

# **CRESCENTA VALLEY WATER DISTRICT**

## **2005 URBAN WATER MANAGEMENT PLAN**



**Crescenta Valley Water District  
2700 Foothill Blvd.  
La Crescenta, CA 91214**

**December 2005**

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**Crescenta Valley Water District**  
2005 Urban Water Management Plan  
Contact Sheet

Date plan submitted to the Department of Water Resources: \_\_\_\_\_

Name of persons preparing this plan:

**Coordinator: Christy J. Scott, Program Specialist**  
**David Gould, District Engineer**  
**Lorena Ospina, Malcolm Pirnie, Inc.**

Phone: **818.248.3925**

Fax: **818.248.1659**

E-mail address: **cvwd@cvwd.com**

The Water supplier is a: **County Water Agency**

The Water supplier is a: **Retail Water Agency**

Is This Agency a Bureau of Reclamation Contractor? **No**

Is This Agency a State Water Project Contractor? **No**

This Agency is a sub-member of Foothill Municipal Water District who is a member agency to the Metropolitan Water District of Southern California

## INTRODUCTION

### **Urban Water Management Planning Act**

The purpose of this document is to comply with the Urban Water Management Planning Act (UWMPA) contained in the California Water Code, Division 6, Part 2.6 Sections 10610 through 10656. It was added by Statute in 1983, Chapter 1009, and became effective on January 1, 1984.

The Act requires that "every urban water supplier providing water for municipal purposes to more than 3,000 customers of supplying more than 3,000 acre-feet of water annually prepare and adopt an "urban water management plan" for submittal to the State Department of Water Resources (SDWR)". The act also requires that the plan be periodically reviewed for changes and that an update is submitted to SDWR every five years. The plan shall describe and evaluate the practical and efficient uses of water' the degree of usage of reclamation and conservation activities' the Urban Water Management Plan requires a detailed evaluation of water supply and demand at least twenty years into the future. Suppliers must provide analyses of the following:

- ❖ Service area and projected population
- ❖ Existing and planned sources of water, including groundwater
- ❖ The water supply's reliability during average, single-dry and multiple-dry water years
- ❖ Past, current, and project water use
- ❖ Exchanges and transfers
- ❖ A supply and demand assessment over five year increments to twenty years for average, single-dry and multiple-dry water years
- ❖ Current and planned water demand management measures.
- ❖ An urban water shortage contingency plan
- ❖ Recycled water as a potential water source
- ❖ Quality of existing water sources
- ❖ Desalination as a potential water source

This document is an update to the 2000 urban water management plan that was adopted in December 2000.

### **Plan Adoption**

The Crescenta Valley Water District prepared this update of its Urban Water Management Plan (UWMP) during the summer and fall of 2005. The updated plan was adopted by its Board of Directors at the December 13<sup>th</sup> 2005 meeting and submitted to the California Department of Water Resources prior to the January 13, 2006 deadline. Also attached as Attachment A is the District's Resolution No. 662 adopting this plan. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6, Urban Water Management Planning.

## Section 1 Agency Coordination

### **1.1 Coordination within the District and Interagency Coordination**

Crescenta Valley Water District (CVWD) coordinated its UWMP planning efforts with a variety of agencies to ensure that data and issues are presented accurately. Table 1 below lists the agencies that have provided coordination with the development of the 2005 UWMP.

List of Agencies:

FMWD – Foothill Municipal Water District  
 City of Glendale – Glendale Water and Power  
 ULARA – Upper Los Angeles River Area

**Table 1.1  
Coordination with Appropriate Agencies**

Check at least one box per row	Participated in UWMP development	Commented on the draft	Attended public meetings	Contacted for assistance	Received copy of draft	Sent notice of intention to adopt	Not Involved / No Information
FMWD	X	X		X	X	X	
City of Glendale	X		X	X	X	X	
ULARA				X	X	X	
City of La Canada Flintridge			X	X	X	X	

CVWD's 2005 UWMP has been organized and structured as recommended in the latest edition of DWR's 2005 Urban Water Management Plan Guidance Manual.

Water use statistics and projections that are presented in the 2005 UWMP generally agree with planning elements' of FMWD, the local water wholesaler, as it prepares and adopts its own plan. Additionally, miscellaneous information and text for CVWD's UWMP was provided by FMWD and CVWD gratefully acknowledged here.

Crescenta Valley Water District (CVWD or District) is located within the service area of FMWD, who in turn is supplied by the Metropolitan Water District of Southern California (MWD), the regional water wholesaler. MWD has prepared its own UWMP and is also conducting a comprehensive analysis of its water resources for the future. The District, and FMWD have emphasized to MWD the need to concentrate planning efforts on aggressive development of local and regional resource options such as conservation (demand-side management), and groundwater storage.

MWD and its member agencies have also adopted the Water Surplus and Drought Management Plan (WSDM Plan), an Integrated Resources Plan (IRP) and the Strategic Plan and Rate Structure. The WSDM Plan establishes broad resource management strategies to ensure 100 percent reliability for non-discounted non-interruptible water demands through 2025.

Throughout the District's UWMP, we have referenced MWD's reports and MWD's draft Regional Urban Water Management Plan (RUWMP). Metropolitan's WSDM Plan includes extensive research and contains many descriptions, graphs and tables applicable to the District's UWMP.

The District obtains anywhere from 40 to 60 percent of its water supply from FMWD. FMWD is 100 percent reliant on MWD as a water source. The District has access to local groundwater, within the Verdugo Basin and an emergency water supply interconnection with the City of Glendale.

The District also obtains its local water supply from local groundwater in the Verdugo Basin. CVWD is a party to the 1979 adjudication of the San Fernando Basin. CVWD is also a member of the Administrative Committee, which oversees the Upper Los Angeles River Area (ULARA) Watermaster. The Watermaster is responsible for coordinating all groundwater pumping activities within the Verdugo Basin. A draft 2005 UWMP has also been submitted to the Watermaster's office for input and review.

## **1.2 Coordination with Other Agencies**

### **1.2.1 Water Conservation Alert System**

CVWD recognized a need to provide customers with a means to know and react to critical water supply/demand situations that occur from time to time in the community, particularly in times of drought or during seasonal high demand periods. The District desires for the customers to react to these seasonal peak demands and to "shave the peaks" as the electric utility industry has attempted to do, thereby water and money could be saved. The District developed such a notification system and began implementing it in June 2004, so as to reduce usage during summer peak demand periods. Furthermore, the District's system of community notification was coordinated and adopted by several neighboring agencies. This insured that the water conservation message would be uniformly presented throughout the areas served by several regional newspapers.

This simple and inexpensive notification system which uses a three color system allows the Community to know the status of water supply situation and make adjustments to their usage patterns. This resulted in a reduction of water usage during the peak times and thus reduced the burden on CVWD to possibility build new facilities that are pressed into service only a few times each year. To date we have noticed a 3.7% reduction in water consumption as compared to the same period last year.

The District kicked off its water conservation alert system (WCAS) in conjunction with Foothill Municipal Water District, La Canada Irrigation District, Mesa Crest Water, and Valley Water Company on June 25<sup>th</sup> 2004. This included the installation of the WCAS

signs and flag at CVWD's main office. This event also coincided with a mass mailing to all of the District's customers providing background information on the District's water supply situation, detailing the water conservation alert system, and asking for their support of the program. (Attachment B) In addition, the letter was placed on our website and translations were made in Armenian, Korean, and Spanish and were made available to our customers.

All of the local agencies within La Crescenta and La Canada worked together on the project. It was very well received by our customers and well documented in the local newspapers. The alert level was updated on a weekly basis, or as emergencies arise, the alert status is coordinated with all participating agencies and reported to the local newspaper for publication. Additionally, the alert level was communicated to our website at [www.cvwd.com](http://www.cvwd.com).

As the program progressed during the high peak season and with the co-operation of the other local agencies, additional signs were placed throughout the area in heavy pedestrian areas, and along highly traveled routes. These locations included the local libraries, fire stations, the local sheriff station, post offices, parks, and at major intersections near freeway ramps. For further visibility of the WCAS, the District placed magnetic signs on all of the District's vehicles. (Attachment C)

To compliment the WCAS, the District also initiated a water waster identification program. This program asked customers and employees to assist in water conservation by reporting any observed waste of water within the service area. The District contacted the customer and suggested ways to correct the situation. We observed that most of the reported problems in the area were caused by broken or maladjusted irrigation sprinklers. We had a very positive response from the people we contacted about their situation. Often, people contacted had not recently observed their sprinklers operations and were very grateful for the notification.

When the water waster identification program was first developed, the District only received a few reports per week. As word spread through out the community, the calls increased to an average of 14 per week during the high water demand season.

When a call was received, a form was generated (Attachment D) and the information would go into a database, so the District can track the types and frequency of the water problems that face our customers. During the "growing phase" of this program, the District realized there was a problem since we were unable to contact, via telephone, all of the customers that were reported through our water waster program. This issue was solved by creating a door hanger to inform our customers of our alert system, voluntary water conservation guidelines, and comments on the observed infraction. (Attachment E) The colorful signs were a success with our employees because of the ease of use and they also caught the attention of the home or business owner.

To further communicate our message to our customers, a PowerPoint presentation was developed that was given to local groups. (Attachment F) The presentation was

presented to all District employees and Board members as well as to the local Councils in La Crescenta and La Canada, the Chamber of Commerce, the Historical Society, the Los Angeles County Fire Department, and Los Angeles County, Supervisor's office.

The District also took a look at its large water users as a part of the WCAS program. Water users were separated in to residential, commercial and irrigation accounts. The District met with its large irrigation users, such as Caltrans, Los Angeles County Department of Parks and Recreation and Glendale Unified School District. We obtained their support for the WCAS and a commitment was made to turn off all irrigation water during critical alerts and to reduce watering during high alert periods. We also contacted high residential water users offering them a free home water audit and suggestions to reduce their outdoor water use.

During the summer high demand period the District observed a 3.7% reduced water consumption rate since the program's inception. The District would like to see the same or better results as the program swings back in full force starting in the spring of 2006. In addition to the water savings, the District believes it has built new bridges and made many alliances with other local water and public agencies and the local community. We have received support and recognition from the community and we are actively participating in educating the public on the importance of water conservation.

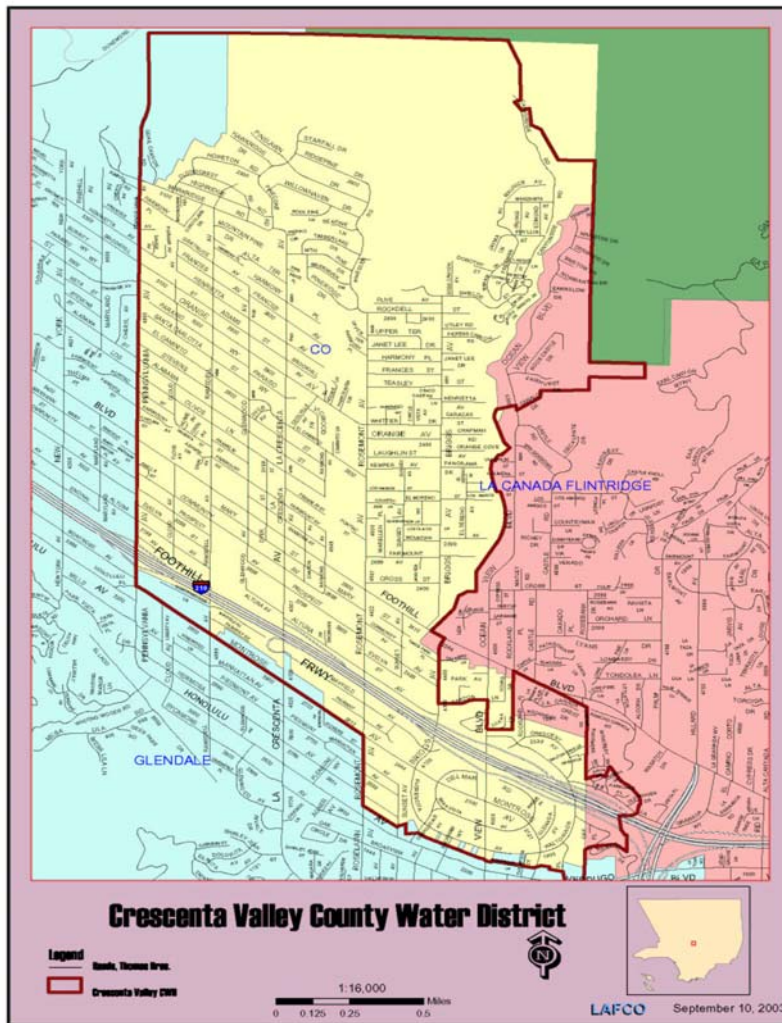
## Section 2 Contents of the Plan

### 2.1 Service Area Information and Projections

#### 2.1.1 Background

The District was incorporated in 1950 to serve water to a rapidly growing residential community north of the City of Los Angeles. Its service area (Figure 1) comprises approximately four square miles within the unincorporated areas of La Crescenta and Montrose, as well as portions of the Cities of Glendale and La Canada-Flintridge, in Los Angeles County.

**Figure 1**



as well as portions of the Cities of Glendale and La Canada-Flintridge, in Los Angeles County. The service area ranges in elevation from approximately 1,200 feet to almost 3,000 feet above sea level, due to the foothill location and sloping terrain.

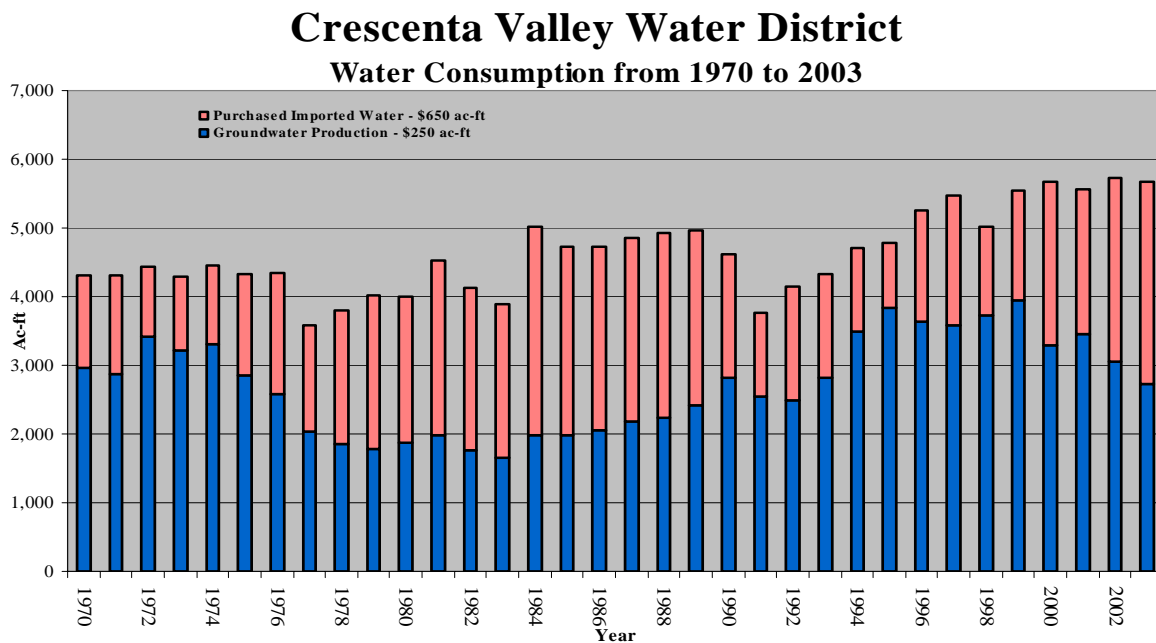
Land use in the service area is primary residential with two commercial /business corridors along Foothill Boulevard and Honolulu Avenue. Of the residential service, much of the area south of Foothill Boulevard continues to be converted over time to multi-family units as zoning permits. There are no industrial or agricultural water users within the District, and institutional users are limited to schools and parks and freeway landscaping.

The District currently provides water service to over 8,000 accounts and wastewater collection service to over 6,000 accounts. The District's service area is for the most part built-out with densification accomplished through single-family lot splits and conversion of single-family to multi-family dwelling units.

### **2.1.2 Distribution Facilities**

The District operates eleven (11) separate water pressure zones served by 16 pumping stations and 17 storage reservoirs totaling 17.5 million gallons

The District's water sources are 12 local groundwater wells, (average depth = 200 ft.) one mountain tunnel (gravity feed), the previously mentioned imported water supply through three separate FMWD/MWD connections and inter-tie systems with the City of Glendale. On a long term basis, approximately 50% of the District's annual water demand is met by the local groundwater supply and 50% by imported water. This ratio does change depending on the water supply conditions, weather, and demand. Historical water use data is shown in Figure 2.



**Figure 2**

The District serves its water through approximately 88 miles of distribution and transmission pipelines, ranging in diameter from 4 to 16 inches. A portion of the groundwater supply passes through a District owned and operated nitrate removal facility and further blended with imported water prior to distribution. This greatly enhances the District's ability to utilize the full adjudication of its groundwater supply in the local Verdugo Basin.

### **2.1.3 Demographics**

The population of the District's service area is estimated because there is no correlation between the latest Census blocks and the District boundaries. From the 2000 census information, a base population of 38,000 is assumed along with an annual average increase of 0.8% for the surrounding incorporated cities of Glendale and La Canada Flintridge. The resulting calculation yields Table 2.1 below.

The estimated mean gross income is \$70,397 from the muninet guide and the median home price is approximately \$665,000 with a median age of 57 years according to Los Angles County Title Records.

There is no industry in the Districts service area and less than 5% commercial or institutional accounts. The District does not anticipate any significant increases in employment for the area based on the land availability and the zoning.

**Table 2.1**  
**Current and Projected Population**

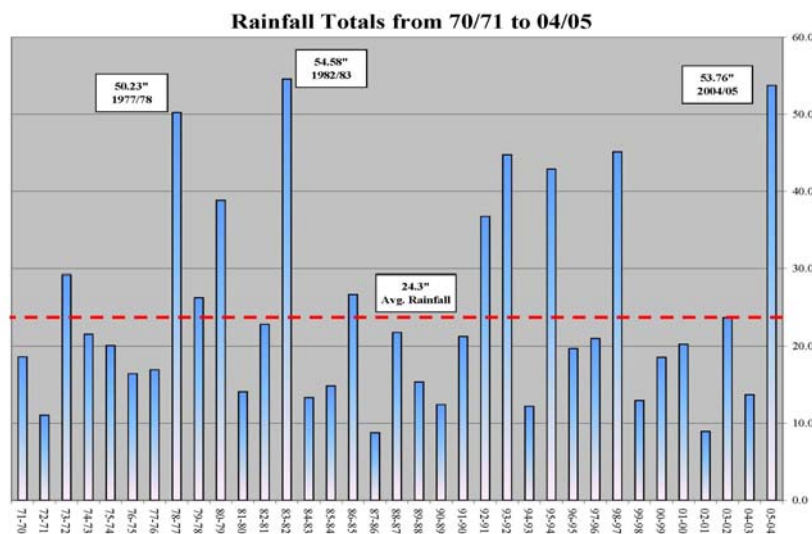
Source: California Department of Finance (2005)

	2005	2010	2015	2020	2025	2030/opt
Service Area Population	38,500	38,900	39,000	39,700	40,000	40,500
Estimate rounded to nearest 100						

The 0.8% annual average increase was obtained from the California Department of Finance statistical records. As mentioned in the background information, there is no industry in the District's service area and densification will occur as single family lots are converted to multi-family dwellings were it is allowed by zoning classification and the governing agency.

**2.1.4 Climate**

The Crescenta Valley has a Mediterranean climate, with a “foothill” characteristic, specifically, but with some coastal influence. Summers are warm to hot, and dry while winters are cool and have an annual average precipitation of approximately 24 inches. The District’s administrative office is the site of a certified rain station gauge and Figure 3 shows the wide annual (October through September) variations from 1970 through 2005.



**Figure 3**

Another feature of this foothill Mediterranean climate is the frequency of high-velocity, low-humidity, northeasterly winds in the fall and early winter. Therefore, the Crescenta Valley is highly prone to wildfire danger during these periods. Adequate storage of reservoir water supply is deemed critical by the local fire jurisdictions.

**Table 2.2  
Climate**

	Jan	Feb	Mar	Apr	May	June
Standard Average ET	2.20	2.45	3.64	4.74	5.31	6.06
Average Rainfall (inches)	4.11	4.52	3.40	1.46	0.37	0.15
Average Temperature	66.9	68.4	70.4	74.0	76.8	81.6

	July	Aug	Sep	Oct	Nov	Dec	Annual
Standard Average ET	6.75	6.66	5.01	3.95	2.73	2.31	51.81
Average Rainfall (inches)	0.03	0.11	0.35	0.69	1.87	2.94	20.01
Average Temperature	88.6	89.5	87.6	81.1	73.9	67.8	77.2

## **2.2 Water Sources**

### **2.2.1 Recent Water Use History**

The local region and much of the state experienced a prolonged drought from 1984 through 1991. The District was able to meet its customers' water demands during this period through its normal supply of local groundwater and imported purchased water through FMWD/MWD. Community involvement and statewide public education about water conservation in general during the late 1980's led to the District's reduced total water production by 1990, which had been increasing dramatically during the early years of the drought due to landscape demands.

In early 1991, the District adopted an emergency water conservation ordinance and implemented Phase I voluntary water consumption reduction measures for its customers. These measures were generally successful in reducing customer demand for the three-year period 1991-1993.

However, in 1992 and 1993, winter rains were plentiful and the statewide drought had ended. Locally, the Phase I conservation measures of the District were curtailed, and in spite of continuing water conservation efforts and education from the District and regional water community. Demand increased dramatically in 1994. Since then, the District's water demand has remained very high and has been generally increasing through 2005.

In 1998 the District revamped its ordinance into the system that still exists today as the rules and regulations. A Phase one and Phase two Water Conservation policy was adopted in place of the Emergency Water Conservation Ordinance. (Attachment G) While a phase three water conservation plan with fines and penalties much like the

1991 emergency water Conservation ordinance has been discussed, to date that has not been added to the rules and regulations.

The District's Year 2004 total water production was approximately 20% greater than that in 1994. The increase during this 10-year period was not consistent with expected demand use, as demand is generally correlates with annual rainfall (wet years = less demand). Nevertheless, it is quite apparent that the increase in customers' water use far exceeded that which might have been expected from District service area population growth for this period, estimated to be in the range of 6% - 8%.

The relatively high water consumption by District customers in the past ten years is most likely due to public complacency. During the first five years of this period there was a wetter than normal years resulting in abundant regional water supplies. However, the last five year the area experienced less than average rainfall, which resulted in less of a local groundwater supply. There has been little to no mass media coverage of potential water shortages and water conservation efforts until the last two years. The District's customers have apparently reverted back to inefficient water-use habits in spite of various demand management measures (see Section 6) undertaken by the District, FMWD, and the regional water supplier MWD.

As mentioned in Section 1, the District receives its water supply from two sources, local District-owned groundwater wells, and purchased imported water from FMWD, CVWD also has an emergency interconnection with the City of Glendale. The current and projected supplies are shown in Table 2.14 for a 20-year planning horizon.

### **2.2.2 Imported Water**

The District supports a portion of its groundwater production by purchasing imported water from FMWD. This imported water is fully treated surface water from MWD's blend of State Water Project and Colorado River Aqueduct waters. It meets all CDHS drinking water standards, although is generally high in total dissolved solids (TDS) and hardness content. In the past 10 years, the District has purchased amounts ranging from approximately 1,000 AF to nearly 3,100 acre-feet (AF) annually. The District is entitled to a capacity of 8.85 cfs (3,972 gpm) through its metered FMWD connections with no daily limitations. This imported water capacity was upgraded in 2003 from 7.4 cfs to 8.85 cfs which will be adequate to meet a portion of the historical and future demands of the District.

**Table 2.3  
Current and Planned Water Supplies – AF/Y**

<b>Current and Planned Water Supplies without recharge (AF/Y)</b>					
<b>Water Supply Sources</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
Groundwater and Imports	5,303	5,653	5,941	6,244	6,563

### 2.2.3 Groundwater

In the past ten years, the District has pumped groundwater ranging from 2,500 to more than 3,900 acre-feet. The Verdugo Groundwater Basin, a sub-basin of the San Fernando Basin which is within the Upper Los Angeles River Area (ULARA) Groundwater Basin, was adjudicated in a court decision in 1979 and is controlled by the ULARA Watermaster. The District's prescriptive rights in the Verdugo Basin are 3,294 AF/YR annually. Excess pumping is allowed by the Watermaster on an annual basis as long as the Verdugo Basin storage conditions are in a surplus condition. To date, the neighboring City of Glendale, as the only other basin rights holder, has not pumped its full adjudication (3,856 AF/YR) in the Verdugo Basin. In any year, the Watermaster may allow excess pumping within the Basin by either party as long as the total yield of 7,150 acre-feet annually is not exceeded.

The water quality of the Verdugo Basin is high in nitrates and selected wells show the presence of VOC's (Tetrachloroethylene (PCE)) above the California Department of Health Services (CDHS) maximum contaminant levels (MCLs). Groundwater containing nitrate is either blended with imported water and/or treated at the District' Glenwood Nitrate Reclamation Facility to meet drinking water standards. Blending with other well water or imported water is sufficient to supply water at less than the MCL for PCE as approved by CDHS.

It is the District's goal to maintain full groundwater pumping capabilities in the Verdugo Basin to pump at least its adjudicated right of 3,294 AF every year. As can be seen from Table 2.4, the District has a projection of 3,294 AF/year of groundwater. Glendale is working on a new project that is planned to be constructed within the next few years that will replace their existing wells, which may result in their ability to increase their water production. Since the 2000 UWMP the District implemented a long-term capital improvement program to rehabilitate the original 10 wells and installed two new wells using modern techniques and in compliance with current State sanitary standards. In addition, the District is planning to install a least two (2) new wells to replace the older wells.

**Table 2.4  
Groundwater Pumping Rights – AF/Y**

Basin Name	Pumping Right – AF/Y
Verdugo Basin	3,294
City of Glendale	3,856
<b>Total</b>	<b>7,150</b>

**Table 2.5  
Amount of Groundwater pumped – AF/Y**

Basin Name (s)	2000	2001	2002	2003	2004
Verdugo Basin	3412	3276	2842	2575	3310
% of Total Water Supply	61	56	50	44	63

**Table 2.6  
Amount of Groundwater projected to be pumped – AF/Y**

<b>Basin Name(s)</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Verdugo Basin</b>	3100	3100	3100	3100
<b>% of Total Water Supply</b>	54	52	50	47

**2.2.4 Groundwater Management Plan**

The District owns and operates 12 production wells in the Verdugo Basin. The Verdugo Basin is an adjudicated basin within the Upper Los Angeles River Area (ULARA). The basin has an adjudicated "safe yield" of 7,150 acre-feet per year (AF/Y). The District shares groundwater rights in this basin with the City of Glendale. As the only two water-rights holders in the Verdugo Basin, the District has an annual entitlement of 3,294 acre-feet and the City of Glendale have an annual entitlement of 3,856 acre-feet.

ULARA is the watershed or surface drainage area tributary to the upper Los Angeles River. The watershed consists of a total of 329,000 acres, including approximately 123,000 acres of valley fill area and 206,000 acres of hill and mountain areas, located primarily in the County of Los Angeles, with a small portion in the County of Ventura. The San Fernando Basin is the major groundwater basin in ULARA and underlies 112,047 acres. Other basins include the Sylmar, Verdugo and Eagle Rock basins.

**2.2.4.1 ULARA Adjudication**

The Verdugo Basin is a groundwater basin within the adjudicated ULARA. The District overlies much of the Verdugo Basin and is one of five parties that participate in ULARA's formalized basin-wide planning program for groundwater resources. Although no AB3030 (groundwater management plan) plan exists for the ULARA basins, groundwater resource management is coordinated through the court-appointed ULARA Watermaster with active participation of all parties to the Judgment including the District.

On January 26, 1979 the Superior Court of the State of California for the County of Los Angeles rendered the Judgment in "The City of Los Angeles, Plaintiff, vs. City of San Fernando, et al., Defendants" (ULARA Adjudication, see Attachment H). The Judgment assigned specific water rights to each of the major purveyors in the four groundwater basins and physical solutions to various private pumpers who were part of the original adjudication. It also characterized basin hydrology and geology, set forth provisions and stipulations regarding storage of water and imported return water credits, and designated the appointment of a Watermaster and Administrative Committee to manage ULARA. The Watermaster serves at the pleasure of the Court.

The Watermaster is responsible for administering the Judgment, managing water rights, ensuring the basin objectives of safe yield operation and managing the groundwater quality of the basin. To that end, the Watermaster provides the following services: reports information and records necessary to determine compliance or lack of compliance; collects data to verify conditions; calculates and reports annually on hydrological conditions and Watermaster activities, and works cooperatively with agencies to secure and exchange data to cooperatively manage ULARA.

The goals and objectives of ULARA are set forth in the revised (1998) "Watermaster Service, ULARA Policies and Procedures" (see Attachment I). The Policies and Procedures guide the Watermaster in performance of his duties, powers and responsibilities. The ULARA goals and objectives are as follows:

- Administration of water rights as established by the Judgment;
- Accounting procedures for groundwater extractions and storage;
- Management of groundwater quality;
- Establishment of the Administrative Committee, and
- Compliance with reporting requirements and procedures.

#### **2.2.4.2 Stakeholder Support**

Stakeholder support of the ULARA adjudication, and hence basin management, is best exemplified by participation in the Administrative Committee (Committee). The Committee was formed by authority of the Judgment to advise, request or consent to, and review actions of the Watermaster.

The Committee is composed of one representative of each party having a right to extract groundwater from ULARA. Those parties are: the District, the City of Los Angeles, the City of Burbank, the City of Glendale and the City of San Fernando. The Committee meets bi-monthly at the request of the Watermaster.

#### **2.2.4.3 Implementation of Plan**

The Watermaster meets quarterly to update Judge Susan Bryant-Deason of the Superior Court, who has continuing jurisdiction over the Judgment and the ULARA Watermaster activities.

As previously mentioned, the Administrative Committee (AC) consists of one member from each of the water rights holders in ULARA - Los Angeles, Burbank, Glendale, City of San Fernando, and Crescenta Valley Water District. The Watermaster meets at least quarterly with the AC to seek their advice and consent on various issues and to discuss topics of mutual interest including basin management and groundwater treatment facilities.

The Interagency Coordinating Committee (ICC) consists of representatives of public agencies, corporations, and consulting firms and is chaired by the Watermaster. The ICC meets quarterly to discuss topics involving groundwater cleanup projects within ULARA, including contaminated industrial sites, treatment facilities, aquifer management, and landfills.

The Watermaster holds regular meetings with the Regional Water Quality Control Board, Los Angeles Region, to discuss existing and former contaminant sites (e.g. landfills, leaking underground storage tanks) that may impact water quality management activities in the San Fernando Basin, the Sylmar Basin, the Verdugo Basin, and the Eagle Rock Basin.

Watermaster staff is a member of the City of Los Angeles' Integrated Resources Plan (IRP) Management Advisory Committee. The IRP is the City's long-term plan to

integrate and upgrade potable water, wastewater, and stormwater facilities for the next 20 years.

### **2.2.5 Reliability of Supply**

The mission of the Crescenta Valley Water District is to provide dependable water service and wastewater collection to its constituents in La Crescenta, Montrose, and portions of Glendale, and La Canada Flintridge.

In carrying out this mission, the District places special emphasis on delivering a high quality water supply and system reliability at the most reasonable cost to its ratepayers. The District endeavors to promote conservation of its resources and to perform all operations in the most efficient manner to meet the needs of the community.

In addition to climate, other factors that can cause water supply shortages are earthquakes, fire storms, and energy outages at treatment and pumping facilities. CVWD includes the probability of catastrophic events when using the reliability planning approach.

Reliability planning requires information about: (1) the expected frequency and severity of shortages; (2) how additional water management measures are likely to affect the frequency and severity of shortages; (3) how available contingency measures can reduce the impact of shortages when they occur.

Metropolitan's IRP and WSDM Plan will be used to direct Metropolitan's resource operations to help attain the region's 100% reliability goal. As such, FMWD (CVWD's water wholesaler) provides Metropolitan with demand information for its planning efforts. Table 2.7 below reflects FMWD's projections provided to Metropolitan.

**Table 2.7  
Agency Demand Projections  
Provided to Wholesale Suppliers – AF/Y**

<b>Wholesaler</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
<b>Metropolitan</b>	14,270	16,084	16,912	17,757

Based on meeting the IRP goals along with the supply buffer that Metropolitan has planned for, it is expected that FMWD through Metropolitan will be able to meet all of its demands during normal, single dry and multiple dry years. Please refer to Metropolitan's IRP and UWMP for a complete discussion of these sources of supply.

The following table reflects Metropolitan's projected wholesale reliability for an average year. The table is from Metropolitan's draft RUWMP, page II-14.

**Table 2.8**

**Table II-9  
Average Year  
Supply Capability<sup>1</sup> & Potential Reserve or Replenishment  
(Average of 1922 – 2004 Hydrologies)  
(acre-feet per year)**

	2010	2015	2020	2025	2030
<b>Current Supplies</b>					
Colorado River Aqueduct <sup>2</sup>	711,000	678,000	677,000	677,000	677,000
California Aqueduct <sup>3</sup>	1,772,000	1,772,000	1,772,000	1,772,000	1,772,000
In-Basin Storage	0	0	0	0	0
<b>Supplies Under Development</b>					
Colorado River Aqueduct	0	0	0	0	0
California Aqueduct	185,000	185,000	240,000	240,000	240,000
In-Basin Storage	0	0	0	0	0
<b>Transfers to Other Agencies</b>	0	(35,000)	(35,000)	(35,000)	(35,000)
<b>Metropolitan Supply Capability</b>	<b>2,668,000</b>	<b>2,600,000</b>	<b>2,654,000</b>	<b>2,654,000</b>	<b>2,654,000</b>
<b>Metropolitan Supply Capability w/CRA Maximum of 1.25 MAF<sup>4</sup></b>	<b>2,668,000</b>	<b>2,600,000</b>	<b>2,654,000</b>	<b>2,654,000</b>	<b>2,654,000</b>
<b>Firm Demands on Metropolitan<sup>5,6</sup></b>	<b>2,040,000</b>	<b>2,053,000</b>	<b>1,989,000</b>	<b>2,115,000</b>	<b>2,249,000</b>
<b>Potential Reserve &amp; Replenishment Supplies</b>	<b>628,000</b>	<b>547,000</b>	<b>665,000</b>	<b>539,000</b>	<b>405,000</b>

<sup>1</sup> Represents supply capability for resource programs under listed year type.

<sup>2</sup> Colorado River Aqueduct includes water management program supplies conveyed by the aqueduct

<sup>3</sup> California Aqueduct includes Central Valley transfers and storage program supplies conveyed by the aqueduct

<sup>4</sup> Maximum CRA deliveries limited to 1.25 MAF including SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.

<sup>5</sup> Based on SCAG 2004 RTP, SANDAG 2030 forecasts, projections of member agency existing and contracted active conservation and local supplies, remaining regional targets for active conservation and local supplies, SDCWA/IID Transfer supplies and Coachella and All-American Canals lining supplies.

<sup>6</sup> Includes projected firm sales plus 70% of projected LAWP agricultural sales

As noted, during an average year Metropolitan has enough supplies to meet all demands with water in reserve should it be necessary.

**2.2.6 General**

To plan for long-term water-supply reliability, the District must examine additional sources of supply and other options to determine the best courses of action to meet future water service needs. The District's success in meeting these needs will be deemed a measure of our reliability.

**Table 2.9  
Supply Reliability - AF Year**

Average/Normal	Single Dry	Multiple Dry Water Years			
		Year 1	Year 2	Year 3	Year 4
5,660	5,866	4,823	5,864	5,576	5,866
% of Normal	104%	85%	104%	99%	104%

**Table 2.10  
Basis of Water Year Data**

<b>Water Year Type</b>	<b>Base Year(s)</b>
<u>Normal Water Year</u>	<u>Five-year average (2001-2005)</u>
<u>Single-Dry Water Year</u>	<u>2001-02</u>
<u>Multiple-Dry Water Years</u>	<u>1998-1999; 1999-00; 2000-01; 2001-02</u>

**2.2.7 Additional Sources of Water Supply**

**2.2.7.1 Purchases from FMWD/MWD:** As can be seen in Table 2.3, it is assumed that growth in the District’s water demand will be met by additional purchases of imported water from FMWD/MWD in normal years.

**2.2.7.2 Recycled Water:** As discussed in Section 5, the feasibility and costs to install a recycled water system for use in the District service area was not encouraging. However, because of the amount of water used for landscape irrigation, a more detailed study with a benefit/cost analysis was justified. In late 2003 the District contracted with Bookman Edmonston Consultants to perform a Recycled Water Feasibility Study. The report (Attachment J) showed that the capital cost of the Caltrans Market Alternative is \$4,580,870 and the estimated deliveries are 156 acre-feet per year. Using a 40-year capital recovery period and a five percent interest rate the cost would be \$2,585 per acre foot. The capital cost of the Expanded Market Alternative is \$ 5,355,040 and the estimated deliveries are at most 310 acre-feet per year. Using a 40-year capital recovery period and a five percent interest rate the cost would be \$1,771 per acre foot. The retail price for water within the study area varies from approximately \$750 per acre foot to \$1,000 per acre foot. Clearly, recycled water at \$1,771 to \$2,585 per ac-ft is not an affordable option.

**2.2.7.3 Conjunctive Use:** One potential for additional future water supply for the District lies in conjunctive use efforts of FMWD. The District may benefit indirectly from FMWD/MWD cooperative storage agreements in the nearby Raymond Groundwater Basin, at least during periods of water shortage, when FMWD would be able to make stored water available to all its member agencies.

Another potential future water source would be recharging the Verdugo Basin with local storm water. This concept was explored by the District and its consultant, Geomatrix (Geomatrix) Consultants as part of a DWR Local Groundwater Management Assistance grant. The Local Groundwater Management Assistance Act of 2000 (AB 303) authorizes grants for local public agencies to study groundwater resources, to conduct groundwater studies or to implement groundwater monitoring and management activities.

CVWD and Geomatrix prepared a Groundwater Recharge, Storage, and Conjunctive Use Feasibility Study of the Verdugo Basin. The study included:

- A. Evaluate & Model Basin Hydrogeology
- B. Evaluate Sources of Additional Water
- C. Evaluate Artificial Recharge Options
- D. Make Recommendations for Recharge Program and Meeting Other Data Needs

The executive summary for this report was completed in July 2005 and is included as Attachment K.

To further development of the concept of stormwater recharge and to refine the groundwater model, the District was awarded another AB303 grant to perform a geophysical study of the Verdugo Basin. This geophysical study will allow for a better understanding of the underground formations and determine the types of soil materials, the depths to bedrock and enhance the District's ability to increase the use of local groundwater within the Verdugo Basin. The District has retained the services of Geomatrix Consultants, Inc. and GeoVision, Inc. to carry out this study.

This grant is the third Local Groundwater Assistance Grant that the District has received since 2000 at a total of \$685,000. Each of these grants has allowed the District to have a better understanding of the Verdugo Basin, which allows CVWD to better utilize its local water resource.

**2.2.7.4 Purchased Water from the City of Los Angeles:** The District has applied for grant funding under the State's Proposition 50, which was a voter approved statewide initiative for water projects for a new emergency water supply interconnection with the City of Los Angeles. The District has been included on the State's preliminary priority list for this project and has filed a "Notice of Intent" with the State. The proposed emergency water supply connection will allow CVWD to purchase about 1000 gpm of water from Los Angeles and have the ability to provide water to FMWD in case of a major shutdown by MWD.

**2.2.7.5 Water Conservation:** The demand management measures described in Section 3 have resulted in a per capita decline in District water consumption over a 5-year period. Attachment L shows the water demand comparison to our baseline conservation year defined as May 1 2001 through October 31<sup>st</sup> 2002. The Water Demand Comparison as reported in the General Managers Report is discussed bi-monthly at the District's Board Meeting (Attachment M). The District fully intends to remain progressive by continuing to enhance a water conservation ethic through the programs and efforts described in Section 3. Water conservation may be the sole option for meeting District demand during declared emergency shortage periods as discussed later in Section 4.

### **2.2.8 Transfer and Exchange Opportunities**

**Transfers & Exchanges.** The District has an intertie with neighboring La Canada Irrigation District for emergency water transfer. The District and the City of Glendale have established six (6) "zone to zone" dedicated fire hydrant connections for emergency water transfer use. Emergency water wheeling can theoretically take place from Burbank to Glendale to Crescenta Valley to La Canada-Flintridge to Pasadena. The latter two cities are able to participate in the exchange process through FMWD's normal service connections and two interties with the City of Pasadena. At this time, the District has no agreements for any water supply exchange beyond what may be required during disaster conditions.

With Prop 50 funding, the District will be starting a new emergency water supply interconnection project. The new project which is scheduled for completion in January

of 2008 includes four interties. Two new interties will be constructed, one at Honolulu and Lowell streets (Honolulu), the other at the Ocean View Reservoir (Ocean View). Two additional interties will be upgraded to increase throughput, one at the Berkshire Station (Berkshire), and another at the Main Plant. While these latter two interties already exist, they do not have adequate capacity. Without upgrading, the two latter interties the water supply cannot be redistributed between CVWD and the other residential water systems that are supplied by Foothill Municipal Water District (FMWD). FMWD sells Metropolitan Water District of Southern California (MWD) water to eight member water agencies.

The proposed new interconnection at Honolulu will connect CVWD with the City of Los Angeles Department of Water and Power (LADWP). It will permit CVWD to take 1.4 mgd of water from LADWP. 1.4 mgd represents about 40% of CVWD's average day water demand during a local emergency.

**Table 2.11  
Transfer and Exchange Opportunities – AF/Year**

<b>Source Transfer Agency</b>	<b>Transfer or Exchange</b>	<b>Short term</b>	<b>Proposed Quantities</b>	<b>Long term</b>	<b>Proposed Quantities</b>
City of Glendale - Emergency Interconnection	Transfer	X			Max - 5.0 cfs

**2.2.9 Regional Reliability and Vulnerability**

The District is fortunate that its local groundwater supply makes up about 50% of its annual demand and is under its own control on a daily basis. This provides potential flexibility in meeting customer needs during an emergency or critical condition which may be severely diminish due to the availability of the imported FMWD/MWD supply. The well rehabilitation program described in Section 2.23 will insure the reliability of this local supply for many years to come.

However, in addition to natural disasters such as earthquakes which may cutoff major imported water supply lines, the vulnerability of the regional water supply which will affect all Southern California on a long-term basis is due to:

1. Projected regional population increases at the rate of approximately 1% per year;
2. The need to protect and manage ecosystems dependent on water supplies; i.e. an environmental demand on the water supply; and
3. Lack of an integrated statewide approach to water management. The current MWD Strategic Planning Process and the Statewide CALFED Process are as yet unrealized attempts to promote truly statewide water management plan.

**2.2.10 Past, Current, and Projected Water Use**

As can be seen from Table 2.12 new water service connections are being added at a very low rate and the District expects to maintain the low growth rate into the future.

**Table 2.12  
Past, Current and Projected Water Deliveries (AF/Y)**

Year		Water Use Sectors	Single family	Multi-family	Commercial	Industrial	Inst / gov	Land-scape	Agri c	Total
2000	Metered	# of accounts	6650	785	323	0	56	30	0	7844
		Deliveries AF/Y	3125	950	180	0	165	240	0	4660
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0
2005	Metered	# of accounts	6717	795	326	0	58	32	0	7928
		Deliveries AF/Y	3300	1000	200	0	140	150	0	4790
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0
2010	Metered	# of accounts	6770	805	330	0	60	35	0	8000
		Deliveries AF/Y	3400	1075	210	0	180	280	0	5145
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0
2015	Metered	# of accounts	6830	820	340	0	65	40	0	8095
		Deliveries AF/Y	3520	1150	225	0	200	300	0	5395
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0
2020	Metered	# of accounts	6900	840	350	0	65	40	0	8195
		Deliveries AF/Y	3600	1250	250	0	220	350	0	5670
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0
2025	Metered	# of accounts	6970	860	360	0	70	45	0	8305
		Deliveries AF/Y	3750	1300	270	0	240	400	0	5960
	Un-metered	# of accounts	0	0	0	0	0	0	0	0
		Deliveries AF/Y	0	0	0	0	0	0	0	0

**Table 2.13  
Additional Water Uses and Losses – AF/Year**

<b>Water Use</b>	<b>2003</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
Saline barriers	0	0	0	0	0	0
Groundwater recharge	0	194	194	194	194	194
Conjunctive use	0	0	0	0	0	0
Raw water	0	0	0	0	0	0
Recycled	0	0	0	0	0	0
Other (define) Flushing	15.5	15.5	15.75	16	16.25	16.5
Unaccounted-for system losses	500	350	325	325	340	360
<b>Total</b>	<b>515.5</b>	<b>559.5</b>	<b>534.75</b>	<b>535</b>	<b>550.25</b>	<b>570.5</b>

**Table 2.14  
Total Water Use – AF/Year**

<b>Water Use</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
Sum of Tables 12, 13, 14	5175.5	5349.5	5679.75	5930	6220.25	6530.5

**2.2.11 Residential Sector**

Table 2.12 shows that the great majority (86%) of water sold by the District in the current year 2005 goes to residential use. This percentage appears to be the same as the last UWMP update in 2000. Per capita trends are estimated due to the uncertainty of the population estimates in the District’s service area as mentioned in Section 2.1.3. However, the population growth within the area is relatively small.

**2.2.12 Commercial Sector**

The commercial sector of the District’s service area is minor, accounting for only about 4% of the District’s water demand. The commercial customers are all light retail or small office and the sector is growing at less than 1% per year. Zoning restrictions and available land will limit growth in the sector in the District’s service area.

**2.2.13 Institutional Sector**

The District’s institutional customers consist of primary schools, a high school, a regional sheriff’s station, three local fire stations, a county public works yard, and churches and retirement homes. Water consumption by this sector constitutes only 3% of District demand with minimal growth expected.

**2.2.14 Industrial Sector**

There is no industrial sector located within District boundaries. Zoning restrictions and available land limits growth in the sector in the District’s service area.

### **2.2.15 Landscape/Recreational Sector**

This sector comprises approximately 4% of the District's water demand with very minimal growth expected. Customers consist of the Caltrans freeway right-of-way irrigation and three local parks.

### **2.2.16 Water System Losses**

In 2004 the District hired Worldwide Water Utility Services to perform a leak detection water system survey on the District's complete system which is approximately 88 miles. Their task was to detect and pinpoint water system leakage, quantify system losses, determine monetary recover to the water utility, to assess system proneness to non-surfacing leaks, and to inspect and report damage or broken appurtenances that y pose potential public liability risks. The water system is comprised almost entirely of steel mains, which are prone to pinhole leaks, the soils throughout the area are rocky and porous presenting a high potential for non-surface leaks. Unaccounted for water losses were reported as approximately 7%. The District has fixed all of the leaks reported in this survey. The District performed the survey again in 2005 which again yielded a 7% result for unaccounted for water. The District repaired all leaks found as a result of the survey. Budget permitting, it is the District's intention to perform a system wide audit every fiscal year to maintain and even minimized the total system losses. The summary page from report for 2004 and 2005 are included as Attachment N.

District efforts to reduce these losses are discussed in Section 3.1.3.

### **2.2.17 Water Supply and Demand Comparison**

The projected water supplies envisioned in Table 2.1.4 are based on the assumption that the supply through FMWD/MWD will continue to grow to meet the District's demand. This assumption is derived from FMWD's intention to meet its customers' needs through 2020 during average precipitation years. Indeed, MWD has a 100% reliability goal over the next 10 year period as stated in the FMWD 2005 UWMP.

## Section 3 Demand Management Measures

The District is committed to implementing water conservation and water use efficiency programs and if feasible, water recycling. This Section discusses the District's efforts in these demand management measurements.

The District is not a signatory to Memorandum of Understanding regarding Urban Water Conservation in California and is therefore not a member of California Urban Water Conservation Council. For the purpose of responding to the Urban Water Management Planning Act, the District will address the 16 Demand Management Measures (DMM's).

### **3.1 Demand Management Measures**

#### **3.1.1 DMM-A: Water Survey Programs for Single-Family Residential and Multifamily Residential Customers**

The District offers formal water audits for single family homes and District staff was responsible for all audit functions. A copy of the survey form is attached as Attachment O. In addition to audits, customer service staff responds to residential and commercial requests for investigation of high water bills. The investigation consists of meter leak tests, meter accuracy testing, property leak check, irrigation system analysis, or complete "on-premises" water audit. A water bill adjustment is given to all customers who demonstrate that they have repaired an on-site leak along with proof of the repair. This appears to be an effective water conservation measure although savings cannot be quantified until audit forms are developed and utilized (see DMM-14). At present time, it is the District's intention to out source water audits. The firm WaterWise is available to take over this program and a copy of their sample report is attached as Attachment P.

In addition, the District's utility billing software identifies customers that exceed a higher-than-normal usage threshold in a given billing period, which prompts staff to for further investigation as described above. Staff costs for this measure are part of customer service overhead.

**Table 3.1  
Actual No. of Single and Multi-Family Customers**

Table A1 - Actual	2001	2002	2003	2004	2005 (proj)
# of single family surveys	0	0	12	48	75
# of multifamily surveys	0	0	0	0	0
actual expenditures - \$	0	0	*850	*1250	11250

**Table 3.2  
Projected No. of Single and Multi-Family Customers**

Table A2 - Planned	2006	2007	2008	2009	2010
# of single family surveys	100	125	150	175	200
# of multifamily surveys	0	5	5	10	10
projected expenditures - \$	26000	27250	32500	40000	45000

In 2004, water audits were performed in-house by existing staff. The costs of labor are not included in actual expenditures. In 2006, water audits are proposed to be done by an outside vendor

**3.1.2 DMM-B: Residential Plumbing Retrofit**

The District participates in the distribution of low-flow showerheads, aerators, hose shut-offs, water buckets and toilet-tank leak detection kits at its customer service counter and various local outdoor events. Assuming each device saves 3 gallons per day, approximately 3.4 Acre-feet are saved annually. The District’s ultra-low flush toilet program is discussed under DMM-N.

The District works with the local building/planning departments of the City of La Canada Flintridge, City of Glendale, and County of Los Angeles to assure enforcement of the ultra low-flush toilet installation requirements for new construction, and supports the prohibition of sale of toilets using more than 1.6 gallons per flush. Developer's needed fire-flow certificates, “will-serve” certificates, and ultimately water service connections are used as ways to insure compliance.

The District will continue to implement DMM-B and costs for this measure are included as part of the staff's salaries.

**Table 3.3  
Actual No. of Residential Plumbing Retrofit**

<b>Table B1 – Actual</b>	<b>1992-2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
# of single or multi-family devices	*421	146	255	** 378	**426
actual expenditures - \$	0	0	0	0	0

Actual expenditures are calculated at zero as all the devices are provided at no cost to the District from MWD. Staff time and labor are not broken down to this detail.

\*\*includes 250 low flow shower heads.

**Table 3.4  
Planned No. of Residential Plumbing Retrofit**

<b>Table B2 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
# of single or multi-family devices	300	325	350	375	400
projected expenditures - \$	0	0	0	0	0

Actual expenditures are calculated at zero as all the devices are provided at no cost to the District from MWD. Staff time and labor are not broken down to this detail.

### **3.1.3 DMM-C: Water System Audits, Leak Detection, and Repair**

The District monitors water loss in its distribution system on an annual basis, using the calculation of “unaccounted-for” water, which is currently at approximately 7%. The District repairs all known distribution system and service connection leaks immediately as the highest priority.

A significant portion of these losses could be attributed to meter inaccuracy. The District has embarked on a meter replacement program to replace all meters installed prior to 1990. It is anticipated that this will be completed within the next year. In addition, the District is planning to install an automated meter reading (AMR) system within the next five years. The proposed AMR system will assist the District in detect leaks on the customer's side of the meter.

It appears that distribution system leaks are the most-likely culprit for loss water. The District has and will be continuing on its water main replacement program and is planning on a 20-year schedule to replace its deficient pipelines. CVWD prioritize its pipe replacement program by leak history, pipe size, fire-flow rates, and age. The District will be completing a new water master plan that will further address deficiencies in the system.

In 2004, The District contracted with Worldwide Water Utility Services to perform a water leak survey of its system. The survey was performed again in 2005 and the District is planning on performing the survey annually, budget permitting. As mentioned in section 2.2.16 a summary of the results of the surveys are included as Attachment N.

**Table 3.5  
Actual No. of Water System Audits, Leak Detection, and Repair**

<b>Table C1 - Actual</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
% of unaccounted water	9.14	6.69	8.72	7%	7%
miles of distribution lines surveyed	0	0	0	86	86
Leaks to be repaired	0	0	0	10	4
actual expenditures - \$	0	0	0	13665.00	15250.00
actual water savings – AF/Y	0	0	0	37.5	8.79

**Table 3.6  
Planned No. of Water System Audits, Leak Detection, and Repair**

<b>Table C2 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
% of unaccounted water	6%	6%	5%	5%	4%
miles of distribution lines to be surveyed	86	86	86	86	86
Leaks to be repaired	4	3	3	3	3
projected expenditures - \$	16000	16500	16900	17300	18000
projected water savings – AF/Y	6.0	5.0	4.5	4.5	4.5

**3.1.4 DMM-D: Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections**

The District is fully metered for all customer sectors including separate meters for single-family residential, commercial, large landscapes, and all institutional facilities. Multi-family residential complexes have generally been master-metered but currently each such new development in this category is reviewed on a case by case basis with separate metering for each independent structure or even dwelling unit where installation is feasible from an engineering standpoint. The District’s 785 multi-family complexes represent approximately 4145 dwelling units.

The District has a commodity rate structure based upon a billing unit of 1000 gallons, commonly abbreviated as Kgal. The structure is a flat rate, currently \$3.32 per Kgal and a monthly fixed charge based upon meter size. The District offers a senior-low income 10% discount on all water/sewer bills where the single family dwelling account holder meets specific age and annual income criteria.

The District’s maintains many independent fire protection services for both residential and commercial properties as required by the local building jurisdiction (Glendale, La Canada Flintridge, or L. A. County) and each such fire service is independently metered.

The District reviews new development on a case-by-case basis and requires separately-metered landscape irrigation services for extensively landscaped properties where feasible.

The District’s water conservation incentive pricing for sewer service is discussed herein under DMM-K.

The District will continue to install and read meters on all new services and will continue with its meter calibration and replacement program. Meter installation costs are part of new service connection fees.

**Table 3.7**

**Actual No. of Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections**

<b>Table D1 - Actual</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
# of unmetered accounts	0	0	0	0	0
# of retrofit meters installed	0	0	0	0	0
# of accounts without commodity rates	0	0	0	0	0

**Table 3.8**

**Planned No. of Metering with Commodity Rates for all new connections and retrofit of existing connections**

<b>Table D2 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
# of unmetered accounts	0	0	0	0	0
# of retrofit meters to be installed	0	0	0	0	0
# of accounts without commodity rates	0	0	0	0	0

**3.1.5 DMM-E: Large Landscape Water Audits and Incentives**

The District does not currently conduct irrigation surveys or landscape audits for large landscape customers, which would include parks, schools, freeway right-of-way, or other institutional or commercial accounts. Descriptions of general landscape water conservation efforts are discussed below. The District, however, is planning on offering those services in the next 2 years in co-ordination with the City of Glendale.

**3.1.5.1 Landscape Water Conservation**

Protector del Aqua. The District sponsored this MWD developed water conservation education program from 2002 through 2005 and has scheduled the program for 2006. The program addressed conservation techniques for through design, applications and California friendly plants. This class is also now available online and is promoted by the District.

**3.1.5.2 Landscape Demonstration Project**

Due to the predominant residential land use in the District's service area, the greatest potential for water conservation lies in landscape irrigation. Although it is difficult to quantify its influence on the use of water efficient landscapes on a District-wide basis, it is believed that a local landscape demonstration project or garden would be a useful educational tool. In 2003 and 2004 the District constructed a landscape demonstration project at its administration office. The site has been used to host tours, landscape classes, public hearings, and a water awareness event. Detailed information about the garden and its "California friendly" plants are available to customers on our website or at the District office.

**3.1.6 DMM-F: High Efficiency Washing Machine Rebate Programs**

Starting in 2002 the District passed along MWD's high efficiency washing machine rebate. The District promotes the program on its website, through its bi-monthly new publication and has flyers posted at the administration office and distributed at local events. Should the District see a significant decline in the participation of this program, consideration will be given to supplementing the monetary incentive.

**Table 3.9  
Actual No. of High Efficiency Washing Machine Rebate Programs**

<b>Table F1 - Actual</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
\$ per rebate	100	100	100	100	100
# of rebates paid	0	45	73	47	54
actual expenditures - \$	0	0	0	0	0

**Table 3.10  
Planned No. of High Efficiency Washing Machine Rebate Programs**

<b>Table F2 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
\$ per rebate	100	100	100	100	100
# of rebates to be paid	57	60	63	66	69
projected expenditures - \$	0	0	0	0	0

**3.1.7 DMM-G: Public Information Programs**

The District provides water conservation literature, brochures, posters, landscape advice and tips, home water conservation devices etc., directly to the public and its customers. These materials are available at the District office and during special events. FMWD also maintains a library of water resource education conservation films and videos for loan through the District to local organizations. MWD will also provide speaker to various groups upon requests.

- Board Meetings – The District is a public agency and the meetings of its Board of Directors are governed by and comply with the Brown Act and other public agency laws requiring open meetings, public posting of the agendas for all meetings, and full disclosure by minutes of all discussion at said meetings. The District’s Board of Directors routinely discusses all matters of importance with appropriate staff and public input at these meetings.
- Local Newspapers – The District maintains a communication with the local newspapers serving the District’s service area, *The Glendale News-Press* and *The Crescenta Valley Sun*. On occasion, these publications print articles of general interest to the public on current issues concerning the District such as water and sewer rates, water and sewer connection fees, construction activities, and water studies. Also, these publications will frequently produce community alert items originating from District press-releases regarding local construction by the District and related traffic effects, etc. Finally, the District uses these publications to print ads regarding water conservation; events sponsored by the District, and legally required public notices regarding rate changes and public hearings regarding items such as CEQA findings for new projects.
- District Website – The District website is utilized to provide information to customers. The website address is [www.cvwd.com](http://www.cvwd.com) and includes a wealth of information about the District, its operations, staffing, Board of Directors, financial data, water conservation, water quality, local rainfall, construction project information and water supply issues. The District also encourages public

participation in District activities through posting of the Board Meeting minutes and agenda directly on the website. .

- District Newsletter – The District prints a bi-monthly newsletter, *The Pipeline*, which is inserted in an envelope and mailed to all customers with their bills. Information in the newsletter has related to the District’s water supply and conservation programs, but other items of interest related to District activities has been presented. This newsletter is the District’s most direct, effective, and comprehensive method to communicate with its ratepayers.
- Direct Mailing – In addition to the above, the District sends letters directly to all or sub-groups of customers informing them of new district programs, maintenance or construction activities that may affect them such as planned valve repairs or pipeline replacements in the water distribution system. Letters to potentially affected residents are also used to inform them of neighborhood meetings conducted by the District where upcoming projects (e.g. new well construction) and their impacts are discussed in more detail.
- Annual Water Quality Report – The State Department of Health Services requires all water purveyors to mail annually to its consumers a water quality report for the calendar year detailing all contaminants and a description of the potable water supply along with appropriate explanations. The District also uses available space on the back of this report to highlight other messages to its customers.
- Messages on Bills – The District prints a brief message on each customer’s bill regarding any relevant topic to water and sewer. The messages are changed each billing cycle.
- Other – District staff promotes information about its activities and provides general information on water issues through various appearances at functions such as the Crescenta Valley Town Council Meetings, American Water Works Association Cal-Nevada Section Conferences, and occasional tours of District facilities for school groups or other interested local organizations.

The District will continue to provide these public information services and materials to remind the public about water and other resource issues. The District has no method to quantify the savings of this DMM but believes this program is in the public’s interest.

**Table 3.11  
Actual No. of Public Information Programs**

<b>Table G1 - Actual</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
a. paid advertising	*	*	*	1,000	2,500
b. Public Service Announcement	*	*	*	500	1,200
c. Bill Inserts / Newsletters / Brochures	*	7,500	8,000	12,500	15,000
d. Bill showing water usage in comparison to previous year's usage	**	**	**	**	**
e. Demonstration Gardens	0	0	141,000	13500	5000
f. Special Events, Media Events	0	0	5000	8000	10000
g. Speaker's Bureau	0	0	0	0	0
h. Program to coordinate with other government agencies, industry and public interest groups and media	*	*	*	1,500	2,000
actual expenditures - \$	*	*	*156,000	36,500.00	45,000.00

\* Prior to the 2004/2005 fiscal year the most water conservation did not have an independent budget key.

\*\* This is included in the total price for the billing service

**Table 3.12  
Planned No. of Public Information Programs**

<b>Table G2 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
a. paid advertising	2,500	2,500	3,000	3,000	3,500
b. Public Service Announcement	1,500	1,500	2,000	2,000	2,500
c. Bill Inserts / Newsletters / Brochures	15,500	16,000	16,500	16,900	17,400
d. Bill showing water usage in comparison to previous year's usage	*	*	*	*	*
e. Demonstration Gardens	5,000	5,000	0	0	0
f. Special Events, Media Events	8,000	10,000	10,000	12,000	12,000
g. Speaker's Bureau	0	0	0	0	0
h. Program to coordinate with other government agencies, industry and public interest groups and media and othe water conservation programs	12,000	15,000	18,500	16,000	14,500
Projected expenditures - \$	45,000	50,000	50,000	55,000	55,000

\* This is included in the total price for the billing service

### **3.1.8 DMM-H: School Education Programs**

All of the District's schools fall under the Glendale Unified School District. Glendale Water and Power (GWP) have made a strong commitment to support educational excellence in the Glendale Unified schools. With this in mind, GWP provides

"LivingWise", a water and energy classroom program to 6<sup>th</sup> grade students in both public and private Glendale schools. Since the program began in 2001, more than 80 teachers and more than 6,000 Glendale students have participated in this successful project.

The program was created by a group of teachers for the National Energy Foundation. It is a comprehensive set of 17 hands-on learning activities that use science and other core subjects to that that "LivingWise" means being "water wise", "energy wise", and making "wise decisions to protect the environment.

Each teacher and student receives a LivingWise 86 page workbook and a kit filled with such items as low-flow showerheads, kitchen faucet aerators and toilet leak detection tabs as well as an energy efficient nightlight, a fluorescent light bulb and a CD-Rom computer disk with a "conservation entertainment experience". Because many of the lessons require the students to complete an activity at home, parents and other family members learn conservation secrets right along with their students. At the end of the program, the students practice what they have learned by installing the water energy saving kit items in their homes.

In addition to Glendale's program, the District offers to speak and conduct hands on activities in the classroom using Admiral Splash. Admiral Splash, which is produced by MWD, is geared towards the fourth and fifth grades. Incorporating lessons in geography and science, students learn about the water cycle, water conservation, urban water run-off and water pollution.

There are take home exercises to incorporate water conservation as a family exercise and fun and educational puzzles and games. Many of the lessons are stand alone and can be pulled out and taught in an about hour. This has enabled the District to reach out to other groups such as the Boys and Girl Scouts of America and local libraries.

The District has also budgeted within the 2005/2006 fiscal year \$5,000.000 towards a Garden in Every School program. This program is aimed towards working with local schools to convert a small area in each selected school and dedicate it to native plants to the region. If this program is successful it will be continued and expanded in future years.

The District will continue to implement this DMM in the public interest whenever possible; however, there is no current method to evaluate its effectiveness or to quantify resultant water savings. MWD maintains a school conservation education program, which it continues to coordinate with local schools in the District's service area through the Glendale Unified School District.

### **3.1.9 DMM-I: Conservation Programs for Commercial, Industrial, and Institutional Accounts**

CVWD has a relatively small number of commercial (363) accounts and no industrial accounts. The vast majority of businesses within the District do serve as small mom and pop shops or local restaurants. In 1999, the District, through FMWD, implemented an agreement with MWD for participation in a Commercial-Industrial-Institutional (CII) retrofit incentive project. This conservation credits program is designed to assist local water agency commercial customers in conserving water supplies. The low-flush toilet

aspect of this program is discussed as DMM-N

The District also provided a list of restaurants to MWD for retrofit of a pre-rinse spray valve. In 2004, 12 local restaurants had pre-rinse spray valves installed within their establishment.

While the District has no formal plans to initiate an active CII replacement program, CVWD is planning on coordinating with GWP on the replacement of the urinals at the local high school served by the District.

Other commercial rebates available in coordination with MWD include toilet and urinal flush valves; pre-rinse spray valves for restaurant dishwashing equipment; horizontal axis commercial washing machines; and cooling tower controllers.

### **3.1.10 DMM-J: Wholesale Agency Programs**

This DMM is not applicable to the District

### **3.1.11 DMM-K: Conservation Pricing**

As discussed in DMM-4, the District's water rates are commodity based with a single-tier structure.

The District operates a domestic sewage collection system for its customers. The District's sewer service rates are a fixed (non-commodity) monthly fee for residential customers but are based upon water usage for commercial customers (commodity-based). Schools are charged for sewer service based upon average daily attendance (indirect commodity based).

The District does offer a water conservation pricing incentive to any sewer customer sector. A 10% discount off the customer's monthly sewer fees are applied in a bi-monthly billing period where the residential unit(s) or commercial account water use used that period are at 12 billing units or less ( $\leq 12,000$  gallons). There is currently no accurate method to assess the water savings being accomplished by this DMM.

As a final discussion, the District contracted with Brown and Caldwell in 2004 to perform a water and sewer rate study. The water rate portion of the study discussed the implantation of a tiered rate billing structure. AS part of the budget process in 2004, Staff recommended to the Board of Directors to adopt a tiered rate structure to promote water conservation. The tiered rates were set up by giving a discount to those whose water consumption fell into the "conservation rate" and conversely higher rates to customers with high consumption. It should be noted that the District itself currently is invoiced at tiered rates for imported water it purchases from FMWD. A series of public hearing were held and after hearing from the community who attended the meetings, the Board of Directors did not adopt the recommended water conservation rate structure at this time. The issue of tiered rates will be discussed at future budget hearings.

**Table 3.13  
Conservation Pricing**

<b>Table K1 - RETAILERS</b>			
<b>Residential</b>			
Water Rate Structure	\$3.32 per 1000 gals	Sewer Rate Structure	\$17.50/mo
Year rate effective	02/2005	Year rate effective	07/1/2004
<b>Commercial</b>			
Water Rate Structure	\$3.32 per 1000 gals	Sewer Rate Structure	\$17.50/mo
Year rate effective	02/2005	Year rate effective	07/1/2004
<b>Institutional/Government</b>			
Water Rate Structure	\$3.32 per 1000 gals	Sewer Rate Structure	\$17.50/mo
Year rate effective	02/2005	Year rate effective	07/1/2004
<b>Irrigation</b>			
Water Rate Structure	\$3.32 per 1000 gals		
Year rate effective	02/2005		
<b>Other</b>			
Water Rate Structure for Primary Schools (based on ADA)	\$38.49 / 100 students	Sewer Rate Structure	\$17.50/mo
Water Rate Structure for Jr. High and High Schools (based on ADA)	\$76.98 / 100 students	Year rate effective	07/1/2004

**3.1.12 DMM-L: Water Conservation Coordinator**

Until March of 2003, the District had designated its General Manager as Water Conservation Coordinator. In March 2003, The District hired a Program Specialist whose duties included water conservation, education, public outreach, safety, and environmental reporting. Customer service staff is available to provide administrative support or as otherwise described in these DMM's.

**Table 3.14  
Actual No. of Water Conservation Coordinators**

Table L1 - Actual	2001	2002	2003	2004	2005 (proj)
# of full-time positions	0	0	0	0	0
# of part-time staff	0	0	1	1	1

**Table 3.15  
Planned No. of Water Conservation Coordinators**

Table L2 - Planned	2006	2007	2008	2009	2010
# of full-time positions	0	0	1	1	1
# of part-time staff	1	1	1	1	1

**3.1.13 DMM-M: Water Waste Prohibition**

In 1998 the District revamped its ordinance into the rules and regulations system that still exists today. A Phase one and Phase two Water Conservation policy was adopted in place of the Emergency Water Conservation Ordinance. (Attachment G) While a phase three water conservation plan with fines and penalties much like the 1991 emergency water conservation ordinance has been discussed, to date that has not been added to the rules and regulations.

In non-emergency times, the District Rules & Regulations contain a Water Waste Prohibition allowing termination of water service to customers who do not comply with a notice to remedy the wasteful practice. Additionally, the Rules and Regulations contain a leak policy whereby a financial incentive (one-time bill adjustment) is provided for customers who promptly fix internal plumbing leaks. The aforementioned sections of the Rules & Regulations are included in Attachment Q.

Finally, District customer service staff work cooperatively with property owners to reduce water waste. The District's billing software automatically flags high usage thresholds from meter reading data for additional staff follow-up. Also, the District's field staff reports all visible water waste situations observed for additional contact with customers, advice, and follow-up by the District's field customer service representative. In 2004, along with the water conservation alert system discussed in Section 1, the District adopted a water waster program in which it provided a number and email for residents to call and report water wasters. (Section 1.2.1) All reports were investigated by the District and followed up by phone calls, letters and door hangers.

**Table 3.16**  
**Actual No. of Water Waste Prohibitors**

Table M1 - Actual	2001	2002	2003	2004	2005 (proj)
waste ordinance in effect	Y	Y	Y	Y	Y
# of on-site visits	0	0	30	45	20
water softener ordinance	N	N	N	N	N
actual expenditures - \$	0	0	2000	600	250

**Table 3.17**  
**Planned No. of Water Waste Prohibitors**

Table M2 - Planned	2006	2007	2008	2009	2010
waste ordinance will be in effect	Y	Y	Y	Y	Y
# of on-site visits	15	15	10	10	10
water softener ordinance	N	N	N	N	N

projected expenditures - \$	250	250	300	3030	300
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### **3.1.14 DMM-N: Residential Ultra-Low Flush Toilet Replacement Programs**

Since April of 1999 the District has been participating in a ULFT Rebate Program sponsored by MWD through FMWD.

Customers (residential or commercial) receive a rebate of \$60 per ULFT through a billing credit by the District. The District receives a monthly refund by MWD on its FMWD purchased water invoice. From 2001 through present an estimated 800 ULFT's have been installed in the District through this program. Water savings can be estimated for these ULFT's at 5.2 million gallons (16AF) annually. The District plans to continue this program with MWD's sponsorship at least through June 2007.

**Table 3.18  
Actual No. of Single and Multi Family Toilet Rebates**

<b>Table N1 - Actual</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005 (proj)</b>
# of ULF rebates	95	146	255	128	176
# of ULF direct installs		0	0	0	0
# of ULF CBO installs	95	146	255	128	176
actual expenditures - \$	0	0	0	0	0

**Table 3.19  
Planned No. of Single and Multi Family Toilet Rebates**

<b>Table N3 - Planned</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
# of ULF rebates	150	150	125	100	75
# of ULF direct installs					
# of ULF CBO installs					
projected expenditures - \$	0	0	0	0	0

## **3.2 Conclusion**

Crescenta Valley Water District has implemented or participated in programs that comply with all Demand Management Measures, and intends to continue its efforts in water conservation in the future.

**Section 4–**  
**Water Shortage Contingency Plan**

**4.1 Water Shortage Emergency Response:**

For a sudden or catastrophic water supply interruption, the District has developed an Emergency Preparedness and Disaster Response Plan as required by CDHS to ensure the most effective use of its resources for the benefit and protection of facilities and employees, in addition to the preservation of a reliable water supply for its customers.

**4.1.1 Power Outage:**

In the event of a power outage, the District maintains five (5) emergency standby power generators and an emergency standby diesel-fueled water pump. One of the emergency generators is stationary and dedicated to power water supply wells and the auxiliary equipment at the Glenwood Operations Center. Three (3) emergency generators are portable and are mounted on trailers. They can be mobilized to any pump station for movement of water out of a reservoir into a higher pressure zone. Each pump station site is equipped with emergency power receptacles and transfer switches that allow personnel to hook-up the portable generators. The fourth generator is located at the District's Administrative Office. The emergency stand-by diesel pump can be used to replace the District's 3-pump Glenwood Pump Station. The District also has Universal Power Supply (UPS) systems on the computer systems at the main office, the SCADA systems at the Glenwood Nitrate Plant and at every well and reservoir. In addition, FMWD operates standby emergency generators that could be used by CVWD.

**4.1.2 Water Outage**

In the event of a water outage, the District has the ability to receive water from the City of Glendale and La Canada Irrigation District through emergency water supply interconnections. In addition, CVWD will be installing a new interconnection with the City of Los Angeles, Department of Water and Power (LADWP).

**City of Glendale Interconnection:**

- Glendale/CVWD Interconnection (GCI) was installed in 2004 and allows for the District to receive up to 5.0 cfs from Glendale.
- Glendale and CVWD have an agreement for emergency hydrant-to-hydrant interconnections that allow CVWD to take water from Glendale or Glendale can take water from CVWD.

**La Canada Irrigation District (LCID) Interconnection:**

- CVWD has an interconnection with LCID that allows CVWD to take water from LCID into CVWD's Zone 3.
- LCID has an interconnection with CVWD that allows LCID to take water from CVWD into their westerly zones.

### **New LADWP Interconnection:**

- LADWP/CVWD interconnection is planning to be completed by 2007. The new interconnection will allow the District to receive 2.2 cfs and have the ability to back-feed FMWD
- FMWD also has two bypass systems that would allow them flexibility to move LADWP water in emergency situations.

Finally, the District is an active member of the southern region of the statewide WARNs, the Water Agency Response Network, a mutual aid coalition of water departments and agencies which allows for coordination of resources during disasters or catastrophic events. The District also is a member of the Raymond Basin Emergency Preparedness Committee, an informal mutual aid group for local water agencies in the L. A. County Foothill area.

### **4.2 Supplemental Water Supplies:**

Supplemental water supplies to help offset future shortages due to drought would be available through FMWD via MWD and their Water Supply Drought Management Plan (WSDM). The WSDM is referenced in FMWD's UWMP and described in detail in MWD's UWMP. In addition supplemental water supplies to help offset future shortage through the City of Glendale would be via MWD and their Water Supply Drought Management Plan (WSDM). The WSDM is referenced in Glendale's UWMP and described in detail in MWD's UWMP.

### **4.3 Long Term Additional Water Supply Options:**

Various Alternatives have already been discussed in Section 2.

### **4.4 Water Shortage Contingency Ordinance:**

The District adopted emergency regulations with its water conservation program and an emergency water management plan in 2002 as part of the District's Rules and Regulations (See Attachment Q). In addition, The District adopted a water conservation alert system in 2004 as part of the District's Rules and Regulations (See Appendix F).

#### **4.4.1 Rationing Phases and Reduction Goals:**

The District's water conservation alert system, which relates to an impending water shortage, consists of a three phase plan to be invoked during the summer high peak demand season and during a declared water shortage. The plan includes voluntary and mandatory measures, depending on the causes, severity, and anticipated duration of the water supply shortage.

##### **4.4.1.1 Phase I Shortage – Alert Level – Green:**

Said shortage is declared during the summer high peak demand season and consist of CVWD's voluntary water conservation measures. Phase I is voluntary and generally requires efficient landscape irrigation practices, prohibitions on wasteful outdoor water use, and diligence regarding usage of indoor water conservation/fixtures. The list of voluntary measures is listed below:

1. Adjust sprinklers and irrigation to avoid overspray, runoff and waste; and reduce the frequency of landscape irrigation cycles;
2. Avoid landscape irrigation on windy days and between the hours of 9:00 a.m. and 5:00 p.m.
3. Reduce the amount of turf and install new drought tolerant landscaping, low-watering using trees and plants, and efficient irrigation systems;
4. Shut off decorative fountains, unless a recycling system is used;
5. Do not hose down driveways, patios, sidewalks or other paved areas, except for health or sanitary reasons;
6. Install pool and spa covers to minimize water loss due to evaporation;
7. Do not allow the hose to run while washing the car and use a bucket or a hose with an automatic cutoff valve;
8. Retrofit indoor plumbing fixtures with low-flow devices;
9. Check faucets, toilets, and pipes, both indoor and outdoor, including house service laterals and sprinkler piping, for leaks and repair them immediately, or upon demand of the District;
10. Wash only full loads of dishes or clothes in automatic washers, and not let indoor faucets run continuously;
11. Turn water system off when leaving property unoccupied for an extended period of time;
12. Observe any waster of water from surrounding properties or in the community and report to the District for follow-up.

**4.4.1.2 Phase II Shortage – Alert Level – Yellow:**

This shortage phase is triggered either by a reduction in CVWD's groundwater supply or when MWD requires member agencies to institute a mandatory program. In addition to Phase I voluntary conservation measures, CWWD customers shall keep to a minimum its indoor water use and outdoor water use for any individual customer account shall be limited to either odd or even days of the calendar month.

In addition, MWD and/or FMWD will establish reduction goal for the District. MWD goals for a Phase II Shortage as shown in items 1-5 of Section IV, Appendix B, become mandatory while items 6-10 remain voluntary.

**4.4.1.3 Phase III Shortage – Alert Level – Red:**

This phase is triggered when a shortage is deemed so critical that water use shall be limited to beneficial use to maintain public health and safety. The critical shortage may be regional or local (such as depletion of groundwater or fire/earthquake disaster) as declared by the District's Board of Directors. Additionally, no water may be used outdoors except for fire fighting and that necessary to maintain public health safety, and welfare. The Phase III shortage may also be declared due to short-term natural disaster situations. In every phase, the District must meet the minimum health and safety water needs of the community at all times.

The limitations on water use for a Phase III shortage include the penalty surcharges for consumption and visible use violations as described in the District's Emergency Water Management Plan and as provided in Water Code Section 377, any violation of the Water Emergency Measures, found in the Emergency Water Management Plan is a

misdemeanor. Upon conviction thereof, such person shall be punished by imprisonment in the county jail for not more than 30 days, or by fine not exceeding one thousand dollars (\$1,000) or both.

In addition, or as an alternative, the District may install flow restrictors or discontinue water service at any time.

Prior to seeking criminal enforcement of the Water Emergency Measures, the District may impose progressive enforcement measures for repeated, willful violations as follows:

First Violation:	Written Notice
Second Violation:	Penalty equal to 25% of previous water bill.
Third Violation:	Penalty equal to 50% of the previous water bill and service of water terminated for a period not to exceed 48 hours.

#### **4.5 Water Shortage – Impact and Measures on Expenditures and Revenues:**

The District has established a target reserve of funds within in its annual budget that address the issue of loss revenue during a water shortage or drought situation. The District has a 25% rate stabilization fund since 2001 that can offset short-term loss of revenue. In the case of a long-term water shortage or drought situation, the District has the ability to institute a tiered rate structure on it's customers to offset the loss of revenue that will occur.

#### **4.6 Water Shortage - Relief from Compliance:**

The District has established an application and hearing process to determine relief from compliance with the Emergency Water Management Plan. The notification of violation process and relief procedures is included in the District's Rules and Regulations.

#### **4.7 Water Use Monitoring Procedures:**

Under normal water supply conditions, potable water production figures are recorded daily. Water Production totals are reported to the General Manager and the Management staff on a daily basis and monthly totals are incorporated into the District's Water Production Report.

During any declared water shortage emergency, the General Manager and the Management staff will compare the daily water production to a maximum water supply capacity and a targeted daily production to see if the reduction goals are being met. Said daily updates will be forwarded to the District's Board of Directors semi-monthly. Corrective action may be taken by the Board of Directors if reduction goals are not met.

During local water shortage emergencies due to natural disaster, production figures will be monitored daily by the General Manager, and the Management staff. Reports will be provided to the Board of Directors as necessary.

#### **4.8 Three Year Minimum Water Supply:**

Based on normal demands during the drought years, the minimum three-year water supply is shown on Table 4.1. The quantities of water from the various sources and demands are expected to be the same during a three-year period. If there is a need for

a significant demand reduction effort, various voluntary or mandatory conservation efforts can be implemented as previously described above. Additional water supplies from MWD/FMWD could be essential during drought years. These numbers could be change depending on the severity of supply deficiency. An annual demand of 5,600 AF is assumed to be the normal water demand.

**Table 4.1  
Three Year Estimated Minimum Water Supply**

<b>Table 4.1 Three Year Estimated Minimum Water Supply (Acre-Foot)</b>			
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Verdugo Basin</b>	<b>3,250</b>	<b>3,250</b>	<b>3,250</b>
<b>FMWD</b>	<b>2,150</b>	<b>2,150</b>	<b>2,150</b>
<b>City of Glendale</b>	<b>200</b>	<b>200</b>	<b>200</b>
<b>Total (Supply)</b>	<b>5,600</b>	<b>5,600</b>	<b>5,600</b>

Water supplies from the Verdugo Basin would be affected by a prolong drought as water levels and water production decreases. City of Glendale or FMWD supplies may be affected if MWD also has a water shortage. MWD's completion of the Diamond Valley Reservoir near Hemet added to the reliability of MWD supplies. This reservoir plus other out of the area storage operations should be able to meet demands on a reliable basis over the next 10 years. Also, MWD is proposing contracts with its member agencies to supply water. These contracts will define, MWD's obligation to provide firm water to the District.

It is anticipated that during any three-year drought, the District should have sufficient supply to meet the demands of the community. However, a three-year drought will result in less local groundwater being available and the District will have to purchase more expensive imported water.

## **SECTION 5**

### **Recycled Water Plan**

#### **5.1 Wastewater System Description**

The District operates a sewage collection system with approximately 6,300 connections. The system transports this wastewater outside District boundaries to a regional wastewater treatment plant owned by the City of Los Angeles. The District pays a flow-based share of treatment and disposal costs to Los Angeles and has no ownership of the treated effluent from the Los Angeles-Glendale Water Reclamation Plant (LAGWRP). The District generates approximately 550-600 million gallons of raw wastewater annually.

#### **5.2 Wastewater Disposal and Recycled Water Uses**

The City of Glendale operates a recycled water system for various uses within its City limits. The water is tertiary-treated LAGWRP effluent. There are currently no plans to extend this system into the District's service area.

The District studied the feasibility and costs to install a recycled water system for use in the District service area and the results were not encouraging. In late 2003 the District contracted with Bookman Edmonston Consultants to perform a Recycled Water Feasibility Study. The report referenced earlier as Attachment J, showed that the capital cost of the Caltrans Market Alternative is \$4,580,870 and the estimated deliveries are 156 acre-feet per year. Using a 40-year capital recovery period and a five percent interest rate the cost would be \$2,585 per acre foot. The capital cost of the Expanded Market Alternative is \$ 5,355,040 and the estimated deliveries are at most 310 acre-feet per year. Using a 40-year capital recovery period and a five percent interest rate the cost would be \$1,771 per acre foot. The retail price for water within the study area varies from approximately \$750 per acre foot to \$1,000 per acre foot. Clearly, recycled water at \$1,771 to \$2,585 per ac-ft is not an affordable option.

## **Section 6**

### **Water Quality Impacts on Reliability**

CVWD's imported water supply is provided by Foothill Municipal Water District (FMWD). FMWD purchases water from MWD and its water quality is maintained and governed by MWD. Its water quality strategy is defined in its 2005 RUWMP.

FMWD, as a wholesale agency, does not anticipate groundwater quality challenges because it does not use groundwater as its main source of supply.

#### **6.1 Groundwater:**

CVWD produces local groundwater to meet demands from the Verdugo Basins located within its service area.

The majority of the groundwater yield comes from natural storm water recharge. Natural recharge of the Verdugo basin is accomplished through the natural percolation of rainfall and stream flow from surface runoff within the watershed area.

The water quality of the Verdugo Basin is high in nitrates and selected wells show the presence of VOC's Tetrachloroethylene (PCE) above the California Department of Health Services (CDHS) maximum contaminant levels (MCLs). Nitrate laden groundwater is either blended with imported water and/or treated at the District' Glenwood Nitrate Reclamation Facility to meet drinking water standards. Blending with other well water or imported water is sufficient to supply water at less than the MCL for PCE.

The District found trace amounts of Methyl Tertiary Butyl Ether (MTBE) in one of its groundwater wells (Well 5). While the amounts of MTBE were well below the CDHS MCL, the District enlisted Malcolm Pirnie, Inc. to embark on an intensive study for potential sources of MTBE contamination. The report is expected to be completed in early 2006 and the UWMP will be updated as necessary.

#### **6.2 MWD's Surface Water Supplies**

MWD's supplies originate from the Colorado River and from the State Water Project. Both water supplies are generally of high quality. However, both supplies face water quality challenges as described below. In the Regional UWMP prepared by MWD, the agency does not believe, however, that any of the water quality challenges described below will impact the reliability of its supplies during the next 20 years.

##### **6.2.1 Colorado River Water (CRW)**

High salinity levels represent the most serious challenge associated with the Colorado River supply. During average water years, levels of total dissolved solids (TDS) for CRW average around 650 mg/L. MWD has determined that the only foreseeable constraint to the use of Colorado River water will be the need to blend with State Water Project supplies to meet salinity standards. Other potential water quality issues for the CRW include uranium, perchlorate and hexavalent chromium as described below.

### **6.2.1.1 Uranium:**

A ten million ton pile of uranium mine tailings at Moab, Utah is located 600 feet from the Colorado River. Rainwater has been seeping through the pile and contaminating the local groundwater, causing a flow of contaminants into the river. The potential threat exists for rainwater to wash millions of tons of material containing uranium into the Colorado River.

Current operations and maintenance activities at the site include intercepting some of the contaminated groundwater before it discharges into the river. The interim program became fully operational in September 2003. Uranium in the range of 950 to 1,190 picoCuries per liter (pCi/L) has been measured at the seepage site in the river. Uranium measurements in the Colorado River at MWD's intake range from 1 to 5 pCi/L. The California drinking water standard for uranium is 20 pCi/L.

At the recommendation of the National Research Council, the Department of Energy (DOE) conducted a study to evaluate remediation actions and released an environmental impact statement. In July 2005 DOE agreed to move the tailings to a site 30 miles from the current location to a site in Crescent Junction, Utah. DOE plans to begin moving the uranium tailings in spring 2006. Remediation at the site will require Congressional appropriations, and maintaining congressional support for the cleanup will require close coordination and cooperation with other Colorado River users.

### **6.2.1.2 Perchlorate:**

Ammonium perchlorate is used in the production of solid rocket propellant, and can also be found in some types of munitions and fireworks. Ammonium perchlorate and other perchlorate salts are readily soluble in water, dissociating into the perchlorate ion ( $\text{ClO}_4^-$ ). The perchlorate ion does not readily degrade in the environment.

CDHS adopted a notification level of 6  $\mu\text{g/L}$  for perchlorate and is in the process of developing a drinking water regulation. If the current notification level is exceeded, CDHS requires that utilities inform their governing bodies, and recommends they notify consumers of perchlorate's presence in the drinking water supply and its potential adverse health effects. CDHS strongly recommends that untreated source supplies be removed if perchlorate levels exceed 60  $\mu\text{g/L}$ .

Perchlorate has been detected at low levels in Metropolitan's CRW supply. The concentrations of perchlorate in Colorado River Water are currently less than California's detection limit for reporting purposes (DLR) of 4  $\mu\text{g/L}$ . No perchlorate has been detected in Metropolitan's SWP supply.

MWD adopted a Perchlorate Action Plan in 2002. The Plan's objectives are to:

- (1) Expand monitoring and reporting programs,
- (2) Assess the impact of perchlorate on local groundwater supplies,
- (3) Continue tracking health affects studies,
- (4) Continue tracking remediation efforts in the Las Vegas Wash, the source of perchlorate contamination of the Colorado River,
- (5) Initiate modeling of perchlorate levels in the Colorado River,
- (6) Investigate the need for additional resource management strategies,

- (7) Pursue legislative and regulatory options for cleanup activities and regulatory standards,
- (8) Include information on perchlorate into outreach activities, and
- (9) Provide periodic updates to Metropolitan's board and member agencies.

The Nevada Department of Environmental Protection (NDEP) manages a comprehensive groundwater remediation program in the Henderson area. The amount of perchlorate entering the Colorado River system from Henderson has been reduced from approximately 900 lb/day in 1997 to less than 113 lb/day as of June 2005.

#### **6.2.1.3 Chromium VI:**

Chromium can enter drinking water sources through discharges from industries, leaching from hazardous waste sites, and erosion of natural deposits. CDHS was required by law to establish an MCL for chromium VI by January 2004. This has not yet occurred. The current California MCL for total chromium (which includes chromium VI) is 0.05 mg/L. Metropolitan is participating in a Technical Work Group reviewing monitoring results and remediation plans for groundwater contaminated with chromium VI at a PG&E site adjacent to the Colorado River near Topock, California.

#### **6.2.2 State Water Project (SWP)**

SWP supplies have lower TDS concentrations when compared to the CRW supplies. Because of this, MWD blends SWP water CRW to reduce the salinity of the delivered water.

A key regulatory challenge for State Water Project supplies are the formation of disinfection byproducts. Two groups of DBPs are regulated. These are trihalomethanes and Haloacetic Acids. In addition there are MCLs for individual compounds, including bromate, which is a byproduct of ozone disinfection. Total organic carbon (TOC) and bromide, are key precursors for the formation of DBPs when water is treated with disinfectants. Levels of TOC and bromide in Delta water supplies present significant challenges with regard to the formation of DBPs. In response to these challenges, MWD is upgrading treatment at its five treatment plants. MWD will be installing ozone contactors to provide primary disinfection and replace the use of free chlorine.

The Weymouth filtration plant has not yet received this upgraded treatment, but should within the next 4-10 years. Prior to the installation of ozone, MWD may experience limits on their ability to use SPW supplies at the Weymouth treatment plant (due to the levels of DBPs formed).

## Section 7 Water Service Reliability

This chapter addresses water use characteristics and projected imported water demands on CVWD.

### **7.1 Projected Normal Water Year Supply and Demand**

**Table 7.1.1  
Projected Normal Water Year Supply  
(AF/Y)**

Water Supply Sources	2005	2010	2015	2020	2025
Groundwater & Imported Water	5,303	5,653	5,941	6,244	6,563
		107%	105%	105%	105%

**Table 7.1.2  
Projected Normal Water Year Demand  
(AF/Y)**

	2010	2015	2020	2025
Demand	5,303	5,941	6,244	6,563
% of Normal Demand	107%	105%	105%	105%

**Table 7.1.3  
Projected Normal Year Supply and Demand Comparison  
(AF/Y)**

	2010	2015	2020	2025
Supply total	5,303	5,941	6,244	6,563
Demand total	5,303	5,941	6,244	6,563
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**

The following three tables (7.2.1-7.2.3) present a comparison of projected single-dry year water supply to be projected in a single-dry year water use over the next 15 years in 5-year increments.

**Table 7.2.1  
Projected Single Dry Year Water Supply  
(AF/Y)**

Projected Single Dry Year Water Supply (AF/Y)					
Water Supply Sources	2005	2010	2015	2020	2025
Groundwater & Imported water	5,866	6,253	6,572	6,907	7,260

**Table 7.2.2  
Projected Single Dry Year Water Demand  
(AF/Y)**

Projected Single Dry Year Water Demand(AF/Y)					
Water Supply Sources	2005	2010	2015	2020	2025
Groundwater and Imports	5,866	6,253	6,572	6,907	7,260

**Table 7.2.3  
Projected Single Dry Year Supply and Demand Comparison  
(AF/Y)**

	2010	2015	2020	2025
Supply totals	6,253	6,572	6,907	7,260
Demand totals	6,253	6,572	6,907	7,260
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**

The following series of tables (7.3.1-7.3.15) presents an analysis of water supply reliability for Crescenta Valley Water District based on a three-year dry year period, projected out 15 years in 5 year increments. For each five-year period, the three-year dry period is assumed to occur in the last three years of the period. The normal supply and demand projections (for the first two years of the five year period) were developed using the same approach as that used in Section 7.1.

**2006 through 2010 – Multiple Dry Year Evaluation**

**Table 7.3.1  
Projected Supply During Multiple Dry Year Period Ending in 2010  
(AF/Y)**

	2006	2007	2008	2009	2010
Supply					
Groundwater and Imported Water	5,385	6,036	6,096	6,157	6,218
Total	5,385	6,036	6,096	6,157	6,218
% of projected normal	110%	110%	110%	110%	110%

**Table 7.3.2  
Projected Demand Multiple Dry Year Period Ending in 2010  
(AF/Y)**

	2006	2007	2008	2009	2010
Demand	5,385	6,036	6,096	6,157	6,218
% of projected normal	100%	100%	100%	100%	100%

**Table 7.3.3  
Projected Supply and Demand Comparison  
During Multiple Dry Year Period Ending in 2010  
(AF/Y)**

Projected Supply and Demand Comparison During Multiple Dry Year Period Ending in 2010 (AF/Y)					
	2006	2007	2008	2009	2010
Supplies	5,385	6,036	6,096	6,157	6,218
Demands	5,385	6,036	6,096	6,157	6,218
Difference	0	0	0	0	0
Difference as % of Supply	0%	0%	-4%	-5%	-5%
Difference as % of Demand	0%	0%	-4%	-5%	-5%

**2011 through 2015 – Multiple Dry Year Evaluation**

**Table 7.3.4  
Projected Supply During  
Multiple Dry Year Period Ending in 2015  
(AF/Y)**

	2011	2012	2013	2014	2015
Supply					
Groundwater and Imported Water	5,710	6,344	6,406	6,471	6,535
Total	5,710	6,344	6,406	6,471	6,535
% of projected normal	110%	110%	110%	110%	110%

**Table 7.3.5  
Projected Demand Multiple  
Dry Year Period Ending in 2015  
(AF/Y)**

	2011	2012	2013	2014	2015
Demand	5,710	6,344	6,406	6,471	6,535
% of projected normal	100%	100%	100%	100%	100%

**Table 7.3.6  
Projected Supply and Demand Comparison  
During Multiple Dry Year Period Ending in 2015  
(AF/Y)**

	2011	2012	2013	2014	2015
Supplies	5,710	6,344	6,406	6,471	6,535
Demands	5,710	6,344	6,406	6,471	6,535
Difference	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

**2016 through 2020 – Multiple Dry Year Evaluation**

**Table 7.3.7  
Projected Supply During Multiple  
Dry Year Period Ending in 2020  
(AF/Y)**

	2016	2017	2018	2019	2020
Supply					
Groundwater and Imported Water	6,001	6,667	6,733	6,801	6,868
Total	6,001	6,667	6,733	6,801	6,868
% of projected normal	110%	110%	110%	110%	110%

**Table 7.3.8  
Projected Demand Multiple  
Dry Year Period Ending in 2015  
(AF/Y)**

	2016	2017	2018	2019	2020
Demand	6,001	6,667	6,733	6,801	6,868
% of projected normal	100%	100%	100%	100%	100%

**Table 7.3.9  
Projected Supply and Demand Comparison  
During Multiple Dry Year Period Ending in 2015  
(AF/Y)**

	2016	2017	2018	2019	2020
Supply Total	6,001	6,667	6,733	6,801	6,868
Demand total	6,001	6,667	6,733	6,801	6,868
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%

**2021 through 2025 – Multiple Dry Year Evaluation**

**Table 7.3.10  
Projected Supply During  
Multiple Dry Year Period Ending in 2025  
(AF/Y)**

	2021	2022	2023	2024	2025
Supply					
Groundwater and Imported Water	6,307	7,007	7,077	7,148	7,219
Total	6,307	7,007	7,077	7,148	7,219
% of projected normal	110%	110%	110%	110%	110%

**Table 7.3.11  
Projected Demand Multiple  
Dry Year Period Ending in 2025  
(AF/Y)**

	2021	2022	2023	2024	2025
Demand	6,307	7,007	7,077	7,148	7,219
% of projected normal	100%	100%	100%	100%	100%

**Table 7.3.12  
Projected Supply and Demand Comparison  
During Multiple Dry Year Period Ending in 2025  
(AF/Y)**

	2021	2022	2023	2024	2025
Supply Total	6,307	7,007	7,077	7,148	7,219
Demand total	6,307	7,007	7,077	7,148	7,219
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%

## **Section 8**

### **Public Participation**

#### **8.1 Community Participation:**

CVWD has actively encouraged community participation in its urban water management planning efforts by encouraging attendance and participation in the Board of Directors public meetings held monthly. Notifications of the public meeting for consideration of adoption of Crescenta Valley Water District's draft Urban Water Management Plan were printed in both local newspapers, (Attachment R) made available on the District's homepage, and will also be available at via the Districts home office message display. Copies of the draft plan are available at the office.

#### **8.2 Public Hearing:**

On December 13 2005, CVWD will hold a Public Hearing to receive comments on its draft Plan. All comments received prior to and during the Public Hearing will be taken into consideration in the preparation of the final report. Comments submitted and CVWD's response to them will be listed in Attachment S.

#### **8.3 Plan Adoption:**

CVWD prepared the initial draft of its Urban Water Management Plan during fall 2005. The final plan was adopted by its Board of Directors on December 13, 2005 and submitted to the California Department of Water Resources within 30 days of Board approval. Attached to the cover letter addressed to the Department of Water Resources and a copy of the Resolution of Plan Adoption (Attachment T). This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).