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VICTOR VALLEY WATER DISTRICT

66 Route 66 RACEWAY

# 2005 Urban Water Management

December 2005

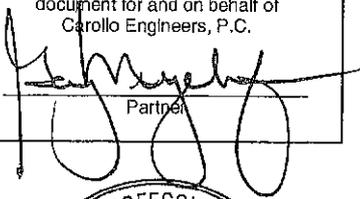
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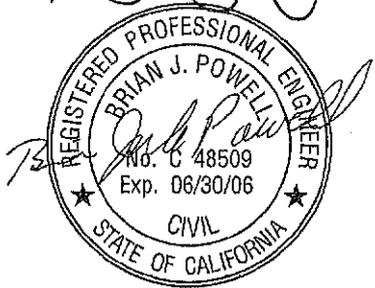




The undersigned has approved this document for and on behalf of Carollo Engineers, P.C.



Partner



Signed: 12/21/05

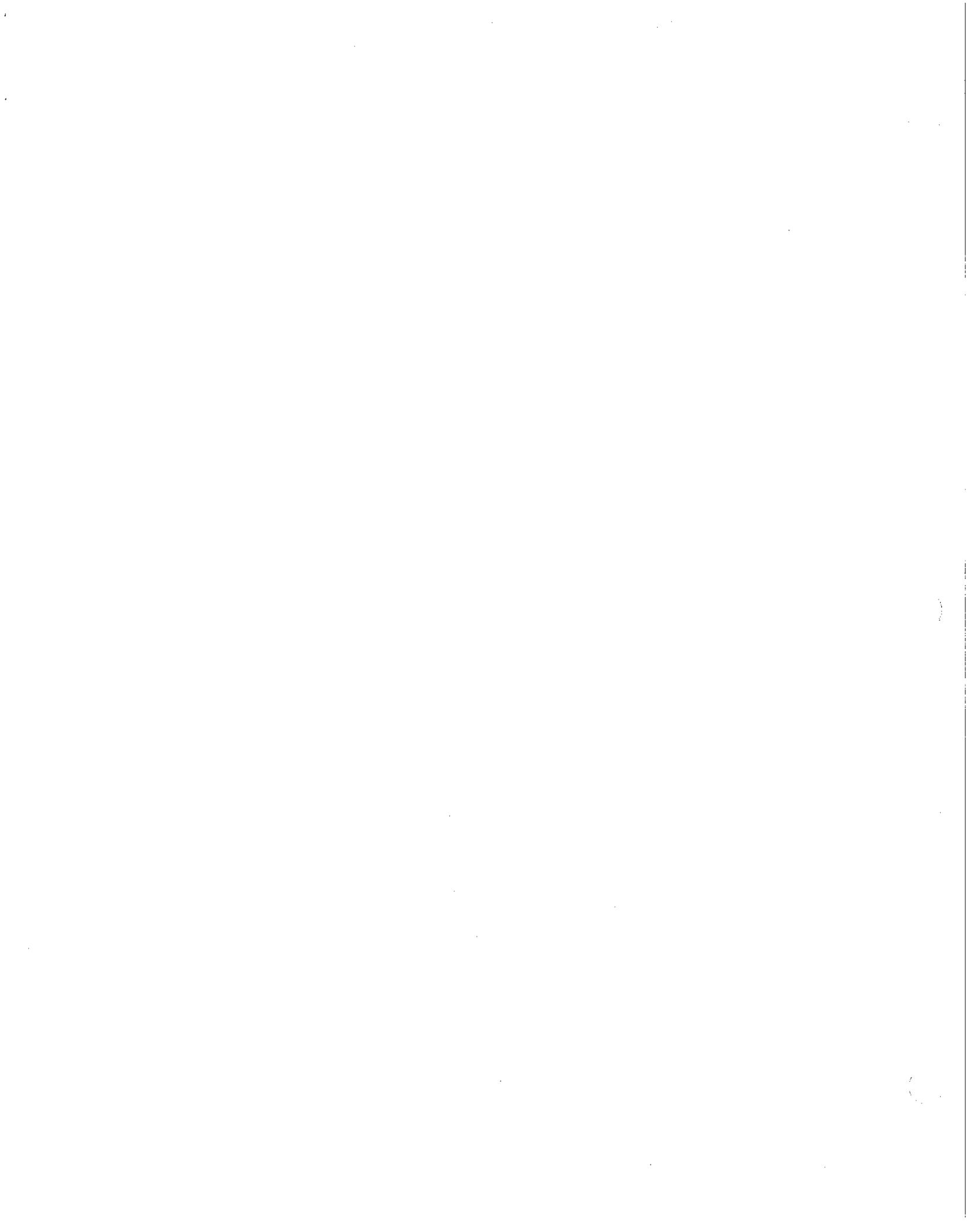
Victor Valley Water District

**2005 URBAN WATER MANAGEMENT PLAN**

December 2005

Final





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

Date plan submitted to the Department of Water Resources: December 28, 2005

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The Water supplier is a: **Water District**

The Water supplier is a: **Retailer**

Utility services provided by the water supplier include: **Water**

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

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



Victor Valley Water District

2005 URBAN WATER MANAGEMENT PLAN

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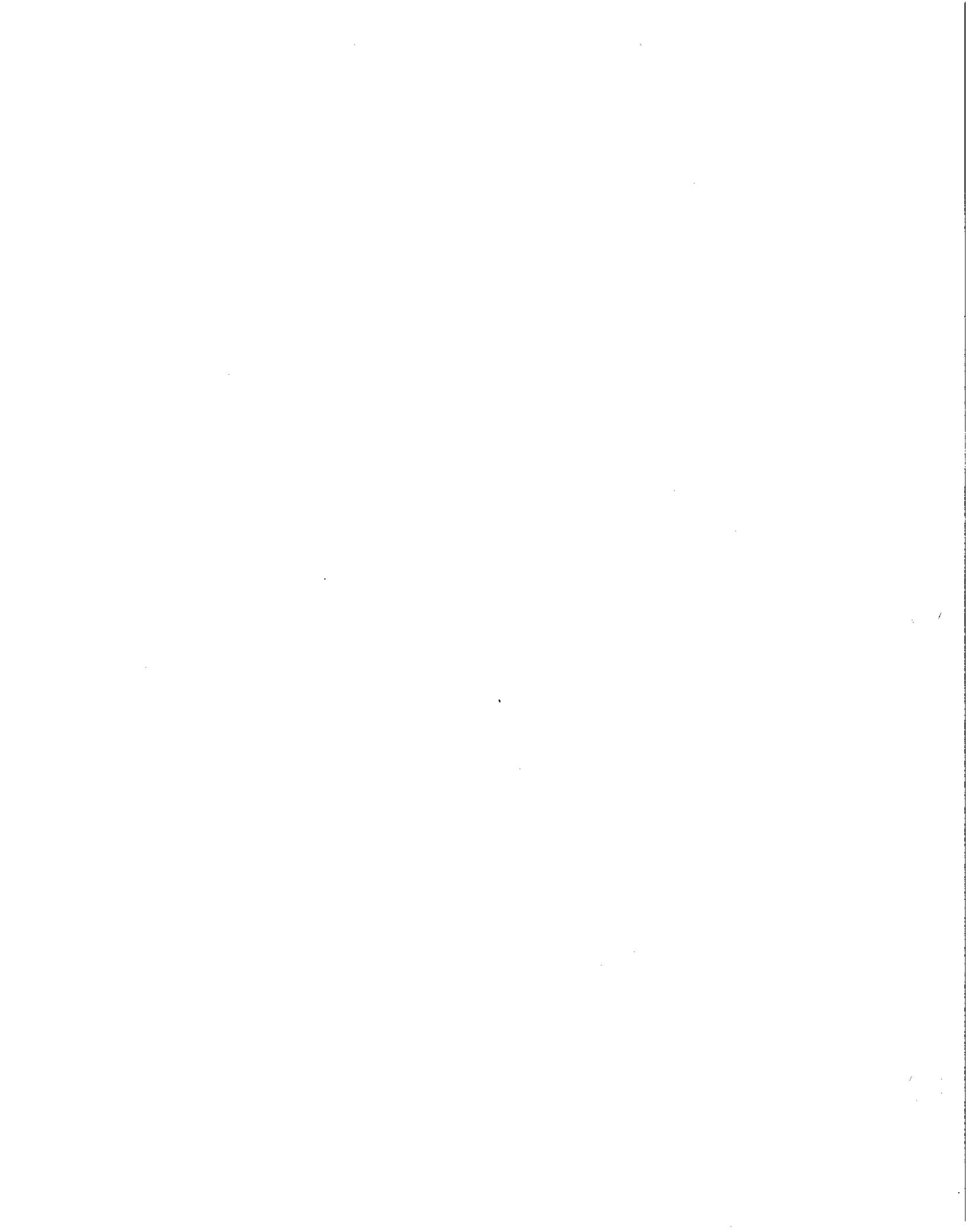
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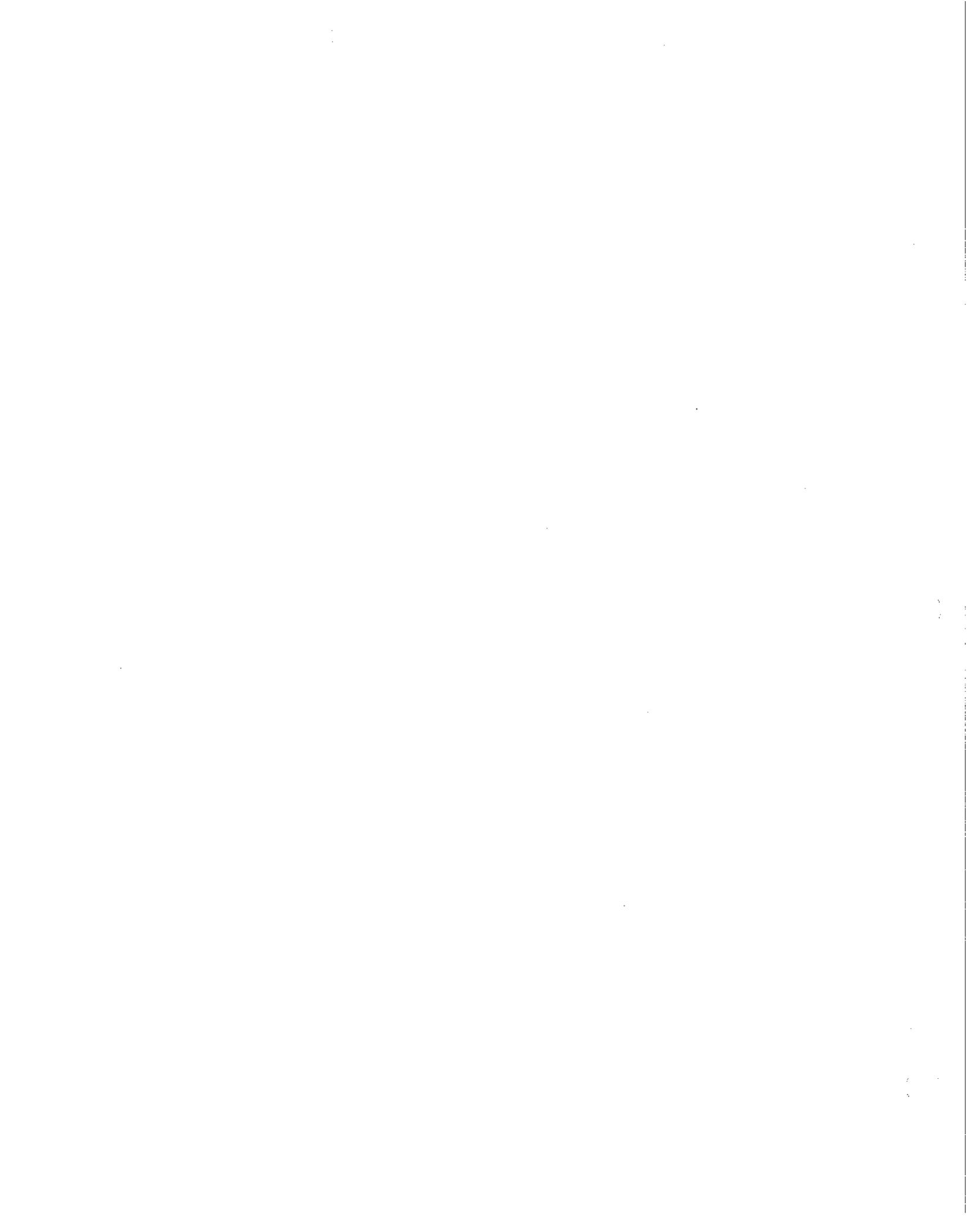
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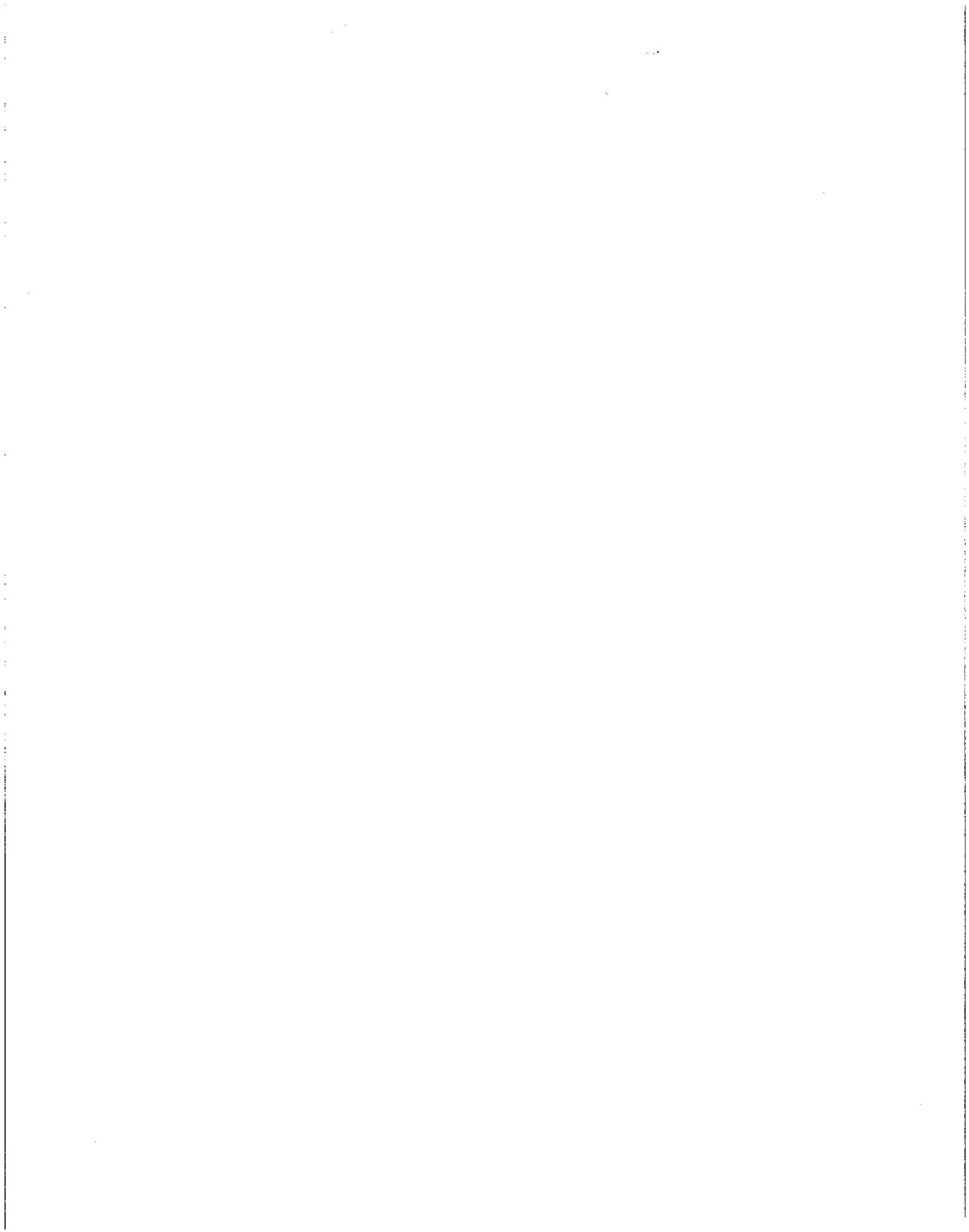
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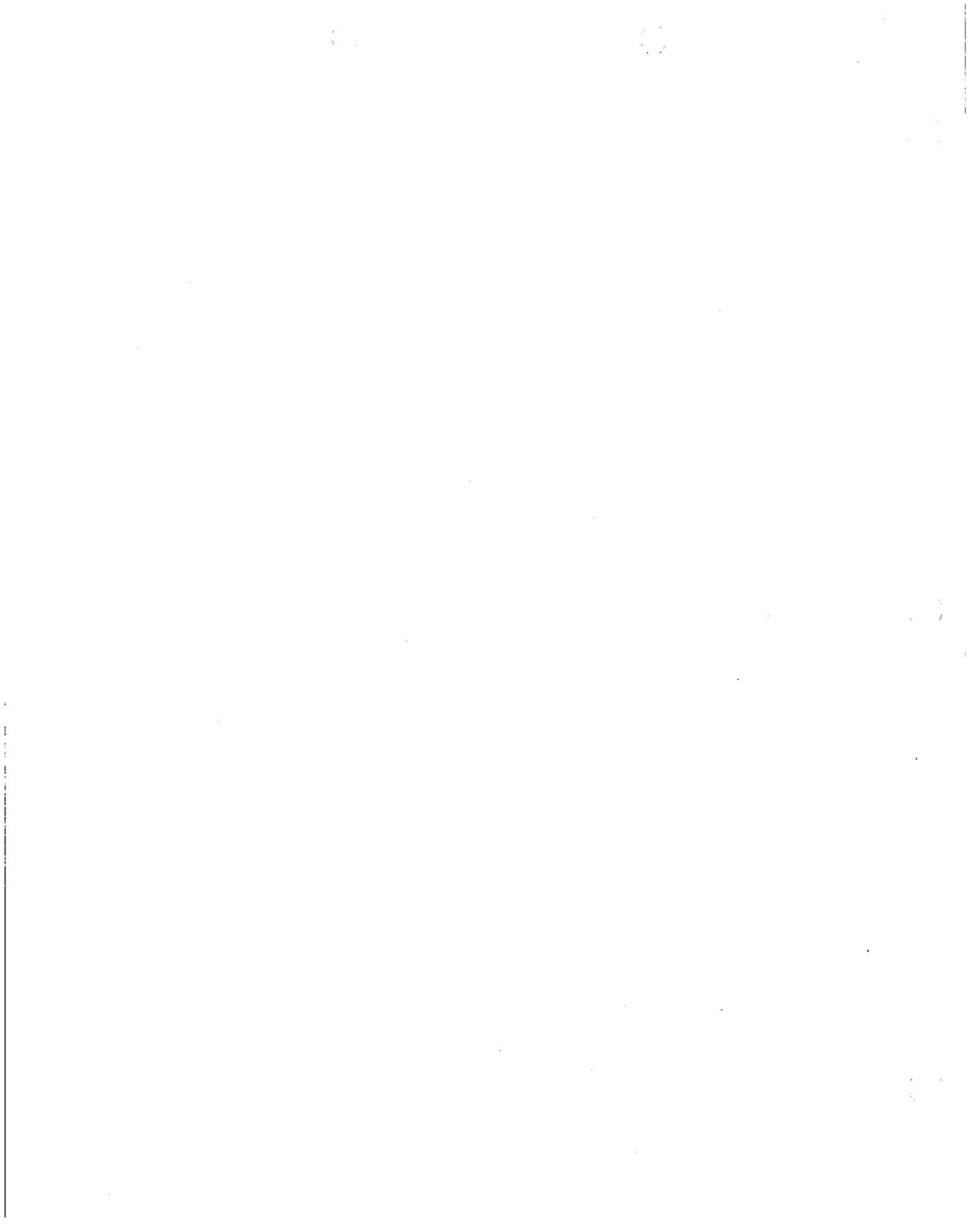


**DWR Form – Review for Completeness**



**DWR "Review for Completeness" Checklist**  
**2005 Urban Water Management Plan**  
**Victor Valley Water District**

<b>UWMP Act Code</b>	<b>Reference in 2005 UWMP</b>
<b>Coordination with Appropriate Agencies</b>	<b>Water Code §10620(d)(1)(2)</b>
Describe coordination of the plan preparation and anticipated benefits	Section 1.5
<b>Describe Resource Maximization / Import Minimization Plan</b>	<b>Water Code §10620(f)</b>
Describe water management tools/options to maximize resources and minimize the need to import water	Section 7.1 through 7.14
<b>Plan Updated in Years Ending in Five and Zero</b>	<b>Water Code § 10621(a)</b>
Plans must be updated at least once every year on or before December 31st, in years ending in five and zero	Section 1.1
<b>City and County Notification and Participation</b>	<b>Water Code § 10621 (b)</b>
Notification of any city or county within the service area regarding the update to the UWMP.	Section 1.5
<b>Service Area Information</b>	<b>Water Code §10631(a)</b>
Service area information, including population, climate and other demographic factors	Section 2.4, Section 2.5
<b>Water Sources</b>	<b>Water Code §10631(b)</b>
Identify and quantify existing and planned water supply sources	Section 3.2, Section 3.3
<b>Groundwater Identified as Existing or Planned Source</b>	<b>Water Code §10631(b)(1-4)</b>
Describe basin management plan, attach management plan, describe groundwater basins, describe plan to eliminate overdraft, analyze location, amount and sufficient production of last 5 years and analyze location and amount projected in next 25 years	Section 3.3, Section 3.4
<b>Reliability of Supply</b>	<b>Water Code §10631(c)(1-3)</b>
Describe reliability of the water supply and vulnerability to seasonal or climatic shortage	Section 4.2
<b>Water Resources Not Available on a Consistent Basis</b>	<b>Water Code §10631(c)</b>
Describe reliability/vulnerability of the water supply to seasonal or climatic shortage	Section 4.2.2
<b>Transfer or Exchange Opportunities</b>	<b>Water Code §10631(d)</b>
Describe short term and long term exchange or transfer opportunities	N/A
<b>Water Use Provisions</b>	<b>Water Code §10631(e)(1)(2)</b>
Quantify past, current & future water use by sectors	Section 5.2, Appendix C



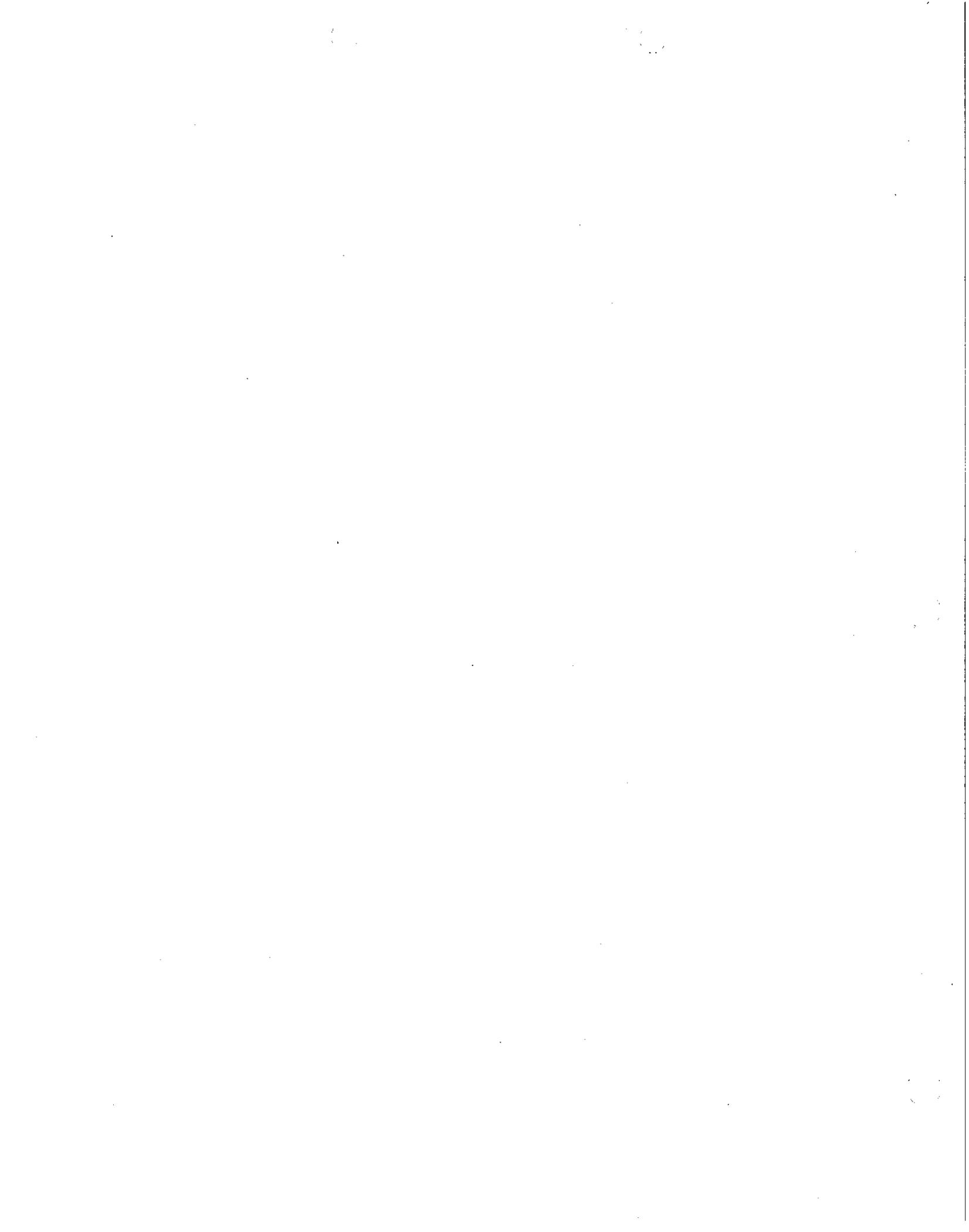
**DWR "Review for Completeness" Checklist**  
**2005 Urban Water Management Plan**  
**Victor Valley Water District**

<b>Water Survey Programs (DMM 1)</b>	<b>Water Code §10631(f)(1)(A)</b>
Water audits for residential customers including reviewing water usage history, identifying leaks inside and outside and recommending improvements	Section 7.1
<b>Residential Plumbing Retrofit (DMM 2)</b>	<b>Water Code §10631(f)(1)(B)</b>
Distribution of retrofit kits which are physically installed and reduce the amount of water used	Section 7.2
<b>Water System Audits (DMM 3)</b>	<b>Water Code §10631(f)(1)(C)</b>
System-wide water audit to quantify unaccounted for water	Section 7.3, Appendix G
<b>Metering with Commodity Rates (DMM 4)</b>	<b>Water Code §10631(f)(1)(D)</b>
Requires meters on all connections and billing by volume use	Section 7.4
<b>Landscape Irrigation Programs (DMM 5)</b>	<b>Water Code §10631(f)(1)(E)</b>
Requires agencies to assign ETo water budgets to accounts with dedicated irrigation meters and water audits those with mixed-use meters.	Section 7.5, Appendix G
<b>Washing Machine Rebate Program (DMM 6)</b>	<b>Water Code §10631(f)(1)(F)</b>
Provides financial incentive to qualifying customers who install a high efficiency washing machine.	Section 7.6
<b>Public Information (DMM 7)</b>	<b>Water Code §10631(f)(1)(G)</b>
Distribution of information to the public through a variety of methods	Section 7.7, Appendix G
<b>School Education (DMM 8)</b>	<b>Water Code §10631(f)(1)(H)</b>
Requires agency to implement a school education program that includes providing education materials and instructional assistance	Section 7.8, Appendix G
<b>Commercial, Industrial &amp; Institutional Programs (DMM 9)</b>	<b>Water Code §10631(f)(1)(I)</b>
Conservation programs for commercial, industrial and institutional accounts	Section 7.9, Appendix G
<b>Wholesale Agency Programs (DMM 10)</b>	<b>Water Code §10631(f)(1)(J)</b>
Defines a wholesaler's role in terms of financial, technical and programmatic assistance to its retail agencies.	Section 7.10



**DWR "Review for Completeness" Checklist**  
**2005 Urban Water Management Plan**  
**Victor Valley Water District**

<b>Conservation Pricing (DMM 11)</b>	<b>Water Code §10631(f)(1)(K)</b>
Implementation of pricing structure that offers incentive for consumers to conserve water	Section 7.11
<b>Water Conservation Coordinator (DMM 12)</b>	<b>Water Code §10631(f)(1)(L)</b>
Designation of a staff member to oversee implementation and effectiveness of water conservation programs	Section 7.12
<b>Water Waste Prohibition (DMM 13)</b>	<b>Water Code §10631(f)(1)(M)</b>
Ordinance or resolution prohibiting the waste of water	Section 7.13, Appendix H
<b>Ultra Low Flush Toilet Replacement (DMM 14)</b>	<b>Water Code §10631(f)(1)(N)</b>
Residential ultra-low-flush toilet replacement programs	Section 7.14, Appendix G
<b>Non-implemented DMM's</b>	<b>Water Code § 10631 (g)</b>
An evaluation of each DMM that is not implemented or planned to be implemented.	N/A
<b>Planned Water Supply Projects and Programs</b>	<b>Water Code §10631 (h)</b>
Describe expected future supply projects and programs	Section 3.5
<b>Opportunities for Development of Desalinated Water</b>	<b>Water Code §10631 (i)</b>
Describe opportunities for development of desalinated water	Section 3.6
<b>CUWCC signatory</b>	<b>Water Code §10631(j)</b>
If agency is a CUWCC member, attach 2003-2004 annual updates	Not a member
<b>Receiving or will Receive Water from Wholesale Supplier</b>	<b>Water Code §10631(k)</b>
Provide written demand projections to wholesaler, and wholesaler provides written water availability to agency	N/A
<b>Water Shortage Contingency Plan and Stage of Action</b>	<b>Water Code §10632(a)</b>
Provide water shortage stages of action, including up to a 50 percent reduction, outlining specific water supply conditions at each stage.	Section 8.2 through Section 8.4, Appendix H
<b>Three-Year Minimum Water Supply</b>	<b>Water Code §10632(b)</b>
Provide minimum water supply estimates based on driest three-year historic sequence.	Section 4.2.3



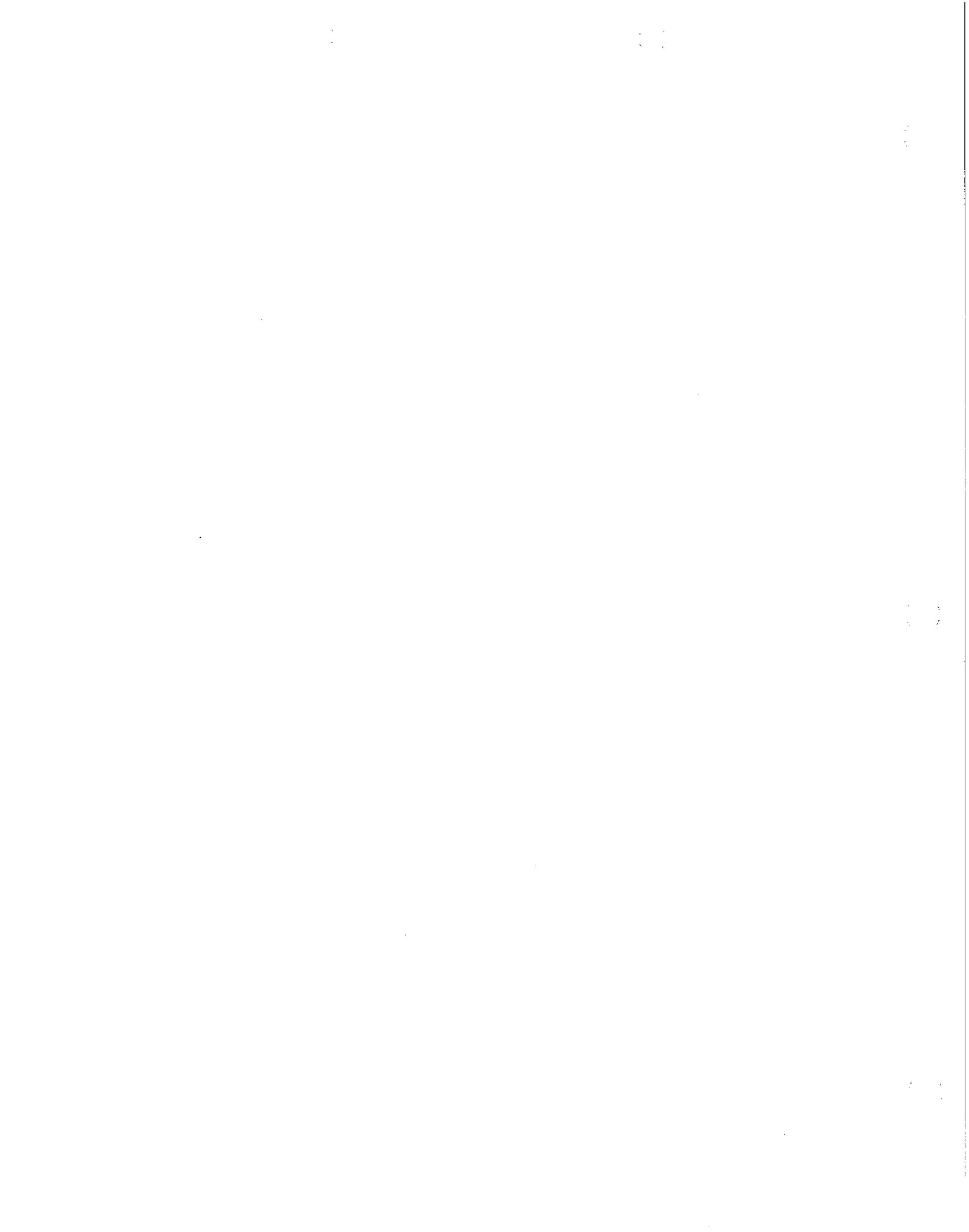
**DWR "Review for Completeness" Checklist**  
**2005 Urban Water Management Plan**  
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<b>Preparation for Catastrophic Water Supply Interruption</b>	<b>Water Code §10632(c)</b>
Provide catastrophic supply interruption plan	Section 8.6
<b>Prohibitions</b>	<b>Water Code §10632(d)</b>
List the mandatory prohibition against specific water use practice during shortage	Section 8.4.1
<b>Consumption Reduction Methods</b>	<b>Water Code §10632(e)</b>
List consumption reduction method	Section 8.4
<b>Penalties</b>	<b>Water Code §10632(f)</b>
List excessive use penalties or charges for excessive use	Section 8.4.2
<b>Revenue and Expenditure Impacts</b>	<b>Water Code §10632(g)</b>
List consumption reduction method	Section 8.5
<b>Water Shortage Contingency Ordinance/Resolution</b>	<b>Water Code §10632(h)</b>
Attach a copy of the water shortage contingency ordinance or resolution	Section 8.3, Appendix H
<b>Reduction Measure Mechanism</b>	<b>Water Code §10632(i)</b>
Provide a mechanism for determining actual reduction	Section 8.7
<b>Recycling Plan Agency Coordination</b>	<b>Water Code §10633</b>
Describe agency coordination for the recycling plan	Section 9. 1
<b>Wastewater System Description</b>	<b>Water Code §10633(a)</b>
Describe and quantify wastewater collection and treatment	Section 9.1
<b>Wastewater Disposal and Recycled Water Uses</b>	<b>Water Code §10633(a-d)</b>
Describe method of wastewater disposal, describe uses of recycling water, quantify and describe potential uses for recycling	Section 9.2
<b>Potential Uses of Recycled Water</b>	<b>Water Code §10633(e)</b>
Projected use of recycled water, compare UWMP 2000 projections with UWMP 2005 actual	Section 9.2
<b>Plan to Optimize Use of Recycled Water</b>	<b>Water Code §10633(e)</b>
Describe action to encourage recycled water use	Section 9.1 through 9.2

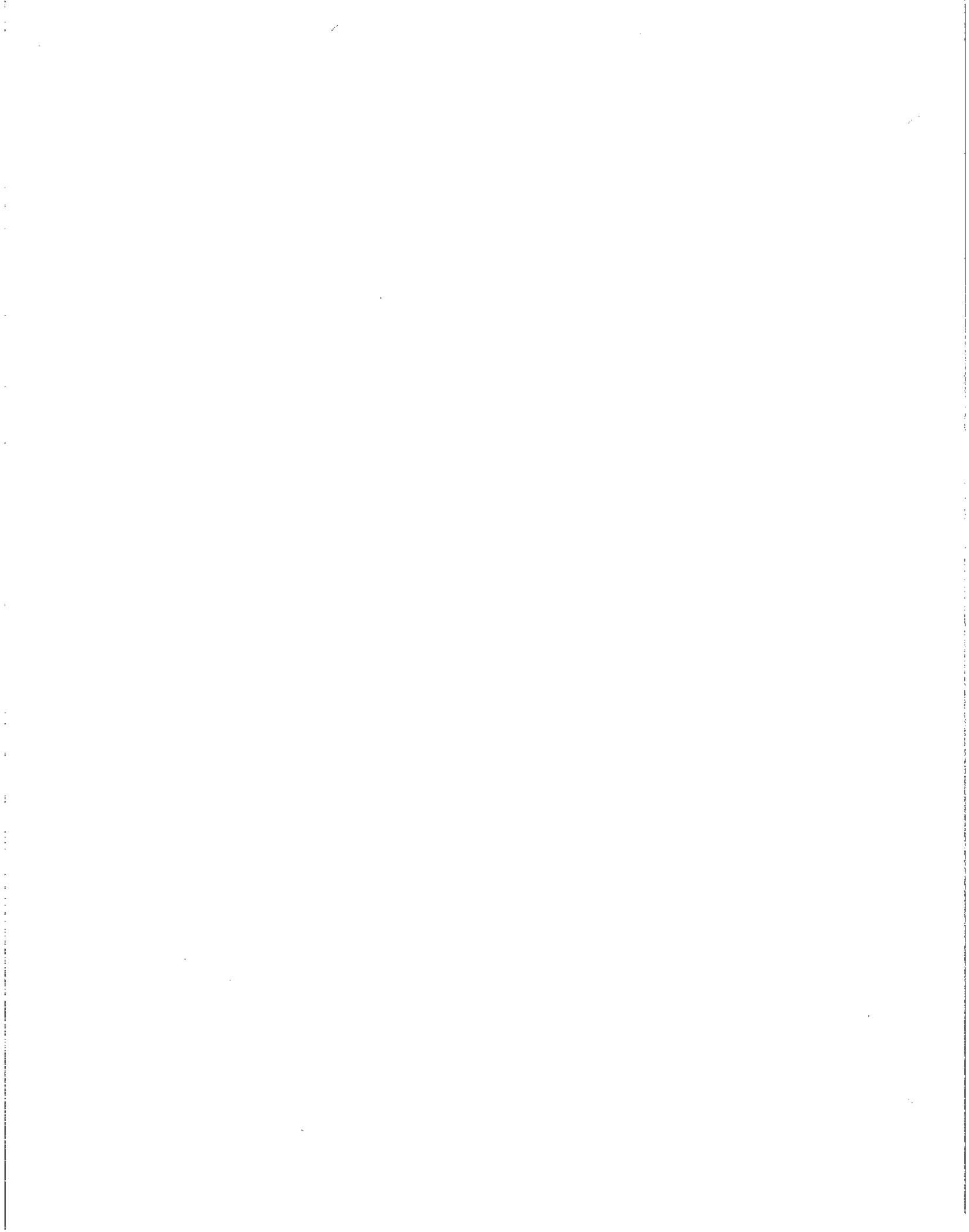


**DWR "Review for Completeness" Checklist**  
**2005 Urban Water Management Plan**  
**Victor Valley Water District**

<b>Water Quality Impacts on Availability of Supply</b>	<b>Water Code §10634</b>
Describe water quality impacts upon water management strategies	Section 4.4, Appendix F
<b>Supply and Demand Comparison: Normal Year Scenario</b>	<b>Water Code §10635(a)</b>
Compare projected supply to projected normal water demand over the next 25 years, in 5 year increments	Section 6.2
<b>Supply and Demand Comparison: Single Dry Year Scenario</b>	<b>Water Code § 10635 (a)</b>
Compare the projected single-dry year water supply to projected single-dry year water demand over the next 25 years, in 5 year increments	Section 6.2
<b>Supply and Demand Comparison: Multiple Dry Year Scenario</b>	<b>Water Code § 10635 (a)</b>
Compare the projected multiple-dry year water supply to the projected multiple dry-year water demand over the next 25 years, in 5 year increments.	Section 6.2
<b>Provision of Water Service Reliability to Cities and Counties</b>	<b>Water Code §10635(b)</b>
Provide water service reliability section of UWMP to cities and counties within supplier's service area	Section 4.2
<b>Public Participation and Plan Adoption</b>	<b>Water Code §10642</b>
Encourage involvement of social, cultural & economic community groups, provide plan for public review, provide proof of public hearing, attach a copy of adoption resolution, provide meeting notice to local government	Section 1.3, 1.4, and Appendix A
<b>Review of Implementation of 2000 UWMP</b>	<b>Water Code §10643</b>
Review implementation of 2000 UWMP	Section 1.3.1
<b>Provision of 2005 UWMP to local government</b>	<b>Water Code §10644(a)</b>
Provide 2005 UWMP to DWR, cities and counties within 30 days of adoption	Section 1.5
<b>Location of Document for Public Review</b>	<b>Water Code § 10645</b>
Does UWMP shows where it is available for public review	Section 1.4, Appendix B



## **INTRODUCTION**



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**INTRODUCTION****1.1 PURPOSE**

The California Water Code requires urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMPs) for submission to the Department of Water Resources (DWR) every five years. These plans must satisfy the requirements of the Urban Water Management Planning Act (UWMPA) of 1983, including amendments that have been made to the UWMPA. The UWMPA requires urban water suppliers servicing 3,000 or more connections, or supplying more than 3,000 acre-feet (af) of water annually, to prepare a UWMP.

The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions. This report, which was prepared in compliance with the California Water Code and as set forth in the guidelines and format established by the DWR, constitutes the Victor Valley Water District's (VVWD's) 2005 UWMP.

**1.2 URBAN WATER MANAGEMENT PLANNING ACT**

In 1983, State Assembly Bill 797 modified the California Water Code Division 6 by creating the UWMPA. Several amendments to the original UWMPA, which were introduced since 1983, have increased the data requirements and planning elements to be included in the 2005 plans.

Initial amendments to the UWMPA required that total projected water use be compared to water supply sources over the next 20 years, in 5-year increments. Recent DWR guidelines also suggest projecting through a 25-year planning horizon to maintain a 20-year timeframe until the next UWMP update has been completed.

Other amendments require that plans include provisions for recycled water use, demand management measures, and a water shortage contingency plan. The UWMPA requires inclusion of a Water Shortage Contingency Plan and specifies the necessary elements. Another element that was recently added to the UWMPA is a section for recycled water. Recycled water figures prominently in the requirements for evaluation of alternative water supplies, when future projections predict the need for additional water supplies. Each urban water purveyor must coordinate the preparation of the Water Shortage Contingency Plan with other urban water purveyors in the area, to the extent practicable. Water suppliers must also describe the water demand management measures that they are implementing or have scheduled for implementation.



Amendments SB 610 (Costa, 2001) and AB 901 (Daucher, 2001), which became effective beginning January 1, 2002, require counties and cities to consider and evaluate data relating to the availability of water to supply new large developments in the UWMPs.

The most recent amendments include SB 318 (Alpert, 2004) and AB 105 (Wiggins, 2004). SB 318 requires the plan to describe the opportunities for development of desalinated water, including but not limited to ocean water, brackish water, and groundwater, as long-term supply. AB 105 requires urban water suppliers to submit their UWMPs to the California State Library.

### **1.3 PREVIOUS URBAN WATER MANAGEMENT PLAN**

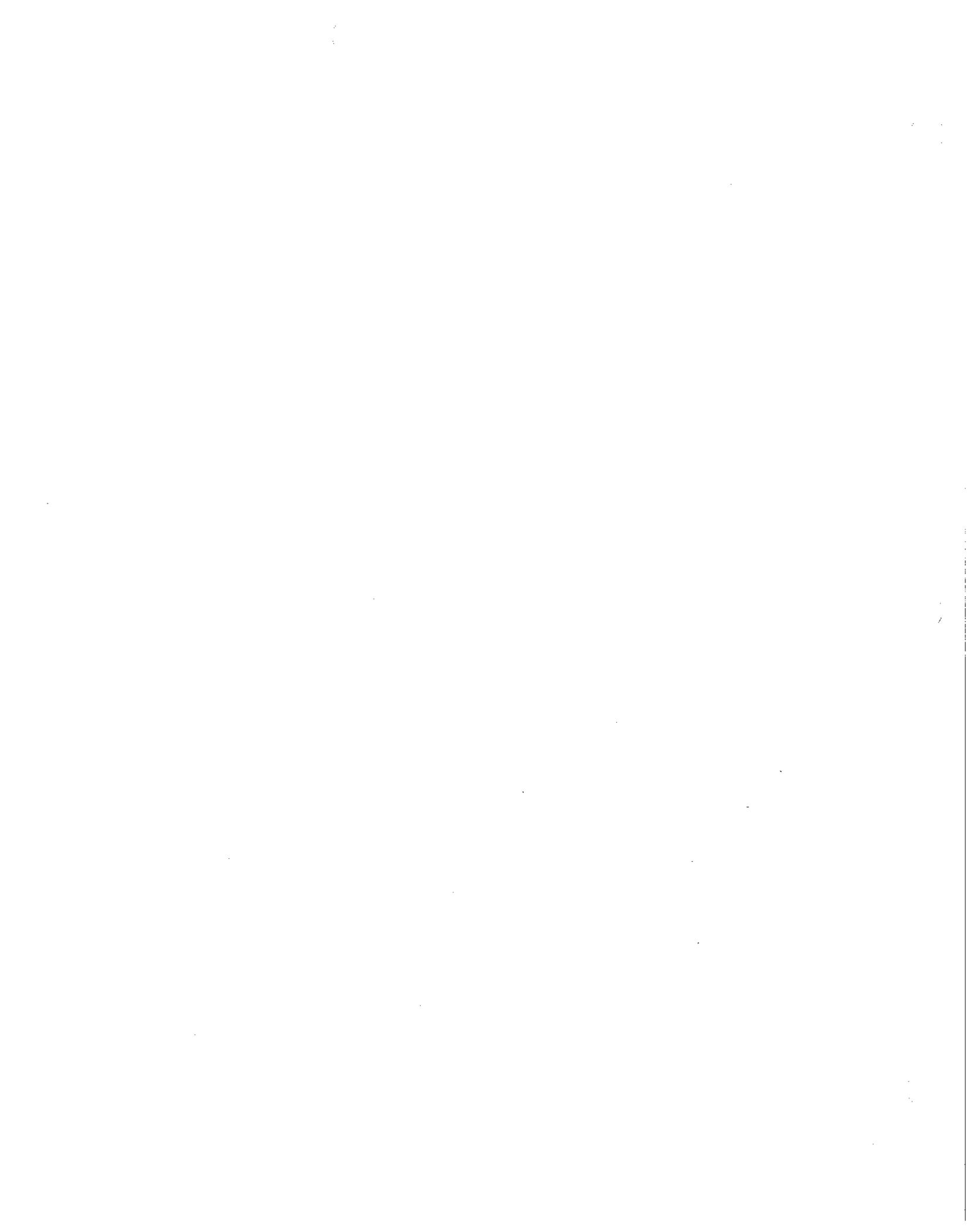
This section briefly describes the major recommendations from VVWD's 2000 UWMP, dated December 2000.

#### **1.3.1 2000 UWMP Recommendations**

The 2000 UWMP provided water supply and demand forecasts, description of water sources and reliability, a water shortage contingency plan, water management accomplishments of the past five years, and water management programs to implement in the next five years.

The recommended urban water management programs for VVWD described in the 2000 UWMP consisted of a combination of existing and proposed water conservation measures. The 2000 UWMP recommended that VVWD continue with its existing activities as implemented at that time. The 2000 UWMP conservation measures consisted of the following items:

- Water conservation kits for retrofitting existing plumbing fixtures are made available to VVWD customers at the VVWD office.
- VVWD's overall system loss over the last few years is typically less than 10 percent. VVWD continues to implement procedures to prevent leak detection by regularly inspecting for leaks throughout the system, having staff on duty to respond to pipe ruptures or leaks, and regularly exercising all control/shut-off valves to correct leaks in an efficient manner.
- In 1990, the Board of Directors enacted several resolutions adopting water conservation policies and requirements, having voluntary provisions and penalties for violations. The resolutions provide for prohibition of water wastage at all times, not only during times of drought.
- VVWD supports local energy utilities (Southern California Edison and Southwest Gas) in their efforts to encourage water conservation devices such as ultra-low-flush toilets (ULFTs), showerheads, and kitchen faucets.



- VVWD supports the American Water Works Association and the Mojave Water Agency in their efforts to educate schoolchildren by flyers and bulletins. VVWD also provides films and videos on water conservation that are free and available to schools, business organizations, and group assemblies.
- Conservation reminders are periodically noted on water bills given to VVWD's residents and businesses.

In addition to the above-listed conservation measures, VVWD currently has plans to incorporate several more measures within the next 2 to 5 years. These measures include: indoor and outdoor water surveys, including free retrofits for residential and commercial customers; a conservation poster contest for K-6 schools within VVWD boundaries; partnership with Mojave Desert Resource Conservation District to provide stormwater pollution prevention education for K-12 students and Project Water Education for Teachers (WET) training; a rebate program for smart irrigation controllers; a pilot program for waterless urinals at high-use facilities; and a high-efficiency washer rebate program.

## 1.4 PUBLIC PARTICIPATION AND PLAN ADOPTION

The UWMPA requires that the UWMP show that the water agency will request public participation.

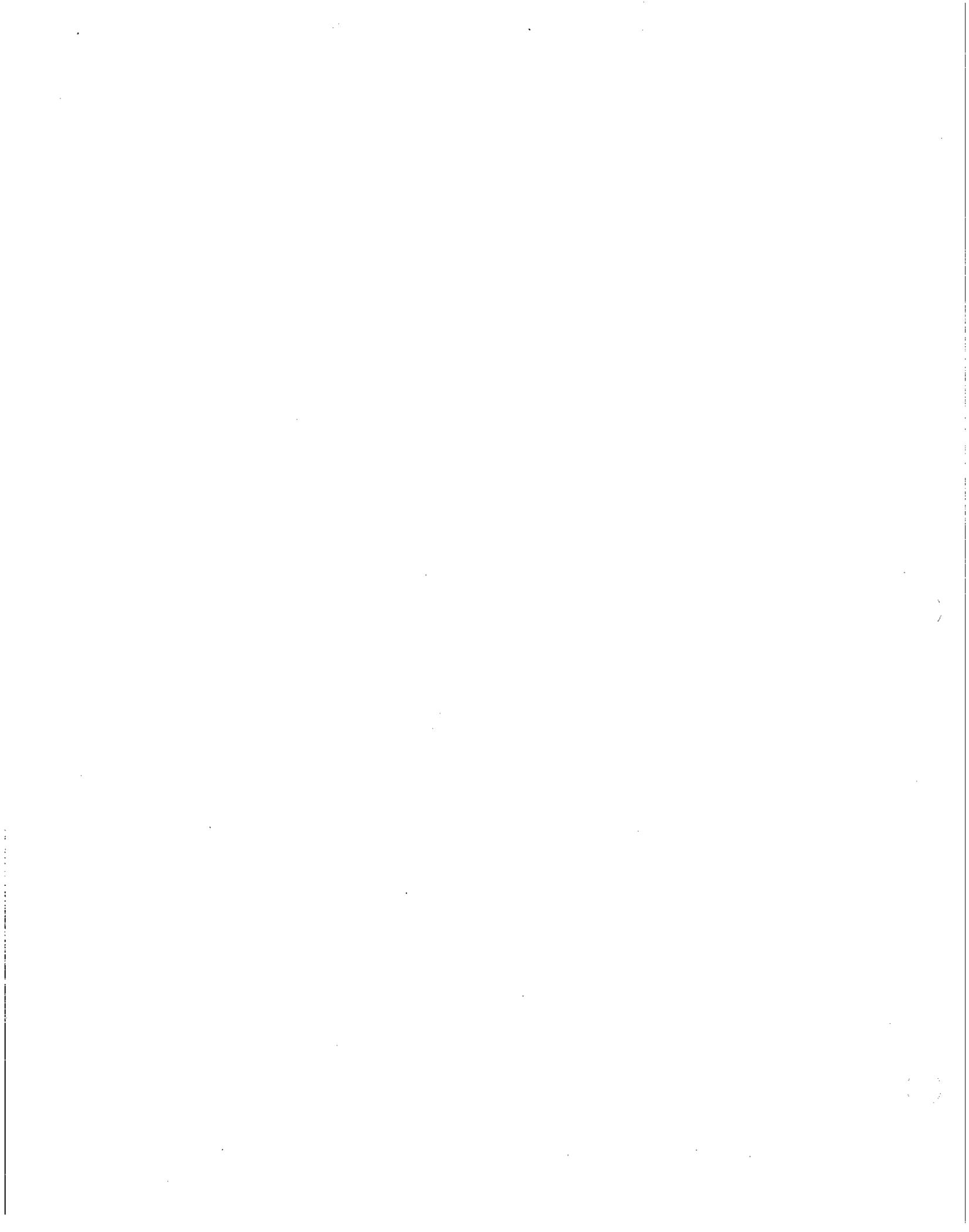
UWMPA:

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

In accordance with the UWMPA, VVWD held a public hearing and adopted the 2005 UWMP on December 21, 2005. A copy of the adopting resolution is included in Appendix A. Two successive weeks prior to adoption, a notice of the public hearing was published in the local newspaper, notifying interested parties that the draft 2005 UWMP was available at VVWD facilities and on VVWD's website for review. A copy of this advertisement is included in Appendix B.

## 1.5 AGENCY COORDINATION

The UWMPA requires that UWMPs identify the water agency's coordination with appropriate nearby agencies.



UWMPA:

10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

VVWD's 2005 UWMP is intended to address those aspects of the UWMPA that are under the control of VVWD, specifically water supply and water use. While preparing the 2005 UWMP, VVWD coordinated its efforts with relevant agencies to ensure that the data and issues are presented accurately.

The following agencies were provided copies of the Public Review Document of the 2005 UWMP for VVWD: VVWRA, City of Victorville, Town of Apple Valley, City of Adelanto, County of San Bernardino, MWA, and Baldy Mesa Water District.

VVWD contacted the DWR to discuss the requirements of the UWMPA and obtain electronic workbooks, checklists, and other developed guidelines to prepare this report.

## 1.6 REPORT ORGANIZATION

This UWMP contains nine chapters that were prepared to follow the outline requirements listed in the UWMPA. The chapters are briefly described below.

- Chapter 1 - Introduction.
- Chapter 2 - Service Area.
- Chapter 3 - Water Supply.
- Chapter 4 - Reliability Planning.
- Chapter 5 - Water Use.
- Chapter 6 - Supply and Demand Comparison.
- Chapter 7 - Water Demand Management Measures.
- Chapter 8 - Water Shortage Contingency Plan.
- Chapter 9 - Recycled Water.

Additionally, the chapters are preceded with a separate section titled "DWR Review for Completeness Form." This form is based on the 2005 UWMP Review Form and is provided to assist DWR staff during their review process.



**SERVICE AREA**



## 2.1 GENERAL

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the water purveyor's service area and various aspects of the area served including climate, population, and other demographics.

UWMPA:

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

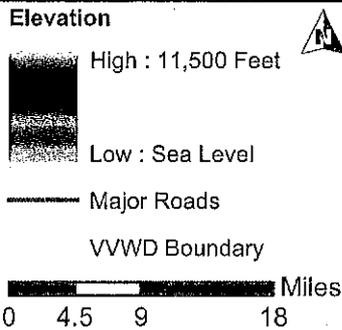
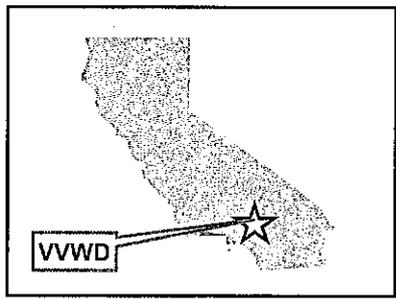
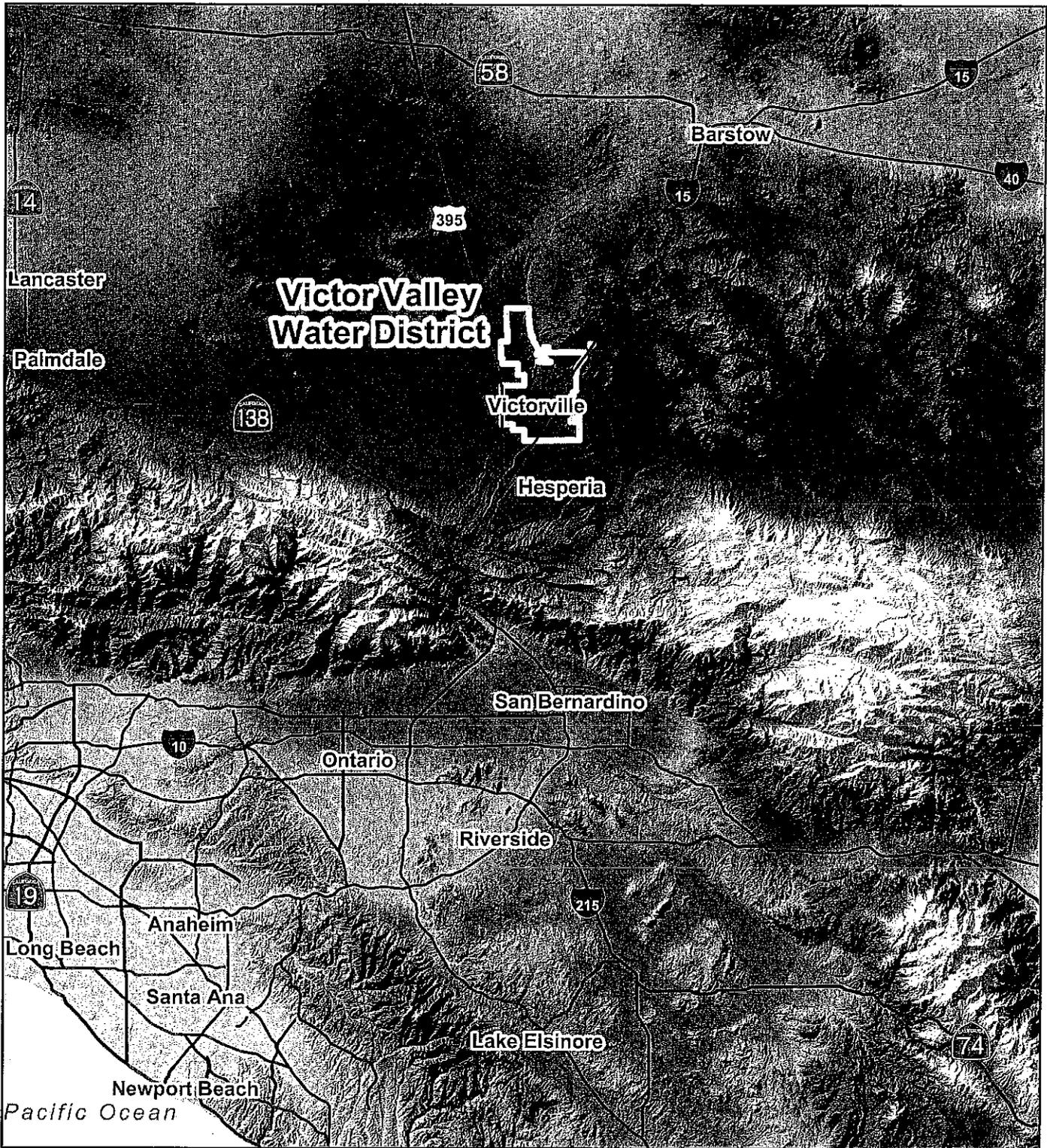
## 2.2 LOCATION

Victor Valley Water District (VVWD) is located within the City of Victorville in the Mojave Desert of San Bernardino County, California, and is bounded by the City of Adelanto to the west; the City Hesperia to the south; the City of Apple Valley, Spring Valley Lake, and the Mojave Narrows Regional Park to the east; and the County of San Bernardino to the north. It is approximately 90 miles northeast of Los Angeles and lies north of the San Bernardino Mountains as shown in Figure 2.1. Currently, VVWD encompasses approximately 58 square miles (37,000 acres) of area, including Southern California Logistics Airport (SCLA). However, although the airport area lies within VVWD's boundaries, it is served by the City of Victorville. Therefore, VVWD currently services approximately 43 square miles (27,600 acres).

## 2.3 LAND USE

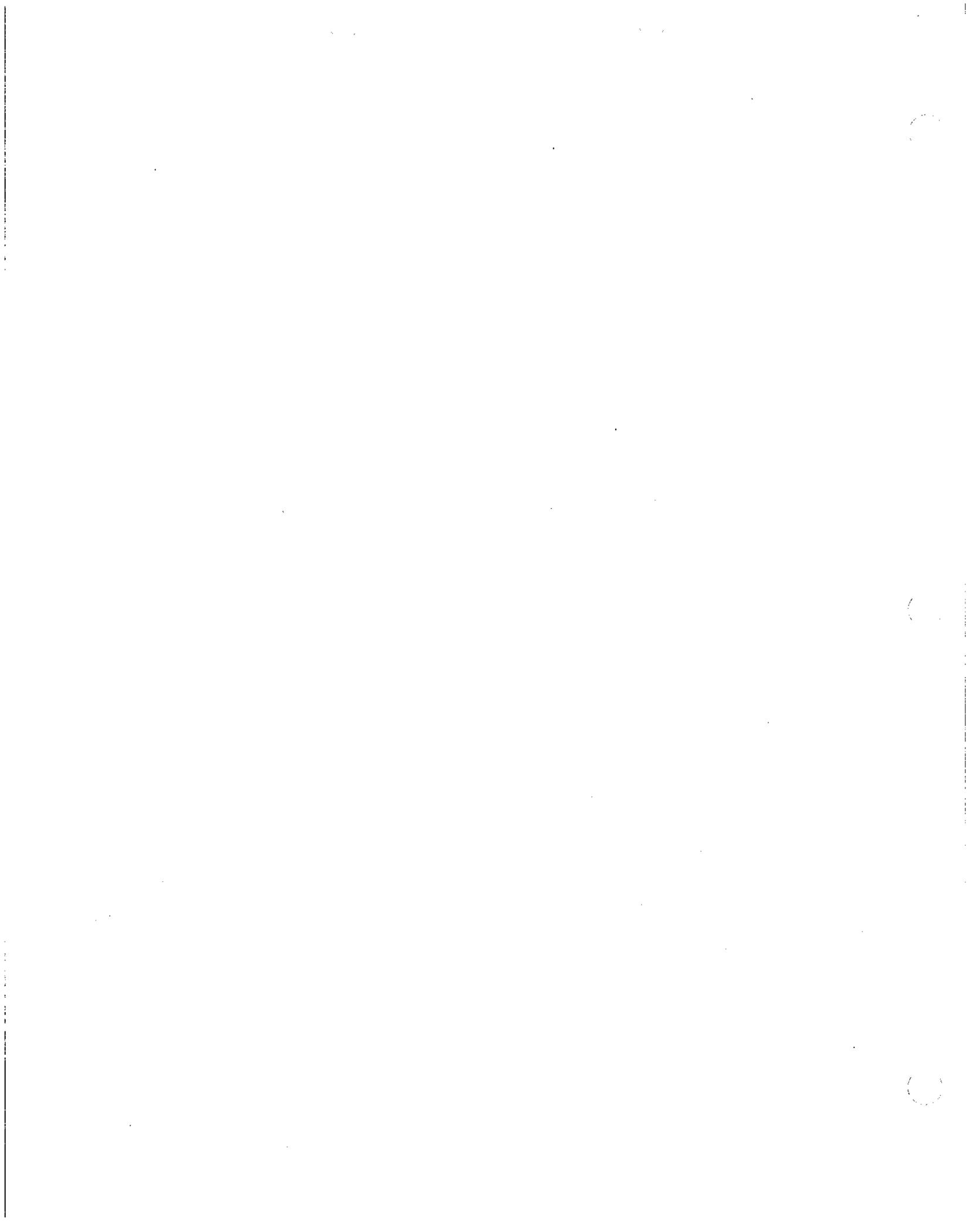
Frequently, estimations of future water demands are based on land use and the anticipated rate of development for each planning year. VVWD's water service area includes a major portion of the City of Victorville. Figure 2.2 illustrates the boundaries of VVWD's service area excluding the areas outside VVWD limits that are served by the City of Victorville. Information obtained from the City's of Victorville's planning department was used to determine the locations and dates of proposed land use developments within VVWD's boundaries.

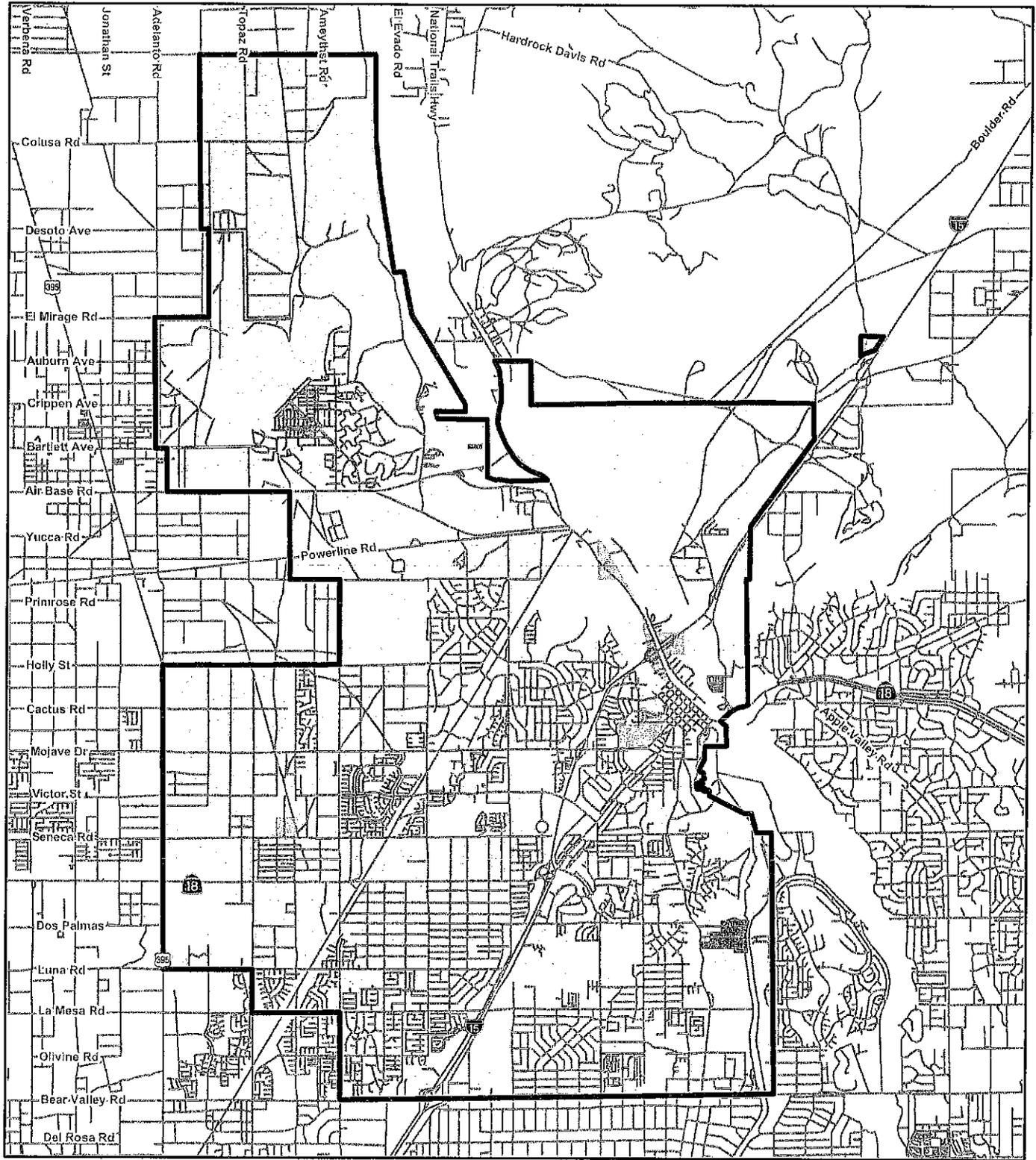




**FIGURE 2.1**  
**REGIONAL LOCATION MAP**  
 2005 URBAN WATER MANAGEMENT PLAN  
 VICTOR VALLEY WATER DISTRICT

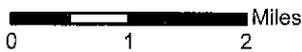






**Legend**

-  Victor Valley Water District
-  Exclusion Area
-  Annexation Area



**FIGURE 2.2**  
**SERVICE AREA MAP**  
**2005 URBAN WATER**  
**MANAGEMENT PLAN**  
**VICTOR VALLEY WATER DISTRICT**



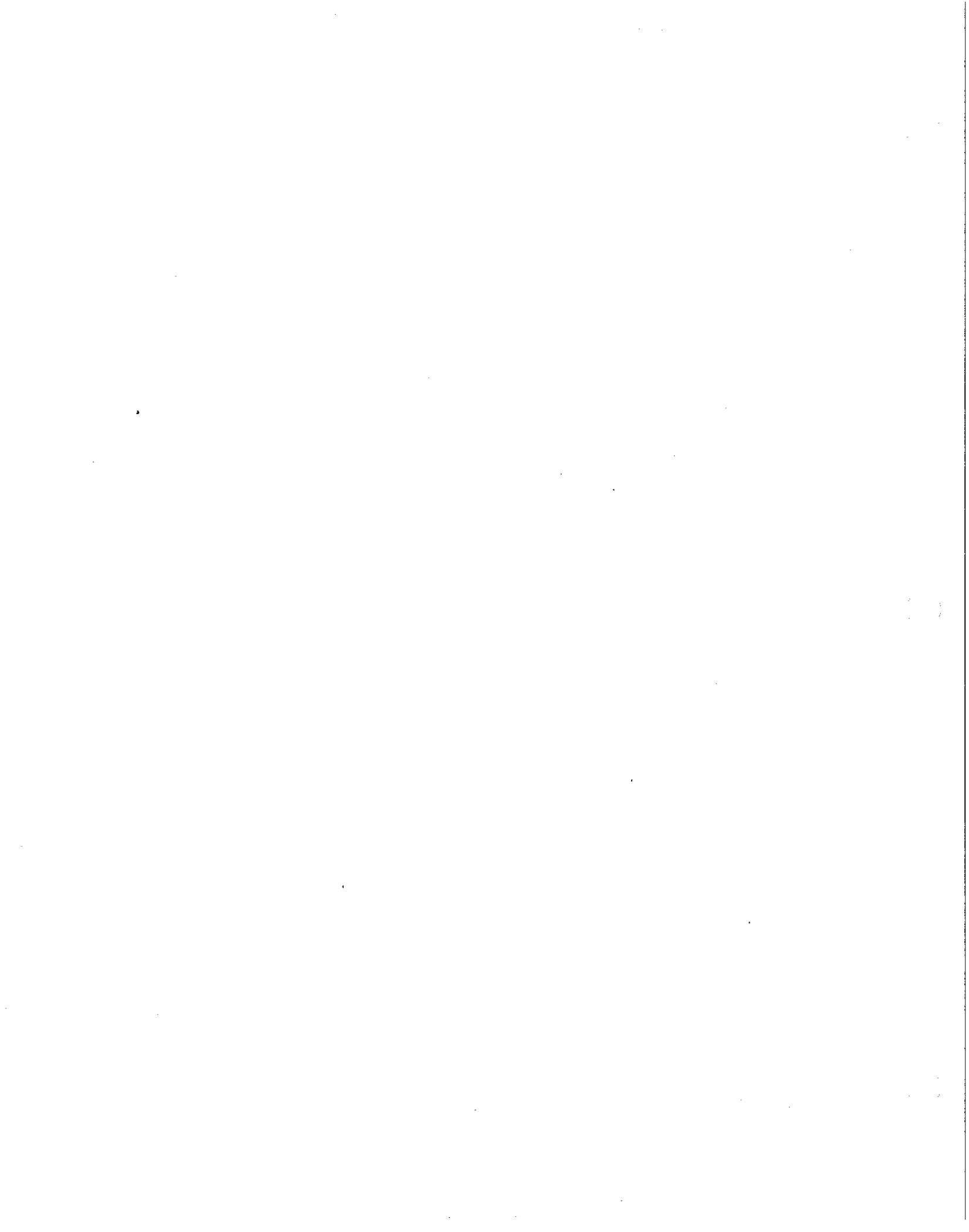


The existing land use includes 7,387 acres of residential, 1,683 acres of commercial, 570 acres of industrial, 380 acres of open space, and 1,521 acres of public/planned development/special plan use. VVWD is currently in the process of developing an updated 20-Year Comprehensive Water Master Plan (WMP). The analyses in the WMP divide VVWD into the various land-use types. As part of the analysis for the WMP, VVWD's 20 land-use types were grouped into eight categories: Commercial, Industrial, Open Space (Non-Irrigated), Other, Residential-Low Density, Residential-Medium Density, and Residential-High Density. Commercial land use consists of the following land-use types: business parks, shopping areas, entertainment corridors, auto centers, amusement resorts, and regional commercial. Industrial land use consists of community manufacturing. Open space includes parks, recreational areas, and freeways. Other areas include any future planned developments or public and civic uses. Rates of annual development for land-use types within VVWD were defined and water demands calculated for each planning year. The various land-use categories within VVWD are shown in Table 2.1.

<b>Table 2.1 Land Use Categories 2005 Urban Water Management Plan Victor Valley Water District</b>			
	<b>Land Use</b>	<b>Areas (acres)</b>	<b>Percentage of Total (%)</b>
<b>Residential</b>			
	Low Density	6,435	23.1
	Medium Density	276	1.0
	High Density	676	2.4
	<b>Commercial</b>	1,683	6.0
	<b>Industrial</b>	570	2.0
	<b>Open Space</b>	380	1.4
	<b>Other (Public, Planned Development/Specific Plan)</b>	1,521	5.5
	<b>Vacant</b>	16,367	58.6
	<b>Total</b>	<b>27,908</b>	<b>100.0</b>
<u>Notes:</u> Source: VVWD 20-year Comprehensive Water Master Plan, November 2005 Draft.			

## 2.4 CLIMATE

The climate within VVWD is a desert climate with hot, dry summers and cool winters with wide temperature differences between day and night. Temperatures in the summer months vary between an average low of 61 degrees F and an average high of 97 degrees F. In the winter months, the average temperature extremes vary from 30 degrees F to 58 degrees F, respectively in January. The rainy season lasts from October through April with an average



precipitation of 0.9 inches in February and 0.01 inches in June. Table 2.2 shows the average monthly evapotranspiration (ETo), rainfall, and temperature for the area.

<b>Table 2.2 Average Monthly Climate Data 2005 Urban Water Management Plan Victor Valley Water District</b>				
<b>Month</b>	<b>Average ETo<sup>(1)</sup></b>	<b>Average Rainfall<sup>(2)</sup></b>	<b>Average Temperature<sup>(2)</sup></b>	
January	2.02	1.02	44.5	
February	2.61	1.04	47.9	
March	4.55	0.83	52.0	
April	6.19	0.34	57.7	
May	7.30	0.16	65.0	
June	8.85	0.05	73.0	
July	9.77	0.15	79.5	
August	8.99	0.19	78.7	
September	6.52	0.28	73.0	
October	4.66	0.30	62.8	
November	2.68	0.51	51.4	
December	2.05	0.73	44.5	
<b>Annual</b>	<b>66.19</b>	<b>5.58</b>	<b>60.8</b>	

**Notes:**  
 (1) Source: Department of Water Resources, California Irrigation Management Information System website.  
 (2) Source: National Oceanic and Atmospheric Administration Western Regional Climate Center website.

## 2.5 PROJECTED POPULATION

VVWD includes a portion of the City of Victorville. Victorville is located north of the San Bernardino Mountains in the Mojave Desert region known as Victor Valley in San Bernardino County, California. Throughout the 1980s and 1990s, and even though George Air Force Base was closed in 1992, the area has continued to grow due to the lower housing costs and climate.

The population rate of increase has seen a dramatic increase since 2003. Population studies from the Southern California Association of Governments (SCAG) were reviewed but were considered too low for the current growth rate. Therefore, population and water demand projections were developed using land-use-based information for existing areas and known development projects. Table 2.3 presents the estimated population growth through 2030 and compares these values to the projected SCAG populations. This table

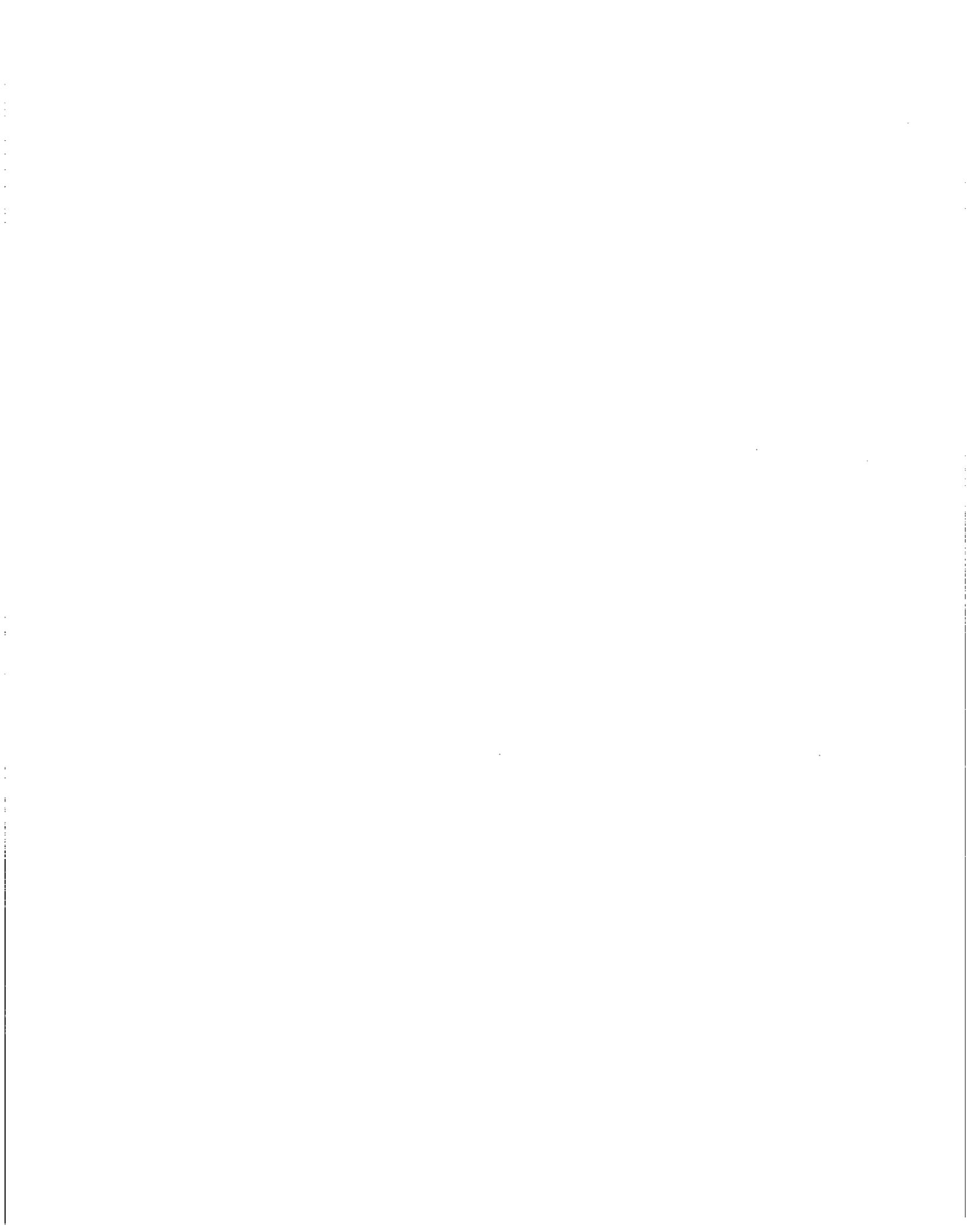


shows that the growth projections used in this UWMP are more conservative than the SCAG projections.

<b>Table 2.3 Current and Projected Population 2005 Urban Water Management Plan Victor Valley Water District</b>						
	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
City of Victorville <sup>(1)</sup>	75,952	81,592	92,548	103,353	113,711	123,641
Victor Valley Water District <sup>(2)</sup>	72,056	105,814	111,288	117,308	122,702	128,097
Annual Increase over 5-Year Period		8.0%	1.0%	1.1%	0.9%	0.9%
<b>Notes:</b>						
(1) City Population Projections Source: Southern California Association of Governments.						
(2) VVWD Population Source: Land use information for existing developed areas and proposed development projects. See Appendix C.						



**WATER SUPPLY**



**WATER SUPPLY****3.1 GENERAL**

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include a description of the agency's existing and future water supply sources for the next 20 years. The description of water supplies must include detailed information on the groundwater basin such as water rights, determination if the basin is in overdraft, adjudication decree, and other information from the groundwater management plan (if available).

UWMPA:

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

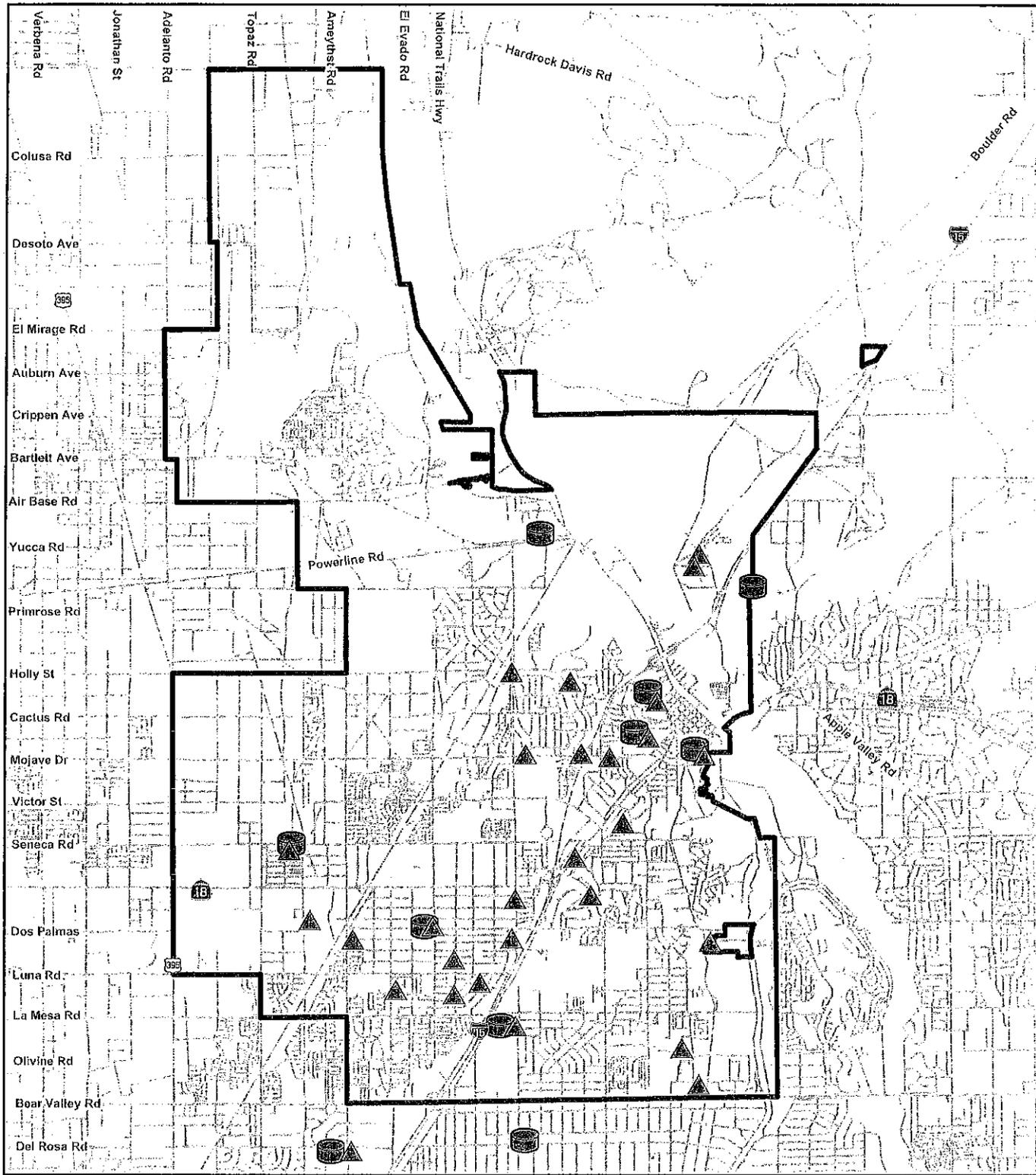
10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments to 20 years or as far as data is available. (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

10631 (b) (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

10631 (b) (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

**3.2 WATER SUPPLY FACILITIES**

The Victor Valley Water District (VVWD) currently uses local groundwater as its sole source of supply. VVWD's municipal water system extracts all of its water supply from the underground aquifers through 23 active groundwater wells throughout the VVWD. An additional 10 wells are currently under design or under construction and will be operational by the year 2007. Maps showing the specific location of each well are included in Figure 3.1. The pumping capacities of the VVWD wells are shown on Table 3.1. The combined capacities of all of VVWD's existing wells is about 22,314 gallons per minute (gpm) (32.1 million gallons per day (mgd)). Water is conveyed from the wells to the consumers via 375 miles of water pipelines with pipe sizes ranging between 4 and



**Legend**

-  Groundwater Wells
-  Reservoir
-  Victor Valley Water District



0 1 2 Miles

**FIGURE 3.1**  
**WATER SUPPLY FACILITIES**  
**2005 URBAN WATER**  
**MANAGEMENT PLAN**  
**VICTOR VALLEY WATER DISTRICT**



24 inches in diameter. VVWD maintains 18 storage reservoirs, one proposed reservoir, within the distribution system, with a total capacity of 54.4 million gallons.

<b>Table 3.1 Existing Active Water Supply Wells 2005 Urban Water Management Plan Victor Valley Water District</b>			
<b>Well No.</b>	<b>Year Drilled</b>	<b>Motor Size (hp)</b>	<b>Capacity (gpm)</b>
5	1954	60	469
9	1950	125	910
15	1963	75	590
16	1983	125	1,048
18	1983	60	764
19	1984	60	509
20	1986	300	1,910
21	1989	75	444
22	1989	300	1,910
23	1951	200	969
25	1951	250	1,360
26	1985	200	1,041
27	1986	125	1,020
28	1987	150	759
29	1989	200	710
30	1993	200	983
31	1992	300	1,302
32	1993	150	780
33	1993	150	1,000
34	1993	250	1,025
35	1997	75	880
36	1999	200	581
37	1999	200	1,350
<b>Total Existing Water Supply Capacity</b>			<b>22,314</b>
<b>Notes:</b>			
Source: 20-Year Comprehensive Water Master Plan, Draft November 2005. Capacities obtained from Southern California Edison Pump Tests or Pump Check, Pumping Systems Analysts.			

In addition to the existing wells shown in Table 3.1, VVWD will have five new wells operational by the summer of 2006. These new wells are shown in Table 3.2.

<b>Table 3.2 New Water Supply Wells 2005 Urban Water Management Plan Victor Valley Water District</b>			
<b>Well No.</b>	<b>Year Drilled</b>	<b>Motor Size (hp)</b>	<b>Capacity (gpm)</b>
38	2003	200	800
39	2003	500	2,700
40	2003	500	2,800
41	2003	300	1,500
43	2005	350	2,000
Additional Water Supply Capacity by the Summer of 2006			9,800
Total Existing Water Supply Capacity (from Table 3.1)			22,314
Total Water Supply Capacity by the Summer of 2006			32,114
<b>Notes:</b>			
Source: 20-Year Comprehensive Water Master Plan, Draft November 2005.			

As shown in Table 3.2, the total supply capacity available to VVWD by the summer of 2006 will be 32,114 gpm (46.2 mgd). In addition to the 5 new wells planned for 2006, VVWD will have another 5 wells operational by the summer of 2007. Two of these wells have been drilled and the drilling on the remaining three wells will begin in early 2006. Design and construction will follow on all five wells.

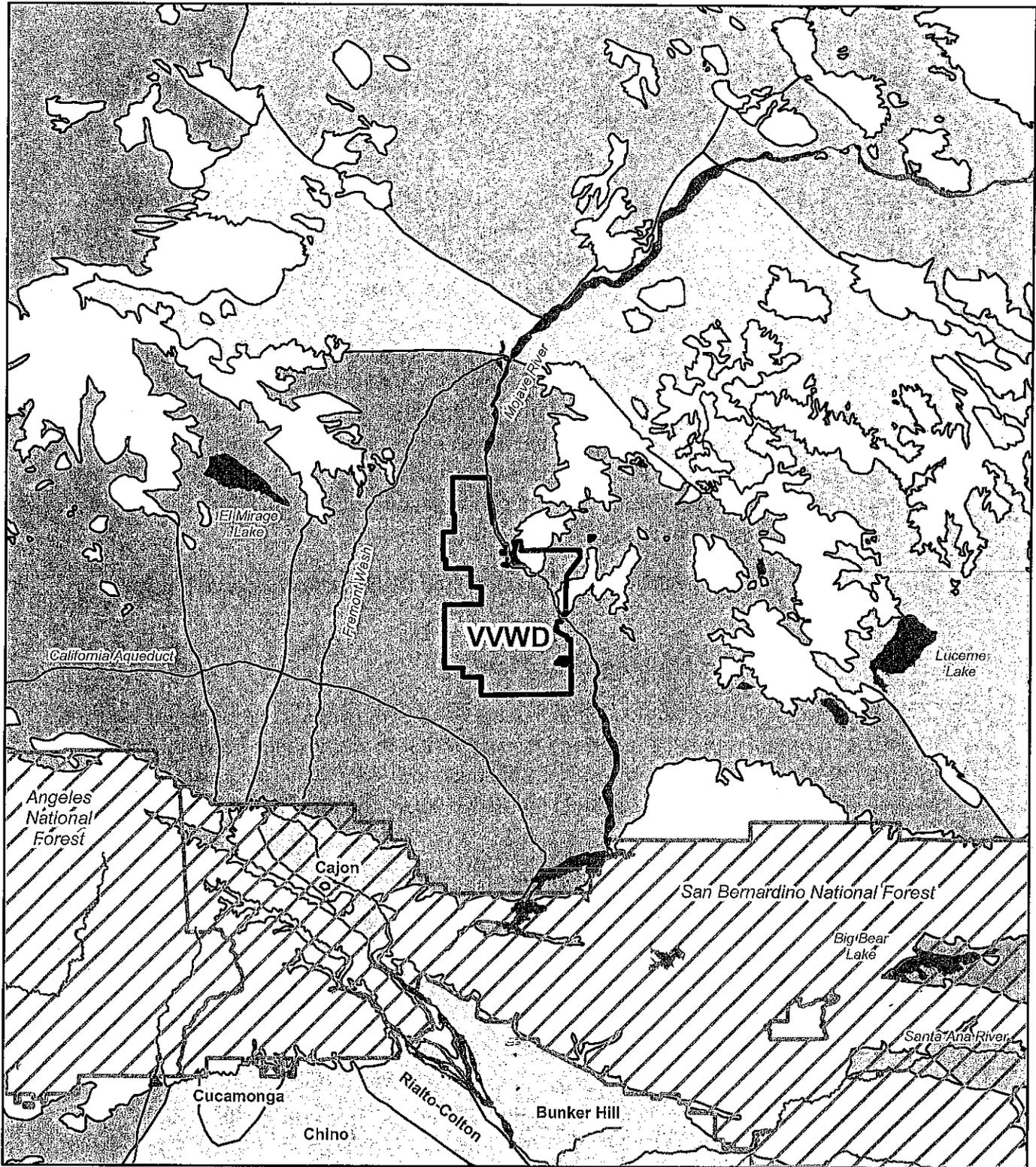
### **3.3 GROUNDWATER BASIN**

The groundwater basin underlying the VVWD is the Mojave River Groundwater Basin (Figure 3.2).

#### **3.3.1 Basin Boundaries**

The Mojave River Groundwater Basin encompasses 1,400 square miles and has an estimated storage capacity of nearly 5 million acre-feet (af). The Mojave River Groundwater Basin lies within the South Lahontan hydrologic region (MWA, 2004<sup>1</sup>). There have been many different and conflicting references to the subbasins within the Mojave River basin. This report looks at the classifications and boundaries as set by the Mojave Basin Area Judgment and California's Groundwater Bulletin No. 118, published by the Department of Water Resources (DWR).

For management purposes under the Mojave Basin Area Judgment, the Mojave Water Agency (MWA) split the basin into five separate subbasins. The Mojave River Groundwater Basin subarea classifications are Este, Alto, Oeste, Centro, and Baja. The subarea boundaries are based on hydrologic divisions, geologic, engineering, and political



**Legend**

- |                              |                           |                            |
|------------------------------|---------------------------|----------------------------|
| Victor Valley Water District | Big Meadows Valley        | Middle Mojave River Valley |
| National Forest              | El Mirage Valley          | San Gabriel Valley         |
| <b>Groundwater Basin</b>     | Harper Valley             | Seven Oaks Valley          |
| Antelope Valley              | Lower Mojave River Valley | Upper Mojave River Valley  |
| Bear Valley                  | Lucerne Valley            | Upper Santa Ana Valley     |
|                              |                           | Waterway                   |

0 5 10 Miles

Text:  
Chino -- Groundwater Subbasin

**FIGURE 3.2**  
**GROUNDWATER BASINS**  
**2005 URBAN WATER**  
**MANAGEMENT PLAN**  
**VICTOR VALLEY WATER DISTRICT**



considerations (MWA, 2004<sup>1</sup>). The Alto subarea is located in the southeast portion of the Mojave River Groundwater Basin and is situated below the VVWD, as well as nearby Hesperia and Apple Valley.

In contrast, the DWR Bulletin 118-03 defines 11 groundwater basins within the Mojave River Groundwater Basin (MWA, 2004<sup>1</sup>). Within this basin, the Upper Mojave River Valley Groundwater Basin encompasses 645 square miles and includes parts of the transition zone, Alto and Este subareas (MWA, 2004<sup>1</sup>). The Upper Mojave River Valley Groundwater Basin is bounded on the north by an approximate east-west line of basement rock outcroppings near Helendale to those in the Shadow Mountains (DWR, 2004<sup>2</sup>). The southern boundary is the contact between Quaternary sedimentary deposits and unconsolidated basement rocks of the San Bernardino Mountains. To the southeast is the Helendale Fault, and to the east are the basement exposures of the mountains surrounding Apple Valley. The western boundary is marked by a surface drainage divide between this basin and the El Mirage Valley Basin, and a contact between alluvium and basement rocks that form the Shadow Mountains (DWR, 2004<sup>2</sup>).

The VVWD is located within MWA's Alto subarea and DWR's Upper Mojave River Valley Groundwater Basin.

### **3.3.2 Groundwater Management Plan**

Continuous and high growth rates in the Mojave River Basin area in the 1950s through the 1980s caused water demands to exceed local supplies. The imbalance between supply and demand has led to overdraft of the basin. Continued lowering of the groundwater table led to an adjudication process that began in the early 1990s. The purpose of the stipulated judgment was to:

- Create incentives to conserve local water.
- Guarantee that downstream producers will not be adversely affected by upstream production.
- Assess producers to obtain funding for the purchase of imported water.

The Mojave Basin Judgment assigned a Base Annual Production (BAP) quota to each producer that uses 10 af/yr or more. Pumpers were also assigned a variable Free Production Allowance (FPA), which is a uniform percentage of the BAP set for each subbasin. This percentage is reduced over time until the FPA comes into balance with the available supplies. Any producer that pumps more than their FPA is compelled to purchase replenishment water from the MWA or otherwise obtain additional local water supplies to equal the amount of production in excess of their FPA (MWA, 2004<sup>1</sup>). The Watermaster's annual report for 2003 through 2004 recommends an FPA of 60 percent for municipal and industrial users within the Alto subbasin, including the VVWD.

## **3.4 GROUNDWATER STUDY**

### **3.4.1 Subsurface Geologic Conditions**

VVWD is located above the Mojave River Regional Aquifer. This area is characterized by sedimentary deposits of undifferentiated alluvium.

### **3.4.2 VVWD Supply Wells**

VVWD has 23 active groundwater wells. The wells are located throughout the VVWD and have a total supply capacity of 22,314 gpm or 32.1 mgd. VVWD's firm production, which is defined as the total capacity with the single largest well out of service, is approximately 20,404 gpm (29.5 mgd).

This supply capacity will increase to approximately 32,114 gpm (46.2 mgd) by the summer of 2006 with the addition of five new wells that are currently under design or under construction. By the summer of 2007, VVWD will have 10 new wells in service (5 wells by 2006 and 5 more wells by 2007).

### **3.4.3 Groundwater Levels**

Groundwater within the Alto subbasin generally flows north/northeast. According to the DWR California Groundwater Bulletin 118-03, the storage capacity of the Alto subbasin is approximately 2.1 million af. In 1999, the MWA calculated that approximately 960,000 af of groundwater is currently stored in the Alto subbasin (DWR, 2004<sup>2</sup>). Thus, there is approximately 1.1 million af of additional storage capacity in this subbasin.

In a report prepared for VVWD by Richard C. Slade & Associates LLC (Slade), the volume of storage in the groundwater basin under VVWD's boundary was investigated. The Slade report established that there are more than 754,000 af of usable groundwater in storage under VVWD's boundaries (excluding the SCLA area). Water levels from local wells indicate that groundwater has declined approximately 30 feet over the last 20 years (DWR, 2004<sup>2</sup>). Three high-precipitation years occurred between 1991 and 1999, which produced a slight increase in groundwater levels (DWR, 2004<sup>2</sup>).

### **3.4.4 Sources of Recharge and Discharge**

Groundwater recharge is primarily from direct precipitation, ephemeral stream flow, infrequent surface flow of the Mojave River, and underflow of the Mojave River from the southwest (DWR, 2004<sup>2</sup>).

### **3.4.5 Well Yields and Aquifer Characteristics**

Pumping rates for VVWD's wells range from 444 to 1,910 gpm. Pumping rates for 10 of the 23 active wells exceed 1,000 gpm.

## **3.5 WATER SUPPLY PROJECTIONS**

To establish the adequacy of the water supply facilities, the source(s) must be large enough to meet the varying water demand conditions, as well as provide sufficient water during drought conditions and potential emergencies such as power outages and natural disasters.

### **3.5.1 Normal Production Capacity**

In accordance with industry standard practices and the California Department of Health Services (DHS) criteria for "Adequate Source Capacity" on water supply, the source should be sized to serve the maximum day demand (MDD). On the day of maximum demand, it is desirable to maintain a water supply rate equal to the MDD rate. Water required for peak hour demands (PHD) or for fire flows would come from storage.

### **3.5.2 Standby Production Capacity**

Standby production capacity is required for system reliability. Under normal operating conditions, it is possible that one or two of the VVWD's wells can be placed out of service during MDD conditions due to equipment malfunction, for servicing, or for water quality concerns. The California DHS criterion for standby production capacity recommends considering the capacity of the largest well being out of service.

VVWD currently owns three portable standby generators that can be used to power wells during a power outage. In addition, VVWD has equipped wells with connection points for the portable generators and plans to purchase more generators in 2006. Generators provide a second source of power to the wells, which increase the reliability of the wells to produce water.

The VVWD's current MDD is approximately 30.0 mgd and VVWD staff indicates that their production capacity is currently 31.5 mgd. The VVWD has increased the water supply facilities to include redundancy provisions for standby production and source reliability.

### **3.5.3 Water Supply Projects**

VVWD has projects planned, under design, and/or under construction that will increase its groundwater production capacity, restore the capacity from wells with high arsenic levels, recharge the groundwater basin with imported water, and treat imported water for direct use. These projects will provide VVWD with adequate supplies well into the foreseeable future.

VVWD has five new wells currently under design or under construction. These wells will increase VVWD's production capacity by about 9,800 gpm (14.1 mgd) by the summer of 2006. Within the following year, five more wells will be constructed by the summer of 2007. These additional 10 wells over the next two years will add about 19,700 gpm (28.4 mgd) to VVWD's existing production capacity.

California's new arsenic standard, which takes effect in January 2006, significantly impacts VVWD's groundwater wells. For the past five years, VVWD has investigated a variety of treatment technologies to determine the most cost-effective, reliable, and operator-friendly treatment options. Within the last month, VVWD has begun construction of the treatment facilities.

The basin beneath VVWD can support a significant number of additional wells. However, the basin needs to be replenished to enable a long-term and sustainable water supply. This is the principal reason VVWD is pursuing groundwater replenishment with imported water. Since 1999, VVWD has been proactive in working with the MWA, Baldy Mesa Water District (BMWD), and the United States Geological Survey to study the ability to replenish the local groundwater supply with imported water. VVWD obtained a \$5 million grant in 2000 to investigate and construct replenishment facilities. Land for two pilot percolation basins has been purchased and two test basins have been constructed with trial replenishment currently underway at both sites.

VVWD was part of a cooperative study with BMWD, the County of San Bernardino, and the City of Adelanto to evaluate a regional water treatment plant. The study evaluated treatment technologies and estimated capital and operating costs. BMWD and VVWD are considering a pilot-scale treatment plant to refine potential treatment processes. VVWD has purchased 20 acres of land for a potential future water treatment plant.

### 3.5.4 Future Supply Capacity

With a firm production capacity that continues to meet the MDD, the VVWD's groundwater wells provide an adequate source of supply for the VVWD.

This UWMP includes a review of VVWD's supply requirements through the planning horizon of 2030. These projections are summarized in Table 3.3, which lists the projected water supply in 5-year increments, through the planning horizon of 2030.

<b>Table 3.3 Current and Projected Water Supply 2005 Urban Water Management Plan Victor Valley Water District</b>						
<b>Supply Units</b>	<b>Current and Projected Years</b>					
	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>
mgd	32.1	60.5	60.5	60.5	60.5	60.5
af/yr	35,950	67,600	67,600	67,600	67,600	67,600
<b>Notes:</b>						
(1) The projected supply capacities for 2010 through 2030 are based on the estimated capacity from VVWD's existing wells plus the 10 additional wells that are currently under design or under construction and planned to be completed by the summer of 2007.						

## **3.6 DESALINATED WATER**

### **3.6.1 Brackish Water and/or Groundwater Desalination**

The groundwater basins located under or near the VVWD are not brackish and do not require desalination. Therefore, there is no water of this nature available to the VVWD for direct use. However, VVWD could provide financial assistance to State Water Project (SWP) contractors in exchange for SWP supplies. Communities near the desalination plant would receive the desalinated water and a similar amount of SWP supplied would be exchanged and allocated to VVWD. Should the need arise, VVWD may consider this option.

### **3.6.2 Seawater Desalination**

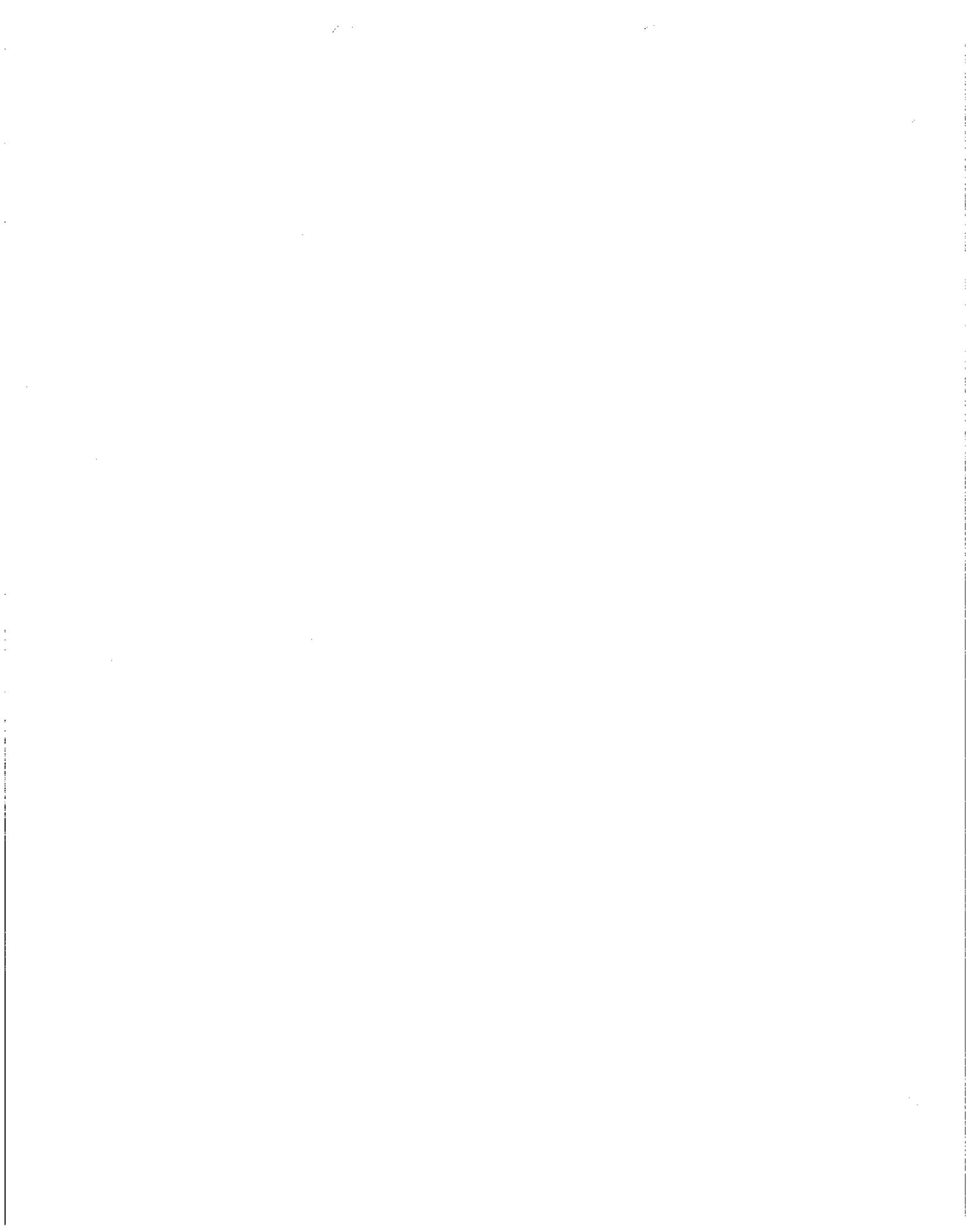
Because the VVWD is not located in a coastal area, it is not practical nor economically feasible to implement a seawater desalination program. If the need arises, VVWD could provide financial incentives to SWP contractors in the construction of their seawater desalination facilities in exchange for SWP supplies. However, more economical supply sources are available to VVWD, so seawater desalination is not planned for the foreseeable future.

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<sup>1</sup> Mojave Water Agency (2004), *Regional Water Management Plan: Integrated Regional Water Management Plan, Groundwater Management Plan, Urban Water Management Plan, Apple Valley, CA*

<sup>2</sup> California Department of Water Resources (2004), *California Groundwater Bulletin 118: South Lahontan Hydrologic Region Upper Mojave River Valley Groundwater Basin, Sacramento, CA*

**RELIABILITY PLANNING**



**RELIABILITY PLANNING****4.1 GENERAL**

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plans (UWMPs) address the reliability of the agency's water supplies. This includes supplies that are vulnerable to seasonal or climatic variations. In addition, an analysis must be included to address supply availability in a single dry year and in multiple dry years.

UWMPA:

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.

10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

10631 (c) Provide data for each of the following: (1) An average water year, (2) A single dry water year, (3) Multiple dry water years.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (b) An estimate of the minimum water supply available during each of the next three-year years based on the driest three-year historic sequence for the agency's water supply.

The UWMPA also requires that the UWMP include information on the quality of water supplies and how this affects management strategies and supply reliability.

UWMPA:

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631 and the manner in which water quality affects management strategies and supply reliability.

**4.2 WATER SUPPLY RELIABILITY**

There are two aspects of supply reliability that should be considered. The first relates to immediate service needs and is primarily a function of the availability and adequacy of the supply facilities. The second aspect is climate-related, and involves the availability of water during mild or severe drought periods. This chapter considers Victor Valley Water District's

(VVWD's) water supply reliability during three water scenarios: normal water year, single dry water year, and multiple dry water years. These scenarios are defined as follows:

- **Normal Year**: The normal year is a year in the historical sequence that most closely represents median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields.
- **Single Dry Year**: This is defined as the year with the minimum useable supply. The supply quantities for this condition are derived from the minimum historical annual yield.
- **Multiple Dry Years**: This is defined as the three consecutive years with the minimum useable supply. Water systems are more vulnerable to these droughts of long duration, because they deplete water storage reserves in local and state reservoirs and in groundwater basins. The supply quantities for this condition are derived from the minimum historical three consecutive years' annual yields.

VVWD's water supply, which is described in more detail in other chapters, consists of the following four categories:

- Imported Surface Water (future).
- Groundwater.
- Recycled Water (future).
- Conservation Programs.

#### **4.2.1 Standby Production**

As described in the previous chapter, standby production capacity is required for system reliability. Under normal operating conditions, it is possible that one or two of VVWD's wells can be out of service at any time, even during maximum day demand (MDD) conditions due to equipment malfunction, servicing, or water quality concerns.

The California Department of Health Services (DHS) criteria recommends counting the capacity with the largest well out of service to determine standby production capacity. In addition to this scenario, the Water Master Plan (WMP) November 2005 Draft has a preliminary list of criteria that will be addressed to provide adequate emergency storage.

The WMP will provide recommendations to mitigate the potential impact of lost production capabilities for the following emergency scenarios:

- The loss of the largest well for a period of seven days of average day demands (ADD).
- The loss of electricity for two days of MDD.

VVWD's current MDD is about 30.0 mgd. The current supply capacity is 32.1 mgd. VVWD has upgraded some of the water supply facilities to include redundancy provisions for standby production and source reliability, such as the construction of seven new wells (three additional wells are under design), three portable generators, connection points for portable generators at each well site, a portable booster pump, and 54 MG of reservoir storage capacity. The operation of VVWD's groundwater wells depends on electricity to operate. Therefore, backup or alternative energy sources (i.e., backup generators that run on diesel) help to improve the reliability of the groundwater wells and booster pumping stations. In addition, the distribution of VVWD's multiple wells provides added reliability in this supply source, thus reducing the likelihood that all groundwater wells will be out of service simultaneously.

#### 4.2.2 Climate-Related

VVWD pumps groundwater from the Upper Mojave Groundwater Basin, which lies beneath Victor Valley in the Mojave Desert area and is west of the Mojave River. The basin is managed by the Mojave Water Agency (MWA). Natural recharge into the groundwater basin comes from infiltration of the precipitation runoff from the San Bernardino and San Gabriel mountains. Temporary decline in water availability might not affect the long-term water supply, but it can have other impacts. As VVWD is experiencing a rapid increase in population, the demands on the basin will increase. During extended drought periods, the water supply may be reduced. These events will require more aggressive demand management practices, the need to import water, implementation of recycled water use, as well as diligence in seeking other water supply sources. One alternative VVWD is currently studying with Baldy Mesa Water District, MWA, and the United States Geological Survey (USGS) is the ability to replenish the local groundwater supply by percolating with imported water. Table 4.1 shows the estimated Year 2030 water supplies.

#### 4.2.3 Available Future Water Supplies

Table 4.1 shows the water supply projections through the planning Year 2030. For the future planning years, these projections are based on the additional capacity added from known supply projects that are under design or under construction.

Table 4.1 Water Supply Reliability 2005 Urban Water Management Plan Victor Valley Water District							
Planning Year	Added Well Capacity (gpm)	Units	Average (Normal) Water Year	Single Dry Water Year	Multiple Dry Water Years		
					Year 1	Year 2	Year 3
Existing <sup>(1)</sup>	None	mgd	32.1	32.1	32.1	32.1	32.1
		af/yr	35,950	35,950	35,950	35,950	35,950

<b>Table 4.1 Water Supply Reliability 2005 Urban Water Management Plan Victor Valley Water District</b>							
<b>Planning Year</b>	<b>Added Well Capacity (gpm)</b>	<b>Units</b>	<b>Average (Normal) Water Year</b>	<b>Single Dry Water Year</b>	<b>Multiple Dry Water Years</b>		
					<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>2010<sup>(2)</sup></b>	19,700	mgd	65.0	65.0	65.0	65.0	65.0
		af/yr	67,600	67,600	67,600	67,600	67,600
<b>2015</b>	-	mgd	65.0	65.0	65.0	65.0	65.0
		af/yr	67,600	67,600	67,600	67,600	67,600
<b>2020</b>	-	mgd	65.0	65.0	65.0	65.0	65.0
		af/yr	67,600	67,600	67,600	67,600	67,600
<b>2025</b>	-	mgd	65.0	65.0	65.0	65.0	65.0
		af/yr	67,600	67,600	67,600	67,600	67,600
<b>2030</b>	-	mgd	65.0	65.0	65.0	65.0	65.0
		af/yr	67,600	67,600	67,600	67,600	67,600

**Notes:**  
(1) Existing production shown includes all existing wells that are in service (from Table 3.1).  
(2) Projected supply for 2010 includes increased production from 10 new wells which will be online by the summer of 2007 (from Table 3.2).

### 4.3 WATER SHORTAGE EXPECTATIONS

In general, demands during droughts increase to compensate for the lack of rainfall that was benefiting landscape irrigation. The water use projections assume the potential increase will be offset by the increased and more stringent water conservation measures that will be activated by VVWD. In addition to the imported State Water Project (SWP) water used to recharge the groundwater basin, conservation measures and implementation of recycled water are being considered to offset demands from the rapid population growth in VVWD. In December 2004, the MWA developed a draft report entitled Post-2020 Water Supply Options to review this issue and provided several project recommendations for implementation.

### 4.4 GROUNDWATER QUALITY

The United States Environmental Protection Agency (USEPA) is currently considering implementing several new or revised drinking water standards. The Groundwater Rule (GWR) contains measures to establish multiple barriers to further protect against bacteria and viruses in drinking water from the groundwater sources. The GWR will specify when corrective action is required to further protect consumers served by groundwater systems

from bacteria and viruses. Currently, the VVWD chlorinates its groundwater supply prior to introducing the water into the distribution system. The water supply and distribution either meet or exceed the state and federal standards for drinking water regulations. Therefore, availability of supply is not hindered by water quality impacts.

California's new arsenic standard, which takes effect in January 2006, significantly impacts VVWD's groundwater wells. The arsenic levels in VVWD's wells are highly variable. Thirteen wells sometimes exceed the new MCL, yet only five average above the MCL. For the past five years, VVWD has investigated a variety of treatment technologies to determine the most cost-effective, reliable, and operator-friendly treatment options. VVWD investigated iron-based adsorbents, ion exchange, coagulation filtration, downhole blending, and well modifications. Pilot studies were carried out on several technologies, including some in cooperation with other water agencies.

The construction of one ion exchange arsenic treatment plant is complete (Well 29) and that plant will be operational by January 2006. Within the last month, VVWD has begun construction on two coagulation/filtration treatment plants, a blending station, and associated pipelines. The project is estimated to cost more than \$14 million when fully constructed. The construction contract for the treatment plants was awarded September 7, 2005 and construction is underway.

Table 4.2 lists the water quality data for 2004.

<b>Table 4.2 Chemical Quality of Water from VVWD Wells 2005 Urban Water Management Plan Victor Valley Water District</b>			
<b>Constituent</b>	<b>MCL<sup>(1)</sup></b>	<b>PHG<sup>(2)</sup></b>	<b>Average Amount Detected</b>
<b>Inorganic Chemicals</b>			
Arsenic (ppb) <sup>(3)</sup>	50	0.004	6.88
Fluoride (ppm) <sup>(4)</sup>	2	1	0.39
Nitrate (ppm as NO <sub>3</sub> )	45	45	4.24
<b>Secondary Standards<sup>(5)</sup></b>			
Chloride (ppm)	500	N/A	10.81
Sulfate (ppm)	500	250	23.57
Total Dissolved Solids (ppm)	1,000	500	162.61
<b>Unregulated Contaminants Requiring Monitoring</b>			
Calcium (ppm)	Not Regulated	N/A	10.66
Magnesium (ppm)	Not Regulated	N/A	1.19
Hardness (ppm)	Not Regulated	N/A	31.52

<b>Table 4.2 Chemical Quality of Water from VVWD Wells            2005 Urban Water Management Plan            Victor Valley Water District</b>			
Constituent	MCL <sup>(1)</sup>	PHG <sup>(2)</sup>	Average Amount Detected
Potassium (ppm)	Not Regulated	N/A	1.2
Sodium (ppm)	Not Regulated	N/A	44.65

**Notes:**

(1) Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water.

(2) Public Health Goal: The level of a contaminant in drinking water below which there is not known expected risk to health. Values are set by California Environmental Protection Agency.

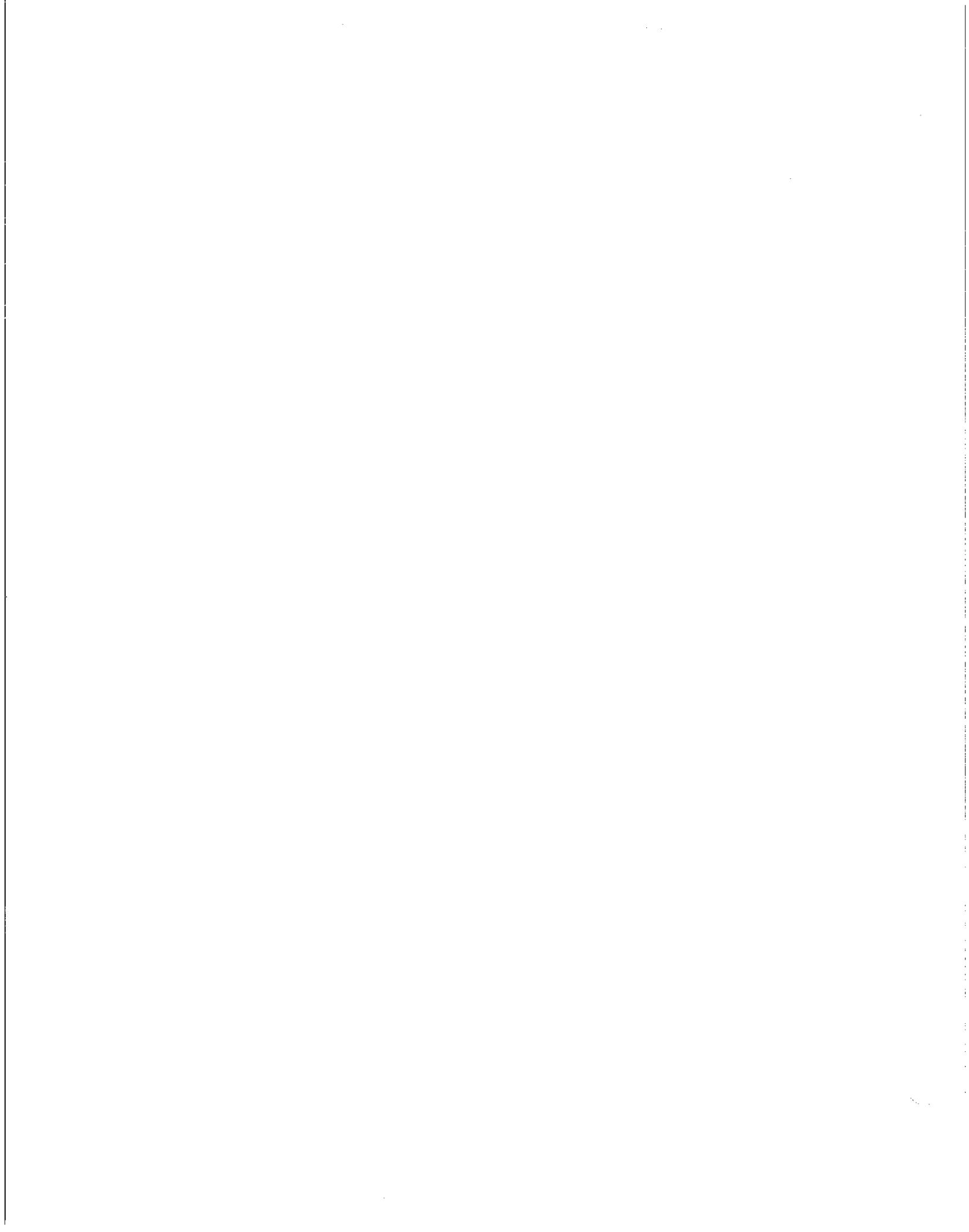
(3) Parts per billion.

(4) Parts per million.

(5) Regulated by a secondary standard to maintain aesthetic qualities (i.e., taste, color, and odor).

Source: VVWD, The Water Resource, 2004 Consumer Confidence Report  
 (See Appendix F).

**WATER USE**



## 5.1 GENERAL

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plans (UWMPs) identify the quantity of water supplied to the agency's customers including a breakdown by user classification.

### UWMPA:

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic records.

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

## 5.2 PAST, CURRENT, AND PROJECTED WATER USE

Victor Valley Water District's (VVWD) customers include residential, commercial, and industrial consumers. Currently, VVWD maintains approximately 22,414 water meters. These meters are classified by VVWD into the following categories: 19,427 residential, 1,133 commercial/industrial, and 325 other types of customers.

### 5.2.1 Historical Water Use

In 2004, VVWD produced 6.4 billion gallons or 19,671 acre-feet (af) which is equivalent to 17.5 million gallons per day (mgd) of water. Table 5.1 lists the available historical monthly and annual water production from 1996 to 2004.

### 5.2.2 Maximum Day Demand

One of the water demand conditions of particular significance is the maximum day demand (MDD). This is the highest water demand during a 24-hour period of the year.

Table 5.1 Historic Monthly Water Production 2005 Urban Water Management Plan Victor Valley Water District																		
Year	Monthly Water Production (MG/mo)												Annual Water Production			Water Connections		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Annual (MG/yr)	Average Monthly (MG/mo)	Average Daily (mgd)	Annual Increase (%)	No. of Water Connections <sup>(1)</sup>	Annual Growth (%)
1996	238.7	216.1	304.4	441.9	545.0	602.2	661.2	646.5	554.6	444.0	291.5	243.2	5,189	432.5	14.2		-	
1997	213.7	240.7	385.8	433.8	559.3	579.6	635.3	641.5	510.2	403.8	315.2	239.1	5,158	429.8	14.1	-0.6%	-	
1998	232.6	185.1	261.1	323.3	440.4	542.6	671.8	655.4	503.3	414.9	309.7	261.8	4,802	400.2	13.2	-6.9%	15,379	
1999	260.1	225.8	331.1	339.6	493.6	561.9	630.8	636.3	560.2	465.3	357.4	312.8	5,175	431.2	14.2	7.8%	15,376	-0.02%
2000	290.0	255.4	323.7	423.5	560.5	664.5	707.9	678.1	572.4	463.9	330.3	297.3	5,567	463.9	15.3	7.6%	15,884	3.30%
2001	259.2	212.2	282.5	392.4	553.1	638.7	652.6	669.9	577.3	497.4	326.8	278.6	5,341	445.1	14.6	-4.1%	16,640	4.76%
2002	261.9	272.5	355.5	462.4	553.3	645.6	729.8	706.9	586.6	496.1	370.4	321.9	5,763	480.2	15.8	7.9%	17,104	2.79%
2003	312.2	249.3	321.5	374.2	558.3	681.4	755.5	737.0	660.2	578.7	356.5	321.0	5,906	492.2	16.2	2.5%	18,179	6.29%
2004	319.6	271.0	417.8	494.6	643.3	711.3	816.9	805.1	711.1	534.0	361.7	323.0	6,409	534.1	17.6	8.5%	19,967	9.84%

Notes:

(1) Source for Number of Meters: VVWD, Department of Water Resources, Public Water System Statistics, 1998 - 2004.

The MDD peaking factor is expressed as a multiplier applied to the average day demand. Water system supply sources are typically sized to meet the anticipated MDD with the largest supply source out of service.

The Water Master Plan (WMP), draft November 2005, established that VVWD's average day demand (ADD) is 22,314 gallons per minute (gpm) (32.1 mgd). A peaking factor of 1.71 was used for the MDD analysis of future water demands. Given this peaking factor, the maximum day demands are 38,157 gpm (54.9 mgd).

### **5.2.3 Past, Current, and Projected Per-Capita Consumption**

The historical per-capita consumption rate is frequently used with population projections to estimate future water requirements, evaluate the adequacy of existing supply sources, and determine storage needs. Historically, VVWD has seen a per-capita consumption of about 275 gpcd. VVWD has established a goal of reducing the overall consumption to achieve a per-capita use of 248 gpcd by 2010 and further reducing demand to 220 gpcd by 2020. Currently, VVWD is experiencing a per-capita use of 446 gpcd. Therefore, VVWD is well on its way to reducing water consumption.

### **5.2.4 Projected Water Use**

#### **5.2.4.1 Water Demand Factors**

Water demands were projected using historical water use and land use for developed land. This process uses demand factors that are specific to each land use category to calculate the water demands for each category. For the existing system, the water demand factors were calibrated against existing demands. For future years, the same water demand factors are applied to areas that are expected to be developed in order to establish the additional water demands.

The water demand factors for low-density, medium-density, and high-density residential use were 1,200, 2,000, and 2,500 gpd/acre, respectively. The water demand factors for commercial land use and industrial land use were 1,800 gallons per day per acre (gpd/acre) and 2,600 gpd/acre respectively. Table 5.2 shows the acreage by land use for each planning year along with the resulting water demand.

#### **5.2.4.2 Water Use Calculations**

VVWD's future water requirements were estimated and are summarized in Table 5.3 and Figure 5.1. As shown in Figure 5.1, the historical production values are based on recorded production. However, the projected water use is based on projected development.

Table 5.3 shows the projected annual water production from the draft WMP along with the projected populations from Chapter 2 for planning years 2010 through 2030. In addition to the projected ADD, Table 5.3 includes annual estimates for the MDD, through the planning horizon year of 2030. Based on these projections, it is anticipated that VVWD's average

day and maximum day requirements for 2030 will approach 28.7 mgd (19,930 gpm) and 49.1 mgd (34,080 gpm), respectively.

### 5.2.5 Expansion Projects

The UWMPA requires that the UWMP identify the major developments within the agency's service area that would require water supply planning.

UWMPA:

10910. (a) Any city or county that determines that a project, as defined in section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

10912. For the purpose of this part, the following terms have the following meanings:

10912 (a) "Project" means any of the following:

- (1) A proposed residential development of more than 500 dwelling units.
- (2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
- (3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
- (4) A proposed hotel or motel, or both, having more than 500 rooms.
- (5) A proposed industrial, manufacturing or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.
- (6) A mixed-use project that includes one or more of the projects specified in this subdivision.
- (7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project.

VVWD has completed three Water Supply Assessments for major developments within its service area. These studies in essence approve document that VVWD has a sustainable water supply to serve these development projects. These studies included the following development projects:

- 1,220 lots in Pacific Communities Tracts 14863 and 15219 (2003).
- 1,600 lots in West Creek by Sun Cal (2004).
- 787 lots in Joshua Ridge by Sun Cal (2004).

Today, VVWD anticipates approximately 7,000 new service connections within the next five years. However, these known development projects are typically smaller in size and are not expected to be classified as defined in Water Code Section 10912 of the UWMPA. Nevertheless, VVWD is taking the necessary steps to plan for the expected growth in development and water needs.

Table 5.2 Average Day Water Demand Factors 2005 Urban Water Management Plan Victor Valley Water District		Average Day Water Demand Factors							Average Day	
		Planning Year	Land Use Type(1)	Area (acres)	Residential (gpd/acre)	Commercial (gpd/acre)	Industrial (gpd/acre)	Other (gpd/acre)	Open Space (gpd/acre)	Water Demand (gpd)
2005	LDR	6,436	1,200						7,723,329	
	MDR	274	2,000						548,728	
	HDR	676	2,500						1,689,101	
	COMM	1,681		1,800					3,025,419	
	IND	569			2,600				1,478,241	
	Other	1,540					1,900		2,926,440	
	OpenSpace	380						362	137,486	
							<b>Total</b>	<b>17,528,743</b>	<b>17.5</b>	
2010	LDR	9,587	1,200						11,504,162	
	MDR	442	2,000						883,194	
	HDR	980	2,500						2,450,857	
	COMM	1,965		1,800					3,536,218	
	IND	578			2,600				1,503,998	
	Other	2,170					1,900		4,123,921	
	OpenSpace	387						367	141,719	
							<b>Total</b>	<b>24,144,069</b>	<b>24.1</b>	
2015	LDR	10,141	1,200						12,168,890	
	MDR	467	2,000						934,983	
	HDR	1,076	2,500						2,689,966	
	COMM	2,113		1,800					3,802,830	

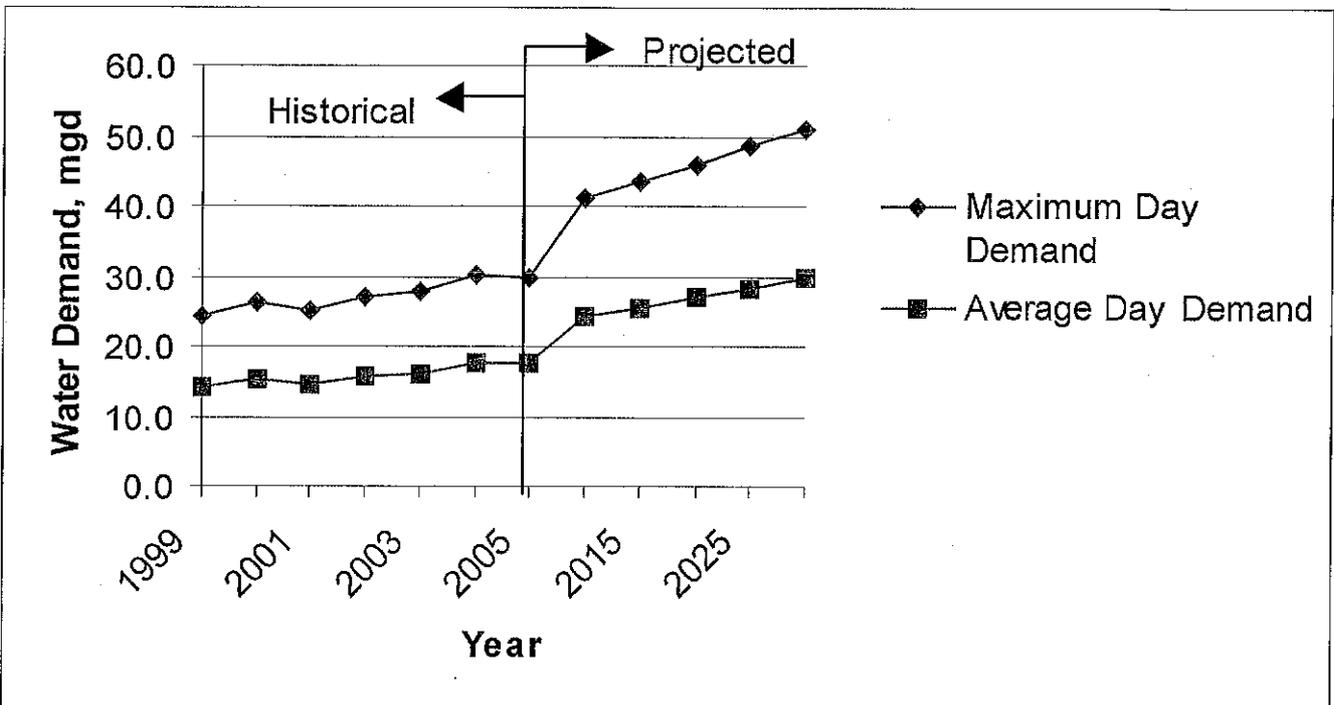
Table 5.2 Average Day Water Demand Factors 2005 Urban Water Management Plan Victor Valley Water District		Average Day Water Demand Factors							Average Day Water Demand (mgd)
		Land Use Type(1)	Area (acres)	Residential (gpd/acre)	Commercial (gpd/acre)	Industrial (gpd/acre)	Other (gpd/acre)	Open Space (gpd/acre)	
	IND	578			2,600				1,503,998
	Other	2,175				1,900			4,133,106
	OpenSpace	387					367		141,719
							<b>Total</b>		<b>25,375,491</b>
<b>2020</b>	LDR	10,821	1,200						12,984,722
	MDR	553	2,000						1,106,933
	HDR	1,104	2,500						2,759,475
	COMM	2,365			1,800				4,257,751
	IND	578				2,600			1,503,998
	Other	2,195					1,900		4,170,225
	OpenSpace	387					367		141,719
							<b>Total</b>		<b>26,924,823</b>
<b>2025</b>	LDR	11,364	1,200						13,636,475
	MDR	553	2,000						1,106,933
	HDR	1,115	2,500						2,786,969
	COMM	2,486			1,800				4,474,628
	IND	661				2,600			1,717,577
	Other	2,355					1,900		4,475,113
	OpenSpace	387					366		141,719
							<b>Total</b>		<b>28,339,415</b>
									<b>26.9</b>
									<b>28.3</b>

Table 5.2 Average Day Water Demand Factors 2005 Urban Water Management Plan Victor Valley Water District		Average Day Water Demand Factors							Average Day Water Demand (mgd)
		Land Use Type(1)	Area (acres)	Residential (gpd/acre)	Commercial (gpd/acre)	Industrial (gpd/acre)	Other (gpd/acre)	Open Space (gpd/acre)	
2030	LDR	11,907	1,200						14,288,229
	MDR	553	2,000						1,106,933
	HDR	1,126	2,500						2,814,463
	COMM	2,606			1,800				4,691,504
	IND	743				2,600			1,931,156
	Other	2,516					1,900		4,780,001
	OpenSpace	387						366	141,719
								<b>Total</b>	<b>29,754,006</b>
									<b>29.8</b>

**Notes:**

(1) LDR - Low Density Residential, MDR - Medium Density Residential, HDR - High Density Residential, COMM - Commercial, IND - Industrial.

(2) Totals may not agree due to rounding.



**FIGURE 5.1  
PAST, CURRENT  
AND PROJECTED  
WATER USE**

**2005 URBAN WATER  
MANAGEMENT PLAN**

**VICTOR VALLEY  
WATER DISTRICT**



**Table 5.3 Past, Current, and Projected Water Use  
2005 Urban Water Management Plan  
Victor Valley Water District**

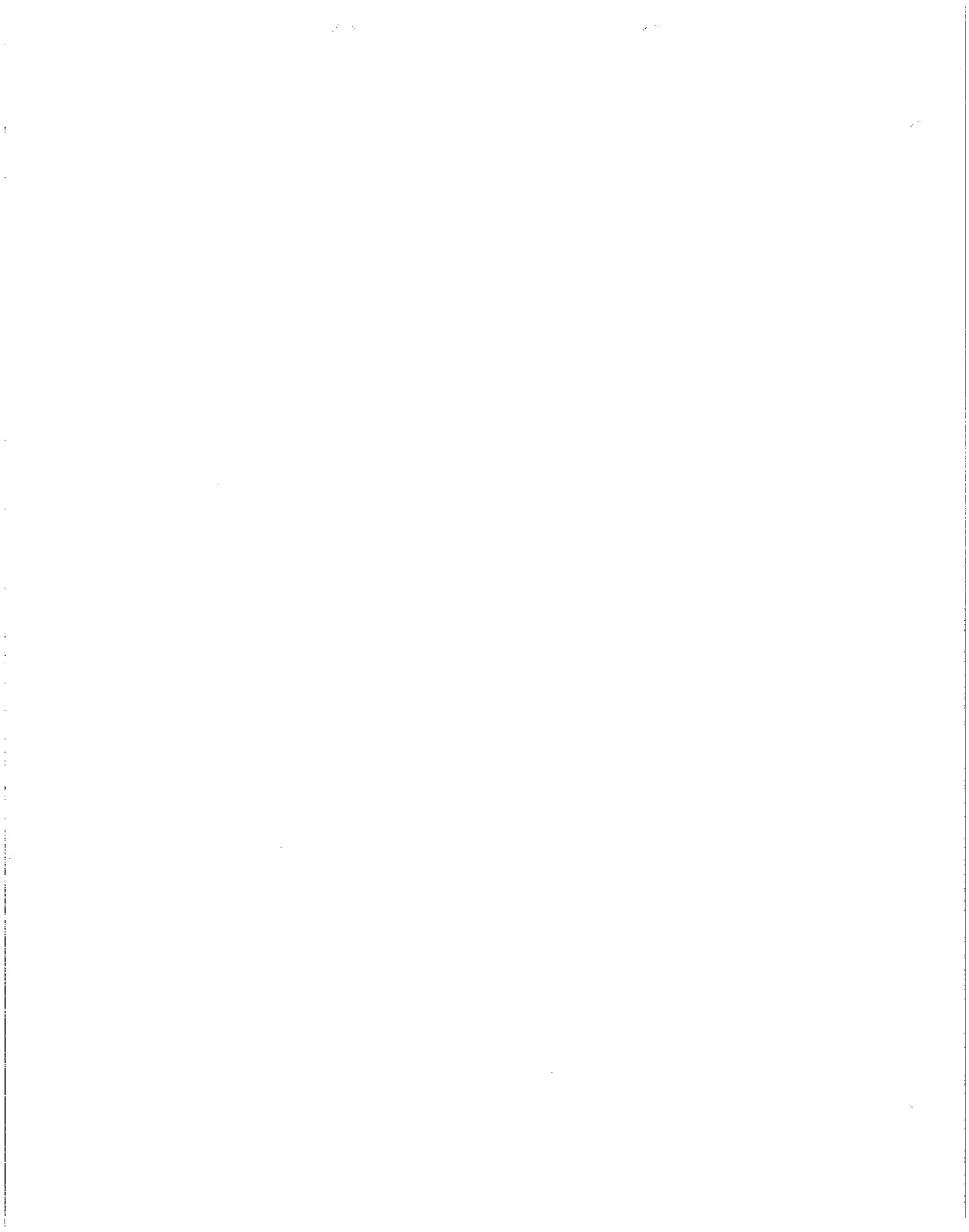
Production Summaries					
Year	Population <sup>(1),(2)</sup>	Average Production			Maximum Day Demands (mgd)
		(af/year)	(MG/yr)	(mgd)	
1999	-	15,879	5,175	14.2	24.2
2000	-	17,082	5,567	15.3	26.1
2001	-	16,389	5,341	14.6	25.0
2002	-	17,684	5,763	15.8	27.0
2003	-	18,123	5,906	16.2	27.7
2004	68,921	19,666	6,409	17.6	30.0
2005	72,056	19,671	6,398	17.5	30.0
2010	105,814	27,041	8,813	24.1	41.3
2015	111,288	28,421	9,262	25.4	43.4
2020	117,308	30,156	9,828	26.9	46.0
2025	122,702	31,740	10,344	28.3	48.5
2030	128,097	33,324	10,860	29.8	50.9

**Notes:**

- (1) 2004 District Population Source: VVWD, Department of Water Resources, Public Water System Statistics.
- (2) 2005 District Population Source: VVWD Plan of Service, September 2005. Population estimates were calculated using project development projects, land use, and densities based on information provided by the City of Victorville's planning department.



## **SUPPLY AND DEMAND COMPARISON**



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## SUPPLY AND DEMAND COMPARISON

### 6.1 GENERAL

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) demonstrate that sufficient water supplies will be available for the next 20 years of projected water demands.

UWMPA:

10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional, or local agency population projections within the service area of the urban water supplier.

### 6.2 SUPPLY AND DEMAND COMPARISON

The Victor Valley Water District (VVWD) currently has the water supply capabilities to meet the maximum day demand (MDD) while also providing adequate standby production capacity to provide reliable service.

Comparisons of projected supplies and demands are shown in Table 6.1 and Figure 6.1. Table 6.1 indicates that VVWD's supply capacity will consistently meet the demand requirements for all of the planning years through 2030. For the year 2030, a total demand of approximately 32,143 acre-feet per year (af/yr) is projected, compared with a projected supply capability for that same year of 59,508 af/yr. It should be noted that the supply capacity does not reduce significantly during multiple years of drought due to the large capacity of the groundwater basin. As stated earlier, a study performed for VVWD determined that the groundwater basin contained over 754,000 af of useful storage directly under the VVWD service area (excluding the SCLA area). This vast amount of storage helps buffer the dry cycles that are typical of this region. A multi-year drought could impact VVWD's plans to develop imported water supplies for direct use, but VVWD would maintain its groundwater supplies to avoid supply shortages.

<b>Table 6.1 Projected Supply and Demand Comparison 2005 Urban Water Management Plan Victor Valley Water District</b>					
<b>Condition</b>	<b>Demand<sup>(1)</sup></b>		<b>Available Supply<sup>(2)</sup></b>		<b>Supply Deficit</b>
	<b>(af)</b>	<b>(mgd)</b>	<b>(af)</b>	<b>(mgd)</b>	<b>(mgd)</b>
<b>Existing</b>					
Normal	19,671	17.5	35,950	32.1	None
Single Dry Year	19,671	17.5	35,950	32.1	None
Multiple Dry Year					
Year 1	19,671	17.5	35,950	32.1	None
Year 2	19,671	17.5	35,950	32.1	None
Year 3	19,671	17.5	35,950	32.1	None
<b>2010</b>					
Normal	27,045	24.1	67,600	60.5	None
Single Dry Year	27,045	24.1	67,600	60.5	None
Multiple Dry Year					
Year 1	27,045	24.1	67,600	60.5	None
Year 2	27,045	24.1	67,600	60.5	None
Year 3	27,045	24.1	67,600	60.5	None
<b>2015</b>					
Normal	28,424	25.4	67,600	60.5	None
Single Dry Year	28,424	25.4	67,600	60.5	None
Multiple Dry Year					
Year 1	28,424	25.4	67,600	60.5	None
Year 2	28,424	25.4	67,600	60.5	None
Year 3	28,424	25.4	67,600	60.5	None
<b>2020</b>					
Normal	30,160	26.9	67,600	60.5	None
Single Dry Year	30,160	26.9	67,600	60.5	None
Multiple Dry Year					
Year 1	30,160	26.9	67,600	60.5	None
Year 2	30,160	26.9	67,600	60.5	None
Year 3	30,160	26.9	67,600	60.5	None
<b>2025</b>					
Normal	31,744	28.3	67,600	60.5	None

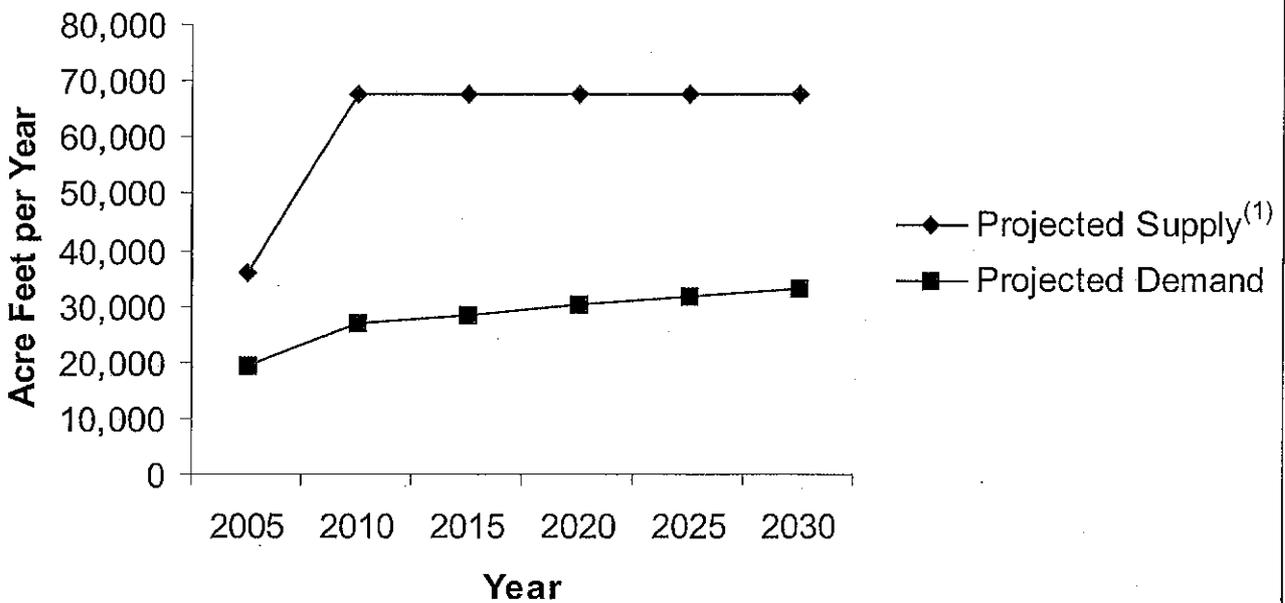
**Table 6.1 Projected Supply and Demand Comparison  
2005 Urban Water Management Plan  
Victor Valley Water District**

Condition	Demand <sup>(1)</sup>		Available Supply <sup>(2)</sup>		Supply Deficit
	(af)	(mgd)	(af)	(mgd)	(mgd)
Single Dry Year	31,744	28.3	67,600	60.5	None
Multiple Dry Year					
Year 1	31,744	28.3	67,600	60.5	None
Year 2	31,744	28.3	67,600	60.5	None
Year 3	31,744	28.3	67,600	60.5	None
<b>2030</b>					
Normal	33,329	29.8	67,600	60.5	None
Single Dry Year	33,329	29.8	67,600	60.5	None
Multiple Dry Year					
Year 1	33,329	29.8	67,600	60.5	None
Year 2	33,329	29.8	67,600	60.5	None
Year 3	33,329	29.8	67,600	60.5	None

Notes:

(1) Source: Table 5.2 of this UWMP.

(2) Source: Table 4.1 of this UWMP.



Notes:

(1) The projected supply shown above includes only the water supply facilities currently being planned or under construction. If additional supply facilities are developed in the future, then the available supplies would provide even more capacity and redundancy.

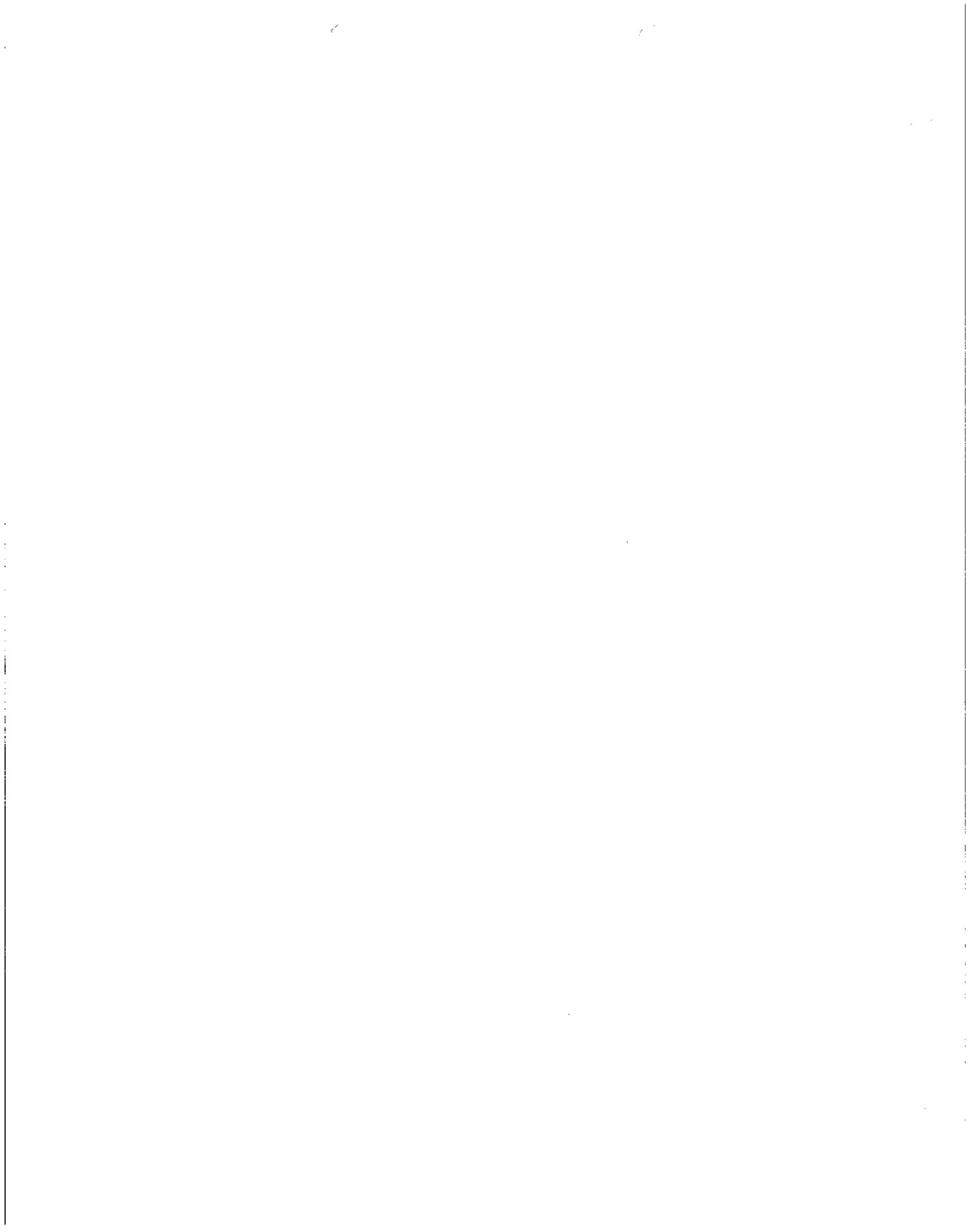
**FIGURE 6.1  
PROJECTED SUPPLY  
AND  
DEMAND COMPARISON**

**2005 URBAN WATER  
MANAGEMENT PLAN**

**VICTOR VALLEY  
WATER DISTRICT**



## **WATER DEMAND MANAGEMENT MEASURES**



## WATER DEMAND MANAGEMENT MEASURES

In 1991, a Memorandum of Understanding (MOU) regarding Urban Water Conservation in California formed the California Urban Water Conservation Council (CUWCC). Council members can submit their most recent Best Management Practices (BMP) Report with their Urban Water Management Plans (UWMP) to address the urban water conservation issues in the Urban Water Management Planning Act (UWMPA).

However, the Victor Valley Water District (VVWD) is not currently a signatory of the MOU and is therefore not a member of CUWCC. The VVWD realizes the importance of BMPs to ensure a reliable future water supply and is committed to implementing water conservation and water recycling programs to maximize sustainability in meeting future water needs for its customers.

VVWD's previous UWMP (2000 Plan) provided information regarding VVWD's conservation measures that were already in place, in addition to those that would improve the efficiency of water use within the VVWD.

This chapter addresses the following requirements of the UWMPA:

10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

- (A) Water survey programs for single-family residential and multi-family residential customers.
- (B) Residential plumbing retrofit.
- (C) System water audits, leak detection, and repair.
- (D) Metering with commodity rates for all new connections and retrofit of existing connections.
- (E) Large landscape conservation programs and incentives.
- (F) High-efficiency washing machine rebate programs.
- (G) Public information programs.
- (H) School education programs.
- (I) Conservation programs for commercial, industrial, and institutional accounts.
- (J) Wholesale agency programs.
- (K) Conservation pricing.
- (L) Water conservation coordinator.
- (M) Water waste prohibitions.
- (N) Residential ultra-low-flush toilet replacement programs.

The UWMPA identifies the above Demand Management Measures (DMM) for urban water suppliers to address. These measures are derived from the original BMPs established in the UWMPA and the MOU. Table 7.1 summarizes the status of the VVWD implementation for the specified DMMs.

<b>Table 7.1 Demand Management Measures 2005 Urban Water Management Plan Victor Valley Water District</b>			
<b>Demand Management Measure</b>	<b>Implemented</b>	<b>Planned for Implementation</b>	<b>Not Applicable</b>
DMM 1 - Water Survey Programs	✓		
DMM 2 - Residential Plumbing Retrofit	✓		
DMM 3 - Water System Audits	✓		
DMM 4 - Metering with Commodity Rates	✓		
DMM 5 - Landscape Irrigation Programs	✓		
DMM 6 - Washing Machine Rebate Program		✓	
DMM 7 - Public Information	✓		
DMM 8 - School Education	✓		
DMM 9 - Commercial, Industrial & Institutional Programs	✓		
DMM 10 - Wholesale Agency Programs			✓
DMM 11 - Conservation Pricing	✓		
DMM 12 - Water Conservation Coordinator	✓		
DMM 13 - Water Waste Prohibition	✓		
DMM 14 - Ultra-Low-Flush Toilet Replacement	✓		

### **7.1 DMM 1 - WATER SURVEY PROGRAMS FOR SINGLE-FAMILY RESIDENTIAL AND MULTI-FAMILY RESIDENTIAL CUSTOMERS**

This program consists of offering water audits to residential customers. Audit components include reviewing water usage history with the customer, identifying leaks inside and outside, and recommending improvements.

A water audit program will be presented to the Board of Directors on December 7, 2005. The program will offer free audits to residential customers. It will entail a review of consumption history, leak detection, free retrofits of showerheads, bathroom aerators, kitchen aerators and a shutoff nozzle for an outdoor hose. The customer will also be

educated on how to read their meter and an irrigation audit on outdoor landscaping will be performed with recommendations for improvements. An irrigation schedule will be mailed to the customer. These audits will be performed in house by conservation staff.

## **7.2 DMM 2 - RESIDENTIAL PLUMBING RETROFIT**

This program consists of installing physical devices to reduce the amount of water used or to limit the amount of water that can be served to the customer. In accordance with State Law, low flow fixtures have been required on all new construction since 1978. In addition, State legislation enacted in 1990 requires all new buildings after January 1, 1992 to install Ultra-Low-Flush Toilets (ULFT).

Several studies suggest that water use savings resulting from miscellaneous interior retrofit fixtures can range between 25 and 65 gpd per housing unit. The studies also suggest that installation of retrofit fixtures in older single-family homes tend to produce more savings, while newer multi-family homes tend to produce fewer saving per housing unit.

VVWD offers rebates to customers who qualify for ULFT replacement programs; free spray wash valves for restaurants, hospitals, and schools; and rebates to developers for constructing new facilities according to VVWD's low-water use standards for outdoor landscaping.

The VVWD supports local energy utilities in their programs to encourage retrofitting of water saving shower devices. As a follow-up to this effort, support for installation of water reduction toilet devices has been related to both the City of Victorville and the San Bernardino County Building and Safety.

In addition, retrofits can be acquired from the VVWD as part of the residential water audit program.

## **7.3 DMM 3 - SYSTEM WATER AUDITS, LEAK DETECTION AND REPAIR**

A water audit is a process of accounting for water use throughout a water system in order to quantify the unaccounted-for water. Unaccounted-for water is the difference between metered production and metered usage on a system-wide basis.

Each year, VVWD staff performs the following steps to ensure that unnecessary water loss before sales is kept to a minimum:

- Regularly inspect for leaks in approximately 375 miles of pipeline.
- Have adequate staff on duty to respond quickly to pipe ruptures, leaks and repairs, including service laterals inspections.

- Locate and regularly exercise all control/shut-off valves such that leaks can be corrected in a timely manner.
- Replace polyethylene (PVC) service line pipes with copper to mitigate water loss through PVC service pipelines.

The VVWD's leak detection program also includes an active program of replacing old meters. VVWD is implementing an Automated Meter Reading (AMR) system (Appendix G). The VVWD is in the second year of a three-year program to change out all meters to the new AMR system. The system will substantially reduce the manpower needed to read meters, increase the accuracy of reads, and provide a new tool for helping customers to understand their water use. With reports from the new meter the VVWD is able to show customers their actual water use through the meter on an hour-by-hour basis for the previous 45 days. VVWD can use this technology to discuss high bill complaints and identify leaks by showing that water use is continual.

In addition, VVWD has an ongoing program of replacing existing old, undersized, and deteriorating steel piping with PVC or ductile iron piping.

#### **7.4 DMM 4 - METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS**

This DMM requires water meters for all new connections and billing by volume of use, as well as establishment of a program for retrofitting any existing unmetered connections.

All VVWD connections are metered and billed on a volume basis. The vast majority of meters are 3/4 inch in size, but they range up to 10 inches.

#### **7.5 DMM 5 - LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES**

This DMM calls for agencies to start assigning reference evapotranspiration-based (ET<sub>o</sub>) water budgets to accounts with dedicated irrigation meters and provide water-use audits to accounts with mixed-use meters.

Water wasted through dilapidated irrigation systems often remains unnoticed. These irrigation systems frequently use materials and construction techniques that cannot withstand water system pressures common to municipal distribution piping networks. In addition, dispersion nozzles, which spray a mist into the air, do little to provide moisture to the root zones in the ground. A limited number of water audits will be available to commercial, industrial, and institutional (CII) accounts, as part of the same program that offers residential audits.

VVWD has completed one year of a two-year study to examine the effectiveness of using weather based irrigation controllers in VVWD's area. The Smart Controller Pilot Program (See Appendix G) has shown an average water savings to-date of 35 percent. This year's budget includes the installation of 1,000 smart controllers in VVWD's service area. The devices are weather-based irrigation controllers that receive daily satellite data from local weather stations and adjust the amount of water provided to the landscape accordingly.

In addition, VVWD has recently approved the Turf Replacement Rebate Program (Cash-for-Grass), which is open to CII customers as well as residential (See Appendix G). The program provides a \$0.40 rebate incentive for each square foot of grass removed. The customers are encouraged to install water smart landscape instead.

## **7.6 DMM 6 - HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAM**

This program generally provides a financial incentive (rebate offer) to qualifying customers who install a high efficiency washing machine in their home. Other regional municipalities that performed an economic analysis on this program concluded that it would have a low benefit-to-cost ratio. The VVWD does not currently provide rebates to customers for high-efficiency washing machines. However, the VVWD is planning to implement this DMM within the next 20 years. In the meantime, Southern California Edison customers can receive rebates for various types of high-efficiency appliance purchases.

## **7.7 DMM 7 - PUBLIC INFORMATION PROGRAMS**

This program consists of distributing information to the public through a variety of methods including brochures, radio and television, school presentations and videos, and websites.

VVWD continues to contribute to the Alliance for Water Awareness and Conservation (AWAC) coalition of 29 participating agencies to promote the efficient use of water. VVWD has promoted water conservation by using its website as a source of conservation tips, which include indoor and outdoor usage, water-smart landscaping, guides to high desert gardening, and locations of local water-wise nurseries.

The VVWD has adopted an efficient computerized billing format. On a regular basis, notations are placed on these billings to remind and encourage its customers to conserve water. Several pocket bulletins are printed through the American Water Works Association and made available to its customers at the VVWD office. The local radio media are used on a regular basis to remind VVWD customers of water problems and conservation measures.

The VVWD participated in the funding and production of a booklet entitled "A Guide to High Desert Landscaping" to help advance public awareness of the merits of xeriscaping and native desert plants. The booklet has been distributed to local nurseries, public libraries, landscaping contractors and VVWD customers.

The VVWD has an active advertising campaign program (See Appendix G) to inform the public on specific conservation projects such as the ULFT program. VVWD has used cable television commercials, radio advertisements, newspaper advertisement, movie screen advertisements, and brochures targeted to eligible participants. These methods have brought significant customer response for both the ULFT exchange and rebate/credit phases of the program.

A public information consultant produces all VVWD publications, which advise customers of current events and water conservation. The VVWD has also used large signs within its service area to promote conservation. VVWD's outreach includes school programs, hosting seminars on planting and irrigation, regular presentations throughout the community, conservation promoting, and web site information. VVWD participates in business expos, water awareness month activities, Home and Garden shows, and plant sales.

## **7.8 DMM 8 - SCHOOL EDUCATION PROGRAM**

This DMM requires water supplier to implement a school education program that includes providing educational materials and instructional assistance.

Flyers and bulletins printed by the American Water Works Association (AWWA) are distributed to schools, as a supplement to efforts initiated by the Mojave Water Agency, which has jurisdiction in managing the groundwater basin. The VVWD also maintains films and videos on water conservation, which are made available to local schools, service groups, and business organizations. Recently, the VVWD approved a Conservation Poster Contest (See Appendix G) for elementary school students. Prizes are awarded to nine winners and three teachers. The contest is open to schools in the Victor Elementary School District that are serviced by the VVWD.

VVWD currently has plans for possibly partnering with another agency on the Water Education for Teachers (WET) project. This program facilitates and promotes awareness of water resources using classroom-ready teaching aids.

## **7.9 DMM 9 - CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL ACCOUNTS**

The VVWD offers a Commercial Pre-Rinse Valve program (See Appendix G). These high-efficiency spray-rinse nozzles provide more water saving uses over older models. The program offers a free nozzle and free installation to commercial customers. Currently, the VVWD has installed approximately 80 valves and 30 additional valves installation are scheduled. The program is available to all restaurants and schools at not cost.

## **7.10 DMM 10 - WHOLESALE AGENCY PROGRAMS**

This DMM applies to wholesale agencies and defines a wholesaler's role in terms of financial, technical, and programmatic assistance to its retail agencies implementing DMMs.

Mojave Water Agency is the wholesale agency for the VVWD. The VVWD is a retail agency. Therefore, this DMM is not applicable to the VVWD as they are not classified as a wholesale agency.

## **7.11 DMM 11 - CONSERVATION PRICING**

The VVWD's rate structure includes a fixed minimum fee and a step-up incremental rate adjustment for consumption above the base allocation. The basic minimum fee reflects pumping power/operating cost and administrative expenses. The step-up incremental rate is to encourage water conservation. Excessive amounts of consumption will result in customers having to pay a significantly higher consumption charge.

## **7.12 DMM 12 - WATER CONSERVATION COORDINATOR**

VVWD has two full-time Conservation Specialists that work to develop and implement VVWD and AWAC conservation programs.

## **7.13 DMM 13 - WATER WASTE PROHIBITION**

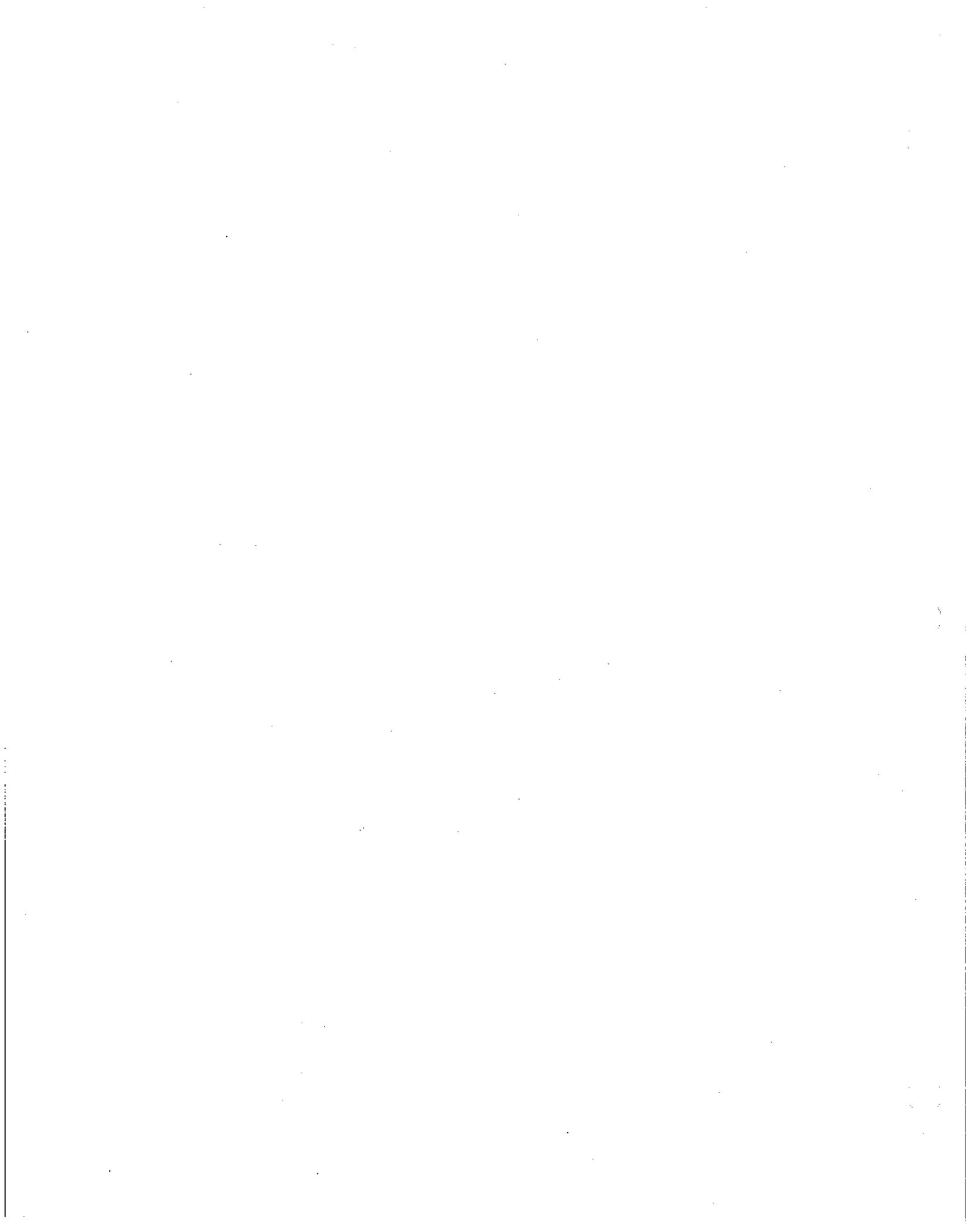
The VVWD has adopted Ordinance A-101-89 (See Appendix H) for voluntary water conservation and restricting water use during periods of shortages and emergencies.

Section 13.60.115 of the City of Victorville's Ordinance 2114 (Appendix H) also prohibits consumers from wasting water. In addition, Section 13.60.120 limits the type of water-intensive landscaping within the City.

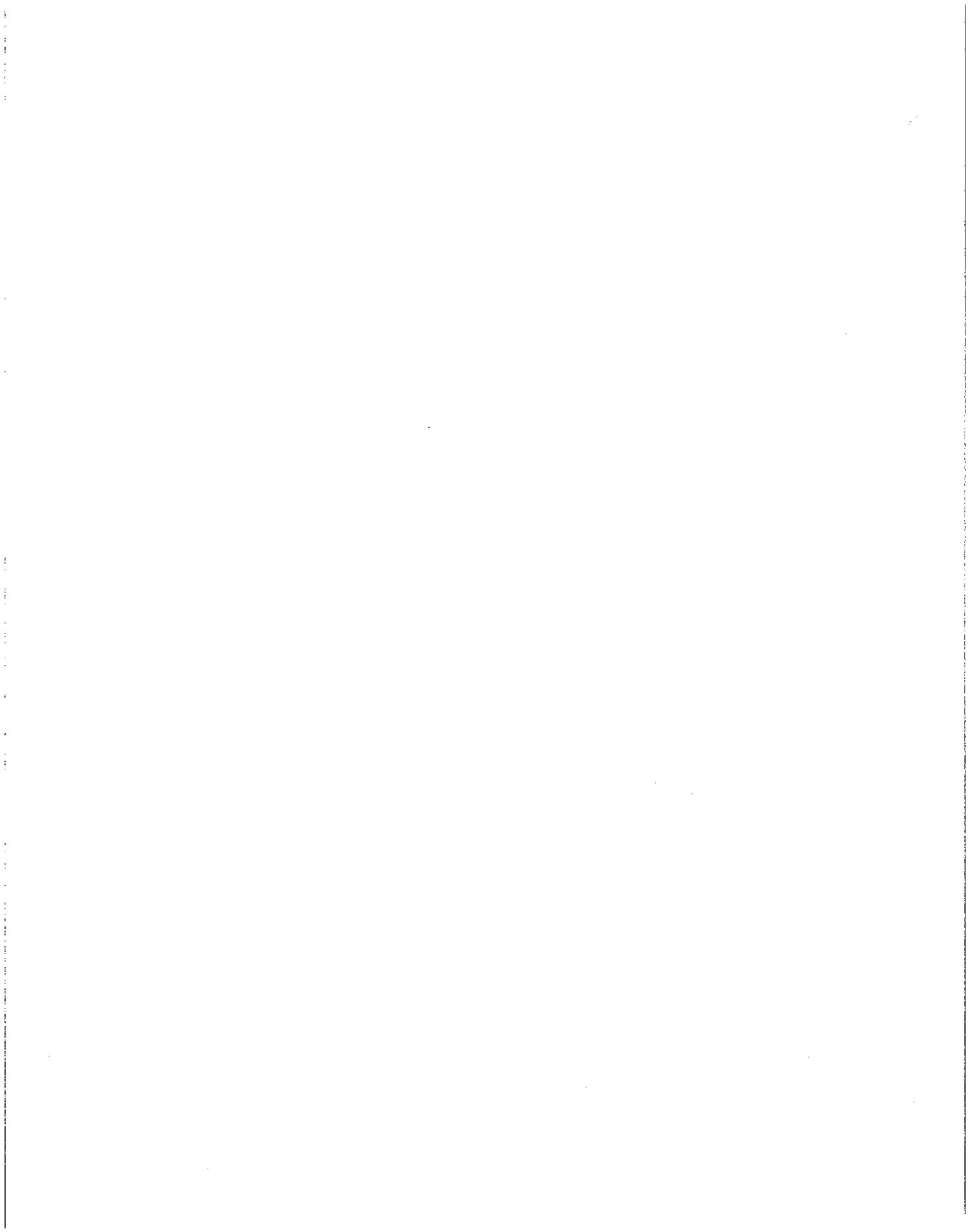
## **7.14 DMM 14 - RESIDENTIAL ULTRA-LOW-FLUSH TOILET REPLACEMENT PROGRAMS**

State legislation requires the installation of efficient plumbing in new construction, and effective 1994 requires that only ULFTs be sold in California. Subsequently, homes constructed since 1994 in the VVWD have ULFTs.

VVWD has an active rebate program offered to customers who qualify for ULFT replacement programs (See Appendix G); free spray wash valves for restaurants, hospitals, and schools; and rebates to developers for constructing new facilities according to VVWD's low-water use standards for outdoor landscaping.



**WATER SHORTAGE CONTINGENCY PLAN**



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## WATER SHORTAGE CONTINGENCY PLAN

### 8.1 GENERAL

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) include an urban water shortage contingency analysis that includes stages of action to be undertaken in the event of water supply shortages; a draft water shortage contingency resolution or ordinance; prohibitions, consumption reduction methods, and penalties; an analysis of revenue and expenditure impacts and measures to overcome these impacts; actions to be taken during a catastrophic interruption; and a mechanism for measuring water use reduction.

### 8.2 STAGES OF ACTIONS

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that addresses specified issues.

UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

#### 8.2.1 Water Shortage Stages and Reduction Objectives

Water agencies relying solely on groundwater, such as the Victor Valley Water District (VVWD), are much less likely to experience water shortages than those agencies relying primarily on surface water. Nevertheless, it is still important for groundwater agencies to reduce production during drought years to avoid excessive overdraft of the groundwater basin.

VVWD passed Ordinance A101-89 on February 21, 1989. A copy of the resolution is included in Appendix G. This ordinance sets forth a four-stage water shortage contingency plan for the conservation of water. The plan includes voluntary and mandatory conservation measures.

VVWD's four-stage rationing plan will be invoked during declared water shortages. Each stage includes a water reduction objective expressed as a percentage of normal demands. The rationing plan is dependent on the cause, severity, and anticipated duration of the water supply shortage.

## 8.2.2 Water Reduction Stage Triggering Mechanisms

Emergency response stage actions become effective when the General Manager and Board of Directors declares that VVWD is unable to provide sufficient water supply to meet ordinary demands, to the extent that insufficient supplies would be available for human consumption, sanitation, and fire protection. The declaration will be based on his/her judgment concerning the degree of the immediate or future supply deficiency.

Table 8.1 outlines the triggering levels established to classify the stage of water shortage alert to be declared.

<b>Table 8.1 Water Shortage Triggering Levels 2005 Urban Water Management Plan Victor Valley Water District</b>	
<b>Stage</b>	<b>Percent Shortage of Current Supply</b>
1	Up to 10%
2A	11-20%
2B	21-35%
3	36-50%

Table 8.2 outlines the stages of action to be undertaken for the following water use reduction programs.

<b>Table 8.2 Water Shortage Stages and Reduction Objectives 2005 Urban Water Management Plan Victor Valley Water District</b>			
<b>Stage</b>	<b>Reduction Goal</b>	<b>Per Capita Allotment (gpcd)</b>	<b>Program Type</b>
1	10% Reduction	225	Voluntary
2A	20% Reduction	200	Voluntary/Mandatory
2B	30% Reduction	162	Mandatory
3	50%+ Reduction	125	Mandatory

## 8.2.3 Administration of Water Shortage Program

The administration of a water shortage program as described in this section would involve coordination among a number of local agencies. If a shortage was declared, an individual working for VVWD would be identified as the Program Manager and be the primary coordinator of water shortage activities.

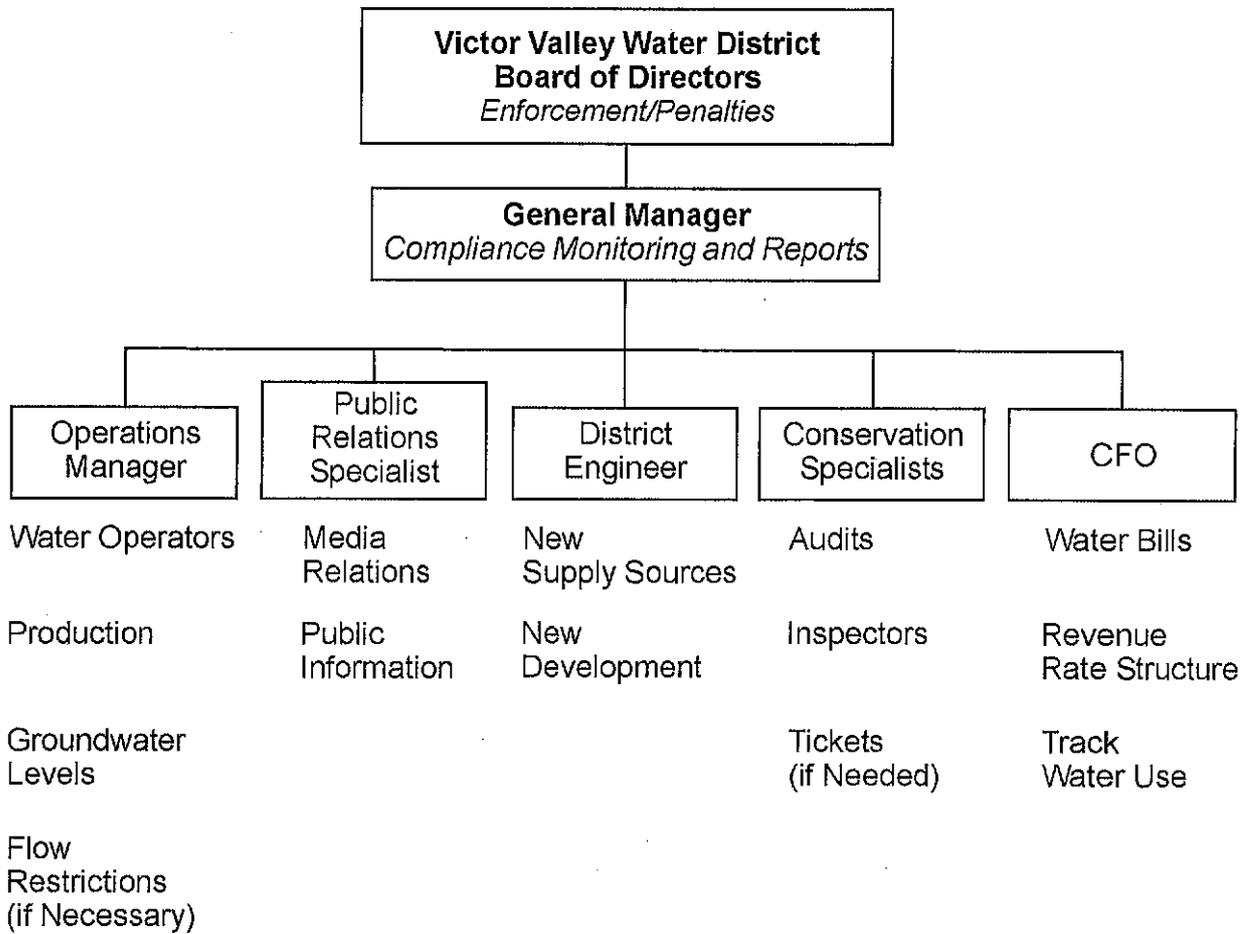
An appropriate organizational structure for a water shortage management team would be determined based on the actual situation. Figure 8.1 presents a likely organizational structure for VVWD. Specific individuals would be designated to fill the identified roles.

VVWD would probably not have to hire additional staff or outside contractors to implement the program.

The major elements to be considered in administering and implementing the program include:

- Identifying VVWD staff members to fill the key roles on the water shortage management team. It is anticipated that the General Manager would designate the appropriate individuals, including the Program Manager.
- Intensifying the public information program to provide comprehensive information on the water shortage including necessary actions that must be undertaken by VVWD and by the public. The scope of the public information program can be developed by reviewing published references, especially those published by Department of Water Resources (DWR), and researching successful aspects of the current programs conducted by neighboring water agencies. A public information hotline may be advisable to answer any questions regarding the program.
- Monitoring program effectiveness. Ongoing monitoring will be needed to track supply availability and actual water use reductions. This procedure will allow VVWD to continuously re-evaluate the situation and make informal decisions regarding whether another reduction level is needed.
- Enforcing program requirements. For the 20 to 50 percent reduction programs, enforcement of water use prohibitions and water use allocations will be more important in achieving the program goals. Inspectors and enforcement personnel could be identified among District staff that are in the community on other business, such as maintenance personnel, meter readers, etc.
- Addressing equity issues that might arise from the mandatory restrictions or higher water rates. Depending on the level of restriction, there may be a need to address specific concerns of individual customers who might have special conditions or extenuating circumstances and are unduly affected by the program. A procedure should be identified for dealing with such special requests and/or for reviewing specific accounts.
- Adjusting water rates. Revenues from water sales should be reviewed periodically to determine whether an increase in rates might be needed to cover revenue shortfalls due to the decrease in demand.
- Addressing new development proposals. During periods of severe water shortage, it may be necessary to impose additional requirements on new development to reduce new demand or to temporarily curtail new hook-ups.

It is required that the water shortage contingency plan undergo a formal public review process including a public hearing. A thorough public review process will help minimize future objections when mandatory prohibitions are needed.



**FIGURE 8.1  
WATER SHORTAGE  
CONTINGENCY PLAN  
TYPICAL MANAGEMENT  
TEAM ORGANIZATION**

**2005 URBAN WATER  
MANAGEMENT PLAN**

**VICTOR VALLEY  
WATER DISTRICT**



### **8.3 WATER SHORTAGE CONTINGENCY ORDINANCE/RESOLUTION**

According to the UWMPA, the UWMP is required to include an urban water shortage contingency analysis that includes a draft water shortage contingency resolution or ordinance.

UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (h) A draft water shortage contingency resolution or ordinance.

VVWD adopted Ordinance A101-89 February 21, 1989. A copy of the adopting resolution is included in Appendix A. Ten days prior to adoption, a notice of the public hearing was published in the local newspaper notifying interested parties that the Draft UWMP and Urban Water Shortage Contingency Plan (Contingency Plan) were available at VVWD and on VVWD's web page for review.

### **8.4 PROHIBITIONS, CONSUMPTION REDUCTION METHODS, AND PENALTIES**

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that addresses methods to reduce consumption.

UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

10632 (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

10632 (f) Penalties or charges for excessive use, where applicable.

#### **8.4.1 Mandatory Prohibitions on Water Wasting**

Mandatory compliance measures enacted during a water shortage are more severe than voluntary measures, produce greater savings, and are less costly to the utility. The principal drawback to these measures could result from customer resentment if the measures are not seen as equitable. Therefore, such measures need to be accompanied by a good public relations campaign.

Mandatory measures may include:

- Ordinances making water waste illegal.
- Ordinances controlling landscape irrigation.
- Ordinances restricting nonirrigation outdoor water uses.
- Prohibitions on new connections or the incorporation of new areas.
- Rationing.

Prohibitions on new development may conflict with other policies and needs. However, if existing customers are called upon to make sacrifices during a drought period, they may feel that water agencies should concentrate on fulfilling current obligations rather than taking on new customers. Such prohibitions may need to be considered in the event of a critical shortage, such as the 50 percent reduction program. If necessary, an offset program might be considered whereby developers demonstrate that they will implement measures to conserve at least as much water in the existing community as their new project will use. In some cases, a two to one offset may be required of the new development.

#### **8.4.2 Excessive Use Penalties**

Water Code 31029 makes any violation of Ordinance A-101-89, which sets forth the four-stage water shortage contingency plan, a misdemeanor and violators may be punished by imprisonment, fine or both. In addition to these criminal penalties, the following civil actions can be initiated by VVWD.

- First violation. A written warning of the violation shall be issued by VVWD personnel to the respective water customer of VVWD.
- Second violation within 12 months. A written warning of the violation shall be issued by VVWD personnel to the respective water customer of VVWD and a penalty of \$100 dollars shall be imposed.
- Third violation within 12 months. A written warning of the violation shall be issued by VVWD personnel to the respective water customer of VVWD, a penalty of \$200 dollars shall be imposed and VVWD may install a flow-restricting device.
- Subsequent violations within 24 months. A written warning of the violation shall be issued by VVWD personnel to the respective water customer of VVWD, a penalty of \$200 dollars shall be imposed and VVWD may discontinue service. If service is discontinued, it will not be re-established until the General Manager has determined that the water user has provided reasonable assurances that future violations will not occur. A reconnection fee will be charged as stated in the Rules and Regulations for VVWD.

### 8.4.3 Review Process

A customer that has been assessed a penalty for violating or exceeding the water use allocation will have the right to a review of the penalty by the General Manager with the right to appeal to the Board of Directors. These reviews will be held if the customer files a written request for review with VVWD within 15 days after receipt of notification. The review will be held within a reasonable time after receipt of the request thereof.

## 8.5 REVENUE AND EXPENDITURE IMPACTS/MEASURES TO OVERCOME IMPACTS

According to the UWMPA, the UWMP is required to include an urban water shortage contingency analysis that addresses the financial impacts from reduced water sales.

UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

10632 (g) An analysis of the impacts of each of the proposed measures to overcome those revenue and expenditure impacts, such as the development of reserves and rate adjustments.

The majority of operating costs for most water agencies are fixed rather than a function of the amount of water sold. As a result, when significant conservation programs are undertaken, it is frequently necessary to raise water rates because the revenue generated is based on lower total consumption while the revenue required is basically fixed. Reductions in water demands, especially peak demands, can delay the need to develop costly new water sources in growing communities. VVWD's Board of Directors has the option of using reserves to offset the need to increase water rates.

During a water shortage emergency, VVWD's base water service rate does not change, while the pumping expenses fall proportionally with each rationing stage. Moreover, as the third or fourth stage is declared, customers may be assessed a penalty for exceeding their water allotment. Therefore, as more restrictive rationing stages are declared, some water costs not covered by fixed service rates are compensated for by lower utility bills due to less pumping and penalties for excessive use.

## 8.6 ACTIONS DURING A CATASTROPHIC INTERRUPTION

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that address a catastrophic interruption of water supplies.

UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

During declared shortages, or when a shortage declaration appears imminent, the General Manager will activate a water shortage response team. The team includes: VVWD staff, water, fire, planning, health, and other emergency personnel. Other actions and procedures to follow during catastrophic events will be developed.

## 8.7 REDUCTION MEASURING MECHANISM

The UWMPA requires that the UWMP include an urban water shortage contingency analysis that identifies a mechanism to measure the actual water reductions.

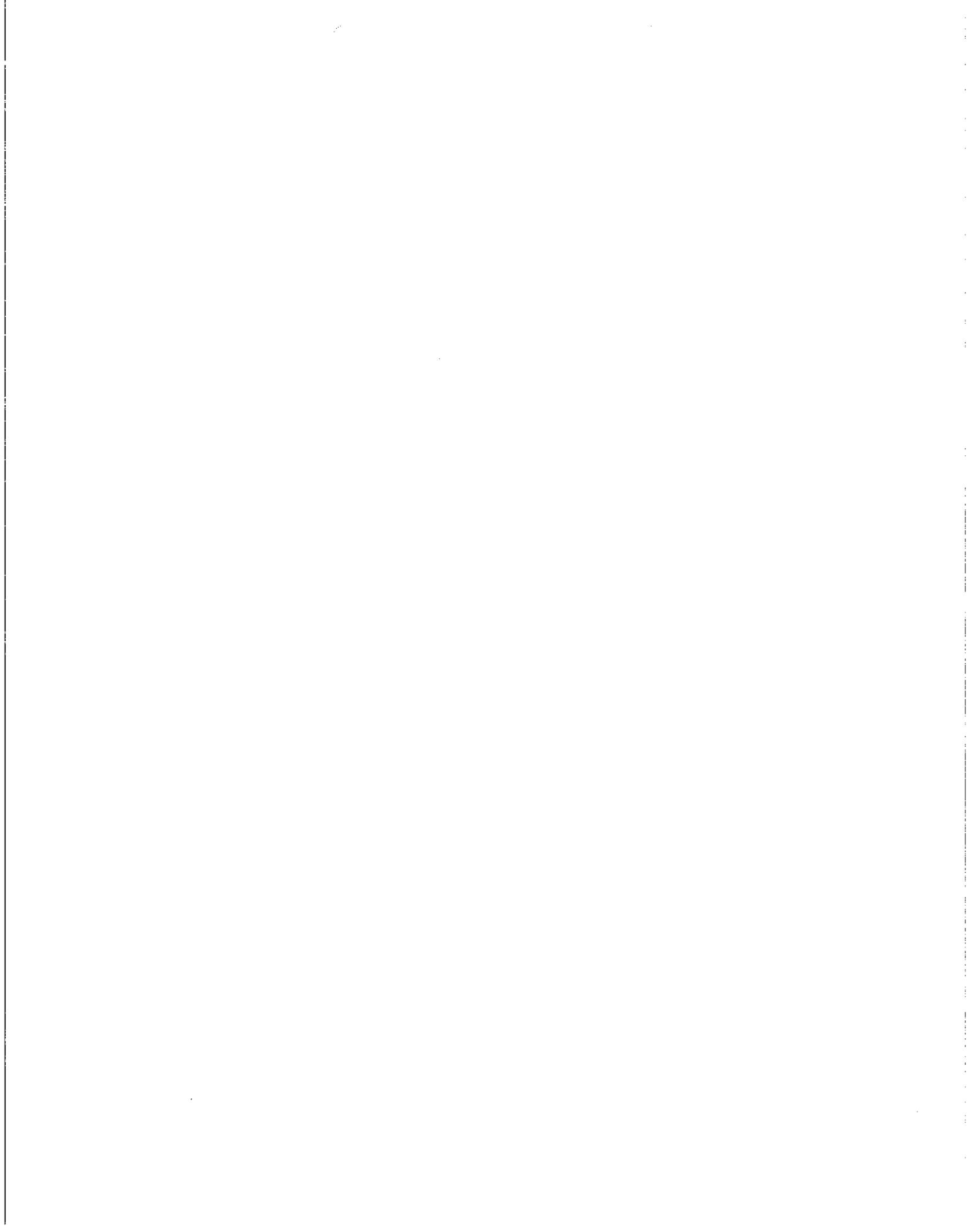
UWMPA:

10632. The plan shall provide an urban water shortage contingency analysis, which includes each of the following elements, which are within the authority of the urban water supplier:

10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

VVWD's water system is supplied by the groundwater wells. Each well includes a flow-monitoring device that records the amount of water entering VVWD's distribution system. VVWD will use these devices to monitor VVWD-wide actual reductions in water use.

**WATER RECYCLING**



## WATER RECYCLING

This chapter includes information on water recycling and its potential for use as a water source for the Victor Valley Water District (VVWD) in accordance with the Urban Water Management Planning Act (UWMPA).

### UWMPA:

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

10633 (b) A description of the recycled water currently being used in the supplier's service area, including but not limited to, the type, place and quantity of uses, and a determination with regard to the technical and economic feasibility of serving those uses.

10633 (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse determination with regard to the technical and economic feasibility of serving those uses, groundwater recharge, and other appropriate uses, and a

10633 (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

10633 (e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

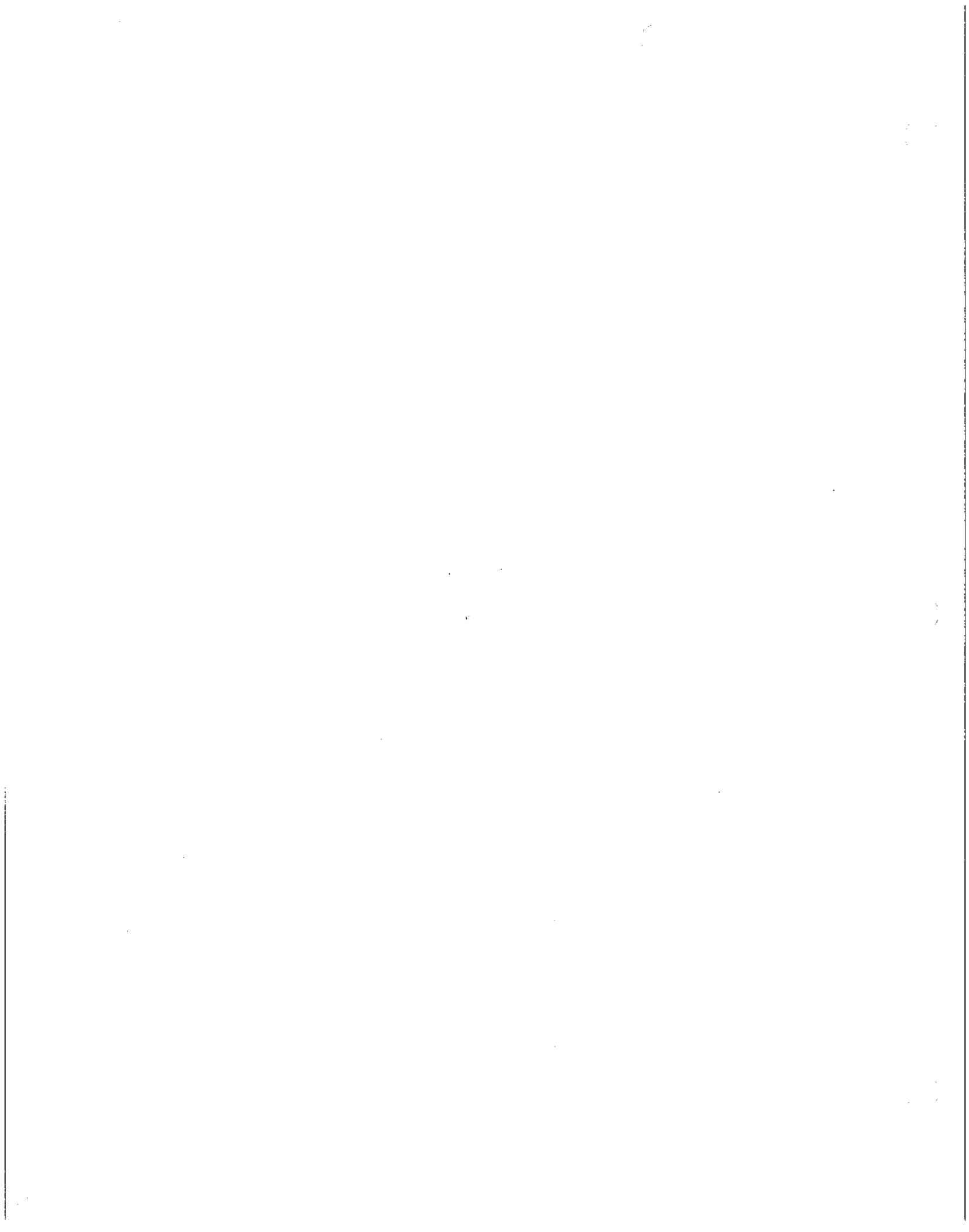
10633 (f) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems and to promote recirculating uses.

## 9.1 EXISTING WASTEWATER TREATMENT FACILITIES

The Victor Valley Wastewater Reclamation Authority (VWRA) is a Joint Powers Authority that provides treatment and distribution of reclaimed water for its member entities, which includes Apple Valley, Hesperia, Victorville, Southern California Logistics Airport, Oro Grande, and Spring Valley Lake. The VWRA operates and maintains a 12.5-mgd wastewater treatment plant, 40.5 miles of interceptor sewer, and two pump stations (VWRA, 2005). There are plans in progress to expand the plant to 18 mgd.

The VWRA treatment plant processes include:

- Primary clarifier.
- Activated sludge basin.



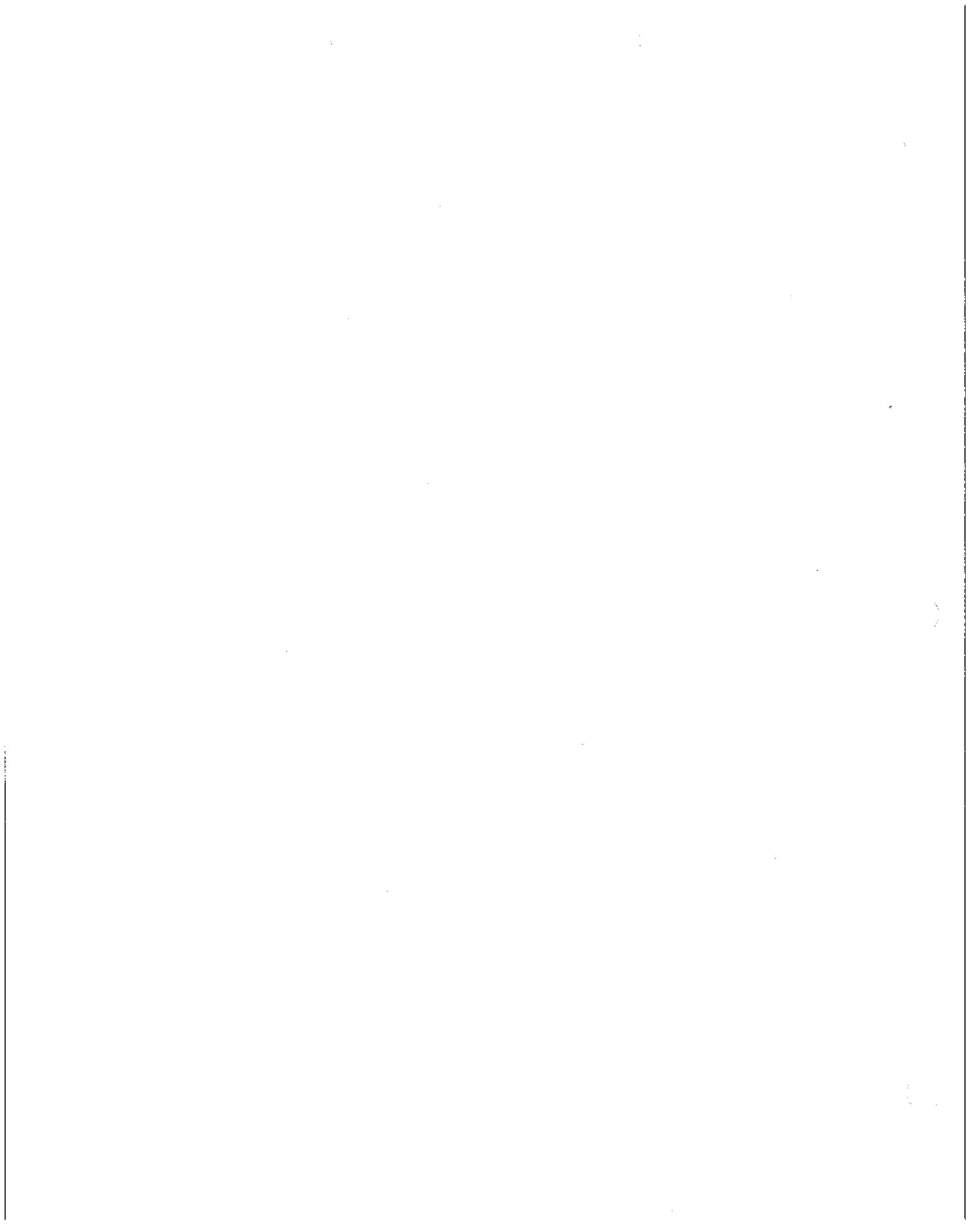
- Secondary clarifier.
- Coagulation/flocculation and filtration.
- Chlorination.

Currently, VVWRA pumps 1.5 mgd of treated effluent to the Westwinds Golf Course for irrigation.

## **9.2 PLANS FOR RECYCLED WATER USE**

Septic discharges, including those in VVWD, indirectly contribute to the water production capacity in the basin. However, a more efficient use of this wastewater would be to collect and treat it for reuse in agricultural and landscape irrigation. The water within the service boundary of VVWD is collected via a gravity sewer system owned and operated by the City of Victorville. The system connects to the regional interceptor, and from there the water flows to the VVWRA treatment plant.

VVWD has standards in place for the use of recycled water. However, VVWD does not currently have access to recycled water. When recycled water becomes available from the regional wastewater agency, VVWRA, VVWD stands ready to implement the use of recycled water.







APPENDIX A

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**RESOLUTION TO ADOPT THE  
2005 URBAN WATER MANAGEMENT PLAN**

December 2005

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**RESOLUTION B-782-05**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF  
THE VICTOR VALLEY WATER DISTRICT ADOPTING  
THE VICTOR VALLEY WATER DISTRICT URBAN WATER  
MANAGEMENT PLAN (UWMP) FOR THE  
PLANNING PERIOD 2005 - 2025**

**WHEREAS**, the California Legislature enacted Assembly Bill 797 (Water Code Section 10610 et seq. known as the Urban Water Management Planning Act 1983) and as amended subsequently, mandates that every supplier providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, prepare an Urban Water Management Plan, the primary objective of which is to plan for the conservation and efficient use of water; and;

**WHEREAS**, the District is an urban supplier of water providing water to a population over 77,000; and

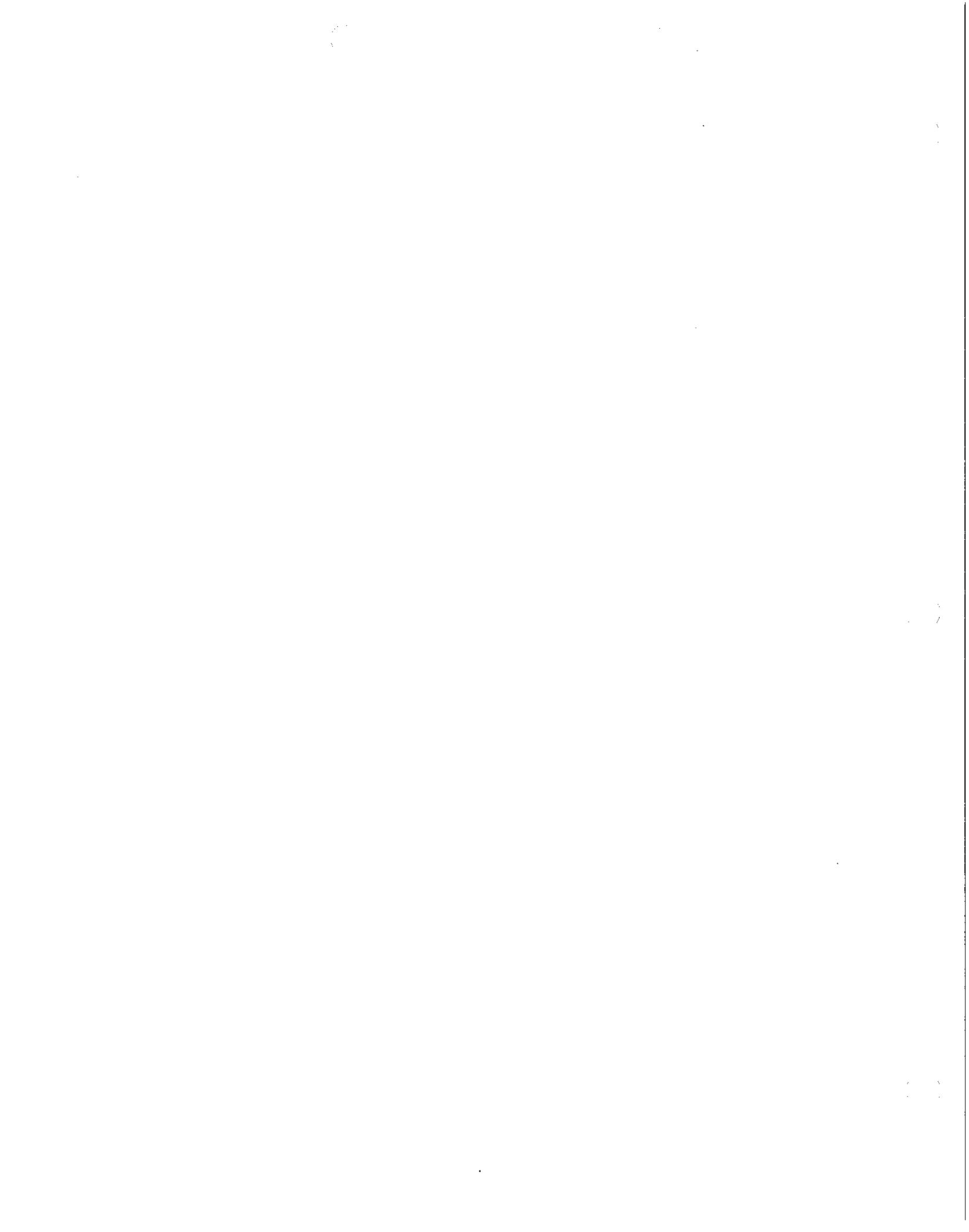
**WHEREAS**, the Plan Shall be periodically reviewed at least once every five years, and that the District shall make any amendments or changes to its Plan which are indicated by the review; and

**WHEREAS**, the Plan must be adopted by December 31, 2005 after public review and hearing, and filed with the California Department of Water Resources within thirty (30) days of adoption; and

**WHEREAS**, the District has therefore, prepared and circulated for public review, a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was held by the District on December 7, 2005.

**NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE VICTOR VALLEY WATER DISTRICT**

- Section 1. In all respects, the recitals above are true and correct
- Section 2. The Urban Water Management Plan is hereby Adopted and ordered filed with the Secretary; the General Manager is hereby authorized and directed to file the Urban Water Management Plan with the California Department of Water Resources within thirty (30) days after this date.
- Section 3. The General Manager is hereby authorized to implement the water conservation programs set forth in the 2005 Urban Water Management Plan, in order to carry out effective and equitable water conservation programs.



Resolution B-782-05 Adoption of Urban Water Management Plan

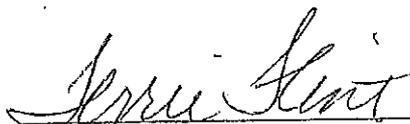
Section 4. In a water shortage, the General Manager is hereby authorized to declare a Water Shortage Emergency according to the Water Shortage Stages and Triggers indicated in the Plan, and implement necessary elements of the Plan.

Section 5. The General Manager Shall recommend to the Board of Directors additional regulations to carry out effective and equitable allocation of water resources.

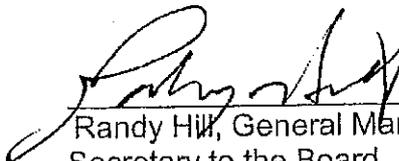
Section 6. That the Secretary to the Board shall certify to the passage and adoption of this Resolution and enter it into the book of original Resolutions.

**ADOPTED AND APPROVED** this 21<sup>st</sup> day of December, 2005.

**ATTEST:**



Terrie J. Flint, President  
Board of Directors

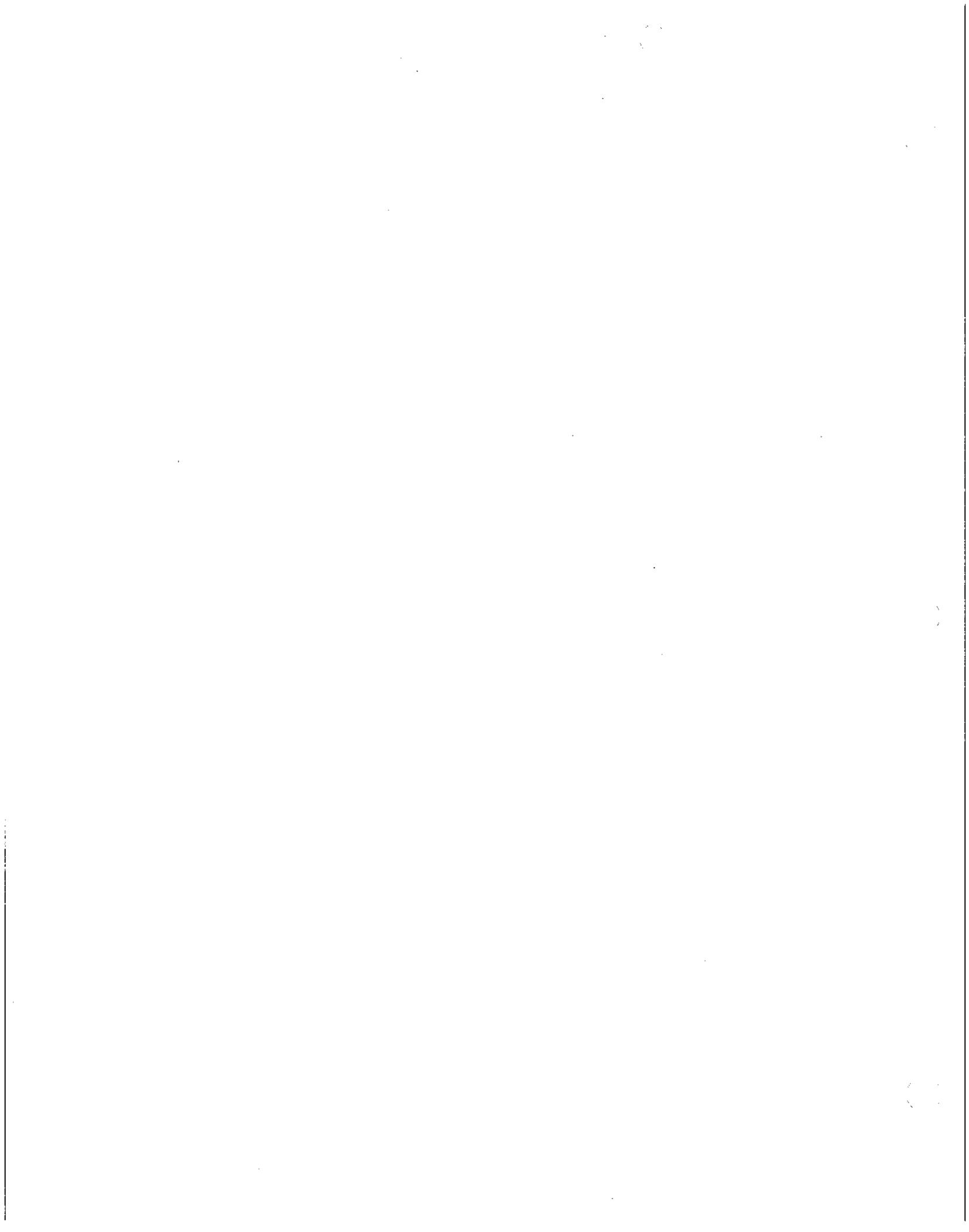


Randy Hill, General Manager/CEO  
Secretary to the Board

AYES 5

NAYS 0

ABSTAINS 0



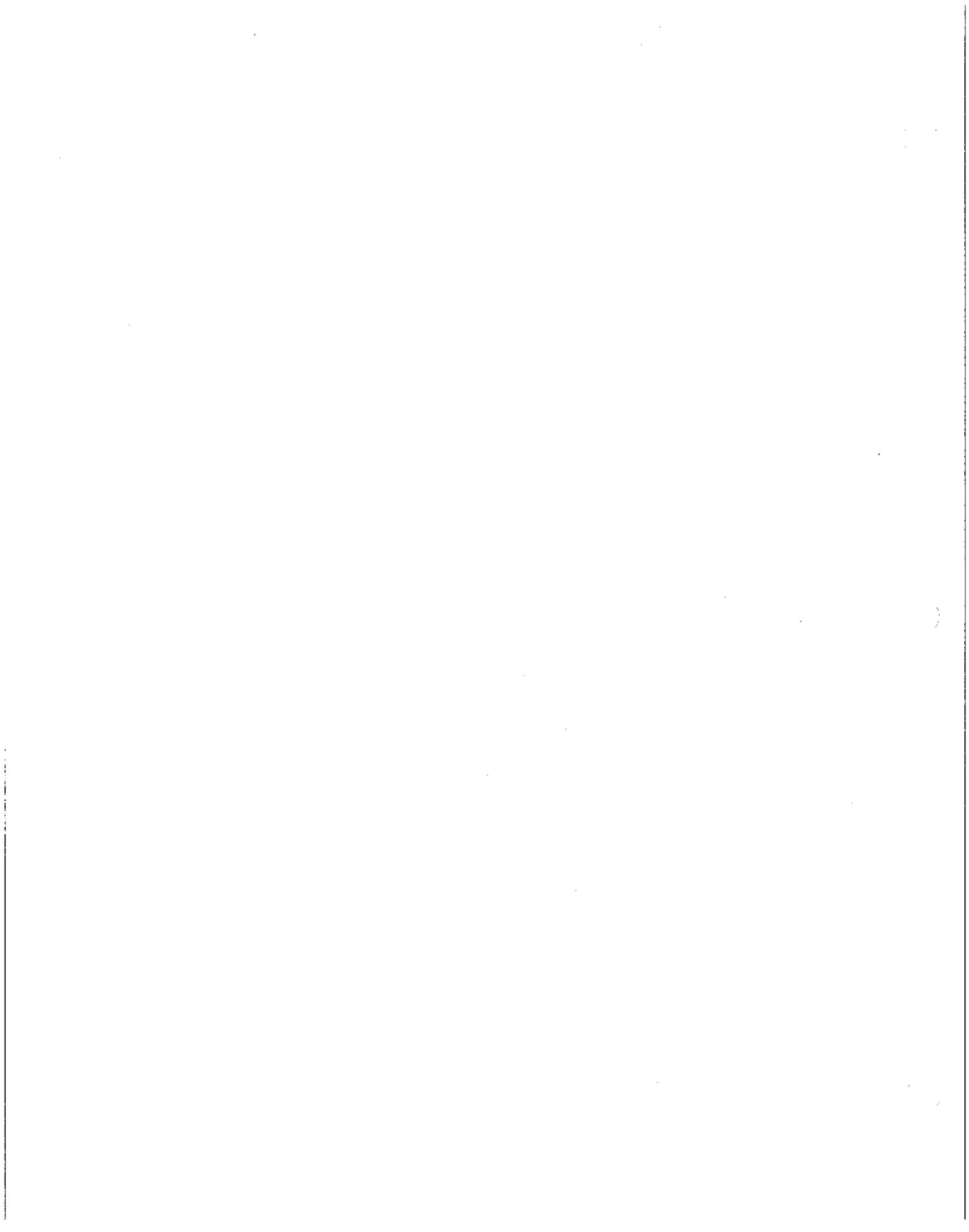
**APPENDIX B**

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**ADVERTISEMENT FOR PUBLIC  
REVIEW OF DOCUMENT**

December 2005

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# PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA,  
County of San Bernardino

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of the publisher of the DAILY PRESS, a newspaper of general circulation, published in the City of Victorville, County of San Bernardino, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of San Bernardino, State of California, under the date of November 21, 1938, Case Number 43096, that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

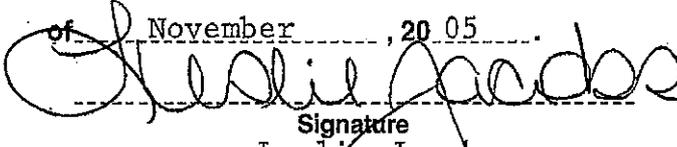
November 22 and 29

all in the year 20 05 .

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated this 29th day

of November, 20 05 .

  
Signature  
Leslie Jacobs

This space is the County Clerk's Filing Stamp

## Proof of Publication of

NOTICE OF

PUBLIC HEARING

### NOTICE OF PUBLIC HEARING 2005 URBAN WATER MANAGEMENT PLAN

Pursuant to California Water Code section 10642, a public hearing will be held on the 2005 Urban Water Management Plan (2005 UWMP).

The Victor Valley Water District will conduct a public hearing on December 21, 2005, at 6:30 p.m. in the Council Chambers of the District Office located at 17185 Yuma Street, Victorville, California to receive public comment relative to the proposed 2005 UWMP. The California Water Code requires all urban water suppliers within the state serving 3,000 or more connections to prepare an Urban Water Management Plan and update them every five years with years ending with 0 and 5. This will be an update to the Victor Valley Water District's 2000 Urban Water Management Plan. The 2005 UWMP complies with recent amendments to the California Water Code.

A copy of the 2005 UWMP Public Review Document is available during normal business hours at the District Office. You can also access this document on the Victor Valley Water District Website web site at: [www.vvwater.org](http://www.vvwater.org).

For questions concerning the document, please contact Randy Hill at (760) 843-9127. Written comments are requested by the close of business on December 8, 2005.

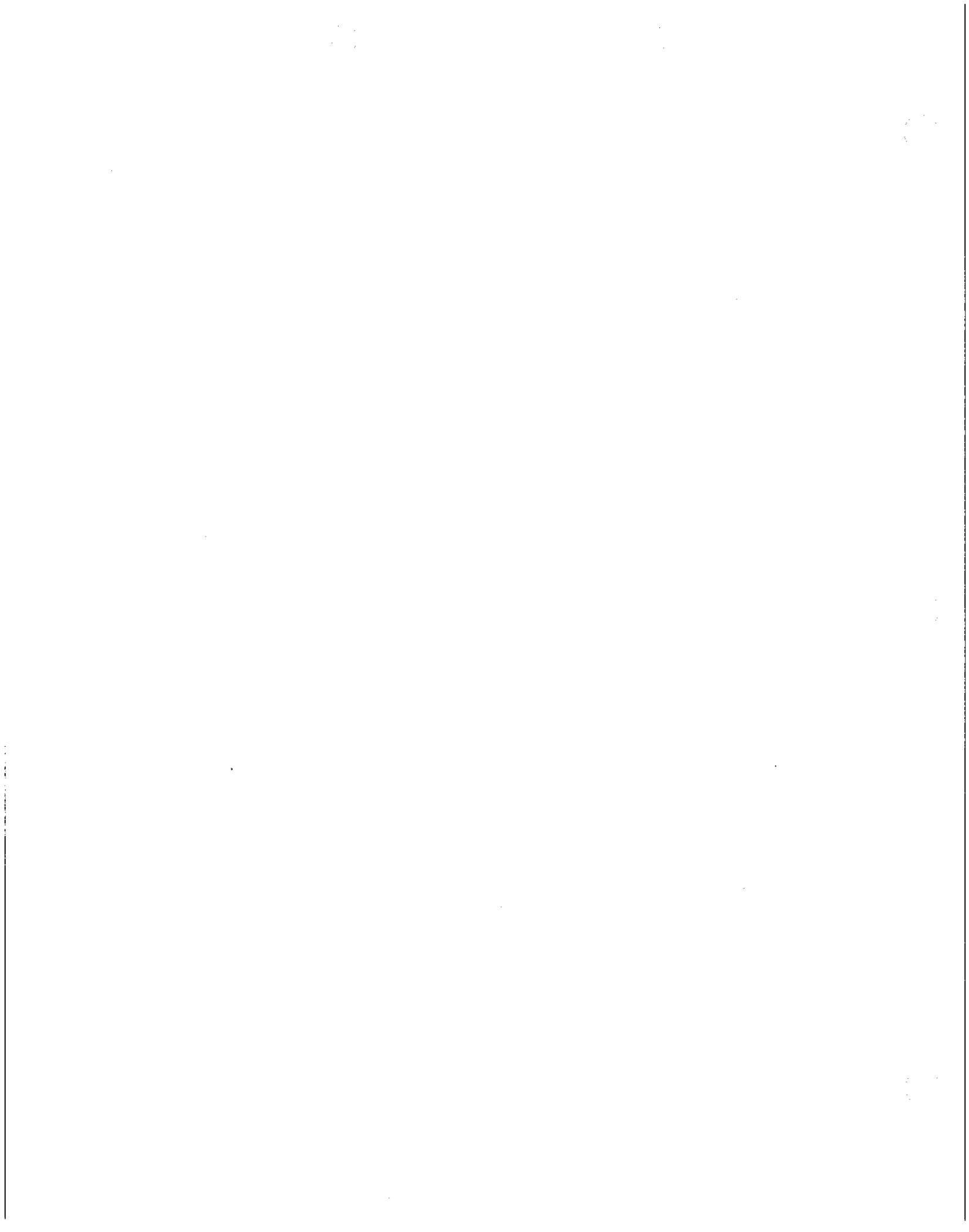
Send written comments to:  
Attention: Randy Hill  
General Manager  
Victor Valley Water District  
17185 Yuma Street  
Victorville, CA 92395

Published in the Daily Press  
November 22, 29, 2005  
(10-75)

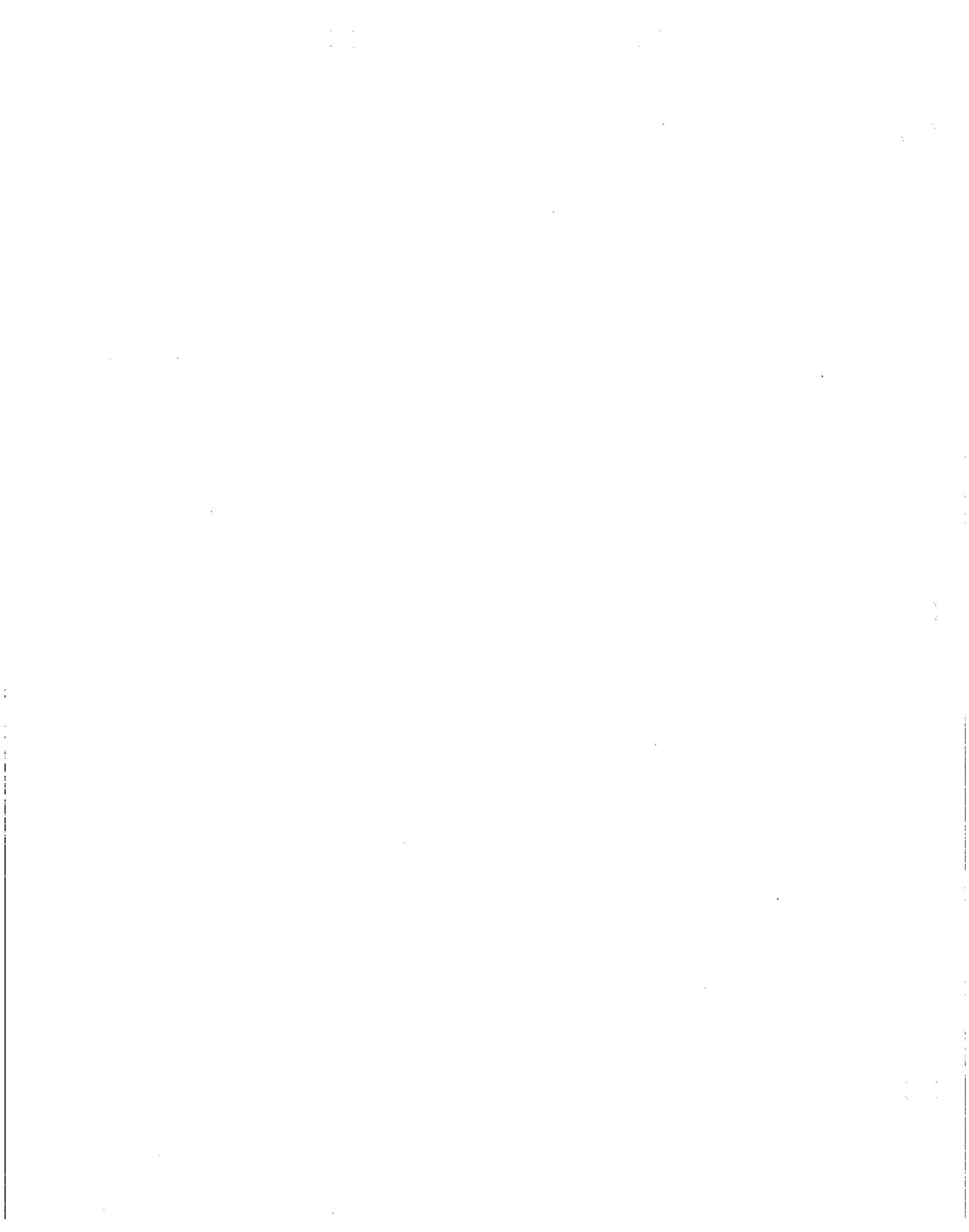


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**POPULATION AND WATER DEMAND PROJECTIONS  
VICTOR VALLEY WATER DISTRICT  
20-YEAR COMPREHENSIVE WATER MASTER PLAN  
DRAFT NOVEMBER 2005**







Population and Water Demand Projections for the Year 2010  
 2005 Urban Water Management Plan  
 Victor Valley Water District

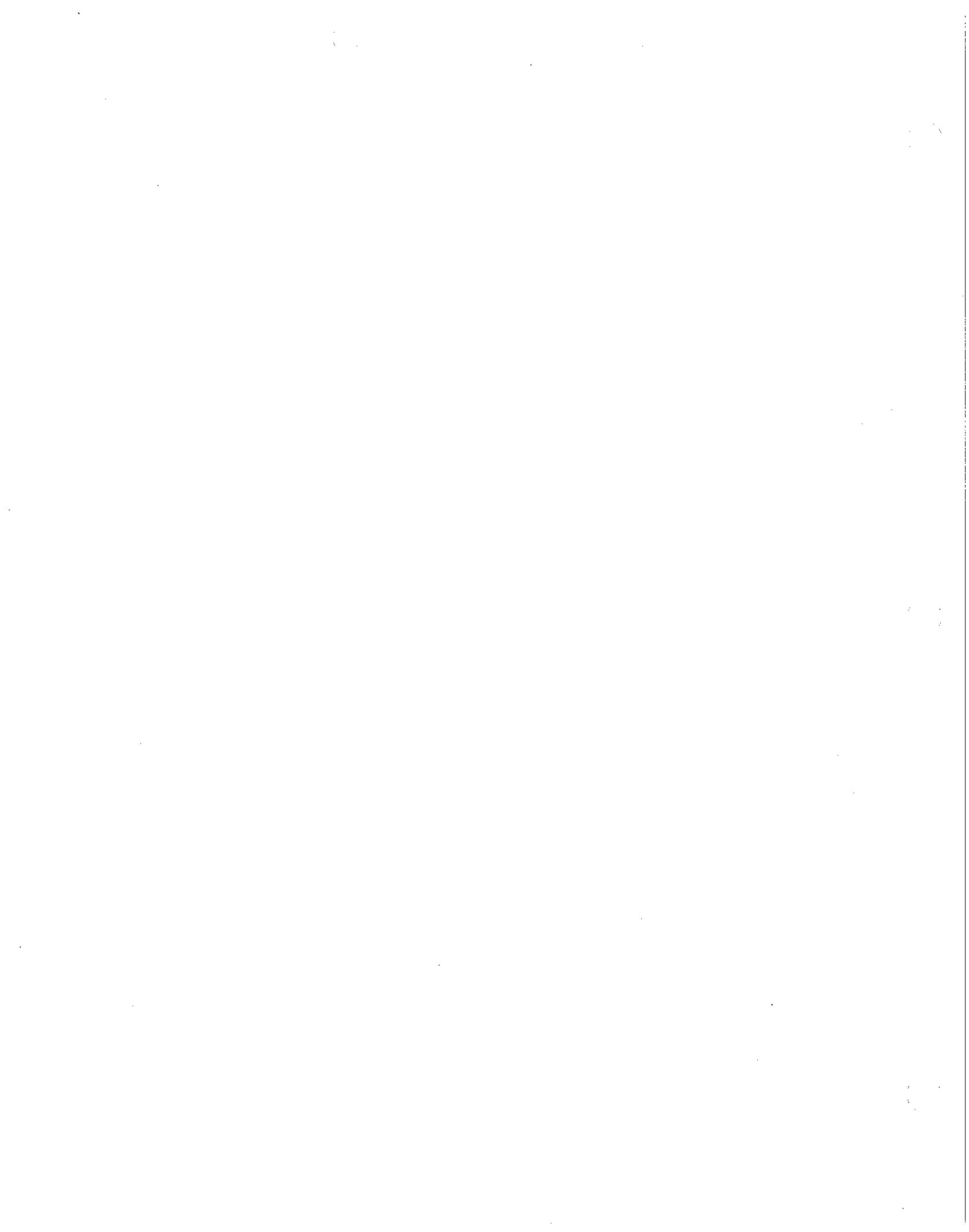
Area by Land Use Category		Water Demands	
Area (acres)	Percent of Total	WDF (gpd/ac)	Demands (gpd)
Residential-LDR	34.3%	1,200	11,504,162
Residential-MDR	1.6%	2,000	883,194
Residential-HDR	3.5%	2,500	2,450,857
Commercial	7.0%	1,800	3,536,218
Industrial	2.1%	2,600	1,503,998
Other	7.8%	1,900	4,123,921
Open Space	1.4%	367	141,719
Vacant	42.4%	-	-
<b>Totals</b>	<b>100.0%</b>	<b>27,947</b>	<b>24,144,069</b>

Comparison of Actual vs Calculated Demands	
Description	(ac-ft/yr)
Actual Demands for 2005	19,671
Calculated Demands for 2010	27,045
Comparison (%)	37.5%

Distribution of Demands	
Land Use	Target
SFR	62.00
MFR	10.00
Comm/Ins	26.00
Other	17.7%
<b>Totals</b>	<b>100.0%</b>

Estimated Population		
Demands (gpd)	Unit Demand (gpcd)	Population
Residential-LDR	185	62,185
Residential-MDR	180	4,907
Residential-HDR	155	15,812
Commercial	0	-
Industrial	0	-
Other	180	22,911
Open Space	0	-
Vacant	0	-
<b>Totals</b>	<b>228</b>	<b>105,814</b>

Land Use Category	Zoning	Area by LU Category		Water Demand (gpd/ac)	Estimated Average Day Water Demands by category (gpcd)	Estimated Average Day Water Demands (ac-ft/yr)
		Area Ac	Area (ac)			
Low Density Res	LU R1	1,958	9,587	1,200	11,504,162	12,886
Medium Density Res	LU R2	442	442	2,000	883,194	989
High Density Res	LU R3	705	705	2,500	1,762,446	1,988
	LU R4	211	211	2,500	527,555	591
	LU MDR	49	49	2,500	122,797	138
	LU IRMPD	15	15	2,500	39,058	43
Commercial	LU C1	28	28	1,800	49,554	55
	LU C2	1,650	1,650	1,800	2,969,683	3,331
	LU C4	103	103	1,800	186,076	210
	LU CA	94	94	1,800	169,877	191
	LU CM	90	90	1,800	162,228	183
Industrial	LU IPD	49	49	2,600	128,659	144
	LU I1	192	192	2,600	501,986	564
	LU I2	448	448	2,600	1,168,958	1,313
Other	LU FC	422	422	1,900	802,557	903
	LU PUD	164	164	1,900	310,661	350
	LU SP	1,585	1,585	1,900	3,010,702	3,419
Open Space	LU OA	15	15	1,900	28,517	32
	LU AE	3	3	1,900	5,730	6
	LU EP	46	46	1,900	86,262	97
	LU IS	312	312	1,900	592,719	671
Vacant	Vacant	11,839	11,839	-	-	-
<b>Total Land Use Area (Ac)</b>		<b>27,947</b>	<b>11,839</b>	<b>24,144,069</b>	<b>27,947</b>	<b>27,045</b>



Population and Water Demand Projections for the Year 2015  
 2005 Urban Water Management Plan  
 Victor Valley Water District

Area by Land Use Category		Water Demands	
Area (acres)	Percent of Total	WDF (gpd/ac)	Demands (gpd)
Residential-LDR	36.3%	1,200	12,168,890
Residential-MDR	1.7%	2,000	934,983
Residential-HDR	3.9%	2,500	2,689,966
Commercial	7.6%	1,800	3,802,830
Industrial	2.1%	2,600	1,503,998
Other	7.8%	1,900	4,133,106
Open Space	1.4%	367	141,719
Vacant	39.4%	-	-
<b>Totals</b>	<b>100.0%</b>	<b>Totals</b>	<b>25,375,491</b>

Comparison of Actual vs Calculated Demands	
Description	(ac-ft/yr)
Actual Demands for 2005	19,671
Calculated Demands for 2015	23,424
Comparison (%)	44.5%

Distribution of Demands	
Land Use	Target
SFR	62.00
MFR	10.00
Comm/Ins	26.00
Other	51.6%
<b>Totals</b>	<b>100.0%</b>

Estimated Population		Area by LU Category	
Demands (gpd)	Unit Demand (gpcd)	Area (ac)	Population
Residential-LDR	185	66,778	66,778
Residential-MDR	180	5,194	5,194
Residential-HDR	155	17,355	17,355
Commercial	0	-	-
Industrial	0	-	-
Other	180	22,962	22,962
Open Space	0	-	-
Vacant	0	-	-
<b>Totals</b>	<b>228</b>	<b>111,288</b>	<b>111,288</b>

Land Use Category	Zoning	Area (ac)	Area by LU Category (ac)	Water Demand (gpd/ac)	Estimated Average Day Water Demands		Estimated Average Day Water Demands (ac-ft/yr)
					Water Demands (gpd)	Water Demands (ac-ft/yr)	
Low Density Res	LU_C1	45	45	1,800	80,761	13,913	
Medium Density Res	LU_C2	1,766	1,766	1,800	3,178,463	1,047	
High Density Res	LU_C4	107	107	1,800	192,901	1,047	
Commercial	LU_CA	105	105	1,800	188,477	1,047	
Industrial	LU_CM	90	90	1,800	162,228	1,047	
Other	LU_OD	49	49	2,600	126,653	4,260	
	LU_O1	82	82	2,600	212,936	1,895	
	LU_M2	48	48	2,600	124,359	1,895	
	LU_PC	422	422	1,900	802,559	1,895	
	LU_PUD	164	164	1,900	310,661	1,895	
	LU_SP	1,589	1,589	1,900	3,019,887	1,895	
Open Space	LU_OA	15	15	900	27,817	4,630	
	LU_OE	13	13	900	25,540	4,630	
	LU_FP	46	46	900	86,262	4,630	
	LU_O1S	312	312	1,900	441,719	1,895	
Vacant	Vacant	11,010	11,010	-	-	-	
<b>Total Land Use Area (Ac)</b>		<b>27,947</b>	<b>11,010</b>		<b>25,375,491</b>		<b>28,424</b>



Population and Water Demand Projections for the Year 2020  
 2005 Urban Water Management Plan  
 Victor Valley Water District

Area by Land Use Category		Water Demands	
Area (acres)	Percent of Total	WDF (gpd/ac)	Demands (gpd)
Residential-LDR	38.7%	1,200	12,984,722
Residential-MDR	2.0%	2,000	1,106,933
Residential-HDR	3.9%	2,500	2,759,475
Commercial	8.5%	1,800	4,257,751
Industrial	2.1%	2,800	1,503,988
Other	7.9%	1,900	4,170,225
Open Space	1.4%	367	141,719
Vacant	35.6%	-	-
<b>Totals</b>	<b>100.0%</b>	<b>27,947</b>	<b>26,924,823</b>

Comparison of Actual vs Calculated Demands	
Description	(ac-ft/yr)
Actual Demands for 2005	19,671
Calculated Demands for 2020	30,160
Comparison (%)	53.3%

Estimated Population		
Demands (gpd)	Unit Demand (gpcd)	Population
Residential-LDR	185	70,188
Residential-MDR	180	6,150
Residential-HDR	155	17,803
Commercial	0	-
Industrial	0	-
Other	180	23,168
Open Space	0	-
Vacant	0	-
<b>Totals</b>	<b>230</b>	<b>117,308</b>

Distribution of Demands	
Land Use	Calculated
SFR	62.00
MFR	10.00
Comml/ins	26.00
Other	21.4%
<b>Totals</b>	<b>100.0%</b>

Land Use Category	Zoning	Area (ac)	Area AC	Area by LU Category (ac)	Water Demand (gpd/ac)	Estimated Average Day Water Demands		Estimated Average Day Water Demands	
						by category (gpcd)	by category (gpcd)	Water Demands	Water Demands
Low Density Res	LU_R1	10,821	10,821	10,821	1,200	12,984,722	12,984,722	12,984,722	
Medium Density Res	LU_R2	553	553	553	2,000	1,106,933	1,106,933	1,106,933	
High Density Res	LU_R3	828	828	828	2,500	2,071,663	2,071,663	2,071,663	
	LU_R4	211	211	211	2,500	527,565	527,565	527,565	
	LU_MDR	49	49	49	2,500	122,737	122,737	122,737	
	LU_R MED	15	15	1,104	2,500	38,058	38,058	38,058	
Commercial	LU_C1	50	50	50	1,800	89,635	89,635	89,635	
	LU_C2	1,965	1,965	1,965	1,800	3,573,788	3,573,788	3,573,788	
	LU_C4	107	107	107	1,800	192,901	192,901	192,901	
	LU_CA	130	130	130	1,800	233,547	233,547	233,547	
	LU_CM	93	93	93	1,800	167,879	167,879	167,879	
Industrial	LU_IPD	49	49	49	2,800	126,653	126,653	126,653	
	LU_M1	82	82	82	2,800	212,986	212,986	212,986	
	LU_M2	468	468	578	2,800	1,643,568	1,643,568	1,643,568	
Other	LU_PC	422	422	422	1,900	802,617	802,617	802,617	
	LU_PUD	164	164	164	1,900	310,661	310,661	310,661	
	LU_SP	1,609	1,609	1,609	1,900	3,056,948	3,056,948	3,056,948	
Open Space	LU_OA	15	15	15	1,900	27,817	27,817	27,817	
	LU_OE	18	18	18	1,900	33,840	33,840	33,840	
	LU_OFP	46	46	46	1,900	86,282	86,282	86,282	
Vacant	LU_V15	512	512	387	-	-	-	-	
	Vacant	9,944	9,944	9,944	-	-	-	-	
<b>Total Land Use Area (Ac)</b>		<b>27,947</b>	<b>27,947</b>			<b>26,924,823</b>	<b>26,924,823</b>	<b>30,160</b>	



Population and Water Demand Projections for the Year 2025  
 2005 Urban Water Management Plan  
 Victor Valley Water District

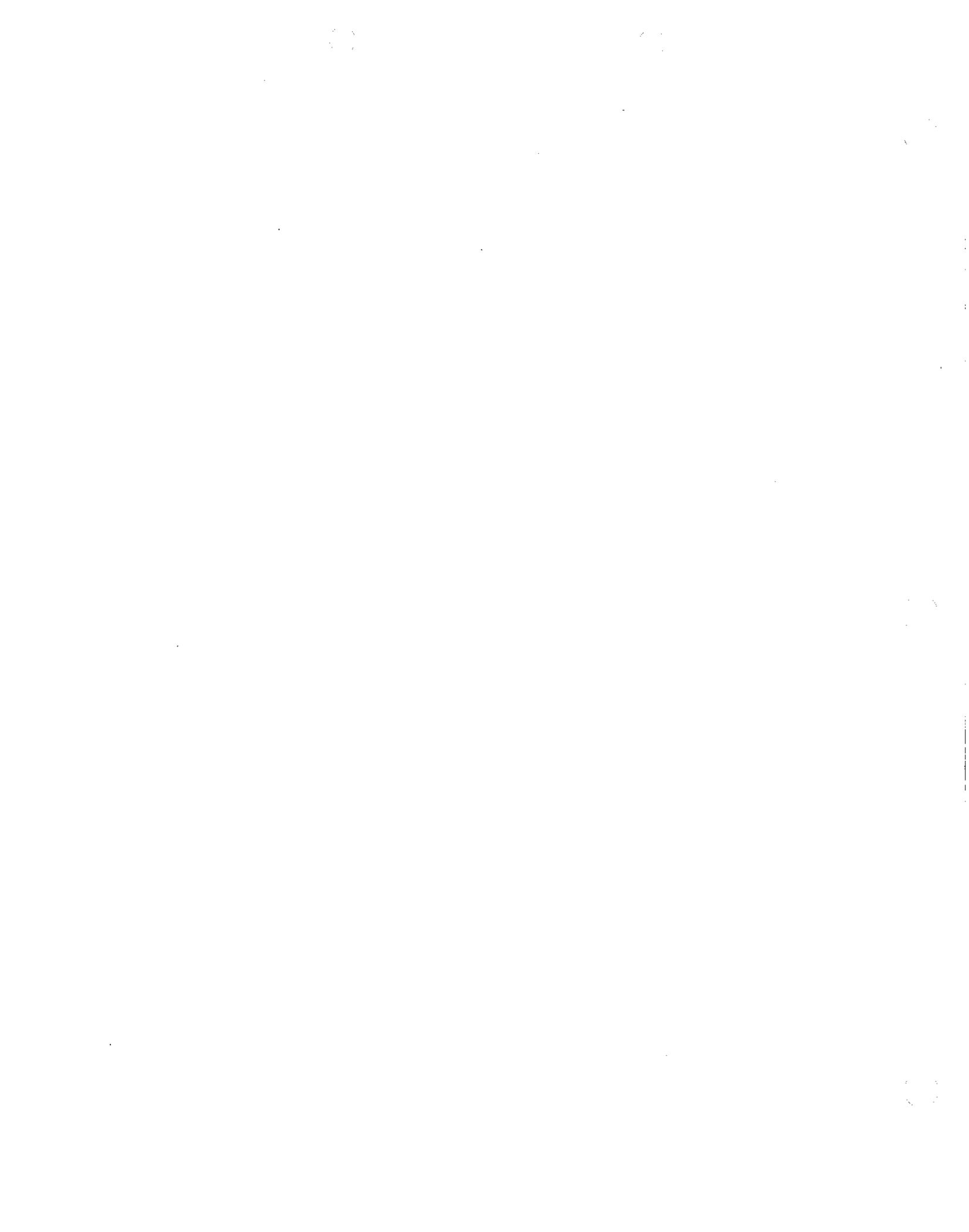
Area by Land Use Category		Water Demands	
Area (acres)	Percent of Total	WDF (gpd/ac)	Demands (gpd)
Residential-LDR	40.7%	1,200	13,636,475
Residential-MDR	2.0%	2,000	1,106,933
Residential-HDR	4.0%	2,500	2,786,969
Commercial	8.9%	1,800	4,474,628
Industrial	2.4%	2,600	1,717,577
Other	8.4%	1,900	4,475,113
Open Space	1.4%	366	141,719
Vacant	32.3%	-	-
<b>Totals</b>	<b>100.0%</b>	<b>27,947</b>	<b>28,339,415</b>

Comparison of Actual vs Calculated Demands	
Description	(ac-ft/yr)
Actual Demands for 2005	19,671
Calculated Demands for 2025	31,744
Comparison (%)	51.4%

Estimated Population		
Demands (gpd)	Unit Demand (gpcd)	Population
Residential-LDR	185	73,711
Residential-MDR	180	6,150
Residential-HDR	155	17,980
Commercial	0	-
Industrial	1,717,577	-
Other	4,475,113	24,862
Open Space	0	-
Vacant	0	-
<b>Totals</b>	<b>231</b>	<b>122,702</b>

Distribution of Demands	
Land Use	Calculated
SFR	52.0%
MFR	10.0%
Comm/Ins	21.9%
Other	16.3%
<b>Totals</b>	<b>100.0%</b>

Land Use Category	Zoning	Area Ac	Area by LU Category (ac)	Water Demand (gpd/ac)	Estimated Average Day Water Demands (gpd)		Estimated Average Day Water Demands (ac-ft/yr)
					Water Demands by category (gpd)	Water Demands	
Low Density Res	LU_R1	1,364	1,364	1,200	13,636,475	13,636,475	15,275
Medium Density Res	LU_R2	553	553	2,000	1,106,933	1,106,933	1,240
High Density Res	LU_R3	539	539	2,500	2,098,557	2,098,557	2,325
Commercial	LU_C1	50	50	1,800	89,638	89,638	3,122
	LU_C2	2,092	2,092	1,800	3,765,145	3,765,145	4,240
	LU_C4	121	121	1,800	217,838	217,838	2,440
	LU_CA	130	130	1,800	233,547	233,547	2,640
Industrial	LU_CM	94	94	1,800	168,481	168,481	1,880
	LU_IPD	131	131	2,600	340,232	340,232	3,840
	LU_M1	82	82	2,600	212,986	212,986	2,390
	LU_M2	45	45	2,600	116,458	116,458	1,300
Other	LU_PC	422	422	1,900	802,617	802,617	890
	LU_PUD	164	164	1,900	310,661	310,661	3,460
	LU_SP	1,769	1,769	1,900	3,361,836	3,361,836	3,760
Open Space	LU_OA	15	15	1,900	27,617	27,617	300
	LU_OE	13	13	1,900	25,640	25,640	280
	LU_OF	48	48	1,900	89,262	89,262	980
	LU_OI	312	312	1,900	141,719	141,719	1,590
Vacant		9,026	9,026	-	-	-	-
<b>Total Land Use Area (Ac)</b>		<b>27,947</b>	<b>9,026</b>	<b>-</b>	<b>28,339,415</b>	<b>28,339,415</b>	<b>31,744</b>



Population and Water Demand Projections for the Year 2030  
 2005 Urban Water Management Plan  
 Victor Valley Water District

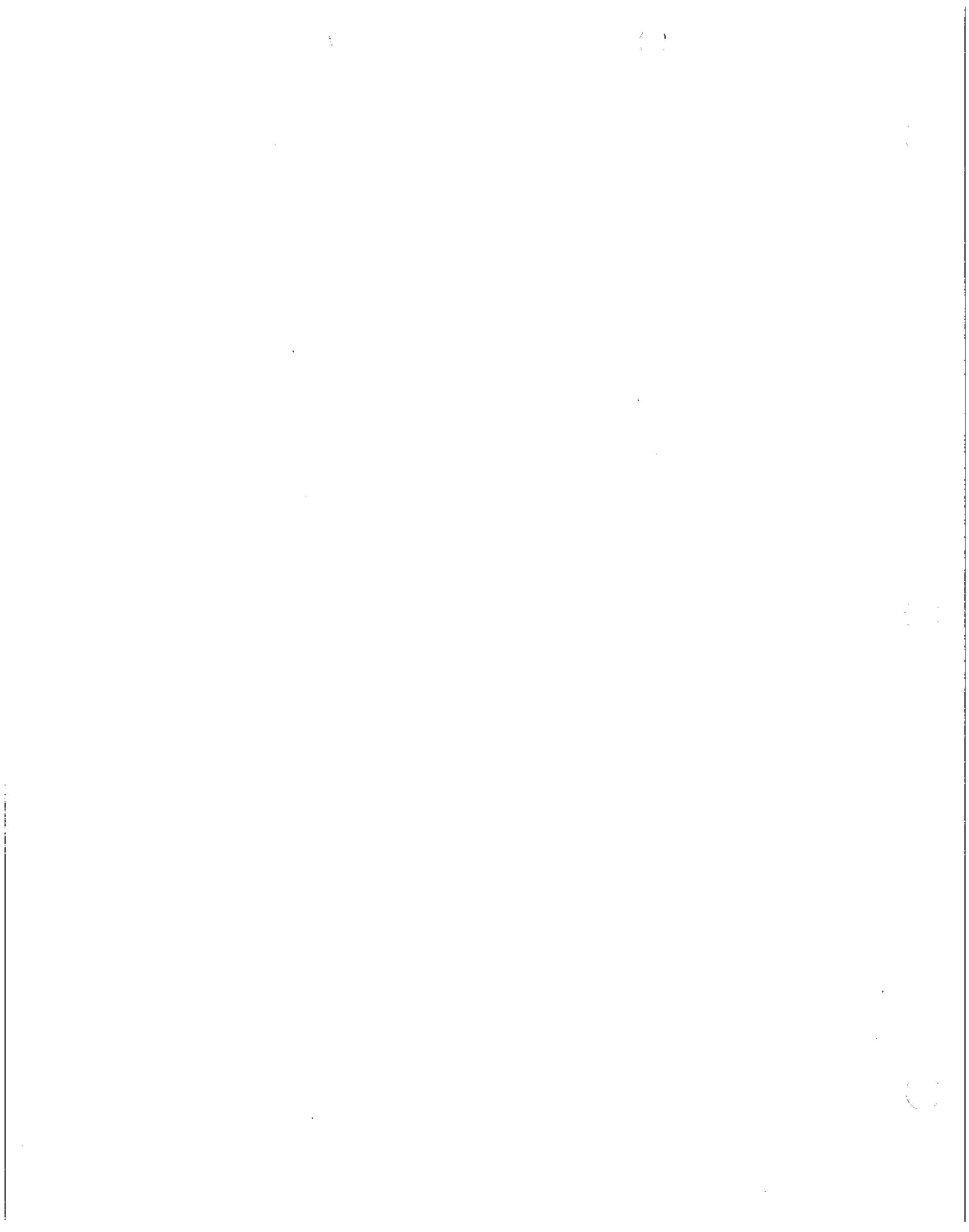
Area by Land Use Category		Water Demands	
Area (acres)	Percent of Total	WDF (gpd/ac)	Percent of Total
Residential-LDR	11,907	1,200	48.0%
Residential-MDR	553	2,000	3.7%
Residential-HDR	1,126	2,814,463	9.5%
Commercial	2,608	4,691,504	15.8%
Industrial	743	1,931,156	6.5%
Other	2,516	4,790,001	16.1%
Open Space	387	141,719	0.5%
Vacant	8,108	-	0.0%
<b>Totals</b>	<b>27,946</b>	<b>29,754,006</b>	<b>100.0%</b>

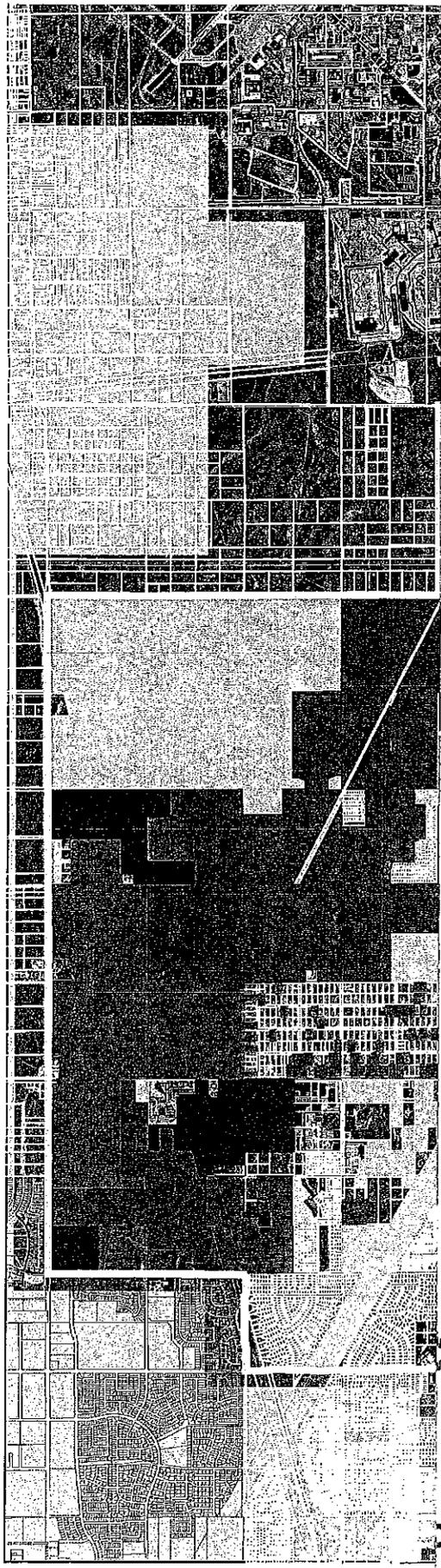
Comparison of Actual vs Calculated Demands	
Description	(ac-ft/yr)
Actual Demands for 2005	19,671
Calculated Demands for 2030	33,329
Comparison (%)	69.4%

Distribution of Demands		
Land Use	Target	Calculated
SFR	62.00	51.7%
MFR	10.00	9.5%
Comm/Ins	26.00	22.3%
Other	-	16.5%
<b>Totals</b>	<b>100.0%</b>	<b>100.0%</b>

Estimated Population		
Demands (gpd)	Unit Demand (gpcd)	Population
Residential-LDR	14,288,229	77,234
Residential-MDR	1,106,933	6,150
Residential-HDR	2,814,463	18,158
Commercial	4,691,504	0
Industrial	1,931,156	0
Other	4,790,001	26,556
Open Space	141,719	0
Vacant	0	0
<b>Totals</b>	<b>29,754,006</b>	<b>128,087</b>

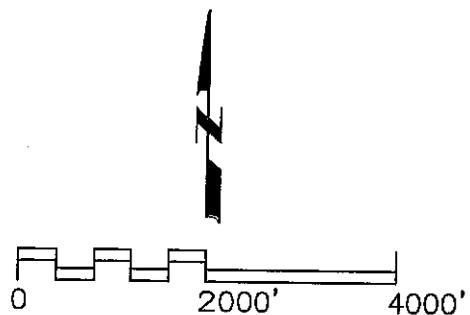
Land Use Category	Zoning	Area (ac)	Area by LU Category (ac)	Water Demand (gpd/ac)	Estimated	
					Average Day Water Demands (gpd)	Estimated Average Day Water Demands (ac-ft/yr)
Low Density Res	LU_R1	1,907	1,907	1,200	14,288,229	17,180,065
Medium Density Res	LU_R2	553	553	2,000	1,106,933	1,240
High Density Res	LU_R3	850	850	2,500	2,125,000	5,250
Commercial	LU_C1	50	1,126	2,500	2,814,463	13,153
	LU_C2	2,198	1,800	1,800	3,956,505	8,656
	LU_C4	135	1,800	1,800	242,774	435
Industrial	LU_I1	130	1,800	1,800	233,547	418
	LU_CM	94	2,608	1,800	169,042	305
Other	LU_O1	243	2,608	2,600	4,691,504	5,255
	LU_O2	82	2,608	2,600	2,129,551	5,531
Open Space	LU_PC	422	743	1,500	1,164,358	1,663
	LU_PUD	164	1,900	1,900	802,617	1,556
	LU_SP	1,930	1,900	1,900	3,10,661	611
Vacant	LU_V1	15	1,900	1,900	3,666,724	7,001
	LU_V2	13	1,900	1,900	27,817	53
Totals	LU_V3	46	1,900	1,900	25,650	50
	LU_V4	319	1,900	1,900	88,262	169
Vacant		8,108	8,108	-	141,719	159
<b>Total Land Use Area (Ac)</b>		<b>27,946</b>	<b>27,946</b>		<b>29,754,006</b>	<b>33,329</b>





## Legend

-  Currently vacant with no plans for development
-  Developed by 2010
-  Developed by 2015
-  Developed by 2020
-  Developed by 2030
-  Study Area Boundary



**Figure C.1**

# Current and Proposed Area Map

2005 Urban Water Management Plan  
 Victor Valley Water District

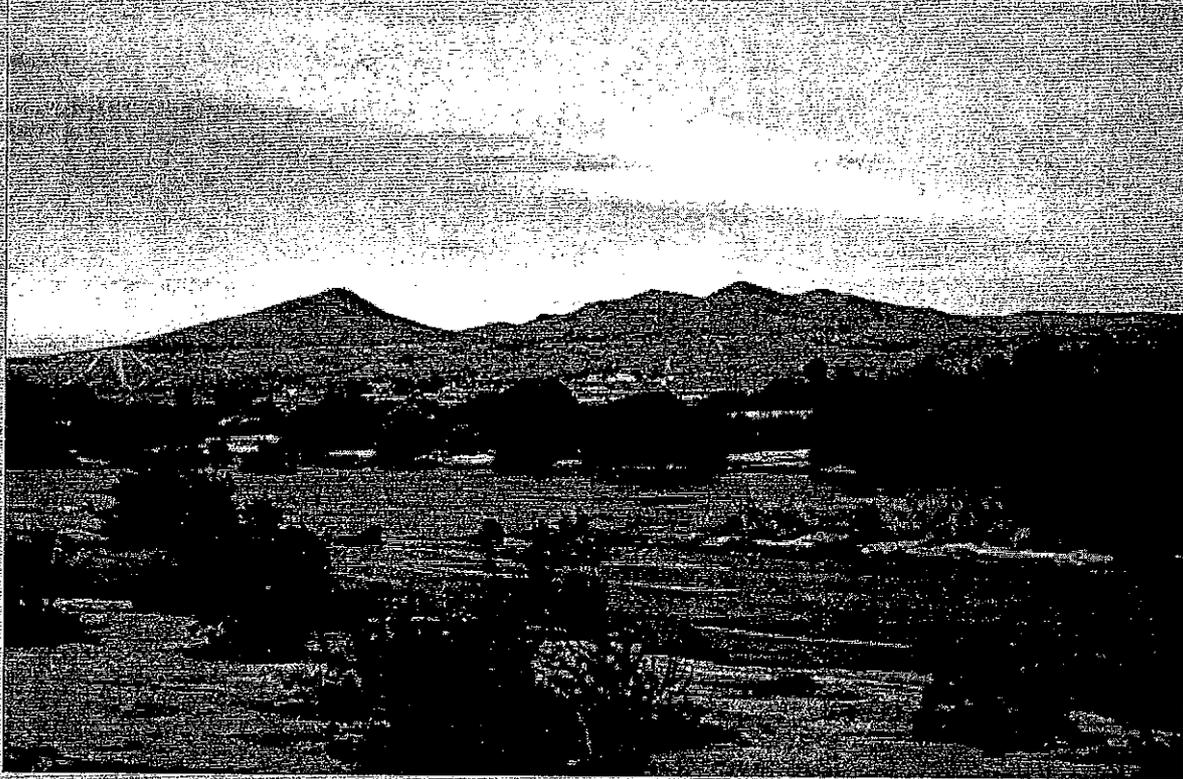
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**2004 REGIONAL WATER MANAGEMENT PLAN  
MOJAVE WATER AGENCY  
(A COPY OF THE ENTIRE REPORT IS PROVIDED  
UNDER A SEPARATE COVER AND BINDER)**



# MOJAVE WATER AGENCY



## 2004 REGIONAL WATER MANAGEMENT PLAN

INTEGRATED REGIONAL WATER MANAGEMENT PLAN  
GROUNDWATER MANAGEMENT PLAN  
URBAN WATER MANAGEMENT PLAN



VOLUME 1:  
REPORT

September 2004  
Adopted February 24, 2005

**Schlumberger**  
Water Services



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### Appendicies:

- Appendix A Judgment After Trial January 10, 1996, Mojave Basin Area Adjudication
- Appendix B Technical Memo 3
- Appendix C Water Demand Estimation
- Appendix D Issues Questionnaire, Summary of Responses to the Issues Questionnaire
- Appendix E Technical Advisory Committee to the Mojave Water Agency Minutes
- Appendix F *The Panorama* -A newsletter published by the Mojave Water Agency
- Appendix G Resolution approving the Mojave Water Agency 2004 Regional Water Management Plan
- Appendix H Existing Monitoring Protocols
- Appendix I Well Construction Data from MWA Well Database
- Appendix J AB 3030 - Groundwater Management Planning  
SB 1938 - Groundwater Management and State Funding  
California Urban Water Management Planning Act  
Proposition 50 - Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002

APPENDIX E

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**CALIFORNIA DEPARTMENT OF WATER RESOURCES  
BULLETIN NO. 118**

December 2005

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## Upper Mojave River Valley Groundwater Basin

- Groundwater Basin Number: 6-42
- County: San Bernardino
- Surface Area: 413,000 acres (645 square miles)

### Basin Boundaries and Hydrology

The Upper Mojave River Valley Groundwater Basin underlies an elongate north-south valley, with the Mojave River flowing (occasionally) through the valley from the San Bernardino Mountains on the south, northward into the Middle Mojave River Valley Groundwater Basin at the town of Helendale. The groundwater basin is bounded on the north by a roughly east-west line from basement rock outcrops near Helendale to those in the Shadow Mountains. The southern boundary is the contact between Quaternary sedimentary deposits and unconsolidated basement rocks of the San Bernardino Mountains. The basin is bounded on the southeast by the Helendale fault and on the east by basement exposures of the mountains surrounding Apple Valley. In the west, the boundary is marked by a surface drainage divide between this basin and El Mirage Valley Basin, and a contact between alluvium and basement rocks that form the Shadow Mountains. Average precipitation varies across the basin from 5 to 36 inches with the average for the basin near 12 inches (USDA 1999).

### Hydrogeologic Information

#### *Water Bearing Formations*

The two primary water-bearing units within the Mojave River Valley Basin system consist of regional Pliocene and younger alluvial fan deposits (fan unit) and of overlying Pleistocene and younger river channel and floodplain deposits, which have been called the floodplain unit (DWR 1967), or the floodplain aquifer (Lines 1996; Stamos and others 2001). Other potential, but not regionally significant, water-bearing units include older alluvium, old fan deposits, old lake and lakeshore deposits, and dune sand deposits (DWR 1967). Water-bearing deposits in this basin are predominantly unconfined, though some perched water appears near Adelanto. Well yields typically range from 100 to 2000 gpm (Hardt 1969; Lines 1996; Stamos and others 2001) with an average of about 630 gpm for all units (BEE 1994).

**Pleistocene and Younger Floodplain Unit.** The floodplain unit is the more productive and extensively studied of the two units and extends 50 to 200 feet deep in this basin, but is restricted to within about 1 mile of the active Mojave River channel (Stamos and others 2001). The average thickness is estimated to be about 150 feet through this basin. Specific yield for this unit ranges from 23 to 39 percent (Lines 1996) and the average specific yield for this unit is about 27 percent in this basin (DWR 1967; Lines 1996).

**Pliocene and Younger Fan Unit.** The regional fan unit is composed of late Tertiary and younger unconsolidated to partially consolidated alluvial fan deposits up to 1,000 feet thick (Stamos and Predmore 1995; Lines 1996). The permeability of these deposits decreases with depth (Stamos and others 2001). Estimated average effective thickness in the Upper Mojave River

Valley Groundwater Basin is about 300 feet thick (DWR 1967). Available information indicates that specific yields and well yields are generally less for the fan unit compared to the floodplain unit, but suggest generally higher well yields for younger fan deposits and lower well yields for older fan deposits (DWR 1967). The specific yields for this unit range from 4 percent to 25 percent with an estimated average of 10 percent (DWR 1967).

### ***Restrictive Structures***

This groundwater basin is bounded on the northeast by the Helendale fault zone which forms a barrier to groundwater flow in the regional fan unit, but does not appear to be a barrier to groundwater flow in the floodplain unit (Stamos and Predmore 1995; Stamos and others 2001). The fault zone causes an eastward lowering of the water table across the southeastern boundary into the Lucerne Valley Basin in the fan unit deposits (Stamos and Predmore 1995; Lines 1996). Stamos and others (2001) also interpret unexposed faults acting as barriers to cause steep groundwater gradients between Victorville and Adelanto.

In the southern portion of the basin, bedrock constriction causes water to rise to the surface of the Mojave River at the Upper and Lower Narrows (Lines 1996; Stamos and others 2001). Historically, such locations have been used for camping and watering spots, such as Lane's Crossing just north of the Lower Narrows (Lines 1996).

### ***Recharge Areas***

Natural recharge of the basin is from direct precipitation, ephemeral stream flow, infrequent surface flow of the Mojave River, and underflow of the Mojave River into the basin from the southwest (Eccles 1981; Stamos and Predmore 1995; Lines 1996). Treated wastewater effluent, septic tank effluent, effluent from two fish hatchery operations, and irrigation waters are allowed to percolate into the ground and recharge the groundwater system (Eccles 1981; Lines 1996). A large, but sporadic contribution to recharge occurs when the Mojave River is flowing, with 40 feet of rise in the water table observed during 1969 and 16 to 48 feet of rise observed in 1993 (Hardt 1969; Robson 1974; Lines 1996). The general groundwater flow is toward the active channel of the Mojave River and then it follows the course of the river through the valley (Stamos and Predmore 1995; Lines 1996). The Helendale fault forms a barrier to groundwater flow in the southeast corner of the basin. This barrier causes groundwater to flow northwestward under a surface drainage divide into the Mojave River drainage instead of northeastward into Lucerne Lake (dry) in the Lucerne Valley Basin.

### ***Groundwater Level Trends***

Groundwater levels in wells in the floodplain unit near the Mojave River tend to vary in concert with rainfall and runoff rates, whereas groundwater levels in the fan unit do not show significant changes due to local rainfall (MWA 1999). The general trend in this basin is for declining groundwater levels, particularly in the fan unit. Three of the ten highest precipitation years over a 60-year base period occurred during 1991 through 1999 (MWA 1999). Infiltration of the runoff from this relatively abundant precipitation has produced an increase in groundwater level (and groundwater storage) in the

floodplain unit near the Mojave River (MWA 1999). A hydrograph for a well near Adelanto shows a gentle decline of about 25 feet during 1955 through 1985 and a faster decline of about 35 feet since about 1985. Another well near Victorville in the fan unit shows a range of about 30 feet in water level over the last 20 years, with a decrease in water level of about 10 feet (MWA 1999).

### **Groundwater Storage**

**Groundwater Storage Capacity.** Published total storage capacity for the Upper Mojave River Valley Groundwater Basin varies. The boundaries of the Upper Mojave River Valley Groundwater Basin of this report correspond closely to the Upper Mojave River Basin and Fifteen Mile storage units discussed by DWR (1967). DWR (1967) calculated the total storage capacity for these storage units using the base of water-bearing materials, an average of about 300 feet. The total storage for the Upper Mojave River Basin and Fifteen Mile storage units is 27,839,000 af (DWR 1967). The Upper Mojave River Valley Groundwater Basin also roughly underlies the Alto subarea and about one-third of the Este subarea under the administration of the Mojave Water Agency (MWA 1999). The MWA uses an economic pumping depth of 100 feet as a limit for effective basin depth, and calculates a total effective storage capacity of 2,086,000 af for the Alto subarea and 530,000 af for the Este subarea (BEE, 1994). Using an overlying area of about 413,000 acres, an average thickness of about 300 feet, and an average specific yield of about 10.5 percent indicates a total storage capacity of about 13,000,000 af.

**Groundwater in Storage.** MWA (1999) calculated the available stored groundwater underlying the Alto subarea at the end of 1998 was 960,000 af and the available storage space was 1,126,000 af. MWA (1999) calculated the available stored groundwater in the Este subarea at the end of 1998 was 420,000 af and the available storage space was 110,000 af. The basin is considered to be effectively full when 1930 water level elevations are reached (BEE, 1994). Assuming an overlying area of about 413,000 acres, a saturated thickness of about 250 feet, and a specific yield of 10.5 percent indicates about 10,800,000 af of stored groundwater at the end of 1998. This amount indicates that about 2,200,000 af of additional storage space was available.

### **Groundwater Budget (Type A)**

Not enough data exist to compile a detailed groundwater budget for the basin. However, MWA monitors groundwater extraction and reports extractions of 58,300 af for urban uses, 7,800 af for agriculture, and 11,900 af for industrial and recreational uses in the 1997-1998 water year (MWA 1999). In addition to the extraction data, several other components of the water budget have been reported. For the 1997-1998 water year, MWA (1999) estimated natural recharge at 105,000 af, artificial recharge at 16,350 af, and applied water recharge at 3,900 af. Subsurface inflow and outflow averages are estimated by DWR (1967) at 950 af inflow and 2,000 af outflow. Bookman-Edmonston Engineering (1994) set the average inflow at about 1,000 af and the average outflow at 2,000 af. Stamos and others (2001) estimate that 5,000 to 6,000 af flows through the floodplain unit into the Middle Mojave River Valley Groundwater Basin near the Helendale fault.

### Groundwater Quality

**Characterization.** Calcium bicarbonate character waters are found near the San Bernardino Mountains and near the Mojave River channel. Sodium bicarbonate waters are found near Victorville. Sodium bicarbonate-sulfate waters are found near Adelanto. Sodium-calcium sulfate waters occur west of Victorville. Sodium chloride waters are found in Apple Valley. Small areas of calcium-sodium sulfate and calcium-sodium bicarbonate also occur in this basin (DWR 1967). Total dissolved solids content typically is less than 500 mg/L (BEE 1994), but concentrations up to 1,105 mg/L were found near Apple Valley (DWR 1967). Electrical Conductivity readings range as high as 1,529  $\mu$ mhos, with lower values of 650  $\mu$ mhos found near Apple Valley, and 550  $\mu$ mhos found near Adelanto (DWR 1967).

**Impairments.** High nitrate concentrations occur in the southern portion of the basin and high iron and manganese concentrations are found near Oro Grande. Groundwater has been contaminated with trichloroethane (TCE) at the former George Air Force Base, now a federal Superfund site (BEE 1994). Leaking underground storage tanks in and around Victorville have introduced fuel additives benzene, toluene, ethylbenzene, xylene, and methyl tertiary butyl ether (MTBE) into groundwater (BEE 1994; MWA 1999).

### Water Quality in Public Supply Wells

Constituent Group <sup>1</sup>	Number of wells sampled <sup>2</sup>	Number of wells with a concentration above an MCL <sup>3</sup>
Inorganics – Primary	122	9
Radiological	115	2
Nitrates	125	2
Pesticides	117	0
VOCs and SVOCs	120	0
Inorganics – Secondary	122	11

<sup>1</sup> A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

<sup>2</sup> Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

<sup>3</sup> Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

### Well Production Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: to 5,500 gal/min	Average: 1,030 gal/min Median: 980 (130 Well Completion Reports)
	100-2,000 gal/min for floodplain unit (Hardt 1969; Lines 1996)	Average = 630 gal/min for all units (BEE 1994)
Total depths (ft)		
Domestic	Range: 22-1,140 ft	Average: 250 ft Median: 210 ft (1,188 Well Completion Reports)
Municipal/Irrigation	Range: 50-1,970 ft	Average: 360ft Median: 300 ft (326 Well Completion Reports)

### Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
US Geological Survey	Water level	120/ Annually
US Geological Survey	Water Quality	22/ Annually
Department of Health Services	Title 22 Water Quality	153/ Annually

### Basin Management

**Groundwater management** The Upper Mojave River Valley Groundwater Basin is a portion of an area adjudicated in 1996 setting the Mojave Water Agency as watermaster. MWA has proposed three basic management strategy alternatives that would reduce and eliminate overdraft in the basin: water conservation, water supply enhancement, and water allocation. These alternatives will likely be implemented together in the final management strategy adopted by MWA (BEE 1994).

#### Water agencies

<b>Public</b>	Mojave Water Agency, Victor Valley Water District, Thunderbird County Water District, Juniper Riveria County Water District, Mariana Ranchos County Water District, Hesperia Water District, Baldy Mesa Water District, County Service Area Number 64, Apple Valley Heights County Water District, Apple Valley Foothill County Water District
<b>Private</b>	Apple Valley Ranchos Water Company, Southern California Water Company, Rancheritos Mutual Water Company

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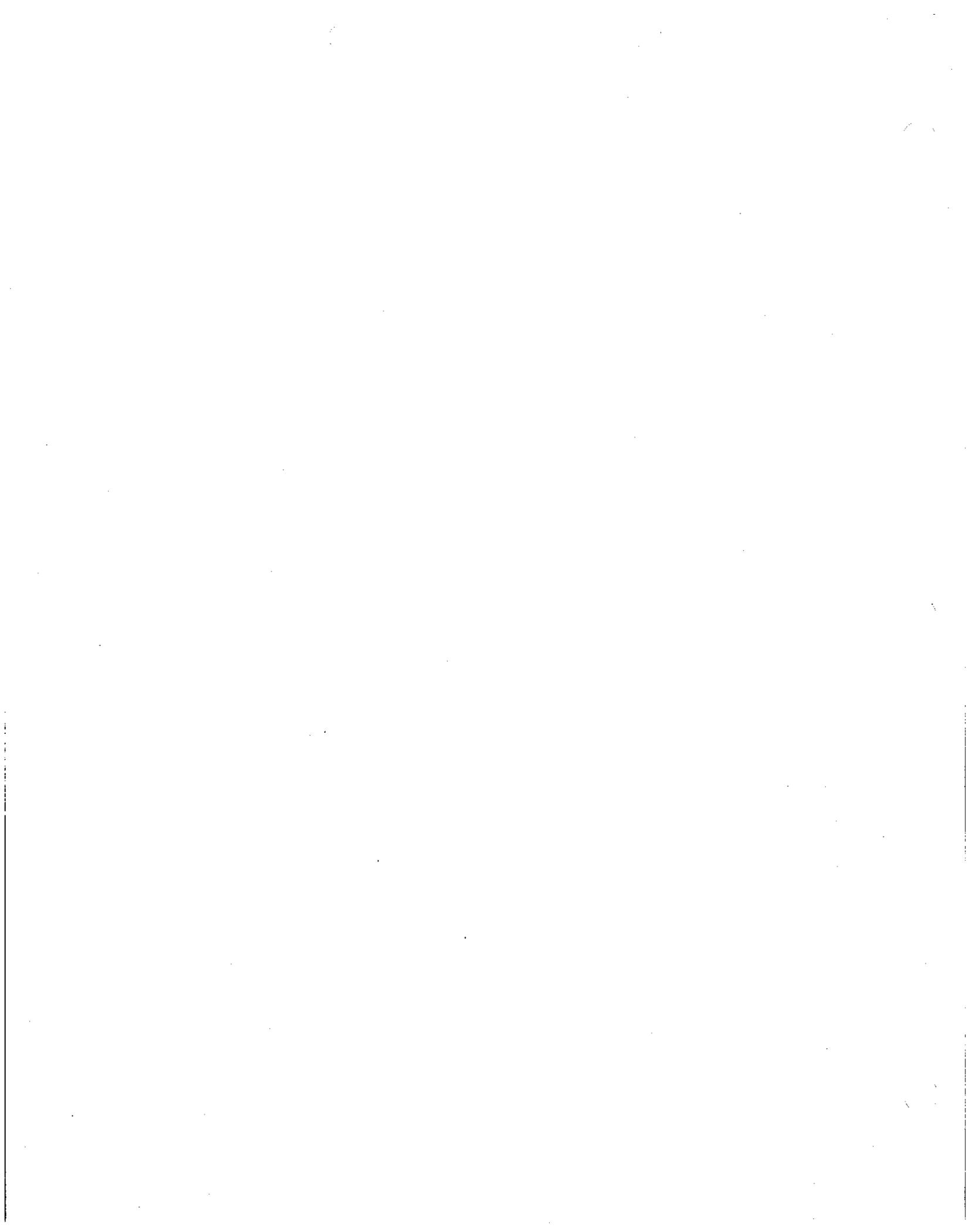
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## Errata

Substantive changes made to the basin description will be noted here.



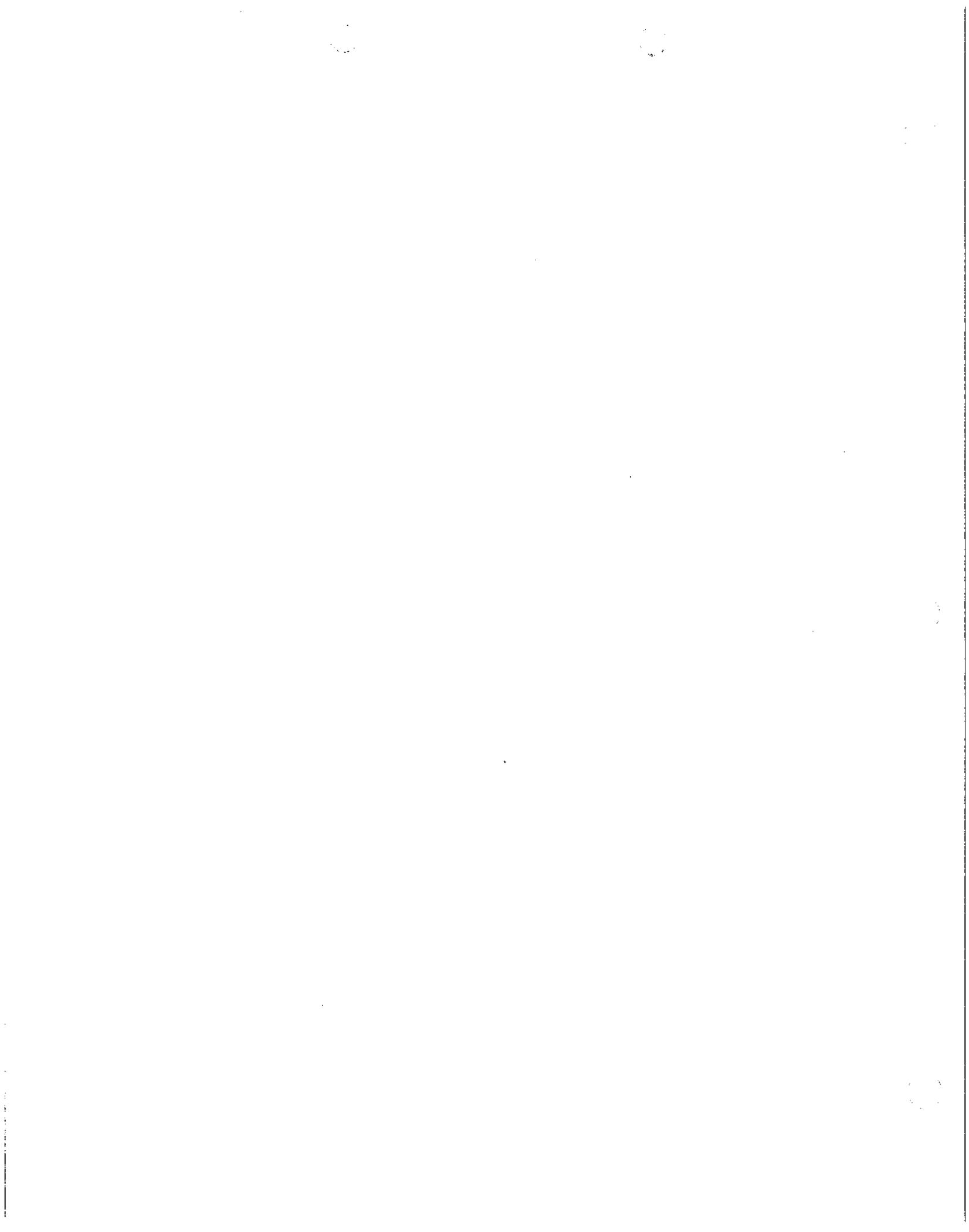
APPENDIX F

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**VICTOR VALLEY WATER DISTRICT  
CONSUMER CONFIDENCE REPORT 2004**

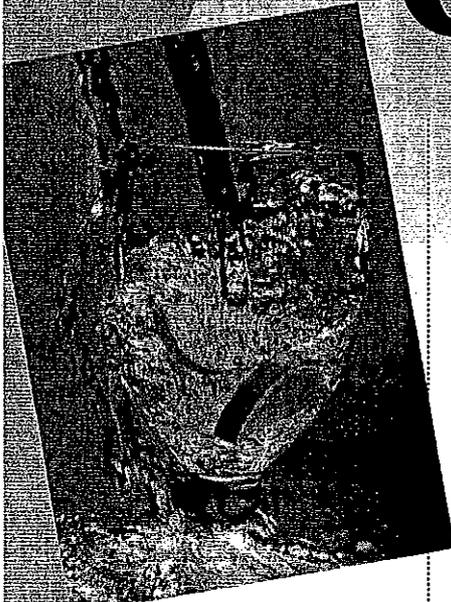
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Bringing Water  
to Life



### High-Quality Water Supply For Our Customers

The District currently gets all of its water from the Upper Basin area, known as the Alto Subarea, of the underground aquifer that provides water to the High Desert.

Through 23 wells, we deliver more than 5.5 billion gallons of water each year to more than 64,000 people within the boundaries of the City of Victorville.

### Victor Valley Water District Board of Directors

Terris Gossard Flint, President

Jim Cox, Vice-President

Larry E. Kuber, Director

Thleen Cochran, Director

James N. Kennedy, Director

[www.vvwater.org](http://www.vvwater.org)

# The Water Resource

## 2004 CONSUMER CONFIDENCE REPORT

## Victor Valley Water District Passes the Test Again

*As part of our commitment to provide you with the best possible water at the lowest cost, we are very pleased to provide you with this report on the Victor Valley Water District's 2004 water quality.*

*Once again, the report shows that through the efforts of our dedicated staff your drinking water meets or is better than the increasingly stringent standards set by state and federal regulators.*

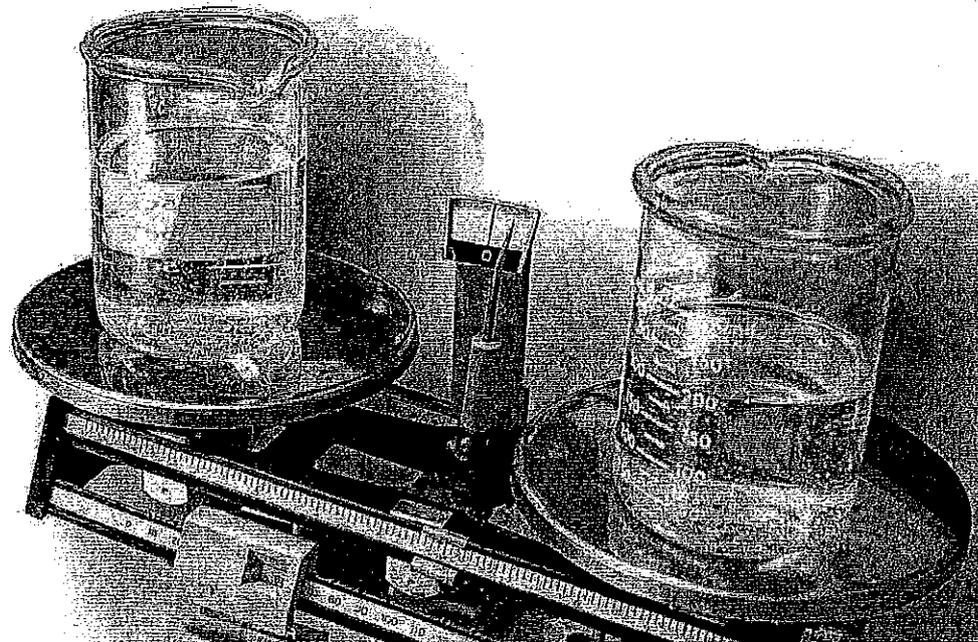
### How We Provide Top-Quality Water

Our state-certified water-quality staff, led by Water Quality Supervisor Bob Field, works as a team to ensure that the water we provide to your home or business is safe and clean.

**TESTING:** Water-quality technicians test the pipeline system weekly at 16 locations. The samples are tested by an independent lab. We also sample each active well monthly. In addition, our staff runs a variety of tests in the field.

**CLEANING:** Pipelines periodically need to be cleaned, so we flush water out of fire hydrants at high volume. This removes small amounts of natural sand and minerals that can slowly build up in pipelines.

**DISINFECTION:** Led by Production Supervisor Steve Ashton, the production crew adds trace amounts of chlorine to disinfect the water. Chlorine prevents the growth of bacteria as the water travels through more than 350 miles of pipeline.





# We Measure Up Well Against Tough Drinking-Water Standards

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) and the California Department of Health Services (DHS) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems.

The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

## About Source Water

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. The District's current source of supply is 100 percent groundwater. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

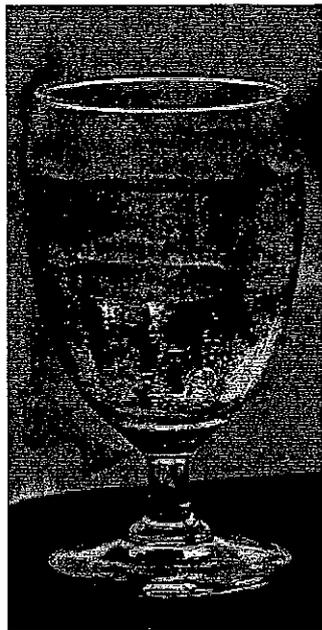
*Microbial contaminants*, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife

*Inorganic contaminants*, such as salts and metals, that can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming

*Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses

*Organic chemical contaminants*, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff, and septic systems

*Radioactive contaminants*, which can be naturally occurring or the result of oil and gas production and mining activities



## Where to Get More Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800/426-4791 or by visiting the EPA's website at [www.epa.gov/OW](http://www.epa.gov/OW).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer who are undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available by calling the Safe Drinking Water Hotline at 800/426-4791 or by visiting the EPA's website at [www.epa.gov/OW](http://www.epa.gov/OW).

## Drinking-Water Source Assessment and Protection

In compliance with California requirements, a source water assessment was conducted in March and April 2002 for all of the active wells that supply the Victor Valley Water District. The purpose is to help the District identify potential sources of contamination and develop ways to protect the water supply.

The assessment noted that all of our water comes from an underground aquifer and that it is potentially vulnerable to contamination from numerous activities. Your water district works vigorously to prevent contaminants from actually getting into the water we serve. The potential concerns are: high-density housing, sewer collection systems, apartments and condominiums, automobile gas stations, body shops, and repair shops, golf courses, septic systems, electronic/electrical manufacturing, dry-cleaners, funeral service/graveyards, utility stations/maintenance areas, underground storage tanks (confirmed leaking tanks), mining sand/gravel, wood/pulp/paper processing and mills, fleet/truck/bus terminals, animal operations, illegal activities/unauthorized dumping, transportation corridors (roads/streets, freeways/state highways), furniture repair/manufacturing, contractor or government agency equipment storage yards, and office building/complexes.

A copy of the complete assessment may be viewed at the office of the Victor Valley Water District by calling Water Quality Supervisor Bob Field at 760/843-3109 or at the Department of Health Services (DHS) San Bernardino District Office, 464 West 4th Street, Suite 437, San Bernardino, CA 92401. You may request a summary of the assessment be sent to you by contacting the DHS District Engineer at 909/383-4328.

## HOW TO GET INVOLVED

We urge you to attend meetings of our Board of Directors to learn more about water in your community. The Board meets the first and third Wednesday of every month at 6:30 p.m. at the District office at 17185 Yuma Street. You may also wish to visit our website at [www.vvwater.org](http://www.vvwater.org).

## HOW TO CONTACT

For more information about your water quality, call Water Quality Supervisor Bob Field at 760/843-3109 between 7:30 a.m. and 4:30 p.m. Monday through Thursday or between 7:30 a.m. and 3:30 p.m. alternate Fridays.

## EN ESPAÑOL

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.



## Results of 2004 Drinking-Water-Quality Tests

The Victor Valley Water District tests for hundreds of substances. Below is a list of substances detected in your drinking water in 2004. All are within strict water-quality standards established to protect water customers. This list does not include substances for which we test but were not detected.

Inorganic Contaminants						
	VVWD Average	VVWD Range	MCL	PHG (MCLG)	Violation	Major Sources In Drinking Water
Arsenic* (PPB)	6.88	Not Detected - 17	50	0.004	No	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes
Chromium (PPB)	0.92	Not Detected - 12	50	(100)	No	Discharge from steel and pulp mills and chrome plating; erosion of natural deposits
Fluoride (PPM)	0.39	0.20 - 0.97	2	1	No	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as NO <sub>3</sub> ) (PPM)	4.24	Not Detected - 10	45	45	No	Runoff and leaching from fertilizer use; leaching from septic tanks and sewage; erosion of natural deposits

Disinfection Byproducts						
	VVWD Average	VVWD Range	MRDL	MRDLG	Violation	Major Sources In Drinking Water
Total Trihalomethanes (TTHMs) (PPB)	0.135	Not Detected - 1.4	80	N/A	No	Byproduct of drinking water chlorination
Chlorine (PPM)	0.61	0.15 - 1.26	4	4	No	Drinking water disinfectant added for treatment

Regulated Contaminants with Secondary MCLs						
	VVWD Average	VVWD Range	Secondary MCL	Violation	Major Sources In Drinking Water	
Chloride (PPM)	10.81	3 - 61	500	No	Runoff/leaching from natural deposits; seawater influence	
Specific Conductance (Micromhos)	248.83	180 - 633	1,600	No	Substances that form ions when in water; seawater influence	
Sulfate (PPM)	23.57	3 - 130	500	No	Runoff/leaching from natural deposits; industrial wastes	
Total Dissolved Solids (PPM)	162.61	110 - 380	1,000	No	Runoff/leaching from natural deposits	
Turbidity (NTU)	0.15	0.05 - 0.55	5	No	Soil runoff	

Unregulated Parameters That May Be of Interest to Consumers		
	VVWD Average	VVWD Range
Alkalinity (PPM)	77.73	54 - 92
Calcium (PPM)	10.66	3.5 - 29
Hardness (PPM)	31.52	9 - 92
Magnesium (PPM)	1.19	0.1 - 4.7
Potassium (PPM)	1.2	0 - 2.5
Sodium (PPM)	44.65	20 - 130

**Footnote:** \*Arsenic: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system and may have an increased risk of getting cancer.

## Abbreviations and Definitions to Help You Understand This Report

The definitions below will help you understand the water quality information in this report about how your water compares to standards set by federal and state regulatory agencies.

**Action Level (Regulatory Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs and MCLGs as is economically and technologically feasible. Secondary MCLs are set to protect color, taste, and appearance of drinking water.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

**MRDL (Maximum Residual Disinfectant Level):** The level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap.

**MRDLG (Maximum Residual Disinfectant Level Goal):** The level of a disinfectant added for water treatment below which there is no known or expected risk to health. MRDLGs are set by the U.S. Environmental Protection Agency.

**N/S:** No standard.

**NTU:** Nephelometric turbidity unit.

**pCi/l:** Pico curies per liter, a measure of radiation.

**PDWS (Primary Drinking Water Standard):** MCLs for contaminants that affect health along with their monitoring and reporting requirements and water treatment requirements.

**PHG (Public Health Goal):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

**PPB:** Parts per billion, or micrograms per liter. 1 PPB is equal to about one drop in 17,000 gallons of water.

**PPM:** Parts per million, or milligrams per liter. 1 PPM is equal to about one drop in 17 gallons of water.



## District Prepares to Meet New Arsenic Standard

The U.S. Environmental Protection Agency has revised the standard for arsenic, a naturally occurring element common in food and water, from 50 parts per billion (ppb) to 10 ppb. This standard, which goes into effect January 2006, will affect some of the District's wells.

Our staff and Board of Directors have been aggressively preparing to meet the new standard, with a goal of using the best available technology while keeping costs as low as possible.

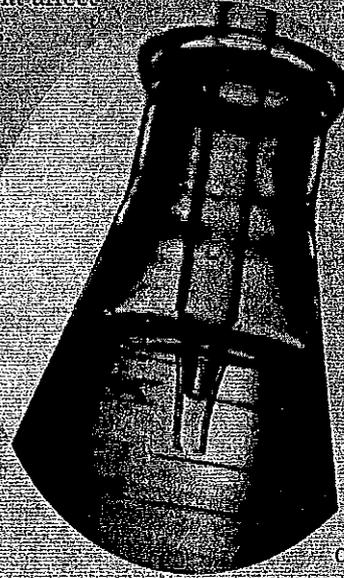
We have developed a plan to construct three arsenic-removal plants. At two of these plants, water treated with a

coagulation-filtration process will be blended with untreated water before flowing into the distribution system.

At the third plant site, an ion-exchange process will remove the arsenic from a single well.

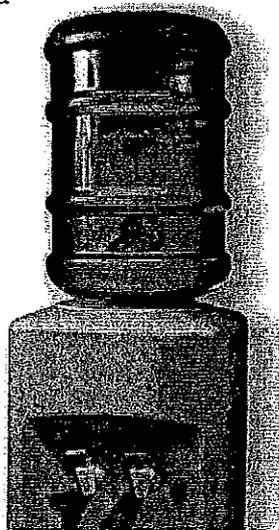
Although the District has worked hard to set aside funds to minimize the effect on rates, the arsenic-removal plants and four miles of pipeline will cost more than \$11 million. Ongoing operation and maintenance of the plants are estimated to be \$450,000 annually.

To cover these costs, the District is considering an arsenic-removal surcharge on customers' bills.



## The Bottled Water Question

Many people ask if they should drink bottled water. The simple answer is no. We run hundreds of tests on our water, following a strict pattern of daily, weekly, and more intensive quarterly and semi-annual tests. Tap water is more strictly regulated and tested than bottled water, which is often no more than filtered tap water. If you own your own home filter system, make sure it's NSF approved, and maintain it properly. A poorly maintained filter can actually contaminate your own water supply.

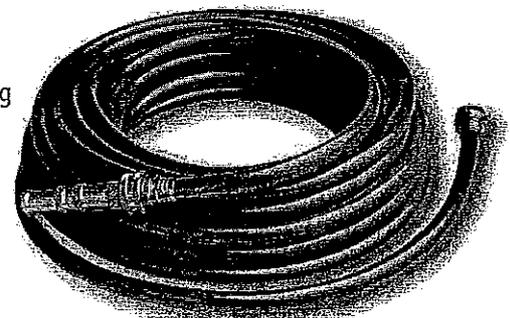


## We Make Your Water Safer Through Backflow Prevention

Ideally, water flows in only one direction—from the distribution system to our customers. However, without safeguards, it's possible for water to flow backward from a home or business into the water system, causing contamination of the water. To prevent backflow, one of our Water Quality Technicians is responsible for administering our backflow-protection program. We enforce state-mandated regulations, including annual checks by certified inspectors on backflow devices.

### What You Can Do

Hardware and plumbing stores sell simple backflow-prevention devices called vacuum breakers, which can be easily mounted on hose bibbs. Backflow contamination can also be prevented by keeping hoses out of buckets and other sources of standing water.



We are committed to providing our customers with an ample supply of clean, safe water at a reasonable cost.



**VICTOR VALLEY  
WATER DISTRICT**  
Bringing Water to Life

17185 Yuma Street  
Victorville, CA 92395-5886  
760/245-6424 general information  
760/843-3156 customer service  
[www.vvwater.org](http://www.vvwater.org)



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**VICTOR VALLEY WATER DISTRICT  
CONSERVATION INCENTIVE PROGRAMS**





# Memorandum

To: Board of Directors  
 From: Maggie Woods, Conservation Specialist  
 Date: June 15, 2005  
 Re: Cost Benefit Analysis of Smart Irrigation Controllers

## Background

At the September 2<sup>nd</sup>, 2003, Board meeting, the Board approved a pilot evapotranspiration (ET) controller project. The devices are weather-based irrigation controllers that receive daily satellite data from local weather stations and adjust the amount of water provided to the landscape accordingly. The purpose of the pilot project is to determine if the controllers are a cost-efficient measure that could provide our customers with significant water savings. The pilot sites were Del Rey Elementary School and Verizon. In the early summer following some issues with the wiring that caused the fuses to blow on the two controllers for the playing field, Del Rey decided to withdraw from the pilot and returned their 4 controllers to us. Verizon, where the majority of the controllers are installed (9), continued with the program.

Staff has been continually tracking Verizon's consumption on the two meters that cover all of the landscaping surrounding their buildings as well as their indoor fixtures. As a comparison base, staff used an average of the last four years of consumption on these meters. The first year data as presented at the regular meeting of May 4, 2005, revealed an average savings of 34.4% over the entire year. This amounts to a water savings of 8,932 HCF or 6,681,136 gallons.

## Analysis

Staff performed a cost benefit analysis (see attached) to determine what rebate amount would be feasible to provide in a potential controller rebate program for large landscapes. The first year water savings data from the Verizon pilot site was used in the analysis. The cost of the controller (\$575) is based on a 24-station model from HydroPoint that would be used in a large landscape scenario. The current cost of imported water from Mojave Water Agency is \$246. Using this cost, a rebate of the full amount of \$575, and a 20-year life assumed, the benefit to cost ratio would be 1.13. A benefit/cost ratio of 1.13 means that for every \$1.00 the District invests it receives \$1.13 of benefit. Staff will be able to perform an analysis for residential landscapes once we have sufficient data from the Victory Homes pilot project in March 2006.



Update on Cash-for-Grass Program  
Regular Meeting of March 2, 2005  
Information Report

Other entities in the business and non-profit sector that have shown interest in participating after being contacted by staff are Saint John's Evangelical Lutheran Church and Member's Own Credit Union. Staff was asked to take preliminary measurements of the grass areas at Member's Own Credit Union on February 16. Holy Innocence Catholic Church was also invited to participate in the program as they are one of the large users in this sector. However, they have since declined the offer.

In the residential sector, staff has experienced more difficulty soliciting participation. The first five potential candidates taken from the list of largest users were invited into the program in November with letters and packets of material that included the program requirements, application form, approved plant list, and local nurseries with water-smart plants list. Staff called each of these customers after they had received the packets to answer any questions and gauge their interest in the program. Of the first five candidates, all eventually chose not to participate, most citing that they liked their grass and did not want to take it out. Members of the second group of five were contacted as decisions came in from the first group. Throughout December, these customers were contacted by staff and all ended up turning down the offer to participate. In December and January, a third group of 5 candidates was invited to participate, and again all rejected the offer.

Staff met to discuss another approach to getting participating in the residential sector. They decided to invite customers that had shown interest in a cash-for-grass program before the program was passed by the Board. The customers would still need to meet the program requirements. These customers were sent the packets of information. Staff followed-up with them and found that some had already taken out their grass before the program started. This group included P.T., R.K., and E.A. One couple showed interest in the program and attended a meeting with staff. In this meeting, however, the couple related that they did not want to put in any plants because they were unable to do any of the maintenance. Staff discussed the option of putting in just a few trees and/or larger shrubs that would provide the 50% plant coverage at maturity that the program requires. The couple remained staunch in that they wanted no plants, just rock. Thus, they were deemed ineligible for the program. Staff continues to invite both large water users and interested parties in the residential sector. Two customers have shown interest in participating and are taking the preliminary steps to determine their eligibility.

In the public sector, staff has invited the Victor Valley Union High School District to participate with Silverado High School, Victor Valley Union High School, and Hook Junior High. Shawn Butters, Director of Maintenance and Operations, reports that they will remove turf at Silverado High School first. Also, the City has been invited with the Forrest Park demonstration site project. They were seeking additional funding with a grant from Housing and Urban Development. However, they have since ceased pursuing this grant for undetermined reasons. They do not plan to begin turf removal until June. The irrigation audit for the park is planned for March.

# News Release

October 26, 2004

**FOR IMMEDIATE RELEASE**

**CONTACT:** Amy Lyn De Zwart, Human Resources/Public Relations Director,  
760/843-3111

## **Water district launches pilot lawn-replacement program: Board approves "cash for grass"**

"Our District is committed to providing our customers with information and tools to help them save water as we work together to ensure that our community has a reliable, sustainable supply of water."

Board President Terrie Flint

Victorville—The Victor Valley Water District board of directors recently approved a pilot lawn-replacement program that will provide data to help the district determine the effectiveness of paying customers to remove high-water-use lawns and replace them with water-smart landscaping.

According to conservation specialist Maggie Woods, the district's pilot project will focus on top water users from each of three categories: residential, business/non-profit organization, and public entity.

"We'll use five residential, three business/non-profit, and three public-entity customers for the two-year project," said Woods. "We'll offer these customers a \$0.40 cent rebate for every square foot of grass that they convert into landscaping that will use much less water."

Water board president Terrie Flint said that the district has focused on water conservation as one strategy to address water-supply issues. "Our District is committed to providing our customers with information and tools to help them save water as we work together to ensure that our community has a reliable, sustainable supply of water. This program is particularly important because it targets landscaping, and we know that the majority of the water used by our customers is for landscaping," Flint noted.

Woods said that the district has compiled a list of top water users in the three categories and will start contacting these customers within the next few weeks to explain the pilot program and to offer them the opportunity to participate. Participation will be voluntary, and district-established criteria must be met.

One of the public entities the district is interested in working with is the city of Victorville. The pilot program approved by the board has funding set aside to work with the city on the proposed water-wise makeover of Forrest Park.

"We think this would be an excellent opportunity to partner with the city on a very visible project," president Flint said. "Conservation is an important issue for everyone in our community, and pooling our resources provides the greatest benefit for all of us."

For more information, customers can call the district's conservation specialist at 760.843.3112. Information about the district is also available at [www.vvwater.org](http://www.vvwater.org).



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Agenda Item E - 21

Honorable Board of Directors

June 1, 2005

**Subject: Conservation Advertising**

**Suggested Motion:**

Move to approve \$59,180 for advertising a conservation message on one billboard for a period of one year using Lamar Outdoor Advertising and advertising on selected Charter Cable Stations for 4 months. (Alternative One).

**Financial Impact:**

The cost for the Alternatives would be as follows:

- **Alternative 1**— Advertising a message on one 14' x 48' billboard for a period of one year using Lamar Outdoor Advertising and advertising on selected Charter Cable Stations for 4 months. A not to exceed amount of \$59,180.
- **Alternative 2**—Advertising a message on one 10' x 30' north-facing billboard for a period of 12 months using Lamar Outdoor Advertising. A not to exceed amount of \$42,750.
- **Alternative 3**—Advertising a 30-second message on selected Charter Cable Stations for 4 months. A not to exceed amount of \$9,500.
- **Alternative 4**—Advertising a message on one 14' x 48' billboard for a period of 6 months using Lamar Outdoor Advertising. A not to exceed amount of \$30,480.
- **Alternative 5**—Not advertising messages on billboards or cable stations. An amount of \$0.00.

The cost for Alternatives 1-4 would come from the conservation budget—line item 001-1055-569-6655—with a remaining balance of \$186,699.

**Background**

Previously, staff has successfully employed advertising campaigns to get the word out on specific conservation projects such as the ULFT program. In the summer 2004 ULFT campaign, staff utilized cable television commercials, radio advertisements, newspaper advertisements, and brochures targeted to eligible participants. These methods brought a significant customer response for both the ULFT exchange and rebate/credit phases of the program. A renewed campaign will begin on selected cable stations in early June.

A conservation advertising campaign by AWAC was launched on May 7, 2005. Commercials are running both on local cable stations and top-rated radio stations through August. Advertising is most effective when it hits customers from different mediums and they are able to see and/or hear it enough that it becomes ingrained and they are able to immediately correlate a message

with the company who put it out. Staff has investigated using billboard advertising and cable commercials to put across conservation messages.

### Billboard Locations

Two main billboard companies cover our service area—Billboard Source and Lamar Outdoor Advertising. Currently, Billboard Source has only one open billboard, and it is located just outside of our service area west of the 395 on Highway 18. Thus, this option was eliminated since we could not guarantee that the majority of people seeing the sign would be our customers.

Lamar Outdoor Advertising currently has two open billboards in the heart of our service area. One is located on the east side of Mariposa Road and is 0.4 miles north of Nisqualli Road. It is noted by the number 4 on the attached map. The dimensions of this billboard are 14' X 48' and it faces north (see attached photos). The current advertiser on this board is Tarbel Realty. The other available billboard is also located on the eastern side of Mariposa Road and is 0.2 miles north of the Southwest Gas building. It is noted by the number 5 on the attached map. The dimensions of this billboard are 10' X 30' and it also faces north (see attached photos). The current advertiser on this board is Pilot Travel Center. Both of the billboards are illuminated at night.

### Cost Schedule

The minimum contract period for a billboard with Lamar advertising is 6 months. The rates are based on a monthly period and change based on whether we advertise on a six month contract or a year contract. There is also a single fee for the creation of the vinyls that the message is printed on. The table below shows a cost breakdown of the various options.

**Cost Breakdown of Billboard Options**

Option	Monthly Cost	Vinyl Cost	Total
14' x 48' Board Only—12 months	\$4,000	\$1680	\$49,680
13' x 30' Board Only—12 months	\$3,500	\$ 750	\$42,750
14' x 48' Board Only—6 months	\$4,800	\$1680	\$30,480
13' x 30' Board Only—6 months	\$4,000	\$ 750	\$24,750

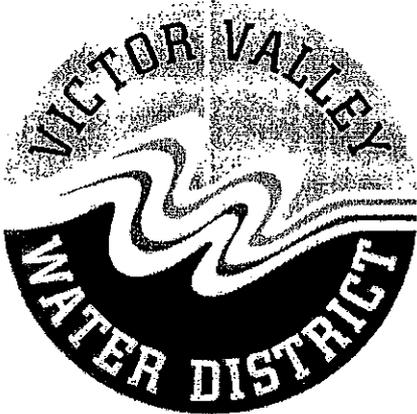
### Daily Exposure Rating

Both of the available billboards have a DEC rating of 56,000 people. According to Lamar Advertising, the DEC is the average number of daily potential exposures of persons 18+ to a sign determined by counting only those vehicles traveling toward the face of the sign, and then multiplying that number by the average number of people per car during the hours the sign is visible. Pedestrian and mass transit circulations are not included.

If the Board approves any of the proposed billboard advertising options, the soonest we can have the advertisement put in place is June 25.

The following are proposed messages that can be changed at the pleasure of the Board. If the Board chooses to advertise on the billboards, staff will also work with the advertising company to come up with a more striking design concept.

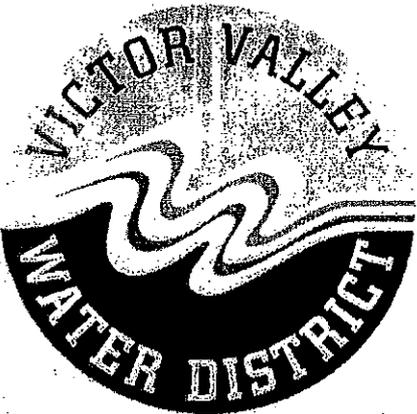
### Proposed Messages



**SAVE YOUR WATER  
EVERY DROP COUNTS**

**[www.vvwater.org](http://www.vvwater.org)**

This conservation message is brought to you by the  
Victor Valley Water District.



**Protect Your Water  
Every Drop Counts**

**[www.vvwater.org](http://www.vvwater.org)**

This conservation message is brought to you by the  
Victor Valley Water District.

### Cable Advertising

Charter Media is the primary cable service for Victorville. Staff has used Charter to advertise the ULFT program and because of the successful response last summer will renew ULFT advertising on cable for this summer. Cable advertising offers the opportunity to target a message to specific groups by advertising only on stations that are mainly watched by those groups. For example, with the AWAC commercial on water-smart landscaping that is currently running, we wanted to target women and men aged 25-54 who are homeowners and would have sufficient income to make changes to their landscaping. Thus, in consulting with Charter representatives, we chose stations such as Home and Garden Television and the Food Network as well as TBS and Fox Sports.

For the proposed \$9,500, the District would be able to run approximately 1,100 spots on 4-5 selected stations. The production costs are included in this fee. Staff would work with Charter on a message that would focus on outdoor water conservation that is of key concern during the peak consumption of the summer months.

**Alternative 1: Advertising a conservation message on one billboard for a period of one year using Lamar Outdoor Advertising and advertising on selected Charter Cable stations for a period of four months.**

**Pros:**

- ◆ Potential to have an exposure to the message of 56,000 people per day with billboards.
- ◆ Billboard is illuminated for nighttime viewing.
- ◆ Reduced cost per month for billboard on 12-month contract by \$800/month.
- ◆ Increased exposure and impact through two forms of media.
- ◆ Conservation message on cable can complement AWAC commercial.

**Cons:**

- ◆ Cost of \$59,180.

**Alternative 2: Advertising a conservation message on one 10' x 30' south-facing billboard for a period of one year using Lamar Outdoor Advertising.**

**Pros:**

- ◆ Potential exposure to the conservation message of 56,000 persons per day.
- ◆ Illuminated at night.
- ◆ Lower monthly cost than 6-month contract by \$500/month.

**Cons:**

- ◆ Cost of \$42,750.

**Alternative 3: Advertising a 30-second message on selected Charter Cable Stations for 4 months.**

**Pros:**

- ◆ Significantly lower cost than billboard advertising.
- ◆ Conservation message can complement AWAC message.

**Cons:** Cost of \$9,500.

**Alternative 4: Advertising a message on one 14' x 48' billboard for a period of 6 months using Lamar Outdoor Advertising.**

**Pros:**

- ♦ Potential exposure to message of 56,000 persons per day.
- ♦ Illuminated at night.

**Cons:**

- ♦ Higher cost per month than 12-month contract.

**Alternative 5: Not advertising conservation messages on billboards.**

**Pros:**

- ♦ No cost.

**Cons:**

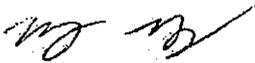
- ♦ No exposure of conservation messages through billboard advertising or cable stations.

**Recommendation**

Staff recommends that the Board consider adopting Alternative 1—Advertising a message on one 14' x 48' billboard for a period of one year using Lamar Outdoor Advertising and advertising on selected Charter Cable Stations for 4 months.

If the Board wishes to expand conservation advertising into radio and newspaper media, Staff will bring back those costs at a future meeting.

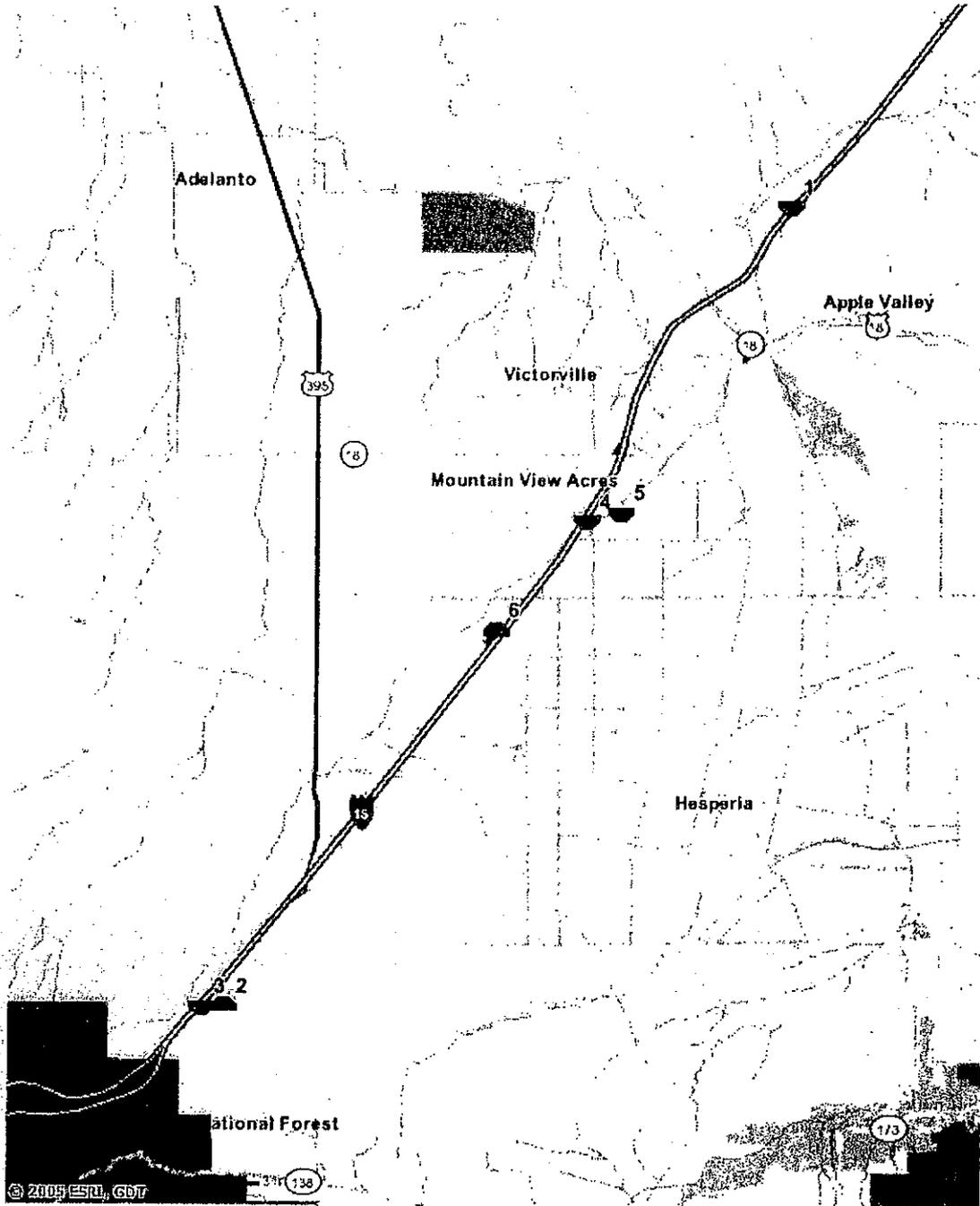
Sincerely,



Maggie Woods  
Conservation Specialist

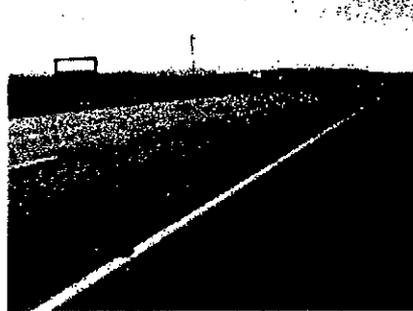
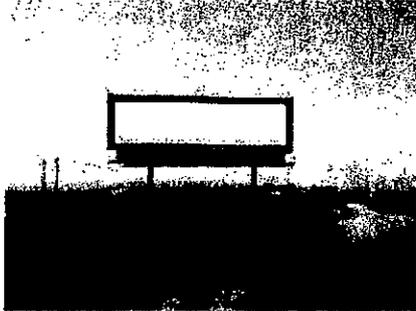
Attachments: Location map of available billboards  
Photo and location of 14' x 48' billboard  
Photo and location of 10' x 30' billboard

**Available Boards 05/19/2005**



**Map #1**

## Available Boards 05/19/2005



**Panel:** 6121  
**Media:** Permanent Bulletin  
**Style:** Regular  
**Market:** VICTORVILLE, CA  
**Location:** I-15 EL 4400' S/O PALMDALE ROAD  
**Facing:** North  
**Copy Size:** 14' 0" X 48' 0"  
**Vinyl Size:** 15' 0" X 49' 0"  
**Illuminated:** YES  
**DEC:** 56000  
**Latitude:** 34.4902  
**Longitude:** -117.3317  
**Current Advertiser:** Tarbell Realtor  
**Rate:** \$4,000.00



### Demographics:

**Misc:** Available Now

### Lamar Advertising of Lancaster

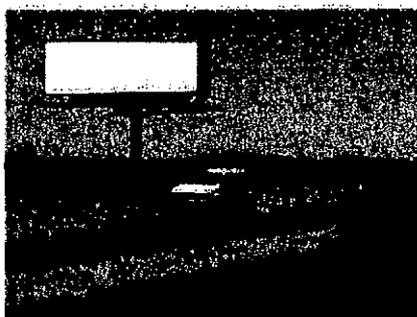
**Physical Address:** 45424 N. Sierra Hwy  
Lancaster, CA 93534 - 1630

**Mailing Address:** P.O. Box 829  
Lancaster, CA 93584 - 0829

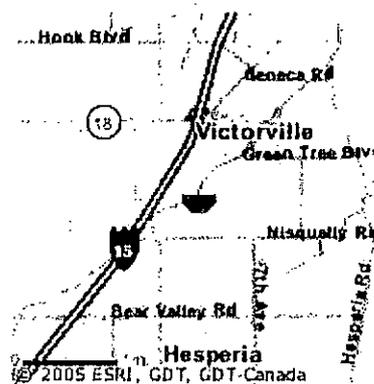
**Phone:** 877-526-2717

**Fax:** 661-948-1631

## Available Boards 05/19/2005



**Panel:** 5361  
**Media:** Junior Bulletin  
**Style:** Regular  
**Market:** VICTORVILLE, CA  
**Location:** I-15 EL .7 MILE S/O PALMDALE RD.  
**Facing:** North  
**Copy Size:** 10' 0" X 30' 0"  
**Vinyl Size:** 11' 0" X 31' 0"  
**Illuminated:** YES  
**DEC:** 56000  
**Latitude:** 34.492  
**Longitude:** -117.3227  
**Current Advertiser:** Pilot Travel Center  
**Rate:** \$3,500.00  
**Demographics:**  
**Misc:** Available Now







Approved

Agenda Item E - 12

Honorable Board of Directors

November 2, 2005

Subject: Conservation Poster Contest for Grades K-6

**Proposed Motion:**

Move to approve Alternative 1 to run a Conservation Poster Contest and offer prizes to 9 winners and the teachers of the 3 first place winners. Not to exceed \$5,000.

**Financial Impact:**

The amount budgeted for this school program under line item 001-1005-569.66-55 is \$5,000. The cost for the Alternatives would be as follows:

- **Alternative 1-** A Conservation Poster Contest with prizes awarded to 9 winners and 3 teachers. Open to schools in the Victor Elementary School District that are serviced by the VVWD. A not to exceed amount of \$5,000.
- **Alternative 2-** A Conservation Poster Contest with prizes awarded only to students. A not to exceed amount of \$4,850.
- **Alternative 3-** No Poster Contest. An amount of \$ 0.00.

**Background**

On May 19, 2004 at the Conservation Ad hoc Meeting, President Flint, Director Cochran, and staff discussed holding a conservation poster contest for schools in the service area. Staff performed research into poster programs from other agencies including Riverview Water District, Eastern Municipal Water District, City of Chino Hills, Soquel Creek Water District, City of San Diego, and others (see attachments). It was noticed that most of the contests targeted elementary school students, and also that prizes were awarded. The program would partially satisfy Best Management Practice (BMP) 7 under the California Urban Water Conservation Council (CUWCC) which states--implement a school education program to promote water conservation and water conservation related benefits.

**Current**

In the spring Desert Communities Water Awareness Expo runs a coloring and poster contest for children ages 4 through 13. They do not target only the Victorville schools. Instead, the contest is open to children throughout the High Desert. To encourage youth involvement for Pollution Prevention Week in September, the Mojave Desert Air Quality Management District runs a poster contest for ages 4-18. 1<sup>st</sup> place winners receive a \$100 savings bond, 2<sup>nd</sup> place winners receive a \$75 savings bond, and 3<sup>rd</sup> place winners receive a \$50 savings bond.

The proposed conservation poster contest would be open to schools in the Victor Elementary School District that are serviced by VVWD (see attachment). If approved, the contest would begin on February 2, 2006 and end on March 17, 2006 (Table A). Marketing of the contest would include a flyer distributed to the classrooms of the participating schools, per Victor Elementary School District approval, and class appearances when requested. Judges would select the winners during the week of March 20-24 and winners would be notified on April 3<sup>rd</sup>. The awards ceremony would occur on April 19 and the posters would be on display at VVWD during May 1-5 and then displayed at the winning school from May 8-12.

There would be three categories: K-2, 3-4, and 5-6. As proposed, there would be a 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winner from each category. The 1<sup>st</sup> place winner would receive a \$100 Barnes & Noble gift card. The 2<sup>nd</sup> place winner would receive a \$75 Barnes & Noble gift card, and the 3<sup>rd</sup> place winner would receive a \$50 Barnes & Noble gift card. The teachers of the three 1<sup>st</sup> place winners would each receive a \$50 gift card to Oliver's Teachers Supplies (Table B). The total cost would be \$5,000.00 (Table C).

The posters would be judged during the week of March 20-24, 2006 by at least three judges, and staff would request the involvement of the Directors in the judging. The posters would be separated by category and numbered. Each judge would view each poster and rate the poster according to the judging criteria on a scale from 1-5 with one being the weakest and five being the strongest. The winning posters would be determined by averaging the total scores from all judges for each individual poster (see attachment).

The winners would be presented with their awards at VVWD on April 19, 2006 prior to the Board Meeting. Their families and teachers would be invited. Refreshments would be served. The posters would be kept by the VVWD to use in our ongoing conservation campaign and utilized in permanent metal signs, magnets, and calendars.

**Timeline**

Contest Start Date	February 2, 2006
Contest Deadline	March 17, 2006
Judges Select Winners	March 20-24, 2006
Winners Notified	April 3, 2006
Winners Presentation	April 19, 2006
Display at VVWD	May 1-5, 2006
Display at School	May 8-12, 2006

Table A

**Prizes**

1 <sup>st</sup> Place	\$100 Barnes & Noble gift card and certificate
2 <sup>nd</sup> Place	\$75 Barnes & Noble gift card and certificate
3 <sup>rd</sup> Place	\$50 Barnes & Noble gift card and certificate
Teachers	\$50 gift card to Oliver's Teachers Supplies

Table B

**Cost Breakdown**

	Cost
1 <sup>st</sup> place \$100 x 3	\$300
2 <sup>nd</sup> place \$75 x 3	\$225
3 <sup>rd</sup> place \$50 x 3	\$150
Teacher's prize \$50 x 3	\$150
Magnets \$.53 x 500	\$265
Calendar \$2.05 x 300	\$615
Metal signs (5)	\$1312.19
Advertising	\$1,782.81
Awards Ceremony	\$200
<b>TOTAL</b>	<b>\$5,000</b>

Table C

**Alternative 1 A Conservation Poster Contest for grades K-6 with prizes awarded to the 9 winners and 3 teachers**

District staff would offer a conservation poster contest to students in grades K-6 enrolled in the VESD in a school serviced by the VVWD. Categories would be K-2, 3-4, and 5-6. There would be 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winners from each category. The winners would receive Barnes & Noble gift cards in the following amounts: \$100 for 1<sup>st</sup> place, \$75 for 2<sup>nd</sup> place, \$50 for 3<sup>rd</sup> place. Teachers of the three 1<sup>st</sup> place winners would each receive a \$50 gift card to Oliver's Teacher's Supplies. The designs of the winning posters would be made into the form of permanent metal signs and giveaways such as magnets and calendars.

**Pro**

- Shows the community that the VVWD is interested in working with schools to promote water conservation
- Offers educational prizes to encourage participation
- Provides conservation staff with posters to make into metal signs, magnets, and calendars to use in the ongoing water conservation campaign.
- Encourages students to consider their water use habits and promotes water conservation
- Incentive for teachers to encourage their students to participate

**Con**

- Cost of \$5,000.

**Alternative 2 A Conservation Poster Contest with prizes awarded only to students**

This alternative would allow for a conservation poster contest for grades K-6 and the above mentioned prizes for the student winners, but would not provide any prizes for the teachers of the 3 first place winners.

**Pro**

- Shows the community that the VVWD is interested in working with schools to promote water conservation
- Offers educational prizes to encourage participation
- Provides conservation staff with posters to make into metal signs, magnets, and calendars to use in the ongoing water conservation campaign.
- Encourages students to consider their water use habits and promotes water conservation

**Con**

- By not offering prizes to the teachers there may be less of an incentive for them to encourage their students to participate

**Alternative 3 Not running a conservation poster contest**

**Pro**

- Costs nothing

**Con**

- No exposure of conservation issues to the students and their parents
- No posters to use in the ongoing water conservation campaign

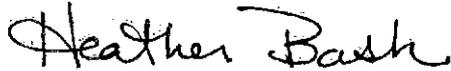
**Staff Analysis**

School education is an important component of encouraging water conservation. By holding a water conservation poster contest students would learn about conservation as they research to try and create a winning design. Parent and child communication regarding water habits would be fostered. Therefore, not only would the VVWD reach the children with the message, we would reach their parents also, who would most likely be assisting in the creation of the poster (offering ideas, offering avenues of research, transportation to obtain materials, critiquing, etc.). By offering prizes to the teachers of the 1<sup>st</sup> place winners as recommended in Alternative 1 the teachers would have added incentive to encourage their students to participate.

**Recommendation**

Staff recommends Alternative 1: Run a Conservation Poster Contest for grades K-6 and offer prizes to the 9 winners and 3 teachers of the 1<sup>st</sup> place winners.

Sincerely,



Heather Bash  
Conservation Specialist

Attachments: Poster Contest Flyer  
City of Chino Hills Contest  
Soquel Creek Water District Contest  
List of VESD schools serviced by VVWD  
Judging Criteria



Just for Kids!  
Water Conservation Poster  
Contest  
Presented by the Victor Valley  
Water District

Theme: "My Favorite Way to Conserve Water"  
Open to grades K-6

**The Categories are: K-2, 3-4, and 5-6**

From each category, prizes will be awarded as follows:

1st Place: \$100 Barnes & Noble gift card

2nd Place: \$75 Barnes & Noble gift card

3rd Place: \$50 Barnes & Noble gift card

Teachers of the 1st place winners will receive a \$50 gift card to Oliver's Teacher's Supplies

**Winning posters will be determined using the following criteria:**

- **Memorable:** The viewer should take notice and not forget your message. It may be a unique presentation, a pun, an image with great emotional impact, or a rhyme.
- **Visually stimulating:** You want the viewer to react to your message and take action.
- **Positive associations:** Eliminate the possibility of incorrect or negative connotations.
- **Universally understandable:** All, regardless of age, language or educational level, should understand the message. Appeal to the largest possible audience.
- **Simple/Readable/Direct:** The theme must be read quickly, conveying its message clearly.

You can find water conservation information and get ideas by searching the Internet, asking Dad, Mom, Aunts and Uncles, visiting the library, contacting your local water provider.

**Rules:**

1. Use a 12" x 18" white poster board or paper.
2. Have at least a one-inch blank border on all sides.
3. Use bold, bright, brilliant colors.
4. The theme is "My Favorite Way to Conserve Water".
5. Include a short water message written on the poster.
6. Artwork must be **original**. No computer generated or trademarked material.
7. Attach the completed entry form to the back of the poster.

Deadline: No later than 4:30 PM Friday March 17, 2006

Turn your completed poster in to your teacher OR Drop off or mail your poster to:  
Victor Valley Water District  
17185 Yuma Street  
Victorville, CA 92395

A panel of Judges will make the final selections during the week of March 20, 2006. Winners will be notified April 3, 2006. Winners from each grade and their posters will be presented at the Victor Valley Water District on April 19, 2006. All winners will receive a gift certificate.

The winning posters will be on display during the Water Awareness Month of May, at the following locations:

Victor Valley Water District  
The School of the Winner

May 1, 2006 through May 5, 2006  
May 8, 2006 through May 12, 2006

Entry Form: Attach to the back of the poster.	
Student's name _____	Grade _____
School name _____	School phone ( ) _____
Teacher's name _____	School district _____
Water agency name <u>Victor Valley Water District</u>	Water agency contact <u>Heather Bash 843-3165</u>
Parent/Guardian signature* _____	Home address _____
Home phone ( ) _____	Student's signature _____

\*The Parent/Guardian Signature approval must be submitted with each poster. All submissions become the property of the Victor Valley Water District, and the submission may or may not be returned. The Victor Valley Water District has the right to use any submitted poster for any public relations use, including, but not limited to, display of the original or copies of a poster at exhibit events and reproduction of copies on such items as T-shirts and postcards.

# 3<sup>rd</sup> Annual Water Conservation Poster Contest Grades K through 12

The City of Chino Hills announces a *Water Conservation Poster Contest* for elementary and secondary grade students (grades K through 12) attending Chino Hills Elementary and High Schools. The contest is open to individual students. The contest promotes water awareness while learning about the value of our most precious natural resource.

Water is too precious to waste. California's water supply varies yearly and sometimes water shortages occur, especially during periods of drought. Southern California relies heavily on water imported from Northern California. Water conservation is necessary to make sure we have a continuous water supply for future water needs.

Students are encouraged to think more about using less, and to express themselves artistically by creating posters, which depict water being used wisely at home or school, in the workplace, in the environment, in agriculture, or recreation. You can find water conservation information and get ideas by logging onto the Internet; asking Dad, Mom, Aunts and Uncles; visiting the local library; contacting your local water provider or Metropolitan Water District.

Winning posters from each grade level will be developed into City of Chino Hills Water Conservation street signs and will be placed throughout the City. The signs will become part of our on-going water conservation campaign and will be used for many years to come.

In addition, winning posters will be entered into the Metropolitan Water District's (MWD) "Water Is Life" Poster Contest. "Water Is Life" winning posters will be framed and used in MWD's "The Traveling Art Show", which tours throughout the world, and will be featured on MWD's 2004 "Water Is Life" Calendar.

The theme for this year's Poster Contest is:

*"Water Is Life"*

Winning posters will be determined using the following criteria:

- **MEMORABLE:** The viewer should take notice and not forget your message. It may be a unique presentation, a pun, an image with great emotional impact, a rhyme, a play on words; something thought provoking.
- **VISUALLY STIMULATING:** You want the viewer to react to your message and take action.
- **POSITIVE ASSOCIATIONS:** Eliminate the possibility of incorrect or negative connotations.
- **UNIVERSALLY UNDERSTANDABLE:** All, regardless of age, language or educational level, should understand the message. Appeal to the largest possible audience.
- **SIMPLE/READABLE/DIRECT:** The theme must be read quickly, conveying its message clearly.



# Water Conservation

## Poster Contest



For 4th and 5th graders

Enter to **WIN** a

**\$100 savings bond!**

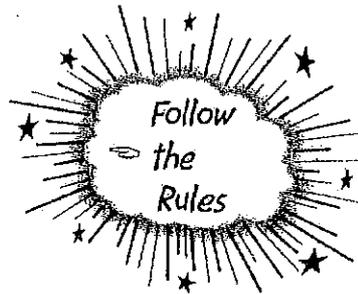
### How do I enter?



- 1 Create a colorful drawing and slogan that tells people why water is so important and how one can conserve water.  
*\* Think about how you use water and how you can use less. Look at [www.watersavingtips.org](http://www.watersavingtips.org) for ideas.*
- 2 Fill out the entry form below and paper clip it to your poster entry.
- 3 Drop-off or mail your final drawing and completed registration form by **Monday May 19<sup>th</sup> before 5pm** at the Soquel Creek Water District's office at 5180 Soquel Dr. Soquel, CA 95073  
Questions? Call Vai at 475-8500 ext. 142

### Rules

- ☞ You must be in 4th or 5th grade at a school in the Soquel Creek Water District's service area.
- ☞ Use white paper: 8 and a half inches by 11 inches.
- ☞ Drawing must be appropriate for public display and must follow theme of water conservation.
- ☞ Only original artwork will be accepted.
- ☞ Be original.
- ☞ Fill out entry form completely.
- ☞ Use color in your drawing: pens, pencils, paint....
- ☞ Words must be readable and spelled correctly.



### Prizes!



- 8 The drawing with the best water conservation message and artistic design wins a \$100 savings bond and will be printed in the District newsletter.
- 8 The 2nd and 3rd prize winners receive \$50 savings bonds.
- 8 The winning student's teacher will win a \$10 gift certificate to Kaleidoscope Store.
- 8 Awards will be announced on June 3<sup>rd</sup>.  
Winning entries will be displayed at the Soquel Creek Water District Office in June and July to promote summertime water conservation.

.....  
cut here

### WATER CONSERVATION POSTER ENTRY FORM

Title of Poster: \_\_\_\_\_

Name: \_\_\_\_\_

Grade and age: \_\_\_\_\_

School: \_\_\_\_\_

Teacher's name: \_\_\_\_\_

Phone: \_\_\_\_\_

Drop-off entry and this form by **May 19<sup>th</sup>** to  
Soquel Creek Water District's office at  
5180 Soquel Dr. Soquel, CA 95073

**LIST OF VESD SCHOOLS  
SERVICED BY VVWD**

The Academy Elementary School  
15907 South Mojave Drive  
Victorville, CA 92392

Brentwood Elementary School  
13962 Hook Boulevard  
Victorville, CA 92392

Challenger School of Sports & Fitness  
14777 Hopland Street  
Victorville, CA 92394

Del Rey Elementary School  
15532 Del Rey Drive  
Victorville, CA 92392

Discovery School of the Arts  
13247 Amethyst Road  
Victorville, CA 92392

Galileo Academy  
17000 Silica Drive  
Victorville, CA 92395

Green Tree East Elementary  
17246 Gibraltar Drive  
Victorville, CA 92395

Irwin Elementary School  
15907 South Mojave Drive  
Victorville, CA 92392

Liberty Elementary School  
12900 Amethyst Road  
Victorville, CA 92392

Lomitas Elementary School  
12571 First Avenue  
Victorville, CA 92392

Mojave Vista Elementary School  
16100 Burwood Avenue  
Victorville, CA 92395

Mountain View Montessori Charter  
School  
12900 Amethyst Road  
Victorville, CA 92392

Park View Elementary  
13427 Cahuenga Road  
Victorville, CA 92392

Puesta del Sol Elementary School  
15887 Academy Street  
Victorville, CA 92392

Sixth Street Prep  
15476 Sixth Street  
Victorville, CA 92392

Village Elementary School  
14711 Mojave Drive  
Victorville, CA 92392

## 2006 JUDGING CRITERIA

### CATEGORIES:

- K-2
- 3-4
- 5-6

### RULES:

- There will be a 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place winner from each category.
- The posters will be separated by category.
- The posters will be numbered.
- The posters will be judged by category.
- Each judge will view each poster.
- Each judge, using the poster criteria, will rate the posters.
- Posters should be judged against the criteria, not against the other entrants.
- All posters should be viewed briefly before beginning the judging.

### PRELIMINARY JUDGING

- Posters will be separated by category.
- Each of the judges will view the posters for each category.

### FINAL JUDGING

- Use the judging criteria to score each poster between one and five, one being the weakest in meeting the criteria, five being the strongest in meeting the criteria.
- Use the Poster Contest Judging Worksheet to make the decision. The Poster Contest Judging Worksheet uses the five judging criteria. Rank each poster based on the five judging criteria. The judges will rank each poster on a scale of one to five with five ranking the highest and one ranking the lowest.
- The Judging Criteria are:
  1. Simple, readable, direct
    - The message is "my favorite way to conserve water".
    - The theme should be easily read, conveying the message clearly.
    - Is the message of the theme quickly and clearly conveyed?
  2. Memorable
    - The viewer should take notice and not forget the message.
    - Is there emotional impact?
    - Is it thought provoking?
    - Is the theme unforgettable?
  3. Visually stimulating
    - Are the colors bright and vibrant?
    - The viewer should be motivated to take action.
    - Does it stimulate reaction?

- Is the viewer motivated to react?

4. Positive association

- Should eliminate the possibility of incorrect or negative interpretation.
- Is there a possibility of incorrect or negative interpretation?

5. Universally understood

- The message should be understood by all ages, in all languages, and to people regardless of educational level.
- Will the poster be understood by all ages, in all languages and all people regardless of education?
- Does it appeal to the largest possible audience?

- The winning posters will be determined by averaging the total scores from all judges for each individual poster. The highest score in the category will be the 1<sup>st</sup> place winner, the second highest the 2<sup>nd</sup> place winner, and the third highest the 3<sup>rd</sup> place winner. In the event of a tie, a tiebreaker judge will judge the tied posters and the poster with the highest score will be the winner.



# Memorandum

To: Board of Directors  
From: Jeff Zizzi, Network Administrator *JZ*  
Date: November 2, 2005  
Re: Installation of Network Backup Server

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The District Information Systems Department is charged with the collection and storage of documents, data and information used by the District personnel on a day to day basis. In the past this data was stored on the District's 24 servers on the hard drives and is backed-up on 40 Gigabyte tapes. As the District has grown, this data has increased to over 110 Gigabytes of information to be backed up. The aging tape drives were taking approximately 28 hrs to back up this data, onto 6 tapes. These tapes needed be rotated out utilizing a Son, Father, Grandfather technique that created a need to maintain 18 tapes. The tapes last approximately 6 months and need to be replaced at the cost of \$1,080.

About 3 months ago the tape drive started to fail and was repaired on 2 separate occasions. At that time we moved to test a Network Area Storage system or NAS. This system would allow us to perform backups at a greatly increased rate reducing the down time of the system by more than 60%.

In the two months of testing the system the amount of back up data has grown to 150GB. Last month the District purchased a full time NAS server for under \$2,200 and it has been on line for the last three weeks. This backup server has a 2.4 Terabyte capacity, significantly more compressed, and is capable of complete backups of 150 GB in less than 10 hrs.

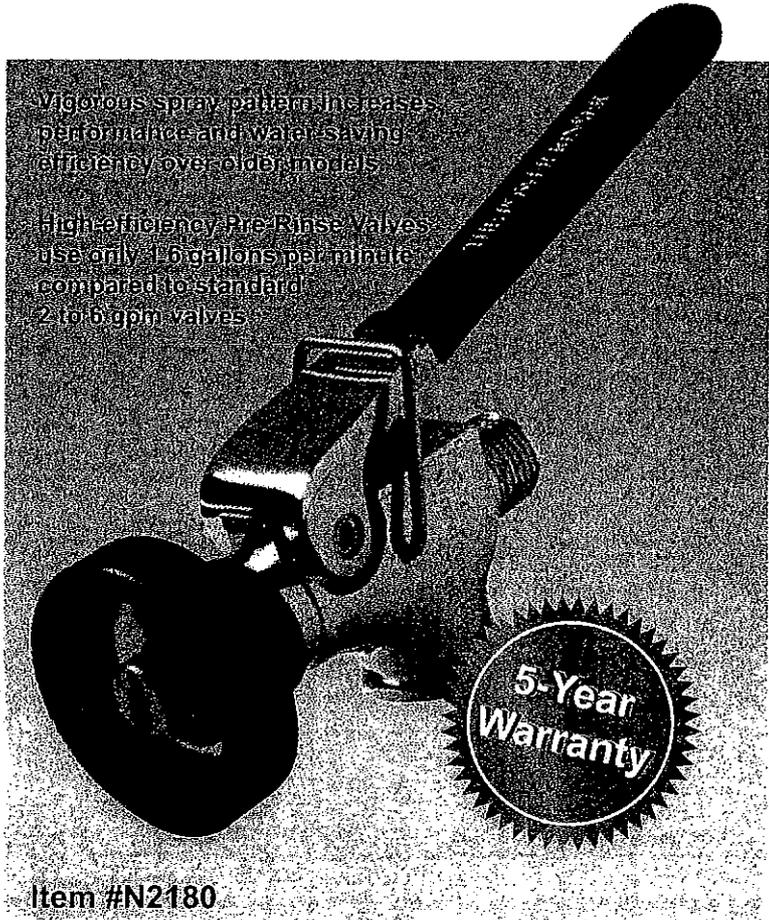
We are utilizing two 300GB Hot Swap drives to archive data off site.

The cost to replace the old tape backup system would have been over \$8500

# FREE COMMERCIAL PRE-RINSE VALVE FREE INSTALLATION

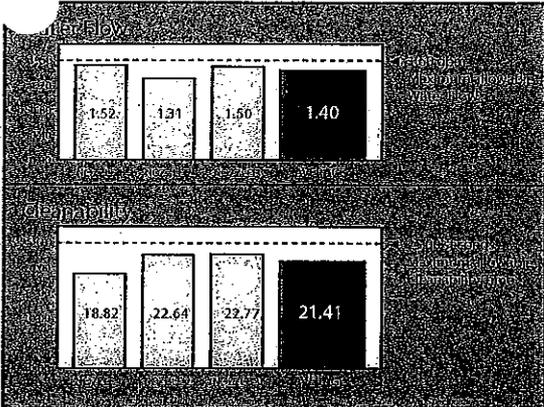
## Features & Benefits

- High performance and incredible hot water savings using 1.6 GPM @ 80 PSI
- Savings in water and energy costs
- Anti-corrosive stainless steel nozzle
- Solid brass, triple chrome-plated sprayer body
- Insulated handle ensures comfortable grip
- Any repairs are easy with standard gaskets
- Standard, protective, full-surrounding dish guard bumper
- Certified by Food Service Technology Center, ANSI/ASME and ASTM Standard Test Method
- 5-year warranty



Item #N2180

Power Rinser Savings	Hours of Spray-valve usage	Water Savings (gallons per day)	Wastewater Savings (gallons per day)	Gas Savings (therms per day)	Annual Dollar Savings
<b>Very Small</b>	2 hours per day	100	100	0.7	\$300 - \$400
<b>Small</b>	4 hours per day	200	200	1.3	\$700 - \$900
<b>Medium</b>	6 hours per day	300	300	2.0	\$1000 - \$1300



# FREE COMMERCIAL PRE-RINSE VALVE FREE INSTALLATION

Courtesy of  
Victor Valley  
Water District



For customer service or  
further information call:

## NIAGARA CONSERVATION

45 Horsehill Road, Cedar Knolls, NJ 07927

[www.niagaraconservation.com](http://www.niagaraconservation.com)

(800) 831-8383 Fax: (973) 829-1400

**You could be sitting on savings!**

**on savings!**



760/245-6424  
www.vvwd.org

Terrie Gossard Flint President  
 Jim Cox Vice-President  
 Larry E. Huber Director  
 Kathleen Cochran Director  
 James N. Kennedy Director

Victor Valley Water District  
 Board of Directors

PRSRT STD  
 U.S. POSTAGE  
**PAID**  
 Victorville, CA  
 Permit No. 4

17185 Yuma Street  
 Victorville, CA  
 92395-5886



**Rebate or credit for each toilet in your home!**

You qualify for a ULFT rebate or credit if you are a Victor Valley Water District customer living in a single-family home built before 1994 or are the owner of a single-family dwelling built before 1994 and you have a toilet using the ULFT. 3.5 gallons per flush or more. Fill out the simple application below or download one from our website at [www.vvwd.org](http://www.vvwd.org) and return it along with an original receipt from the purchase of a ULFT to ULFT Program, Victor Valley Water District, 17185 Yuma Street, Victorville, CA 92395-5886.

Name \_\_\_\_\_

Account Number \_\_\_\_\_

Service Location \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ ZIP \_\_\_\_\_

Mailing Address \_\_\_\_\_  
 (if different than service location)

Phone Number \_\_\_\_\_ Date \_\_\_\_\_

I prefer a \$60 rebate check       I prefer a \$60 credit to my bill

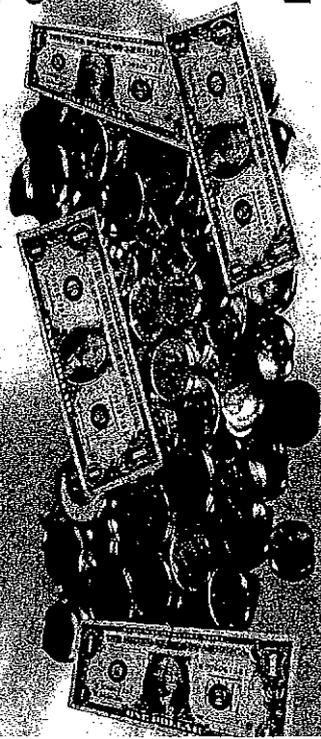
*I certify that the above information is true and correct. I understand that after receipt of this application and an original, unaltered receipt the District will issue the rebate check or credit within 4 to 6 weeks. I consent to a post-installation inspection to confirm installation of the ULFT at the service location above.*

Signature \_\_\_\_\_

# with our ultra-low-flush-toilet (ULFT) program.

# ... and it's easy

You may qualify for a \$60 rebate or credit by replacing your old water-guzzling toilet with an ultra-low-flush model. Fill out and return the application form on this brochure with your receipt.



## What is the ULFT program?

The Victor Valley Water District will provide a rebate or credit on your water bill of \$60 if you replace an older toilet using 3.5 gallons per flush or more with a toilet using 1.6 gallons per flush. The rebate or credit is for the toilet tank and bowl and does not include the toilet seat, wax ring, designer accessories, plumbing installation, or other incidentals.

## Why should I buy and install a ULFT?

By installing a ULFT, you'll save water and money. A typical family can save more than 25 percent of water used inside the home by replacing a pre-1994 toilet with a ULFT model.

## Who qualifies for the program?

If you are a District customer living in a single-family home built before 1994 or are an owner of a multi-family dwelling built before 1994 and you have a toilet using 3.5 gallons per flush or more, you qualify. You may replace more than one high-water-use toilet.

## How much does a ULFT cost?

ULFTs are available starting at around \$60 up to \$100. Some designer models can cost more than \$500.

## Do ULFTs flush as well as older toilets?

Unlike older models that rely upon a large volume of water to remove waste, ULFTs use an efficient bowl design and increased flushing velocities. Designs have improved in recent years, and good quality ULFTs work as well as—and often better—than older toilets.

## How do I know which toilets perform the best?

You may wish to contact a licensed plumber or a plumbing supply store for advice. You may also visit [www.terrylove.com/crtoilet.htm](http://www.terrylove.com/crtoilet.htm) for more information. Remember the old adage that you usually get what you pay for, but the more expensive models are not necessarily the best. Shop carefully.

## Where can I purchase a ULFT?

ULFTs are available at home-improvement stores, plumbing-supply stores, and most hardware stores.

## What if I want to replace an existing ULFT?

Because of limited funding, we can only provide

rebates to customers who are replacing a toilet using 3.5 gallons per flush or more.

## How do I get the rebate?

Fill out the application on this brochure or download one from our website at [www.vvwater.org](http://www.vvwater.org), keep a copy for your files, and return it along with an original receipt for the purchase of a ULFT to the District at the address on the form. Within four to six weeks, we'll send you a rebate check or credit your bill.

## How can I get more information?

For more information, call

Conservation Specialist Maggie Woods at 843-3112 or go to our website at

[www.vvwater.org](http://www.vvwater.org)



"Bringing Water to Life"

760/245-6424

[www.vvwater.org](http://www.vvwater.org)

This program is partially funded by the California Department of Resources.



# Memorandum

To: Board of Directors  
 From: Maggie Woods, Conservation Specialist  
 Date: August 17, 2005  
 Re: First Year Savings of Toilet Exchange Participants

On May 8, 2004, Staff administered a toilet exchange program as phase one of the Ultra-low-flush toilet Program under a 50/50 matching grant from the California Department of Water Resources (DWR). A total of 216 toilets were provided to customers with a limit of 2 per customer. All participants met the requirement of having a pre-1994 single-family home with toilets using 3.5-7 gallons per flush. Old toilets were returned two weeks later for recycling in order to verify that the new toilets had been installed.

Staff compiled the first year consumption data for the customers that participated in the toilet exchange. Of the original 109 participants (the majority of whom received 2 toilets each), nine were eliminated from the data pool due to insufficient historical data or termination of their accounts during the first post-installation year. The baseline total yearly consumption (based on an average of the last four years of consumption) for the remaining pool of 100 was 29,103 HCF (21,769,044 gallons). In the first year following installation the consumption for these participants was reduced to 24,689 HCF (18,467,372 gallons). Thus, the reduction in consumption in the first year of installation was 4,414 HCF (3,301,672 gallons) or 10.13 Acre-feet. This is an average savings of 44.14 HCF (33,017 gallons) per participant for the first year. This group has exceeded our projected savings amount of 7.10 Acre-feet/yr. from the grant contract by 3.03 Acre-feet.

**Consumption Comparison for Toilet Exchange Participants: First Post-Installation Year**

Baseline Yearly Consumption Pre-Installation	First Year Consumption Post-Installation	Consumption Reduction
29,103 HCF	24,689 HCF	4,414 HCF
21,769,044 gallons	18,467,372 gallons	3,301,672 gallons
66.81 Acre-feet	56.67 Acre-feet	10.13 Acre-feet

These consumption figures were reported to the DWR in the second quarterly report of 2005 in accordance with our grant contract. Savings data for the rebate/credit portion of the program will be reported to the DWR at the end of the fourth quarter of 2005.



# Memorandum

To: Board of Directors  
From: Maggie Woods, Conservation Specialist  
Date: May 18, 2004  
Re: Toilet Exchange Event

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## Background

On March 18, 2004, the Urban Water Conservation Capital Outlay Grant was executed between the Department of Water Resources and the Victor Valley Water District for a ULFT Replacement Project. This project was to be administered in two phases, a toilet exchange program and a toilet rebate/credit program. The toilet exchange program was scheduled for May 8, 2004.

## Current

On Saturday, May 8, Staff administered the toilet exchange program. Three Staff members participated in the processing and paperwork. Four Staff members participated in carrying toilets to the customers' cars. Customers were asked to provide both a recent water bill and a photo ID to Staff so that we could verify their eligibility for the program (eligible customers had single-family homes that were built before 1994). One Staff member walked down the line of cars to check these documents and place an "X" on eligible customers' bills so that once they reached the parking lot, they could be processed expeditiously. Forms were given to each participant to sign that stated an understanding that they would be charged \$60 if they did not return their toilet(s) on May 22. Staff also handed out brightly-colored reminder flyers with the same return message. Participants were allowed to take up to two toilets per household and the majority did take home two.

A total of 211 toilets were given out. Customers that were still in line after the toilets were given away were provided with rebate/credit forms and instructions on the program. When Staff departed a sign was placed out front directing customers who had missed out on the exchange to participate in the rebate/credit program.

Four toilets were broken during shipping and have since been replaced by Niagara Conservation. These replacements have been given to customers that were in the line. Three other customers have reported cracked pieces and Niagara has shipped replacements for them. Following this event, Staff has received several calls a day from customers who could not make it to the exchange but are interested in the rebate/credit program. We have also received calls from customers that did show up on the exchange day and were too late to receive a toilet but were inquiring about the rebate/credit program which they saw on the sign. Staff expects to carry the momentum of the ULFT exchange phase into the rebate/credit phase by an advertising campaign with Charter Cable that will begin on May 21.

APPENDIX H

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**VICTOR VALLEY WATER DISTRICT  
ORDINANCE NO. A-101-89  
AND  
CITY OF VICTORVILLE  
ORDINANCE NO. 2114**

December 2005

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ORDINANCE NO. A-101-89

ORDINANCE OF THE BOARD OF DIRECTORS OF THE  
VICTOR VALLEY COUNTY WATER DISTRICT ADOPTING A PROGRAM OF  
VOLUNTARY WATER CONSERVATION AND RESTRICTING  
WATER USE DURING WATER SUPPLY SHORTAGES AND EMERGENCIES

IT IS HEREBY ORDAINED BY THE BOARD OF DIRECTORS OF THE  
VICTOR VALLEY COUNTY WATER DISTRICT AS FOLLOWS:

SECTION 1. Purpose, Intent and Findings.

- 1.1 The VICTOR VALLEY COUNTY WATER DISTRICT ("District") is a public agency created under the County Water District Act, Water Code Sections 30000 et seq. to, among other purposes, provide water service to the water users within the boundaries of the District.
- 1.2 The District is authorized by Water Code Section 31026 to restrict the use of District water during any emergency caused by drought, or other threatened or existing water shortage, and to prohibit the waste of district water or the use of district water during such periods, for any purpose other than household uses or such other restricted uses as may be determined to be necessary by the District and may prohibit use of such water during such periods for specific uses which the District may from time to time find to be nonessential.
- 1.3 The District is further authorized by Water Code Section 31027 to prescribe and define by ordinance those

restrictions, prohibitions and exclusions it may determine to be necessary pursuant to Water Code Section 31026 in restricting the use of district water during threatened or existing water shortages.

- 1.4 It is therefore the intent of the Board of Directors to establish by this Ordinance those procedures and policies necessary to the orderly administration of a water conservation program to prohibit waste and to restrict the use of water during a water shortage emergency.

SECTION 2. Definitions.

- 2.1 "District" shall mean the Victor Valley County Water District.
- 2.2 "Board of Directors" shall mean the Board of Directors of the Victor Valley County Water District.
- 2.3 "General Manager" shall mean that person appointed by the Board of Directors to manage the activities of the Victor Valley County Water District, or his designee.
- 2.4 "Water Supply Shortage" shall mean any water shortage caused by drought or any other threatened or existing water shortage, disaster or facility failure, earthquake, loss of electrical power, pipe line breakage, or other condition which results in or threatens to result in the District's inability to meet the water demands of its customers.
- 2.5 "Waste" shall mean any unreasonable or nonbeneficial use of water, or any unreasonable method of use of water,

including, but not limited to, the specific uses prohibited and restricted by this Ordinance as hereinafter set forth.

2.6 "Water User" shall mean any person, firm, partnership, association, corporation or political entity using water obtained from the water system of the District.

2.7 "Water" shall mean that water supplied by the Victor Valley County Water District.

SECTION 3. Waste or Nuisance Water and Other Substances.

It is unlawful for any person, firm or corporation, to deposit, drain, wash, allow to run or divert into or upon any public road, highway, street or alley, drainage ditch, storm drain, or flood control channel owned by or controlled by any public agency within the District, any water, mud, sand, oil or petroleum product except that, upon written application of any person filed with the District and approved by the General Manager, the District may, upon such terms and conditions as it may deem advisable to impose, including the charging of a fee therefor, grant a permit to such person to do any of the acts prohibited by this section, provided the same shall not be detrimental to the public health, safety or welfare. For purposes of enforcement of this Section, the owner of the meter or property which is the source of the waste or nuisance water or other substance as defined herein is considered the party responsible for any violations cited hereunder.

SECTION 4. Water Supply Plan Created.

4.1 Stage No. 1. Normal Conditions: Voluntary Conservation Measures.

Normal conditions shall be in effect when the District is able to meet all the water demands of its customers in the immediate future. During normal conditions, all water users should continue to use water wisely, to prevent the waste or unreasonable use of water, to protect the water supply of the District, and to reduce water consumption to that necessary for ordinary domestic and commercial purposes.

4.2 Stage No. 2. Threatened Water Supply Shortage.

In the event of a threatened water supply shortage which could affect the District's ability to provide water for ordinary domestic and commercial uses, the Board of Directors shall hold a public hearing at which consumers of the water supply shall have the opportunity to protest and to present their respective needs to the District. The Board may then, by Resolution, declare a water shortage condition to prevail, and the following conservation measures shall be in effect:

4.2.a. Exterior landscape plans.

Exterior landscape plans for all new residential, commercial and industrial development shall provide for timed irrigation and shall consider the use of drought resistant varieties of flora. Such plans shall be presented to and approved by

the District prior to issuance of a water service letter.

4.2.b. Excessive Irrigation and Related Waste.

No customer of the District or other person acting on behalf of or under the direction of a customer shall cause or permit the use of water for irrigation of landscaping or other outdoor vegetation, plantings, lawns or other growth, to exceed the amount required to provide reasonable irrigation of same, and shall not cause or permit any unreasonable or excessive waste of water from said irrigation activities or from watering devices or systems. The free flow of water away from an irrigated site shall be presumptively considered excessive irrigation and waste as defined in Section 3 herein.

4.2.c. Agricultural Irrigation.

Persons receiving water from the District who are engaged in agricultural practices, whether for the purpose of crop production or growing of commercial ornamental plants shall provide, maintain and use irrigation equipment and practices which are the most efficient possible. Upon the request of the General Manager, these persons may be required to prepare a plan describing their irrigation practices and equipment, including but not limited to, an

estimate of the efficiency of the use of water on their properties.

4.2.d. Commercial Facilities.

Commercial and industrial facilities shall, upon request of the General Manager, provide the District with a plan to conserve water at their facilities. The District will provide these facilities with information regarding the average monthly water use by the facility for the last two year period. The facility will be expected to provide the District with a plan to conserve or reduce the amount of water used by that percentage deemed by the Board of Directors to be necessary under the circumstances. After review and approval by the General Manager, the water conservation plan shall be considered subject to inspection and enforcement by the District.

4.2.e. Parks, Golf Courses and School Grounds.

Parks, golf courses (municipal and private) and school grounds which use water provided by the District shall be irrigated between the hours of 11:00 p.m. and 5:00 a.m. Standard Time.

4.2.f. Domestic Irrigation.

Upon notice and public hearing, the District may determine that the irrigation of exterior vegetation shall be conducted only during specified hours and/or days, and may impose other

restrictions on the use of water for such irrigation. The irrigation of exterior vegetation at other than these times shall be considered to be a waste of water.

4.2.g. Swimming Pools.

All residential, public and recreational swimming pools shall use evaporation resistant covers and shall recirculate water. Any swimming pool which does not have a cover installed during periods of nonuse shall be considered a waste of water.

4.2.h. Run-off and Wash-down.

No water provided by the District shall be used for the purposes of wash-down of impervious areas, without specific written authorization of the General Manager. Any water used on a premises that is allowed to escape the premises and run off into gutters or storm drains shall be considered a waste of water.

4.2.i. Vehicle Washing.

The washing of cars, truck or other vehicles is not permitted, except with a hose equipped with an automatic shut-off device, or at a commercial facility designed and so designated on the District's billing records.

4.2.j. Drinking Water Provided by Restaurants.

Restaurants are requested not to provide drinking water to patrons except by request.

4.3 Stage No. 3. Water Shortage Emergency: Mandatory Conservation Measures.

In the event of a water shortage emergency in which the District may be prevented from meeting the water demands of its customers, the Board of Directors shall, if possible given the time and circumstances, immediately hold a public hearing at which customers of the District shall have the opportunity to protest and to present their respective needs to the Board. No public hearing shall be required in the event of a breakage or failure of a pump, pipeline, conduit causing an immediate emergency. The General Manager is empowered to declare a water shortage emergency, subject to the ratification of the Board of Directors within 72 hours of such declaration, and the following rules and regulations shall be in effect immediately following such declaration:

- 4.3.a. Watering of parks, school grounds and golf courses is prohibited.
- 4.3.b. Lawn watering and landscape irrigation is prohibited.
- 4.3.c. Washing down of driveways, parking lots or other impervious surfaces is prohibited.
- 4.3.d. Washing of vehicles is prohibited, except when done by commercial car wash establishments using recycled or reclaimed water.
- 4.3.e. Filling or adding water to swimming pools, wading

pools, spas, ornamental ponds, fountains and artificial lakes is prohibited.

4.3.f. Restaurants shall not serve drinking water to patrons except by request.

4.3.g. No new construction meter permits shall be issued by the District.

4.3.h. All existing construction meters shall be removed and/or locked.

4.3.i. Commercial nurseries shall discontinue all watering and irrigation. Watering of livestock is permitted as necessary.

SECTION 5. Implementation and Termination of Mandatory

Compliance Stages. The General Manager of the District shall monitor the supply and demand for water on a daily basis to determine the level of conservation required by the implementation or termination of the Water Conservation Plan Stages, and shall notify the Board of Directors of the necessity for the implementation or termination of each stage. Each declaration of the Board of Directors implementing or terminating a water conservation stage shall be published at least once in a newspaper of general circulation, and shall remain in effect until the Board of Directors otherwise declares, as provided herein.

SECTION 6. Exceptions.

6.1 Application for Exception Permit.

The General Manager may grant permits for uses of water otherwise prohibited under the provisions of this

Ordinance if he finds and determines that special circumstances make compliance not reasonably possible, or that restrictions herein would either:

- 6.1.a. Cause an unnecessary and undue hardship to the water user or the public; or
- 6.1.b. Cause an emergency condition affecting the health, sanitation, fire protection or safety of the water use or of the public.

Such exceptions may be granted only upon written application therefor. Upon granting such exception permit, the General Manager may impose any conditions he determines to be just and proper.

SECTION 7. Enforcement.

7.1 Inspection.

Authorized employees of the District, after proper identification may, during reasonable hours, inspect any facility having a water conservation plan, and may enter onto private property for the purpose of observing the operation of any water conservation device, irrigation equipment or water facility. Employees of the District may also observe the use of water or irrigation equipment within the district from public rights-of-way and as alleged violations are reported to the District.

7.2 Criminal Penalties for Violation.

Water Code Section 31029 makes any violation of this Ordinance a misdemeanor, and upon conviction thereof, the violator shall be punished by imprisonment, fine or

by both such fine and imprisonment as may be allowed by law.

7.3 Civil Penalties for Violation.

In addition to criminal penalties, violators of the mandatory provisions of this Ordinance shall be subject to civil action initiated by the District, as follows:

7.3.a. First violation. For a first violation, the District shall issue a written notice of violation to the water user violating the provisions of this Ordinance. The notice shall be given pursuant to the requirements of Section 8 below.

7.3.b. Second violation: \$100.00 surcharge. For a second violation of this Ordinance within a 12-month period, or for failure to comply with the notice of violation within the period stated, a surcharge of \$100.00 is hereby imposed for the meter through which the wasted water was supplied.

7.3.c. Third violation: \$200.00 surcharge and/or installation of flow restrictor. For a third violation of this Ordinance within a 12-month period, or for continued failure to comply within 30 days after notice and imposition of second violation sanctions, a one-month penalty surcharge in the amount of \$200.00 is hereby imposed for the meter through which the wasted

water was supplied. In addition to the surcharge, the District may, at its discretion, install a flow-restricting device at such meter with a one-eighth inch orifice for services up to one and one-half inch size, and comparatively sized restrictors for larger services, on the service of the customer at the premises at which the violation occurred for a period of not less than 48 hours. The charge to the customer for installing a flow-restricting device shall be based upon the size of the meter and the actual cost of installation but shall not be less than that provided in the District's Rules and Regulations. The charge for removal of the flow-restricting device and restoration of normal service shall be as provided in the District's Rules and Regulations.

7.3.d Subsequent violations: Discontinuance of Service. For any subsequent violation of this Ordinance within the 24 calendar months after a first violation as provided in Section 7.3.b hereof, the penalty surcharge provided in Section 7.3.c hereof shall be imposed and the District may discontinue water service to that customer at the premises or to the meter where the violation occurred. The charge for reconnection and restoration of normal service shall be as

provided in the Rules and Regulations of the District. Such restoration of service shall not be made until the General Manager of the District has determined that the water user has provided reasonable assurances that future violations of this Ordinance by such user will not occur.

SECTION 8. Notice.

- 8.1 First Violation. For a first violation, written notice shall be given to the customer and/or property owner personally or by regular mail.
- 8.2 Subsequent Violations. If the penalty assessed is a surcharge for a second or third violation, notice may be given by regular mail.
- 8.3 Violations involving installation of flow-restrictors or discontinuance of water service. If the penalty assessed is, or includes, the installation of a flow restrictor or the discontinuance of water service to the customer for any period of time, notice of the violation shall be given in the following manner:
- 8.3.a. By giving written notice thereof to the occupant and/or property owner personally; or
- 8.3.b. If the occupant and/or property owner is absent from his/her place of residence and from his/her assumed place of business, by leaving a copy with some person of suitable age and discretion at either place, and sending a copy through the United States Mail addressed to the occupant

and/or owner at his/her place of business or residence; or

8.3.c. If such place of residence and business cannot be ascertained, or a person of suitable age or discretion cannot be located, then by affixing a copy in a conspicuous place on the property where the failure to comply is occurring and also by delivering a copy to a person there residing, if such person can be found, and also sending a copy through the United States Mail addressed to the occupant at the place where the property is situated and to the owner, if different.

8.3.d. Form of Notice. All notices provided for in this Section shall contain, in addition to the facts of the violation, a statement of the possible penalties for each violation and a statement informing the occupant/owner of his/her right to a hearing on the violation.

SECTION 9. Hearing.

Any customer or property owner against whom a penalty is levied pursuant to this Ordinance shall have a right to a hearing, in the first instance by the General Manager, with the right of appeal to the Board of Directors, on the merits of the alleged violation upon the written request of that customer within fifteen (15) days of the date of alleged violation.

SECTION 10. Reservation of Rights.

The rights of the District hereunder shall be cumulative to any other right of the District to discontinue service.

SECTION 11. Severability.

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid, such decisions shall not affect the validity of the remaining portions of this Ordinance.

SECTION 12. Publication and Posting.

The Secretary of the Board of Directors is hereby directed to cause this Ordinance to be published once in full within 10 days after the date of adoption hereof in a newspaper of general circulation printed, published and circulated in the District, and to be posted within 10 days after the date of adoption hereof in three public places within the District.

SECTION 13. Effective Date.

This Ordinance shall become effective 30 days after adoption.

APPROVED AND ADOPTED this 21st day of February, 1989.

Ayes:

Noes:

Absent:

  
Sally R. Jordan, President of the  
Board of Directors

ATTEST:

  
Charles E. Luster, Secretary  
to the Board of Directors

ORDINANCE NO. 2114

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF  
VICTORVILLE AMENDING CHAPTER 13.60 "WATER  
CONSERVATION" OF THE VICTORVILLE MUNICIPAL CODE  
RELATING TO WATER CONSERVATION AND LANDSCAPING

WHEREAS, the rapid growth of the Victor Valley (the "Valley") generally, and the City of Victorville (the "City") specifically, has placed and continues to place a substantial strain on the water resources of the Valley; and

WHEREAS, it is the policy of the City to conserve and protect its valuable and critical water resources; and

WHEREAS, it is the intent and policy of the City Council of the City (the "City Council") to ensure the continued health, safety, welfare, and quality of life for the existing and future residents and visitors to the City by assisting in the conservation of its water resources; and

WHEREAS, the City Council finds that it is in the best interests of citizens of the City to enact an ordinance that seeks to prevent the misuse of our water supply through measures that include restrictions on water usage; and

WHEREAS, enforcement of water restrictions may be made more effective through education and/or the use of a citation system; and

WHEREAS, use of the citation system will allow the imposition of civil penalties for violation of the provisions of the Water Conservation Ordinance; and

WHEREAS, the imposition of civil penalties for violations of the Water Conservation Ordinance will protect the water resources of the City;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF VICTORVILLE DOES HEREBY ORDAIN AS FOLLOWS:

Section 1. RECITALS

The recitals set forth above are true and correct, and are hereby incorporated by this reference as if set forth in their entirety.

Section 2. AMENDMENT OF CHAPTER 13.60 "WATER CONSERVATION"

The Victorville Municipal Code Chapter 13.60 "Water Conservation" shall be amended to read as follows:

- 13.60.100 Definitions
- 13.60.105 Application of Chapter
- 13.60.110 Drought Tolerant Plants
- 13.60.115 Prohibited Water Uses
- 13.60.120 Limitation on Water Intensive Landscape and Turf Areas Within New Nonresidential Facilities
- 13.60.130 Limitations on Model Home Landscaping
- 13.60.140 Public Education During Drought
- 13.60.150 Drought Management Plan Implementation
- 13.60.160 Notification and Publication of Drought Management Plan
- 13.60.170 Enforcement of Drought Management Plan
- 13.60.180 Variances From Drought Management Plan
- 13.60.190 Limited Exemption to Restrictions for Users of Reclaimed Water
- 13.60.200 Violations
- 13.60.210 Right to Hearing

13.60.100 Definitions

*Acre-foot of water* means that quantity of water required to cover one (1) acre of land one (1) foot deep, or three hundred twenty-five thousand, eight hundred fifty-one (325,851) gallons.

*Active recreational area* means an area designated and primarily used for organized sports, including, without limitation, softball, baseball, football, soccer or a similar related sport, including all amenities related to the activity.

*Body of water* means any artificially constructed lake, pond or lagoon, regardless of size.

*City* means the City of Victorville.

*Controller* means a mechanical timer capable of operating valve stations to set days, length of time and frequency of water application.

*Escaped water* means the pumping, flow release, escape or leakage of any water from any pipe, valve, faucet, connection,

diversion berm, well, or any facility for the purposes of water supply, transport, storage, disposal, or delivery onto adjacent property or public right-of-way.

*Excess runoff* means water accumulation on streets, gutters, neighboring properties or other areas in an amount sufficient to cause flow.

*Manager* means the City Manager or the City Manager's designee.

*Lot* means a legally created parcel of land occupied or intended for occupancy by one (1) main building together with its accessory buildings, and uses customarily incidental to it, including the open space required by the City's zoning ordinance, and having its principal frontage upon a street as defined in the City's zoning ordinance.

*Model home* means a facility used exclusively for the promotion and sale of homes similar to the model.

*Person* means an individual, corporation, partnership, incorporated association or any other similar entity.

*Public water system* means any publicly or privately owned network of pipes, conduits, wells, reservoirs, holding tanks and other components, including any combination thereof, which supplies water to water users, who are charged a fee of any kind or nature for such purpose, or which is designed to supply water or is capable of supplying water to water users for a fee, and includes any such system whether it is operated under the regulatory authority of the City of Victorville, but does not include any irrigation company or district whose primary purpose is to supply water for farming.

*Residential development* means the development of any type of dwelling unit or units suitable or designed for human habitation, including, but not limited to, single family homes, condominiums or manufactured homes, but not including hotels, motels, licensed convalescent homes, commercially operated retirement homes, time share units, or the like. "Residential development" shall not include remodeling or reconstruction where no new dwelling unit is created.

*Right of way* means land which by deed, conveyance, agreement, easement, dedication, usage or process of law is

reserved for or dedicated to the general public for street, highway, alley, public utility, or pedestrian walkway purposes.

Turf means a surface layer of earth containing grass with its roots.

Turf-related facility means a school, public recreational facility, cemetery, golf course, industrial park or common area of a housing development that applies water from any source, including effluent.

Water intensive landscape means an area of land that is watered with a permanent water application system and planted primarily with plants not listed in section 13.60.110 "Drought Tolerant Plants." Included is the total surface area of all water features (i.e. swimming pools of any size, fountains, ponds, water courses, waterfalls, and other artificial water structures) filled or refilled with water from any source.

Water purveyor means the owner or operator of a public water system.

Water user means those persons, customers and properties served by a water purveyor within the incorporated boundaries of the City.

Water waste means the intentional or unintentional use or excessive dissipation of water, which is unproductive or does not reasonably sustain life or economic benefits.

#### 13.60.105 Application of Chapter

The provisions of this chapter shall apply to all water users. The restrictions or prohibitions in this chapter shall not apply to water use, runoff or flow:

- (a) resulting from fire fighting, hydrant flushing or fire training activities; or
- (b) necessary to prevent or abate threats to the public health or safety; or
- (c) from routine maintenance of any public water system, well flushing, or from temporary water system failures or malfunctions.

### 13.60.110 Drought Tolerant Plants

The following categories of plants are hereby designated as "drought tolerant plants" and are not subject to any limitations in this chapter relating to water intensive landscape restrictions.

#### Accents

Agave species: *A. Americana* (Century Plant);  
*A. parryi huachucensis*; *A. victoriae-reginae*  
*Dasyllirion wheeleri*, Desert Spoon  
*Nolina microcarpa*, Bear Grass  
*Hesperaloe parviflora*, Red Yucca  
*Kniphofia uvaria*, Red-Hot Poker, Torch Lily  
Yucca species: *Y. aloifolia*, Spanish Bayonet;  
*Y. baccata*, Banana Yucca, Datil; *Y.*  
*brevifolia*, Joshua Tree; *Y. elata*, Soaptree  
Yucca  
*Chamaerops humilis*, Mediterranean Fan Palm  
*Trachycarpus fortunei*, Windmill Palm  
*Washingtonia filifera*, California Fan Palm

#### Grasses

##### Ornamental

*Muhlenbergia rigens*, Deer Grass  
*Muhlenbergia capillaris*, Regal Mist  
*Muhlenbergia lindheimeri*, Autumn Glow  
*Festuca ovina glauca*, Blue Fescue  
*Bouteloua gracilis*, Blue Grama  
*Nassella tenuissima* (*Stipa tenuissima*),  
Mexican Feather Grass

##### Turf

*Buchloe dactyloides*, Buffalo Grass (Legacy)  
*Buchloe dactyloides*, Buffalo Grass (UC  
Verde)

**Warm-Season Grasses (winter dormant):**

*Zoysia*, *Zoysia* Grass

*Stenotaphrum secundatum*, St. Augustine  
Grass

**Cool-Season Grasses (year round):**

*Festuca arundinacea*, Tall Fescue

*Lolium perenne*, Perennial Ryegrass

*Poa pratensis*, Kentucky Bluegrass

**Ground Covers**

*Oenothera berlandieri*, Mexican Evening  
Primrose

*Santolina chamaecyparissus*, Lavender Cotton

*Cerastium tomentosum*, Snow-in-Summer

*Gazania*, most varieties

*Sedum*, most varieties

*Thymus*, most varieties

*Verbena peruviana*; *V. pulchella*

*Dalea greggii*, Trailing Indigo Bush

*Rosmarinus officinalis*, 'Prostratus'

*Phlox*, most varieties

**Perennial Flowers**

*Coreopsis*, most varieties

*Penstemon ambiguus*, *P. barbatus*, *P.*

*centranthifolius*, *P. eatonii*, *P. palmeri*, *P.*

*parryi*, *P. pinifolius*, *P. pseudospectabilis*,

*P. strictus*

*Cosmos*, most varieties

*Convolvulus cneorum*, Bush Morning Glory

*Perovskia*, Russian Sage or Blue Spire

*Berlandiera lyrata*, Chocolate Flower

*Gaura lindheimeri*, 'Whirling Butterflies,'

'Siskiyou Pink'

*Hemerocallis*, Daylily, most varieties

*Rosmarinus officinalis*, most prostrate and upright varieties

*Verbena gooddingii*, *V. peruviana*, *V. rigida*

#### Shrubs

*Salvia greggii*, Red Sage, Autumn Sage

*Salvia clevelandii*, Blue Sage, Cleveland Sage

*Salvia chamaedryoides*, Germander Sage

*Fallugia paradoxa*, Apache Plume

*Leucophyllum frutescens*, Texas Ranger species, several varieties

*Leucophyllum laevigatum*, Chihuahuan Sage

*Baccharis 'Centennial'*, Coyote Bush

*Baccharis pilularis*, Dwarf Coyote Brush

*Artemisia*, 'Powis Castle'

*Cotoneaster horizontalis*, Rock Cotoneaster

*Photinia fraseri*

*Grevillea 'Noellii'*

#### Trees

##### Evergreen

*Eucalyptus camaldulensis (rostrata)*, Red River

*Eucalyptus microtheca*, Coolibah

*Pinus eldarica*, Eldarica Pine, Afghan Pine, Russian Pine

*Pinus halepensis*, Aleppo Pine

*Pinus pinea*, Italian Stone Pine

*Cedrus deodara*, Deodar Cedar

*Calocedrus decurrens*, Incense Cedar

*Heteromeles arbutifolia*, Toyon

*Sophora secundiflora*, Texas Mountain Laurel

*Arbutus unedo*, Strawberry Tree  
*Pithecellobium flexicaule*, Texas Ebony

**Deciduous**

*Albizia julibrissin*, Silk Tree, Mimosa  
*Chilopsis linearis*, Desert Willow,  
'Burgundy'  
*Chitalpa tashkentensis*, Pink Dawn, Morning  
Cloud  
*Parkinsonia floridum*, Blue Palo Verde  
*Parkinsonia microphyllum*, Littleleaf Palo  
Verde  
*Parkinsonia aculeata*, Mexican Palo Verde  
*Fraxinus angustifolia*, 'Raywood' (Raywood  
Ash)  
*Fraxinus velutina*, Arizona Ash  
*Fraxinus velutina*, 'Modesto' (Modesto Ash)  
*Prosopis chilensis*, Chilean Mesquite  
*Prosopis glandulosa*, Honey Mesquite  
*Prosopis pubescens*, Screw Bean Mesquite  
*Gleditsia triacanthos*, Honey Locust  
*Pistacia chinensis*, Chinese Pistache  
*Vitex agnus-castus*, Chaste Tree, Monk Tree

**13.60.115 Prohibited Water Uses and Water Waste**

(a) It shall be unlawful for any water user of a public water system to allow water waste at any location or premises within the City limits after having been served with a notice of violation, pursuant to section 13.60.200 of this chapter, for wasting water from the same location or premises.

(b) It shall be unlawful for any owner, occupier or manager of real property within the City to allow water waste at any such real property after having been served with a notice of violation, pursuant to section 13.60.200 of this chapter, for wasting water from the same location or premises.

(c) It shall be unlawful for any water user within the City to make, cause, use or permit the use of water for residential, commercial, industrial, agricultural or any other purpose in a manner contrary to any provision of this chapter.

(d) It shall be unlawful for any water user to cause or permit any water furnished to any property within the City to run or to escape from any hose, pipe, valve, faucet, sprinkler or irrigation device onto any sidewalk, street or gutter or to otherwise escape from the property, if such running or escaping can reasonably be prevented.

(e) It shall be unlawful for any water user to wash any vehicle, equipment, or other object, or any driveway, parking lot, sidewalk, street or other paved surface, in any manner permitting runoff for more than five consecutive minutes, or a total of twenty minutes in any 24-hour period.

(f) Commercial and noncommercial watering of turf, ground cover, open ground, shrubbery, crops, gardens and trees, including agricultural irrigation, in a manner or to an extent which allows excess runoff shall not be permitted. A minimum amount of runoff, which is a natural consequence of conservative watering, either by hand or by mechanical or automated sprinkling facilities, is permitted, so long as such runoff does not amount to excess runoff as defined in this chapter.

(g) It shall be unlawful for any water user permit the excess use, loss or escape of water through breaks, leaks or other malfunctions in the water user's plumbing or distribution system for any period of time after such escape of water should have reasonably been discovered and corrected.

(h) It shall be unlawful for any water user to willfully or negligently permit or cause the escape or flow of irrigation water in such quantity as to cause flooding, impede vehicular or pedestrian traffic, create a hazardous condition to such traffic, or cause damage to public or private rights of way through failure or neglect to properly operate or maintain any irrigation structure, delivery ditch or waste ditch.

(i) It shall be unlawful for any water user to water or permit the watering of water intensive landscape or turf at time other than as authorized by the water purveyor.

(j) It shall be unlawful for any water user to willfully or negligently fail to accept irrigation water after it has been ordered.

**13.60.120 Limitation on Water Intensive Landscape and Turf Areas Within New Nonresidential Facilities**

(a) The following types of facilities shall limit the water intensive landscape and turf within the landscaped area to the following percentages of the total lot area, and all remaining landscaped area shall consist of plants listed in section 13.60.110 of this chapter:

- (1) Churches: Twenty five percent (25%) of total lot area.
  - (2) Resorts, including hotels and motels: Ten percent (10%) of the total lot area.
  - (3) Commercial and industrial uses, fewer than nine thousand square feet: Ten percent (10%) of the total lot area.
  - (4) Commercial and industrial uses, nine thousand square feet to one acre: Ten percent (10%) of the first nine thousand (9,000) square feet, and five percent (5%) of the remaining lot area.
  - (5) Commercial and industrial uses, greater than one acre: No additional water intensive landscape and turf beyond the amounts allowed in section 13.60.120(a)(4).
  - (6) Common areas in residential developments: Ten percent (10%) of the first acre and five percent (5%) of each additional acre up to five (5) acres. Residential developments larger than five (5) acres shall not plant any additional water intensive landscape and turf in common areas.
- (b) Active recreational areas shall not be considered in calculating the percentage of the total lot area and shall not be considered in determining compliance with this section.
- (c) No water intensive landscape or turf shall be permitted in any right of way.

**13.60.130 Limitations on Model Home and New Residential Development Landscaping**

(a) All new model homes and new residential development shall limit water intensive landscape and turf area to the rear yard at the following percentage of the total lot area, and all remaining landscaped area shall consist of plants listed in section 13.60.110 of this chapter:

(1) Nine thousand (9,000) square feet or less. Ten percent (10%) of the total lot area.

(2) Nine thousand one (9,001) square feet to one (1) acre. Ten percent (10%) of the first nine thousand (9,000) square feet and five (5) percent of the remainder of the lot area.

(3) Greater than one (1) acre. No additional water intensive landscape or turf area shall be permitted beyond that allowed in section 13.60.130(a)(2).

(b) Water intensive landscape or turf shall only be located in rear yards.

(c) No water intensive landscape or turf shall be planted in any right of way. Drought tolerant plants or landscape listed under section 13.60.110 shall not be planted in any right of way, unless prior approval is obtained from the City.

(d) Prior to closing on a new residential unit, the developer shall provide the homeowner with a copy of the City requirements for water conservation. Upon receipt, the homeowner shall sign an affidavit of acceptance. The developer shall permanently maintain the signed affidavit.

**13.60.140 Public Education**

The City will use intensive public education to assist water users to understand the City's need for voluntary compliance. In addition to education, the City may use enforcement measures to curb water misuse.

**13.60.150 Drought Management Plan Implementation**

(a) The City Manager shall promulgate a drought management plan containing regulations setting forth the criteria for

implementation and termination of various water use reduction stages.

(b) The City Manager is authorized to declare a drought, and to implement a drought management plan, in response to events including, but not limited to, the following: reductions in supply from any water purveyor, or when an insufficient supply appears likely due to water system limitations or structural failure.

(c) Such declaration may designate the entire area of the City, or a portion of it if the shortage is not citywide.

(d) The City Manager may terminate the drought declaration when it is determined that the events that triggered the drought no longer exist.

#### **13.60.160 Notification and Publication of Drought Management Plan**

If the City Manager determines that the health and safety of the City dictate implementing the drought management plan, notification shall be published in a paper of general circulation, to educate the public about the need for the plan, and give them notice of conservation regulations and requirements of the applicable stage of the plan. A copy of the drought management plan shall also be available for inspection at the City Clerk's office.

#### **13.60.170 Enforcement of Drought Management Plan**

(a) The City Manager or his or her designee shall have authority to take actions to enforce any mandatory elements that are part of drought management plans.

(b) A written notice shall be placed on the property when a first violation occurs, and a duplicate mailed to the person who responsible for the service to the property where the violation took place. The notice shall describe the violation and order that it be abated immediately.

(c) For subsequent violations, the City will issue citations and fines according to the provisions of this chapter.

(d) Funds generated by the fines under this section shall be used to mitigate the impact of the drought.

**13.60.180 Variances From Drought Management Plan**

Variances to drought management plan provisions may be granted at the discretion of the City Manager or his or her designee. Applicants for a variance must apply in writing to the City manager or his or her designee, and demonstrate special circumstances such as health and safety needs or obligation of contract.

**13.60.190 Limited Exemption to Restrictions for Users of Reclaimed Water**

To the extent they are exempt from the drought management plan, users of reclaimed or recycled water shall clearly post notices stating that the water being used is not potable and not from the public drinking water supply, and is in conformance to drought management plan in force at the time.

**13.60.200 Violations**

(a) For a first violation of any provision of this chapter, the City shall issue a written notice of first violation and provide the violator with educational materials on water conservation, including a copy of the relevant provisions of this chapter. The City shall give the water user a reasonable period of time to correct the violation. Failure to correct the violation within a reasonable period of time shall constitute a second violation.

(b) For a second violation of any provision of this chapter, the City shall issue a written notice of second violation to the water user imposing a fine in an amount not to exceed Fifty Dollars (\$50.00), and requiring immediate correction of the violation.

(c) For a third violation of any provision of this section, the City shall issue a written notice of third violation to the water user imposing a fine in an amount not to exceed Two Hundred Dollar (\$200.00), and requiring immediate correction of the violation.