

FINAL

2010 URBAN WATER MANAGEMENT PLAN

Adopted: August 16, 2011



Prepared for:
Hesperia Water District / City of Hesperia

Prepared by:
Kennedy/Jenks Consultants

August 2011

Kennedy/Jenks Consultants

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Final 2010 Urban Water Management Plan

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Prepared for
Hesperia Water District/
City of Hesperia
9700 Seventh Avenue
Hesperia, CA 92345

K/J Project No. 1089069*00

RESOLUTION NO. HWD 2011-006

A RESOLUTION OF THE HESPERIA WATER DISTRICT, OF THE CITY OF HESPERIA, CALIFORNIA, ADOPTING THE DISTRICT'S 2010 URBAN WATER MANAGEMENT PLAN (UWMP) FOR THE PLANNING PERIOD 2010-2035.

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 88,000; 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 shall be adopted after public review and hearing, and filed with the California Department of Water Resources within thirty 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 August 2, 2011; and

NOW THEREFORE, BE IT RESOLVED BY THE HESPERIA WATER DISTRICT OF THE CITY OF HESPERIA AS FOLLOWS:

- 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 City Clerk; the City 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. In a water shortage, the City 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 4. The City Manager shall recommend to the District additional regulations to carry out effective and equitable allocation of water resources.

ADOPTED AND APPROVED this 16th day of August, 2011.



Mike Leonard, Chair

ATTEST:



Melinda Sayre-Castro
Assistant City Clerk

STATE OF CALIFORNIA)
COUNTY OF SAN BERNARDINO)
CITY OF HESPERIA)

I, Melinda Sayre-Castro, Assistant City Clerk of the Hesperia Water District, Hesperia, California, do hereby certify that Resolution No. HWD 2011-06 was duly adopted by the Board members of the Hesperia Water District, Hesperia, California at a Regular Meeting thereof held on the 16th day of August 2011 by the following vote to wit:

AYES: Blewett, Bosacki, Holland, Leonard, Smith

NOES: None

ABSTAIN: None

ABSENT: None

Melinda Sayre-Castro
Assistant City Clerk



I, _____, Secretary of the Hesperia Water District, Hesperia, California, do hereby certify that the foregoing Resolution No. HWD 2011-06 is a full, true and correct copy of that now in file in this office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the City of Hesperia, California, this _____ day of _____, 20__.

Melinda Sayre-Castro
Assistant City Clerk

Seal

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- C Judgment After Trial January 10, 1996, Mojave Basin Area Adjudication Text (*included on CD-ROM*)
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- E VVWRA Adopted Policy on Serving Growth of the Community
- F City of Hesperia Water Code Section 14.18.020 – Water Waste
- G HWD Ordinance No. 31 (also known as the City Water Code 14.40 Water Conservation Emergency Plan)

Section 1: Introduction

1.1 Overview

This volume presents the 2010 Urban Water Management Plan (UWMP, Plan) for the Hesperia Water District (District) service area. The District is a subsidiary district to the City of Hesperia (City) with a Board of Directors (the Hesperia City Council serves as the District's Board of Directors). All water issues are governed by the Hesperia Water District Board of Directors. This chapter describes the general purpose of the Plan, discusses Plan implementation, and provides general information about the City and the District and service area characteristics. A list of acronyms and abbreviations is also provided.

1.2 Purpose

An UWMP is a planning tool that generally guides the actions of water management agencies. It provides managers and the public with a broad perspective on a number of water supply issues. It is not a substitute for project-specific planning documents, nor was it intended to be when mandated by the State Legislature. For example, the Legislature mandated that a plan include a section which “describes the opportunities for exchanges or water transfers on a short-term or long-term basis.” (California Urban Water Management Planning Act, Article 2, Section 10630(d).) The identification of such opportunities, and the inclusion of those opportunities in a general water service reliability analysis, neither commits a water management agency to pursue a particular water exchange/transfer opportunity, nor precludes a water management agency from exploring exchange/transfer opportunities not identified in the plan. When specific projects are chosen to be implemented, detailed project plans are developed, environmental analysis, if required, is prepared, and financial and operational plans are detailed.

In short, this Plan is a management tool, providing a framework for action, but not functioning as a detailed project development or action. It is important that this Plan be viewed as a long-term, general planning document, rather than as an exact blueprint for supply and demand management. Water management in California is not a matter of certainty, and planning projections may change in response to a number of factors. From this perspective, it is appropriate to look at the Plan as a general planning framework, not a specific action plan. It is an effort to generally answer a series of planning questions including:

- What are the potential sources of supply and what is the reasonable probable yield from them?
- What is the probable demand, given a reasonable set of assumptions about growth and implementation of good water management practices?
- How well do supply and demand figures match up, assuming that the various probable supplies will be pursued by the implementing agency?

Using these “framework” questions and resulting answers, the implementing agency will pursue feasible and cost-effective options and opportunities to meet demands. The District will explore enhancing basic supplies from traditional sources such as imported water from the Mojave Water Agency (MWA) as well as other options. These include groundwater extraction, water

exchanges, recycling, desalination, and water banking/conjunctive use. Specific planning efforts will be undertaken in regard to each option, involving detailed evaluations of how each option would fit into the overall supply/demand framework, how each option would impact the environment, and how each option would affect customers. The objective of these more detailed evaluations would be to find the optimum mix of conservation and supply programs that ensure that the needs of the customers are met.

The California Urban Water Management Planning Act (Act) requires preparation of a plan that:

- Accomplishes water supply planning over a 20-year period in five year increments. (The District is going beyond the requirements of the Act by developing a plan which spans 25 years).
- Identifies and quantifies adequate water supplies, including recycled water, for existing and future demands, in normal, single-dry, and multiple-dry years.
- Implements conservation and efficient use of urban water supplies.

A checklist to ensure compliance of this Plan with the Act requirements is provided in Appendix A.

In short, the Plan answers the question: Will there be enough water for the Hesperia community in future years, and what mix of programs should be explored for making this water available?

It is the goal of the District to provide a safe and reliable water supply to meet existing and future needs of its customers. The District's supplies must meet current water quality regulations and address pending water quality regulations to assure its availability in the future. Based on conservative water supply and demand assumptions over the next 25 years in combination with conservation of non-essential demand during certain dry years, the Plan successfully achieves this goal.

Additionally, newly passed State legislation, Senate Bill 7 of Special Extended Session 7 (SBX7-7) was signed into law in November 2009, which calls for progress towards a 20 percent reduction in per capita water use statewide by 2020. As a result, the legislation now mandates each urban retail supplier to develop and report a water use target in the retailer's 2010 UWMP. The legislation further requires that retailers report an interim 2015 water use target, their baseline daily per capita use and 2020 compliance daily per capita use, along with the basis for determining those estimates.

SBX7-7 provides four possible methods for an urban retail water supplier to use to calculate its water use target. The California Department of Water Resources (DWR) has also developed methodologies for calculating base daily per capita water use, baseline commercial, industrial and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use and landscape area water use.

Also of importance is Assembly Bill (AB) 1420. AB 1420, passed in 2007 and in effect as of January 2009, changes the funding eligibility requirements of Section 10631.5 of the Water Code. For any urban water supplier to be eligible for grant or loan funding administered by DWR, the State Water Resources Control Board (SWRCB) or the Bay-Delta Authority (such as those funding programs Propositions 50 and 84), the supplier must show implementation of water use efficiency demand management measures/best management practices

(DMMS/BMPs) listed and described in the Act and the California Urban Water Conservation Council (CUWCC) Memorandum of Understanding Regarding Urban Water Conservation in California (MOU UWCC), or show the schedules and budgets by which the supplier will begin implementing the DMMs/BMPs. Any supplier not implementing the measures based on cost-effectiveness must submit proof showing why the measures are not cost-effective.

1.3 Implementation of the Plan

Water Code Section 10617 defines an urban water supplier as any supplier that provides water to more than 3,000 service connections or supplies more than 3,000 acre-feet (af) of water annually. As of 2010, the District delivers water to over 25,200 connections, therefore requiring the District to prepare and adopt an UWMP. This Plan has been prepared for the District.

1.3.1 Joint Preparation of the Plan

The District cooperates with the MWA managing the region's water resources. The District consulted MWA's Draft 2010 UWMP while preparing this UWMP. MWA was also notified that the District is updating its UWMP and input was solicited. The District coordinated the preparation of the Plan with the local community. The County of San Bernardino was notified of the opportunity to provide input regarding the Plan. Water resource specialists with expertise in water resource management were retained to assist the District in preparing the details of the Plan.

1.3.2 Plan Adoption

The District began preparation of this Plan for its service area in early 2010. The final draft of the Plan was adopted by the Agency Board on August 16, 2011 and submitted to DWR within 30 days of Board approval. This Plan includes all information necessary to meet the requirements of Water Conservation Act of 2009 (Wat. Code, §§ 10608.12-10608.64) and the Urban Water Management Planning Act (Wat. Code, §§ 10610-10656).

1.3.3 Public Outreach

The District encourages community participation in water planning. For the current Plan, a public session was held for review and to solicit input on the Draft Plan before its adoption. Interested groups were informed about the development of the Plan along with the schedule of public activities. Notices of public meetings were published in the local press. Copies of the Draft Plan were made available on the District's website, at the local public library, District offices, and sent to the County of San Bernardino, as well as interested parties.

The District has and continues to actively encourage community participation in its on-going water management activities and specific water related projects. The District's public participation programs include mailings, public meetings, and web-based communication. The District's water conservation program involves a variety of public awareness programs. The Board of Directors for the District has regularly scheduled meetings that include public comment on water issues. Table 1-1 presents a timeline for public participation during the development of the Plan. A copy of the public outreach materials, including paid advertisements, newsletters, website postings, and invitation letters are attached in Appendix B.

**TABLE 1-1
PUBLIC PARTICIPATION TIMELINE**

Date	Event	Description
April 19, 2011	Preliminary Draft UWMP	Must notify land use planning agencies 60 days before first Public Hearing
August 2, 2011 August 16, 2011	Public Hearings	UWMP considered for approval by the District Board

The components of public participation include:

Local Media

- Hesperia Horizon (the City's quarterly newsletter)
- Paid advertisements in local newspapers

Community-based Outreach

- Building Industry Association

City/County Outreach

- Notified MWA Planning Division
- Notified County of San Bernardino

Public Availability of Documents

- District's website
- City Clerk's Office
- Local library

1.3.4 Resources Maximization

Several documents were developed to enable the District to maximize the use of available resources, including the following:

- City of Hesperia Final Report, Water Master Plan, July 2008.
- City of Hesperia Final Report, Wastewater Master Plan, July 2008.
- City of Hesperia Final Report, Recycled Water Master Plan, July 2008.
- City of Hesperia 2005 Urban Water Management Plan.
- Mojave Water Agency 2004 Integrated Regional Water Management Plan (Regional Plan).

Chapter 3 of this Plan describes in detail the water supply available to the District for the 25-year period covered in this Plan. Additional discussion regarding documents developed to maximize resources is included in Section 3.1 and Chapter 6.

1.4 Hesperia Water District Background

The City was incorporated in 1988. Water for the community was previously provided by Victor Valley County Water District (VVCWD) until 1975, when the District was formed as a self-governed special district. In 1992, the District was reorganized as a subsidiary special district of the City. The District operates a self-sustaining utility business enterprise. The City Council serves as the District's Board of Directors.

The District is located in the High Desert region of San Bernardino County (County) and is bordered by the town of Apple Valley to the northeast, the City of Victorville to the north, and the community of Phelan to the west. The area south of the City includes the community of Oak Hills and other developable lands. San Bernardino County has experienced continuous population growth, especially since 1970, with a five to six percent growth rate through the period between 1970 and 2005. In the past, the High Desert and West Valley regions of the County have experienced the highest growth rates. Recently, however, growth levels have declined.

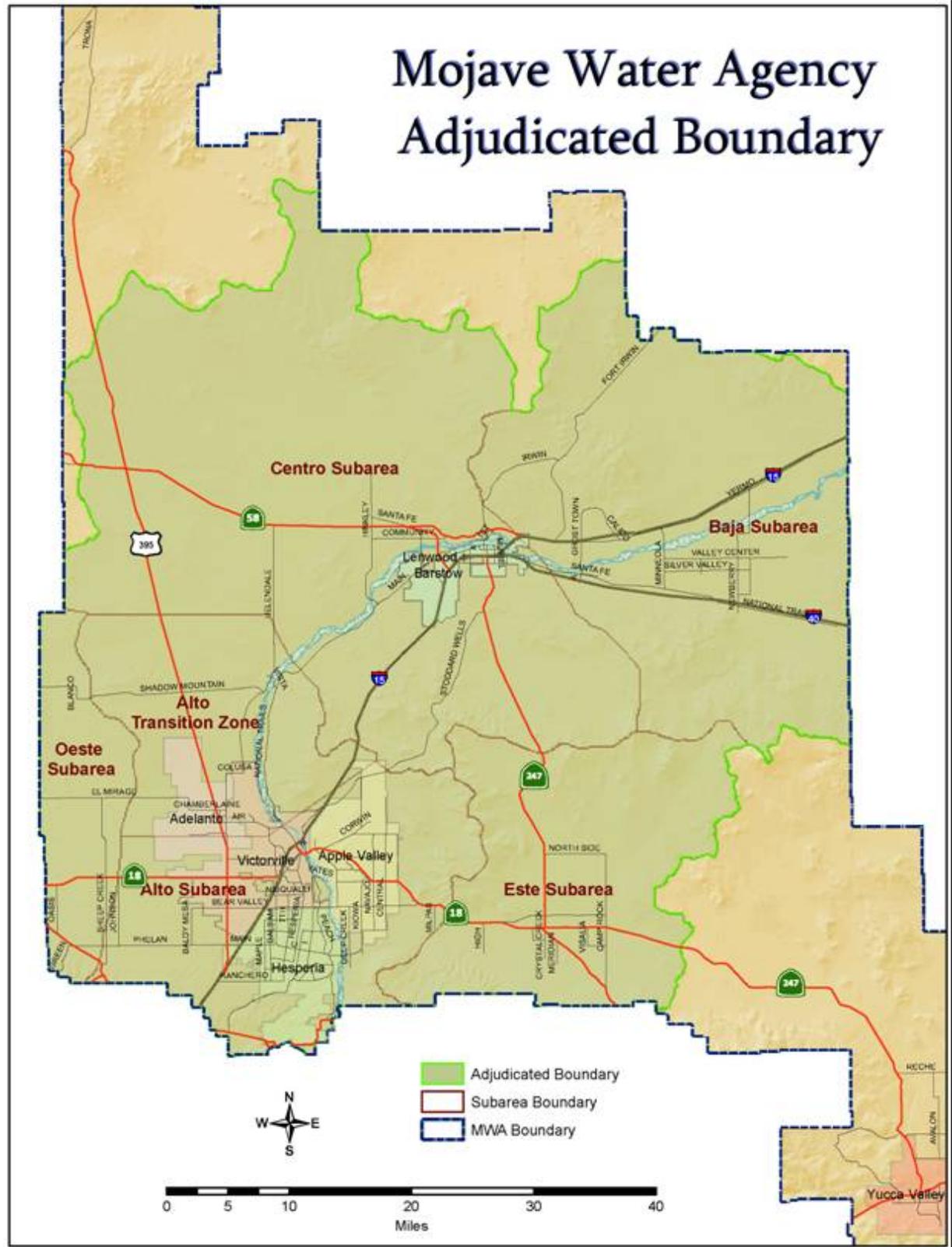
The District's service area matches the City's boundaries, with minor exceptions, and covers approximately 74 square miles (Figure 1-1). The District provides domestic water from eighteen (18) active wells within this area. All wells are located in the Mojave River Groundwater Basin (Basin). The Basin, which is adjudicated, is a source of groundwater flowing north from the San Bernardino Mountains. Water is recharged to the Basin through percolation and sub-surface flow from adjoining basins. This groundwater is the only source of supply for the District's system.

The District is one of ten water purveyors within MWA's service area that is required to complete an UWMP. MWA is a State Water Project (SWP) contractor that serves an area of 4,900 square miles of the high desert area. MWA is also the Watermaster for the adjudication of the Mojave River Groundwater Basin.

For management purposes under the Mojave Basin Area Judgment (Judgment), MWA split the Mojave River watershed and associated groundwater basins into five separate "subareas." There are five subarea locations; 1) Oeste, 2) Este, 3) Alto, 4) Centro and 5) Baja. The District is located in the Alto subarea as shown on Figure 1-2.

The Judgment assigned Base Annual Production (BAP) quotas to each producer using 10 acre-feet per year (afy) or more, based on historical production. Users are assigned a variable Free Production Allowance (FPA), which is a uniform percentage of BAP set for each subarea. This percentage is reduced or "ramped-down" over time until total FPA comes into balance with available supplies. The current FPA for the Alto Subarea is 80 percent of BAP for agriculture and 60 percent of BAP for municipal and industrial, which is the category for the District.

FIGURE 1-2
MWA ADJUDICATED BOUNDARY AND SUBAREAS



If the District pumps more than its FPA, then it must purchase SWP replenishment water from MWA equal to the amount of production in excess of the FPA. Alternatively, the District may meet its obligation by transferring unused FPA from another party within the subarea.

1.5 Climate

The Mojave Water Agency maintains a regional network of weather monitoring stations throughout the watershed, which some are funded by MWA and others are provided courtesy of various local and federal government agencies, and citizen observers program. The stations collect various weather data on temperature, precipitation, and evaporation. Rain gages are mostly located within the Mojave Basin Area and the surrounding mountains.

Representative precipitation, temperature, and reference evapotranspiration (ETo) data for the District are reported in Table 1-2 for the period 1997 through 2009. Average annual precipitation during the same period was approximately seven (7) inches.

**TABLE 1-2
CLIMATE DATA FOR THE HESPERIA WATER DISTRICT**

Station^(a)	Total ETo (in)	Total Precip (in)	Avg Air Tmp (F)
1997	68.4	6.4	61.4
1998	62.0	11.4	58.3
1999	67.8	3.2	60.0
2000	68.4	3.4	61.2
2001	67.3	6.9	61.5
2002	69.6	2.4	61.0
2003	66.6	12.4	61.5
2004	66.2	13.6	60.6
2005	64.6	13.2	60.6
2006	68.1	4.1	60.8
2007	71.2	3.3	61.5
2008	68.7	3.7	61.3
2009	66.1	3.0	58.9
Average	67.3	6.7	60.7

Sources:

(a) Station used was in Victorville, California (049325) at <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?cavict+sca>.
Also, <http://www.cimis.water.ca.gov/cimis/frontMonthlyEToReport.do>.

1.6 Potential Effects of Global Warming

A topic of growing concern for water planners and managers is global warming and the potential impacts it could have on California's future water supplies. DWR's California Water Plan Update 2009 considers how climate change may affect water availability, water use, water quality, and the ecosystem.¹

Volume 1, Chapter 5 of the California Water Plan, "Managing an Uncertain Future," evaluated three different scenarios of future water demand based on alternative but plausible assumptions on population growth, land use changes, water conservation and also future climate change

¹ Final California Water Plan Update 2009 Integrated Water Management: Bulletin 160.

might have on future water demands. Future updates will test different response packages, or combinations of resource management strategies, for each future scenario. These response packages help decision-makers, water managers, and planners develop integrated water management plans that provide for resources sustainability and investments in actions with more sustainable outcomes.

1.7 Other Demographic Factors

Water service is provided to residential, commercial, and some industrial customers and for other uses, such as fire protection and pipeline cleaning.

Over the past decade the District (along with most of California) experienced significant increases in both single family and multi-family residential construction, as well as in commercial construction. As the local population has increased, the demand for water has also increased. However, the recent economic downturn, coupled with a three-year dry period during 2007-2010, has reduced demand on what is likely an interim basis.

1.8 List of Abbreviations and Acronyms

The following abbreviations and acronyms are used in this report.

AB	Assembly Bill
ACOE	U.S. Army Corps of Engineers
Act	California Urban Water Management Planning Act
ADD	average day demand
af	acre-feet
afy	acre-feet per year
AVRWC	Apple Valley Ranchos Water Company
AWAC	Alliance for Water Awareness and Conservation
AWWA	American Water Works Association
AWWARF	American Water Works Association Research Foundation
BAP	Base Annual Production
Basin	Mojave River Groundwater Basin
BMPs	Best Management Practices
CCF	One Hundred Cubic Feet
CCR	Consumer Confidence Report
CDPH	California Department of Public Health
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CIP	capital improvement project
City	City of Hesperia
CII	Commercial/Institutional/Industrial
County	San Bernardino County
CSA	County Service Area

CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
DBP	Disinfection by-products
Delta	Sacramento-San Joaquin Delta
DFG	California Department of Fish and Game
District	Hesperia Water District
DMM	Demand Management Measures
DOF	California Department of Finance
DTSC	Department of Toxic Substances Control
DWR	California Department of Water Resources
DWSAP	Drinking Water Source Assessment Program
EC	Electrical conductivity
Edison	Southern California Edison
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ETo	Evapotranspiration
FPA	Free Production Allowance
gpcd	gallons per capita per day
gpd	gallons per day
gpm	gallons per minute
GWMP	Groundwater Management Plan
HECW	high efficiency clothes washers
HET	high efficiency toilet
HWD	Hesperia Water District
ILI	Infrastructure Leakage Index
Judgment	Mojave Basin Area Judgment
kW	kilowatt
M&I	Municipal and Industrial
MAF	million acre-feet
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MDD	maximum day demand
MEEC	Mojave Environmental Education Consortium
MFR	Multi-Family Residential
mg	million gallons
mgd	million gallons per day
mg/L	milligrams per liter
MOU UWCC	Memorandum of Understanding Regarding Urban Water Conservation in California
MOU VVWRA	Memorandum of Understanding with Victor Valley Wastewater Reclamation Authority
MWA	Mojave Water Agency
NPDES	National Pollutant Discharge Elimination System

PCAs	possible contaminating activities
Plan	Urban Water Management Plan 2010
PHG	Public Health Goal
PUC	California Public Utilities Commission
PWSS	Public Water System Statistics
PSY	Production Safe Yield
RAP	Remedial Action Plan
RO	Reverse Osmosis
Regional Plan	2004 Regional Water Management Plan
RWMP	Recycled Water Master Plan
RWQCB	Regional Water Quality Control Board
RWWTP	Regional Wastewater Treatment Plant
SB	Senate Bill
SBX7-7	Senate Bill 7 of Special Extended Session 7
SCAG	Southern California Association of Governments
SFR	Single Family Residential
SWP	State Water Project
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
umhos/cm	Micromhos per centimeter
ULFT	ultra low flush toilet
USGS	US Geological Survey
UWMP	Urban Water Management Plan
VVCWD	Victor Valley County Water District
VVWRA	Victor Valley Wastewater Reclamation Authority
VWD	Victorville Water District
WBIC	Weather Based Irrigation Controllers
WMP	Water Master Plan
WRF	Water Reclamation Facility
WRP	Wastewater Reclamation Plant
WSS	Water Sense Specification
WWMP	Wastewater Master Plan

Section 2: Water Use

2.1 Overview

This chapter describes historic and current water usage and the methodology used to project future demands within the Hesperia Water District's (District's) service area. Water usage is divided into sectors such as residential, commercial and industrial, landscape, and other purposes. To undertake this evaluation, existing land use data and new housing construction information were compiled from the City of Hesperia (City). This information was then compared to historical trends for new water service connections and customer water usage information. In addition, weather and water conservation effects on historical water usage were factored into the evaluation.

2.2 Population

The City's population was estimated using the California Department of Finance (DOF) population tables. Table 2-1 presents the estimated population from 2000-2009 for the City.

**TABLE 2-1
HESPERIA CURRENT POPULATION ESTIMATES**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Estimated Population	62,590	63,525	65,531	68,028	70,447	75,963	79,891	85,430	87,220	88,041

Source is California DOF.

Based on the City's assumptions, it is projected that their service area will grow at a rate of approximately 2.4 percent per year from 2005 through 2035. Table 2-2 presents projected population estimates calculated using information from Table 2-1 and then the Mojave Water Agency (MWA) forecast demand model to project the population to 2035.

**TABLE 2-2
HESPERIA PROJECTED POPULATION ESTIMATES**

2005	2010	2015	2020	2025	2030	2035	Annual % Change 2005- 2035
75,963	90,173	92,888	96,914	108,082	119,251	130,420	2.4

Source is MWA's 2010 demand model forecast. Please note that 2010 population is estimated from 2010 US Census.

The District is utilizing the same forecast population and demand model that MWA created and used for its 2010 Urban Water Management Plan (UWMP). The District is a purveyor within MWA's service area and supplied MWA with the necessary data input for the model. District boundaries are approximately the same as the City of Hesperia boundaries and are indicated on Figure 1-1 in the previous chapter.

2.3 Historic Water Use

Predicting future water supply requires accurate historic water use patterns and water usage records. Figure 2-1 illustrates the change in water demand since 2000.

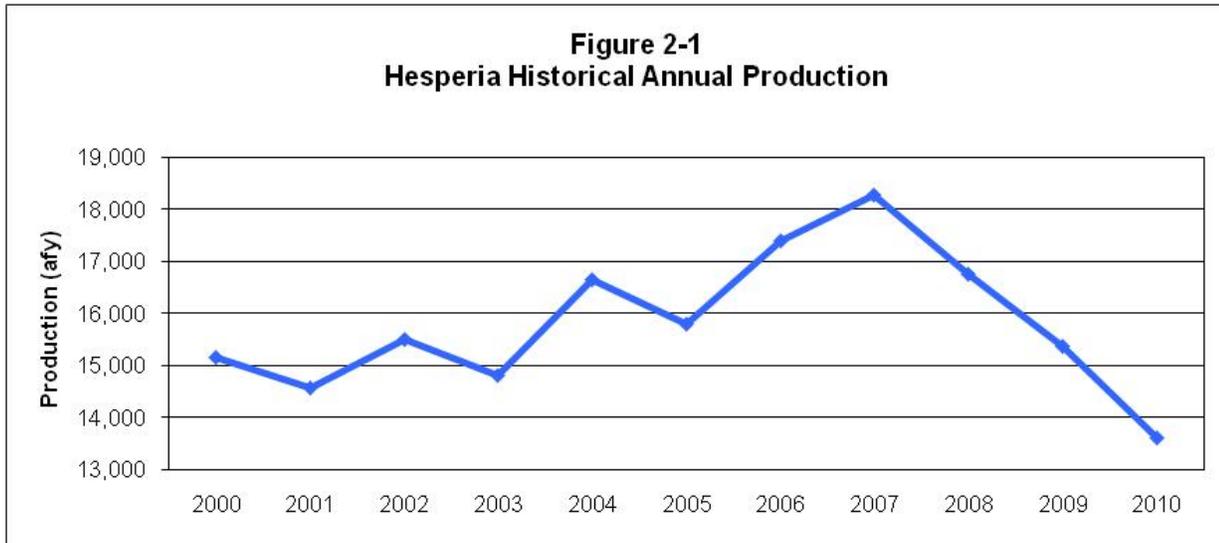


Table 2-3 presents the historical groundwater pumping quantities for the HWD from 2000 through 2010.

**TABLE 2-3
ANNUAL PRODUCTION FOR HWD (AF)**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Hesperia	15,161	14,559	15,513	14,805	16,634	15,781	17,405	18,276	16,742	15,378	13,595

Source: HWD, Monthly Well Production Data provided by Staff. Includes unaccounted for water use.

2.4 Existing and Targeted Per Capita Water Use in Hesperia Service area

2.4.1 Base Daily Per Capita Water Use for SBX7-7 Reduction

As described in Senate Bill 7 of Special Extended Session 7 (SBX7-7), it is the intent of the California legislature to increase water use efficiency and the legislature has set a goal of a 20 percent per capita reduction in urban water use statewide by 2020. The requirements of SBX7-7 apply to retail water suppliers. Consistent with SBX7-7, the 2010 UWMPs must provide an estimate of Base Daily Per Capita Water Use. This estimate utilizes information on population as well as base gross water use. For the purposes of this UWMP, population was estimated as described in Section 2.2. Base gross water use is defined as the total volume of water, treated or untreated, entering the distribution system of the District, excluding: recycled water; net volume of water placed into long-term storage; and water conveyed to another urban water supplier. This calculation of Base Daily Per Capita Water Use is limited to the District's retail service area (as described in Chapter 1).

The UWMP Act allows urban water retailers to evaluate their base daily per capita water use using a 10 or 15-year period. A 15-year base period within the range January 1, 1990 to December 31, 2010 is allowed if recycled water made up 10 percent or more of the 2008 retail water delivery. If recycled water did not make up 10 percent or more of the 2008 retail water delivery, then a retailer must use a 10-year base period within the range January 1, 1995 to December 31, 2010. Recycled water did not make up 10 percent of the 2008 delivery to the District's retail area and for this reason the Base Daily Per Capita Water Use has been based on a 10-year period. In addition, urban retailers must report daily per capita water use for a five year period within the range January 1, 2003 to December 31, 2010. This 5-year base period is compared to the Target Based Daily Per Capita Water Use to determine the minimum water use reduction requirement (this is described in more detail in the following sections). Table 2-4 reports the data used to calculate the Base Daily Per Capita Water Use in gallons per capita per day (gpcd), and the 10-year and 5-year base periods.

**TABLE 2-4
BASE DAILY PER CAPITA WATER USE**

Base Period Year Sequence	Calendar Year	Distribution System Population	Annual System Gross Water Use (AFY)	Annual Daily Per Capita Water Use (gpcd)	10-Year Average (gpcd)	5-Year Average (gpcd)
1	1995	57,826	11,912	184		
2	1996	58,424	14,003	214		
3	1997	59,332	14,599	220		
4	1998	60,099	13,284	197		
5	1999	61,007	14,689	215		
6	2000	62,590	15,161	216		
7	2001	63,525	14,559	205		
8	2002	65,531	15,513	211		
9	2003	68,028	14,805	194		
10	2004	70,447	16,634	211	206.71	
11	2005	75,963	15,781	185	206.87	
12	2006	79,981	17,405	194	204.90	
13	2007	85,430	18,276	191	202.03	195.16
14	2008	87,220	16,742	171	199.43	190.58
15	2009	88,041	15,378	156	193.53	183.91
Highest Average Period Selected					207	

Note: Shaded cells show calendar years used in selected 10-year average.

2.4.2 Urban Water Use Targets for SBX7-7 Reduction

In addition to calculating base gross water use, SBX7-7 requires that the District identify their demand reduction targets for year 2015 and 2020 by utilizing one of four options:

- Option 1. 80 percent of baseline gpcd water use (i.e., a 20 percent reduction).
- Option 2. The sum of the following performance standards: indoor residential use (provisional standard set at 55 gpcd); plus landscape use, including dedicated and residential meters or connections equivalent to the State Model Landscape Ordinance (80 percent ETo existing landscapes, 70 percent of ETo for future landscapes); plus 10 percent reduction in baseline commercial, industrial institutional use by 2020.
- Option 3. 95 percent of the applicable state hydrologic region target as set in the DWR “20x2020 Water Conservation Plan” (February, 2010) (20x2020 Plan).
- Option 4. Not applicable.

The District’s service area is within the South Lahontan Hydrologic Region (#9) as defined by DWR and this hydrologic region has been assigned a 2020 water use target of 170 gpcd per the DWR 20x2020 Plan. To comply with the SBX7-7 ruling, the District has selected Option 1 to reduce its Base Daily Per Capita Water Use by 20 percent. This results in the 2020 gpcd target for the District to be 165 gpcd as shown in Table 2-5.

**TABLE 2-5
COMPONENTS OF TARGET DAILY PER CAPITA WATER USE**

Period	Value		Unit
10-year period selected for baseline gpcd	<i>First Year</i>	1996	<i>Last Year</i> 2005
5-year period selected for maximum allowable gpcd	<i>First Year</i>	2003	<i>Last Year</i> 2007
Highest 10-year Average	207		gpcd
Highest 5-year Average	195		gpcd
Compliance Water Use Target (20% Reduction on 10yr)	165		gpcd
Maximum Allowable Water Use Target (5% Reduction 5yr)	162		gpcd
2020 Target	165		gpcd
2015 Interim Target	186		gpcd
Methodology Used	Option #1		

The District plans to meet the proposed 20x2020 water use target using the existing methods of conservation that have been working to date for the District and other methods discussed in Section 2.6.2 and Chapter 4 Recycled Water.

2.5 Projected Water Use

2.5.1 Water Use Data Collection

Current water use data were collected and identified by water use sector, to allow for detailed analysis and for making different assumptions about each type of water use for future years. Data was compiled from various sources, depending upon what was available. In addition to water use data, the number of residential service connections was collected to help the MWA model estimate service area population and per capita water use.

For production records, monthly well production data was provided by District Staff, as well as the California Department of Water Resources (DWR) annual Public Water System Statistics (PWSS) forms were used because they collect metered water deliveries by customer class and number of connections by customer class. Where DWR data were not available, water production and connection data were gathered from a combination of sources that provided a complete data set, including annual reports to the California Department of Public Health (CDPH), and surveys sent to the District by the Alliance for Water Awareness and Conservation (AWAC).

2.5.2 Demand Forecast Methodology

The District maintains historical data and works closely with property owners and developers in its service area to ensure it has an adequate water supply and the necessary infrastructure to provide water service.

Water uses were broken into six categories based on their metering records, and assumptions were made about each for projections going forward in order to be as accurate as possible. Demand projections were based largely on population growth. Please note that only the water use sectors used in HWD are discussed. The typical sectors that are not discussed include Industrial or Agricultural, which are not used by the District. All other sectors are explained and the assumptions used in the projection model are described below:

1. Single Family Residential (SFR): Single Family detached dwellings. SFR projections were made based upon gallons per capita per day (gpcd) and population (GPCD was converted to afy, multiplied by yearly SFR population to calculate demand in afy). GPCD in years 2000-08 was calculated in the model by converting total SFR demand to gallons per day (gpd) and dividing by SFR population. In 2008 the baseline was for gpcd projections and gpcd is assumed to change depending upon the level of conservation that takes place in future years. The projections were made assuming the gpcd remains at the 2008 level (135 gpcd).
2. Multi-Family Residential (MFR): Multi-Family dwellings. MFR projections used the SFR method with the MFR population calculated as total population minus SFR population.
3. Commercial/Institutional/Industrial (CII): Called Commercial/Institutional in the DWR 2009 PWSS, and defined as "Retail establishments, office buildings, laundries, schools, prisons, hospitals, dormitories, nursing homes, hotels" (not intended to include Industrial/Manufacturing). However, the District included metered industrial use in with this category, primarily because they do not separate commercial and industrial customers in their billing systems. Industry included in this category is considered

“baseline use” because it accounts primarily for smaller industries and workshops associated with the local population, and is expected to grow with population.

A linear regression method was used to determine the relationship between population growth and CII usage and to project forward using linear regression. Future CII demand is correlated to population using the following formula:

$$\text{CII demand} = -49.85 + 0.0295x \quad \text{where } x \text{ is the current population}$$

Because the growth is unpredictable, the MWA forecast model does not assume any conservation in this category.

4. Landscape Irrigation: Defined in the DWR 2009 reporting instructions as “parks, play fields, cemeteries, median strips, and golf courses.” This use category increased at a faster pace than population during the period of 2000-08, due primarily to the construction of three new parks within the District during that period. With 2008 as a baseline, Landscape Irrigation use is projected to increase in proportion with increases in population.
5. Other: Defined in the DWR 2009 PWSS as “fire suppression, street cleaning, construction meters, temporary meters.” These uses are assumed to grow with population. Construction water is likely to have varied significantly over the 2000-08 period due to changing rates of growth, so “Other” use is projected to increase in proportion with increases in population based upon the average per-capita use for the period of 2000-08.
6. Unaccounted: The District does not have any of this type of meter but the unaccounted for water is included in the “other” category.

2.5.3 Water Supply

The District currently has a single source of water supply – local groundwater from the Mojave River Groundwater Basin. Imported State Water Project (SWP) water via MWA is used to recharge the Alto basin and then it is pumped out by the District. In the projection model, SWP supply is expressed as an annual average, although this source varies significantly from year to year. SWP imports recharge the groundwater basins.

Table 2-6 summarizes the District’s projected water demands through 2035, with and without conservation using the SBX7-7 requirements discussed previously in Section 2.4. The table shows that the District’s planned recycled water will offset the necessary reduction in demand due to the SBX7-7 requirements.

**TABLE 2-6
PROJECTED WATER DEMANDS**

	2005	2010	2015	2020	2025	2030	2035
Water Demands ^(a) (AF)	15,781	13,595	17,660	18,429	20,558	22,688	24,817
GPCD ^(b) (No Conservation)	185	135	170	170	170	170	170
SBX7-7 Req'd GPCD ^(c)	N/A	207	186	165	165	165	165
Reduction from Recycled Water ^(d) (AF)	N/A	0	0	463	522	576	630
SBX7-7 Savings ^(e) (AF)	N/A	0	0	0	0	0	0
Water Demands w/ Conservation ^(f) (AF)	N/A	13,595	17,660	18,429	20,558	22,688	24,817

Source is water production report from the District in calendar years and MWA's 2010 demand model forecast.

Notes:

- (a) District's demand projections without conservation.
- (b) Calculated using the estimated population from Table 2-2.
- (c) See Table 2-5.
- (d) SBX7-7 allows for the use of recycled water to be used to meet reduction targets. See Chapter 4 for details.
- (e) Calculated as the difference between the projected gpcd without conservation and the SBX7-7 required gpcd times the population. Plans to meet using recycled water.
- (f) District's demand projections with conservation using the SBX7-7 requirements.

Table 2-7 presents the current and projected water deliveries by customer type for the District.

**TABLE 2-7
CURRENT AND PROJECTED WATER DELIVERIES^(a) (BY CUSTOMER TYPE) (AF)**

Water Use Sector	2005	2010	2015	2020	2025	2030	2035
Metered Single-Family	12,605	11,026	14,032	14,641	16,327	18,015	19,702
Metered Multi-Family	1,023	443	456	476	531	586	641
Commercial/Instiit/Indust	1,756	1,785	2,690	2,809	3,139	3,468	3,797
Landscape Irrigation	76	280	289	301	336	370	405
Other ⁽²⁾	321	61	193	202	225	249	272
Unaccounted For/System Losses	0	0	0	0	0	0	0
Total	15,781	13,595	17,660	18,429	20,558	22,688	24,817

Source: DWR annual PWSS data were used, unless otherwise noted. Data is in calendar year.

Notes:

- (a) Assumes the SBX7-7 target reductions for 2015 and 2020 are being met by recycled water; therefore, demands with and without conservation are the same.
- (b) Includes unaccounted for/system losses.

2.5.3.1 Low Income Projected Water Demands

Senate Bill 1087 requires that water use projections of an UWMP include the projected water use for single-family and multi-family residential housing for lower income households as identified in the housing element of any city, county, or city and county in the service area of the supplier. The HWD serves the City of Hesperia.

The City of Hesperia's (City) General Plan Update Final Draft 2010 (2010 Update), adopted September 2010, is currently available on the City's website. The City's 2010 Update does project the number of low-income households to 2014; the only locations provided are specific plans. These specific plans were master-planned by the developers/property owners and have been approved for the specific number of units established in the plans. As part of the adoption of these specific plans, the availability of infrastructure and water/sewer services was assessed. Overall, approximately 43 percent of households in Hesperia are extremely low, very low, and low income groups combined in the City.

The County of San Bernardino's (County) 2007 General Plan last updated its housing element in April 12, 2007. The County's housing element identifies the number (up to the year 2008) and specifies general locations of low income households in the County. However, the housing element does not project the number or location of low-income households in the future. For this reason, it is not possible to project water use for lower income households separate from overall residential demand. However, the County will not deny or condition approval of water services, or reduce the amount of services applied for by a proposed development that includes housing units affordable to lower income households unless one of the following occurs:

- the County specifically finds that it does not have sufficient water supply,
- the County is subject to a compliance order issued by the State Department of Health Services that prohibits new water connections, or
- the applicant has failed to agree to reasonable terms and conditions relating to the provision of services.

2.6 Other Factors Affecting Water Usage

A major factor that affects water usage is weather. Historically, when the weather is hot and dry, water usage increases. The amount of increase varies according to the number of consecutive years of hot, dry weather and the conservation activities imposed. During cool, wet years, historical water usage has decreased, reflecting less water usage for exterior landscaping. This factor is discussed below in detail.

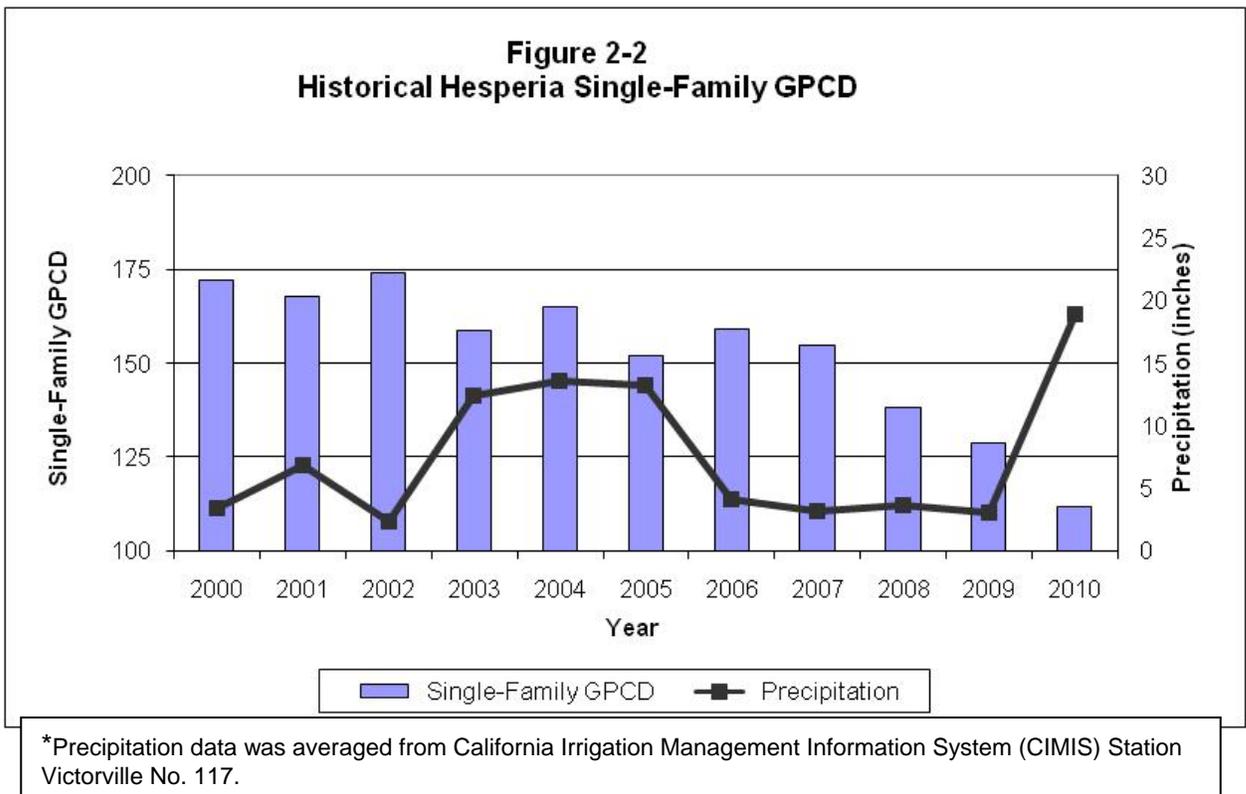
2.6.1 Weather Effects on Water Usage

California faces the prospect of significant water management challenges due to a variety of issues including population growth, regulatory restrictions and climate change. Climate change is of special concern because of the range of possibilities and their potential impacts on essential operations, particularly operations of the State Water Project. The most likely scenarios involve accelerated sea level rise and increased temperatures, which will reduce the Sierra Nevada snowpack and shift more runoff to winter months. These changes can cause major problems for the maintenance of the present water export system through the fragile levee system of the Sacramento-San Joaquin Delta. The other much-discussed climate

scenario or impact is an increase in precipitation variability, with more extreme drought and flood events posing additional challenges to water managers².

These changes to the SWP water supply would impact the District by affecting how much SWP water is available, when it is available, how it can be captured and how it is used due to changes in priorities. Expected impacts to the SWP imported water supply include pumping less water south of the Delta due to reduced supply, and pumping more local groundwater to augment reductions in surface water supplies and reliability issues since groundwater is a more reliable source of water.

Historically, the District’s single-family sector use has fluctuated from 112 to 174 gpcd, as shown on Figure 2-2. While historically this variation in range of water use was primarily due to seasonal weather variations, with the unusual economic events of recent years and the effects of conservation, the weather may not be the only impact on the drop in usage for the single family user.



² Final California Water Plan Update 2009 Integrate Water Management: Bulletin 160.

2.6.2 Conservation Effects on Water Usage

In recent years, water conservation has become an increasingly important factor in water supply planning in California. Since the 2005 UWMP there have been a number of regulatory changes related to conservation including new standards for plumbing fixtures, a new landscape ordinance, a state universal retrofit ordinance, new Green Building standards, demand reduction goals and more.

In 2003, the HWD, MWA, and other water purveyors in the Mojave service area formed the Alliance for Water Awareness and Conservation (AWAC). The mission of the AWAC, a coalition of 25 regional organizations, is to promote the efficient use of water and increase communities' awareness of conservation as an important tool to help ensure an adequate water supply. The AWAC have developed water conservation measures that include public information and education programs and have set a regional water use reduction goal of 15 percent gross per capita by 2015.

Section 3: Water Resources

3.1 Overview

This section describes the water resources available to the Hesperia Water District (HWD) for the 25-year period covered by the Plan. These are summarized in Table 3-1 and discussed in more detail below. Both currently available and planned supplies are discussed.

**TABLE 3-1
SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES (AFY)**

Water Supply Source	2010	2015	2020	2025	2030	2035
<i>Existing Local Supplies</i>						
Groundwater from Mojave GW Basin ^(a,b)	13,595	17,100	17,309	18,878	20,448	22,017
Total Existing Supplies	13,595	17,100	17,309	18,878	20,448	22,017
<i>Planned Supplies</i>						
Recycled Water Projects ^(c)	0	560	1,120	1,680	2,240	2,800
Total Supplies	13,595	17,660	18,429	20,558	22,688	24,817
Total Estimated Demands^(d)	13,595	17,660	18,429	20,558	22,688	24,817

Notes:

- (a) Supply is pumped from Mojave River Groundwater Basin via 18 wells.
- (b) Assumes projects detailed in District's 2008 Water Master Plan will be constructed as planned.
- (c) Planned recycled water facilities per discussions with District staff and VVWRA staff. See Chapter 4 Recycled Water for details.
- (d) See Chapter 2 Water Use, Table 2-7.

The term "dry" is used throughout this chapter and in subsequent chapters concerning water resources and reliability as a measure of supply availability. As used in this Plan, dry years are those years when supplies are the lowest, which occurs primarily when precipitation is lower than the long-term average precipitation. The impact of low precipitation in a given year on a particular supply may differ based on how low the precipitation is, or whether the year follows a high-precipitation year or another low-precipitation year. For the Mojave Water Agency (MWA), which is the wholesaler of imported State Water Project (SWP) for HWD, a low-precipitation year may or may not affect supplies, depending on how much water is in SWP storage at the beginning of the year. Also, dry conditions can differ geographically. For example, a dry year can be local to the HWD service area (thereby affecting local groundwater replenishment and production), local to northern California (thereby affecting SWP water deliveries), or statewide (thereby affecting both local groundwater and the SWP). When the term "dry" is used in this Plan, statewide drought conditions are assumed, affecting both local groundwater and SWP supplies at the same time.

The HWD currently has one source of water supply – local groundwater from the Mojave River Groundwater Basin. However, recycled water is planned in the future as discussed in Chapter 4 Recycled Water.

3.2 Local Water Supplies

This section discusses HWD local supply of water, which comprises solely of groundwater from the Mojave River Groundwater Basin. The Mojave Water Agency (MWA) is the Watermaster for this adjudicated groundwater basin.

3.2.1 Groundwater

The District's municipal water system extracts all of its water supply from the underground aquifers through 18 active groundwater wells located throughout the District. Water is conveyed from the wells to the consumers via a distribution system with pipe sizes ranging between 4 and 24 inches in diameter. The HWD currently maintains 14 storage reservoirs within the distribution system with a total capacity of 64.5 mg.

HWD obtains groundwater from the Alto subarea of the Mojave River Groundwater Basin. The Mojave River Groundwater Basin overlies a broad hydrologic region also defined in DWR Bulletin 118-03 as the South Lahontan (region 6) hydrologic region and is listed in Table 3-2. Figure 3-1 shows the DWR groundwater basins and the MWA adjudicated groundwater basin boundaries. Figure 3-2 shows the groundwater basins within the HWD service area boundary.

**TABLE 3-2
DWR GROUNDWATER BASINS**

DWR Basin	Groundwater Basin	Budget Type^(a)
6-41	Middle Mojave River Valley	A
6-42	Upper Mojave River Valley	A

Source: DWR

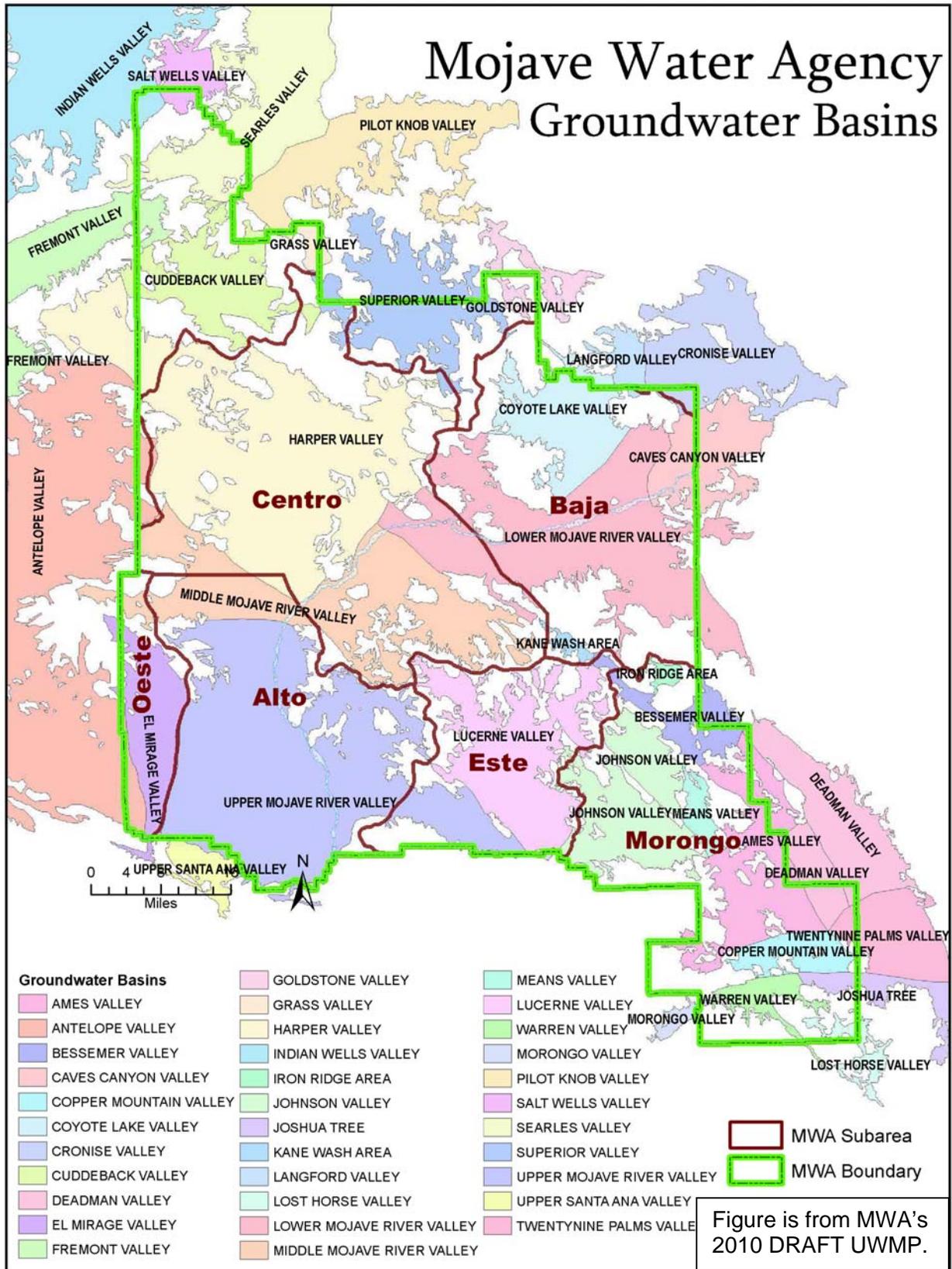
Note:

(a) Type A – either a groundwater budget or model exists, or actual extraction data is available.

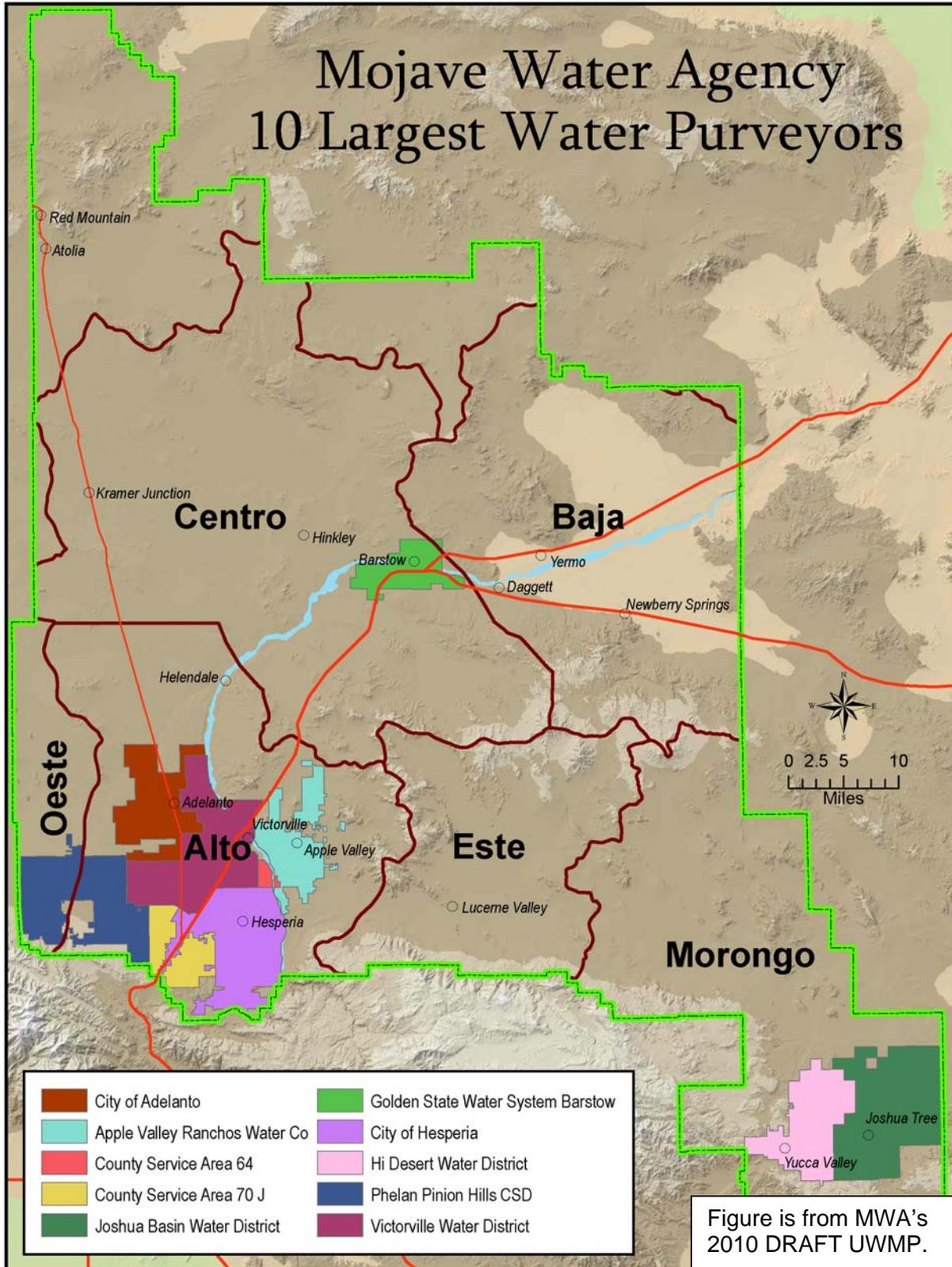
3.2.1.1 Mojave River Groundwater Basin

This section presents information about HWD's groundwater supply from the Mojave River Groundwater Basin. Also included is a discussion of the objectives from the MWA's 2004 Regional Water Management Plan (Regional WMP), adopted on February 24, 2005 which also serves as the Ground Water Management Plan (GWMP). The HWD participated in and accepts MWA's 2004 Regional WMP (and GWMP).

**FIGURE 3-1
DWR GROUNDWATER BASINS WITHIN MWA**



**FIGURE 3-2
MWA WATER PURVEYOR BOUNDARIES**



3.2.1.1.1 Groundwater Basin Description

The groundwater basin within the HWD service area is the Mojave River Groundwater Basin. The entire basin encompasses a total of 1,400 square miles and has an estimate total water storage capacity of nearly 5 million acre-feet (MAF) (Bookman-Edmonston Engineering, Inc., 1994). For the purposes of this report, the large groundwater basin area is referred to as the Mojave Basin Area. The Mojave Basin Area groundwater basin has been further divided into subareas for groundwater management and/or adjudication purposes. Subareas within the Mojave River Groundwater Basin include Oeste, Alto, Este, Centro and Baja as defined in the Mojave Basin Judgment³ (Appendix C for text of the Judgment) and shown on Figure 3-1. HWD overlies the Alto subarea, which is in the southern portion of the Mojave Basin Area.

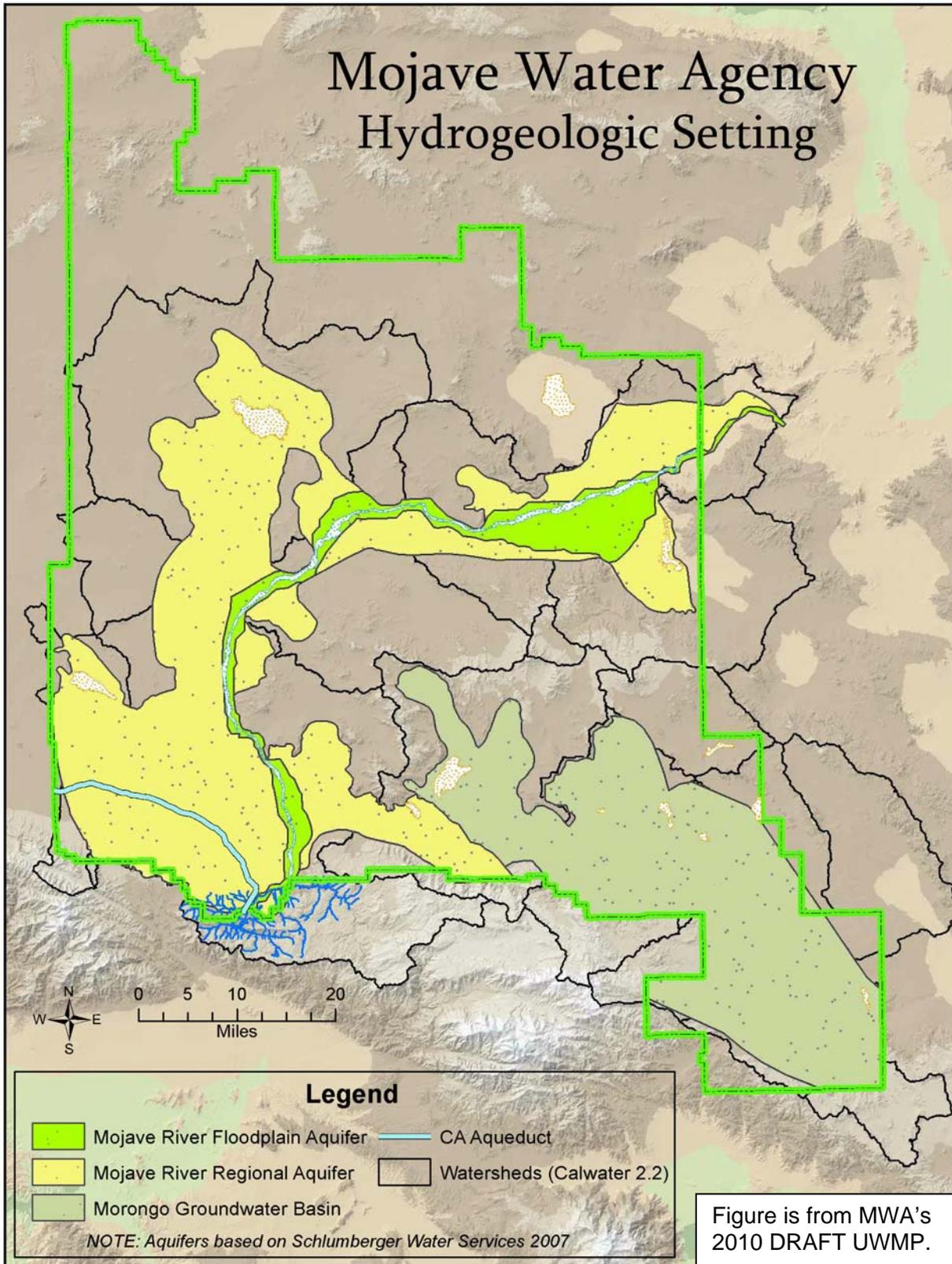
In the Mojave River Groundwater Basin, the Mojave River is the largest stream, originating near the Cajon Pass - a low-elevation gap in the San Bernardino Mountains. With the exception of small streams in the San Gabriel and the San Bernardino Mountains and short reaches of the Mojave River, there are no perennial streams in the Mojave Basin Area. Prior to ground-water development, the Mojave River flowed at a series of discharge areas near Victorville, at Camp Cady, at Afton Canyon, and at other areas where faults cause groundwater to discharge at land surface, such as near the Helendale or the Waterman Faults. Under present-day conditions the Mojave River does not flow perennially except at the Narrows near Victorville, downstream from the Victor Valley Wastewater Reclamation Authority (VWVRA) Regional Wastewater Treatment Plant (RWWTTP) (an area known locally as the "Transition Zone"), and near Afton Canyon.

The Mojave River Groundwater Basin Area is essentially a closed basin – very little groundwater enters or exits the basin. However, within the basin groundwater movement occurs between the different subareas, as well as groundwater-surface water and groundwater-atmosphere interchanges. Groundwater is recharged into the basin predominantly by infiltration of water from the Mojave River, which accounts for approximately 80 percent of the total basin natural recharge. Other sources of recharge include infiltration of storm runoff from the mountains and recharge from human activities such as irrigation return flows, wastewater discharge, and enhanced recharge with imported water. Over 90 percent of the basin groundwater recharge originates in the San Gabriel and San Bernardino Mountains. Groundwater is discharged from the basin primarily by well pumping, evaporation through soil, transpiration by plants, seepage into dry lakes where accumulated water evaporates, and seepage into the Mojave River.

Recent investigations by the MWA, US Geological Survey (USGS), and others have resulted in an improved understanding the geology and hydrogeology of the Mojave Basin Area. Specifically, a more refined examination of the hydrostratigraphy has allowed for differentiation between the more permeable Floodplain Aquifer that has a limited extent along the Mojave River and the more extensive but less permeable Regional Aquifer. The aerial extent of the Floodplain and Regional aquifers is shown on Figure 3-3. In the Mojave Basin Area, Alto, Centro, and Baja subareas contain both the Floodplain Aquifer and the Regional Aquifer while Oeste and Este subareas only contain the Regional Aquifer.

³ Mojave Basin Area Judgment, 1996. *Judgment After Trial, City of Barstow et al. Vs. City of Adelanto et al.* Superior Court Case No. 208568, Riverside County, CA.

**FIGURE 3-3
HYDROGEOLOGIC SETTING**



The Floodplain Aquifer is composed of sand and gravel weathered from granitic rocks of the San Gabriel and the San Bernardino Mountains and deposited in a fluvial depositional environment. These highly permeable sediments can yield large quantities of water to wells. The Floodplain Aquifer is directly recharged by infiltration of surface flows from the Mojave River during the winter rainy season (Figure 3-3). Recharge is greater near the mountain front where surface flows are more frequent.

The Regional Aquifer underlies and surrounds the Floodplain Aquifer with interconnected alluvial fan and basin fill deposits that drain toward the Mojave River (Figure 3-3). In some areas, permeable deposits from the ancestral Mojave River are present, but overall the aquifer is much less permeable than the Floodplain Aquifer. The Regional Aquifer is generally recharged by groundwater movement from the Floodplain Aquifer to the Regional Aquifer, infiltration of runoff from the higher altitudes of the San Gabriel and San Bernardino Mountains, and smaller amounts of runoff from local intermittent streams and washes.

Prior to recent population growth, most of the groundwater production occurred in the Floodplain Aquifer. Groundwater production was initially developed along the Mojave River in the early 1900s. In the mid-1950's, groundwater production had increased to about 190,000 AF, with most of the production still occurring along the river. By 1994, about half of the total basin production came from wells located away from the Mojave River in the Regional Aquifer. The increase in water production and the re-distribution of pumping in the basin have significantly influenced the interaction between the Floodplain and Regional Aquifers. Prior to development in the area, groundwater flowed primarily from the Regional Aquifer into the Floodplain Aquifer. However, vertical groundwater gradients have been reversed in recent years, and downward flow from the Floodplain Aquifer is currently the primary recharge mechanism for the Regional Aquifer.

Essentially all water supplies within MWA are pumped from the local groundwater basins and groundwater levels generally have been declining for the past 50 years or more. Adjudication proceedings were initiated due to concerns that rapid population growth would lead to further overdraft. The resulting Mojave Basin Area Judgment requires that additional surface water be imported to help balance the basins.

Alto subarea water levels near the Mojave River are relatively stable exhibiting seasonal fluctuations with rising levels in winter and declining levels in summer. It is expected that under current pumping conditions and long-term average flows in the river, water levels in the Floodplain Aquifer will generally remain stable. Water levels in the western portion of Alto in the Regional Aquifer exhibit declines consistent with heavy pumping and limited local recharge. Water levels in the eastern portion of Alto indicate similar trends although to a lesser extent; most likely due to limited pumping in the regional aquifer east of the river and possibly higher localized septic return flow due to the lack of sewers in some areas. Continued pumping in depleted areas of the Regional Aquifer may result in long-term local negative impacts such as declining yields and water quality problems. As a whole, the Alto subarea appears to be in regional balance although portions of the subarea have shown continued historical declines.

3.2.1.1.2 Adopted Groundwater Management Plan

In February 2005, MWA formally adopted its 2004 Regional Water Management Plan Update (Regional WMP), which also serves as the Ground Water Management Plan (GWMP) (Appendix D). The 2004 Regional WMP both complements and formalizes a number of existing

water supply and water resource planning and management activities in the MWA service area that overlies the Alto subarea of the Mojave River Groundwater Basin and several groundwater basins, as defined by DWR in Bulletin 118.

3.2.1.1.3 Available Groundwater Supplies

Recent and projected groundwater pumping within the HWD service area of the Mojave Basin Area is summarized in Tables 3-4 and 3-5, respectively. In the Mojave Basin Area, Base Annual Production (BAP) rights were assigned by the Mojave Basin Area Judgment to each producer using 10 afy or more, based on historical production. BAP is defined as the producer's highest annual use verified for the five-year base period from 1986-90. Parties to the Judgment are assigned a variable Free Production Allowance (FPA) by the Watermaster, which is a percentage of BAP set for each subarea for each year. The allocated FPA represents each producer's share of the water supply available for that subarea. This FPA is reduced or "ramped-down" over time until total FPA comes into balance with available supplies.

Production Safe Yield (PSY) is also determined for each subarea within the Mojave River Groundwater Basin for each year. The PSY in each subarea is assumed to equal the average net natural water supply plus the expected return flow from the previous year's water production. Exhibit H of the Judgment requires that in the event the FPA exceeds the estimated PSY by five percent or more of BAP, Watermaster recommends a reduction in FPA equal to, but not more than, a full five percent of the aggregate subarea BAP. Any water user that pumps more than their FPA in any year is required to buy "Replacement Water" equal to the amount of production in excess of the FPA. Replacement Obligations can be satisfied either by paying the Mojave Basin Area Watermaster to purchase imported water from MWA or by temporarily transferring unused FPA within that subarea from another party to the Judgment.

Under the Judgment's terms, HWD may produce as much groundwater as needed to satisfy its customer demands within its service area. HWD has been assigned Base Annual Production (BAP) rights of 13,688 afy, as summarized in Table 3-3. HWD is located within the Alto Subarea and has a projected FPA of 60 percent (8,213 afy) from 2010 to 2035.

**TABLE 3-3
GROUNDWATER PUMPING RIGHTS**

Entity	BAP ⁽¹⁾ (afy)	HWD Service Area	
		BAP (afy)	2005 – 2010 FPA ⁽²⁾ (afy)
Alto Subarea	116,412	13,688	8,213

Source is Annual Watermaster Reports.

1. BAP – Base Annual Production (adjudicated amount).

2. FPA – Free Production Allocation (currently 60 percent of BAP for municipal and industrial).

Recent historical and projected groundwater pumping for the HWD service area from the Alto subarea of the Mojave River Groundwater Basin is summarized in Tables 3-4 and 3-5.

**TABLE 3-4
HISTORICAL HWD GROUNDWATER PRODUCTION (AFY)**

	2005	2006	2007	2008	2009
HWD	15,781	17,405	18,276	16,742	15,378

Source: Table 2-3 of Chapter 2.

**TABLE 3-5
HWD PROJECTED GROUNDWATER PRODUCTION (AFY)**

	2010	2015	2020	2025	2030	2035
HWD	13,595	17,660	18,429	20,558	22,688	24,817

Source: Table 3-1. 2010 data is historical.

Table 3-6 summarizes the net average annual water supply estimates for HWD. There are no direct deliveries of imported water supply for the HWD. However, the HWD relies on water imported by MWA through the SWP to replenish the local groundwater. The long-term average natural supply is shown under single- and multiple-dry years as well as average years because the long-term average includes dry periods, and any single or multiple-year dry cycle does not impact the long-term yield of the basin.

**TABLE 3-6
HWD GROUNDWATER BASIN SUPPLY RELIABILITY**

Anticipated Supply	Normal Year^(a) (afy)	Single-Dry Water Year (afy)	Multiple Dry Water Year (afy)
HWD	24,817	24,817	24,817

Source:

(a) Table 3-5.

Adequacy of Supply

Essentially all of the water used within the HWD is supplied by pumping groundwater. The physical solution to the Mojave Basin Judgment sets limits on the amount of groundwater production that can occur in each subarea without incurring an obligation to buy imported water. Subareas upstream have an annual obligation to provide specific inflows to subareas downstream based on long-term averages between 1931 and 1990.

Because water use within the HWD service area is supplied entirely by groundwater, HWD does not have any inconsistent water sources that cause reduced deliveries to users within the service area. Natural supply estimates are based on the long-term averages which account for inconsistency in supplies under differing hydrologic conditions (i.e., historic periods of drought are included in the long-term average). A potential exception is any area where water quality could limit use as a potable supply. Wellhead treatment or provision of an alternative supply would be planned for these areas.

Sustainability

HWD is allowed to produce as much water as it needs annually to meet its requirements, subject only to compliance with the physical solution set forth in the Mojave Basin Area Judgment. An underlying assumption of the Judgment is that sufficient water will be made available to meet the needs of the Basin in the future from a combination of natural supply, imported water, water conservation, water reuse and transfers of FPA among parties.

The Watermaster for the Mojave River Groundwater Basin, MWA, is actively operating recharge sites for conjunctive use along the Mojave River Pipeline. Recharge sites including Hodge, Lenwood, Daggett, Newberry Springs, and Rock Springs Outlet provide MWA with the ability to recharge State Water Project (SWP) water into subareas where replacement water is purchased. These sites also provide MWA with the ability to bank excess SWP water as available.

3.2.2 Potential Supply Inconsistency

Because water use within the HWD service area is supplied entirely by groundwater, HWD does not have any inconsistent water sources that cause reduced deliveries to users within its service area. Potential exceptions are areas where water quality could limit use as a potable supply. While many of the sources that recharge the Mojave River groundwater basin have high annual variability, including flows on the Mojave River and supplies from the State Water Project, the groundwater basins used within the HWD service area are sufficiently large to allow for continued water use during dry periods with only a temporary decline in groundwater levels (MWA, 2004).

3.3 Transfers, Exchanges and Groundwater Banking Programs

In addition to groundwater, HWD and MWA are currently exploring opportunities to purchase water supplies from other water agencies and sources. Transfers, exchanges, and groundwater banking programs, such as those described below, are important elements to enhancing the long-term reliability of the total mix of supplies currently available to meet the needs.

3.3.1 Transfers and Exchanges

An opportunity available to HWD to increase water supplies is to participate in voluntary water transfer programs. Since the drought of 1987-1992, the concept of water transfer has evolved into a viable supplemental source to improve supply reliability. The initial concept for water transfers was codified into law in 1986 when the California Legislature adopted the "Katz" Law (California Water Code, Sections 1810-1814) and the Costa-Isenberg Water Transfer Law of 1986 (California Water Code, Sections 470, 475, 480-483). These laws help define parameters for water transfers and set up a variety of approaches through which water or water rights can be transferred among individuals or agencies.

According to the California Water Plan Update 2009, up to 27 MAF per year of water are delivered for agricultural use every year. Over half of this water use is in the Central Valley, and much of it is delivered by, or adjacent to, SWP and Central Valley Project (CVP) conveyance facilities. This proximity to existing water conveyance facilities could allow for the voluntary transfer of water to many urban areas, including HWD, via the MWA and imported SWP. Such

water transfers can involve water sales, conjunctive use and groundwater substitution, and water sharing and usually occur as a form of spot, option, or core transfers agreement. The costs of a water transfer would vary depending on the type, term, and location of the transfer. The most likely voluntary water transfer programs would probably involve the Sacramento or southern San Joaquin Valley areas.

One of the most important aspects of any resource planning process is flexibility. A flexible strategy minimizes unnecessary or redundant investments (or stranded costs). The voluntary purchase of water between willing sellers and buyers can be an effective means of achieving flexibility. However, not all water transfers have the same effectiveness in meeting resource needs. Through the resource planning process and ultimate implementation, several different types of water transfers could be undertaken.

3.3.2 Opportunities for Short and Long-Term Transfers and Exchanges

Since HWD is a retailer within the MWA service area, its transfer and exchange opportunities are somewhat limited. However, MWA has, on behalf of HWD and all its retailers, participated in significant SWP Table A transfers and exchanges, thus augmenting local water supplies. It is assumed that MWA will continue to participate in such programs.

3.3.3 Groundwater Banking Programs

With recent developments in conjunctive use and groundwater banking, significant opportunities exist to improve water supply reliability for HWD. Conjunctive use is the coordinated operation of multiple water supplies to achieve improved supply reliability. Most conjunctive use concepts are based on storing groundwater supplies in times of surplus for use during dry periods and drought when surface water supplies would likely be reduced.

Groundwater banking programs involve storing available SWP surface water supplies during wet years in groundwater basins. Water would be stored either directly by surface spreading or injection, or indirectly by supplying surface water to farmers for their use in lieu of their intended groundwater pumping. During water shortages, the stored water could be pumped out and conveyed through the California Aqueduct through MWA to HWD as the banking partner. Several conjunctive use and groundwater banking opportunities are available to HWD.

MWA has its own conjunctive use program to take advantage of the fact that the available MWA SWP supply on average is still greater than the demand in the service area. MWA is able to store this water for future use when SWP supplies are not available. This activity also allows MWA to take advantage of wet year supplies because of the abundant groundwater storage available in the Basins. In 2006, MWA adopted a "Water Banking Policy" to guide the Agency in determining where water will be "banked." Banking targets (maximums) were established for each subarea where banking may occur under this Policy and to prioritize where available water will be banked. The targets are generally based on the calculation of three times the non-agricultural water demand (production) within a subarea.

3.4 Development of Desalination

The California UWMP Act requires a discussion of potential opportunities for use of desalinated water (Water Code Section 10631[i]). HWD has evaluated opportunities for using desalinated water in future supply options. However, at this time, none of the opportunities is practical or economically feasible for HWD, and HWD has no current plans to pursue them. Therefore, desalinated supplies are not included in the supply summaries in this Plan. However, should a future opportunity emerge for HWD to consider development of desalination, these potential future supply opportunities are described in the following section, including opportunities for desalination of brackish water, groundwater, and seawater.

3.4.1 Opportunities for Brackish Water and/or Groundwater Desalination

As discussed in Chapter 5, the groundwater supplies in the HWD service area are not considered brackish in nature, and desalination is not required. There are brackish supplies near the dry lakes but it is not practical to pump, treat and potentially induce migration of better quality water to the dry lake areas and potentially cause subsidence. However, HWD and MWA could team up with other SWP contractors and provide financial assistance in construction of other regional groundwater desalination facilities in exchange for SWP supplies. The desalinated water would be supplied to users in communities near the desalination plant, and a similar amount of SWP supplies would be exchanged and allocated to HWD/MWA from the SWP contractor. A list summarizing the groundwater desalination plans of other SWP contractors is not available; however, HWD would begin this planning effort in coordination with MWA should the need arise.

In addition, should an opportunity emerge with a local agency other than an SWP contractor, an exchange of SWP deliveries would most likely involve a third party, such as MWA. Most local groundwater desalination facilities would be projects implemented by retailers of SWP contractors and, if an exchange program was implemented, would involve coordination and wheeling of water through MWA's facilities to HWD.

3.4.2 Opportunities for Seawater Desalination

Because the HWD is not in a coastal area, it is neither practical nor economically feasible for HWD to implement a seawater desalination program. However, similar to the brackish water and groundwater desalination opportunities described above, HWD could provide financial assistance to other retailers and/or team with MWA to provide financial assistance in the construction of other purveyor's seawater desalination facilities in exchange for SWP supplies.

Section 4: Recycled Water

4.1 Overview

This section of the Plan describes the existing and future recycled water opportunities available to the Hesperia Water District (HWD) service area. The description includes estimates of potential supply and demand for 2010 to 2035 in five year increments. The Victor Valley Wastewater Reclamation Authority (VWVRA) is a Joint Powers Authority that provides treatment and distribution of recycled water for its member entities, which include the Town of Apple Valley, the cities of Hesperia and Victorville, the Southern California Logistics Airport, and San Bernardino County Services Areas 42 (Oro Grande) and 64 (Spring Valley Lake). This chapter identifies existing and projected wastewater flows by the VWVRA within Hesperia Water District (HWD) and the City of Hesperia (City) service area, and potential opportunities for the use of recycled water.

4.2 Recycled Water Planning

The City's wastewater is treated by the VWVRA, which shares a common interest in maximizing the beneficial uses of treated wastewater. Since the City of Hesperia is also the local planning agency with an adopted general land use plan, coordination is necessary between the City and HWD so the location of future growth is known and accommodations provided.

Currently the City has prepared a 2008 Wastewater Master Plan (WWMP) that serves to identify plans for collection system and wastewater treatment plant expansions. The City also has a 2008 Recycled Water Master Plan (RWMP) that serves to identify the plans to implement a recycled water program within its service area.

4.3 Potential Sources of Recycled Wastewater

The City owns, operates, and maintains a wastewater collection system, including approximately 60 miles of gravity sewer pipe, 882 manholes, 51 cleanouts, 1 operational lift station, and 1 force main. The primary sources of wastewater in the City's system include sanitary flow from residential, commercial, and industrial sources. The City's sewer system connects to VWVRA's 3-mile interceptor that runs along the northeast boundary of the City, and ultimately flows to the Regional Wastewater Treatment Plant (RWWTP) that is owned and operated by the VWVRA. The City has a total of six outlets to the VWVRA interceptor.

VWVRA was originally formed by the Mojave Water Agency to meet the requirements of the Federal Clean Water Act and provide wastewater treatment for the growing area. The original treatment plant, with supporting pipelines and infrastructure, began operating in 1981, at the time providing tertiary level treatment for up to 4.5 million gallons per day (mgd). It currently has a total capacity of 18.0 mgd.

According to the City's 2008 WWMP, approximately 5 percent of the geographic area studied in the Master Plan is currently served by the City's sewers which ultimately flow to the VWVRA RWWTP. The remaining area is either undeveloped or served by on-site systems (septic tanks).

The City of Hesperia has future plans to expand its sewer collection system and, in conjunction with VVWRA, construct sub-regional wastewater treatment plants to treat the City's future wastewater flows and create a supply source for its planned recycled water system.

4.3.1 Existing VVWRA Wastewater Treatment Facilities

VVWRA conveys wastewater using 41.5 miles of interceptor sewer and two pump stations to its RWWTP, in the City of Victorville, approximately 15 miles north of the northern City boundary. Due to the long distance, the City of Hesperia does not readily have access to recycled water from this RWWTP.

Approximately 12.6 mgd was treated at the VVWRA RWWTP facility in 2009. Processes employed include screening, grit removal, primary clarification, biological oxidation of wastes with complete nitrification and partial denitrification, secondary clarification, coagulation, flocculation, filtration, and disinfection. Dissolved air flotation thickening and anaerobic digestion stabilizes biosolids that are then dewatered and dried prior to disposal via direct agricultural land application or by mixing with finished compost for agricultural markets.

The treated wastewater effluent is then discharged directly into the Mojave River channel downstream from the Lower Narrows or percolated into ponds in the Floodplain Aquifer.

In 2002, VVWRA submitted an application to the Lahontan Regional Water Quality Control Board (Regional Board) for a master water recycling permit in order to use up to 1,680 acre-feet per year (afy) of recycled water for irrigation of the Westwinds Golf Course at the SCLA. At the time, the Golf Course utilized potable groundwater from the underlying Mojave River aquifer. The California Department of Fish and Game (DFG) objected to the use of recycled water at the golf course as it would reduce stream flow, decrease the amount of flow necessary to maintain riparian habitat in the Alto Transition Zone and decrease the amount of water that could be extracted from the overdrafted Mojave River Groundwater Basin. In June 2003, the Regional Board approved Order R6V-2003-028, Water Recycling Requirements for VVWRA and Victorville Water District, Westwinds Golf Course.

In order to assure the viability of the riparian area in the Transition Zone, the DFG and VVWRA entered into a Memorandum of Understanding (MOU VVWRA) regarding VVWRA current and future discharges into the Mojave River Transition Zone. The general terms of the MOU VVWRA are that DFG will not appeal or challenge the Regional Board's Order. In turn, VVWRA will continue to discharge 9,000 acre-feet (af) annually from the RWWTP and will also discharge not less than 20 percent of the amount of treated wastewater resulting from any increases in the amount of daily influent wastewater flow to the VVWRA RWWTP.

The RWWTP is currently capable of treating a portion of the flow to a tertiary level and the remaining flow to a secondary level for percolation. A majority of the tertiary treated wastewater is discharged into the Mojave River Basin and a smaller amount is currently used to irrigate landscaping at the treatment plant and the nearby Westwinds Golf Course in Victorville. The capacity of the RWWTP was increased to its current 18.0 mgd capacity in 2009. Also, Regional Board Order R6V-2008-004 along with the National Pollutant Discharge Elimination System (NPDES) Permit No. CA 0102822 allows the RWWTP to discharge up to 14.0 mgd of tertiary-treated effluent to surface water, which is the Mojave River.

4.3.2 City of Hesperia

The City's projected average wastewater flows are summarized in Table 4-1.

**TABLE 4-1
PROJECTED AVERAGE WASTEWATER FLOW**

Year	2010	2015	2020	2025	2030	2035
Wastewater Flow (mgd) ^(a)	2.10	4.26	6.80	9.10	10.80	11.88

Note:

- (a) Due to the economic downturn, the City has been in a zero growth mode the last 3 to 4 years. Therefore, the City's wastewater flows have been revised downward since the 2008 Wastewater Master Plan was prepared and are reflected in this table, per direction from City staff. Table excludes wastewater flow from North Summit Valley and Rancho Las Flores and Summit Valley Ranch Developments.

4.3.3 Planned VVWRA Improvements and Expansions

Since 2005, VVWRA has violated water discharge requirements as set forth by the Regional Board. Specifically, in February 2008, the Regional Board issued Cease and Desist Order R6V-2008-005 due to VVWRA discharge affecting the water quality for municipal and domestic supply. The discharge caused nitrate-nitrogen concentrations in underlying groundwater to exceed or threaten to exceed a water quality objective in the Basin Plan.⁴

The Order states that the existing RWWTP does not include wastewater treatment for nitrogen removal and facilities that provide nitrogen will not be constructed until 2009-2011. Among the requirements of the Order, interim effluent limitations for ammonia-nitrogen and nitrate-nitrogen removal were specified. Additionally, the Order specifies facility improvement actions to occur in less than five years.

A revised Phase III upgrade project to the RWWTP is anticipated to have improved nitrogen removal technology and be able to meet the new permit effluent limits by mid-2012.

As an additional measure to mitigate the reduced capacity from the nitrogen removal required, VVWRA is planning to construct sub-regional wastewater treatment plants in the town of Apple Valley, the City of Hesperia, and a possible third location yet to be determined. These smaller plants will recycle water for local landscape irrigation near the site of treatment. In turn, this will reduce the treatment demand on the RWWTP. Moreover, the Hesperia and South Apple Valley interceptors are reaching capacity and the new sub-regional plants will provide a long-term solution. Constructing sub-regional treatment plants to capture and treat wastewater in Hesperia and Apple Valley would free up capacity at the RWWTP for the City of Victorville, CSA 42, and CSA 64.

In the long run, the capacity of the sub-regional plants, pump stations, and percolation ponds will require future expansion in order to meet the processing demands generated by Apple Valley and Hesperia. Additionally, it is likely that the sub-regional plants will require the same level of regulatory compliance regarding nitrate-nitrogen as the RWWTP. The estimated completion date of the sub-regional plants is unknown but the City staff estimated that the City of Hesperia sub-regional plant (discussed below) is likely to be constructed by 2015. The recycled water produced by the facility will be discharged into nearby percolation basins

⁴ Local Agency Formation Commission County of San Bernardino Staff Report, October 9, 2009.

when irrigation and customer demand is low. See Appendix E for the VVWRA adopted policy for serving the growth of the community.

The conceptual details of the sub-regional plants are:

- **Town of Apple Valley**
1.0 mgd facility located in the Town, adjacent to the Otoe Road Pump Station in the southwest corner of Brewster Park. The facility will initially have a capacity to treat 1.0 mgd, expandable to 4.0 mgd, providing recycled water to the public parks.
- **City of Hesperia**
1.0 mgd facility located on City-owned park property along Mojave Street just west of Maple Avenue in the City of Hesperia. The facility will initially have a capacity to treat 1.0 mgd, expandable to 4.0 mgd, providing recycled water to residential subdivisions, parks, and municipal buildings throughout the City.

The City's 2008 RWMP estimates the unit cost of the recycled water system to decrease over time from \$4,415 per af to \$913 per af by 2032. The unit costs are initially very high due to the high up-front cost required for the construction of the backbone system. Once the backbone facilities are in place, new customers can be added with relatively low investments, while increasing the overall system demand. In the meantime, the City requires purple pipe (required for recycled water) installation at various locations as a condition of development. They currently have it installed at City Hall.

4.3.4 Summary of Planned Wastewater Treatment Capacity

Table 4-2 provides the projected wastewater treatment capacity for the City service area.

**TABLE 4-2
PROJECTED CAPACITY WASTEWATER COLLECTED AND TREATED**

Wastewater Collected and Treated in Service Area	Capacity (mgd)					
	2010	2015	2020	2025	2030	2035
City of Hesperia ^(a)	0	0.5	1.0	1.5	2.0	2.5

Note:

(a) Provided by City staff.

4.4 Recycled Water Demand

In this section, potential users of recycled water are discussed and potential recycled water users within HWD's service area are identified. A method for encouraging and optimizing the use of recycled water is also discussed.

4.4.1 Potential Users

At this point in time, per discussions with VVWRA staff, VVWRA is planning to provide permitted recycled water to the City at specific locations/turnouts within the City. The City will then purchase the recycled water from VVWRA (costs have not yet been determined) and take delivery of the recycled water and distribute it to the City's recycled water users.

Only a portion of the overall potable water market can be served by recycled water due to a variety of reasons, including, but not limited to, industrial process water requirements and health-related restrictions. To determine the feasibility of a recycled water system, customer locations and their associated demands were identified as part of the City's 2008 RWMP.

The recycled water market assessment consisted of the evaluation of historical water usage data, aerial photos, road maps, and lists of City parks. Through this process, a list of 57 potential recycled water customers was generated and demand estimates were prepared for each customer. It should be noted that the potential recycled water system is the ultimate system that connects to all 57 customers, without the consideration of cost. To include cost considerations, a feasibility analysis was conducted to determine the unit costs for some of the smaller dead-end distribution pipelines that connect to relatively small customers. The findings of this feasibility study were used to select which pipeline components are relatively costly and were therefore excluded from the proposed recycled system as presented in the 2008 Capital Improvement Program (CIP) identified in the City's 2008 RWMP.

Residential users were not considered as potential irrigation customers but could be considered for future developments if ordinances are put in place. Multi-family meters were the exemption to this policy. Multi-family meters, which usually have multiple potable water meters and dedicate certain meters to landscape irrigation (determined via usage patterns), were included in the potential water customer list. Generally, only those accounts using over 20,000 gallons per day of water for irrigation during the summer months were included in the potential customer list.

A summary of potential large recycled water users within the City of Hesperia taken from the 2008 RWMP is provided in Table 4-3.

**TABLE 4-3
HESPERIA POTENTIAL RECYCLED WATER USERS AND DEMAND**

Customer	Irrigation Area (acres)	Annual Demand (ADD) (afy)	ADD (mgd)	Max Day Demand^(a) (gpm)	Peak Day Demand^(b) (gpm)
Parks and Sport fields	131	896	0.8	1.5	3,183
Golf Courses and Cemeteries	328	2,240	2	3.8	7,958
Schools	113	784	0.7	1.3	2,785
Highways and Medians	16	112	0.1	0.2	265
Other Irrigation	57	448	0.4	0.8	1,592
Commercial	n/a	45	0.04	0.1	106
Future Development	234	1,568	1.4	2.7	5,571
Total	879	6,090	5.4	10.4	21,460

Source: 2008 RWMP Report, Table 3.10.

(a) The MMD is 1.91 times ADD.

(b) The PHD is 1, 2, or 3 times MMD, depending on the user type.

The 2008 RWMP identified 55 potential landscape irrigation customers. These include 12 parks, 3 golf courses, 1 cemetery, 19 schools, 4 highway medians, 6 developing areas, and 10 other irrigation type users.

The three golf courses and the cemetery contribute to nearly 37 percent of the total recycled water demand potential. The future developments form the second largest demand category contributing to 26 percent of the total demand. Recycled water service to these large customers and new developments will be the first priority when constructing the recycled water system.

The recycled water project for the City to provide all the potential recycled water users listed in Table 4-3 will potentially be funded from local funds, federal and/or state grants and low-interest loans obtained through the State Revolving Fund. In some cases, consultants have been retained to provide engineering and environmental documentation services for the sub-regional treatment facilities. The cost of providing recycled water, transmission infrastructure, and ownership of distribution facilities has yet to be determined. The recycling program will address a number of issues in the City's service area. The need for additional collection and transmission facilities and the need for additional treatment capacity will all contribute to these programs.

4.4.2 Projected Recycled Water Demand

As shown in the previous section, the total average annual demand for recycled water is estimated to be over 6,000 afy or 5.4 mgd.

4.5 Methods to Encourage Recycled Water Use

The City has yet to develop incentives to encourage recycled water use. The incentives methods will be developed as implementation of the District's recycled water program progresses. The City may consider providing financial assistance to water users to offset the costs of (1) on-site retrofits for recycled water use, (2) monitoring, enforcement and training for recycled water use, (3) subsidizing recycled water users, and (4) delivery of recycled water at a reduced rate or a rate less than that of potable water.

Section 5: Water Quality

5.1 Overview

The quality of any natural water is dynamic in nature. This is true for the Mojave River water and the imported State Water Project (SWP) water brought into the City of Hesperia/Hesperia Water District service area via the Mojave Water Agency (MWA). During periods of intense rainfall or snowmelt, routes of surface water movement are changed; new constituents are mobilized and enter the water while other constituents are diluted or eliminated. The quality of water changes over the course of a year. These same basic principles apply to groundwater. Depending on water depth, groundwater will pass through different layers of rock and sediment and leach different materials from those strata. Water quality is not a static feature of water, and these dynamic variables must be recognized.

Water quality regulations also change. This is the result of the discovery of new contaminants, changing understanding of the health effects of previously known as well as new contaminants, development of new analytical technology, and the introduction of new treatment technology. All water purveyors are subject to drinking water standards set by the U.S. Environmental Protection Agency (EPA) and the California Department of Public Health (CDPH). Hesperia Water District (HWD, District) extracts water from the Mojave River Groundwater Basin for delivery. An annual Consumer Confidence Report (CCR) is provided to all residents who receive water from the District. This report includes detailed information about the results of quality testing of the water supplied during the preceding year (CCR, 2010).

Several state, regional and county agencies have jurisdiction and responsibility for monitoring water quality and contaminant sites. Programs administered by these agencies include basin management, waste regulation, contaminant cleanup, public outreach, and emergency spill response.

This section provides a general description of the water quality of both imported water and existing groundwater supplies. A discussion of potential water quality impacts on the reliability of these supplies is also provided.

5.2 Imported Water Quality

The Mojave Water Agency (MWA) is the Hesperia Water District's wholesale supplier for SWP water. MWA provides imported SWP water to agencies within its service area. The source of SWP water is rain and snow from the Sierra Nevada, Cascade, and Coastal mountain ranges. This water travels to the Sacramento-San Joaquin Delta, which is a network of natural and artificial channels and reclaimed islands at the confluence of the Sacramento and San Joaquin rivers. The Delta forms the eastern portion of the San Francisco estuary, receiving runoff from more than 40 percent of the state's land area. It is a low-lying region interlaced with hundreds of miles of waterways. From the Delta, the water is pumped into a series of canals and reservoirs, which provides water to urban and agricultural users throughout the San Francisco Bay Area and Central and Southern California. MWA receives SWP water at four locations off the aqueduct. The first of four turnouts to the MWA service area is located at Sheep Creek, which is essentially a stub out in the Phelan Area and not used at this time. Second is the Mojave

River turnout, also known as the White Road Siphon, located southwest of the City of Victorville and serves the Mojave River Pipeline. SWP water is transported to the Mojave River Groundwater Basin via the Mojave River Pipeline, which extends approximately 76 miles from the California Aqueduct to recharge sites along the Mojave River. The large-diameter pipeline project was started in 1996 and completed in 2006 to deliver up to 45,000 afy to the Mojave Basin Area to offset growing depletion of native water supplies caused by the region's growth and the overpumping of groundwater. There are four groundwater recharge basins that have been constructed at Hodge, Lenwood, Daggett/Yermo, and Newberry Springs.

MWA uses the imported water supply for recharge into the Mojave River Groundwater Basin. The District withdraws all of its water from the Alto subarea of the Mojave River Groundwater Basin.

One important property of SWP water is the mineral content. SWP water is generally low in dissolved minerals, such as calcium, magnesium, sodium, potassium, iron, manganese, nitrate, and sulfate. Most of these minerals do not have health based concerns. Nitrate is the main exception, as it has significant health effects for infants; however, the nitrate content of SWP water is very low. Also of significance is the chloride content. Although not a human health risk, chloride can have a negative impact on agricultural activities and regulatory compliance for local sanitation agencies. The chloride content of SWP water varies widely from well over 100 milligrams per liter (mg/L) to below 40 mg/L, depending on Delta conditions.

Data regarding the quantity and quality of SWP water delivered to the MWA service area readily available from the California Department of Water Resources (DWR). Although the quality of SWP water varies seasonally, for the period between 2005 and 2009 the average total dissolved solids (TDS) concentration has been approximately 268 mg/L for the Hesperia area.

5.3 Groundwater Quality

The HWD currently obtains its groundwater from eighteen (18) active wells in the Mojave River Groundwater Basin. According to the City's 2010 CCR, the water is regularly tested and treated in compliance with all applicable state and federal regulations.

The HWD's water system is carefully monitored on a continual basis for water quality and safety. Bacteriological monitoring is conducted on a weekly basis to ensure that the water delivered to the tap meets stringent state and federal standards. The system operation is monitored by a remote radio system that provides operators with information on the status of our wells, booster stations and reservoirs on a 24-hour basis. Remote radio read devices on the water meters continues to increase operational efficiency.

5.4 Groundwater Protection

The general goal of groundwater protection activities is to maintain the groundwater and the aquifer to ensure a reliable high quality supply. Activities to meet this goal include continued and increased monitoring, data sharing, education and coordination with other agencies that have local or regional authority or programs. The HWD currently operates eighteen (18) active groundwater production wells. To increase its groundwater protection activities, the HWD has been taking the following actions as presented below.

5.4.1 Water Quality Monitoring

Since 1990, community water systems in California have been providing an Annual Water Quality Report to customers under regulations adopted in 1989 by the CDPH. However, the 1996 amendments to the Federal Safe Drinking Water Act and recently adopted federal regulations now require a “Consumer Confidence Report.” In addition, California law now requires a similar report to consumers.

This report must contain information on the quality of water delivered by the system and characterize any risks from exposure to contaminants detected in the drinking water. Contaminant levels have previously had a MCL. The Federal Government has now established a Maximum Contaminant Level Goal (MCLG) for each constituent that has an MCL. The State of California is currently establishing their own Public Health Goal (PHG) for each of the same contaminants. Where the State has not yet set a PHG, the requirement levels noted in the tables on the following pages refer to the federal MCLG.

5.4.2 Wellhead Protection

Since California has not developed a wellhead protection program, the groundwater portion of the Drinking Water Source Assessment and Protection (DWSAP) Program serves as the wellhead protection program for the State since 1999. The Program consists of drinking water source assessment and source water protection elements. For example, activities such as inventory of Possible Contaminating Activities (PCAs) and vulnerability analysis are part of a complete DWSAP that target protecting the water resources.

5.4.3 Identification and Destruction of Abandoned Wells

The presence of abandoned groundwater wells represents a potential hazard to the quality of the groundwater basin. Abandoned and improperly destroyed wells can act as conduits for contaminants to reach drinking water supplies. It is vital for the long-term protection of the basin that abandoned wells be located and destroyed.

While it is the landowner’s responsibility to destroy an abandoned well, local water agencies should be proactive about making sure that abandoned wells are in fact destroyed. The destruction of abandoned groundwater wells should be performed in accordance with state standards. California Water Code Section 13750.5 requires that those responsible for the destruction of water wells possess a C-57 Water Well Contractor’s License. Whenever a water well is destroyed, a report of completion must be filed with the California DWR within 60 days of the completion of the work. The San Bernardino County (County) Department of Public Health, Division of Environmental Health Services is responsible for permitting and inspecting construction and destruction of wells.

For all functional and abandoned wells, a “well site control zone,” the area immediately surrounding the well alternatively referred to as the “wellhead,” needs to be established. The purpose of this zone is to provide protection from vandalism, tampering, or other threats at the well site. The size of this zone can be determined by using a simple radius, or an equivalent area. The well site control zone should be managed to reduce the possibility of surface flows reaching the wellhead and traveling down the unprotected casing. CDPH recommends a minimum radius of 50 feet for well site control zones for all public water systems in the state.

The Program applies to the abandoned wells as well as functional activities that could potentially lead to “source water contamination” according to EPA regulations.

5.4.4 Hazardous Materials Response

Currently, county hazardous materials teams handle responses to hazardous materials incidents. Increased coordination between the HWD and hazardous materials teams will allow for assessment of the potential for chemical spills to impact groundwater sites. HWD has established protocols for staff in its “Emergency Response Plan.”

5.5 Water Quality Impacts on Reliability

The quality of water dictates numerous management strategies a water purveyor will implement, including, but not limited to, the selection of raw water sources, treatment alternatives, blending options, and modifications to existing treatment facilities. Maintaining and utilizing high quality sources of water simplifies management strategies by increasing water supply alternatives, water supply reliability, and decreasing the cost of treatment. The source water supplies are of good quality for the District. Maintaining high quality source water allows for efficient management of water resources by minimizing costs.

Maintaining the quality of water supplies increases the reliability of each source by ensuring that deliveries are not interrupted due to water quality concerns. A direct result from the degradation of a water supply source is increased treatment cost before consumption. The poorer the quality of the source water, the greater the treatment cost. Groundwater may degrade in quality to the point that is not economically feasible for treatment. In this scenario the degraded source water is taken off-line. This in turn can decrease water supply reliability by potentially decreasing the total supply and increasing demands on alternative water supplies.

Currently, water quality does not affect water supply reliability in the Hesperia service area. Maintaining the current level of quality is vital to maintaining a reliable water supply.

The District prides itself on providing its customers a safe, reliable water supply. The goal of the District’s monitoring program is to detect long-term changes in groundwater quality. This includes detection of poor quality water. By identifying the occurrence of reduced quality groundwater, mitigation actions can be taken to mitigate the elements creating the poorer quality water which will help maintain long-term water supply reliability.

Section 6: Reliability Planning

6.1 Overview

The Act requires urban water suppliers to assess water supply reliability that compares total projected water use with the expected water supply over the next twenty-five years in five year increments. The Act also requires an assessment for a single dry year and multiple dry years. This chapter presents the reliability assessment for the Hesperia Water District (HWD, District) service area.

This Plan helps the District to achieve this goal of providing its customers safe and reliable water even during dry periods based on a conservative water supply and demand assumptions over the next 25 years, as discussed in the following sections.

6.2 Reliability of Water Supplies

Each water supply source has its own reliability characteristics. In any given year, the variability in weather patterns around the state may affect the availability of supplies to the HWD's service area differently. For example, from 2000 through 2002, southern California experienced dry conditions in all three years. During the same period, northern California experienced one dry year and two average years. Typically for water management in southern California local groundwater supplies are used to a greater extent when imported supplies are less available due to dry conditions in the north, and larger amounts of imported water supplies are used during periods when northern California has wetter conditions. This pattern of "conjunctive use" has been in effect since State Water Project (SWP) supplies first came to the Hesperia area in 1978. SWP supplies have supplemented the overall supply of the HWD service area, which previously depended solely on local groundwater supplies.

Per the Mojave Basin Area Judgment, HWD has been assigned Base Annual Production (BAP) rights of 13,688 afy, as summarized in Table 3-3. Also, the Mojave Water Agency (MWA), the Watermaster for the Judgment, has contracted with the California Department of Water Resources (DWR) for delivery of SWP water, providing an imported water supply for recharging the Mojave River Groundwater Basin. While the variability in SWP supplies affects the ability of MWA to meet the overall water supply needs for the service area; for the District, the added SWP supply is recharged into the groundwater basin in wet and dry years, thus providing needed stability to the adjudicated groundwater basin.

As discussed in Section 3.1 of this Plan, each SWP contractor's Water Supply Contract contains a Table A amount that identifies the maximum amount of water that contractor may request. However, the amount of SWP water actually allocated to contractors each year is dependent on a number of factors that can vary significantly from year to year. The primary factors affecting SWP supply availability include hydrologic conditions in northern California, the amount of water in SWP storage reservoirs at the beginning of the year, regulatory and operational constraints, and the total amount of water requested by the contractors. The availability of SWP supplies to MWA and the other SWP contractors is generally less than their full Table A amounts in many years and can be significantly less in very dry years.

6.3 Average, Single-Dry, and Multiple-Dry Year Planning

Currently, the HWD has one source of water supply – groundwater from the adjudicated Mojave River Groundwater Basin. This supply is available to meet demands during average, single-dry, and multiple-dry years. The following sections elaborate on the supply available to HWD during each of the various dry year conditions and what supplies can be expected. Each subsection will explain the criteria used for estimating single-dry and multiple dry supplies that are then used in the comparison tables in Section 6.4.

6.3.1 Local Supplies

The HWD local water supplies include groundwater and recycled water in the future. The following subsections discuss how the estimates for each local supply source were derived for average, single-dry and multiple-dry year periods.

6.3.1.1 Groundwater

As previously discussed in Section 3.1, the sole source of supply for HWD is groundwater. In both dry year conditions (single-dry year and multiple-dry years), the groundwater supply is assumed to remain 100 percent available because the long-term average of the groundwater basin includes dry periods, and any single or multiple-year dry cycle does not impact the long-term yield of the basin.

6.3.1.2 Recycled Water

Since recycled water is produced from wastewater, this source has the advantage of consistently being available during any type of average, single-dry, or multiple-dry year. Therefore, once the recycled water is available in 2015, the supply is assumed to remain 100 percent available during all dry year conditions. The recycled water facilities for HWD are discussed in Chapter 4 of this Plan.

6.4 Supply and Demand Comparisons

The available supplies and water demands for HWD's service area were analyzed to assess the service area's ability to satisfy demands during three scenarios: an average water year, single-dry year, and multiple-dry years. The tables in this section present the supplies and demands for the various drought scenarios for the projected planning period of 2010-2035 in five year increments. Table 6-1 presents the base years for the development of water year data. Tables 6-2, 6-3, and 6-4 at the end of this section summarize, respectively, Average Water Year, Single-Dry Water Year, and Multiple-Dry Year supplies.

**TABLE 6-1
BASIS OF WATER YEAR DATA**

Water Year Type	Base Years	Historical Sequence
Average Water Year	Average	1922-2003
Single-Dry Water Year	1977	--
Multiple-Dry Water Years	1931-1934	--

6.4.1 Average/Normal Water Year

Table 6-2 summarizes HWD's water supplies available to meet demands over the 25-year planning period during an average/normal year. As presented in the table, HWD's water supply is broken down into existing and planned water supply sources. Demands are shown with the effects of an assumed urban demand reduction (conservation) resulting from SBX7-7 imposed reductions.

6.4.2 Single-Dry Year

The water supplies and demands for HWD's service area over the 25-year planning period were analyzed in the event that a single-dry year occurs, similar to the drought that occurred in California in 1977. Table 6-3 summarizes the existing and planned supplies available to meet demands during a single-dry year. Demand during dry years was assumed to increase by 10 percent due to increased irrigation needs.

6.4.3 Multiple-Dry Year

The water supplies and demands for HWD's service area over the 25-year planning period were analyzed in the event that a four-year multiple-dry year event occurs, similar to the drought that occurred during the years 1931 to 1934. Table 6-4 summarizes the existing and planned supplies available to meet demands during multiple-dry years. Demand during dry years was assumed to increase by 10 percent.

6.4.4 Summary of Comparisons

As shown in the analyses above, HWD has adequate supplies to meet demands during average, single-dry, and multiple-dry years throughout the 25-year planning period.

**TABLE 6-2
PROJECTED AVERAGE/NORMAL YEAR SUPPLIES AND DEMAND (AFY)**

Water Supply Source	2010	2015	2020	2025	2030	2035
<i>Existing Supplies</i>						
<i>Local Supplies^(a)</i>						
Groundwater (Mojave)	13,595	17,100	17,309	18,878	20,448	22,017
Total Existing Supplies	13,595	17,100	17,309	18,878	20,448	22,017
<i>Planned Supplies^(a)</i>						
Recycled Water	0	560	1,120	1,680	2,240	2,800
Total Supplies	13,595	17,660	18,429	20,558	22,688	24,817
Total Adjusted Demand^(b)	13,595	17,660	18,429	20,558	22,688	24,817

Notes:

(a) Taken from Chapter 3 Water Resources, Table 3-1.

(b) Conservation is assumed in demands using SBX7-7. See Chapter 2 Water Use, Table 2-7.

**TABLE 6-3
PROJECTED SINGLE-DRY YEAR SUPPLIES AND DEMAND (AFY)**

Water Supply Source	2010	2015	2020	2025	2030	2035
<i>Existing Supplies</i>						
Local Supplies ^(a)						
Groundwater (Mojave)	14,955	18,866	19,152	20,934	22,717	24,499
Total Existing Supplies	14,955	18,866	19,152	20,934	22,717	24,499
<i>Planned Supplies^(a)</i>						
Recycled Water Projects	0	560	1,120	1,680	2,240	2,800
Total Supplies	14,955	19,426	20,272	22,614	24,957	27,299
Total Adjusted Demand^(b)	14,955	19,426	20,272	22,614	24,957	27,299

Notes:

- (a) Taken from Chapter 3 Water Resources, Table 3-1.
 (b) Conservation is assumed in demands using SBX7-7. See Chapter 2 Water Use, Table 2-7. Also assumes increase in total demand of 10 percent during dry years.

**TABLE 6-4
PROJECTED MULTIPLE-DRY YEAR SUPPLIES AND DEMAND (AFY)**

Water Supply Source^(a)	2010	2015	2020	2025	2030	2035
<i>Existing Supplies</i>						
Local Supplies ^(b)						
Groundwater (Mojave)	14,955	18,866	19,152	20,934	22,717	24,499
Total Existing Supplies	14,955	18,866	19,152	20,934	22,717	24,499
<i>Planned Supplies^(b)</i>						
Recycled Water Projects	0	560	1,120	1,680	2,240	2,800
Total Supplies	14,955	19,426	20,272	22,614	24,957	27,299
Total Adjusted Demand^(c)	14,955	19,426	20,272	22,614	24,957	27,299

Notes:

- (a) Supplies shown are annual averages over four consecutive dry years (unless otherwise noted).
 (b) Taken from Chapter 3 Water Resources, Table 3-1.
 (c) Conservation is assumed in demands using SBX7-7. See Chapter 2 Water Use, Table 2-7. Also assumes increase in total demand of 10 percent during dry years.

Section 7: Demand Management Measures

7.1 Overview

This chapter describes the water Demand Management Measures (DMMs) implemented by the City of Hesperia (City) as part of the effort to reduce water demand.

The DMMs specified in the UWMP Act are the same as the California Urban Water Conservation Council's (CUWCC) Best Management Practices (BMPs). Although the City is not a signatory to the CUWCC's Memorandum of Understanding Regarding Urban Water Conservation in California (MOU UWCC), the UWMP Act requires compliance with the DMMs. The City is subject to the Urban Water Management Planning Act, Assembly Bill (AB) 1420 and the SBX7-7 requirement, and follows the MOU UWCC for guidance on implementing the DMMs. The City realizes the importance of DMMs to ensure a reliable future water supply and is committed to implementing water conservation to maximize sustainability in meeting future water needs for its customers.

7.2 Conservation Program Background

Water conservation is important in the High Desert area of Southern California due to the limited groundwater supply. In its 2008 Water Master Plan (WMP), the City identified several existing and planned water conservation measures to help manage increasing water demands caused by rapid growth. In addition to pressures on water supply, conservation was identified as an opportunity to reduce the amount and size of proposed future facilities. Plans for about 10-percent demand reduction by 2022 and up to 20-percent demand reduction by 2032 were analyzed to determine the potential.

The City is a member of the Alliance for Water Awareness and Conservation (AWAC), formed in 2003 to develop a regional water conservation program. The goal of the program is to reduce regional water use by 15 percent gross per capita by 2015. One of the aims of the AWAC is to provide "local communities with tools to effectively reduce per capita consumption to targeted goals." The City implements a number of the DMMs with assistance from AWAC.

7.3 Implementation Levels of DMMs

The following sections describe the various programs and conservation activities implemented by the City.

7.3.1 Foundational DMMs

The new category of foundational DMMs is a significant shift in the revised MOU UWCC and the UWMP Act, and agencies are expected to implement them as a matter of their regular course of business. The foundational DMMs are in two categories: Utility Operations, which covers metering, water loss control, pricing, conservation coordinator, wholesale agency assistance programs, and water waste ordinances, and Public Education, which addresses public outreach and school education programs. The City is implementing all of the Foundational BMPs as required in the revised MOU UWCC and UWMP Act.

7.4 Utility Operations

7.4.1 Operations Practices

7.4.1.1 Conservation Coordinator (formerly DMM 12)

The City has two full time water conservation coordinators.

7.4.1.2 Water Waste Prevention (formerly DMM 13)

The City adopted Section 14.18.020 of the City's Water Code (Appendix F) preventing wasteful use of water, in 1990. The City's Water Code prohibits consumers from knowingly permitting leaks or wasting water. The City may discontinue service if conditions are not immediately corrected after giving the consumer notice.

Ordinance No. 31, adopted by the City on April 26, 1990, outlines actions to address emergency or drought-related water shortages. Under a Stage 2, Threatened Water Supply Storage scenario, exterior landscape plans for new multi-family, commercial and industrial development must include use of drought-resistant plants and turf, limit turf area to 20 percent of landscaped area, use timed irrigation systems, and be approved by the City prior to starting water service.

In an effort to make customers aware of wasted water runoff from their properties the Conservation Specialist will contact customers if they see a violation taking place. Often the Conservation Specialist will leave a door hanger containing the California Municipal Code 8.32.030(E) and 8.32.040(D) which refers to health and safety as well as improper maintenance of landscaping or irrigation systems.

7.4.2 Water Loss Control (formerly DMM 3)

The City has completed AWWA's M36 Water Loss analysis, which consists of a component analysis of leaks into "revenue" and "non-revenue" categories, among others, and an economic analysis of recoverable loss (Figure 7-1). Results of the preliminary audits show a water audit validity score of 85 for both and an Infrastructure Leakage Index (ILI) of 0.55.

The City's maintenance program also helps minimize water losses. This program helps keep the City production system in optimal condition, thus reducing water losses. This program includes, among other things, daily inspections of water wells and pumping equipment, weekly inspections of water tanks and exercising critical system valves. The City also calibrates its production meters annually.

A validity score between 71 and 90 indicates that the validity of the data is good, with some opportunity for refinement. According to general guidelines, an ILI below 1.0 indicates very low leakage levels among the top performing utilities or possible flaws in the data. The audit highlights some strengths and weaknesses of the system. The City is evaluating the preliminary results and recommendations of the audit.

**FIGURE 7-1
2010 WATER BALANCE**

AWWA WLCC Free Water Audit Software: Water Balance		Water Audit Report For:		Report Yr:		
Copyright © 2010, American Water Works Association. All Rights Reserved. WASv4.2		Hesperia Water Department		2010		
Own Sources (Adjusted for known errors) 4,688.710	Water Exported 0.000	Billed Water Exported				
	Water Supplied 4,688.710	Authorized Consumption 4,503.369	Billed Authorized Consumption 4,444.760	Billed Metered Consumption (inc. water exported) 4,444.760	Revenue Water	
				Billed Unmetered Consumption 0.000	4,444.760	
		Water Losses 185.341	Unbilled Authorized Consumption 58.609	Unbilled Metered Consumption 0.000		Non-Revenue Water (NRW) 243.950
				Unbilled Unmetered Consumption 58.609		
	Water Imported 0.000	Real Losses 127.723	Apparent Losses 57.618	Unauthorized Consumption 11.722		
				Customer Metering Inaccuracies 44.897		
				Systematic Data Handling Errors 1.000		
				Leakage on Transmission and/or Distribution Mains <i>Not broken down</i>		
			Leakage and Overflows at Utility's Storage Tanks <i>Not broken down</i>			
		Leakage on Service Connections <i>Not broken down</i>				

7.4.3 Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections (formerly DMM 4)

All of the City's customers are metered and billed with commodity rates. Customers are billed bimonthly.

7.4.4 Retail Conservation Pricing (formerly DMM 11)

Customers with 3/4" to 1" meters are billed bimonthly according to a four-tier rate schedule, those with meters 1.5" or larger are charged a uniform block rate. The City's water revenues are shown in Table 7-1. The volumetric revenue category includes some Water Capital Surcharges from 2006 through 2008 which the City is unable to isolate from the water sales revenues. The Water Capital Surcharge is the fixed charge for having access to the water system. For the years 2005-06 through 2007-08 part of the Capital Surcharge was included in the Water Sales revenue. In 2008-09, the full amount of this revenue was recorded as the Availability Charge and no longer included in the volumetric category.

**TABLE 7-1
WATER REVENUE FROM VOLUMETRIC CHARGES**

	2006	2007	2008	2009	2010
Total Revenue	\$ 13,067,625	\$ 14,485,206	\$ 13,886,590	\$ 14,281,225	\$ 14,194,844
Volumetric Revenue*	\$ 11,319,259	\$ 12,614,806	\$ 11,977,066	\$ 9,655,326	\$ 8,437,103
Percentage Volumetric	87%	87%	86%	68%	59%

* Prior to 2009, the volumetric category included some fixed charges.

In 2009 the volumetric rate is 68 percent and in 2010 it drops to 59 percent of total revenues. A few factors have contributed to this low volumetric use:

1. Between 2007 and 2010 sales fell by about 26 percent; the volumetric portion dropped significantly, although the fixed charges did not. Reasons for this drop in sales include economic conditions, high levels of home foreclosures and drought conditions.
2. In 2007 the City developed a 5 year rate study that included the development of a conservation rate structure, but prior to the 70 percent threshold requirement.

The City expects that as the economy rebounds and drought ends, the volumetric sales will do the same and meet the required 70 percent threshold. Furthermore, a new study will be developed in 2012 and will incorporate the 70 percent threshold.

7.5 Education (formerly DMMs 7 and 8)

7.5.1 Public Information Programs (formerly DMM 7)

The City participates and promotes water conservation through a variety of information programs and media outlets (Table 7-2). Local public events that the City participates in include Hesperia Days, Garden Party, Children's Science Fair, and High Desert Communities Expo. Information is also distributed in brochures, on radio and television, through school presentations and videos, and on websites.

As a member of the Alliance for Water Awareness and Conservation (AWAC), the City has access to a variety of informational brochures promoting water conservation, developed by the group. These brochures are available at city counters, bill payment and collection centers, the Chamber of Commerce, community events, and new model homes. These brochures are also included with the customer's bills semi-annually and upon customers' request.

The City provides water conservation information through its new homeowner's packet which includes a water-efficient landscaping guide. The City also has a web site which provides water conservation tips and information on high desert landscaping. (<http://ca-hesperia.civicplus.com/index.aspx?NID=497>).

The Education Committee provides free workshops to the public as well as landscapers and developers.

**TABLE 7-2
SUMMARY OF OUTREACH ACTIVITIES**

Item	2006	2007	2008	2009	2010
Bill Inserts / Newsletters / Brochures					
Bill showing current water usage in comparison with prior year usage	2	2	2	2	2
AWAC Workshops		N/A	8	8	3
AWAC Meetings		8	10	14	9
EXPO Meetings		6	8	7	4
Hesperia Days		2 days	2 days	2 days	2 days
Desert Communities Water Expo		3 days	3 days	3 days	3 days
Community Event Participation		8	10	12	12
Coloring Contest Participants		3,200	3,642	3,500	^(a)

Note: (a) 3,500-4,000 participants projected for 2010 Water Conservation Coloring Contest.

7.5.2 School Education Programs (formerly DMM 8)

The City's Water Conservation Specialist is currently chairperson on the Alliance for Water Awareness and Conservation (AWAC) Education Committee. The City provides classroom presentations and distributes educational materials and activity books for classrooms (Table 7-3).

The Conservation Department participates in local school events such as the annual Read across America Day, Serendipity Day, and Career Day. The Conservation Specialist also sponsors art and coloring contests for K-12 students.

**TABLE 7-3
SUMMARY OF SCHOOL EDUCATION PROGRAMS**

	2006	2007	2008	2009	2010
Total Number Of Classes	NA	8	10	12	5
Coloring Contest Participants	NA	3,200	3,642	3,500	4,000

7.6 Programmatic DMMs

The following sections describe the programs being implemented in the service area. The cost effectiveness calculations are compared with the City's avoided cost of \$436/AF.

7.6.1 Residential DMMs

Over 85 percent of water use in the City is residential, and 60 percent of that is for outdoor use.

7.6.1.1 Residential Assistance Program (formerly DMMs 1 and 2)

The City has an audit program targeting high-use Single Family (SF) and Multi-family (MF) customers that are identified based on billing data; these customers are contacted and offered

free audits. Audits are also offered to walk-in customers at the local Customer Service Area office.

During an audit the water conservation specialist will assess both the indoor and landscape uses on the property, identify leaks and educate the customer about ways to improve efficiency. A free conservation kit is also offered to the customer, which contain low-flow shower heads, sink aerators, pistol grip hose nozzles, and leak detection tablets.

The City also conducts a “runoff rover” program, where the conservation specialist identifies properties with excessive landscape runoff by driving around town during early morning hours. The specialist meets with the owner and landscaper to discuss resolution of the problem and how to monitor their landscape infrastructure for leaks. While the City is not currently exercising its right to discontinue service as per its Water Waste Ordinance No. 14.18.020, the conservation specialist maintains a log of offenders.

The number of surveys offered and provided to customers, as well as the number of devices distributed is provided in Table 7-4.

**TABLE 7-4
RESIDENTIAL SURVEYS AND RETROFITS**

	2006	2007	2008	2009	2010
Surveys Completed	N/A	30	53	32	21
Runoff investigations	N/A	140	78	68	38

The City would need to provide about 255 audits a year for 10 years for a level of activity that meets the requirements of the DMM. The City is filing a cost effectiveness exemption for the BMP requirement based on a benefit: cost ratio of about 0.4. The analysis is presented in Table 7-5 and combines both the indoor and outdoor surveys, because they are typically performed together. A savings of 0.045 afy, decay rate of 10 percent and administration rate of 25 percent were used to calculate the cost effectiveness. The first two of these assumptions are based on the CUWCC estimates from Research and Evaluation Committee Report (8/13/09); the CUWCC recommends a decay rate of 25 percent however the City felt that if the program were targeted towards higher users, the savings would be perpetuated longer. The administrative costs include all associated expenses such as customer contact, inspection scheduling, marketing materials and follow up.

**TABLE 7-5
COST EFFECTIVENESS OF RESIDENTIAL AND LANDSCAPE SURVEYS**

Cost Effectiveness Summary	
Total Costs	\$100,560
Total Benefits	\$38,668
Benefit/Cost	0.38
Discount Rate	2.9%
Time Horizon	25 years
Cost of Water	\$940
Water Savings (afy)	107

7.6.1.2 Landscape Water Surveys (formerly DMMs 1)

Landscape water surveys are included in the residential water audits. The City is filing a cost-effectiveness exemption on this BMP requirement; see Table 7-5 for the analysis.

7.6.1.3 High-Efficiency Clothes Washers (HECWs)

The City, in partnership with Mojave Water Agency (MWA), offers rebates valued at \$175 to qualified customers who replace existing high water using clothes washers with the Energy Star rated HECWs with a water factor of 6.0 or less. Between 2008 and 2010, the City provided 251 rebates, for a savings of about 4.6 afy. The number of HECW rebates provided to the City's customers in the past 5 years is provided in Table 7-6. The City needs to provide about 170 HECW rebates per year for 10 years in order to be compliant with the requirement of the DMM.

**TABLE 7-6
HECW REBATES**

	2006	2007	2008	2009	2010
HECW Rebates	N/A	N/A	71	120	220

The City is filing a cost effectiveness exemption for the BMP requirement based on a benefit: cost ratio of 0.65. The analysis is presented in Table 7-7 and combines both the indoor and outdoor surveys, because they are typically performed together. A savings of 0.031 afy, decay rate of 8 percent, rebate of \$150 and administration rate of 25 percent were used to calculate the cost effectiveness. These first two of these assumptions are based on the CUWCC estimates from Research and Evaluation Committee Report (8/13/09). The administrative costs include all associated expenses such as customer contact, marketing materials, rebate processing and follow up.

**TABLE 7-7
COST EFFECTIVENESS OF HECW PROGRAM**

Cost Effectiveness Summary	
Total Costs	\$31,926
Total Benefits	\$20,645
Benefit/Cost	0.65
Discount Rate	2.9%
Time Horizon	25 years
Cost of Water	\$546
Water Savings (afy)	58

7.6.1.4 Water Sense Specification (WSS) toilets (formerly DMM 14)

The City in partnership with MWA offers High Efficiency Toilets (HET) to customers living in single family dwellings built prior to 1992. The high efficiency toilets use 1.28 gallon per flush

(gpf) and the pre-1992 toilets use 3.5 gpf or more. Between 2008 and 2010, the City provided 686 HET rebates, and 81 free Ultra low Flow Toilets (ULFTs).

Additionally, the City Water Efficiency Rewards Program provides ULFTs, which use 1.6 gpf, to low income households. The Water Efficiency Rewards Program is offered to lower income residents to encourage a permanent reduction in the amount of water used inside and outside the home. The program offers one ULFT per household, Rain Sensors and conservation kits. Qualifying applicants are contacted as to the date and time that they can pick up their toilets. The number of HET and ULFT rebates provided to the City's customers is provided in Table 7-8.

**TABLE 7-8
TOILET REBATES**

	2006	2007	2008	2009	2010	Total	2020 Savings (AF)
HET Rebates	N/A	N/A	200	228	258	686	136
ULFT Rebates			20	49	12	81	13

The City is on track with the requirements on this DMM; assuming a retrofit on resale rate of 4 percent the City needs to provide about 140 rebates per year for 10 years. The total water savings from this program is estimated to be 157 AF by 2020. The City intends to continue implementing the HET program at current levels.

7.6.1.5 WSS for New Residential Development

The City does not currently have any WSS development ordinance nor does it offer development incentives to promote WSS fixtures for new development.

Integration of Water Sense Specification (WSS) fixtures for new development will be accelerated by the 2010 California Green Building Standards Code (CAL Green Code), which became effective in January 2011. The Code sets mandatory green building measures, including a 20 percent reduction in indoor water use, as well as dedicated meter requirements and regulations addressing landscape irrigation and design. Local jurisdictions, at a minimum, must adopt the mandatory measures; the Code also identifies voluntary measures that set a higher standard of efficiency for possible adoption.

7.6.1.6 Additional Residential Programs

Cash for Grass

The City, in partnership with MWA, offers property owners an incentive to remove lawn and replace it with water-efficient landscaping through the Cash for Grass Program. Beginning in February 2008, rebates were offered to customers and property owners at \$0.50 per square foot to replace lawn with eligible low water-use landscaping. Residential landscape conversion rebates were offered for up to 6,000 square feet and CII landscape conversion limits up to 20,000 square feet. To date about 176 rebates have been issued, 349,000 square feet of turf have been replaced and about 59 afy of water has been saved.

7.6.2 Commercial, Industrial, and Institutional (CII) (formerly DMM 9)

Less than 15 percent of the City's water use is CII and therefore it has not been a focus of conservation programs to date. To meet the DMM requirements, the City needs to reduce its CII use by 10 percent or about 3 afy for 10 years. The City will meet the requirement by identifying its largest CII users and contacting them directly with an offer of free water audits. The City will also expand its existing rebates to include CII customers.

7.6.3 Landscape

Metered landscape uses only account for about 2 percent of total City use. The City offers free public workshops to CII customers addressing water runoff, conservation, desert garden planting and drip irrigation installation. Professionals in the field of irrigation, desert plants and landscaping are often guest speakers at these events. This program is offered in partnership with AWAC. The City is filing a cost-effectiveness exemption, with cost: benefits ranging from 0.1 to 0.4 (Table 7-9).

**TABLE 7-9
COST-EFFECTIVENESS OF LANDSCAPE PROGRAMS**

Large Landscape Program	Estimated Device Savings	Lifetime Water Savings (AF)	Cumulative Value of Saved Water (\$)	Annual Costs (\$)	Benefit/Cost	Cost of Saved Water (\$/AF)
Weather Based Irrigation Controllers (WBICs)						
Rebates	20%	3	1,200	5,558	0.2	1,674
WBICs Direct Install	20%	3	1,200	18,525	0.1	5,581
	0.002					
Precision Nozzles Distr.	AF/unit	22	8,694	11,115	0.8	502
Dedicated Irrigation Surveys	20%	4	1,551	4,043	0.4	1,001

7.7 SBX7-7 Compliance

From Chapter 2, the City's SBX7-7 requirement is 186 and 165 gpcd in 2015 and 2020, respectively. The City has already achieved this goal, with usage in 2009 at 156 gpcd.

Per capita demand in the City has been on the downwards trend since the late 1990s (Table 2-4). However, the City recognizes that some of the recent reductions in demand are attributable to a combination of dry year restrictions and economic conditions. The City is therefore committed to continuing its conservation programs and planned efforts in order to meet and maintain its SBX7-7 and DMM requirements.

Section 8: Water Shortage Contingency Planning

8.1 Overview

Water supplies may be interrupted or reduced significantly in a number of ways, such as a drought which limits supplies, an earthquake which damages water delivery or storage facilities, a regional power outage, or a toxic spill that affects water quality. This chapter of the Plan describes how the Hesperia Water District (HWD, District) plans to respond to such emergencies so that emergency needs are met promptly and equitably.

The HWD has developed a policy for addressing water shortage emergencies. This policy was adopted by the Hesperia Water District Board of Directors as Ordinance No. 31 on April 26, 1990. The Ordinance (also known as the City Water Code 14.40 Water Conservation Emergency Plan) (Appendix G) sets forth a three-stage *Water Shortage Contingency Plan* (Contingency Plan) for the conservation of water. The Contingency Plan includes voluntary and mandatory conservation measures. Prohibitions, penalties and financial impacts of shortages have been developed by the HWD and are summarized in this chapter.

8.2 Coordinated Planning

The HWD has water rights to the adjudicated Mojave River Groundwater Basin (Basin). The Mojave Water Agency (MWA) serves as the Watermaster for the Basin and sets the Base Annual Production (BAP) and Free Production Allowance (FPA) amounts. The Basin's groundwater supply is replenished by MWA purchasing imported State Water Project (SWP), when available, and recharging it into the Basin. During past shortages, the HWD has managed to meet all their demands by pumping groundwater only.

Water distribution systems are often connected to neighboring water systems to allow the sharing of supplies during short-term emergencies or during planned shutdowns of a primary supply source. Currently, the HWD has an emergency interconnection with the County of San Bernardino Special District (Freeway Corridor).

8.3 Stages of Action to Respond to Water Shortages

Per Ordinance No. 31, the HWD has developed three stages of action to be taken in response to water supply shortages up to 50 percent. The stages, demand reduction goals, and type of program are listed in Table 8-1.

**TABLE 8-1
WATER SUPPLY SHORTAGE STAGES AND REDUCTION GOALS**

Stage	Shortage	Demand Reduction Goal	Type of Program
I	Normal Conditions	-	Voluntary Conservation Measures
	Threatened Water Supply		Voluntary Restrictions and/or
II	Shortage	25 Percent	Mandatory Conservation Measures
III	Water Shortage Emergency	50 Percent	Mandatory Conservation Measures

Emergency response stage actions become effective when the Board of Directors declares that the HWD 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 their judgment concerning the degree of the immediate or future supply deficiency.

- **Stage 1**
During Stage 1, normal conditions shall be in effect as the HWD is able to meet all the water demands of its customers. Users are encouraged to use water wisely, prevent the water or unreasonable use of water, and to voluntarily reduce water consumption.
- **Stage 2**
During Stage 2, in the event of a threatened water supply shortage which will affect the District's ability to provide water for ordinary domestic and commercial uses, the Board of Directors will hold a public hearing given at least 10 days notice. The public will have the opportunity to testify concerning the pending water supply shortage and the District will determine the required conservation measures and restrictions. The Board may, by Resolution, declare a water shortage condition to exist, and implement conservation measures.
- **Stage 3**
During Stage 3, in the event of an unforeseeable disaster or water emergency, such as an earthquake or other major disruption in the water supply, the City Manager for Hesperia is authorized to implement emergency provisions, after a public meeting is held before the Board of Directors.

8.4 Minimum Water Supply Available During Next Three Years

The minimum water supply available during the next three years would occur during a three-year multiple-dry year event between the years 2011 and 2013. As shown in Table 8-2, the total supplies are approximately 14,000-16,000 afy during the next three years. When comparing these supplies to the demand projections provided in Chapters 2 and 6 of this Plan, the HWD has adequate supplies available to meet projected demands should a multiple-dry year period occur during the next three years.

**TABLE 8-2
ESTIMATE OF MINIMUM SUPPLY FOR THE NEXT THREE YEARS**

Source	Supply (AFY)		
	2011	2012	2013
<i>Existing Supplies^(a)</i>			
Local Supply			
Groundwater from Mojave GW Basin	14,408	15,221	16,034
Total Existing Supplies	14,408	15,221	16,034
<i>Planned Supplies^(a)</i>			
Recycled Water Projects	0	0	0
Total Supplies	14,408	15,221	16,034
Total Estimated Demands^(b)	14,408	15,221	16,034

Notes:

(a) See Table 3-1 in Chapter 3, Water Resources.

(b) See Chapter 2 Water Use, Table 2-7.

8.5 Actions to Prepare for Catastrophic Interruption

8.5.1 General

The Contingency Plan set forth by Ordinance No. 31 is designed for implementation during drought conditions or extended unforeseen disasters resulting in long-term water shortages. Other emergency situations could result in a temporary water shortage situation resulting from earthquake, fire, or other disasters affecting the power supply or the distribution system, and thus the HWD's ability to provide potable water.

The HWD has a backup power supply in place at critical locations throughout the distribution system. A backup power source at every pump is not feasible due to economic constraints. However, the HWD has portable generators that can be used to run pumps that transfer water between pressure zones, and can be used to operate supply wells.

The HWD's water system has a total of 14 reservoirs that have a total current storage capacity of 64.5 million gallons (mg).

In the event of a natural or man-made disaster that could affect the HWD's ability to provide potable water for up to 30 days, the following measures would be implemented as need:

- The HWD's Boil Water Notification Program would be activated. The notice would be provided to local radio stations and newspapers. The City of Hesperia Police Department would be contacted to broadcast messages throughout neighborhoods. Customers would be notified of supplemental sources of water for cooking and drinking.
- Irrigation uses of water would immediately be prohibited. Enforcement would occur through the City of Hesperia Police Department.
- Local bottled water companies would be contacted to begin deliveries of potable water tanks to selected sites within the HWD. The trucks would be manned by HWD personnel to distribute water for drinking purposes.

A public information program would be initiated. A member of the HWD staff would appear on local television and provide daily reports to the local newspaper and radio stations. Members of the Board of Directors would speak to local service clubs and chamber of commerce.

8.5.2 Regional Power Outage Scenarios

For a major emergency such as an earthquake, Southern California Edison (Edison) has declared that in the event of an outage, power would be restored within a 24 hour period. For example, following the 1994 Northridge earthquake, Edison was able to restore power within 19 hours. Edison experienced extensive damage to several key power stations, yet was still able to recover within a 24 hour time-frame.

To ensure the HWD has adequate emergency storage in their distribution system, numerous scenarios were evaluated to identify which were considered reasonable emergency scenarios that may occur within the HWD's system. The following criteria were established as part of the HWD's 2008 Water Master Plan (2008 WMP):

- Loss of the largest water supply source in Zone 1 (Well 5A) and Zone 2 (Well 24) for seven days under average day demand (ADD) conditions.
- City-wide loss of power (electricity) for 24 hours under maximum daily demand (MDD) conditions.

Therefore, the 2008 WMP Capital Improvement Project (CIP) list includes new facilities to provide the HWD with necessary water stored in an emergency. To specifically address the concerns of water outages due to loss of power, the 2008 WMP CIP list includes not only new storage reservoirs, but six new emergency generators at booster pump stations, and six new emergency generators for groundwater wells.

8.6 Mandatory Prohibitions During Shortages

Mandatory compliance measures enacted during a water shortage are more severe than voluntary measures, produce greater savings, and are less costly to the HWD. 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 in a Stage 3 water shortage emergency include prohibition of:

- Watering parks, school grounds, and golf courses.
- Lawn watering and landscape irrigation.
- Washing down driveways, parking lots, and other impervious surfaces.
- Washing of vehicles, except when done by a commercial car wash establishment that uses recycled or reclaimed water.
- Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains, and artificial lakes.

8.7 Consumptive Reduction Methods During Restrictions

8.7.1 Supply Shortage Triggering Levels

The HWD will manage water supplies to minimize the social and economic impact of water shortages. The Plan is designed to provide a minimum 50 percent of normal supply during a severe or extended water shortage.

Demand reduction stages may be triggered by a shortage of water due to a natural disaster or other catastrophe. The guidelines for triggering the stages are listed in Table 8-3. However, circumstances may arise where the HWD may deviate from these guidelines, such as in a case where the Governor declares a water shortage emergency and/or institutes a statewide rationing program.

**TABLE 8-3
WATER REDUCTION TRIGGERING LEVELS**

Stage	Percent Reduction Targets
1	-
2	25%
3	50%

Source: City of Hesperia 2005 UWMP.

8.7.2 Restrictions and Prohibitions

Specific use restrictions and prohibitions for each supply shortage taken from the HWD's Ordinance No. 31 are as follows:

- **Stage 1 (Normal Conditions)**
 - Voluntary wise water use practices.
 - Mandatory time irrigation systems and drought-tolerant plants for new developments.
- **Stage 2 (Threatened Water Supply Shortage)**
 - Prohibit runoff from irrigated landscapes.
 - Use of most efficient agricultural practices.
 - Development of conservation plans for commercial facilities.
 - Irrigation of parks, golf courses, and school grounds only between the hours of 11:00 P.M. and 5:00 A.M.
 - May restrict the domestic irrigation of exterior vegetation to specific hours of day or days of week.
 - Require covers for swimming pools.
 - Prohibit washing driveways, sidewalks, and other hard surfaces with water.
 - Prohibit washing of vehicles, except with use of a hose equipped with automatic shut-off device, or at a commercial car-washing facility.
 - Restaurants shall not serve drinking water to patrons unless requested.
- **Stage 3 (Water Shortage Emergency)**
 - Prohibit washing driveways, sidewalks and other hard surfaces with water.
 - Prohibit irrigation of parks, school grounds, golf courses, lawns, and landscapes, as well as at commercial nurseries.

- Prohibit filling of swimming pools, wading pools, spas, ornamental ponds, fountains, and artificial lakes.
- Suspension of issuance of new construction meter permits.
- All existing construction meters shall be removed and/or locked.
- Prohibit washing of vehicles, except when done at a commercial car wash using reclaimed or recycled water.
- Restaurants shall not serve drinking water to patrons unless requested.

8.7.3 New Demand

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.

8.8 Penalties for Excessive Use

Water Code 31029 makes any violation of Ordinance No. 31, which sets forth the three-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 the HWD:

- First violation. A written warning of the violation shall be issued to the respective water customer.
- Second violation within 6 months. A \$100 penalty will be imposed on the water customer.
- Third violation within 12 months. A monthly \$200 penalty will be imposed on the customer and will continue until the violation is corrected to the satisfaction of the HWD.

In addition, the General Provisions of the California Municipal Code states that the HWD may begin an administrative proceeding against the customer to impose and collect the administrative fine and the enforcement costs, if a notice of public nuisance has been issued to the customer and corrective work specified in the notice has not been completed within specified time.

8.8.1 Appeal Procedure

A customer that has been assessed a penalty for violating Ordinance No. 31 has the right to hearing on the merits of the alleged violation. The request must be received with fifteen days of the violation. The first hearing would take place with the City Manager, and the customer could appeal to the Board of Directors.

8.9 Financial Impacts of Actions during Shortages

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.

The HWD would make up for this deficit by reducing operating and maintenance expenses, deferring some capital improvement projects until after the situation improves; deferring the purchase of computers, upgrades, and publications; and using the funds held in reserve for replacement of facilities.

8.10 Mechanism to Determine Reductions in Water Use

Water use is determined by meter records, which are read and recorded bi-monthly. The HWD will use these devices to monitor the citywide actual reductions in water use.

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Appendix A

UWMP Checklist

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	2.3, 2.4
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	1.3.2, Table 1-1, Appendix B
3	Report progress in meeting urban water use targets using the standardized form.	TBD
4	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.	1.3.1, 1.3.3
5	An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.	1.3.4
6	Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.	1.3.3, notification letters in Appendix B.
7	The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).	1.3.2
8	Describe the service area of the supplier	1.4, Figure 1-1
9	(Describe the service area) climate	1.5, Table 1-3
10	(Describe the service area) current and projected population . . . 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 . . .	2.2, Tables 2-1, 2-2
11	. . . (population projections) shall be in five-year increments to 20 years or as far as data is available.	Tables 2-1, 2-2
12	Describe . . . other demographic factors affecting the supplier's water management planning	1.7

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
13	Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).	3.1, 3.2, Table 3-1
14	(Is) groundwater . . . identified as an existing or planned source of water available to the supplier . . .?	3.2.1
15	(Provide 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. Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	Appendix D, 3.2.1.1
16	(Provide a) description of any groundwater basin or basins from which the urban water supplier pumps groundwater.	3.2.1.1
17	For those basins for which a court or the board has adjudicated the rights to pump groundwater, (provide) a copy of the order or decree adopted by the court or the board	Appendix C
18	(Provide) a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.	3.2.1.1, Table 3-3
19	For basins that have not been adjudicated, (provide) 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.	NA
20	(Provide 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 use records.	3.2.1.1.3, Table 3-4
21	(Provide a) detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.	3.2.1.1.3, Table 3-5

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) An average water year, (B) A single dry water year, (C) Multiple dry water years.	3.2.1.1.3, Table 3-6
23	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 supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	3.2.2
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	3.3.1, 3.3.2
25	Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), 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;(I) Agricultural.	2.3, 2.4, 2.5, Table 2-3 to 2-7, Figures 2-1, 2-2
26	(Describe and provide a schedule of implementation for) 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 multifamily 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 prohibition;(N) Residential ultra-low-flush toilet replacement programs.	Chapter 7
27	A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.	7.2, 7.7
28	An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.	7.2, 7.7
29	An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following: (1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors; (2) Include a cost-benefit analysis, identifying total benefits and total costs; (3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost; (4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.	Chapter 7

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
30	(Describe) all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.	3.2, Table 3-1
31	Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.	3.4
32	Include the annual reports submitted to meet the Section 6.2 requirement (of the MOU), if a member of the CUWCC and signer of the December 10, 2008 MOU.	NA
33	Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).	3.2, Table 3-1
34	The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	2.5.3
35	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.	8.3, Table 8-1
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	8.4, Table 8-2
37	(Identify) 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.	8.5
38	(Identify) 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.	8.6

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
39	(Specify) 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.	8.7
40	(Indicated) penalties or charges for excessive use, where applicable.	8.8
41	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.	8.9
42	(Provide) a draft water shortage contingency resolution or ordinance.	Appendix G
43	(Indicate) a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	8.10
44	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. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area	4.2, 4.3
45	(Describe) 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.	4.3, Tables 4-1, 4-2
46	(Describe) the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	4.3, Table 4-3
47	(Describe) the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	4.3
48	(Describe and quantify) the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	4.4
49	(Describe) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.	4.4
50	(Describe the) 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.	4.4.2
51	(Provide 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, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	4.4

Urban Water Management Plan Checklist (Table I-2, Organized by Legislation)

No.	UWMP Requirement ^a	Hesperia Water District
52	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 water management strategies and supply reliability.	Chapter 5
53	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 state, regional, or local agency population projections within the service area of the urban water supplier.	6.3, 6.4, Table 6-1 to 6-4
54	The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.	Appendix B
55	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.	1.3.1, 1.3.3
56	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.	1.3.2, 1.3.3, Table 1-1, Appendix B
57	After the hearing, the plan shall be adopted as prepared or as modified after the hearing.	1.3.2, Table 1-1
58	An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.	1.3.2, Table 1-1
59	An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.	1.3.2
60	Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.	1.3.2

- a) The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact leg
- b) The Subject classification is provided for clarification only. It is aligned with the organization presented in Part 1 of this guidebook. A water supplier is

Kennedy/Jenks Consultants

Appendix B

Public Outreach Materials

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 HESPERIA STAR, a newspaper of general circulation, published in the City of Hesperia, 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 October 12, 2001, Case number VCVVS 023644, 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:

July 19

All in the year 2011.

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

Dated this: 19th day of July, 2011.

Signature

Leslie Jacobs

This space is the County Clerk's Filing Stamp

Proof of Publication of NOTICE OF PUBLIC HEARINGS

NOTICE OF PUBLIC HEARINGS

NOTICE IS HEREBY GIVEN that Public Hearings will be held before the Hesperia City Council, City of Hesperia, California on the following date:

DATE OF HEARING: August 2, 2011 (Tuesday)

TIME OF HEARING: 3:00 p.m., or as soon thereafter as possible

PLACE OF HEARING: City of Hesperia, Council Chambers, 9700 Seventh Avenue, Hesperia, CA 92345

FOR THE FOLLOWING PURPOSE:

1. Consideration of the 2010 Urban Water Management Plan.

Any person affected or concerned by these proposals may submit written comments to the City Clerk's office before the public hearing or appear and be heard in support of or in opposition to the proposals at the time of the public hearings. If you challenge these proposals in court, you may be limited to rais-

ing only those issues you, or someone else raised at the public hearings described in this Public Hearing Notice, or in written correspondence delivered to the City Clerk at, or prior to the public hearings.

Any person interested in the proposals may contact the City Clerk's Office at 9700 Seventh Avenue, Hesperia, California, 760.947.1007 during normal business hours. The pertinent information will be available for public inspection at the above address.

I, Eva Heter, Deputy City Clerk to the City Council, Community Redevelopment Agency, Fire Protection District and Water District do hereby certify that I caused to be posted the foregoing Notice of Public Hearings on Wednesday, July 13, 2011 at 5:30 p.m. pursuant to California Government Code and Hesperia Resolution No. 93-78.

Eva Heter,
Deputy City Clerk

Published in the
Hesperia Star
July 19, 2011
(ST-640)



**AFFIDAVIT OF POSTING
NOTICE OF PUBLIC HEARING**

Continuance

I, the undersigned City Clerk/Deputy City Clerk of the City of Hesperia, California, do hereby certify that a copy of the Notice of Public Hearing before the City Council of the City of Hesperia, California, in conjunction with 2070 Urban Water Management Plan, was posted by myself on or before ten days before the meeting of August 16, 2011. A copy of the said notice is attached hereto.

I declare under the penalty of perjury that the foregoing is true and correct.

Notice posted on 2nd day of August, 2011. This is pursuant to Government Code and Hesperia Resolution No. 2007-101.

Dated at Hesperia, California, this 3rd day of August, 2011.



City Clerk/Deputy City Clerk, City of Hesperia

CITY OF HESPERIA



AFFIDAVIT OF POSTING URBAN WATER MANAGEMENT PLAN

I, the undersigned Office Assistant in the Engineering Division of the City of Hesperia, California, do hereby certify that a copy of the Urban Water Management Plan before the City Council of the City of Hesperia, California, in conjunction with the 2010 Urban Water Management Plan, was posted by myself on or before ten days before the meeting of August 16, 2011. A copy of the said Urban Water Management Plan is attached hereto.

I declare under the penalty of perjury that the foregoing is true and correct.

Urban Water Management Plan posted on Third day of August, 2011. This is pursuant to Government Code and Hesperia Resolution No. 2007-101.

Dated at Hesperia, California, this Third day of August, 2011.

Christina M. Spence
Office Assistant, Engineering Division, City of Hesperia

CC PHRGPST.AFF(Rev. 8/3/11)

For our information for our records: the hard copy of the UWMP was also placed at the library.

KMS

City of Hesperia



NOTICE OF CONTINUANCE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the following Public Hearing scheduled for the Regular Adjourned Meeting of the Hesperia Water District on Tuesday, August 2, 2011 has been continued to the regular meeting of the Hesperia Water District on Tuesday, August 16, 2011 at 6:30 p.m.:

1. Consideration of 2010 Urban Water Management Plan.

Any person interested in the proposal may contact the City Clerk's Office at 9700 Seventh Avenue, Hesperia, California, (760) 947-1007 during normal business hours. The pertinent information will be available for public inspection at the above address.

I, Eva Heter, Deputy City Clerk/Secretary to the City Council, Community Redevelopment Agency, Fire Protection District and Water District do hereby certify that I caused to be posted the foregoing Notice of Cancellation and Rescheduling of Public Hearing on August 2, 2011 at 5:30 p.m. pursuant to California Government Code and Hesperia Resolution No. 2007-101.

A handwritten signature in cursive script, appearing to read "Eva Heter".

Eva Heter, Deputy City Clerk



ABOUT US GOVERNMENT CITY DEPARTMENTS BUS

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You are here: Home > City Departments > Departments A - E > Engineering

Engineering

Responsibilities

Engineering is responsible for processing development projects as they relate to public infrastructure including:

- Roads
- Water systems
- Sewer systems
- Drainage control
- Traffic signal systems

The department is also responsible for the engineering, planning, design, and construction of all infrastructure projects included in the City's Capital Improvement Program.

Engineering maintains all records of public infrastructure (maps, plans and documents) for use by other departments, outside agencies and the public.

Contact

John Leveillee
City Engineer
[Email](#)

9700 Seventh Ave.
Hesperia, CA 92345

Phone: (760) 947-1451
Fax: (760) 244-2515

Hours

Monday - Thursday
7:30 am - 5:30 pm

Friday
7:30 am - 4:30 pm

Development Design Standards

The City's Design Standards are not posted on the website. Design Standards are available for purchase in CD format for \$50. CDs may be purchased in person at City Hall or over the phone with a credit card.

If ordering by phone, staff will send the CD via US mail or via FedEx, using the receiver's FedEx account.

Contact Nick Mueller at (760) 947-1438 for more information.



- Bicycle Routes
- Capital Improvement Program
- Engineering Benchmarks
- FEMA / Flood Zone Information
- Fiscal Year Paving Program
- Maps
- Permits
- Projects
- Public Transportation
- Storm Water Management Program
- Street Light Information
- Speed Studies
- Traffic Signals
- Urban Water Management Plan

- Bids & Contracts ▶
- Comments/Suggestions ▶
- View Council Meetings ▶
- Municipal Code ▶
- Hesperia Alerts ▶
- Pay Your Water Bill ▶



City of Hesperia - Official Website - Engineering - Windows Internet Explorer

http://www.cityofhesperia.us/index.aspx?nid=109

City of Hesperia - Official Website - Engineering

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City of Hesperia

Gateway to the High Desert

April 19, 2011

Jim Oravets
San Bernardino County CSAJ
157 W 5th Street, 2nd Floor
San Bernardino, CA 92415

Subject: Hesperia Water District 2010 Urban Water Management Plan Update Notification

Dear Mr. Oravets,

The Hesperia Water District (District) is currently in the process of updating its 2010 Urban Water Management Plan (UWMP). Adoption of the 2010 UWMP is required under the Urban Water Management Planning Act (Act) by July 1, 2011. The District is providing you with this notice on its behalf pursuant to Water Code, section 10621, subdivision (b) of the Act, which requires an urban water supplier to notify any city or county within which it provides water that it is reviewing its plan and considering changes to the plan. Additionally, when a draft UWMP is available for public review, a copy will be sent to you.

If you have any questions, please contact me at (760) 947-1451.

Sincerely,

John Leveillee
City Engineer

cc: **Mike Podegracz, City Manager**
Scott Priestler, Director Development Services
Sandra Carlson, Kennedy/Jenks Consultants, Inc.

cv

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Mike Leonard, Mayor
Russell Blewett, Mayor Pro Tem
Thurston Smith, Council Member
Paul Bosacki, Council Member
Bill Holland, Council Member

Mike Podegracz, City Manager

9700 Seventh Ave
Hesperia, CA 92345
760-947-1000
TD 760-947-1119

www.cityofhesperia.us

Kennedy/Jenks Consultants

Appendix C

Judgment After Trial January 10, 1996, Mojave Basin Area Adjudication
Text *(included on CD-ROM)*

Appendix D

MWA 2004 Groundwater Management Plan (*included on CD-ROM*)

MWA 2004 Regional Water Management Plan - Integrated Regional Water Management Plan, Groundwater Management Plan, Urban Water Management Plan, Adopted February 24, 2005

Kennedy/Jenks Consultants

Appendix E

VVWRA Adopted Policy for Serving the Growth of the Community

VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
Adopted Policy for Serving the Growth of the Community
August 2005

The growth of the population in the VVWRA Service Area and the resulting increase in the quantity of wastewater generated will be served by a combination of the existing Regional Treatment Plant working in conjunction with a number of appropriately located Subregional Reclamation Facilities, interconnected by the Regional Interceptor Sewer System. The construction of these facilities will be financed by VVWRA using a combination of sewer connection fees, State Revolving Fund (SRF) loans, grants, and municipal bonds such as Certificates of Participation (COP's). Connection fees generated by new and/or expanded sewer connections in the Service Area will be collected by the Member Entities and retained by VVWRA, and the fees will be used to meet construction and/or debt service requirements. The appropriate rate structure for sewer connection fees will be determined by the Board of Commissioners based on the projects and the schedule described in a Capital Improvement Plan, which will be prepared for the Board and approved and adopted by the Commissioners at a later date.

To meet immediate needs between today and 2012, the Regional Treatment Plant and the Interceptor Sewer System will be expanded to convey and treat up to 18 million gallons per day (MGD) of wastewater. Additional relief sewers, peak flow pumping facilities, off-line storage, or a combination of these facilities will be needed to convey the anticipated wastewater flow to the Regional Treatment Plant. Subregional Reclamation Facilities will be constructed and will begin operating between now and 2012 in the Town of Apple Valley and in the City of Hesperia, and these subregional reclamation facilities will be sized and configured to capture all of the wastewater generated by the respective cities for reclamation and beneficial reuse. Using this combination of regional treatment and subregional reclamation facilities, the wastewater generated by the City of Victorville and the communities of Oro Grande (CSA 42) and Spring Valley Lake (CSA 64) will be conveyed to the Regional Treatment Plant for processing. Solids generated by the subregional facilities may be discharged back into the regional interceptor system with a small transport flow for treatment by the Regional Treatment Plant and eventual disposal. Recycled water produced by the subregional reclamation facilities may be discharged to one or more remotely located percolation basins during wet weather periods, when irrigation demands are minimal. To meet this goal, one large subregional or possibly two smaller subregional reclamation facilities may be required in both Apple Valley and Hesperia, the selection and siting of which will be determined by the Board of Commissioners based on future engineering, environmental, and economic studies.

To meet future needs anticipated between the years 2012 and 2020, the capacity of the subregional reclamation facilities, sewage and recycled water pumping stations, and remotely located wet weather percolation ponds will be expanded so that all of the wastewater generated by the Town of Apple Valley and the City of Hesperia is captured for reclamation and beneficial reuse. The only exception will be the solids generated by the respective subregionals, along with a small amount of sewage flow if needed to transport the solids to the Regional Treatment Plant for processing. During this period additional subregional reclamation facilities may be constructed to capture and reclaim excess flows generated in outlying areas such as western Victorville, as determined by the Board of Commissioners based on future engineering, environmental, and economic studies.

To meet long term needs anticipated after the year 2020, the capacity of the Regional Treatment Plant and the Interceptor Sewer System will be expanded to convey and treat the additional

wastewater generated by the City of Victorville, Oro Grande, and Spring Valley Lake. Based on current population growth projections, it is anticipated that by 2020 the capacity of the Regional Treatment Plant will need to be expanded to 22 MGD or more to meet the needs of the City of Victorville, Oro Grande, and Spring Valley Lake. In addition, the construction of expanded solids handling capacity may be necessary at the Regional Treatment Plant to match the increasing solids generated by the Apple Valley and Hesperia subregional facilities. During this period additional subregional reclamation facilities may be constructed to capture and reclaim excess flows generated in newly developed and/or outlying areas, as determined by the Board of Commissioners based on future engineering, environmental, and economic studies.

To meet short term and long term anticipated needs, the Board of Commissioners may also acquire properties suitable for future expansions of the regional treatment plant, and new or expanded subregional reclamation facilities, pumping systems, distribution systems, percolation ponds, or support facilities such as offices, storage, and maintenance buildings.

Approved and Adopted by the VVWRA Board of Commissioners on August 1, 2005.

C:\MSWORD\FILES\POLICIES\CAPITAL IMPROVEMENT PLAN & POLICY 2005.DOC

VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
Adopted Capital Improvement Plan for Serving the Growth of the Community
September 2005

REGIONAL TREATMENT PLANT EXPANSION

The wastewater generated by the City of Victorville and the communities of Oro Grande (CSA 42) and Spring Valley Lake (CSA 64) will be conveyed to the Regional Treatment Plant for processing. The Regional Treatment Plant will be expanded to an overall capacity of 14.5 MGD, with construction beginning in 2005 and ending in 2007. The Regional Treatment Plant will then be expanded to an overall capacity of 18 MGD, with construction beginning in 2006 and ending in 2008. Additional property will be acquired in 2011-2012 to prepare for a further expansion of the Regional Treatment Plant.

The Regional Treatment Plant will then be expanded to an overall capacity of 22 MGD, with construction beginning in 2018 and ending in 2020. The Regional Treatment Plant will then be expanded to an overall capacity of 30 MGD, with construction beginning in 2023 and ending in 2025.

REGIONAL INTERCEPTOR SEWER EXPANSION

The interceptor modeling study will be completed in 2005, which will evaluate the system's ability to convey flow, and the improvements necessary to meet flow needs. The capacity of the Regional Interceptor Sewer System will be expanded to convey up to 18 million gallons per day (MGD) of wastewater to the Regional Treatment Plant, with phased construction to begin in 2005 and ending in 2012. The expansion will include the construction of relief sewers, and the replacement of the Upper Narrows Pump Station to convey peak flows around the Upper Narrows Interceptor.

The capacity of the Regional Interceptor Sewer System will then be expanded to convey up to 22 million gallons per day (MGD) of wastewater to the Regional Treatment Plant, with construction to begin in 2017 and ending in 2018. The interceptor modeling study will be updated in 2020, which will evaluate the system's ability to convey flow, and the improvements necessary to meet flow needs.

SUBREGIONAL RECLAMATION FACILITIES

The Subregional Public Relations Program will expand school outreach programs in FY 2005-2006, and the program will continue each year through 2012. Subregional Reclamation Facilities will be constructed in order to capture and recycle all of the wastewater generated in the Town of Apple Valley and in the City of Hesperia. Property for future subregional facilities at the Upper Narrows and in West Victorville will be purchased in 2006.

A 4.0 MGD subregional reclamation facility will be constructed in Apple Valley near Brewster Park, with construction to begin in 2007 and ending in 2009. A 4.0 MGD subregional reclamation facility will be constructed in Hesperia near I-15 and Main Street, with construction to begin in 2007 and ending in 2009. Solids generated by both subregional facilities will be discharged back into the regional interceptor system, with a small transport flow for treatment at the Regional Treatment Plant. Recycled water produced by the subregional reclamation facilities will be

discharged to remotely located percolation basins during wet weather periods, when irrigation demands are minimal. Distribution piping will be constructed for each subregional facility to convey recycled water to major customers and/or purveyor points of connection, and to the remotely located percolation basins.

A sewage pumping station and force main system will be constructed to convey wastewater from the foot of the Desert Knolls Wash to the Apple Valley Subregional Facility, with construction to begin in 2009 and ending in 2010. A sewage pumping station and force main system will be constructed to convey wastewater from the Hesperia Interceptor at Bear Valley Road to the Hesperia Freeway Corridor Subregional Facility, with construction to begin in 2009 and ending in 2010.

A second Hesperia subregional will be constructed in the vicinity of the Mojave River, with construction beginning in 2014 and ending in 2016. The Hesperia Mojave River Subregional will have a capacity of 4.0 MGD. One of Hesperia's subregional facilities will be expanded to 8 MGD overall capacity, with construction beginning in 2024 and ending in 2026. The 2026 expansion will increase Hesperia's total subregional capacity to 12 MGD.

The Apple Valley Brewster Park Subregional Reclamation Facility will be expanded to an overall capacity of 8.0 MGD, with construction beginning in 2017 and ending in 2019.

OTHER CAPITAL IMPROVEMENT PROJECTS

The SCLA Reclaimed Water Pumping System will be constructed at the Regional Treatment Plant in 2005. The emergency generators will be interconnected with SCE and used for peak shaving beginning in late 2005 or early 2006. A dump truck will be purchased for the Regional Treatment Plant in 2006. A new Administration Building will be constructed at a site to be determined, with construction to begin in 2010 and end in 2011. Additional pipe will be purchased for emergency preparedness, and a storage building for the pipe and related equipment will be constructed in 2010-2011.

Approved and Adopted by the VVWRA Board of Commissioners on September 19, 2005.

VICTOR VALLEY WASTEWATER RECLAMATION AUTHORITY
 Capital Improvement Plan: 2005-2025
 List of Improvements, Schedule, and Estimated Cost

Project No.	Capital Improvement Description	Initiation Date	Completion Date	Estimated Cost
1	Regional Plant 14.5 MGD Expansion Construction Project	2005	2007	\$ 25,000,000
2	Regional Plant 18 MGD Expansion Design/CEQA	2005	2005	\$ 1,023,781
3	SCLA Reclaimed Water Pumping System Construction	2005	2005	\$ 239,000
4	SCLA Reclaimed Water Pipeline Construction	2005	2005	\$ 286,479
5	Subregional PEIR, Planning Study, & Public Relations Program, FY 2005-2006	2005	2006	\$ 238,223
6	Interceptor Capacity Modeling Study	2005	2005	\$ 112,852
7	Interconnection with SCE for Peak Shaving	2005	2005	\$ 45,000
8	Interceptor System Relief Sewer Phase I Design/CEQA/Permitting	2005	2006	\$ 437,661
9	Upper Narrows Pump Station Design/CEQA/Permitting	2005	2006	\$ 312,500
10	Interceptor System Relief Sewer Phase I Construction Project	2006	2006	\$ 1,750,644
11	Interceptor System Relief Sewer Phase II Design/CEQA/Permitting	2006	2006	\$ 44,888
12	Purchase Dump Truck	2006	2006	\$ 45,000
13	Subregional Public Relations Program, FY 2006-2007	2006	2007	\$ 100,000
14	Apple Valley Brewster Park 4 MGD Subregional Design/CEQA/Permitting	2006	2007	\$ 1,250,000
15	Apple Valley Brewster Park 4 MGD Subregional Property Acquisition	2006	2007	\$ 250,000
16	Hesperia Freeway Corridor 4 MGD Subregional Design/CEQA/Permitting	2006	2007	\$ 1,250,000
17	Hesperia Freeway Corridor 4 MGD Subregional Property Acquisition	2006	2007	\$ 250,000
18	Upper Narrows Subregional CEQA/Property Acquisition (40 acres)	2006	2007	\$ 850,000
19	Western Victorville Subregional CEQA/Property Acquisition (5-10 acres)	2006	2007	\$ 600,000
20	Upper Narrows Pump Station Construction Project	2006	2007	\$ 1,250,000
21	Interceptor System Relief Sewer Phase II Construction Project	2006	2007	\$ 179,550
22	Regional Plant 18 MGD Expansion Construction Project	2006	2008	\$ 20,000,000
23	Interceptor System Relief Sewer Phase III Design/CEQA/Permitting	2007	2007	\$ 113,573
24	Subregional Public Relations Program, FY 2007-2008	2007	2008	\$ 100,000
25	Apple Valley Desert Knolls Sewage Pumping & Force Main System CEQA/Property Acquisition	2007	2008	\$ 500,000
26	Hesperia I Avenue Sewage Pumping & Force Main System CEQA/Property Acquisition	2007	2008	\$ 500,000
27	Interceptor System Relief Sewer Phase III Construction Project	2007	2008	\$ 454,293
28	Apple Valley Brewster Park 4 MGD Subregional Construction Project	2007	2009	\$ 25,000,000
29	Hesperia Freeway Corridor 4 MGD Subregional Construction Project	2007	2009	\$ 25,000,000
30	Interceptor System Relief Sewer Phase IV Design/CEQA/Permitting	2008	2008	\$ 86,987
31	Subregional Public Relations Program, FY 2008-2009	2008	2009	\$ 100,000
32	Apple Valley Desert Knolls Sewage Pumping & Force Main System Design	2008	2009	\$ 750,000
33	Hesperia I Avenue Sewage Pumping & Force Main System Design	2008	2009	\$ 750,000
34	Interceptor System Relief Sewer Phase IV Construction Project	2008	2009	\$ 347,949
35	Interceptor System Relief Sewer Phase V Design/CEQA/Permitting	2009	2009	\$ 78,199
36	Subregional Public Relations Program, FY 2009-2010	2009	2010	\$ 100,000
37	Apple Valley Desert Knolls Sewage Pumping & Force Main System Construction	2009	2010	\$ 5,000,000
38	Hesperia I Avenue Sewage Pumping & Force Main System Construction	2009	2010	\$ 5,000,000
39	New Administration Building Design	2009	2010	\$ 250,000
40	Interceptor System Relief Sewer Phase V Construction Project	2009	2010	\$ 312,795
41	Interceptor System Relief Sewer Phase VI Design/CEQA/Permitting	2010	2010	\$ 36,855
42	Subregional Public Relations Program, FY 2010-2011	2010	2011	\$ 75,000
43	New Administration Building Construction Project	2010	2011	\$ 2,500,000
44	Interceptor System Relief Sewer Phase VI Construction Project	2010	2011	\$ 147,420
45	Emergency Preparedness Facilities, Pipe & Storage Bldg	2010	2011	\$ 75,000
46	New Administration Building Furniture & Equipment	2011	2011	\$ 750,000
47	Interceptor System Relief Sewer Phase VII Design/CEQA/Permitting	2011	2011	\$ 240,629
48	Subregional Public Relations Program, FY 2011-2012	2011	2012	\$ 50,000
49	Regional Plant Expansion CEQA/Property Acquisition	2011	2012	\$ 1,500,000
50	Interceptor System Relief Sewer Phase VII Construction Project	2011	2012	\$ 962,514
51	Hesperia Mojave River 4 MGD Subregional Design/CEQA	2013	2014	\$ 1,500,000
52	Hesperia Mojave River 4 MGD Subregional Construction	2014	2016	\$ 25,000,000
53	Apple Valley Brewster Park 8 MGD Subregional Expansion Design/CEQA	2016	2017	\$ 1,500,000
54	Apple Valley Brewster Park 8 MGD Subregional Expansion Construction	2017	2019	\$ 25,000,000
55	Interceptor System Relief Sewer Phase VIII Design/CEQA/Permitting	2017	2017	\$ 305,644
56	Interceptor System Relief Sewer Phase VIII Construction Project	2017	2018	\$ 1,222,578
57	Regional Plant 22 MGD Expansion Design/CEQA	2017	2018	\$ 1,500,000
58	Regional Plant 22 MGD Expansion Construction Project	2018	2020	\$ 25,000,000
59	Interceptor Capacity Modeling Study, 2020 Update	2020	2021	\$ 150,000
60	Regional Plant 30 MGD Expansion Design/CEQA	2022	2023	\$ 2,000,000
61	Hesperia 4 MGD Subregional Expansion Design/CEQA	2023	2024	\$ 1,500,000
62	Regional Plant 30 MGD Expansion Construction	2023	2025	\$ 30,000,000
63	Hesperia 4 MGD Subregional Expansion Construction Project	2024	2026	\$ 25,000,000

GRAND TOTAL \$ 265,975,014

Note: All costs shown are in 2005 dollars.

Kennedy/Jenks Consultants

Appendix F

City of Hesperia Water Code Section 14.18.020 – Water Waste

14.18.020 - Water waste.

No consumer shall knowingly permit leaks or waste of water. Where water is wastefully or negligently used on a consumer's premises seriously affecting the general service, the district may discontinue the service if such conditions are not immediately corrected after giving the consumer notice. The district shall, when necessary use their right of emergency restriction on use as authorized by Section 31026 of the California Water Code. When permitted herein, the district may close angle meter stops to prevent loss of water due to visible leaks and shall not, be liable for and shall be held harmless by owner or consumer from damage to owner's or consumer's appliances and premises due to such action.

(Ord. 10 § 2 (part), 1983: HWD prior code Ch. 2 § 4.02)

Appendix G

HWD Ordinance No. 31

(also known as the City of Hesperia Water Code Chapter 14.40 –
Water Conservation Emergency Plan)

Ordinance No. 31

ORDINANCE NO. 31

AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE
HESPERIA WATER DISTRICT, COUNTY OF SAN BERNARDINO,
CALIFORNIA, 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
HESPERIA WATER DISTRICT AS FOLLOWS:

SECTION 1. PURPOSE, INTENT AND FINDINGS.

1.1 The Hesperia 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 required to maximize the beneficial use of its available water resources to the extent to which they are capable, and that the waste or unreasonable use, or unreasonable method of use of water be prevented and the conservation of such water is to be extended with a view to the reasonable and beneficial use thereof in the interests of the people of the community of Hesperia and for the public welfare.

SECTION 2. DEFINITIONS.

2.1 - "District" shall mean the Hesperia Water District.

2.2 - "Board of Directors" shall mean the Board of Directors of the Hesperia Water District.

2.3 - "General Manager" shall be mean that person appointed by the Board of Directors to manage the activities of the Hesperia 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, extended loss of electrical power, pipe line failure, 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 Hesperia Water District.

SECTION 3. WATER SUPPLY PLAN CREATED.

3.1 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 must continue to use water wisely, to prevent the waste or unreasonable use of water, and to reduce water consumption to that necessary for ordinary domestic and commercial purposes.

3.2 Stage No. 2. Threatened Water Supply Shortage.

In the event of a threatened water supply shortage which will affect the District's ability to provide water for ordinary domestic and commercial uses, the Board of Directors shall hold a noticed public hearing after giving at least ten days notice by publication in a newspaper of general circulation at which consumers of the water supply shall have the opportunity to testify concerning the pending water supply shortage and for the District to determine required conservation measures to include restrictions of use and/or requirements for state of art irrigation systems, automatic controllers, use of drought resistant plants, shrubs, and drought resistant turf. The Board may, by Resolution, declare a water shortage condition to exist, and the following conservation measures shall be in effect:

3.2.a. Exterior Landscape Plans.

Exterior landscape plans for all new multi-family, commercial and industrial development shall provide for timed irrigation systems and shall require the use of drought resistant varieties of plants, shrubs, and turf. Such plans shall be presented to and approved by the District prior to issuance of a water service letter. Areas required for turf will be restricted to no more than 20% of the total landscaped area.

3.2.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.

3.2.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. The General Manager, may require the owner or operators of these systems 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.

3.2.d. Commercial Facilities.

Commercial and industrial facilities shall, upon request of the General Manager, provide the District with their plan to insure conservation of 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 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.

3.2.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., or such other times as may be determined appropriate by the Board of Directors. Additionally, turf areas in excess of 1,000 square feet will be required to use soil moisture sensors and rain shut-off valves as part of their irrigation system.

3.2.f. Domestic Irrigation.

The Board of Directors of 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.

3.2.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 non-use shall be considered a waste of water.

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

No water provided by the District shall be used for the purposes of wash-down of hard surfaces such as driveways, sidewalks, and parking lot areas, except as specifically permitted by the District for public health and safety reasons such as wash-down of flammable or otherwise dangerous liquids or substances. 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.

3.2.i. Vehicle Washing.

The washing of cars, trucks 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.

3.2.j. Drinking Water Provided by Restaurants.

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

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

In the event of an unforeseeable disaster or water emergency such as an earthquake or other major disruption in the water supply or any emergency that prevents the District

from meeting the water demands of the community, the District Manager is authorized to implement the emergency provisions of this Ordinance as provided herein. Public notice will follow enactment of said provision by publishing notice of said action in a newspaper of general circulation.

In the event of a foreseeable emergency such as extended drought conditions, the District Manager may be authorized to implement the applicable provisions of this Ordinance as provided herein, after a public meeting is held before the Board of Directors, after giving such public notice as the General Manager determines is reasonable under the circumstances. After action of the Board of Directors within 72 hours of such declaration, adopting a resolution finding a stage 3 water shortage emergency, the following rules and regulations shall be in effect immediately following such action:

3.3.a. Watering of parks, school grounds and golf courses is prohibited.

3.3.b. Lawn watering and landscape irrigation is prohibited.

3.3.c. Washing down of driveways, parking lots or other impervious surfaces is prohibited.

3.3.d. Washing of vehicles is prohibited, except when done by commercial car wash establishments using recycled or reclaimed water.

3.3.e. Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes is prohibited.

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

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

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

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

SECTION 4. 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 water shortage emergency or to recommend 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 5. EXCEPTIONS.

5.1 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 impossible, or that restrictions herein would:

5.1.a. 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 6. ENFORCEMENT.

6.1 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.

6.2 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.

6.3 Surcharge for Violation.

In addition to criminal penalties, violators of the mandatory provisions of this Ordinance shall be subject to surcharge and other enforcement rights of the District, as follows:

6.3.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 herein.

6.3.b. Second Violation: \$100.00 Surcharge.

For a second violation of this Ordinance within a 6-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.

6.3.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 monthly penalty surcharge in the amount of \$200.00 is hereby imposed for the meter through which the wasted water was supplied and will continue until the violation is corrected to the satisfaction of the District. 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.

6.3.d. Subsequent Violations: Discontinuance of Service

For any fourth violation of this Ordinance within 24 calendar months after the first violation as provided in Section 6.3.a. hereof, the District may discontinue water service to that customer at the premises or to the meter where the violation occurred after giving reasonable notice pursuant to District regulations. 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 7. NOTICE

7.1 First Violation.

For a first violation, written notice shall be given to the customer and/or property owner personally or by regular mail.

7.2 Subsequent Violations.

If the penalty assessed is a surcharge for a second or third violation, notice may be given by regular mail.

7.3 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:

7.3.a. By giving written notice thereof to the occupant and/or property owner personally; or

7.3.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

7.3.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.

7.3.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 8. 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 9. RESERVATION OF RIGHTS.

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

SECTION 10. SEVERABILITY.

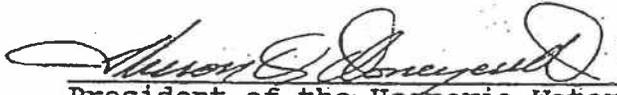
If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be unconstitutional or invalid, such decisions shall not affect the validity of the remaining portions of this Ordinance.

SECTION 11. 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 12. EFFECTIVE DATE

This Ordinance shall become effective immediately upon its adoption. APPROVED AND ADOPTED this 26th day of April, 1990.



President of the Hesperia Water
District and of the Board of
Directors thereof

ATTEST:



Secretary of the Hesperia Water
District and of the Board of
Directors thereof

(SEAL)

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, DUANE DAVIS, Secretary of the Board of Directors of the Hesperia Water District, DO HEREBY CERTIFY that the foregoing Ordinance was duly adopted by the Board of Directors of said District at a regular meeting of said Board held on the 26th day of April, 1990, and that it was so adopted by the following vote:

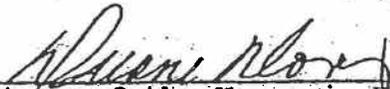
AYES: Directors Grube/Harrison/Honeycutt/Parrish

NOES: //

ABSTAIN: //

ABSENT: Director Lampignano

(SEAL)

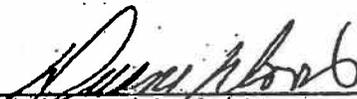

Secretary of the Hesperia Water District
and of the Board of Directors thereof.

STATE OF CALIFORNIA)
) ss.
COUNTY OF SAN BERNARDINO)

I, DUANE DAVIS, Secretary of the Board of Directors of the Hesperia Water District, DO HEREBY CERTIFY that the above and foregoing is a full, true and correct copy of Ordinance No. 31 of said Board, and that the same has not been amended or repealed.

Dated: April 26, 1990

(SEAL)


Secretary of the Hesperia Water District
and of the Board of Directors thereof.

Hesperia Water District Water Code
Chapter 14.40 -
Water Conservation Emergency Plan

Hesperia, California, Code of Ordinances >> [Title 14 - HESPERIA WATER DISTRICT CODE](#) >>
[Division 3 - WATER CODE](#) >> [Chapter 14.40 - WATER CONSERVATION EMERGENCY PLAN](#) >>

Chapter 14.40 - WATER CONSERVATION EMERGENCY PLAN

Sections:

- [14.40.010 - Purpose, intent and findings.](#)
- [14.40.020 - Definitions.](#)
- [14.40.030 - Water supply plan created.](#)
- [14.40.040 - Implementation and termination of mandatory compliance stages.](#)
- [14.40.050 - Exceptions.](#)
- [14.40.060 - Enforcement.](#)
- [14.40.070 - Notice.](#)
- [14.40.080 - Hearing.](#)
- [14.40.090 - Reservation of rights.](#)

14.40.010 - Purpose, intent and findings.

- A. The Hesperia water district ("district") is a public agency created under the County Water District Act, California Water Code Sections 30000 et seq. to, among other purposes, provide water service to the water users within the boundaries of the district.
- B. The district is authorized by California 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.
- C. The district is further authorized by California Water Code Section 31027 to prescribe and define by ordinance those restrictions, prohibitions and exclusions it may determine to be necessary pursuant to California Water Code Section 31026 in restricting the use of district water during threatened or existing water shortages.
- D. It is therefore the intent of the board of directors to establish by this chapter those procedures required to maximize the beneficial use of its available water resources to the extent to which they are capable, and that the waste or unreasonable uses or unreasonable method of use of water be prevented and the conservation of such water is to be extended with a view to the reasonable and beneficial use thereof in the interests of the people of the community of Hesperia and for the public welfare.

(Ord. 31 § 1, 1990)

14.40.020 - Definitions.

As used in this chapter:

"Board of directors" means the board of directors of the Hesperia water district.

"District" means the Hesperia water district.

"General manager" means that person appointed by the board of directors to manage the activities of the Hesperia water district, or his designee.

"Waste" means 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 chapter as hereinafter set forth.

"Water" means that water supplied by the Hesperia water district.

"Water supply shortage" means any water shortage caused by drought or any other threatened or existing water shortage, disaster or facility failure, earthquake, extended loss of electrical power, pipe line

failure, or other condition which results in or threatens to result in the district's inability to meet the water demands of its customers.

"Water user" means any person, firm, partnership association corporation or political entity using water obtained from the water system of the district.

(Ord. 31 § 2, 1990)

14.40.030 - Water supply plan created.

- A.** 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 must continue to use water wisely, to prevent the waste or unreasonable use of water, and to reduce water consumption to that necessary for ordinary domestic and commercial purposes.
- B.** Stage No. 2. Threatened water supply shortage. In the event of a threatened water supply shortage which will affect the districts ability to provide water for ordinary domestic and commercial uses, the board of directors shall hold a noticed public hearing after giving at least ten days notice by publication in a newspaper of general circulation at which consumers of the water supply shall have the opportunity to testify concerning the pending water supply shortage and for the district to determine required conservation measures to include restrictions of use and/or requirements for state of art irrigation systems, automatic controllers, use of drought resistant plants, shrubs, and drought resistant turf. The board may, by resolution, declare a water shortage condition to exist, and the following conservation measures shall be in effect:
- 1.** Exterior Landscape Plans. Exterior landscape plans for all new multi-family, commercial and industrial development shall provide for timed irrigation systems and shall require the use of drought resistant varieties of plants, shrubs, and turf. Such plans shall be presented to and approved by the district prior to issuance of a water service letter. Areas required for turf will be restricted to no more than twenty (20) percent of the total landscaped area.
 - 2.** Excess 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 the 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.
 - 3.** 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. The general manager, may require the owner or operators of these systems to prepare a plan describing their irrigation practices and equipment, including but not limited to, an estimate of the efficiency off the use of water on their properties.
 - 4.** Commercial Facilities. Commercial and industrial facilities shall, upon request of the general manager, provide the district with their plan to insure conservation of 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 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.
 - 5.** 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 eleven p.m. and five a.m., or such other times as may be determined appropriate by the board of directors. Additionally, turf areas in excess of one thousand (1,000) square feet will be required to use soil moisture sensors and rain shut-off valves as part of their irrigation system.
 - 6.** Domestic Irrigation. The board of directors of 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.
 - 7.** 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.
 - 8.** Run-Off and Wash-Down. No water provided by the district shall be used for the purposes of wash-down of hard surfaces such as driveways, sidewalks, and parking lot areas, except as specifically permitted by the district for public health and safety reasons such as wash-down of flammable or otherwise dangerous liquids or substances. 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.

9. Vehicle Washing. The washing of cars, trucks 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.
10. Drinking Water Provided by Restaurants. Restaurants are requested not to provide drinking water to patrons except by request.

- C. Stage No. 3. Water Shortage Emergency—Mandatory Conservation Measures. In the event of an unforeseeable disaster or water emergency such as an earthquake or other major disruption in the water supply or any emergency that prevents the district from meeting the water demands of the community, the district manager is authorized to implement the emergency provisions of this chapter as provided herein. Public notice will follow enactment of said provision by publishing notice of said action in a newspaper of general circulation.

In the event of a foreseeable emergency such as extended drought conditions, the district manager may be authorized to implement the applicable provisions of this chapter as provided herein, after a public meeting is held before the board of directors, after giving such public notice as the general manager determines is reasonable under the circumstances. After action of the board of directors within seventy-two (72) hours of such declaration, adopting a resolution finding a Stage 3 water shortage emergency, the following rules and regulations shall be in effect immediately following such action:

1. Watering of parks, school grounds and golf courses is prohibited.
2. Lawn watering and landscape irrigation is prohibited.
3. Washing down of driveways, parking lots or other impervious surfaces is prohibited.
4. Washing of vehicles is prohibited, except when done by commercial car wash establishments using recycled or reclaimed water.
5. Filling or adding water to swimming pools, wading pools, spas, ornamental ponds, fountains and artificial lakes is prohibited.
6. Restaurants shall not serve drinking water to patrons except by request.
7. No new construction meter permits shall be issued by the district.
8. All existing construction meters shall be removed and/or locked.
9. Commercial nurseries shall discontinue all watering and irrigation. Watering of livestock is permitted as necessary.

(Ord. 31 § 3, 1990)

14.40.040 - 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 water shortage emergency or to recommend 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.

(Ord. 31 § 4, 1990)

14.40.050 - Exceptions.

Application for Exception Permit. The general manager may grant permits for uses of water otherwise prohibited under the provisions of this chapter if he finds and determines that special circumstances make compliance impossible, or that restrictions herein would 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.

(Ord. 31 § 5, 1990)

14.40.060 - Enforcement.

- A. Inspection. Authored employees of the district after proper identification, may during reasonable hours for 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.

B.

Criminal Penalties for Violation. California Water Code Section 31029 makes any violation of this chapter 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.

- C. Surcharge for Violation.** In addition to criminal penalties, violators of the mandatory provisions of this chapter shall be subject to surcharge and other enforcement rights of the district, as follows:
- 1. First Violation.** For a first violation, the district shall issue a written notice of violation to the water user violating the provisions of this chapter. The notice shall be given pursuant to the requirements of Section [14.40.080](#)
 - 2. Second Violation—One hundred dollar (\$100.00) Surcharge.** For a second violation of this chapter within a six-month period, or for failure to comply with the notice of violation within the period stated, a surcharge of one hundred dollars (\$100.00) is hereby imposed for the meter through which the wasted water was supplied.
 - 3. Third Violation—Two hundred dollar (\$200.00) Surcharge and/or Installation of Flow Restrictor.** For a third violation of this chapter within a twelve (12) month period, or for continued failure to comply within thirty (30) days after notice and imposition of second violation sanctions, a monthly penalty surcharge in the amount of two hundred dollars (\$200.00) is hereby imposed for the meter through which the wasted water was supplied and will continue until the violation is corrected to the satisfaction of the district. 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 forty-eight (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.
 - 4. Subsequent Violations—Discontinuance of Service.** For any fourth violation of this chapter within twenty-four (24) calendar months after the first violation as provided in subsection (C)(1) of this section, the district may discontinue water service to that customer at the premises or to the meter where the violation occurred after giving reasonable notice pursuant to district regulations. 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 chapter by such user will not occur.

(Ord. 31 § 6, 1990)

14.40.070 - Notice.

- A. First Violation.** For a first violation, written notice shall be given to the customer and/or property owner personally or by regular mail.
- B. Subsequent Violations.** If the penalty assessed is a surcharge for a second or third violation, notice may be given by regular mail.
- C. 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:
 - 1.** By giving written notice thereof to the occupant and/or property owner personally; or
 - 2.** 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
 - 3.** 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.
 - 4. 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.

(Ord. 31 § 7, 1990)

14.40.080 - Hearing.

Any customer or property owner against whom a penalty is levied pursuant to this chapter 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.

(Ord. 31 § 8, 1990)

14.40.090 - Reservation of rights.

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

(Ord. 31 § 9, 1990)