 AF/YR of recycled water from the City of San Diego. Recycled water is used at the South Poway Business Park in dedicated pipes and meters solely for landscape irrigation. All irrigation in the Business Park is required to be recycled water. The cost per unit charged to customers is 90% of the potable water rate. Poway estimates that purchases will flatten out to 600 AF/ YR over the next 25 years. The City's Reclaimed Water Master Plan takes into account potential uses for recycled water in Poway as supplies and infrastructure become available in the County.

SECTION 6. WATER QUALITY IMPACTS ON RELIABILITY

The SDCWA supplies the raw water for the City of Poway. The SDCWA's 2005 UWMP addresses water quality and water management strategies for the region. SDCWA purchases 90 percent of the water from the Metropolitan Water District of Southern California (MWD). The MWD administers water quality programs. The MWD's 2005 Regional UWMP states there is 100 percent reliability to meet non-discounted, non-interruptible water demand through the year 2025.

SECTION 7. WATER SERVICE RELIABILITY

Poway projects that supply will equal demand each year through 2025.

7.1 PROJECTED NORMAL WATER YEAR SUPPLY AND DEMAND

The City of Poway purchases raw water from the SDCWA, then treats it and sells it to Poway customers. This Section of the UWMP compares the projected normal year water supply available to Poway from SDCWA to the projected normal year water demand in Poway over the next twenty years. The figures Poway is using for a "normal water year" are from 2002-2003 when approximately 15 inches of rain fell in Poway.

Table 9. Projected Normal Water Year Supply Available from SDCWA – AF/Y.

	2010	2015	2020	2025
Supply Available to Poway from SDCWA (AF/Y)	16,372	16,890	17,448	17,986
% of Normal Year 2002-2003	119.79	123.58	127.67	131.60

Table 10. Projected Normal Water Year Demand. Anticipated Poway Sales– AF/Y.

	2010	2015	2020	2025
Demand Poway Anticipates in Sales (AF/Y)	16,372	16,890	17,448	17,986
% of Normal Year 2002-2003	119.79	123.58	127.67	131.60

Table 11. Projected Normal Year (2002-03) Supply and Demand Comparison – AF/Y.

	2010	2015	2020	2025
Supply Total (anticipated purchases from SDCWA)	16,372	16,890	17,448	17,986
Demand Total (anticipated sales to Poway customers)	16,372	16,890	17,448	17,986
Difference (Supply minus Demand)	0	0	0	0
Difference as % of Supply	0	0	0	0
Difference as % of Demand	0	0	0	0

7.2 PROJECTED SINGLE-DRY-YEAR SUPPLY AND DEMAND COMPARISON

Water use patterns change during dry years. This Section documents expected changes to water demand by sector, assuming increasing demand due to increased irrigation needs and demand reductions resulting from rationing programs and policies. Poway anticipates

water purchases will increase by 7 percent in a single dry year, largely due to customers needing to increase their landscape irrigation. The base number used was 16,372 AF for 2010. If 2010 is a dry year, Poway anticipates selling 17,518 AF, which is 7% higher than a normal 2010 year.

Table 12. Projected Single Dry Year Water Supply – AF/Y.

	2010	2015	2020	2025
Supply Total (anticipated purchases from SDCWA)	17,518	18,072	18,669	19,245
% of Projected Normal Water Year 2002-2003	128.18	132.23	136.60	140.81

Table 13. Projected Single Dry Year Water Demand – AF/Y.

	2010	2015	2020	2025
Demand	17,518	18,072	18,669	19,245
% of Projected Normal	128.18	132.23	136.60	140.81

Table 14. Projected Single Dry Year Supply and Demand Comparison – AF/Y.

	2010	2015	2020	2025
Supply Total	17,518	18,072	18,669	19,245
Demand Total	17,518	18,072	18,669	19,245
Difference (Supply minus Demand)	0	0	0	0
Difference as % of Supply	0	0	0	0
Difference as % of Demand	0	0	0	0

7.3 PROJECTED MULTIPLE-DRY-YEAR SUPPLY AND DEMAND COMPARISON

Project a multiple dry year period occurring between 2006-2010 and compare projected supply and demand during those years.

Table 15. Projected Supply in Multiple Dry Year Period Ending in 2010 – AF/Y.

	2006	2007	2008	2009	2010
Supply	13,216	13,942	14,709	15,518	16,372
% of Projected Normal	96.70	102.01	107.63	113.54	119.79

Table 16. Projected Demand Multiple Dry Year Period Ending in 2010 - AF/Y.

	2006	2007	2008	2009	2010
Demand	13,216	13,942	14,709	15,518	16,372
% of Projected Normal	96.70	102.01	107.63	113.54	119.79

Table 17. Projected Supply and Demand Comparison in Multiple Dry Year Period Ending in 2010 – AF/Y.

	2006	2007	2008	2009	2010
Supply Total	13,216	13,942	14,709	15,518	16,372
Demand Total	13,216	13,942	14,709	15,518	16,372
Difference (Supply minus Demand)	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % of Demand	0	0	0	0	0

The following tables are projections of a multiple dry year period occurring between 2011-2015. A comparison is shown between projected supply and demand during those years.

Table 18. Projected Supply During Multiple Dry Year Period Ending in 2015 – AF/Y.

	2011	2012	2013	2014	2015
Supply	16,516	16,609	16,702	16,795	16,890
% of Projected Normal	120.85	121.53	122.21	122.89	123.58

Table 19. Projected Demand Multiple Dry Year Period Ending in 2015 – AF/Y.

	2011	2012	2013	2014	2015
Demand	16,516	16,609	16,702	16,795	16,890
% of Projected Normal	120.85	121.53	122.21	122.89	123.58

Table 20. Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2015 – AF/Y.

	2011	2012	2013	2014	2015
Supply Total	16,516	16,609	16,702	16,795	16,890
Demand Total	16,516	16,609	16,702	16,795	16,890
Difference (Supply minus Demand)	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % Of Demand	0	0	0	0	0

The following tables are projections of a multiple dry year period occurring between 2016-2020. A comparison is made between projected supply and demand during those years.

Table 21. Projected Supply During Multiple Dry Year Period Ending in 2020 – AF/Y.

	2016	2017	2018	2019	2020
Supply	16,701	16,884	17,070	17,258	17,448
% of Projected Normal	122.20	123.54	124.90	126.27	127.66

Table 22. Projected Demand Multiple Dry Year Period Ending in 2020 – AF/Y.

	2016	2017	2018	2019	2020
Demand	16,701	16,884	17,070	17,258	17,448
% of Projected Normal	122.20	123.54	124.90	126.27	127.66

Table 23. Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2020 – AF/Y.

	2016	2017	2018	2019	2020
Supply Total	16,701	16,884	17,070	17,258	17,448
Demand Total	16,701	16,884	17,070	17,258	17,448
Difference (Supply minus Demand)	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % of Demand	0	0	0	0	0

The following tables are projections of a multiple dry year period occurring between 2021-2025. A comparison is made between projected supply and demand during those years.

Table 24. Projected Supply During Multiple Dry Year Period Ending in 2020 – AF/Y.

	2021	2022	2023	2024	2025
Supply	17,772	17,826	17,879	17,993	17,986
% of Projected Normal	130.04	130.43	130.82	131.21	131.61

Table 25. Projected Demand Multiple Dry Year Period Ending in 2025– AF/Y.

	2021	2022	2023	2024	2025
Demand	17,772	17,826	17,879	17,993	17,986
% of Projected Normal	130.04	130.43	130.82	131.21	131.61

Table 26. Projected Supply & Demand Comparison During Multiple Dry Year Period Ending in 2025 – AF/Y.

	2021	2022	2023	2024	2025
Supply Total	17,772	17,826	17,879	17,993	17,986
Demand Total	16,701	16,884	17,070	17,258	17,448
Differenc e (Supply minus Demand)	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % of Demand	0	0	0	0	0

SECTION 8. ADOPTION AND IMPLEMENTATION OF UWMP

The Poway City Council adopted its 2005 UWMP by Resolution on November 29, 2005 (see Appendix). A copy of the Public Hearing Notice was published in the *Poway News Chieftain* (see Appendix). The CUWCC BMP Annual Reports were submitted to the Department of Water Resources within Poway's 2000 UWMP showing that Poway implement demand management measures through its BMPs. In addition, the UWMP details Poway's recycled water plan implemented at a level of 425 AF/Y purchased from the City of San Diego. The UWMP is available for public review at the City Clerk's Office, 13325 Civic Center Drive, Poway, CA 92064. Copies of Poway's 2005 UWMP were provided to DWR, State Library, the County of San Diego, and SDCWA