STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY **EDMUND G. BROWN JR.,** *Governor*

**DEPARTMENT OF WATER RESOURCES**
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

January 18, 2017

Ben Peralta, Jr.
Project Manager
Three Valleys Municipal Utility District
1021 E. Miramar Avenue
Claremont, California 91711

RE: Urban Water Management Plan Requirements Addressed

Dear Mr. Peralta:

The Department of Water Resources (DWR) has reviewed the Three Valleys Municipal Utility District's 2015 Urban Water Management Plan (UWMP) received on May 26, 2016. The California Water Code (CWC) directs DWR to report to the legislature once every five years on the status of submitted UWMPs. In meeting this legislative reporting requirement, DWR reviews all submitted UWMPs.

DWR's review of the Three Valleys Municipal Utility District's 2015 plan has found that the UWMP addresses the requirements of the CWC. DWR's review of plans is limited to assessing whether suppliers have addressed the required legislative elements. In its review, DWR does not evaluate or analyze the supplier's UWMP data, projections, or water management strategies. This letter acknowledges that the Three Valleys Municipal Utility District's 2015 UWMP addresses the CWC requirements. The results of the review will be provided to DWR's Financial Assistance Branch.

If you have any questions regarding the review of the UWMP or urban water management planning please call Gwen Huff at 916-651-9672.

Sincerely,

Vicki Lake
Unit Chief
Urban Water Use Efficiency
(916) 651-0740

# Urban Water Management Plan 2015

## THREE VALLEYS MUNICIPAL WATER DISTRICT


THREE VALLEYS MWD

1021 E. Miramar Avenue

Claremont, California 91711

*www.threevalleys.com*

## Contact Sheet

| | |
|---|---|
| Date Plan Submitted to the Department of Water Resources: | **May 24, 2016** |
| Name of Contact Person: | **Richard Hansen** |
| Phone Number: | **(900) 621-5568** |
| Fax: | **(909) 625-5470** |
| E-Mail: | **rhansen@tvwmd.com** |
| The water supplier is a: | **Municipal Water District** |
| The water supplier is a: | **Wholesaler** |

## Notice of Adoption

The Board of Directors of the Three Valleys Municipal Water District ("District") held a public hearing on Wednesday, May 18, 2016, at 8:00 am, at the District's Headquarters located at 1021 E. Miramar Avenue in Claremont, California, for the purpose for reviewing and considering possible adoption of the District's 2015 Urban Water Management Plan.

Prior to said public hearing, all persons were invited to review the District's proposed 2015 Urban Water Management Plan, which was available for public inspection (view) at the District's Headquarters (and website) at the above location during regular business hours, and to submit written comments thereto to the District. Written and oral comments to the District's proposed 2015 UWMP may be submitted to the District's Board of Directors at the time of the public hearing thereon.

Richard W. Hansen, P.E., General Manager/Chief Engineer

Date

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# Chapter 1 - Introduction and Overview

## 1.1 Background and Purpose

Water planning is an essential function of water suppliers but becomes critical as California grapples with ongoing drought and potential long-term climate changes. Prior to the adoption of the Urban Water Management Planning (UWMP) Act, there were no specific requirements that water agencies conduct long-term resource planning. While many water agencies conducted long-term water supply and resource planning prior to the Act, those that did not were left vulnerable to supply disruptions during dry periods or catastrophic events. The UWMP Act was proposed and adopted, requiring a minimum level of resource assessment and planning by water suppliers. There is no substitute for water planning at the local water supplier level. Only a local supplier has the knowledge, an understanding of the unique circumstances of the individual agency, and ability to tailor the planning to local conditions. The UWMP Act has been modified over the years in response to the State's water shortages, droughts, and other factors. A significant amendment was made in 2009, after the drought of 2007-2009 and as a result of the governor's call for a statewide 20 percent reduction in urban water use by the year 2020. This was the Water Conservation Act of 2009, also known as SB X7-7. This Act required agencies to establish water use (demand) targets for 2015 and 2020 that would result in statewide savings of 20 percent by 2020.

In this introductory chapter, Three Valleys Municipal Water District (TVMWD) will provide a discussion on the importance and extent of its water management planning efforts. TVMWD understands the need and importance for short and long term water management planning efforts in order to provide and ensure adequate, reliable, cost effective, and safe water quality for its member agencies within its service area. This is reflected in the District's mission statement: "*Three Valleys Municipal Water District's mission is to supplement and enhance local water supplies to meet our region's needs in a reliable and cost-effective manner*."

To this end, the District has been diligent in continuing to conduct water management planning efforts that have resulted in construction of new facilities, and conservation/outreach programs, over the years to meet the demands and needs of our member agencies. In addition, the District attends meetings (e.g. Los Angeles County Storm Water Task Force Committee, Chino Basin Recharge Enhancement Group Committee, among others) with other local water agencies to discuss ideas related to water management planning strategies. In the past two years, the District has been successful in implementing construction projects that will increase the reliability of water and enhance local groundwater basins. One of these projects is TVMWD Well #2 which was completed in summer of 2014. The second is the SASG (San Antonio Spreading Grounds) Northerly Pipeline Expansion project that enhances the District's ability to recharge raw water into the local aquifer from which the District's two groundwater wells pump water from. A third project is a pipeline extension at Live Oak Spreading Grounds (LOSG) that increases the area the District is able to spread raw water to enhance the groundwater basin and thereby benefit the city of La Verne (i.e. one of our member agencies) water wells.

As the local wholesale water provider, the District assists our member agencies with outreach and public relations, being sensitive to their needs while not getting out "in front" of their messaging. The District works extensively with Metropolitan Water District to take advantage of their extensive buying power for media and large economy of scale.

Part of the District's role as the wholesale provider and the Metropolitan member agency is to pass through funding to the member agencies and assist with conservation programs like the turf removal program, rain barrel distributions, toilet retrofits, etc. It is not appropriate to do the programs for the member agencies as we do not serve the public directly. Over the last thirteen years (2002 – current), the District has passed through an average of more than $330,000 per year to the member agencies for completion of conservation programs for their customers. Some of the funding is from the Metropolitan Water District, but some of it has been from grants received by the District, as well as direct funding and in-kind assistance for these activities. The last few years have seen a significantly higher figure to assist with water use efficiency efforts.

The District provides more than $60,000 per year for regional outreach and legislative programs that are completed throughout the region. Topics of the outreach include subjects that benefit the entire region and often support the current Metropolitan campaign to allow for a regionalization of the message and ensure continuity and message cohesion. The District provides support for legislative activities – items of importance to water agencies and working with the member agencies, expresses support or opposition to legislation that could impact their operations. The District understands that it must continue to work proactively and collaboratively with our member agencies to promote and encourage water conservation. As mentioned earlier, the District supports financially and with in-kind staff assistance for these programs but requires the member agencies to participate and reach out to their customers directly.

The District's efforts on conservation and educational outreach have been and will continue to be coordinated through our member agencies since they are the direct "conduits" to the public. As the state continues to struggle with cyclical drought conditions, we have stressed the importance of "living within our water budget", working towards self-reliance, and promoting programs that will help residents reduce their water use effectively and for the long-term.

## 1.2 Urban Water Management Planning and the California Water Code

The sections below are summaries of California Water Code (CWC) sections applicable to UWMPs. The California Department of Water Resources (DWR) has provided guidance on addressing CWC UWMP requirements, but water suppliers are solely responsible for ensuring that all CWC requirements and applicable laws have been met.

### 1.2.1 Urban Water Management Planning Act of 1983

The UWMP Act requires water agencies to develop an UWMP every five years. The UWMP provide a framework for long term water planning and inform the public of a supplier's plans for long-term resource planning that ensures adequate water supplies for existing and future demands. This part of the CWC requires urban water suppliers to report, describe, and evaluate: water deliveries and uses;

water supply sources; efficient water uses; demand management measures; and water shortage contingency planning.

### 1.2.2 Applicable Changes to the Water Code since 2010 UWMPs

A summary list is provided below. Demand Management Measures CWC Section 10631 (f) (1) and (2) Assembly Bill 2067, 2014 Submittal Date CWC Section 10621 (d) Assembly Bill 2067,

Electronic Submittal CWC Section 10644 (a) (2) Senate Bill 1420, Standardized Forms CWC Section 10644 (a) (2) Senate Bill 1420, 2014 Water Loss CWC Section 10631 (e) (1) (J) and (e) (3) (A) and (B) Senate Bill 1420, Estimating Future Water Savings CWC Section 10631 (e) (4) Senate Bill 1420, Voluntary Reporting of Energy Intensity CWC Section 10631.2 (a) and (b) Senate Bill 1036, Defining Water Features CWC Section 10632 (b) Assembly Bill 2409,

## 1.3 Urban Water Management Plans in Relation to Other Planning Efforts

The District, like other urban suppliers provides information on water management specific to its service area. However, there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these plans may include city and county General Plans, Water Master Plans, Recycled Water Master Plans, integrated resource plans, Integrated Regional Water Management Plans, Groundwater Management Plans, and others. Each of these planning efforts is enhanced when it makes use of the information found in the other documents. The District has utilized other planning processes and documents in development of its UWMP and to share the information in the UWMP with other agencies.

## 1.4 UWMP Organization

The District has followed the DWR's recommended organization for the 2015 UWMP, per the Guidebook, as outlined below. This organization groups the requirements by topic and presents the topics in the order in which a water supplier may consider including them in an UWMP.

**Chapter 1 - Introduction and Overview** *In this introductory chapter, agencies provide a discussion on the importance and extent of their water management planning efforts.*

**Chapter 2 - Plan Preparation** *This section will provide information on their process for developing the UWMP, including efforts in coordination and outreach.*

**Chapter 3 - System Description** Suppliers *may include maps of the service area, a description of the service area and climate, their Public Water System(s), and the agency's organizational structure and history.*

**Chapter 4 - System Water Use** Describe *and quantify the current and projected water uses within the agency's service area.*

**Chapter 5 - Baselines and Targets** *Retail agencies and Regional Alliances will describe their methods for calculating their baseline and target water consumption. They will also demonstrate whether or not they have achieved the 2015 interim water use target, and their plans for achieving their 2020 water use target.*

**Chapter 6 - System Supplies** *Describe and quantify the current and projected sources of water available*

*to the agency. A description and quantification of potential recycled water uses and supply availability is also to be included in this chapter, to the extent that it pertains to each agency.*

**Chapter 7 - Water Supply Reliability** *Water agencies will describe the reliability of their water supply and project the reliability out 20 years. This description will be provided for normal, single dry years and multiple dry years.*

**Chapter 8 - Water Shortage Contingency Planning** *Provide the supplier's staged plan for dealing with water shortages, including a catastrophic supply interruption.*

**Chapter 9 - Demand Management Measures** *Water suppliers will communicate their efforts to promote conservation and to reduce demand on their water supply and will specifically address several demand management measures.*

**Chapter 10 - Plan Adoption, Submittal, and Implementation** *Water agencies will describe the steps taken to adopt and submit the UWMP and to make it publicly available. This chapter will also include a discussion of the agency's plan to implement the UWMP.*

Supporting documents have been included in the UWMP as appendices. Some examples of supporting documentation include: Notification letters of UWMP update; Public notice of UWMP hearing; Adoption resolution(s) from the District's governing body (i.e. board of directors).

## 1.5 UWMPs and Grant or Loan Eligibility

### 1.5.1 Funding Eligibility for Retail and Wholesale Suppliers

In order for an urban water supplier to be eligible for any water management grant or loan administered by DWR, the agency must have a current UWMP on file that has been determined by DWR to address the requirements of the CWC. A current UWMP must also be maintained by the water supplier throughout the term of any grant or loan administered by DWR. An UWMP may also be required in order to be eligible for other State funding, depending on the conditions that are specified in the funding guidelines. As such, this is a significant factor the District is taking the time and effort to prepare the current UWMP. The District has been successful in obtaining grant funding from the State for projects in the past and plans to continue to do so.

## 1.6 DWR Contact Information

The Following DWR staff is available to answer questions regarding preparation of the UWMP.

**DWR Contact Information**

| Region | DWR UWMP Staff | Phone | Email |
|---|---|---|---|
| Statewide | Gwen Huff | (916) 651-9672 | Gwen.Huff@water.ca.gov |
| Southern | Sergio Fierro | (818) 500-1645 | Sergio.Fierro@water.ca.gov |

# Chapter 2 – Plan Preparation

This chapter provides information on the process for developing the District's UWMP, including efforts in coordination and outreach to its member agencies, other municipalities, and agencies. Coordination and outreach are important elements to developing a useful and accurate UWMP. The District has and will continue to work with other water suppliers and agencies to strengthen the region's ability to plan for drought and prepare or catastrophic events. District staff has also worked with local city and county planning agencies to obtain information on regional planning, demographics, and anticipated future development.

## 2.1 Basis for Preparing a Plan

***CWC 10617****"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems…*

***CWC 10620(b)*** *Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.*

***CWC 10621 (a)*** *Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).* ***(d)*** *Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.*

In accordance with the CWC, urban water suppliers with 3,000 or more service connections or supplying 3,000 or more acre-feet of water per year are required to prepare an UWMP every five years. If an agency is under this defined threshold for the year that an UWMP is due, but meets this threshold before the next reporting cycle, the agency is required to adopt an UWMP within one year after meeting the reporting threshold. Water suppliers are required to provide a brief discussion of the applicability of CWC 10617 to their agency.

#### Definition of Wholesale Supplier and Retail Supplier

Per California Water Code **(CWC) 10608.12(p)**, the definition of a wholesale and retail supplier is as follows: *"Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.*

For purposes of UWMP reporting, an agency is considered either a wholesale or retail urban water supplier, or both, based on the criteria stated in CWC 10608.12 (p) and (r). See the citation of the CWC above. As a wholesale supplier, Three Valleys Municipal Water District (TVMWD or District) prepared this Urban Water Management Plan (UWMP) in accordance with the California Urban Water Management Planning Act (California Water Code, Sections 10610 through 10656). The passing of the initial Act (Assembly Bill 797) in 1983 and its subsequent amendments require that "Urban Water Suppliers" providing water service to 3,000 or more customers (direct or indirect), or supplying more than 3,000 acre-feet of water

Annually prepare, adopt, and file an Urban Water Management Plan with the DWR every five years. The District's previous filing of the UWMP was in 2010, and this current filing is relevant to information and projections for the 2015 edition.

TVMWD prepared its initial UWMP in 1985 and submitted it to DWR. In 1990, the District drafted an updated UWMP, but the plan was never completed nor adopted. In 1992, TVMWD prepared its Water Shortage Contingency Plan (WSCP) in response to amendment AB11X of the Urban Water Management Planning Act, effective October 1991. The WSCP estimated minimum water supply projections, provided consumption reduction methods, and developed other elements related to drought contingency planning in California. The 1995 UWMP updated both the 1985 UWMP and 1990 draft UWMP, as well as incorporated applicable components of the WSCP. As required, a 2000 Plan was submitted in accordance with all guidelines and requirements at that time.

This 2015 UWMP provides the District's existing and projected water demands as well as sources of current and future water supply, projected water uses, water conservation measures, water rate structure, and drought management programs. The UWMP also highlights regional water management activities that TVMWD currently conducts, or plans to conduct within the next five years, in cooperation with its member agencies. Through its implementation of conservation Best Management Practices, as well as the development of a Local Resources Development Program in cooperation with other local water suppliers, TVMWD continues to be involved with water resource and conservation activities within its service area.

### 2.1.1 Public Water Systems

***CWC 10644 (a) (2)*** *The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department.*

***CWC 10608.52 (a)*** *The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.*

***(b)*** *At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24… The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.*

***California Health and Safety Code 116275(h)*** *"Public Water System" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.*

Public Water Systems (PWSs) are the systems that provide drinking water for human consumption. These systems are regulated by the State Water Resources Control Board (Board), Division of Drinking Water. The California Health and Safety Code defines a "Public Water System" as shown in the text box

above.

## 2.2 Regional Planning

The District is involved in regional water planning efforts with various other local agencies to address mutual concerns and interests. The District chose to develop and prepare an individual 2015 UWMP instead of developing a cooperative (joint) 2015 UWMP. District staff did reach out to its member agencies for assistance in providing data and information necessary to prepare the 2015 UWMP.

## 2.3 Individual or Regional Planning and Compliance

Since the District has chosen Individual Reporting in developing this UWMP, the information contained and reported in this UWMP is based solely on its service area. The individual UWMP addresses all requirements of the CWC. The District has notified and coordinated with appropriate regional agencies and constituents.

In response to the requirements of the CWC, the District downloaded and used the standardized tables (see Appendix L), developed by the DWR, for the reporting and submittal of UWMP data, as required for use in 2015 UWMPs. The standardization of data tables will allow for more efficient data management, expedited review of UWMPs by DWR staff, and easier compilation of data for regional and statewide planning.

Water agencies are required to submit UWMP data electronically to DWR using these standardized tables. Water suppliers must also include the standardized tables in the body of the plan or as an appendix. Electronic submittal of the data (i.e. standardized tables) is at the Water Use Efficiency (WUE) data website https://wuedata.water.ca.gov/secure/.

The standardized tables are compiled in Appendix E of the 2015 UWMP Guidebook and available in Excel on DWR's 2015 UWMP webpage at http://www.water.ca.gov/urbanwatermanagement/uwmp2015.cfm. Water agencies will be able to cut and paste from the Excel tables to the tables on the WUEdata website.

District staff has used and followed the 2015 UWMP Guidebook prepared by the California Department of Water Resources (DWR) to assist in preparation of the 2015 UWMP. District staff made use of the standardized forms, tables, and displays provided in the Guidebook as required by the CWC below.

***CWC 10644 (a) (2)*** *The plan, or amendments to the plan, submitted to the department … shall include any standardized forms, tables, or displays specified by the department. CWC 10608.52 (a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24… The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.*

In January 2016, TVMWD sent out notices to each of its member agencies within its service area seeking input for development of the UWMP (see TVMWD letter dated 1/28/2016 in Appendix A). Also, TVMWD typically hosts monthly Member Agency Managers' meetings wherein discussion and/or updates regarding the UWMP took place. A draft copy of the 2015 UWMP was provided in an electronic format on April 16, 2016 to all TVMWD member agencies via e-mail distribution.

The District also distributed copies of the Draft Plan via e-mail to the Inland Empire Utilities Agency (IEUA), Upper San Gabriel Valley Municipal Water District, Chino Basin Watermaster, Main San Gabriel Basin Watermaster, Metropolitan Water District of Southern California, City of Claremont, City of Diamond Bar, City of La Puente, Los Angeles County, and City of Walnut. Table 2-1 below lists the various local agencies and their respective involvement with the preparation of the UWMP.

**Table 2-1: Participation by Agencies**

| Agency | Participation in Development | Commented on the Draft | Attended Public Meetings | Contacted for Assistance | Received a Copy of the DRAFT | Sent Notice of Intent to Adopt |
|---|---|---|---|---|---|---|
| Azusa, City of | | | | | X | X |
| Boy Scouts of America | | | | | X | X |
| Cal Poly Pomona | | | | | X | X |
| Chino Basin Watermaster | | | | | X | X |
| Claremont, City of | | | | | X | X |
| Covina, City of | X | | | X | X | X |
| Diamond Bar, City of | | | | | X | X |
| Glendora, City of | X | | | X | X | X |
| Golden State Water Co. | X | | | | X | X |
| Industry, City of | | | | | X | X |
| Inland Empire Utilities Agency | | | | | X | X |
| La Puente, City of | | | | | X | X |
| La Verne, City of | X | | | X | X | X |
| Los Angeles County | | | | | X | X |
| Main San Gabriel Basin Watermaster | | | | | X | X |
| Metropolitan Water District | X | | | X | X | X |

| Agency | Participation in Development | Commented on the Draft | Attended Public Meetings | Contacted for Assistance | Received a Copy of the DRAFT | Sent Notice of Intent to Adopt |
|---|---|---|---|---|---|---|
| Mt. San Antonio College | | | | | X | X |
| Pomona, City of | X | | X | X | X | X |
| Rowland Water District | X | | X | X | X | X |
| Six Basins Watermaster | X | | | X | X | X |
| Suburban Water Systems | X | | X | X | X | X |
| Upper San Gabriel Valley MWD | | | | | X | X |
| Valencia Heights Water Co. | X | | | X | X | X |
| Walnut Valley Water District | X | X | X | X | X | X |
| Walnut, City of | | | | | X | X |

### 2.3.1 Public Notice/Participation and Plan Adoption

Beginning on April 21, 2016, the Draft Plan was distributed and made available for review and comment to the general public. A public hearing was scheduled at the regular meeting of the TVMWD Board of Directors on May 18, 2016 at 8:00 a.m. Written comments were received through May 17, 2016. Where appropriate, this Plan has been modified to incorporate comments received from the public, interested organizations and other agencies.

Notices of the Public Hearing (copy attached in Appendix B), were advertised in the San Gabriel Valley Tribune and the Inland Valley Daily Bulletin on May 4 and May 11, 2016. TVMWD also sent notifications to all cities and counties in its service area that the UWMP was being updated and that each was invited to provide comments during the update process. This notification took place on March 14, 2016. A copy of the letter mailed to those entities is included in Appendix C.

A copy of the Plan was available for public review at the District's Administrative office and on its website at www.threevalleys.com.

## 2.4 Fiscal or Calendar Year and Units of Measure

As allowed by the CWC (see below), the District is reporting information based on a fiscal year basis since to ensure consistency with local, regional, and financial reports. ***CWC 1608.20 (a)(1)*** *Urban*

*retail water suppliers…may determine the targets on a fiscal year or calendar year basis.*

As TVMWD is reporting on a fiscal year basis (July 1 – June 30), this document (2015 UWMP) includes the current water use and supply data for its fiscal year 2014-2015.

### 2.4.1 Units of Measure

The units of measure used in this document for reporting water volumes are in acre-feet (AF). One acre-foot is equivalent to 325,850 gallons.

## 2.5 Coordination and Outreach

Per ***CWC 10631 (j)*** *An urban water supplier that relies 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).*

### 2.5.1 Wholesale and Retail Coordination

When a water supplier relies upon a wholesale agency for a water supply, both suppliers are required to provide each other with information regarding projected water supply and demand, as described below. These projections should be consistent with each agency's supply and demand projections as reported in the appropriate tables of Chapter 4 and Chapter 6 of the 2015 UWMP.

As a Wholesale agency, TVMWD is required to provide information to its customer (Retail) urban water suppliers identifying and quantifying water supplies available to those agencies from the District. This information has been projected in increments of five years, from 2015 through 2035 and for average, single, and multiple-dry years.

### 2.5.2 Coordination with Other Agencies and the Community

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

***CWC 10642*** *Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements*

The District has coordinated the preparation of their UWMP with other appropriate agencies in the area, to the extent practicable. In order to verify that the District has fulfilled the above CWC provisions, a description of its outreach and coordination activities to other agencies and the community is included in this UWMP, as described in CWC 10620(d)(2) and CWC 10642. The District has solicited participation from other agencies responsible for developing related reports or planning documents such as General Plans, Water Master Plans, Groundwater Management Plans, or PWS reports. This coordination helps ensure consistency in planning and reporting.

## 2.5.3 Notice to Cities and Counties

***CWC 10621 (b)*** *Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before 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.*

(See also Section 10.1.1) CWC 10621 (b) requires that agencies notify cities and counties to which they serve water that the Plan is being updated and reviewed. The CWC specifies that this must be done at least 60 days prior to the public hearing. These notifications to cities and counties are reported in Table 10-1 (See Chapter 10). The CWC only requires that the city or county be notified of the Plan update. Water agencies are encouraged to include the UWMP revision schedule, contact information of the UWMP preparer, and the location where the UWMP can be viewed. Notification letters to cities and counties may be addressed to the City Manager or City Planning Department, County Administrator, or to other local contacts as appropriate for the service area of the water supplier.

# Chapter 3 – System Description

## 3.1 General Description

***CWC Section 10631*** *Describe the service area of the supplier.*

Three Valleys Municipal Water District's service area is located in the eastern portion of Los Angeles County and includes the cities and communities of Charter Oak, Claremont, Covina, Covina Knolls, Diamond Bar, Glendora, Industry, La Verne, Pomona, Rowland Heights, San Dimas, Walnut, and West Covina. Created in 1950, TVMWD is a municipal water district operating under the provisions of the Municipal Water District Act embodied in Water Code Section 71000 et seq. The District is a wholesale water supplier providing supplementary supply to its retail member agencies. Except for a small percentage (approximately 7%) of groundwater supply, TVMWD's primary resource is import water from the Metropolitan Water District of Southern California (MWD).

## Metropolitan Water District (MWD)

As a water wholesaler, MWD has no retail customers. It distributes treated and untreated import water from the Colorado River and northern California (SWP) to its member agencies. MWD provides an average of 50% of the municipal, industrial and agricultural water used within its service area. The remaining 50% comes from local wells, local surface water, recycling, and from the City of Los Angeles' aqueduct in the eastern Sierra Nevada.

MWD's primary goal is to provide reliable import water supplies in conjunction with local supplies to meet the water needs of its service area at the lowest possible cost. In the past, the delivery of water to MWD member agencies has been nearly 100% reliable. However, as existing import supplies from the Colorado River and State Water Project face increasing challenges and restrictions, the reliability of deliveries from these sources continues to decline.

To address these challenges, MWD and its member agencies developed an Integrated Water Resources Plan (IRP) in 1996, updated in 2004, and more recently in 2010. The IRP process seeks to assess the mix of available water sources (local and imported), evaluate storage and conservation strategies, and develop an overall plan to provide a sustainable water supply for the future demand of the region.

MWD prepares its own Regional Urban Water Management Plan (RUWMP), and the concepts and strategies generated during the IRP process are used as the basis for developing the RUWMP. TVMWD's UWMP was prepared with the information provided during the development of MWD's RUWMP (November 2010).

Finally, MWD provides financial support for local water projects and water conservation programs implemented by its member agencies. These projects and programs contribute to an increase in the reliable regional water supplies available to its service area.

## Overview of Three Valleys Municipal Water District

Rapid population expansion and economic development throughout Los Angeles County during the early 1900s heightened the demand on existing water supplies. In the semi-arid environment of southern California, new water sources were sought because local water supply sources were unable to accommodate the increasing demand caused by such influx and development. In 1928, the Metropolitan

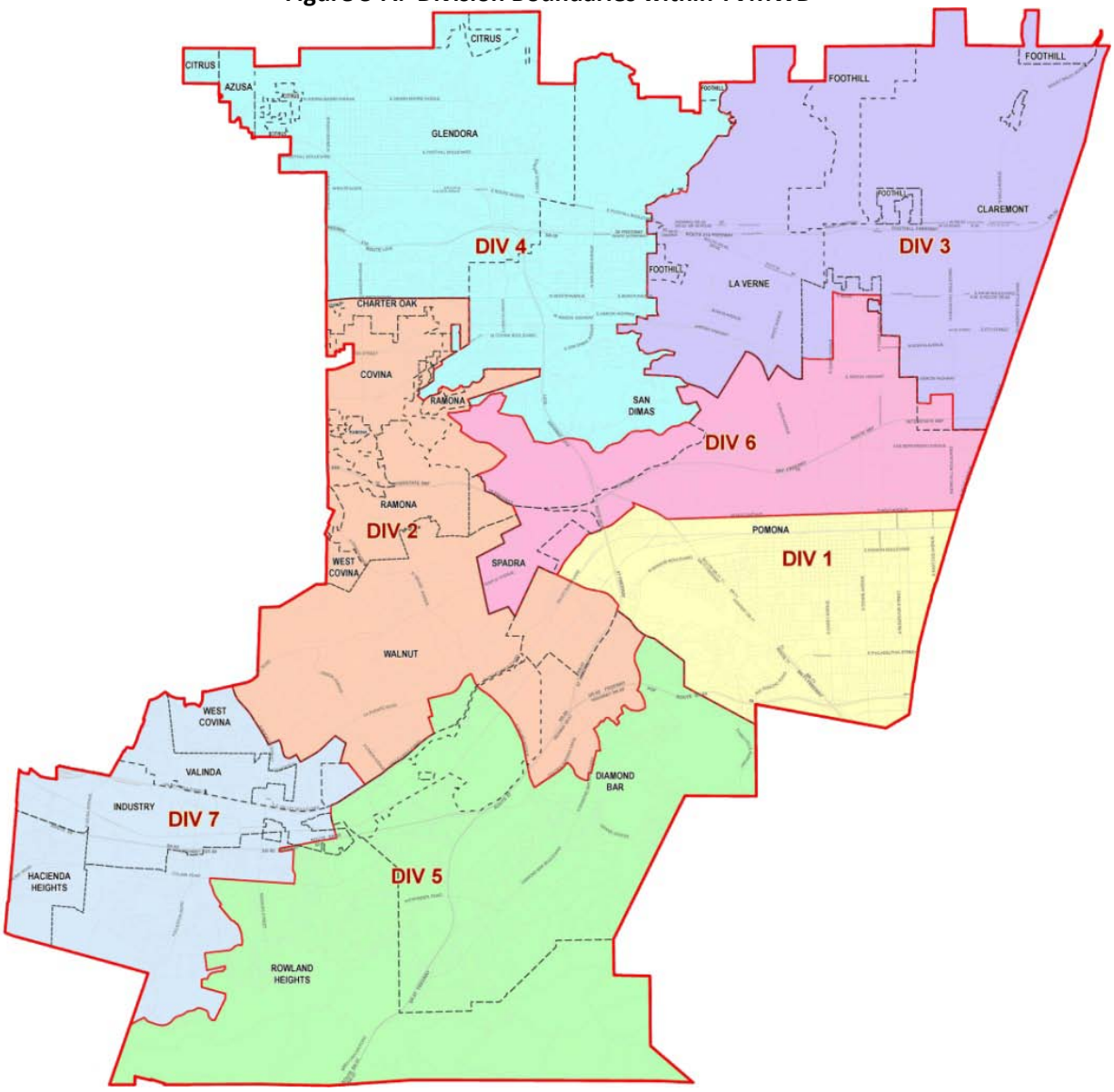
Water District of Southern California (MWD) was formed by eleven southern California cities to consolidate the diverse water requirements of the region into an agency with regional water resource planning objectives. The seminal project responsible for unifying the interests of these southern California communities was the 1941 completion of the 242-mile long Colorado River Aqueduct, which enabled the MWD to adequately provide imported water to its regional constituency. Subsequently, the California State Water Project was constructed, providing MWD with additional imported water from northern California. In 1945, the Pomona Area Water Committee was assembled for the purpose of securing annexation into MWD's service area to gain access to imported water supplies to serve the Pomona Valley, Walnut Valley, as well as the eastern portion of the San Gabriel Valley. Five years later, in January of 1950, the Pomona Valley Municipal Water District was created and effectively incorporated into MWD by November of the same year. Later, as the District developed and annexed additional Los Angeles County areas, its name was modified to Three Valleys Municipal Water District (TVMWD), more aptly describing the service area that the District encompassed.

**Southern California Citrus Orchard Circa 1960**

TVMWD is a local public agency organized under the provisions of the Municipal Water District Law of 1911, California Water Code Sections 71000 and 73000. As the Act reads, the primary functions of TVMWD are to acquire, control, distribute, store, purify, and conserve water for the beneficial use of its entire service area. TVMWD exclusively supplies water at wholesale to its member agencies, which in turn, either retail the water directly to their customers, or wholesale it to other public agencies and private water companies for resale. Most of TVMWD's retail member agencies draw from local sources of water available, however when water demands exceed these local supplies, the member agencies rely on TVMWD to supply their supplementary needs.

TVMWD is governed by a seven-member Board of Directors. Each director is publicly elected to represent one of seven defined divisional boundaries within the District. A map of the seven divisions is shown in Figure 3-A.

**Figure 3-A: Division Boundaries within TVMWD**




The directors serve staggered, four-year terms with elections taking place in November of even-numbered years. The elected members of the Board are required to reside within the Division that they represent. Public board meetings are generally held the third Wednesday of each month at 8:00 a.m. As a MWD member agency, Three Valleys is allocated one (1) seat on MWD's governing Board. The TVMWD Board members are responsible for appointing a representative to MWD's 37-member Board of Directors.

The District's mission statement "is to supplement and enhance local water supplies to meet customers' needs for adequate, high quality, reliable water in a cost-effective as well as environmentally sound manner". To achieve this mission, TVMWD works to diversify the region's water resources while minimizing long-term costs as well as the environmental impacts incurred. In its development of new water resources, TVMWD will assess the technical and economic feasibility of a proposal and seek to

develop a concept for implementation, operation and ownership with the goal of achieving consensus among the retail water purveyors, and will only move forward after considering best management practices for the water projects developed.

## 3.2 Service Area Boundary Maps

TVMWD's service area encompasses the Pomona Valley, Walnut Valley, and eastern portion of the San Gabriel Valley. The District has contiguous boundaries with five different municipal water districts, four of which are also member agencies of MWD. The District's boundary encompasses approximately 133 square miles and a current population estimate of 525,000. Table 3-1 lists the 14 water purveyors with all or portions of their respective service areas residing within the boundaries of TVMWD. Figure 3-B shows the incorporated cities wholly or partially within TVMWD's service area.

**Table 3-1: TVMWD Member Agencies**

| Name of Agency | Description of Service Area |
|---|---|
| Boy Scouts of America | the property comprising the Firestone Scout Reservation in SE Diamond Bar |
| California State Polytechnic University, Pomona | located in Pomona and comprising the campus and property owned and operated by the State of California university system |
| City of Covina | portions of the City of Covina located mainly east of Grand Avenue |
| Covina Irrigating Company | wholesale water provider delivering water to Covina, Glendora, GSWC (San Dimas), Suburban Water Systems, and Valencia Heights Water Co. |
| City of Glendora | city boundaries of Glendora |
| Golden State Water Co. (Claremont) | city boundaries of Claremont |
| Golden State Water Co. (San Dimas) | city boundaries of San Dimas and portions of Covina |
| City of La Verne | city boundaries of La Verne |
| Mt. San Antonio College | located in Walnut and comprising the campus and property owned and operated by the State of California Junior college system |
| City of Pomona | city boundaries of Pomona |
| Rowland Water District | unincorporated communities of Rowland Heights and Hacienda Heights and portions of Industry, La Puente, and West Covina |
| Suburban Water Systems | portions of Covina, Glendora, and West Covina |
| Valencia Heights Water Co. | portions of Covina and West Covina |
| Walnut Valley Water District | all or portions of Diamond Bar, Industry, Pomona, Rowland Heights, Walnut, and West Covina |

**Figure 3-B: Cities within TVMWD Service Area**

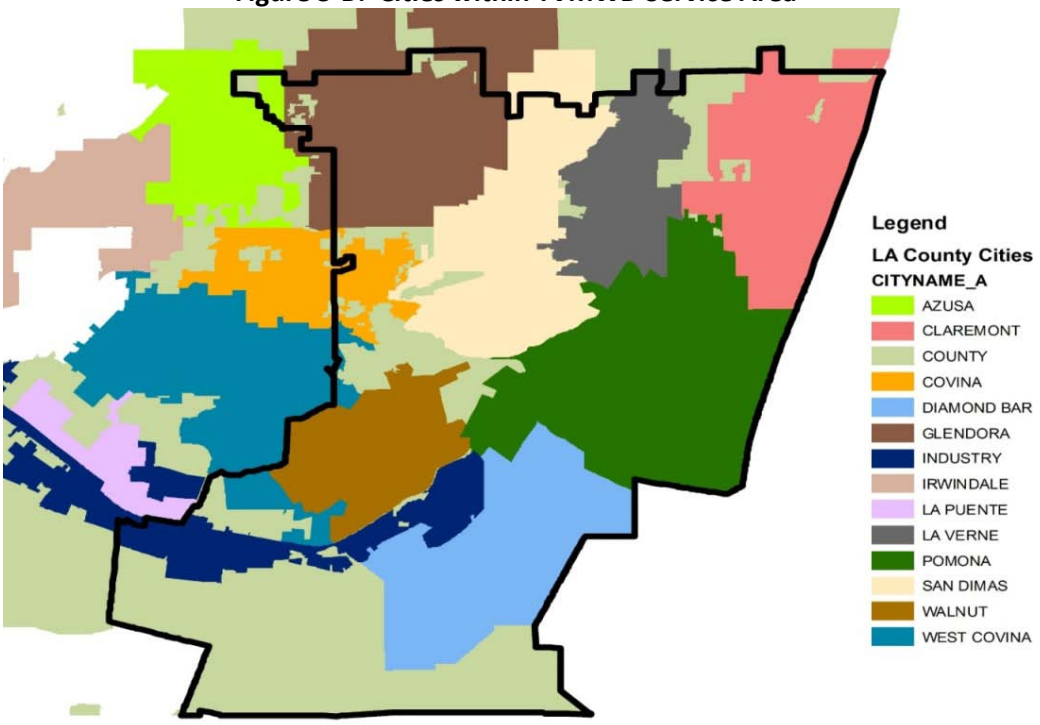



**Figure 3-C: MWD Service Area Map**

## Three Valleys Municipal Water District (TVMWD)

TVMWD is one of 26 member agencies of the Metropolitan Water District. In turn, TVWMD has retail member agencies within its service area to which the District supplies imported water to these retail agencies' individual distribution systems. It is the retail agencies that deliver water directly to the consumer and end users throughout out the entire service area of TVMWD. Table 3-2 lists the member agencies of the District, the corresponding service areas that each serves, and a general description of the water resources utilized by the individual agencies.

**Table 3-2: Description of Member Agency Service Area and Supply Sources**

| Member Agency | Description / Service Area / Supply Sources |
|---|---|
| Boy Scouts of America (BSA) | • The BSA is one of three institutional users within the TVMWD service area that uses imported water from the District to serve its individual property.<br>• The BSA owns and operates the Firestone Reservation, a campground and wilderness facility located in the southern portion of TVMWD's service area.<br>• The Firestone Reservation maintains a relatively small demand for water and its sole source is its import supply. |
| California State Polytechnic University, Pomona | • Cal Poly Pomona is a college campus and another of the institutional users within TVMWD that serves only the water needs of the university.<br>• Cal Poly is located in the central portion of the District's service area and enjoys a mix of imported water and groundwater for its domestic supply and recycled water purchased from the City of Pomona for its irrigation use. |
| City of Covina | • The city serves incorporated and unincorporated territories of Covina. Its service area straddles the boundary between TVMWD and the neighboring wholesale water agency, Upper San Gabriel Valley Municipal Water District (USGVMWD). Approximately 27% of the City's service area is within TVMWD.<br>• Covina receives most of its water supply from another wholesale water agency (see Covina Irrigating Co.), which consists of local surface and groundwater sources. When needed, the City will also draw on imported water through TVMWD. |
| Covina Irrigating Company (CIC) | • CIC is the lone wholesale water agency among the retail agencies within the TVMWD service area. CIC's shareholders to whom it delivers water include some of the agencies on this list as well as one in the USGVMWD service area.<br>• CIC currently draws groundwater from the Main San Gabriel Basin and surface water from the San Gabriel River. A proposed project will soon allow delivery of imported water into CIC's system for subsequent delivery to its retail customers. |
| City of Glendora | • The City serves most of the incorporated and unincorporated territories of Glendora and about 98% of its service area is within the boundaries of TVMWD (the remainder being within USGVMWD's area). The city is located in the northwestern portion of the District's service area.<br>• Glendora's primary supply is groundwater pumped from the Main San Gabriel Basin. The City also receives water from CIC and typically uses imported water only when its other sources are not available or during high summer demand periods. |

**Table 3-2: Description of Member Agency Service Area and Supply Sources, continue**

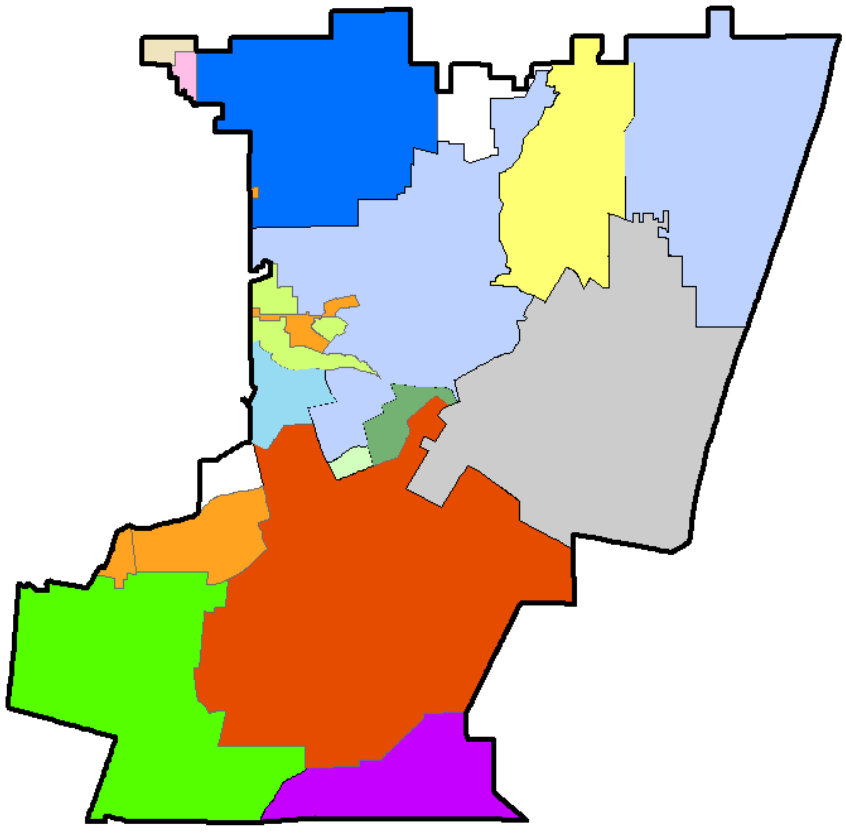
| Member Agency | Description / Service Area / Supply Sources |
|---|---|
| Golden State Water Company (GSWC) | • GSWC is a privately-owned water company regulated by the Public Utilities Commission (PUC). It serves two non-contiguous areas within TVMWD's boundaries. The first is the Claremont system and the other is its San Dimas system. As their names infer, these systems cover the cities of Claremont and San Dimas, respectively.<br>• GSWC's Claremont system uses a mix of groundwater drawn from the Six Basins and Chino Basin as well as imported water treated at TVMWD's Miramar Water Treatment Plant (WTP).<br>• GSWC's San Dimas system draws from a number of sources including CIC (surface and groundwater), its own groundwater from the Main San Gabriel Basin, and imported water from MWD/TVMWD. The San Dimas system also has a small amount of surface water available in its resource mix, but is used only for non-potable irrigation purposes. |
| City of La Verne | • The City is located in the northern portion of TVMWD's service area and serves the incorporated territory of La Verne.<br>• It uses a mix of groundwater from the Six Basins and imported water treated at TVMWD's Miramar WTP. |
| Mt. San Antonio College (MSAC) | • MSAC is a community college located in the central portion of the TVMWD service area adjacent to Cal Poly Pomona. Along with the BSA and Cal Poly, it too is an institutional user that serves only the water demands within the campus property.<br>• MSAC has a couple of small groundwater wells that are used for non-potable purposes. Otherwise, the college's demand is met wholly with imported water through MWD/TVMWD. |
| City of Pomona | • Pomona is a large, urban city located in the eastern portion of the TVMWD service area. The City serves the entire incorporated boundary.<br>• The City has numerous sources of water including local surface water from the San Antonio Canyon, groundwater from Chino, Spadra, and Six Basins, as well as imported water through MWD/TVMWD. Pomona owns and operates a recycled water system to deliver for non-potable demands. Cal Poly, another TVMWD member agency is a direct customer of recycled water from the City. |
| Rowland Water District (RWD) | • RWD is a public water district with its service area in the far southwestern portion of TVMWD's boundaries. It serves the unincorporated communities of Rowland Heights and Hacienda Heights and portions of the cities of Industry, La Puente, and West Covina.<br>• Its only source of potable water is imported water delivered by MWD/TVMWD. RWD continues to expand its recycled water system to feed non-potable demand. |
| Suburban Water Systems (SWS) | • SWS is a privately-owned water company regulated by the PUC. It has several small, non-contiguous service areas in the Covina, Glendora, and West Covina vicinities, which are generally along the western boundary of TVMWD. SWS refers to its service area in the San Gabriel Valley as its San Jose District. The majority of this district's service area is actually within USGVMWD's boundaries with only about 7% falling within TVMWD.<br>• SWS receives water from CIC (groundwater and surface water) and other groundwater drawn from the Main San Gabriel Basin. SWS may also use MWD imported water delivered through TVMWD or USGVMWD. SWS is currently expanding its recycled water infrastructure to deliver this resource for non-potable demand. |

**Table 3-2: Description of Member Agency Service Area and Supply Sources, continued**

| Member Agency | Description / Service Area / Supply Sources |
|---|---|
| Valencia Heights Water Company (VHWC) | • VHWC is a mutual water company serving portions of the incorporated and unincorporated areas of Covina and West Covina. It is located in the central portion of the TVMWD service area.<br>• VHWC is a shareholder of CIC and therefore receives delivery of this supply (ground- water and surface water). It also has groundwater production capability from the Main San Gabriel Basin. Between those two sources, VHWC can typically meet its overlying demand. During times of emergency or unavailability of the above sources, VHWC can also get MWD imported water through an interconnection with WVWD. |
| Walnut Valley Water District (WVWD) | • WVWD is a public water district located in the southeast portion of TVMWD's service area. WVWD serves all or portions of the communities and cities of Diamond Bar, Industry, Pomona, Rowland Heights, Walnut, and West Covina. It is the largest user of imported water in TVMWD's service area.<br>• Similar to RWD, WVWD's only source of potable water is imported water delivered by MWD/TVMWD. For its non-potable demand, WVWD operates a recycled water system. The sources for the recycled water include effluent from the Pomona Water Reclamation Plant and several groundwater production wells extracting from the Puente Basin and Spadra Basin. |

The service areas of the various member agencies above are depicted in Figure 3-D.

**Figure 3-D: Member Agency Service Areas**



## 3.3 Service Area Climate

***CWC Section 10631*** *Describe the service area of the supplier, including… climate…*

TVMWD's service area is located within the "Mediterranean" climate zone of Southern California. The region receives an average annual rainfall of about 13.1 inches. Monthly average temperatures range from a low of 51.9 degrees in December to a high of 72.7 degrees in July. Table 3-3 shows monthly average rainfall and temperature within TVMWD's service area over the past 10 years (2005-2015).

**Table 3-3: Average Monthly Rainfall and Temperature**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Average Rainfall (in.) | 2.19 | 3.96 | 1.58 | 0.94 | 0.30 | 0.04 | 0.04 | 0.01 | 0.10 | 1.05 | 1.00 | 1.92 |
| Average Temp (F) | 53.1 | 53.2 | 56.4 | 58.4 | 64.2 | 67.9 | 72.7 | 72.6 | 70.3 | 63.6 | 57.8 | 51.9 |

## 3.4 Service Area Population and Demographics

***CWC Section 10631*** *Describe the service area of the supplier, including 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 and shall be in five-year increments to 20 years or as far as data is available .*

Much of the TVMWD service area is filled with urban development thus leaving a relatively small balance of open space for future improvement and population growth. Still, the TVMWD region is expected to experience some increase over the next 20 years.

The Southern California Association of Governments (SCAG) provides the most comprehensive analysis of demographic information for the local region including the TVMWD service area. Among other services, SCAG provides a population projection on a city-by-city level throughout Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura counties. These projections are used as a basis for TVMWD's analysis of growth within its service area.

The California Department of Finance (DOF) also provides current population estimates for cities and growth projections on a county-by-county basis. Information from the DOF is also used in TVMWD's demographic analysis to determine initial population numbers. Table 3-4 provides population projections for the incorporated cities and unincorporated territory within TVMWD's service area.

**Table 3-4: Population Projections for Cities within TVMWD Service Area**

| | | | Population in Year: | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cities | 2015 Population | % of Total within TVMWD | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 |
| Azusa | 49,425 | 2.5% | 1,236 | 1,285 | 1,336 | 1,390 | 1,446 | 1,503 |
| Claremont | 36,282 | 100.0% | 36,282 | 37,733 | 39,243 | 40,812 | 42,445 | 44,143 |
| Covina | 48,876 | 33.3% | 16,276 | 16,927 | 17,604 | 18,308 | 19,040 | 19,802 |
| Diamond Bar | 56,668 | 100.0% | 56,668 | 58,935 | 61,292 | 63,744 | 66,294 | 68,945 |
| Glendora | 51,463 | 98.0% | 50,434 | 52,451 | 54,549 | 56,731 | 59,000 | 61,360 |
| Industry | 440 | 55.0% | 242 | 252 | 262 | 272 | 283 | 294 |
| La Puente | 40,690 | 1.0% | 407 | 423 | 440 | 458 | 476 | 495 |
| La Verne | 33,042 | 100.0% | 33,042 | 34,364 | 35,738 | 37,168 | 38,654 | 40,201 |
| Pomona | 152,419 | 100.0% | 152,419 | 158,516 | 164,856 | 171,451 | 178,309 | 185,441 |
| San Dimas | 34,713 | 100.0% | 34,713 | 36,102 | 37,546 | 39,047 | 40,609 | 42,234 |
| Walnut | 30,257 | 100.0% | 30,257 | 31,467 | 32,726 | 34,035 | 35,396 | 36,812 |
| West Covina | 108,401 | 15.0% | 16,260 | 16,911 | 17,587 | 18,290 | 19,022 | 19,783 |
| Unincorporated | 290,600 | 33.3% | 96,770 | 100,641 | 104,666 | 108,853 | 113,207 | 117,735 |
| **Total** | | | **525,000** | **546,000** | **567,800** | **590,600** | **614,200** | **638,700** |

Accordingly, population projections (in five-year increments) for the entire TVMWD service area for the planning horizon of this UWMP are shown in Table 3-5.

**Table 3-5 Wholesale: Population - Current and Projected**

| Population Served | 2015 | 2020 | 2025 | 2030 | 2035 | 2040*(opt)* |
|---|---|---|---|---|---|---|
| | 525,000 | 546,000 | 567,800 | 590,600 | 614,200 | 638,700 |

Population, housing, and employment growth rates in the TVMWD service area were obtained from the California Department of Finance, Southern California Association of Governments (SCAG) regional planning agency, San Gabriel Valley Council of Governments and from in-house estimates. The updated population projections are lower compared to the projections in the 2010 UWMP.

## 3.4.1 Other Demographic Information

***CWC 10631*** *Describe the service area of the supplier, including. . . other demographic factors affecting the supplier's water management planning*

The San Gabriel Valley (SGV) is a large sub-region in the northeast portion of the Los Angeles County urbanized area and is home to roughly one-fifth of the county's population and workforce. TVMWD is situated in the eastern portion of the SGV. Politically, the SGV is governed by 31 separate municipalities, as well as the County which has jurisdiction over unincorporated "islands" that cover about 13 percent of the area. The SGV is bounded on the east by the San Bernardino county line, on the north by the

Angeles National Forest, on the south by State Highway 60, and on the west by the municipal boundaries of the cities of Los Angeles and Glendale. The SGV is home to 18% percent of Los Angeles area residents; its economic base employs 18% of metro area workers; and it is second in size to the City of Los Angeles sub-region where 40% of jobs are located. While the majority of Valley workers live in the valley, a significant portion of workers commute from neighboring areas in San Bernardino County (east), the City of Los Angeles (west), Pasadena area (northwest), and the Gateway Cities sub- region (south). Similarly, SGV residents tend to commute to jobs in these neighboring areas. The commuting patterns confirm that the SGV is economically integrated with the Los Angeles metro area, and secondarily with the Riverside-San Bernardino metro area.

Along with the SGV, the TVMWD service area has experienced slightly slower population growth than the greater Los Angeles County area. Because most of TVMWD's service area consists of developed, established communities, it did not see the explosive growth observed in many regions of southern California through the latter part of the 1990s and early 2000s. Only relatively small pockets of open space remain within TVMWD, which could potentially be developed in the future and impact overall water demand.

Because of the SGV's close relationship with the economy and job market of the general Los Angeles region, economic trends that affect housing demands and job growth in Los Angeles can be correspondingly applied to SGV and the TVMWD service area. The general trend over the past five years has been one of very slow economic growth in Los Angeles and the greater southern California area. As the recession had eased over the country, the Los Angeles region has experienced recent growth within the TVMWD service area. This trend of slow growth is expected to continue. Population growth, however, will be greater in other areas of southern California than within the TVMWD service area. Although it is expected that some increase will still take place within TVMWD. The following table provides a forecast of that growth by housing units and urban employment. The recent trend in housing construction has tended to be higher density housing rather than single family housing.

**Table 3-6: TVMWD Population Projections and Housing Statistics**

| Description | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Estimated Population | 546,000 | 567,800 | 590,600 | 614,200 | 638,700 |
| Occupied Housing Units | 165,211 | 169,156 | 173,552 | 178,083 | 185,161 |
| Single Family | 126,267 | 127,015 | 130,052 | 133,841 | 138,379 |
| Multi-Family | 38,944 | 42,141 | 43,500 | 44,242 | 46,782 |
| Persons per Household | 3.22 | 3.22 | 3.31 | 3.32 | 3.32 |
| Urban Employment | 191,287 | 196,408 | 199,959 | 201,807 | 207,209 |

# Chapter 4 – System Water Use

In this chapter the current and projected water uses (demands) through the year 2035, within the District's service area, are described and quantified.

Accurately tracking and reporting current water demands enable the District to properly analyze the use of its resources and conduct good resource planning. Estimating future demand as accurately as possible allows the District to manage its water supply and appropriately plan its infrastructure and capital investments. District Assessments of future growth and related water demand, done in coordination with other local planning agencies, provide important information for developing future demand projections. District staff has coordinated and communicated with its member agencies in developing anticipated future demand projections.

The District recognizes that many planning agencies, whether local, regional, or statewide, rely upon water agencies' current water demand reports and demand projections in order to manage water resources on a larger scale.

Various sources of water supply are available to TVMWD and its member agencies. The TVMWD service area overlies several groundwater basins, is adjacent to foothill areas that provide local surface supplies, includes water reclamation plants that deliver recycled water, and contains two water treatment plants (MWD's Weymouth and TVMWD's Miramar) that receive and deliver imported water for potable use. The combination of all these sources, along with other potential projects to be discussed later, serves as the basis for determining the reliability of a water supply for the entire TVMWD service area.

## 4.1 Recycled versus Potable and Raw Water Demand

In order to clearly distinguish recycled from potable and raw water demand, District staff has followed the guidance and suggested reporting for these demands discussed in the Guidebook. Recycled water is addressed in Section 6.5 of Chapter 6 of the UWMP. A summary of recycled water demand (TVMWD does not provide recycled water) is shown in Table 4-3 below. This chapter addresses potable water demand and also provides for the reporting of raw water demand for the year 2015.

**Table 4-3 Wholesale: Total Water Demands**

| | 2015 | 2020 | 2025 | 2030 | 2035 | 2040*(opt)* |
|---|---|---|---|---|---|---|
| Potable and Raw Water *From Tables 4-1 and 4-2* | 63,976 | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |
| Recycled Water Demand *From Table 6-4* | - | - | - | - | - | - |
| **TOTAL WATER DEMAND** | 63,976 | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |
| NOTES: TVMWD does not provide recycled water to its member agencies. | | | | | | |

| Table 4-1 Wholesale: Demands for Potable and Raw Water - Actual | | | |
|---|---|---|---|
| Use Type<br>*Drop down list*<br>*May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool* | 2015 Actual | | |
| | Additional Description<br>*(as needed)* | Level of Treatment When Delivered<br>*Drop down list* | Volume (AF) |
| Sales to other agencies | | Drinking Water | 58,970.0 |
| Groundwater recharge | | Raw Water | 4,946.4 |
| Losses | | Drinking Water | 59.8 |
| Transfers to other agencies | | | |
| Exchanges to other agencies | | | |
| | | **TOTAL** | 63,976.2 |
| NOTES: | | | |

## 4.2 Water Uses by Sector

***CWC 10631 (e)(1)*** *Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:**(A)** Single-family residential.**(B)** Multifamily.**(C)** Commercial.**(D)** Industrial.**(E)** Institutional and governmental.**(F)** Landscape.**(G)** Sales to other agencies.**(H)** Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.(I) Agricultural…*

*(2) The water use projections shall be in the same five-year increments described in subdivision (a)*

In reporting water uses (demands) in Table 4-1 and Table 4-2 (see below), the District is only reporting its direct uses and not reporting the uses of its member agencies to which it provides water. The retail agencies are responsible for reporting the uses of their water supply to the industrial customers in their own UWMP. Wholesale agencies may report on the entirety of water use within their service area by aggregating water demand reported from all suppliers in the service area. Aggregated reporting of all water use within a wholesaler's service area is not required by the CWC and therefore not included in this UWMP.

| Table 4-2 Wholesale: Demands for Potable and Raw Water - Projected | | | | | | |
|---|---|---|---|---|---|---|
| Use Type<br>*Drop down list*<br>*May select each use multiple times*<br>*These are the only Use Types that will be recognized by the WUEdata online submittal tool.* | Additional Description *(as needed)* | Projected Water Use<br>*Report To the Extent that Records are Available* | | | | |
| | | 2020 | 2025 | 2030 | 2035 | 2040- opt |
| Sales to other agencies | | 64,200 | 65,500 | 66,700 | 68,000 | 69,300 |
| Groundwater recharge | | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| Losses | | 60 | 60 | 60 | 60 | 60 |
| **TOTAL** | | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |

## 4.2.1 Demand Sectors Listed in Water Code

The following definitions are used by DWR for each of the water sectors listed in the CWC. The order of the sectors follows the order found in the CWC.

**4.2.1.7 Sales to other agencies** - Water sales made to another agency. Projected sales may be based on projected demand provided by the receiving agency. There is inherent uncertainty in future projections, therefore, any projected sales reported in the UWMP are for planning purposes only and are not considered a commitment on the part of the seller. This is a wholesale demand. Water agencies will determine whether their demands are considered sales, transfers, or exchanges; reporting in the UWMPs will reflect the agencies' determination of these water demands. Some retail agencies also supply water to other agencies. This is considered a wholesale demand.

**4.2.1.8 Conjunctive use** - A management strategy where surface water is managed in conjunction with an underground aquifer. For purposes of the UMWP, conjunctive use is seen as a management strategy rather than as a demand. Do not use the sector "conjunctive use" as a demand. The water demand would best be reported as groundwater recharge, or as "Other".

**4.2.1.9 Groundwater Recharge** - The managed and intentional replenishment of natural groundwater supplies using man-made conveyances such as infiltration basins or injection wells. Water used for groundwater banking or storage may also be reported using this sector. If all, or a portion of, the groundwater recharge water is subsequently pumped out of the basin in the same year, that water will be reported by the pumping agency as a supply from groundwater (Tables 6-1 and/or 6-8 and 6-9). This may be either a wholesale or retail demand.

**4.2.1.12 Distribution System Losses** - Reporting of system losses are required by the CWC in the 2015 UWMPs. The CWC requires reporting losses for the most recent 12 months for which data is available, which can be taken to mean the calendar year or fiscal year used for data reporting throughout the rest of the UWMP. Distribution system losses for the most recent 12 months are shown in Table 4-1.

Table 4-1 lists actual demands for potable and raw water for FY 2014-15 based on type of water (e.g. potable water sales to other agencies, or raw water sales for Groundwater recharge, ect.).

Table 4-2 lists estimated future (projected) demands for potable and raw water in five year increments over the next 20 years (i.e. from 2020 to 2035) based on type of water (e.g. Sales to other agencies and Groundwater recharge, ect.).

Table 4-3 lists the estimated future total demands for potable and raw water in five year increments over the next 20 years (i.e. from 2020 to 2035).

## Existing Demands

During a normal year, local sources (i.e. groundwater, surface water, and recycled water) have historically met about 45% of the entire water needs of the District's service area. The remaining balance of 55% is met by imported sources from Metropolitan Water District (MWD). Table 4-4 below illustrates relative use percentages during the last five years of the various water sources available within the TVMWD service area.

**Table 4-4: Relative Use of Water Sources Within TMVWD Service Area**

| Fiscal Year | Local Supplies | | | Import |
|---|---|---|---|---|
| | GW | Surface | Recycled | |
| 2010-11 | 39% | 4% | 2% | 55% |
| 2011-12 | 42% | 4% | 2% | 52% |
| 2012-13 | 39% | 3% | 3% | 56% |
| 2013-14 | 37% | 2% | 3% | 59% |
| 2014-15 | 48% | 3% | 3% | 46% |
| Average | 41% | 3% | 2% | 54% |

Historically, groundwater production within TVMWD has been relatively stable, with average total production ranging from 45,000 to 53,000 AFY. The more prolific basins have the capability to be replenished by local surface runoff as well as import water. It is this capability that allows conjunctive use projects to make sense and a vital groundwater management tool. Accordingly, these basins play a key role during periods of drought and times of emergency when import water is less available.

Over the past several years, demand has been relatively stable throughout this region with increased levels of conservation taking place during the last couple of record dry years. In the Spring of 2015 and into 2016, many agencies put forth concerted efforts to reduce water consumption and encourage water conservation in order to meet the state mandated 25% overall conservation (i.e. compared to 2013 year water demands). This manifests itself in reduced use in 2015.

For the most part, existing available supplies have been able to meet existing overlying water demands with some difficulty. The recent historic dry years have resulted in extremely low groundwater levels which resulted in significantly lower ground water well production.

Conservation messages and pricing strategies to promote reduced water consumption by end users have certainly helped to temper the pressure on supply availability during recent historic dry periods, and that strategy will be important in maintaining reliability into the future.

The primary demand for water within TVMWD's service area is by the municipal and industrial sector, and the urban character of the region suggests that that trend will not change through the planning horizon of this UWMP. It is expected that the existing resources available to the TVMWD service area will continue to be available through 2040. Meanwhile, TVMWD and its member agencies continue to search for potential other supplies, develop additional local groundwater wells to increase local supply reliability, and develop additional resource management strategies to augment existing resources and improve overall reliability.

The following sections provide a forecast of water demands through 2040 and the various strategies that can be used to minimize or mitigate potential shortages.

## 4.3 Distribution System Water Losses

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

***(J)*** *Distribution system water loss*

***(3)(A)*** *For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.*

***(B)*** *The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.*

Distribution system water losses (also known as "real losses") are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption.

Projected water losses have been reported in five year increments (over the next 20 years) in Table 4-2 of the UWMP. Distribution system water loss for the most recent FY has been reported in Table 4-4. Historically system water losses have been very low (less than 2%) and are expected to remain low due to proactive measures taken by the District to operate and maintain its infrastructure in good working condition.

# Chapter 5 SB X7-7 Baselines and Targets

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, the State is required to set a goal of reducing urban water use by 20 percent by the year 2020. Each retail urban water supplier must determine baseline water use during their baseline period and also target water use for the years 2015 and 2020 in order to help the State achieve the 20 percent reduction.

In the 2015 Plan, water agencies must demonstrate compliance with their established water use target for the year 2015. This will also demonstrate whether or not the agency is currently on track to achieve its 2020 target. Compliance is verified by DWR's review of the SB X7-7 Verification Form submitted with an agency's 2015 UWMP.

Baselines and targets are to be calculated for each retail urban water supplier. This may be done individually or regionally. Regional compliance with SB X7-7 is done via a Regional Alliance and is addressed in Section 5.9.

Specific methodologies and calculations are detailed in *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use,* DWR 2011, pending 2015 update.

**GPCD Terminology** - When determining water use in a UWMP, two terms are often used interchangeably:

Daily per Capita Water Use - the amount of water used per person per day. In the UWMP calculations, this is total water use within a service area, divided by population and is measured in gallons.

Gallons per Capita per Day (GPCD) – This is the "Daily per Capita Water Use" measured in gallons. Therefore, the term commonly used when referring to "Daily per Capita Water Use" is "Gallons Per Capita per Day" or "GPCD."

It may also be important to distinguish GPCD (as used in Urban Water Management Plans) from the R-GPCD that is used in drought reporting to the State Water Resources Control Board.

GPCD is the total water use within a service area (residential, commercial, institutional, etc…) minus allowable exclusions, divided by the population. This is used in UWMPs for purposes of the Water Conservation Act of 2009.

R-GPCD is solely the estimated residential water use in a service area divided by population. R-GPCD is used in drought reporting to SWRCB for purposes of complying with the Governor's drought declarations and executive orders in 2014 and 2015.

## 5.1 Guidance for Wholesale Agencies

*For purposes of identifying baselines and targets, the following definition applies: CWC 10608.12(r) "Urban wholesale water supplier" means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.*

***CWC 10608.36*** *Urban wholesale water suppliers shall include in the urban water management plans… an assessment of their present and proposed future measures, programs, and policies to help*

*achieve the water use reductions required by this part.*

The District, as a wholesale water supplier is not required to establish and meet baseline and targets for daily per capita water use, nor is it required to complete the SB X7-7 Verification Form. However, the District is required to provide an assessment of its present and proposed future measures, programs and policies that will help its retail member agencies water suppliers in their wholesale service area achieve their SB X7-7 water use reduction targets.

Some of the successful measures include, water conservation programs funded by MWD (via pass through funding by the District) and supported by the TVMWD and made available to its member agencies. These programs include turf removal, rain barrel distributions, and toilet retrofits. In addition, the District has supported and/or adopted various policies in order to encourage demand reduction (conservation) in its service area. The District has passed through an average of more than $330,000 per year (a total of $4.3 million) to the member agencies for completion of conservation programs for their customers. Recently the District has seen a significantly higher amount of funding to assist with water use efficiency efforts.

In addition, the District provides more than $60,000 annually for regional outreach and legislative programs that are completed throughout the region. The District has also assisted its member agencies with outreach and public relations. These programs and messaging campaigns have been very successful in reaching out to the public to highlight the importance of and increase public awareness about water conservation. The "fruit" of this public messaging has resulted in changed behavior and attitudes about water conservation as reflected in significantly reduced water use (approximately 25%) within the District's service area.

# Chapter 6 – System Supplies

In this chapter the current and projected sources of water available to the District are described and quantified. A description and quantification of potential recycled water uses and supply availability has not been included in this chapter, as recycled water opportunities and/or projects will likely not pertain directly to the District.

## 6.1 – Purchased or Imported Water

Various sources of water supply are available to TVMWD. The two sources of supply include groundwater (pumped by two District wells) and imported water (i.e. water from the California State Water Project – see photo below) that the District purchases from MWD. In 2015 the District imported a total of 57,860 AF of water through the various metered connections (i.e. the District's connection and the MWD connections of its member agencies) with MWD. The District imported a total of about 17,650 AF through its MWD connection (PM-21) that supplies water to the Miramar Plant.

**California State Water Project (California Aqueduct)**

The TVMWD service area overlies several groundwater basins, is adjacent to foothill areas that provide local surface supplies, includes water reclamation plants that deliver recycled water, and hosts two water treatment plants (Weymouth and Miramar) that process and deliver imported water for potable use. The combination of all these sources, along with other potential projects to be discussed later, serves as the basis for determining the reliability of water supplies for the entire TVMWD service area.

Historically, imported water accounts for a little more than half of the water demand within the TVMWD service area. Typically, the amount is about 60,000 to 70,000 AFY. All imported water delivered into the TVMWD service area is made through the Metropolitan Water District of Southern California (MWD).

MWD draws from both the State Water Project and Colorado River Aqueduct to serve TVMWD. The Weymouth Water Treatment Plant, one of MWD's larger treatment facilities, is located in the heart of the TVMWD service area.

TVMWD also operates the Miramar Water Treatment Plant (Miramar) located at its headquarters in the city of Claremont. Miramar receives 100% State Project Water from MWD's Foothill Feeder and treats that water for potable use. More recently, a second groundwater production well was constructed at the Miramar site and now augments the imported water production of the plant. The two wells provide about 7% of the total output of the plant. Between the Weymouth and Miramar facilities, the entire potable imported water needs of TVMWD's member agencies are served.

The need for imported water to serve this region is the primary reason that TVMWD was created. Imported water is necessary to augment local supplies to satisfy overall water demand of this urbanized area. It will remain a fixture in the resource mix for the foreseeable future. What is certainly recognized is that this resource is also experiencing a great deal of pressure and suffering limitations in availability on several fronts (environmental, legal, and hydrologic). These factors generate questions of long-term reliability and sustainability.

During times of drought or periods of extended dry conditions, imported water is generally the first resource to be restricted in use. MWD has established drought management programs that encourage a reduction in imported water use including the Water Supply Allocation Program (WSAP), which was implemented during the 2009-2010 fiscal year and again in 2015. In this case, the restriction is driven by water rates and pricing points that discourage use beyond established allocations.

In such times, extraordinary measures in water conservation are encouraged and implemented. Additional local supplies are also called upon to make up for such losses of imported water. Over the past 20 years, MWD has invested in programs to promote these concepts. TVMWD agrees with MWD's resource management strategy and has coordinated with MWD on several projects to implement these concepts. Namely, these efforts include water conservation programs that promote a sustained reduction in overall water demand, conjunctive use programs that store imported water during times of availability for subsequent use in times of drought, and local resource programs that expand the use of local supplies to offset long-term demand on imported resources.

## 6.2 – Groundwater

The District pumps groundwater from the Six Basins aquifer located in northeast Los Angeles County. In fiscal year 2014-15 the District pumped 1,110 AF of water from its two water wells. The District completed construction of its second water well (TVMWD Well #2 - see photo below) in summer of 2014 and plans to construct additional groundwater wells to increase supply reliability. Groundwater accounts for about 7% of the District's water supply from the Miramar Plant and imported water the remaining 93%. The District has an annual pumping right of 3,500 AF from the Six Basins, based on the terms of the Judgement. Groundwater management is dictated by the terms of the Judgement.

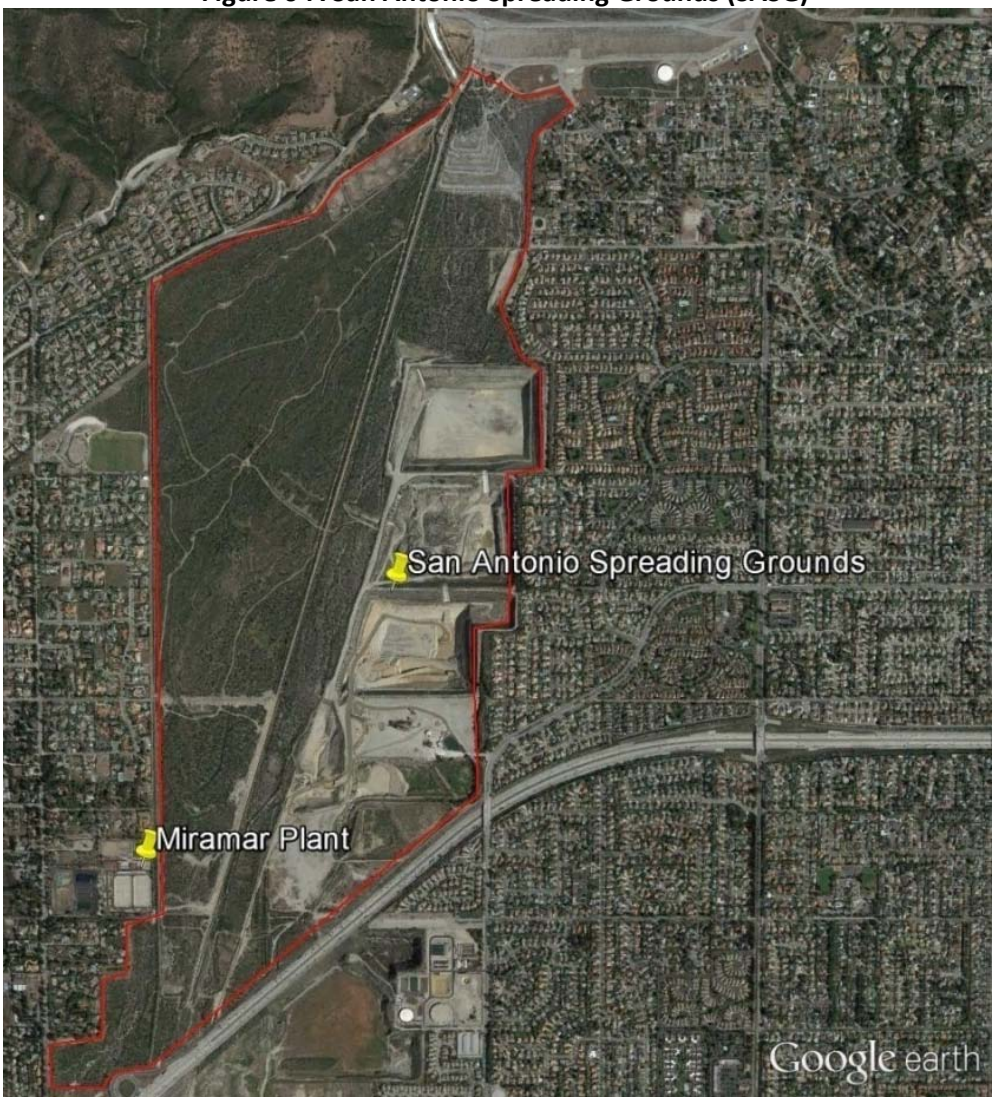
For the entire service area of the District, during a normal year, local sources (i.e. ground- water, surface water, and recycled water) have historically met about 45% of the entire water needs of the service area. The remaining balance of 55% is met by imported supplies from Metropolitan Water District (MWD).

**TVMWD Well #2 (completed August 2014)**

Some of the District's member agencies are planning to construct additional groundwater wells in basins (i.e. Lower Claremont Heights, Live Oak, Ganesha, and Pomona Basins) that have water quality issues such as elevated nitrate and perchlorate levels. Treatment is required to put the groundwater to beneficial use, which has limited groundwater production in these basins.

The District's two water wells are located adjacent to the San Antonio Spreading Grounds (see Figure 6-A) which encompass about 850 acres of open space directly east of the Miramar Plant. The spreading grounds are recharged by several ways: 1) rainfall that falls on this area, 2) District directing imported raw water (from the District's raw water connection from MWD) to a portion of this area via the District's spreading ground pipelines, or 3) when PVPA (the property owner of this land) intentional diverts water from the San Antonio Channel (immediately downstream of the San Antonio Dam) to the northern portion of the spreading grounds.

**Figure 6-A San Antonio Spreading Grounds (SASG)**




## 6.2.1 – Basin Description

*CWC 10631 (b) If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater.*

Groundwater makes up the majority of local supplies available to the District's service area. There are several groundwater basins that underlie TVMWD, and each is utilized to varying degrees depending on court-ordered limitations and water quality characteristics. Table 6-1 lists the subject basins that are within TVMWD, sub-basins (if any) that are utilized, and the management scheme of each.

**Table 6-1: Groundwater Basins Within TVMWD Service Area**

| Groundwater Basin | Sub-Basins | Management Scheme |
|---|---|---|
| Chino Basin | | Adjudicated(1978) |
| San Gabriel Basin | Main, Lower/Upper SG Canyon, Foothill, Glendora, San Dimas, Way Hill | Adjudicated(1972) |
| Puente Basin | | Adjudicated(1985) |
| Six Basins | Canyon, Lower Claremont Heights, Upper Claremont Heights, Pomona, Live Oak, Ganesha | Adjudicated(1998) |
| Spadra Basin | | Not adjudicated |

## 6.2.2 Groundwater Management

*CWC 10631 (b) …If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan: (1) A copy of any groundwater management plan adopted by the urban water supplier…or any other specific authorization for groundwater management.(2) …For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.*

The District's groundwater wells pump directly from Six Basins which is an adjudicated basin. The pumping and storage rights for the Six Basins were adjudicated in 1998 through a stipulated judgement (Judgment) titled "Southern California Water Company vs. City of La Verne." The Judgment is the current groundwater management plan for the Six Basins. The Judgment also established a Watermaster who is responsible for ensuring that the Six Basins are managed according to the terms of the Judgment. Wildermuth Environmental serves as the Watermaster for the Six Basins. A copy of the Judgment is located in Appendix G of the UWMP.

In response to some of the Parties of the Judgment, Wildermuth Environmental (WEI) is in the process of developing a Strategic Plan that will have a more robust technical approach to the management of the Six Basins. The Watermaster Parties envision that the Strategic Plan will be a new integrated management program for the Six Basins, and that it may require amendments to the Judgment. A copy of the Draft Strategic Plan and its appendices are available for download on the Six Basins Watermaster's website at http://www.6bwm.com/info.php?pnum=11.

The Strategic Plan (SP) is a comprehensive document that discusses the following major topics: objective of the strategic plan, physical state of the Six Basins (including surface water resources, hydrogeology, groundwater production, groundwater levels, historical land use/water use/ and disposal, groundwater quality, land subsidence), development and evaluation of the baseline alternative, stakeholder goals and concepts for improving basin management, development and evaluation of strategic plan projects, and implementing the strategic plan.

In addition, WEI recently completed development of a comprehensive groundwater model of the Six Basins that will assist in simulating water flows in the basin due to various scenarios and conditions that can be input into the model to assess the impacts and benefits of potential projects. The Six

Basins Watermaster was successful in obtaining grant funding from DWR for development of the groundwater model.

As mentioned earlier, the District plans to construct additional groundwater wells with the goal of being able to produce approximately half (i.e. 10,000 AF per year) of the historical production of the Miramar Plant. Since the District is limited to a pumping right of 3,500 AF per year (per the Judgment), the plan would be to put (recharge) additional water into the basin and pump it out (take) later and still abide by the terms of the Judgment.

## 6.2.3 Overdraft Conditions

*CWC 10631 (b)(2) 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.*

Since the basin the District overlies is adjudicated, this part of the CWC is not applicable.

## 6.2.4 Historical Groundwater Pumping

*CWC 10631 (b) ...If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:*

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

Table 6-1 shows the volume (AF) of water pumped by the District (not including its member agencies) over the past five years (2011-2015).

| ☐ | Supplier does not pump groundwater. The supplier will not complete the table below. | | | | | |
|---|---|---|---|---|---|---|
| Groundwater Type *Drop Down List May use each category multiple times* | Location or Basin Name | 2011 | 2012 | 2013 | 2014 | 2015 |
| Alluvial Basin | 6 Basins (Upper Claremont Basin) | 855.2 | 732.7 | 776.1 | 630.2 | 1,110 |
| **TOTAL** | | **855.2** | **732.7** | **776.1** | **630.2** | **1,110** |
| NOTES: Groundwater produced from District's water wells. Well #1 was completed in July 2008 and Well #2 was completed in August 2014. | | | | | | |

The extremely dry period the past three years has resulted in a significant decline in the water table. The static water levels in the District's wells have dropped nearly 100 feet. As a result, production (pumping capacity) of the wells has also decreased significantly. Before the recent drought (in spring of 2012) the District's Well #1 was able to produce and maintain a pumping rate of 720 gpm. By early

summer of 2014 Well #1 production had decreased to about 360 gpm. The District believes that production of its wells will increase when the wetter (i.e. more "normal") winters return and increased precipitation occurs. The average annual historical precipitation for this area (Claremont, California) is about 34 inches per year.

**Chino Basin**

The Chino Basin is a large, expansive aquifer that is one of the largest groundwater basins in Southern California. It lies mostly within San Bernardino County outside of TVMWD's political boundary. The basin's western edge, however, juts into TVMWD's service area (Los Angeles County) and its resource is used by two TVMWD member agencies: City of Pomona and Golden State Water Company. The basin was adjudicated in the late 1970s, and the Chino Basin Watermaster became the court-appointed entity overseeing the management and administration of the basin.

Chino Basin operates on an initial safe yield value that is apportioned to three "pools" that produce from the basin (non-agricultural, agricultural, and appropriative pools). The parties in each of these three pools are then apportioned a given percent- age of their pool's allocation. TVMWD's agencies that pump from the Chino Basin belong to the Appropriative Pool. A party is not necessarily limited to its individual allotment, but any extractions beyond its annual allocation must be covered with a like amount of transferred rights, stored water, replacement/replenishment water, and/or any other means allowed by the Judgment. The Judgment for Chino Basin is included as Appendix D.

Because of its long history of agriculture and dairy farming, the basin's primary water quality concern is high nitrate levels. With numerous studies and reports conducted throughout the Chino Basin, groundwater producers are keenly aware of this particular issue as well as other characteristics of the basin. The management of Chino Basin has analyzed and will continue to evaluate all components affecting the future reliability and sustainability of this resource because the long-term goal is to utilize and develop the local groundwater for expected increases in future demand. This means that while water quality challenges exist, they are being addressed through individual and regional projects. Therefore, Chino Basin is expected to be a sound resource through the planning horizon of the UWMP.

**San Gabriel Basins**

The San Gabriel Basins consist of several sub- basins, the largest of which is the Main San Gabriel Basin (Main Basin). Accordingly, this unit of interconnected sub-basins is more commonly known by the largest basin's name (Main San Gabriel Basin) even when discussed as a whole. The Main Basin is located completely within Los Angeles County and covers much of the San Gabriel Valley and adjacent foothill areas. It is the northeasterly portion of this basin that lies beneath the TVMWD service area, but retail member agencies of TVMWD still draw groundwater from areas outside of the TVMWD boundaries to deliver to customers within the boundaries of TVMWD.

TVMWD member agencies that produce from the Main San Gabriel Basin include Covina Irrigating Company, Golden State Water Company, Suburban Water Systems, Valencia Heights Water, and the cities of Covina and Glendora.

The Main Basin is also adjudicated and has a court-appointed Watermaster to oversee and administer the provisions of the Judgment. The basin operates on the concept of an operating safe yield that Watermaster establishes annually based on hydrologic conditions, basin production, storage availability and a host of other factors. Each party with production rights enjoys a percentage (established by the Judgment) of the operating safe yield in any given year. Any amount extracted above a party's

percentage allocation must be balanced by leasing unused pumping rights from other parties and/or "replacing" the over pumped quantity with deliveries of replenishment water or water from a storage account accessible to that party. The Judgment for the Main San Gabriel Basin is included in Appendix E.

Similar to Chino Basin, the San Gabriel Basin is managed for long-term reliability and sustainability. Water quality issues that arise are ad- dressed from a prevention standpoint, when possible, and/or through individual and regional treatment projects that process impaired groundwater sources. The Judgment that governs basin management accounts for all aspects of basin operation. Again, the philosophy behind the adjudication is to prevent the "mining" of the ground- water resources so that there remains a sustainable supply from year to year. The management of the basin promotes the longevity of this resource for beneficial use and thus, it is expected that the groundwater supplies will remain available through the planning horizon of this plan.

**Puente Basin**

The Puente Basin is a small, underutilized ground- water resource straddling the southwest boundary of TVMWD. This basin is tributary to the Main San Gabriel Basin but was adjudicated separately. The provisions of the Judgment are managed and administered by another court-ordered water- master: the Puente Basin Watermaster. The Judgment for Puente Basin is included in Appendix F. This basin is also managed on an annual operating safe yield concept wherein each party is allocated its percentage of the operating safe yield established each year by the Watermaster. Because of the limited quantity of extractions from this basin, it seldom sees over pumping by any of the agencies that produce from it.

TVMWD member agencies that produce from the Puente Basin include Rowland Water District, and Walnut Valley Water District.

The principal reason that pumping is limited from the Puente Basin is degraded water quality. The geologic and overlying land use characteristics of the basin create a situation where in natural and/or artificial replenishment is virtually non-existent. Consequently, the aquifer experiences minimal "freshening" and the water quality of the relatively stagnant water within the basin suffers over time. Also, historical contamination by industrial and manufacturing companies in the area have added to water quality degradation.

In the foreseeable future, this basin will continue to provide water for non-potable purposes, most likely to augment recycled water systems of over- lying water agencies. This becomes vital in meeting future demands as recycled water utilization can offset increases in total demand.

There are no current projects that envision treating Puente Basin groundwater for potable use because the economics do not currently warrant it. If the alternative supply of imported water becomes too costly, that could change this situation. However, in the interim, the objective for the agencies that produce from this basin is to develop the extraction capability to augment their recycled water (non-potable) systems. As the re- cycled water demand grows in the future, ground- water extraction from this basin may likewise see an increase.

**Six Basins**

The Six Basins is a group of small groundwater basins located in the northeasterly portion of the TVMWD service area. The grouping includes the Canyon, Upper Claremont Heights, Lower Claremont Heights, Pomona, Live Oak, and Ganesha Basins. A court-appointed Watermaster is responsible for the administration of the Judgment and establishes an operating safe yield each year. The producing parties

have the right to extract their respective percentages of the operating safe yield. As in the Main San Gabriel Basin, any extractions exceeding a party's annual allowable production must be made up by leasing unused pumping rights from another party and/ or delivering "replacement" water to cover the amount that was over pumped. The Judgment for the Six Basins is included in Appendix G.

TVMWD member agencies that produce from the Six Basins include Golden State Water Company and the cities of La Verne and Pomona. TVMWD also recently developed its own production facility within the Upper Claremont Heights Basin and now has the capability to produce a small amount of groundwater to augment import supplies.

Water quality is generally good within the basins with the better quality observed in the more northerly area. That area includes geology and land use that promote natural and artificial replenishment through surface spreading. The southerly and westerly portions of the Six Basins generally see higher levels of nitrate and volatile organic compounds (VOCs) due to past agricultural land use and industrial contamination, respectively. Many producers with wells in this area employ wellhead treatment facilities that allow delivery of the groundwater for potable use.

Management of the Six Basins also views long-term sustainability as a key goal. Several studies and reports have been performed throughout the basins, and its distinct characteristics are fairly well known. There are definitely challenges in operating the basins to maximize its utility without creating adverse rising groundwater conditions in certain areas. Maximizing the use of the Six Basins is something TVMWD has certainly tried to promote. The District has discussed projects with basin pumpers that would utilize the recharge capability of the upper area to store water and the extraction capability of existing or new wells to quickly extract that water when it becomes available. This concept would help avoid negative impacts such as rising groundwater and could help reduce the overall cost of the water supply.

In the future, Six Basins will remain a reliable source of groundwater. Since TVMWD has now developed a physical means of delivering imported water for groundwater recharge purposes, the basins are not entirely reliant on local rainfall for basin replenishment. The available resources, however, are still highly dependent on local hydrology and good basin management/operation.

**Spadra Basin**

The Spadra Basin is located in the central portion of the TVMWD service area and is the only un-adjudicated basin in the region. Production is not currently regulated in this basin, but water quality concerns generally dissuade agencies from placing production capabilities there. Water quality issues include high nitrate concentrations primarily due to historical agricultural use in the area. Producers either provide wellhead treatment or utilize blending practices to allow a higher beneficial use of the groundwater.

TVMWD member agencies that produce from the Spadra Basin include City of Pomona, Walnut Valley Water District, and Cal Poly Pomona State University.

Although the Spadra Basin is not actively managed, the level of production versus the natural replenishment into the basin does not suggest that the basin is in overdraft condition. The groundwater produced from Spadra is sometimes put to potable use after blending with imported water. In other cases, it is used to augment the recycled (non-potable) systems of the producing agencies. The choice to put it into one system rather than the other is based on water quality and the ability to treat or blend

the supply to potable standards. Water quality is not expected to change appreciably so the future uses of Spadra groundwater will depend on the economics of treating the water versus the alternative supply of imported water.

Again, as imported supply costs increase or the resource becomes less reliable, it may become more beneficial for the pumpers to draw from their groundwater resources even with the extra expense of treatment. If groundwater production in the Spadra Basin increases significantly, overall management may be necessary to ensure that the basin is not adversely affected.

## 6.3 Surface Water

Water drawn from streams, lakes, and reservoirs is considered a surface water supply. Previously the District did not use or have access to surface water as part of its water supply. In spring of 2015, the District was able to tie into the city of Pomona's Canon pipeline that conveys water from San Antonio Creek (behind San Antonio Dam) to the city's Pedley Treatment Plant in Claremont. The District has the ability to purchase this surface water and direct it into spreading basins via the recently constructed spreading pipeline extensions within the San Antonio Spreading Grounds that benefit the District's two groundwater wells. Surface water amounts are reported in Table 6-8 (Water Supplies –Actual) and Table 6-9 (Water Supplies – Projected) in Appendix L.

The San Gabriel Canyon, San Dimas Canyon, and San Antonio Canyon watersheds are adjacent to the TVMWD service area and provide surface water supplies for the region through Covina Irrigating Company (CIC), Golden State Water Company (GSWC), and City of Pomona, respectively. Typically, surface water supplies satisfy about 5% to 8% of the total water demand within the TVMWD service area. The availability of both these sources is highly dependent on local precipitation and snowmelt from the San Gabriel Mountains.

CIC draws from its San Gabriel Canyon surface water supply in addition to its groundwater production from the Main San Gabriel Basin to deliver water to other TVMWD member agencies including Golden State Water Company, Suburban Water Systems, Valencia Heights Water Company, and the cities of Covina and Glendora. CIC is a member of the San Gabriel River Water Committee, which is a group of water interests that owns surface water rights on the San Gabriel River.

GSWC uses some water from the San Dimas Canyon watershed for irrigation (non-potable) purposes. This amount is relatively small but is able to offset the need to deliver potable supplies to the northerly portion of its service area.

The city of Pomona enjoys surface water rights from the San Antonio Creek watershed to feed its Pedley Water Treatment Plant located in the city of Claremont. The Pedley plant delivers treated water into Pomona's service area and becomes one of several sources for the city.

In all the instances of surface water supplies mentioned above, the resource is relatively inexpensive to produce and deliver. Therefore, it is certainly one of the primary sources utilized when it is available. Again, because the source is greatly dependent on local hydrology, it experiences annual fluctuations and is not necessarily a reliable supply during periods of drought.

The treatment plants that accept and treat local surface water supplies within the TVMWD service area have been in operation for many years. In fact, CIC's William B. Temple Water Treatment Plant is currently undergoing an upgrade that will utilize alternate disinfection methods and allow greater

treatment capacity. It is anticipated that the CIC and Pomona plants will continue to operate through the planning horizon of this UWMP.

Under normal operating conditions, these plants do not generally have a shortage of capacity to treat the local surface water. It is instead, the shortage of this supply that tends to govern the utility and reliability of local surface water as a resource for the TVMWD service area. Accordingly, local surface water use in the future is expected to remain relatively stable and anticipated only to be affected by local precipitation patterns.

## 6.4 Stormwater

The District is not able to intentionally diverted stormwater for beneficial reuse such as groundwater recovery. Therefore, stormwater is not included (reported) as a water source in Table 6-8 or Table 6-9. Some of the District's member agencies have access to stormwater supplies.

## 6.5 Wastewater and Recycled Water

Municipal recycled water is municipal wastewater that has been treated to a specified quality to enable it to be used again for a beneficial purpose. The term "recycled water" is defined in the CWC more broadly than "municipal recycled water." For purposes of the UWMPs, "recycled water" means only municipal recycled water (i.e. water that has been treated and discharged from a municipal wastewater facility). There are two requirements treated municipal wastewater must meet to be classified as recycled water. It must be reused: Beneficially, in a manner consistent with Title 22; In accordance with a Regional Water Quality Control Board (RWQCB) permit such as National Pollutant Discharge Elimination System (NPDES), waste discharge requirement (WDR), or water recycling requirement (WRR).

The District does not directly use or have access to either wastewater or recycled water. Therefore, this section is not applicable to the District. Some of the District's member agencies use recycled water.

Recycled Water is an important local resource that is gaining in popularity and use to offset imported water supplies. Currently, recycled water is limited to non-potable or indirect potable use within California. Within the TVMWD service area, recycled water is restricted to separate and independent non-potable systems designated by purple-colored pipes and distribution systems.

As previously mentioned, groundwater extracted from aquifers with less than desirable water quality may also be delivered into these non-potable systems to augment recycled water supplies.

Recycled water distribution systems are typically found in the southern portion of the TVMWD service area because that is where existing wastewater treatment plants are located. The Pomona Water Reclamation Plant (Pomona WRP) and the San Jose Creek Water Reclamation Plant (SJCWRP), both owned and operated by the Los Angeles County Sanitation Districts (LACSD), are the two sources of recycled water for TVMWD member agencies.

**Pomona Water Reclamation Plant (PWRP)**

This facility has a capacity of 13 million gallons per day (MGD) or about 14,500 acre-feet per year (AFY). Approximately 9,000 AFY of recycled water is produced by the Pomona WRP and much of it is used for direct non-potable purposes within the TVMWD service area. Such uses include landscape irrigation of parks, schools, golf courses, greenbelts, etc. and process water for local industrial manufacturing.

LACSD uses some of the recycled effluent from the Pomona WRP for dust control at its Spadra Landfill located in Pomona. The balance of the recycled water produced at the WRP is delivered to City of Pomona, Cal Poly Pomona, and Walnut Valley Water District (WVWD). The City of Pomona and WVWD then utilize the water for their respective systems to sell to users with non- potable demands like those mentioned above.

Cal Poly, which receives most of its recycled water through the city of Pomona, uses the supply for agricultural and landscape irrigation.

With the exception of the quantity used by LACSD at the Spadra Landfill, the above agencies can use all the water produced by the Pomona plant. Practically speaking, however, there are daily fluctuations in supply and demand that result in unused recycled water being discharged into the adjacent San Jose Creek flood control channel.

This unused portion totals an estimated 2,000 AFY and flows into the San Gabriel River and used for groundwater recharge downstream. When more storage and demand for non-potable supplies are developed within the TVMWD service area, this amount wasted downstream will nearly be eliminated.

Over most of the past 20 years, the Pomona plant was the only source of recycled water for TVMWD member agencies. Recently, however, expansion of the recycled water infrastructure now provides the delivery of recycled water from another LACSD plant.

**San Jose Creek Water Reclamation Plant (SJCWRP)**

The San Jose Creek WRP is the largest of LACSD's10 reclamation plants. It has a capacity of 100 MGD or about 112,000 AFY. It is located near the cities of Industry and Whittier outside of TVMWD's service area. Because it is down gradient of the TVWMD service area, water delivered into TVWMD must be pumped back to be delivered. Actually, the majority of the recycled effluent from SJCWRP is utilized downstream of the plant in the lower area of the Main San Gabriel Basin and in the Central Groundwater Basin of the Coastal Plain. City of Industry, however, owns and operates a large diameter pipeline and pumps recycled water from the SJCWRP easterly toward TVMWD's service area. City of Industry has contractual rights to 10,000 AFY of recycled water from the plant.

Near the westerly boundary of the District's service area a large pumping plant was built to divide recycled water flows for City of Industry, Rowland Water District, and Suburban Water Systems.

Currently, Rowland Water District is the only TVMWD member agency utilizing recycled water from the SJCWRP. Projects are currently under- way, however, to also allow recycled water use within Suburban Water Systems' service area. Current Use of in the TVMWD service area is still relatively small when compared to other potable demand, but the demand is expected to grow as infrastructure to support storage and delivery of the supply is constructed.

**Recycled Water**

The recycled water produced by both the Pomona WRP and San Jose Creek WRP is disinfected tertiary treated wastewater in compliance with the applicable sections Title 22 of the Code of Regulations. The uses for the effluent beyond the treatment plants also comply with relevant sections of the Health and Safety Code, the uses of such water include surface irrigation, industrial process/cooling, surface impoundments, and other uses outlined in Section 60307of the Title 22 regulations. The use of recycled water is as follows: Landscape/Agricultural Irrigation accounts for 99.3% and Industrial use is 0.7%.

Future use of recycled water in the TVMWD service area will expand as infrastructure to deliver the supply reaches areas not currently served. Surface irrigation of landscaped medians/ parkways, schools, parks, and other open areas will form the base for this demand. In addition, a large sports park, a landfill, and an expansive cemetery in the city of West Covina will become large users of recycled water.

Mt. San Antonio College (Mt SAC), one of TVMWD's institutional member agencies, has also evaluated its potential use of recycled water in the future. Mt SAC, which is located in the city of Walnut, is adjacent to WVWD's service area. A connection to WVWD's recycled system would allow the school to use the recycled water to irrigate large sports fields on campus. This would directly offset Mt SAC's current use of potable imported water for this same purpose.

Within 10 to 15 years, it would not be out of the question to see the construction of infrastructure that could deliver recycled water to essentially the southern half of TVMWD's service area. The cost, however, is still difficult to justify when the market for the water is not fully developed. In addition to installing main pipelines to move the recycled water, agencies must convince users to switch to this non-potable supply for portions of their demands, and then the expense of connecting individual users adds another layer to the overall cost. Agencies must grapple with these issues to deter- mine economic feasibility. Outside funding helps to reduce costs directly borne by the agencies, but many times, such funding is difficult to get.

Despite the cost, many agencies are starting to make the decision to move forward with recycled water projects. This is due in large part because of the availability and reliability of the supply and the ever increasing pressure to reduce overall demand on imported water systems.

Over the planning horizon of this UWMP the types of recycled water use projected within the TVMWD service area are expected to be much the same as currently seen, namely landscape and agricultural irrigation and industrial/commercial process water.

## 6.6 Desalinated Water Opportunities

The District does not use or have access to desalinated water due to its far proximity from the Pacific Ocean (approximately 50 miles inland). Therefore, this section is not applicable to the District and not included in the UWMP.

## 6.7 Exchanges or Transfers

TVMWD and some of its retail member agencies have explored water transfers, especially those agencies more reliant on imported water. Because of the uncertainties arising over the long- term reliability of imported water, it becomes almost necessary for those with limited local supplies to examine other resource opportunities. Many of these investigations are still in their early stages.

In Six Basins, however, TVMWD can use its involvement to secure short-term water leases available from other basin producers. When these transfers are made with non-TVMWD member agencies, it effectively generates a new resource for the TVMWD service area that was previously outside of its boundaries. In recent years, TVMWD was able to purchase over 1,300 AF of groundwater stored in the basin. This amount directly offsets an equivalent quantity of imported water into the service area. In the future, TVMWD will continue to utilize this transfer opportunity as much as practically possible.

Some retail member agencies have also investigated the potential to transfer water from water rights held north of the Delta. Through this effort, the agencies are trying to secure what they believe is a more reliable imported supply than that provided through MWD. These investigations are also in their early stages and appear promising from a cost perspective. If the completed analysis shows that the cost of delivering this water is comparable to alternative supplies, it could mean an additional 10,000 AFY of additional resources to the area.

In the above two proposals of long-term transfer opportunities, it is envisioned that existing conveyance facilities will be utilized to the extent possible. This component can be the biggest unknown when trying to generate cost estimates for these alternative supplies. The larger agencies such as DWR, MWD, and the other SWP contractors will have to get involved because of the potential impacts to facilities they currently utilize. So, while these opportunities are being investigated, there is still a great deal of uncertainty with respect to overall viability.

It may be possible that the concept of treating these wells by desalting may be revisited. Again, the overall cost of that venture versus the cost of an alternative supply will be the determining factor of whether or not desalters are built.

## 6.8 Future Water Projects

The District plans to increase local resources by constructing additional groundwater production wells over the next 15 years in order to increase water reliability and lessen the need for imported water. The goal is to construct a new well about every two years and be able to produce approximately 10,000 AF per year. This would enable the District to supply about half (50%) of the historical annual production of the Miramar Plant using groundwater.

## 6.9 Summary of Existing and Planned Sources of Water

There are several resource “avenues” that TVMWD and its member agencies can take to improve long-term water supply reliability and sustainability. They include conjunctive use/cyclic storage, groundwater recovery/expansion, and additional resource development. The combination of all these strategies will shape the future resource mix within the TVMWD service area. Table 6-8 and Table 6-9 (See Appendix K) show the current and projected water supplies.

**Conjunctive Use**

Conjunctive use is the planned and coordinated utilization of imported water with the local groundwater basins. The basic concept involves the use of imported water to store in the groundwater basin when imported supplies are plentiful and then drawing from that stored local supply in the groundwater basin when imported supplies are not available. Such projects foster sound resource management through the efficient use of imported water. While not necessarily developing a “new” supply, conjunctive use optimizes the interdependence between groundwater storage and imported supplies. Through this practice, regions can become more self sufficient and less dependent on imported water during periods of droughts; in other words, greater supply reliability.

Projects within TVMWD that foster conjunctive use include adding groundwater recharge capability and increasing groundwater production capacity. These two components help to offset the use of treated imported water by overlying users especially during times of drought.

Over the past several years, TVMWD and its member agencies have developed three conjunctive use projects in partnership with MWD: Live Oak Basin Conjunctive Use Project (CUP), Upper Claremont Heights CUP, and Chino Basin CUP. These projects are described briefly below.

Live Oak Basin Conjunctive Use Project
The Live Oak Basin is one of the groundwater basins of the Six Basins adjudication. Until recently, recharge of the Live Oak Basin was only from local runoff from the canyon watershed. This CUP changed that by constructing a facility that can deliver imported water into spreading grounds (percolation ponds) that replenish the basin. The CUP also included the construction of a ground- water treatment facility by City of La Verne, which allows the City to increase production from the basin.

The spreading connection was completed in January 2005 and spreading began soon thereafter when imported water was available. This project has a potential to store 3,000 AF of conjunctive use water with a withdrawal of 1,000 AFY. The City of La Verne's treatment facility has the capability to treat an average 2,500 AFY of additional recovered groundwater beyond the amount slated for conjunctive use.

Upper Claremont Heights (a.k.a. San Antonio Spreading Grounds) Conjunctive Use Project
The Upper Claremont Heights Basin is also one of the basins included in the Six Basins adjudication. Because much of this basin includes a large groundwater recharge facility known as the San Antonio Spreading Grounds (SASG), it is ideally suited to accept replenishment water. In 2008, TVMWD completed the construction of pipeline facilities to deliver imported water for spreading into the SASG. Until that time, only local runoff from the San Antonio Creek watershed replenished the basin. More recently, in 2014, TVMWD completed construction of an extension of this pipeline further north into the SASG with three Spreading Outlets that enhance the District's ability to spread and recharge water within the SASG (see photo below).

**TVMWD Spreading Outlet in San Antonio Spreading Grounds**

Soon after in 2009, TVMWD also completed the installation of a groundwater production well (TVMWD Well #1) in the Upper Claremont Heights Basin. The well is located on TVMWD Miramar Plant site and delivers groundwater to augment the treatment plant's production. Because groundwater levels throughout the basin have been relatively low due to several years of little rainfall/replenishment, annual production from this well has averaged about 500 AF.

It is anticipated that increased groundwater levels through enhanced natural and artificial replenishment will improve groundwater production throughout the region. Although the more recent dry years have resulted in the lack of imported water for groundwater replenishment deliveries, TVMWD intends to make use of the spreading connection whenever imported water is available.

The conjunctive use project for the Upper Claremont Heights includes a storage amount of 3,000 AF with potential withdrawal of 1,000 AFY. In addition to the conjunctive use aspect, TVMWD desires to increase overall production capabilities from this basin. Through the use of existing wells or new production wells down gradient of the spreading facilities, there is a potential to add another 5,000 AFY. Again, this level of production would likely require new facilities, which TVMWD is currently investigating.

From a practical standpoint, the spreading pipeline also serves another purpose. As specified in the Six Basins Judgment, a party that produces more groundwater than its share of the annual operating safe yield must make arrangements to deliver Replacement Water for such overproduction. The pipeline now provides an actual physical means to deliver imported water as replacement water for those agencies that do not have access to any other source. Though this also does not generate "new" water, it does provide an incentive for groundwater producers to build excess groundwater extraction capacity for years when they will need it most.

**Surface Water**

Surface water resources are relatively limited within the TVMWD service area. As previously mentioned, there are but a few surface water rights holders within TVMWD, and the supply is highly dependent on local hydrology. Improvements to the use of this resource in the future will involve enhancing treatment capabilities and providing for other beneficial use of the supply if the timing of the demand does not coincide with the availability of the supply. In other words, using available surface water to replenish the underlying groundwater basin for later extraction and use would be a key strategy for this resource. This may involve improving replenishment capability and/or institutional arrangements that would allow transfers of the stored water. Although these types of arrangements would improve the efficiency with which surface water is used, it does not necessarily increase available yield of this resource.

**Recycled Water**

Recycled water will play an important role in the future water resource mix of the region. While this supply is currently used for non-potable and indirect potable purposes, within the TVMWD service area, only non-potable systems have been developed. This is not expected to change very soon.

Expansion of recycled water infrastructure will be the objective of projects dominating the development of this resource for the next several years. Pipelines, pump stations, storage facilities, cross-connection control, and retrofitting existing connections for recycled water use are being developed to increase delivery capability for non- potable demands. The objective here is to replace current and future potable demand with recycled water supplies where possible. Landscape, irrigation, industrial processes, and other similar uses are being sought out and marketed as the re- cycled water

infrastructure is expanded. In time, offsetting the need to deliver potable water for these uses will improve the overall reliability to the region.

Presently, recycled supplies into the TVMWD service area are sufficient to meet current demands. Even projected non-potable demands are not expected to outgrow recycled water availability to the region for at least the next 10 years. Recycled water development by the retail agencies within the TVMWD service area may offset another 8,000-10,000 acre-feet per year of firm potable water demand.

# Chapter 7 – Water Supply Reliability

Assessment of water supply reliability is complex and dependent upon a number of factors, such as the number of water sources, regulatory and legal constraints, climate change, and expected growth, among others. The chapter includes a description of the reliability of the District's water supply projected out over the next 20 years. The description is provided for normal, single dry year, and multiple dry years. In addition, constraints on water supply, reliability/vulnerability to seasonal or climatic shortage, supply and demand assessment, and regional supply reliability are discussed.

As a member agency of MWD, TVMWD relies primarily on the availability of MWD supplies to gauge reliability. To a lesser degree, TVMWD has access to local supplies, but its member retail agencies have greater access and demand greater use of those local resources. To that end, TVMWD encourages the development and use of local supplies by the member retail agencies when it is available. TVMWD's overall water resource management scheme focuses on maximizing local resource development recognizing that the availability of imported water can be highly variable and overall import supply may dwindle in the future due to competing statewide interests and recent onerous environmental ruling the greatly restrict pumping on the State Water Project even during wet winters (i.e. when flows in the Delta are robust and high).

## 7.1 Constraints on Water Sources

***CWC 10631(c)(2)*** *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.*

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

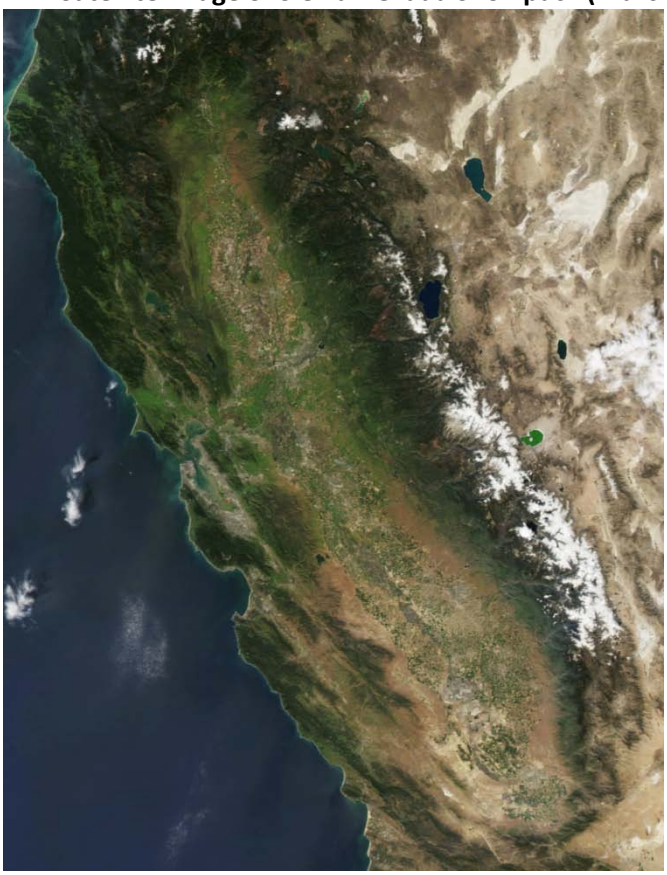
Some of the constraints on the District's water supply include the following: legal, environmental, and variable climatic conditions. The fluctuation in reliability of imported water supplies is anticipated to continue into the foreseeable future until potential solutions are implemented in the Delta and to the State Water Project System (infrastructure) to address the various concerns. Meanwhile, the District has implemented specific management strategies and is considering other potential management strategies that may be employed to address the constraints.

Other known and/or potential future constraints on water supplies include: declining groundwater levels, sea level rise, or diminishing snow pack. The recent historic dry winters that occurred in 2013 and 2014 resulted in extremely low snow pack in the Sierra Nevada Mountains as shown in Figure 7-A. The snow pack these two years were less than ten percent of the historical average over the past 90 years. These extremely dry winters resulted in the DWR implementing a water supply allocation of 5% on the State Water Project (SWP) to MWD which impacted significantly the District and its member agencies that depend on imported water from northern California.

Fortunately MWD has been very proactive and made significant investments over the past 20 years for construction of additional storage facilities (e.g. Diamond Valley Lake Reservoir) and other infrastructure improvements to mitigate dry periods and increase regional storage from 1.0 Million

Acre-Feet (MAF) in 1993 to 5.5 MAF in 2008. The investments are not just capital investments but significant amounts are also in storage programs and partnerships. MWD has drawn from its storage supplies to provide water to its member agencies to help get them through the last three extremely dry years.

**Figure 7-A: Satellite Image of Sierra Nevada Snowpack (March 2014)**



**Diamond Valley Lake Reservoir (completed in 2001 by MWD) 800,000 AF Storage Capacity**

The quality of source water for the District is very good. But, occasional alga blooms in the State Water Project and Silverwood Lake have an impact source water quality and has the potential to affect water management strategies for the District. Some of the potential planned actions and water management strategies to address the noted vulnerability and inconsistencies include adding UV treatment and/or improving the filters at the Miramar Treatment Plant to address this water quality issue. A description of plans to supplement or replace a portion of the District's sources with alternative sources or water demand management measures is discussed below.

As mentioned earlier, the District is heavily dependent on imported water from the SWP, which accounts for about 94% of inflow to Miramar and about 50% of source water for its member agencies. The District's long-term goal is to expand development of local resources by constructing additional groundwater wells to be able to provide 50% of source water produced by Miramar.

A potential solution to increasing imported water supply to Southern California and the Central Valley is the Bay Delta Fix that would significantly increase water reliability and consistency to the nearly 29 million (approximately 75% of the State's population) residents and businesses throughout the region who depend on this water source. One of the most appealing features of this solution is that the residents who directly benefit would pay the costs (i.e. approximately an additional $5 per month to residential water bills) associated for implementation and construction of this project. This solution would take a proactive and sensible approach to improving water reliability and address the environmental issues related to the Delta and its ecosystem.

## 7.2 Reliability by Type of Year

***CWC 10631 (c)(1)*** *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.*

The historic reliability of the District's water supply (especially imported water) and any vulnerability to seasonal or climatic shortage is well documented. The historic reliability of imported water has been fairly good but it is vulnerable to seasonal or climatic shortage. This is because the geographic location of the District (i.e. in southern California) is far from the geographic location of where its source of imported water originates (i.e. from snow melt of the Sierra Nevada Mountains that flows into the Delta and to the State Water Project).

Table 7-1 (Bases of Water Year Data) lists the years that the District identifies as its historical average, single driest year, and driest multi-year period. These years are known as the "Base Years". In the "Base Year" column of the table, the District has specified the years that represent each year type. Historic hydrologic data have been used to establish water year types. In the "Available Supplies" column of Table 7-1, the District has specified the percentage and/or volume of water supply expected if there were to be a repeat of the hydrology from that type of year. The volume of water that would be available from all sources if the dry year hydrology were to occur again is shown.

| Table 7-1 Wholesale: Bases of Water Year Data | | | |
|---|---|---|---|
| Year Type | Base Year | Available supplies if year type repeats<br>Agency may complete these columns for volume only, percent only, or both | |
| | | Volume available | % of avg supply |
| Average Year | 1922 - 2012 | 131,511 | 100% |
| Single-Dry Year | 1977 | 131,889 | |
| Multiple-Dry Years 1st Year | 1990 | | |
| Multiple-Dry Years 2nd Year | 1991 | | |
| Multiple-Dry Years 3rd Year | 1992 | 130,024 | |
| *Agency may add rows for Multiple-Dry Years up to 5th year (optional)* | | | |
| *Agency may use multiple tables if reporting different water sources separately.* | | | |
| **NOTES:** Based on forecasts provided by MWD. Forecasts are consistent with the 2015 Integrated Water Resource Plan developed in coordination with MWD's member agencies. Volume available represents the entire (total) water demands/needs in TVMWD's service area. Of that amount, approximately 60,000 AF are met through local supplies (i.e. groundwater, surface water, and recycled water). The remaining amount (approximately 70,000 AF) is met through imported supplies. | | | |

The UWMP has used the estimates provided by MWD to estimate water reliability and to determine which years represent the agency's average, single-dry and multiple-dry years. This information is based on forecasts provided by MWD. The forecasts are consistent with the 2015 Integrated Water Resource Plan developed in coordination with MWD's member agencies.

## Water Demand Projections

The availability of water supplies to TVMWD and its member agencies is affected by numerous factors including demographics, hydrology, and regulatory/environmental restrictions. In developing its Regional Urban Water Management Plan (RUWMP), MWD accounted for these factors in utilizing its MAIN Water Use Forecasting framework (model) to project water demands to 2040. In addition to forecasting its overall water demands, MWD developed similar projections for its member agencies (including TVMWD) using the MAIN model. For TVMWD, the projected water demands for three hydrologic conditions (average year, single dry year, multiple dry years) are presented in Tables 7-4, 7-5, and 7-6. Each projection is forecast to 2040 in five-year increments.

Each of the three hydrologic analyses has been provided by MWD and is based on corresponding hydrologic periods shown as follows:

| Hydrologic Condition | Historical Period Used |
|---|---|
| Average | 1922-2012 |
| Single Dry Year | 1977 |
| Multiple Dry Years | 1990-1992 |

MWD has overlain the models for these periods on the demand projections, supply mix, and management strategies that are forecast for 2020 to 2040, and hence, TVMWD passes along these same assumptions and information.

Local resources from the TVMWD service area will be tapped first to provide initial supply to meet overall demand. The balance will be met with imported supplies through MWD. The following tables show the local supplies available for the three hydrologic conditions mentioned above and the resulting demand for import supplies from MWD.

| **Table 7-7: Total Retail Demand Projections (in AF)** | **Year** | | | | | |
|---|---|---|---|---|---|---|
| | **2015** | **2020** | **2025** | **2030** | **2035** | **2040** |
| Average Year (1922-2012 hydrology) | 127,621 | 131,511 | 132,071 | 133,455 | 134,601 | 137,040 |
| Single Dry Year (1977 hydrology) | 128,128 | 131,889 | 132,451 | 133,839 | 134,989 | 137,435 |
| Multiple Dry Year (1990 - 1992 hydrology) | | 130,024 | 133,695 | 134,929 | 136,139 | 138,347 |

As further discussed in Chapter 9, water conservation is a key component of TVMWD's long-term water supply and management strategy. The objectives include reductions to both indoor and outdoor use for all customer groups within the service area. Additionally, as a signatory to the MOU on Urban Water Conservation, TVMWD is committed to implementing locally cost-effective water conservation best management practices (BMPs).

As part of MWD's projections, it is estimated that the total long-term savings from District sponsored conservation measures within TVMWD's service area would range from approximately 19,210 AF in 2020 to 30,440 AF in 2040. These values are included in the calculations below and serve to reduce overall retail demand.

The forecasts for each of these three hydrologic conditions suggest that sufficient supply will be available to meet the overall demands within the TVMWD service area over the planning period of 2015 through 2040. Much of that is dependent on imported water supplies, which MWD notes in its 2015 Regional Urban Water Management Plan as being reliable through the same planning horizon.

## Table 7-4: Water Demand Projection - Average Year (in Acre-Feet)

### Three Valleys Municipal Water District

*Average Year*

(Average of 1922-2004 Hydrology)

| Demographics[1] | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Population | 547,723 | 561,158 | 591,965 | 608,067 | 632,843 |
| Occupied Housing Units | 165,211 | 169,156 | 173,552 | 178,083 | 185,162 |
| Single Family | 126,267 | 127,015 | 130,052 | 133,841 | 138,379 |
| Multi-Family | 38,944 | 42,141 | 43,500 | 44,242 | 46,782 |
| Persons Per Household | 3.22 | 3.22 | 3.31 | 3.32 | 3.32 |
| Urban Employment | 191,287 | 196,408 | 199,959 | 201,807 | 207,209 |

| Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Conservation[2] | 22,406 | 24,621 | 26,980 | 29,282 | 31,927 |
| Installed Active Device Through 2015 | 3,196 | 2,520 | 1,851 | 1,695 | 1,488 |
| Code-Based and Price-Effect Savings | 19,210 | 22,101 | 25,129 | 27,587 | 30,439 |

| Total Demands After Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Demand | 131,511 | 132,071 | 133,455 | 134,601 | 137,040 |
| Retail Municipal and Industrial[3] | 127,720 | 128,221 | 129,605 | 130,751 | 133,190 |
| Retail Agricultural | 191 | 250 | 250 | 250 | 250 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Groundwater Replenishment | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

| Local Supplies | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Local Supplies | 58,509 | 59,726 | 60,792 | 61,583 | 62,125 |
| Groundwater Production | 43,300 | 43,300 | 43,300 | 43,300 | 43,300 |
| Surface Production | 6,200 | 6,200 | 6,200 | 6,200 | 6,200 |
| Los Angeles Aqueduct | 0 | 0 | 0 | 0 | 0 |
| Seawater Desalination | 0 | 0 | 0 | 0 | 0 |
| Groundwater Recovery | 1,946 | 2,171 | 2,396 | 2,453 | 2,453 |
| Recycling | 7,063 | 8,055 | 8,896 | 9,630 | 10,172 |
| M&I and Agricultural | 7,063 | 8,055 | 8,896 | 9,630 | 10,172 |
| Groundwater Replenishment | 0 | 0 | 0 | 0 | 0 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Other Non-Metropolitan Imports | 0 | 0 | 0 | 0 | 0 |

| Demands on Metropolitan | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Metropolitan Demands | 73,002 | 72,345 | 72,663 | 73,018 | 74,915 |
| Consumptive Use | 69,402 | 68,745 | 69,063 | 69,418 | 71,315 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Replenishment Water[4] | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

All units are acre-feet except in Demographics Section.

1. Growth projections are based on SCAG 2012 Regional Transportation Plan and SANDAG Series 13 Forecast.
2. Includes code-based, price-effect and existing active savings through FY2014; does not include future active conservation savings. Conservation is 1990 base year. Pre-1990 add 250,000 acre-feet.
3. Retail M&I projections include conservation.
4. Replenishment Water include direct and in-lieu replenishment.

## Table 7-5: Water Demand Projection – Single Dry Year (in Acre-Feet)

### Three Valleys Municipal Water District

*Single Dry-Year*

(Repeat of 1977 Hydrology)

| Demographics[1] | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Population | 547,723 | 561,158 | 591,965 | 608,067 | 632,843 |
| Occupied Housing Units | 165,211 | 169,156 | 173,552 | 178,083 | 185,162 |
| Single Family | 126,267 | 127,015 | 130,052 | 133,841 | 138,379 |
| Multi-Family | 38,944 | 42,141 | 43,500 | 44,242 | 46,782 |
| Persons Per Household | 3.22 | 3.22 | 3.31 | 3.32 | 3.32 |
| Urban Employment | 191,287 | 196,408 | 199,959 | 201,807 | 207,209 |

| Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Conservation[2] | 22,406 | 24,621 | 26,980 | 29,282 | 31,927 |
| Installed Active Device Through 2015 | 3,196 | 2,520 | 1,851 | 1,695 | 1,488 |
| Code-Based and Price-Effect Savings | 19,210 | 22,101 | 25,129 | 27,587 | 30,439 |

| Total Demands After Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Demand | 131,889 | 132,451 | 133,839 | 134,989 | 137,435 |
| Retail Municipal and Industrial[3] | 128,097 | 128,600 | 129,988 | 131,138 | 133,584 |
| Retail Agricultural | 192 | 251 | 251 | 251 | 251 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Groundwater Replenishment | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

| Local Supplies | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Local Supplies | 58,509 | 59,726 | 60,792 | 61,583 | 62,125 |
| Groundwater Production | 43,300 | 43,300 | 43,300 | 43,300 | 43,300 |
| Surface Production | 6,200 | 6,200 | 6,200 | 6,200 | 6,200 |
| Los Angeles Aqueduct | 0 | 0 | 0 | 0 | 0 |
| Seawater Desalination | 0 | 0 | 0 | 0 | 0 |
| Groundwater Recovery | 1,946 | 2,171 | 2,396 | 2,453 | 2,453 |
| Recycling | 7,063 | 8,055 | 8,896 | 9,630 | 10,172 |
| M&I and Agricultural | 7,063 | 8,055 | 8,896 | 9,630 | 10,172 |
| Groundwater Replenishment | 0 | 0 | 0 | 0 | 0 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Other Non-Metropolitan Imports | 0 | 0 | 0 | 0 | 0 |

| Demands on Metropolitan | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Metropolitan Demands | 73,380 | 72,725 | 73,047 | 73,406 | 75,309 |
| Consumptive Use | 69,780 | 69,125 | 69,447 | 69,806 | 71,709 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Replenishment Water[4] | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

All units are acre-feet except in Demographics Section.

1. Growth projections are based on SCAG 2012 Regional Transportation Plan and SANDAG Series 13 Forecast.
2. Includes code-based, price-effect and existing active savings through FY2014; does not include future active conservation savings. Conservation is 1990 base year. Pre-1990 add 250,000 acre-feet.
3. Retail M&I projections include conservation.
4. Replenishment Water include direct and in-lieu replenishment.

## Table 7-6: Water Demand Projection – Multi-Dry Years (in Acre-Feet)

### Three Valleys Municipal Water District

*Multi Dry-Year*

(Repeat of 1990-1992 Hydrology)

| Demographics[1] | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Population | 547,723 | 561,158 | 591,965 | 608,067 | 632,843 |
| Occupied Housing Units | 165,211 | 169,156 | 173,552 | 178,083 | 185,162 |
| Single Family | 126,267 | 127,015 | 130,052 | 133,841 | 138,379 |
| Multi-Family | 38,944 | 42,141 | 43,500 | 44,242 | 46,782 |
| Persons Per Household | 3.22 | 3.22 | 3.31 | 3.32 | 3.32 |
| Urban Employment | 191,287 | 196,408 | 199,959 | 201,807 | 207,209 |

| Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Conservation[2] | 22,406 | 24,621 | 26,980 | 29,282 | 31,927 |
| Installed Active Device Through 2015 | 3,196 | 2,520 | 1,851 | 1,695 | 1,488 |
| Code-Based and Price-Effect Savings | 19,210 | 22,101 | 25,129 | 27,587 | 30,439 |

| Total Demands After Conservation | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Demand | 130,024 | 133,695 | 134,929 | 136,139 | 138,347 |
| Retail Municipal and Industrial[3] | 126,241 | 129,854 | 131,075 | 132,286 | 134,493 |
| Retail Agricultural | 183 | 241 | 253 | 253 | 253 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Groundwater Replenishment | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

| Local Supplies | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Local Supplies | 58,343 | 59,483 | 60,589 | 61,436 | 62,034 |
| Groundwater Production | 43,300 | 43,300 | 43,300 | 43,300 | 43,300 |
| Surface Production | 6,200 | 6,200 | 6,200 | 6,200 | 6,200 |
| Los Angeles Aqueduct | 0 | 0 | 0 | 0 | 0 |
| Seawater Desalination | 0 | 0 | 0 | 0 | 0 |
| Groundwater Recovery | 1,880 | 2,126 | 2,351 | 2,453 | 2,453 |
| Recycling | 6,963 | 7,857 | 8,738 | 9,483 | 10,081 |
| M&I and Agricultural | 6,963 | 7,857 | 8,738 | 9,483 | 10,081 |
| Groundwater Replenishment | 0 | 0 | 0 | 0 | 0 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Other Non-Metropolitan Imports | 0 | 0 | 0 | 0 | 0 |

| Demands on Metropolitan | 2020 | 2025 | 2030 | 2035 | 2040 |
|---|---|---|---|---|---|
| Total Metropolitan Demands | 71,681 | 74,212 | 74,340 | 74,703 | 76,312 |
| Consumptive Use | 68,081 | 70,612 | 70,740 | 71,103 | 72,712 |
| Seawater Barrier | 0 | 0 | 0 | 0 | 0 |
| Replenishment Water[4] | 3,600 | 3,600 | 3,600 | 3,600 | 3,600 |

All units are acre-feet except in Demographics Section.

1. Growth projections are based on SCAG 2012 Regional Transportation Plan and SANDAG Series 13 Forecast.
2. Includes code-based, price-effect and existing active savings through FY2014; does not include future active conservation savings. Conservation is 1990 base year. Pre-1990 add 250,000 acre-feet.
3. Retail M&I projections include conservation.
4. Replenishment Water include direct and in-lieu replenishment.

## 7.2.1 Types of Years

### 7.2.1.1 Average Year

The Average year in the UWMP is defined as an averaged range of years (1922-2012), that most closely represents the average water supply available to the District. The UWMP Act uses the term "normal" conditions.

### 7.2.1.2 Single-dry year

The single-dry year is defined as the year (1977) that represents the lowest water supply available to the District.

### 7.2.1.3 Multiple-dry year period

The multiple dry year period is defined as the period (1990-1992) that represents the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more). This is considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903.

### 7.2.1.4 Sources for Water Data

For State Water Project contractors, information on water supply capacity of the SWP under several scenarios is available in the SWP Delivery Capability Report 2015.

Weather information is available at:•The National Weather Service website http://www.nws.noaa.gov/•California Irrigation Management Information Systems (CIMIS) http://www.cimis.water.ca.gov/

Runoff data is available at:•DWR http://cdec.water.ca.gov/•U.S. Geological Survey http://waterdata.usgs.gov/ca/nwis/sw•Operators of local dams

Groundwater information is available at:•State of California Sustainable Groundwater Management websitehttp://groundwater.ca.gov/cagroundwater/index.cfm•California Statewide Groundwater Elevation Monitoring (CASGEM)•http://www.water.ca.gov/groundwater/casgem/

## 7.3 Supply and Demand Assessment

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

The District's expected water supply reliability for normal (average), single-dry year, and multiple-dry years for 2020, 2025, 2030 and 2035 is shown in Tables 7-2, 7-3, and 7-4 respectively. The water service reliability assessment is based upon the District's compiled information regarding the service area, water sources, water supply reliability, and water demand, including available data from regional or local agency population projections within the District's service area.

A quantification of supply and demand for the various types of years is provided in the tables below.

**Table 7-2: Normal Year Supply and Demand Comparison.**

| Table 7-2 Wholesale: Normal Year Supply and Demand Comparison | | | | | |
|---|---|---|---|---|---|
| | 2020 | 2025 | 2030 | 2035 | 2040 *(Opt)* |
| Supply totals *(autofill fm Table 6-9)* | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |
| Demand totals *(autofill from Table 4-3)* | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |
| Difference | 0 | 0 | 0 | 0 | 0 |

**Table 7-3: Single Dry Year Supply and Demand Comparison**

| Table 7-3 Wholesale: Single Dry Year Supply and Demand Comparison | | | | | |
|---|---|---|---|---|---|
| | 2020 | 2025 | 2030 | 2035 | 2040 (Opt) |
| Supply totals (projected sales from Table 6-9) | 69,260 | 70,560 | 71,760 | 73,060 | 74,360 |
| Demand totals (see notes below) | 131,889 | 132,451 | 133,839 | 134,989 | 137,435 |
| Difference | (62,629) | (61,891) | (62,079) | (61,929) | (63,075) |
| NOTES: Based on forecasts provided by MWD. Forecasts are consistent with the 2015 Integrated Water Resource Plan developed in coordination with MWD's member agencies. Projected Demand totals represent the entire water needs/demands in TVMWD's service area. Of that amount, approximately 60,000 AF are met through local supplies (i.e. groundwater, surface water, and recycled water). The remaining amount (approximately 70,000 AF) is met through imported supplies. | | | | | |

**Table 7-4: Multiple Dry Years Supply and Demand Comparison**

| Table 7-4 Wholesale: Multiple Dry Years Supply and Demand Comparison | | | | | | |
|---|---|---|---|---|---|---|
| | | 2020 | 2025 | 2030 | 2035 | 2040 (Opt) |
| First year | Supply totals | | | | | |
| | Demand totals | | | | | |
| | Difference | 0 | 0 | 0 | 0 | 0 |
| Second year | Supply totals | | | | | |
| | Demand totals | | | | | |
| | Difference | 0 | 0 | 0 | 0 | 0 |
| Third year | Supply totals (projected sales from Table 6-9) | 66,100 | 64,660 | 65,310 | 66,610 | 67,910 |
| | Demand totals (see note) | 130,024 | 133,695 | 134,929 | 136,139 | 138,347 |
| | Difference | (63,924) | (69,035) | (69,619) | (69,529) | (70,437) |

NOTES: Based on forecasts provided by MWD. Forecasts are consistent with the 2015 Integrated Water Resource Plan developed in coordination with MWD's member agencies. Projected Demand totals represent the entire water needs/demands in TVMWD's service area. Of that amount, approximately 60,000 AF are met through local supplies (i.e. groundwater, surface water, and recycled water). The remaining amount (approximately 70,000 AF) is met through imported supplies. The imported supplies are provided by MWD to TVMWD.

## 7.4 Regional Supply Reliability

***CWC 10620 (f)*** *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.*

Some of the water management tools and options that are being implemented, or are planned for potential implementation (i.e. by the District or its member agencies), that maximize the use of local water resources and minimize the need to import water from other regions include the following: increased implementation of demand management measures, increased use of recycled water, enhanced groundwater management, and improvements in regional water management and coordination. As mentioned previously in section 6.2.2, the District will be working with the Six Basins Watermaster to identify and analyze potential projects and water management options that will maximize local resources in a sustainable and robust manner. One of the "tools" that will be used is the newly developed groundwater model of Six Basins.

## Local Supply Development

Understanding that the availability of future import supplies is tentative and highly dependent on statewide decisions that affect the conveyance systems bringing water into southern California, regional water districts such as TVMWD and local retail water purveyors are trying to find ways to lessen dependence on such resources. For some agencies, that task is more difficult than for others because the geographic location of some service areas do not lend itself to bountiful local supplies. In other instances, local supplies may be available but water quality concerns or historical operations have not maximized the use of the resource. TVMWD is working with the Six Basins Watermaster and its member retail agencies to maximize these resources. Chapter 6 describes some of the projects that are being developed with a major focus on developing local groundwater resources to enhance supply reliability and lessen dependence on import water supplies.

## Management of Water Shortages

TVMWD is a wholesale supplier of water. TVMWD is not a retail water utility. As such, each retail agency is responsible for its own level of water shortages. TMVWD, however, will assist wherever and whenever possible. The potential additional resources available to the area include increased local conservation and water recycling, improvements in the reliability of import supplies, increased regional surplus storage, and increased conjunctive use groundwater programs.

Meanwhile, MWD's import supply reliability is dependent on the State Water Project and the Colorado River Aqueduct. These two primary sources are subject to a whole host of legal, environmental, water quality, and climatic factors that affect available deliveries on almost an annual basis. MWD has developed its Regional Urban Water Management Plan wherein MWD explains the measures it has taken to try and guard against shortages in import supplies coming from the two primary sources. Such

measures include groundwater banking/storage agreements within and outside of the MWD service area, surface water storage at its terminal reservoirs (e.g. Diamond Valley Lake, Lake Skinner, Lake Mathews, etc.), and conservation/water resource programs that promote water efficiency.

Likewise, TVMWD has sought similar measures within its own service area to improve overall reliability. TVMWD seeks to maximize available local groundwater storage for conjunctive use purposes, promotes conservation efforts, and coordinates with its member retail agencies in developing local resource projects that will offset the need to import water.

Groundwater Storage/Conjunctive Use TVMWD's service area overlies five groundwater basins (Chino Basin, Main San Gabriel Basin, Puente Basin, Six Basins, and Spadra Basin). Within three of these basins, TVMWD is involved in four storage/conjunctive use programs.

The Chino Basin Dry-Year Yield Program is a cooperative agreement between MWD and Chino Basin stakeholders, of which TVMWD is one. The program included a potential storage capability of 100,000 AF, withdrawal of which is limited to a third of that amount per year. On a practical basis, TVMWD and its member retail agency can account for about 6,000 AF of that amount or a quantity on the order of 2,000 AFY. In the Main San Gabriel Basin, TVMWD maintains a cyclic storage account that allows up to 40,000 AF of storage. Import water is typically delivered to storage when it is available and then extracted from the groundwater basin by TVMWD's member retail agencies during periods of shortage or drought. Annual extraction limits are not limited but are capped by the practical pumping capacity of the retail member agencies. This provides another hedge against dwindling import supplies and short-term emergencies.

The Live Oak Basin and Upper Claremont Heights Basin conjunctive use projects utilize two of the sub-basins within Six Basins. Combined, the projects allow for a maximum storage amount of 6,000 AF with annual withdrawal limits of 2,000 AF.

Groundwater storage programs/projects help to relieve stresses on the import water systems during periods when those sources are less plentiful. The ability to effectively coordinate the conjunctive use of import supplies and the local groundwater basins remains a challenge but are key to managing the water resources of the region.

**Groundwater Recovery**

In addition to improving the ability to recharge water into the local groundwater basins, TVMWD is also working with its retail member agencies to develop or recover the capability to use groundwater with marginal water quality issues. Years ago, many groundwater producers deactivated wells after seeing high concentrations of contaminants such as nitrate, volatile organic compounds (VOCs), perchlorate, and the like. When faced with the added expense of having to treat the groundwater supply before putting it into a potable system, many instead chose the alternative of replacing that supply with import water.

As the future of import water supplies has become more variable, less reliable, and more costly over the past few years, TVMWD and its retail member agencies see the need to reassess those earlier decisions regarding the use of slightly impaired groundwater supplies. With the advent of reliable treatment technology to address water quality problems and experiences gained by those who have

installed such facilities, those past analyses that showed groundwater treatment to be too costly may no longer be valid. With the ever-increasing cost of import water, it may be more economically beneficial to reactivate the wells even with the added treatment costs.

One such project is the Pomona Basin Groundwater Recovery Project, would treat nitrate and VOCs and could potentially produce 5,000 AF per year. This project is in the early stages of design and analysis, and the concept includes provisions to deliver groundwater that is produced to areas highly dependent on import supplies. The District is providing funds from MWD for this project that includes upgrades an existing well in Pomona and provides a treatment facility to reduce or remove levels of nitrates and perchlorate from up to 1,100 acre-feet of recovered water per year.

In the Main San Gabriel Basin, a similar effort is underway to recover groundwater production capability for wells affected by nitrate, VOCs, and perchlorate. As envisioned, this project could potentially add an annual amount of 24,000 AF to the region's resource mix. A feasibility study has been completed for this project with preliminary design recommended. Capital and other project costs, however, are high so project proponents are seeking outside funding to offset local costs and improve the economic benefit to the region.

Other groundwater recovery projects within the TVWMD service area include non-potable production for recycled water and/or irrigation systems. Such projects are equally beneficial because they offset the need to deliver potable supplies to those uses that do not necessarily need it (e.g. landscape, irrigation, industrial, etc.). For those member retail agencies that have access to recycled water, expansion of their systems and replacing potable demands with non-potable water to current customers that do not need a potable supply are key elements to reducing future import water use and managing resources for growing populations within the service area. The noteworthy idea behind groundwater recovery is that for every acre-foot of water produced, a like amount of potable supply typically imported water can be replaced. The displaced amount then manifests itself as a reduced demand and a potential resource for the future.

**Table 7-8: Primary Sources of Water within TVMWD Service Area**

| Source | Descriptio |
|---|---|
| **State Water Project** | Imported water from northern California supplied by MWD |
| **Colorado River** | Imported water from Colorado River Basin supplied by MWD |
| **Local Surface Water** | San Gabriel and San Antonio Canyon sources owned and operated by Retail Member Agencies |
| **Groundwater** | Drawn from underlying groundwater basins; rights are primarily owned and utilized by Retail Member Agencies; TVMWD has minor usable amount |
| **Recycled/Reclaimed Water** | Supplied by local wastewater treatment plants with separate recycled water distribution systems owned and operated by Retail Member Agencies |

Regardless, the idea of developing or re-developing projects that have impaired water quality sheds light on the importance of understanding water quality and its effect on resource development.

## Water Quality Impacts

In addition to the usual health and safety considerations, water quality has near-term supply quantity implications for TVMWD and its retail member agencies. Certainly in southern California, water resource planners and engineers have become keenly aware of the importance of understanding the effects of water quality in the development of any water supply. It is also appropriate to understand potential trends and their impact on current and future supplies.

The primary sources of water utilized in the TVMWD service area are listed in Table 7-8. Each source has water quality characteristics that are beneficial to the region and/or pose challenges prior to utilization.

As previously discussed, individual cleanup/ groundwater recovery projects that put treated water to beneficial use will provide direct local benefit to the overlying user but will also afford broad benefits that impact the regional water supply situation in California. The following factors highlight the influence of water quality on the supplies used within the TVMWD service area:

State Water Project (SWP): SWP water is generally of high quality with total dissolved solids (TDS) concentrations averaging 325 milligrams per liter (mg/L). The quality of SWP water as a drinking water source is affected by a number of factors, most notably seawater intrusion and agricultural drainage in the Bay-Delta system. The water quality parameters of most concern are total organic carbon (TOC), bromide, and salinity. Levels of TOC and bromide increase significantly as water moves through the Bay-Delta. These constituents combine with chemicals used in the water treatment process to form disinfection by- products which are carcinogenic. Water supplies from the SWP have significantly lower TDS levels than the Colorado River, averaging 250 mg/L in water supplied through the East Branch and 325 mg/L on the West Branch. Because of this lower salinity, MWD blends SWP water with high salinity Colorado River water to reduce the overall salinity levels of water delivered on the MWD system. In recent years, more frequent algae blooms along the California Aqueduct and in Silverwood Lake have resulted in increased geosmin and MIB levels in the source water that the Miramar Plant treats. This has caused more frequent taste and odor episodes and issues.

TVMWD treats 93% state project water (the remaining 7% is groundwater) at its Miramar Water Treatment Facility so the water quality of the source supply has added importance. In recent years, TVMWD has modified its treatment process at Miramar to address changes in water quality standards promulgated by the U.S Environmental Protection Agency and California Department of Public Health. These changes addressed the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and Disinfectant/Disinfection Byproducts Rule (D/ DBPs). As future regulatory changes affect requirements for drinking water, it is TVMWD's intent to address such changes on a case-by-case basis with the objective of maintaining the treatment plant and future output.

**Colorado River**: Water imported via the Colorado River Aqueduct (CRA) has the highest level of salinity of all of MWD's sources of supply, averaging around 650 mg/L during normal water years. Concern over salinity levels in the Colorado River has existed for many years. To deal with this, the Colorado River Basin Salinity Control Act was approved in 1974.

SWP water is used to blend with CRA water to reduce overall salinity of delivered water from MWD. This practice is likely to continue but the lack of SWP supplies during certain years will seasonally affect the salinity of southern California's drinking water supply.

The appearance of perchlorate and Quagga mussels in Lake Mead and downstream into the MWD system has continued to be water quality issues of concern. Again, MWD is coordinating with upstream interests to control the sources of this contaminant and invasive species. Where necessary, MWD is addressing the problem within its own system. Because the CRA supply is less variable than the SWP supply to MWD, the Colorado River has become even more important to MWD's overall supply mix. Accordingly, MWD will exert a great deal of energy and time to retain that resource regardless of the water quality issue that may arise.

**Local Surface Water**: There is a limited supply of local surface water used within the TVMWD service area. The water originates from the San Gabriel Mountain watersheds and is typically collected by local agencies having water rights along the source stream. The water is then treated in small local surface water treatment plants for delivery into the distribution systems. The watersheds for these surface water supplies are less developed and do not pose significant adverse influences on this resource. Hydrology, not water quality, typically has a greater effect on supply.

Because the mountain watersheds for these resources have not seen the past farming practices of the downstream valleys and are not expected to see a great deal of development in the future, no adverse water quality impacts are expected for this supply.

**Groundwater**: Local groundwater used in the TVMWD service area is extracted from several different basins. Due to past historical agricultural and industrial practices in the region, the constituents of concern for these groundwater basins include Nitrate (NO3), perchlorate (NH4ClO4), and volatile organic compounds (VOCs). When these constituents are discovered at a well site, the owner/operator of that well typically determines whether or not production will continue. If it is deemed that the groundwater requires treatment prior to delivery, the owner must take that cost into account in making that determination.

In the past, it was more economical for groundwater producers to simply abandon a contaminated well when an alternative supply such as import water was readily available. Today, as import water costs increase and its availability becomes less reliable, these same producers are taking a second look at treatment options and associated costs. In many cases despite the added cost of treatment, the reliability and control over local well water becomes a more attractive alternative.

The constituents mentioned above will remain the primary water quality issues for the TVMWD region within the planning horizon. In the coming years, groundwater producers will evaluate their options to recover lost groundwater production that they may have abandoned in the past and/or develop new production capacity with the knowledge that added treatment facilities may be necessary. In other words, there will likely be a trend that groundwater resources will be more fully utilized even with the water quality challenges that are faced.

**Recycled/Reclaimed water**: Recycled water sources for the TVMWD service area currently include the Pomona and San Jose Creek Water Reclamation Plants. Both plants are operated by the Los Angeles

County Sanitation Districts (LACSD), and the recycled effluent water is delivered to individual retail member agencies through distribution systems independent of the drinking water systems. Accordingly, recycled water is used only for non-potable demands such as landscape/park irrigation, agricultural watering, industrial processes, etc. For the time being, supply is greater than demand for recycled water. As infrastructure for this resource grows, however, it is expected to replace a portion of the demand of various users currently served by potable water.

As long as it remains a non-potable supply, recycled water will not be subject to the same drinking water standards as the sources previously discussed. Consequently, the water quality issues facing recycled water are far less daunting than those sources used for potable purposes. Nitrate, total organic carbon, and NDMA are some of the constituents closely monitored for recycled water, especially if it is being utilized for indirect potable recharge. The LACSD is working with other stakeholders to keep such water quality concerns under control. If in the future, the regulations become more stringent for recycled water use, the cost to address the concern will determine future viability for the resource, but based on the investment in infrastructure that many agencies have already made, it is unlikely that any will "turn their backs" to this supply. As with past experience in previously turning away from groundwater production due to water quality concerns, recycled water users see the value and reliability of the resource when compared to dwindling import supplies. Accordingly, future water quality issues are not expected to negatively affect the utility of recycled water. Therefore, the region should see an increasing trend in its use.

# Chapter 8 – Water Shortage Contingency Planning

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation can help maintain reliable supplies and reduce the impacts of supply interruptions.

This chapter includes a description of the District's staged plan for dealing with water shortages (including "imposed shortages" due to DWR restrictions/allocations of water available to MWD and its member agencies from the State Water Project), including a catastrophic supply interruption.

***CWC 10632 (a)*** *The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier.*

The sections of this chapter will discuss the stages of action, consumption reduction methods, determining water shortage reductions, revenue and expenditure impacts, resolution or ordinance, catastrophic supply interruption, and projected (estimated) minimum supply next three years.

## Drought Planning

Relatively speaking, the dry hydrologic conditions (single and multi-year dry hydrology) within TVMWD's service area do not necessarily produce extreme water demand conditions when compared to the average year. Water demands generally increase by several hundred acre-feet, which could invariably be covered by a slightly greater demand on the MWD system.

As a member agency of MWD, TVMWD relies primarily on the availability of MWD supplies to determine shortage situations. When MWD declares water shortages or interruptions for its system over a given period, TVMWD typically follows suit with similar declarations and actions to manage its demands and regulate usage to the degree practical.

As MWD develops its own plans and programs to manage available supplies during times of shortage or drought, TVMWD will evaluate the suitability of such strategies for its own member retail agencies. At its own discretion, TVMWD may use a similar approach as MWD or develop its own strategies. In either case, TVMWD will coordinate with its member agencies to adopt a plan that is best suited to the needs of its service area.

## 8.1 Stages of Action

***CWC 10632 (a)(1)*** *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.*

Table 8-1 (Stages of Water Storage Contingency Plan) identifies the water supply associated with each stage of action. This table identifies each stage by the percent supply reduction and the water supply condition.

As detailed in its Regional UWMP, MWD follows its Water Supply and Drought Management (WSDM) Plan to determine actions it takes based on the availability of import water. The WSDM Plan outlines action in surplus supply stages as well as shortage stages. Shortage stages are further divided into mild, severe, and extreme conditions with actions to be taken by MWD corresponding to the severity of the declared shortage.

Similarly, TVMWD has developed its own in-house Shortage Contingency Stages to react to MWD's actions. The five stages of TVMWD actions are intended to be consistent with action stages defined by MWD. As surplus or shortage conditions progress, these actions are additive. Accordingly, TVMWD will monitor consumption and assess penalties for excessive use based on allocations established with the member retail agencies. The following discussion provides a description of the various stages and Table 8-2 presents a summary of actions associated with the progressive steps that may be utilized during shortage conditions. However, the MWD and TVMWD systems are inherently complex and the ultimate actions taken will depend on the unique situation of each particular condition.

**Regional Shortage Stage 1** (5% to 10% shortage) TVMWD will work with retail member agencies to determine short-, medium- and long-term supply capabilities. TVMWD will initiate a public information campaign to

- Explain the drought situation to the public and governmental bodies.
- Explain other stages and forecast future actions.
- Request voluntary water conservation.
- Suggest the preparation and dissemination of educational brochures, bill inserts, etc.
- Notify media.

**Regional Shortage Stage 2** (10% to 20% shortage) TVMWD will continue Shortage Stage 1 actions and will

- Accelerate public information program.
- Disseminate technical information.
- Institute rate program to support conservation.
- Request from retail member agencies water use reductions at prescribed levels.
- Lobby for passage of drought ordinances in service area.
- Encourage use of ET rate for landscape watering.

**Regional Shortage Stage 3** (20% to 35% shortage) TVMWD will continue Stage 2 actions and may curtail or temporarily suspend deliveries for groundwater replenishment in accordance with their discounted rates. Additionally, TVMWD will coordinate with MWD to possibly draw from conjunctive use groundwater storage programs.

- Adopt Base Retail allocation for each Member Agency.
- Advise area planning staffs of possible short-term inability to supply new developments/annexations due to shortages to existing customers.
- Continue public information program at accelerated pace.

**Regional Shortage Stage 4** (35% to 50% shortage) TVMWD's Board of Directors may call for extraordinary conservation through a coordinated outreach effort and monitor the effectiveness of ongoing conservation programs. Additional action includes:

- Intensifying all prior steps.
- Reassess allocation plan for possible per capita residential allowance.

**Regional Shortage Stage 5** (50% or higher) TVMWD will continue Shortage Stage 4 actions and in conjunction with MWD may exercise any and all water supply option contracts and/or buy water on the open market either for consumptive use or for delivery to regional storage facilities for use during

the shortage. Any allocation plan developed by the TVMWD Board of Directors will be implemented based on board-adopted principles.

| Table 8-1 Wholesale: Stages of Water Supply Condition Plan (WSCP) | | |
|---|---|---|
| Stage | Complete One or Both | |
| | Percent Supply Reduction[1] | Water Supply Condition |
| | *numerical value as percent* | *narrative description* |
| 1 | 5 - 10% | |
| 2 | 10 - 20% | |
| 3 | 20 - 35% | |
| 4 | 35 - 50% | |
| 5 | 50% or higher | |
| [1] *One stage in the WSCP must address a water shortage of 50%.* | | |
| NOTES: | | |

## Shortage Contingency Stages

During water shortage emergencies, TVMWD will assist each of its retail member agencies to help resolve any situation related to allocation of imported water supplies and/or local conservation efforts. TVMWD will "equitably allocate imported water on the basis of agencies' needs." Regardless, the following factors will be taken into account if and when allocation discussions arise:

**Table 8-2: Summary of Shortage Stages**

| Action | Shortage | | | | |
|---|---|---|---|---|---|
| | Shortage | | Severe Shortage | | Extreme Shortage |
| | **1** | **2** | **3** | **4** | **5** |
| | 5% - 10% | 10% - | 20% - 35% | 35% - 50% | > 50% |
| Conduct Public Outreach | | | | | |
| Conservation | | | | | |
| Determine supply capabilities w/ Retail | | | | | |
| Curtail replenishment deliveries | | | | | |
| Extraordinary Conservation | | | | | |
| Coordinate w/ MWD to call or exercise various water options | | | | | |
| Implement Water Supply Allocation Plan (WSAP) | | | | | |
| | | | | | |
| Natural Disasters:<br>• Earthquake<br>• Fire<br>• Flood | Implementation depending on severity and duration as per TVMWD's Emergency Response and Vulnerability Assessment Response Plans | | | | |
| Power Outage | | | | | |
| Terrorist / Criminal Acts | | | | | |
| System Failures:<br>• State Water Project<br>• Colorado River Aqueduct<br>• Miramar WTP | | | | | |

1. Supply Availability and Forecasts
   - Total supply availability, including both ground and surface water supply sources
   - Groundwater rights status for that particular year.
   - Available groundwater supply
   - Operational condition of Member Agencies' wells, reservoirs and other facilities
   - Current aquifer levels.
   - The rate of decline in aquifer levels, compared with the normal operating levels.
   - Surface water conditions in proximity to Member Agencies' wells.
   - Surface water conditions for water sup- plies provided through the state water project and the Colorado River Aqueduct
   - Amount of time required to implement a supply enhancement measure.

- Weather conditions as derived from short- and long-term weather forecasts and modeling by the national weather service.

2. Water demand factors
   - Current trends and seasonal forecasts for the system's daily water demands.
   - The estimated margin of safety provided by the demand reduction compared with the level of risk assumed if no action is taken.
   - Amount of time required to implement a water use reduction measure.
   - Media availability.
   - Customer response.
   - Magnitude of expected savings provided by a water use reduction measure.

3. Other Factors
   - Consider actions taken by MWD.
   - The value of lost water sales revenue compared with the increased margin of reliability.
   - Consultation with MWD, Member Agencies, elected officials, state resource agencies and interest groups
   - The length of time between stage changes and required time and resources necessary for the implementation of actions by the Administration.
   - The length of time a shortage stage would be in place.
   - Required time lags to shift administrative gears and institute measures
   - Potential costs to Member Agencies
   - Equity in demand reduction amongst Member Agencies.
   - Contractual obligations for water supply and water use (re: the Miramar Treatment Plant).
   - Surface water quality impacts
   - Earthquakes
   - Power outages
   - Terrorist/criminal acts

All retail member agencies have been encouraged to further develop local groundwater and recycled water supplies and to participate in TVMWD's sponsored conservation programs. Furthermore, the retail agencies have been exploring alternative water exchange possibilities with neighboring groundwater suppliers as well as potential water sources that are more distant.

## 8.2 Prohibitions on End Uses

***CWC 10632 (a)(4)*** *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.****(5)*** *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.*

This section is not applicable to the District since it is a wholesale water agency.

## 8.3 Penalties, Charges, Other Enforcement of Prohibitions

***CWC 10632 (a) (6)*** *Penalties or charges for excessive use, where applicable.*

This section is not applicable to the District since it is a wholesale water agency.

## 8.4 Consumption Reduction Methods

***CWC 10632 (a)(5)*** *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.*

Consumption reduction methods are actions that are taken by the District to reduce water demand within its service area, whereas the prohibitions, addressed in Section 8.2, limit specific uses of water. The UWMP discusses the expected water savings at each stage based on the actions that will be taken. These expected savings have been estimated based on an agency's past experiences of implementation of specific consumption reduction methods.

### 8.4.1 Categories of Consumption Reduction Methods

The water shortage contingency analysis for wholesale agencies must describe the agency's strategy for supply management. If the wholesale agency has a study or report addressing planned consumption reduction/ supply management by the agency, this may be briefly summarized in this section and either included as an attachment to the UWMP or referenced within the UWMP.

## 8.5 Determining Water Shortage Reductions

***CWC 10632(a)(9)*** *A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

The UWMP must discuss how the water supplier will measure and determine actual water savings made from implementing the stages of the water shortage contingency plan.

As a wholesale water supplier, TVMWD has meters with which to determine water use by its retail member agencies. Water use is determined through actual monthly billing and subsequent report reconciliation. Water use by each retail agency can be determined through individual metered connections. Per agreements and operating plans in place with participating retail agencies, cut backs in supply when necessary must be accountable to TVMWD and MWD in relation to specific agreements and projects.

## Water Shortage Allocation Plan

TVMWD originally adopted a Water Shortage Contingency Plan on February 11, 1992 in response to emergency legislation in 1992. In May 2009, TVMWD adopted an updated program to deal with then current water shortage conditions. TVMWD's Water Supply Allocation Plan (WSAP) was actually implemented during fiscal year 2009-10 (July 2009 through June 2010) to coincide with MWD's declaration of its own WSAP during an extreme shortage stage.

More recently in July 2015, the District implemented the Water Supply Allocation Plan (WSAP) that MWD has put in effect earlier this year to support the governor's state mandated water restrictions. The WSAP is implemented on a fiscal year basis (only 2nd time in last 7 years) and sets a limit as to how much water we can purchased during the fiscal year without incurring a penalty. The limit is a moving target that depends on a number of factors, but mainly local groundwater extracted during the fiscal year. The initial TVMWD allocation was 53,158 AF, as shown in Table 8-3. The penalties during WSAP can be quite expensive as shown below:

- Up to allowed water limit – no penalty is incurred (just the cost of the water)
- Up to 15% above the limit – A penalty of $1,480/AF plus the cost of the water
- Over 15% above the limit – A penalty of $2,960/AF plus the cost of the water

A copy of TVMWD's 2009 WSAP is included in Appendix I and was adopted as a method of controlling demand through water rate penalties for excessive use. The WSAP document in Appendix I clearly explains the need and development of the plan. The root principles of the plan were borrowed from MWD's own WSAP, but the final outcome for the allocations to each retail water purveyor was fully vetted among TVMWD and its retail member agencies.

The TVMWD WSAP creates a structure that allows the declaration of a water shortage situation for TVMWD's service area. There are 10 defined shortage level stages that correspond to an annual allocation of water to each of the retail member agencies.

The above allocation was developed through a consensus effort among TVMWD and its retail member agencies. Historical import water use was taken into account as well as other factors involving retail dependence on import water and past conservation efforts.

During Fiscal Year 2014-15 (7/1/14-6/30/15), MWD and TVMWD declared Shortage Level 3 for its respective member agencies. This translated to a 25% reduction in TVMWD's supply when compared to its average use over the three year period of 2012-2014. The total amount allocated to TVMWD was then apportioned to each of its retail member agencies based on the percentages in Table 8-3.

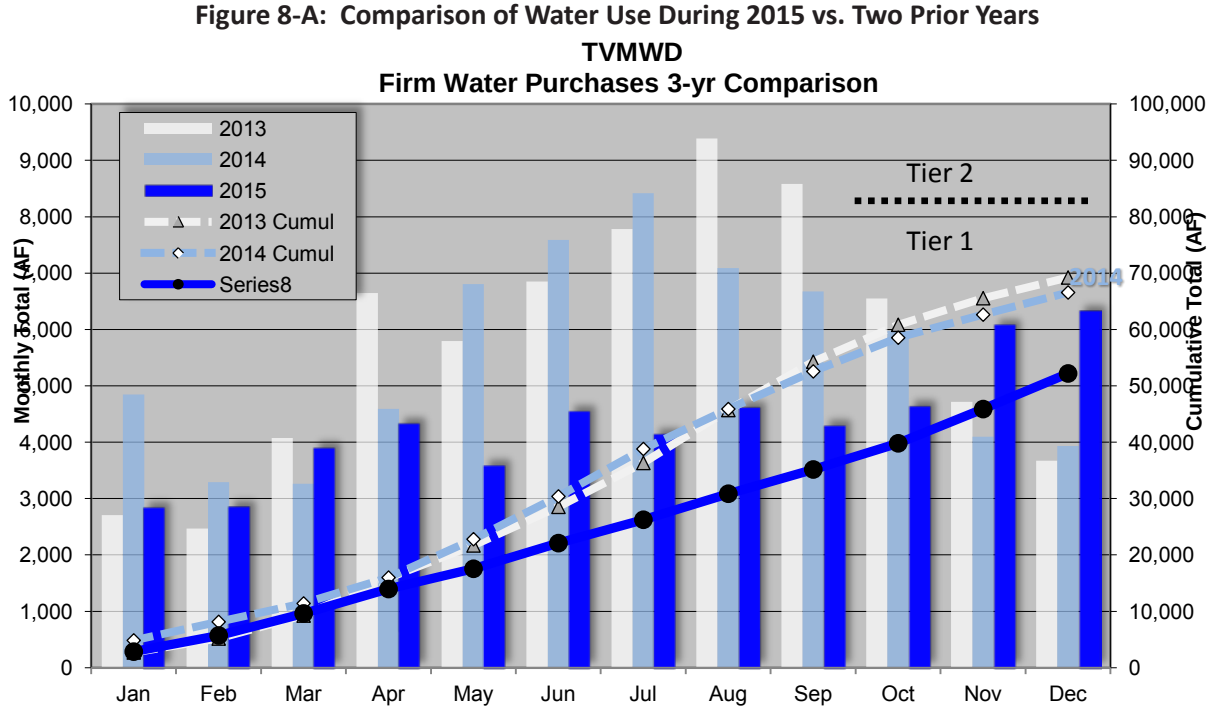
During the period of the Shortage Level 3 declaration of FY 2014-15, import water use (not including groundwater replenishment) decreased by an average of about 20% when compared to the two prior years (see Figure 8-A). Needless to say, the retail agencies have generally been able to stay within their respective allocations as has TVMWD with respect to its overall allocation from MWD.

Slow economic growth over the past seven years due to a depressed economy played a part in the decreased water use seen during FY 20014-15, but conservation was definitely the key factor in generating the degree to which those demands fell.

**Table 8-3: WSAP Allocation Table for FY 2015-16**

| AGENCY | (in AF) |
|---|---|
| Boy Scouts of America | 29 |
| Cal Poly Pomona | 169 |
| Covina, City of | 793 |
| Glendora, City of | 1,762 |
| Golden State Water Company | 10,230 |
| La Verne, City of | 5,154 |
| Mt San Antonio College | 291 |
| Pomona, City of | 4,282 |
| Rowland Water District | 9,664 |
| Suburban Water Systems | 3,120 |
| Valencia Heights Water Co | 35 |
| Walnut Valley Water District | 17,631 |
| **TOTAL** | **53,158** |

**Figure 8-A: Comparison of Water Use During 2015 vs. Two Prior Years**




## 8.6 Revenues and Expenditure Impacts

***CWC 10632 (a)(7)*** *An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), 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.*

The expected change in revenues and expenditures to the District can vary as a result of implementing the WSCP. Like most other water agencies, the District experiences a decrease in revenue with reduced water sales. The District prepares and updates the water sales forecast periodically (i.e. every year) as part of its normal budgetary planning activities. At this time the District is not considering revising its rates to develop and/or implement a drought rate structure.

### 8.6.2 Use of Financial Reserves

TVMWD's Board of Directors has previously established an "Operating Reserve" for short-term cash needs of $1,000,000 to cover partial water payments and payroll for an approximate 60-day period. Other reserve funds (e.g. "rate stabilization") are designed to minimize the impacts of any short-term demand reduction on rates. The reserve structure is based on the assumption that two out of every ten years could be expected to require demand reduction efforts due to drought. Also, these funds will cover contingencies if the Miramar Treatment Plant is inoperable or only partially operable for an extended period of time. When fully funded, it would be able to maintain the District in a revenue-neutral position through two successive years of 25 percent reductions below normal demand levels. These various reserve funds will assist in reducing impacts on rates during multiple dry years that occur as a result of reduced revenue due to reduced water sales, and additional costs of securing supplies during shortages.

The District's Board will likely "dip into" the rate stabilization fund this coming fiscal year (2015-16) to off-set the revenue decrease due to reduced water sales.

### 8.6.3 Other Measures

Other potential proposed measures that the District may take to overcome impacts to revenues and expenditures could be postponement of capital improvements or other reductions in District costs.

## 8.7 Resolution or Ordinance

***CWC 10632 (a)(8)*** *A draft water shortage contingency resolution or ordinance.*

As previously mentioned, the District developed and approved a water shortage contingency resolution which is included in Appendix H of the UWMP.

## Conservation

Previous resolutions adopted by TVMWD have encouraged its retail member agencies to adopt ordinances encouraging conservation practices during times of drought. In 2009, the District adopted its own updated ordinance to govern mandatory conservation activities during times of drought and other water shortages and emergencies. A copy of that ordinance is included as Appendix H. Although TVMWD is not equipped to enforce specific residential water use ordinances at the retail level during times of extreme drought, it will work with its member agencies to increase awareness and implement public information campaigns stressing the importance of active drought conservation.

## 8.8 Catastrophic Supply Interruption

***CWC 10632 (a)(3)*** *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.*

Catastrophic supply interruptions (e.g. due to an earthquake, power outage, terrorist attack, or other

natural disaster) will likely occur suddenly and can immediately jeopardize a large portion, or all, of an agency's water supply.

If there is a catastrophic reduction in water supplies to the District due to an earthquake or power outage, the following actions may be taken by the District:

- Contact TVMWD member agencies and advise them of the operational status of the District's storage and transmission system and possibly recommend they activate system interconnections with other suppliers in the region
- Contact MWD and participate in comprehensive regional disaster plans with other water agencies,
- Follow procedures and implement appropriate actions contained in the District's Emergency Response Plan (ERP), as required by the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (Public Law 107-188).

## 8.9 Minimum Supply Next Three Years

***CWC 10632 (a)(2)*** *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.*

Water agencies must provide an estimate of the minimum water supply available during each of the next three water years, 2016, 2017, and 2018. This will reflect the combined availability of all water sources and will assume the same hydrology as was noted during the historical multiple-dry year period (noted in Chapter 7, Section 7.3).

The estimate of the minimum supply for the next three years is based on data that is reasonably available to the District at the time the 2015 UWMP is written. Table 8-4 below shows the projected (estimated) minimum supply over the next three years.

**Table 8-4 Wholesale: Minimum Supply Next Three Years**

| | 2016 | 2017 | 2018 |
|---|---|---|---|
| Available Water Supply | 63,000 | 65,000 | 66,000 |
| NOTES: Estimated available water supply (i.e. Imported water from MWD and District Groundwater wells) | | | |

# Chapter 9 – Demand Management Measures

## 9.1 Demand Management Measures for Wholesale Agencies

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

***(1)(B)*** *The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:*

***(ii)*** *Metering.*

***(iv)*** *Public education and outreach.*

***(vi)*** *Water conservation program coordination and staffing support.*

***(vii)*** *Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.*

***(2)*** *For an urban wholesale water supplier, as defined in Section 10608.12, (provide) a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.*

Wholesale agencies must provide narrative descriptions of four specific measures, metering, public education and outreach, water conservation program coordination and staffing support, and other demand management measures, as well as a narrative of asset management and wholesale supplier assistance programs. Additionally, wholesale suppliers are required to address their DMM implementation over the past five years.

TVMWD views demand management as a key concept in achieving long-term reliability and sustainability for the region. With opportunities relatively limited to develop large scale water supply projects in the area, the need to "control" demand becomes an increasingly important component in the overall equation.

TVMWD fully endorses conservation as a primary means to encourage wise water use. To that end, TVMWD enlists a multi-faceted conservation program that includes education and public information, water audits/surveys, landscape programs, plumbing retrofits, and other related activities.

TVMWD is committed to conservation and water resource management and recognizes the need for efficient water use not only in times of drought but as an integral part of everyday life. The population within the TVMWD service area is not expected to grow at the higher rates experienced in other parts of southern California. Accordingly, consistent conservation will play a significant role in ensuring TVMWD's water sustainability.

For meeting the state's goal of reducing per capita water use 20% by Year 2020, conservation is the key. Such established measures must make sense and be fairly simple to implement to achieve widespread acceptance among the general public. Conservation measures must lead to an understanding of the efficient use of the resource and long-term behavioral changes that directly affect water usage. In other words, public perception of responsible water use must be fostered and a

sustained change in the mindset of the public needs to take place in order for conservation to take hold and be truly effective for the long term.

As a wholesale water agency, TVMWD is committed to promoting and facilitating water conservation projects by the retail agencies within its service area. These undertakings focus on commercial and industrial equipment and processes, residential plumbing retrofits, Turf Removal programs (see photo below), landscape irrigation, and education. One of TVMWD's most important long-term conservation measures is educating the public on the source of water to the southern California area and the need for water conservation for the region to enhance long-term reliability and growth. One of the ways TVMWD does this is by conducting public tours of the Miramar Plant to "get the word out" regarding the importance of water conservation.

TVMWD's primary focus with regard to conservation has been public education and awareness as a necessary means to inform the general population of efficient water use. In recent years, while maintaining its emphasis on education and public information, TVMWD has also expanded its conservation activities in the areas of conservation research and increased coordination of funding for retail-agency sponsored projects. Water supply reliability is dependent on both the further enhancement of local and supplemental imported water sources. In addition, the retail member agencies have developed a "roadmap" for water supply reliability through the development of diversified resources and economic soundness. In order to achieve and maintain a high level of water use efficiency within its service area, TVMWD's primary conservation objectives are as follows: Assist member agencies with funding and implementing conservation projects.

## Imported Water Demand Management

Similar to MWD, TVMWD has adopted a tiered rate structure in delivering import water to its retail member agencies. The Tier 1 and Tier 2 rates have been in place since 2001 and serve to discourage excessive use by forcing water purveyors to actively manage their own systems to minimize costs associated with buying import water.

The program allocates to each retail member agency a specific quantity of import water for the calendar year. The individual amounts were initially developed based on average annual import water use during the 10-year period prior to the start of the program. The initial amounts, as of July 2015, are shown in Table 9-1 and are referred to as the Tier 1 allocations.

TVMWD tracks closely the monthly import water usage by each retail member agency. If an agency exceeds its allocation of import water during a calendar year, it may be subject to a higher water rate for the quantity delivered above its allocation. For CY 2015, the MWD Tier 1 and Tier 2 rates (for treated water) were $942 and $1,076 respectively which represents a 34% increase of water rates since 2010. The differential between the initial allocation (Tier 1) and overage (Tier 2) was $134 per acre-foot. TVMWD has found that this differential in price has provided a sufficient disincentive for agencies to simply turn to import water. Instead, it has reinforced the idea to develop other supplies that may be more economically beneficial to the retail agency.

**Table 9-1: Tier 1 Allocation to TVMWD Member Agencies**

| AGENCY | (in AF) |
|---|---|
| Boy Scouts of America | 29 |
| Cal Poly Pomona | 169 |
| Covina, City of | 793 |
| Glendora, City of | 1,762 |
| Golden State Water Co | 10,230 |
| La Verne, City of | 5,154 |
| Mt San Antonio College | 291 |
| Pomona, City of * | 4,282 |
| Rowland Water District (RWD) * | 9,664 |
| Suburban Water Systems | 3,120 |
| Valencia Heights Water Co | 35 |
| Walnut Valley Water District (WVWD) * | 17,631 |
| **TOTAL** | **53,158** |

** Individual values for City of Pomona, RWD, and WVWD are based on data from JWL.*

In addition, with California facing its fourth year of drought, Governor Brown issued Executive Order B-29-15 on April 1, 2015 which authorized the State Water Resources Control Board to establish state wide regulations for mandatory water reductions in cities across California to reduce potable water usage by 25 percent statewide. This amounts to approximately 1.3 million acre feet of water over the next nine months. The governor mandated a state-wide 25% overall reduction in water use for 2015.

The mandated percent reduction for the District's member agencies ranged from a high of 36% to a low of 20%. Individual agencies may be fined up to $10,000 per day by the state if they do not meet the mandated reductions. Collectively, the District's member agencies have achieved an aggregate reduction of 25%.

### 9.1.1 Metering

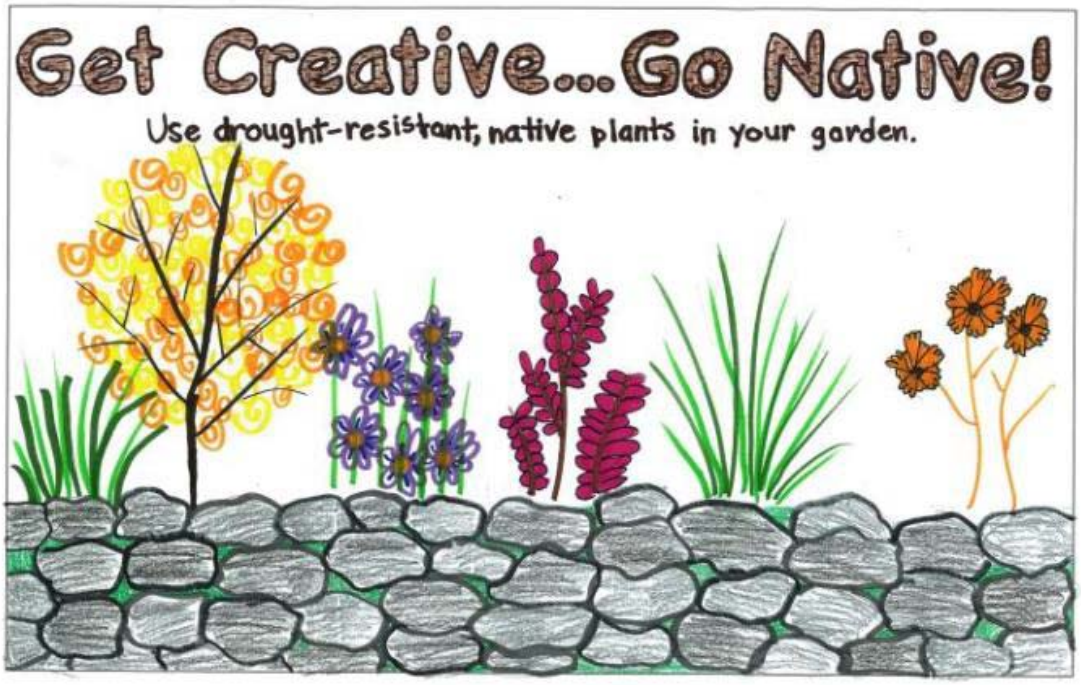
The District's connections to its member agencies are fully metered allowing the District to accurately track water sales (demand) and system losses. The District performs periodic calibration/testing of its meters to ensure meter accuracy and repairs or replaces faulty meters.

### 9.1.2 Public Education and Outreach

The District conducts public education and outreach efforts to assist and support its retail member agencies. These efforts include: support/partner with MWD on mass media campaigns encouraging conservation; school education programs; information booths at public events; newsletters; informative websites, online tools, and newspaper articles.

TVMWD assists our member agencies at outreach events by hosting or co-hosting educational booths at events like Earth Days and school functions. The District supports and partners with Metropolitan Water District when MWD conducts mass media campaigns to take advantage of their large buying power and extensive regional reach. The District conducts over 15 tours annually for grades 3 through college of our Miramar Treatment Plant. Presentations are given to educate visitors on how a water treatment plant is operated, the true value of clean safe water, and also how the District was formed, how it is administered and why it exists. Water conservation is addressed throughout the tour.

District staff participates in Ag Day LA at the Los Angeles County Fairplex, reaching more than 1,200 students over two days and explaining the relationship between clean water, water conservation and agriculture in the State of California.



As one of the founding members of WEWAC (Water Education / Water Awareness Committee), Three Valleys provides grants to local teachers for creative water conservation activities in the classroom, conducts a Project WET Workshop each year for teachers, scholarships to high school seniors who write an essay on the importance of water conservation. The scholarships go directly to the students' college. WEWAC also awards funding to schools that participate in a media contest – with students creating public service announcements or digital art on water conservation.

Three Valleys staff creates more than 15 advertisements and articles each year to run in local newspapers to educate the public on conservation, water protection and water supply sources. Three Valleys hosts three Leadership Breakfasts each year. The Breakfasts are meant to educate local officials, elected officials and the general public on topics of importance to California water. These breakfasts usually discuss large, regional topics related to the water industry.

Three Valleys hosts and administers at least three of the Metropolitan Water District tours to: State Water Project, Colorado River Aqueduct and a local venue such as Diamond Valley Lake (Southern California's newest reservoir), or the State's Edmonston Pumping Plant. To further this education, Three Valleys' hosts at least one local event showcasing our local facilities and improvements made throughout the year and proposed capital projects and their importance to the local supplies.

Three Valleys has been awarded a "District of Distinction" by the Special District Leadership Foundation for its sound fiscal management policies and practices.

### 9.1.3 Water Conservation Program Coordination and Staffing Support

The District's water conservation coordinator (Cindy DeChaine) is in charge of public outreach and coordination with the District's member agencies, MWD, local schools, and the public to encourage conservation and promote/support public awareness and participation. The District sets aside funding in its annual budget to support these activities.

### 9.1.4 Other Demand Management Measures

This category provides wholesale agencies the ability to report additional or innovative approaches to demand management that do not belong to the categories listed above. If a wholesale agency includes a discussion of rate structures or supply management as part of its demand management measure discussion, it may provide detailed information of the rate structure in an appendix and summarize the key points in the main body of the UWMP.

### 9.1.5 Asset Management

The District is in the process of developing an asset management program for its major infrastructure including its distribution system. The plan includes conducting regular distribution system maintenance and/or inspection and making improvements to and/or repairs/replacement of assets as needed. For the most part the District responds to needed repairs as they arise. In the future, the District may implement GIS mapping with a structured improvement and repair program.

### 9.1.6 Wholesale Supplier Assistance Programs

The District participates in assistance programs to the retail member water agencies that it serves. As mentioned in Chapter 2 of the UWMP, this includes assistance with rebate programs, public education and outreach on water conservation, and other efforts to reduce water demand.

## 9.3 Implementation over the Past Five Years

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

***(1)(A)*** *… a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.*

Over the past five years (2010 – 2015) the District has implemented each of the Demand Management Measures listed in listed in Section 9.1.

## 9.5 Members of the California Urban Water Conservation Council

***CWC 10631 (i)*** *For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.*

California Urban Water Conservation Council (CUWCC) members have the option of submitting their 2013–2014 Best Management Practice (BMP) annual reports in lieu of, or in addition to, describing the DMMs in their UWMP. The option of submitting the CUWCC BMP report in lieu of describing the DMMs is only available if the supplier is in full compliance with the CUWCC's Memorandum of Understanding (MOU). The submitted reports must include documentation from the CUWCC that the supplier has met the MOU coverage requirements and is in full compliance with the MOU.

# Chapter 10 Plan Adoption, Submittal, and Implementation

## 10.1 Inclusion of All 2015 Data

2015 UWMPs must include the water use and planning data for the entire year of 2015. The District is reporting on the most recent fiscal year basis (July 1, 2014 to June 30, 2015).

## 10.2 Notice of Public Hearing

The District will hold a public hearing on May 18, 2016 prior to adopting the Plan (UWMP). The public hearing will provide an opportunity for the public to provide input to the Plan before it is adopted. The District's governing body (i.e. board of directors) will consider all public input. The audiences that will be noticed for the public hearing include the cities, counties, and the public within the District's service area.

### 10.2.1 Notice to Cities and Counties

***CWC 10621 (b)*** *Every urban water supplier required to prepare a plan shall… at least 60 days prior to the public hearing on the plan … notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.*

***CWC 10642****…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…*

60 Day Notification - The CWC states that cities and counties must be notified that the supplier will be reviewing the UWMP and considering amendments to the Plan. This notice must be sent at least 60 days prior to the public hearing. The notification letter (See Appendix C) was emailed to cities, counties, and agencies on March 15, 2016.

Notice of Public Hearing - The water supplier shall provide notice of the time and place of the public hearing to any city or county within which the supplier provides water.

The notices to the cities and counties will include the location where the 2015 UWMP can be viewed, the UWMP revision schedule, and contact information of the UWMP preparer. Notification letters will be addressed to the City Manager, City Planning Department, County Administrator, or other local contacts, as appropriate for the supplier's service area.

Table 10-1 (see Appendix L) lists the cities, agencies, and counties that were notified by the District.

### 10.2.2 Notice to the Public

***CWC 10642*** *Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection…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…*

***Government Code 6066*** *Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.*

The public hearing will be noticed (i.e. "published") in two local newspapers (San Gabriel Valley Tribune

and Inland Valley Daily Bulletin) approximately two weeks before the public hearing. This notice will include the time (8:00 am) and place (TVMWD Miramar headquarters) of hearing, as well as the location where the plan is available for public inspection. In order to verify that this notification has taken place, the UWMP will include a copy of the public notice (see Appendix B).

## 10.3 Public Hearing and Adoption

***CWC 10642****…Prior to adopting a plan, the urban water supplier shall hold a public hearing thereon.*
***CWC 10608.26(a)*** *In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:*

***(1)*** *Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.*

***(2)*** *Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.*

***(3)*** *Adopt a method, pursuant to subdivision (b) of Section 10608.20 for determining its urban water use target.*

The public hearing may take place at the same meeting as the adoption hearing of the governing board. If a District decides to combine these meetings, the agenda will include the public hearing as an agenda item. The District will conduct a public hearing at its mid May board meeting and consider adoption of the UWMP during the same meeting or during its mid June meeting (if revisions are made to the Plan).

### 10.3.1 Adoption

***CWC 10642****…After the hearing, the plan shall be adopted as prepared or as modified after the hearing.*

The adoption hearing of the governing body may be combined with the public hearing; however the public hearing portion must take place before the adoption portion. This will allow the District the opportunity to modify the UWMP in response to public input before adoption. If public input is received, District staff will revise the UWMP as needed to address the public input/comments and take the revised UWMP to the June 15, 2016 board meeting for adoption.

After formal adoption of the 2015 UWMP by the District's board, staff will submit the Plan to DWR before the July 1, 2016 deadline. The District will include the adoption resolution in the UWMP. It may be included as an attachment to the UWMP or as a web address indicating where the adoption resolution can be found online.

## 10.4 Plan Submittal

***CWC 10621(d)*** *An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.*

***CWC 10644(a)(1)*** *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.*

***CWC 10635 (b)*** *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.*

### 10.4.1 Submitting a UWMP to DWR

2015 UWMPs must be submitted to DWR within 30 days of adoption and by July 1, 2016. UWMP submittal will be done electronically through WUEdata, an online submittal tool that will be available in adequate time for UWMP submittal. After the UWMP has been submitted, DWR will review the plan utilizing the provided checklist (see Appendix M) and make a determination as to whether or not the UWMP addresses the requirements of the CWC. The DWR reviewer will contact the water supplier as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the agency with the results of the review.

### 10.4.2 Electronic Data Submittal

DWR has developed an online submittal tool, WUEdata, which will be used for the 2015 UWMPs. The tool will accept complete UWMPs, as well as tabular data from all the data (MS Excel) tables. The WUE data online submittal tool is online at https://wuedata.water.ca.gov.secure/. The availability of the tool will be announced to the Guidebook Advisory Committee, the Urban Stakeholder Committee, DWR's UWMP list serve, the Water Plan ENews, and posted on the DWR Urban Water Management webpage at http://www.dwr.water.ca.gov/urbanwatermanagement/uwmp2015.cfm

### 10.4.3 Submitting a UWMP to the California State Library

No later than 30 days after adoption, the water agency shall submit a CD or hardcopy of the adopted 2015 UWMP to the California State Library at: **California State Library Government Publications Section P.O. Box 942837Sacramento, CA 94237-0001Attention: Coordinator, Urban Water Management Plans** If delivered by courier or overnight carrier to the State Library, use the following street address instead of the PO Box: **California State Library Government Publications Section914 Capitol Mall Sacramento, CA 95814**

### 10.4.4 Submitting a UWMP to Cities and Counties

No later than 30 days after adoption, the District will submit a copy of the adopted 2015 UWMP to any city or county to which the supplier provides water. This copy will be in an electronic format. This will satisfy Water Code Section 10635(b).

## 10.5 Public Availability

***CWC 10645*** *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.*

The adopted UWMP will be available, within 30 days after filing a copy of the Plan with the DWR, for public review during normal business hours. A copy of the UWMP will be available on the District's website for public viewing.

## 10.6 Amending an Adopted UWMP

***CWC 10621(c)*** *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).*

***CWC 10644(a)(1)*** *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.*

If the District amends an adopted UWMP, each of the steps for notification, public hearing, adoption, and submittal will be followed for the amended plan.

# APPENDICES

# APPENDIX A

## 2015 UWMP Data Request to Member Agencies

January 28, 2016

To: Three Valleys MWD Member Agencies

From: Ben Peralta

**RE: 2015 Urban Water Management Plan (UWMP) Data Request**

Three Valleys MWD is in the process of developing its Urban Water Management Plan for 2015. We have met with most of the member agencies earlier this year and realize that since your UWMPs are due by July 1, 2016, many of you may have begun to generate the water demand and supply projection data for your respective systems. From our standpoint we are still working on a July 1, 2016 deadline to submit the UWMP to the State (DWR).

Therefore, we are asking each member agency to submit the following information:

- Water use data over the past five calendar years (2010-2015) or the past five fiscal years (2010/11 – 2014/15) as submitted to DWR on Public Water System Statistics Form;
- Projections of water demands for the next 20 years in 5-year increments (i.e. 2020, 2025, 2030, 2035, and 2040). If possible, demands should be categorized as municipal/industrial (M&I), agricultural/landscape/irrigation, or other;
- Projections of water supplies and sources for the next 20 years in 5-year increments (same as above);
- Contingency, emergency and/or conservation measures/programs planned for short-term and long-term water shortages

Please direct this request to the appropriate staff member(s) that will be working on your agency's UWMP. We understand that because of the timing difference between Three Valleys' UWMP submittal and that of the submittal for the retail agencies, the data may not yet be generated or refined. We still request that you submit any data that are available to assist in our overall assumptions. If we do not receive information from your agency by **February 22, 2016**, we will make some basic assumptions regarding demand projections and supply sources for your agency. A draft plan will be subsequently distributed (in mid March 2016) at which time you can review any assumptions made.

If you have questions or thoughts, please contact me at bperalta@tvmwd.com or 909-621-5568.

# APPENDIX B

## Notice of Public Hearing for Review of 2015 UWMP

**PUBLIC HEARING**
**THREE VALLEYS MUNICIPAL WATER DISTRICT**
**NOTICE OF INTENT TO REVIEW**
**2015 URBAN WATER MANAGEMENT PLAN**

**NOTICE IS HEREBY GIVEN** that the Board of Directors (Board) of the Three Valleys Municipal Water District (TVMWD) will meet during its regular meeting:

## Wednesday, May 18, 2016, 8:00 a.m.
## at Three Valleys Municipal Water District
## 1021 East Miramar Avenue, Claremont, CA
## (909) 621-5568

**NOTICE IS HEREBY GIVEN** that the Board will conduct a public hearing to consider the review of Three Valleys MWD *2015 Urban Water Management Plan*

Prior to taking final action to adopt the 2015 Urban Water Management Plan the Board will hear and consider final public comments on the proposed Urban Water Management Plan.

Written comments regarding the District's proposed 2015 Urban Water Management Plan may be delivered prior to the beginning of the Board Meeting by mail or hand delivery to TVMWD, Attention: Executive Assistant, 1021 East Miramar Avenue, Claremont, CA 91711. Mailed comments must be received at TVMWD prior to the close of business on May 17, 2016. Oral or written comments may also be submitted to the Board at the meeting.

TVMWD welcomes and encourages your participation at this meeting. If you have any questions regarding the proposed 2015 Urban Water Management Plan or would like additional information, please contact Ben Peralta at (909) 621-5568 Monday – Thursday, 8:00 A.M. to 5:00 P.M. or via email at bperalta@tvmwd.com

Dated: May 4, 2016
May 11, 2016

/s/ Richard W. Hansen
General Manager / Chief Engineer
THREE VALLEYS MWD

# APPENDIX C

## Notice of Preparation of TVMWD 2015 UWMP

March 14, 2016

City and/or County

**Subject: Notification of the Preparation of the 2015 Urban Water Management Plan (UWMP) for Three Valley Municipal Water District (TVMWD)**

Dear Sir/Madam:

Three Valleys Municipal Water District (TVMWD), pursuant to section 10621 (b) of the California Water Code, is hereby providing notification to your agency of the preparation of the 2015 UWMP in compliance with the Urban Water Management Act.

This notification is intended to inform your agency of the opportunity to consult with, and submit comments for consideration by TVMWD regarding the UWMP during the review process. TVMWD will be reviewing the 2015 UWMP and considering amendments to the Plan over the next two to three months.

The UWMP is being prepared by District staff. For more information, please contact Ben Peralta at (909) 621-5568, extension 109, Monday – Thursday, 8:00 A.M. to 5:00 P.M. or via email at bperalta@tvmwd.com

Sincerely,

Richard W. Hansen
General Manager / Chief Engineer
THREE VALLEYS MWD

RH:BP:vh

# APPENDIX D

**Chino Basin Judgment**

# APPENDIX E

## Main San Gabriel Basin Judgment

# APPENDIX F

## Puente Basin Judgment

# APPENDIX G

**Six Basin Judgment**

# APPENDIX H

## Water Conservation Ordinance

# ORDINANCE NO. 09-06-16

## AN ORDINANCE OF THE BOARD OF DIRECTORS OF THE THREE VALLEYS MUNICIPAL WATER DISTRICT ESTABLISHING A WATER CONSERVATION AND WATER SUPPLY SHORTAGE PROGRAM AND REGULATIONS FOR ITS DIRECT END SERVICE

WHEREAS, the Board of Directors of the Three Valleys Municipal Water District finds as follows:

A. The Three Valleys Municipal Water District ("District") is a Municipal Water District organized and operating pursuant to California Water Code Section 71000 et seq., and is also a member agency of the Metropolitan Water District of Southern California.

B. The District provides wholesale water service to various retail water purveyors within its jurisdictional boundaries located in the eastern portion of the County of Los Angeles, State of California, and also currently furnishes direct end water service to California State Polytechnic University at Pomona, Mt. San Antonio College, and the Boy Scouts – Firestone Reservation.

C. A reliable minimum supply of potable water is essential to the public health, safety and welfare of the people and economy of the Southern California region.

D. Southern California is a semi-arid region and largely dependent upon imported water supplies. A growing population, climate change, environmental concerns, and other factors in within the State and western United States, make the region highly susceptible to water supply reliability issues.

E. Careful water management that includes active water conservation measures not only in times of drought, but at all times, is essential to ensure a reliable minimum supply of water to meet current and future water supply needs.

F. Article X, Section 2 of the California Constitution declares that the general welfare requires that water resources be put to beneficial use, waste or unreasonable use or unreasonable method of use of water be prevented, and conservation of water be fully exercised with a view to the reasonable and beneficial use thereof.

G. California Water Code Section 374 authorizes water suppliers to adopt and enforce a comprehensive water conservation program to reduce water consumption and conserve supplies.

H. California Water Code Section 71610.5 authorizes the District to undertake a water conservation program to reduce water use.

I. On September 18, 2008, the District's Board of Directors adopted Resolution No. 08-09-609 declaring the existence of drought conditions in the San Gabriel Valley and urging greater water conservation and water efficiency by the retail water providers served by the District.

J. The adoption and enforcement of a water conservation and supply shortage program for the District's direct end water service is necessary to manage the District's potable water supply in the short and long-term and to avoid or minimize the effects of drought and shortage within the

District's service area. Such a program is essential to ensure a reliable and sustainable minimum supply of water for the public health, safety and welfare.

NOW, THEREFORE, BE IT ORDAINED by the Board of Directors of the Three Valleys Municipal Water District as follows:

## Section I. Declaration of Purpose and Intent.

a. The purpose of this Ordinance is to establish a water conservation and supply shortage program for the District's direct end water use that will reduce water consumption within the District's service area through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the District's service area to avoid and minimize the effect and hardship of water shortage to the greatest extent possible.

b. This Ordinance establishes water conservation standards intended to maximize direct end water use efficiency at all times and further establishes three levels of water supply shortage response actions to be implemented during times of declared water shortage or declared water shortage emergency, with increasing restrictions on water use in response to worsening drought or emergency conditions and decreasing supplies.

## Section II. Definitions.

The following words and phrases whenever used in this Ordinance have the meaning defined in this section:

a. **"Direct end user"** means any corporation, public or private entity, governmental agency or institution, or any other recipient of water directly from the District that is not primarily in the business of reselling such water and/or providing retail water service to any customer.

b. **"Landscape irrigation system"** means an irrigation system with pipes, hoses, spray heads, or sprinkling devices that are operated by hand or through an automated system.

c. **"Large landscape areas"** means a lawn, landscape, or other vegetated area, or combination thereof, equal to more than one (1) acre of irrigable land.

d. **"Single pass cooling systems"** means equipment where water is circulated only once to cool equipment before being disposed.

e. **"Potable water"** means water which is suitable for drinking.

f. **"Recycled water"** means the reclamation and reuse of non-potable water for beneficial use as defined in Title 22 of the California Code of Regulations.

g. **"Billing unit"** means the unit of water used to apply the water rates for purposes of calculating water charges to a direct end user. In this case billing units are equal to acre-feet, or 325,851 gallons.

## Section III. Application

a. The provisions of this Ordinance apply only to a direct end user of any potable water provided by the District.

b. The provisions of this Ordinance do not apply to uses of water necessary to protect public health and safety or for essential government services, such as police, fire and other similar emergency services.

c. The provisions of this Ordinance do not apply to the use of recycled water, with the exception of Section IV(a).

d. The provisions of this Ordinance do not apply to the use of water by commercial nurseries and commercial growers to sustain plants, trees, shrubs, crops or other vegetation intended for commercial sale.

e. This Ordinance is intended solely to further the conservation of water. It is not intended to implement any provision of federal, State, or local statutes, ordinances, or regulations relating to protection of water quality or control of drainage or runoff. Refer to the local jurisdiction or Regional Water Quality Control Board for information on any stormwater ordinances and stormwater management plans.

## Section IV. Permanent Water Conservation Requirements – Prohibition Against Waste

The following water conservation requirements are effective and apply to a direct end user at all times during the existence of this Ordinance. Violations of this section will be considered waste and an unreasonable use of water.

a. **Limits on Watering Hours**: Watering or irrigating of lawn, landscape or other vegetated area with potable water by a direct end user is prohibited between the hours of 9:00 a.m. and 6:00 p.m. Pacific Standard Time on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

b. **Limit on Watering Duration**: Watering or irrigating of lawn, landscape or other vegetated area with potable water by a direct end user using a landscape irrigation system or a watering device that is not continuously attended is limited to no more than fifteen (15) minutes watering per day per station. This subsection does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems.

c. **No Excessive Water Flow or Runoff:** Watering or irrigating of any lawn, landscape or other vegetated area by a direct end user in a manner that causes or allows excessive water flow or runoff onto an adjoining sidewalk, driveway, street, alley, gutter or ditch is prohibited.

d. **No Washing Down Hard or Paved Surfaces:** Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys, by a direct end user is prohibited except when necessary to alleviate safety or sanitary hazards, and then only by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, a low-volume, high-pressure cleaning machine equipped to recycle any water used, or a low-volume high-pressure water broom.

e. **Obligation to Fix Leaks, Breaks or Malfunctions:** Excessive use, loss or escape of water through breaks, leaks or other malfunctions in the direct end user's plumbing or distribution system for any period of time after such escape of water should have reasonably been

discovered and corrected and in no event more than seven (7) days of receiving notice from the District is prohibited.

f. **Re-circulating Water Required for Water Fountains and Decorative Water Features**: Operating a water fountain or other decorative water feature that does not use re-circulated water by a direct end user is prohibited.

g. **Limits on Washing Vehicles:** Using water to wash or clean a vehicle, including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, by a direct end user is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device.

h. **Drinking Water Served Upon Request Only:** Eating or drinking establishments of a direct end user, including but not limited to a restaurant, hotel, cafe, cafeteria, bar, or other public place where food or drinks are sold, served, or offered for sale, are prohibited from providing drinking water to any person unless expressly requested.

i. **Commercial Lodging Establishments Must Provide Guests Option to Decline Daily Linen Services**: Hotels, motels, and other commercial lodging establishments and similar facilities of a direct end user must provide customers the option of not having towels and linen laundered daily. Commercial lodging establishments must prominently display notice of this option in each bathroom using clear and easily understood language.

j. **No Installation of Single Pass Cooling Systems**: Installation of single pass cooling systems by a direct end user is prohibited in buildings requesting new water service.

k. **Restaurants Required to Use Water Conserving Dish Wash Spray Valves**: Food preparation establishments of a direct end user, such as restaurants or cafes, are prohibited from using non-water conserving dish wash spray valves.

l. **Reporting Mechanism - Hotline**: The District will encourage visitors, students, staff, and faculty of a direct end user to call the District's main telephone number to report violations of this Ordinance.

## Section V. Level 1 Water Supply Shortage

a. A Level 1 Water Supply Shortage exists when the District determines, in its sole discretion, that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a direct end user consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions. Upon the declaration by the District of a Level 1 Water Supply Shortage condition, the District will implement the mandatory Level 1 conservation measures identified in this section.

b. **Additional Water Conservation Measures:** In addition to the prohibited uses of water identified in Section IV of this Ordinance, the following water conservation requirements apply to a direct end user during a declared Level 1 Water Supply Shortage:

1. **Limits on Watering Days:** Watering or irrigating of lawn, landscape or other vegetated area with potable water by a direct end user is limited to three days per week. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one day per week. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems. This provision also does not apply to

watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

2. **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the direct end user's plumbing or distribution system must be repaired within seventy-two (72) hours of notification by the District unless other arrangements are made which will include a written plan to address the repairs.

## Section VI. Level 2 Water Supply Shortage

a. A Level 2 Water Supply Shortage exists when the District determines, in its sole discretion, that due to drought or other water supply conditions, a water supply shortage or threatened shortage exists and a direct end user consumer demand reduction is necessary to make more efficient use of water and appropriately respond to existing water conditions. Upon the declaration by the District of a Level 2 Water Supply Shortage condition, the District will implement the mandatory Level 2 conservation measures identified in this section.

b. **Additional Conservation Measures:** In addition to the prohibited uses of water identified in Sections IV and V of this Ordinance, the following additional water conservation requirements apply to a direct end user during a declared Level 2 Water Supply Shortage:

1. **Watering Days:** Watering or irrigating of lawn, landscape or other vegetated area with potable water by a direct end user is limited to two days per week. During the months of November through March, watering or irrigating of lawn, landscape or other vegetated area with potable water is limited to no more than one day per week. This provision does not apply to landscape irrigation zones that exclusively use very low flow drip type irrigation systems. This provision also does not apply to watering or irrigating by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.

2. **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the direct end user's plumbing or distribution system must be repaired within forty-eight (48) hours of notification by the District unless other arrangements are made with the District which will include a written notification by the direct end user of a timeline of repairs.

3. **Limits on Filling Ornamental Lakes or Ponds**: Filling or re-filling ornamental lakes or ponds by a direct end user is prohibited, except to the extent needed to sustain aquatic life, provided that such animals are of significant value and have been actively managed within the water feature prior to declaration of a supply shortage level under this Ordinance.

4. **Limits on Washing Vehicles:** Using water to wash or clean a vehicle, including but not limited to, any automobile, truck, van, bus, motorcycle, boat or trailer, whether motorized or not, by a direct end user is prohibited except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, by high pressure/low volume wash systems, or at a commercial car washing facility that utilizes a re-circulating water system to capture or reuse water.

5. **Limits on Filling Residential Swimming Pools & Spas:** Re-filling of more than one foot and initial filling of residential swimming pools or outdoor spas with potable water by a direct end user is prohibited.

## Section VII. Level 3 Water Supply Shortage – Emergency Condition

a. A Level 3 Water Supply Shortage condition is also referred to as an "Emergency" condition. A Level 3 condition exists when the District declares a water shortage emergency pursuant to the requirements of California Water Code Sections 71640-71644 and notifies its member agencies, including a direct end user, that a significant reduction in consumer demand is necessary to maintain sufficient water supplies for public health and safety. Upon the declaration of a Level 3 Water Supply Shortage condition, the District will implement the mandatory Level 3 conservation measures identified in this section, in addition to any other restrictions, prohibitions, and/or exclusions adopted by the District's Board of Directors in any separate ordinance declaring such emergency.

b. **Additional Conservation Measures:** In addition to the prohibited uses of water identified in Sections IV, V, and VI of this Ordinance, the following water conservation requirements apply to a direct end user during a declared Level 3 Water Supply Shortage Emergency:

1. **No Watering or Irrigating:** Watering or irrigating of lawn, landscape or other vegetated area with potable water by a direct end user is prohibited. This restriction does not apply to the following categories of use, unless recycled water is available and may be applied to the use:

   i. Maintenance of vegetation, including trees and shrubs, that are watered using a hand-held bucket or similar container, hand-held hose equipped with a positive self–closing water shut-off nozzle or device;

   ii. Maintenance of existing landscape necessary for fire protection;

   iii. Maintenance of existing landscape for soil erosion control;

   iv. Maintenance of plant materials identified to be rare or essential to the well-being of protected species;

   v. Maintenance of landscape within active public parks and playing fields, day care centers, and golf course greens, provided that such irrigation does not exceed two (2) days per week according to the schedule established in Section VI(b)(1) and time restrictions in Section IV(a) and (b)(1);

   vi. Actively irrigated environmental mitigation projects.

2. **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the direct end user's plumbing or distribution system must be repaired within twenty four (24) hours of notification by the District unless other arrangements are made with the District which will include written plans that include a timeline of repairs.

3. **No New Potable Water Service**: Upon declaration of a Level 3 Water Supply Shortage Emergency condition, no new potable water service will be provided, no new temporary meters or permanent meters will be provided, and no statements of immediate ability to serve or provide potable water service (such as, will-serve letters,

certificates, or letters of availability) will be issued to a direct end user, except under the following circumstances:

i. A valid, unexpired building permit has been issued for the project; or

ii. The project is necessary to protect the public health, safety, and welfare; or

iii. The applicant provides substantial evidence of an enforceable commitment that water demands for the project will be offset prior to the provision of a new water meter(s) to the satisfaction of the District.

This provision does not preclude the resetting of turn-on of meters to provide continuation of water service of the restoration of service that has been interrupted for a period of one year or less.

4. **Water Allocations and Mandatory Reductions**: The District will activate a water allocation process using a method that does not in effect penalize direct end users for prior implementation of conservation methods or installation of water-saving devices. The District will provide notice of activation of the allocation process to a direct end user pursuant to Section VIII of this Ordinance. Following the effective date of the water allocation, any direct end user using water in excess of the allocation will be subject to a penalty in the amount of double the Tier 2 rate should the water use as allocated for such direct end user fall between 101% to 115% of its individual allocations; and if the water use falls between 116% or higher, the rate will be four (4) times the Tier 2 rate for each billing unit of water in excess of the allocation.

5. **Large Landscape Areas – Rain Sensors**: Large landscape areas of a direct end user, such as parks, cemeteries, golf course, school grounds, and playing fields, that use landscape irrigation systems to water or irrigate, must use landscape irrigation systems with rain sensors that automatically shut off such systems during periods of rain or irrigation timers which automatically use information such as evapotranspiration sensors to set an efficient water use schedule.

## Section VIII. Procedures for Determination / Notification of Water Supply Shortage

The existence of Level 1, Level 2, or Level 3 Water Supply Shortage conditions may be declared by resolution of the District's Board of Directors, adopted at a regular or special public meeting held in accordance with State law. The mandatory conservation requirements applicable to Level 1, Level 2, or Level 3 conditions will take effect on the tenth day after the date the shortage level is declared. Within five (5) days following the declaration of the shortage level, the District must publish a notice of the adoption of the resolution in a newspaper used for publication of official notices that serves the District's area. If the District activates a water allocation process, the District will provide notice of the activation by including it in the regular billing statement or by any other mailing to the address to which the District customarily mails the billing statement for fees or charges for on-going water service. A water allocation will be effective on the fifth day following the date of mailing or at such later date as specified in the notice.

## Section IX. Hardship Waiver

a. **Undue and Disproportionate Hardship:** If, due to unique circumstances, a specific requirement of this Ordinance would result in undue hardship to a direct end user that is disproportionate to the impacts to other direct end users generally, then the direct end user may apply for a waiver to the requirements as provided in this section.

b. **Written Finding:** The waiver may be granted or conditionally granted only upon a written finding of the existence of facts demonstrating an undue hardship to property upon which water is used, that is disproportionate to the impacts to other direct end users generally.

1. **Application**: Application for a waiver must be on a form prescribed by the District and accompanied by statement describing all of the potential, irreversible impacts limiting water use will create.

2. **Supporting Documentation**: The application must be accompanied by photographs, maps, drawings, and other information, including a signed statement of the applicant.

3. **Required Findings for Waiver:** An application for a waiver will be denied unless the information provided in the application, supporting documents, or such additional information as may be requested, and on water use information for the property as shown by the records of the District, all of the following:

   i. That the waiver does not constitute a grant of special privilege inconsistent with the limitations upon other similar direct end users;

   ii. That because of special circumstances applicable to the property or its use, the strict application of this Ordinance would have a disproportionate impact on the direct end user that exceeds the impacts to other direct end users generally;

   iii. That the authorizing of such waiver will not be of substantial detriment to adjacent properties, and will not materially affect the ability of the District to effectuate the purpose of this Ordinance and will not be detrimental to the public interest; and

   iv. That the condition or situation of the subject property or the intended use of the property for which the waiver is sought is not common, recurrent or general in nature.

4. **Approval Authority**: The General Manager of the District must act upon any completed application no later than fifteen (15) working days after submittal and may approve, conditionally approve, or deny the waiver. The applicant requesting the waiver must be promptly notified in writing of any action taken. Unless specified otherwise at the time a waiver is approved, the waiver will apply to the subject property during the period of the mandatory water supply shortage condition. The decision of the District's General Manager will be final.

## Section X. Penalties and Violations

a. **Enforcement**: In order to enforce the provisions of this Ordinance, the District may exercise any and all of the rights and remedies available under the law, including but not limited to those expressly authorized under California Water Code Section 71601.

b. **Penalties:** In addition to all of the means of District enforcement of this Ordinance authorized herein, the penalties for failure to comply with any provisions of the Ordinance are as follows:

1. **First Violation:** The District will issue a written warning and deliver a copy of this Ordinance by mail.

2. **Second Violation:** A second violation within the preceding twelve (12) calendar months will be subject to prosecution. Every person convicted of an infraction for a violation of this Ordinance shall be punished upon a first conviction by a fine not exceeding fifty dollars ($50).

3. **Third Violation:** A third violation within the preceding twelve (12) calendar months will be subject to prosecution. Every person convicted of an infraction for a violation of this Ordinance shall be punished upon a second conviction within a period of one year by a fine not exceeding one hundred dollars ($100).

4. **Fourth Violation:** A fourth and any subsequent violation will be subject to prosecution. Every person convicted of an infraction for a violation of this Ordinance shall be punished upon a third or any subsequent conviction within a period of one year by a fine not exceeding two hundred fifty dollars ($250).

c. **Separate Offenses**: Each day that a violation of this Ordinance occurs is a separate offense.

## Section XI. Severability

If any section, subsection, sentence, clause or phrase in this Ordinance is for any reason held invalid, the validity of the remainder of the Ordinance will not be affected. The District's Board of Directors hereby declares it would have passed this chapter and each section, subsection, sentence, clause or phrase thereof, irrespective of the fact that one or more sections, subsections, sentences, clauses, or phrases or is declared invalid.

**ADOPTED this 24th day of June, 2009**.

ROLL CALL
Ayes: Bowcock, De Jesus, Horan, Kuhn, Mendoza, Ruzicka
Noes: Alvarez
Abstain:
Absent:

_____
Bob G. Kuhn
President, Board of Directors

ATTEST:

_____
Brian Bowcock
Secretary, Board of Directors

# APPENDIX I

## 2015 Water Supply Allocation Plan

# Three Valleys MWD

# Water Supply Allocation Plan

# July 2015

**Introduction**

The State of California and the Southern California Region is in the midst of a fourth consecutive year of drought. The average runoff in eight out of the last ten years has been below average and water levels in all of the state's major reservoirs are well below normal. On April 1, 2015, Governor Brown announced the signing of an Executive Order that will establish mandatory water use reductions throughout the state. The executive order directs the State Water Resources Control Board to impose a 25-percent reduction on water use by local water supply agencies.

Critically dry conditions are affecting all of the Metropolitan Water District of Southern California (MWD) water supply sources, and continued legal and regulatory limits further impact the water supplies from the State Water Project. In addition to voluntary efforts already instituted, MWD seeks to manage its current allocations and water reserves to maximize supply reliability for its entire service area. To do this, MWD is instituting an allocation of water to its member agencies, including Three Valleys Municipal Water District (TVMWD).

In 2008, MWD developed the Water Supply Allocation Plan (WSAP) to establish a method of allocating water to its member agencies during periods of supply shortage. The WSAP was implemented during FY 2009-10 and subsequently lifted in the latter part of FY 2010-11. With input from MWD's member agencies, MWD refined the WSAP over the ensuing period, and in December 2014, the MWD Board of Directors adopted a revised WSAP. In April 2015, MWD has again decided to implement the WSAP effective July 1, 2015.

In response to this action by MWD, the TVMWD Water Supply Allocation Plan ("The Plan") was developed for the purpose of implementing the MWD-WSAP within the TVMWD service area in a manner that is fair and equitable to TVMWD's member agencies. The original Plan was adopted in 2009 and its implementation coincided with the implementation of the MWD-WSAP.

The Plan is an extension of the current MWD-WSAP. All WSAP definitions, policies, principles and program provisions are incorporated herein by reference and are considered to be a part of this Plan. A complete copy of the MWD-adopted WSAP is available for reference from TVMWD.

The Plan is consistent with and contributes to the existing TVMWD policies and programs. For example, the Plan's principles encourage development and full utilization of local water resources and extraordinary conservation measures.

**Water Supply Allocation Plan Preparation**

The process to prepare this Plan has involved the TVMWD member agencies. TVWMD used a consensus-based approach which included monthly member agency manager meetings to discuss the development of a plan as well as several presentations by MWD and industry consultants related to conservation efforts and water supply conditions. The following principles were used to provide guidance for the development and implementation of the TVMWD Plan.

Overall Plan - The Plan was developed in cooperation with the TVMWD member agencies and includes all aspects of drought planning such as allocation planning and methodology, pricing and a conservation communications strategy.

Drought Response – The Plan is consistent with the MWD-adopted WSAP. TVMWD will continue to work with its member agencies in an effort to coordinate the administration of the WSAP to minimize its impact on the member agencies.

Allocation Methodology – The allocation methodology is equitable and contains financial and pricing signals to ensure that member agencies are informed and understand the need to conserve and utilize local water supplies when possible.

**Communication Strategy**

The preparation of a regional communication strategy is included as a part of the Plan. TVMWD has been coordinating with MWD and its member agencies to develop a unified message to strengthen communication with the public about the serious nature of the ongoing drought and the actions that are needed to manage water demands and ensure a safe and reliable water supply during drought conditions.

The continuance of an ongoing, coordinated and regional public outreach program will serve to provide a clear and consistent message to the public regarding water supplies and specific conservation measures. An outreach program will recognize and support member agency communication efforts that address specific retail level allocations.

Along with the member agencies, TVMWD seeks to establish and coordinate the information that will be provided to the media, public officials and the general public. The communication message should include clear solutions – including easy and inexpensive ways to conserve. It is essential that local print and news media are fully committed to covering the current drought situation.

The communication strategy includes the following components:

- Regular meetings with member agencies and conservation partners to develop and coordinate a regional conservation message.
- Feature advertising on water conservation and conservation tips in the local newspapers.
- Utilization of MWD-funded outreach efforts and coordination of the use of graphics and outreach media buys.
- Participation in forums providing an education of the drought and what lies ahead at the State and local levels.

**MWD / TVMWD Water Supply Allocation Quantities**

TVWMD is a MWD member agency and will receive a reduced allocation of its normal water supply based on the regional shortage level implemented by the MWD Board in accordance with its adopted WSAP. The allocation methodology is based on the guiding principles and considerations described in MWD's Drought Plan.

MWD uses a two-year (FY 2012-13 and FY 2013-14) average from actual water demand data as the baseline for its calculation of the water supply allocation for its member agencies. TVMWD's Plan uses the same two-year base period for its retail member agencies' allocations. The following table shows the allocation for each corresponding Regional Shortage Level.

**TABLE 1**
**MEMER AGENCY SUPPLY ALLOCATIONS SHOWN AS PERCENTAGE OF TVMWD ALLOCATION FROM MWD**

| REGIONAL SHORTAGE LEVEL | Boy Scouts | Cal Poly | Covina | Glendora | GSWC (Clrmnt) | GSWC (SD) | LaVerne | Mt. SAC | Pomona | RWD | SWS | VHWC | WVWD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 0.05% | 0.33% | 1.52% | 3.45% | 6.42% | 13.07% | 9.71% | 0.54% | 8.34% | 17.92% | 5.89% | 0.07% | 32.69% |
| **2** | 0.05% | 0.32% | 1.51% | 3.39% | 6.34% | 13.03% | 9.70% | 0.54% | 8.21% | 18.04% | 5.88% | 0.07% | 32.91% |
| **3** | 0.06% | 0.32% | 1.49% | 3.31% | 6.26% | 12.99% | 9.70% | 0.55% | 8.05% | 18.18% | 5.87% | 0.06% | 33.17% |
| **4** | 0.06% | 0.31% | 1.47% | 3.23% | 6.15% | 12.94% | 9.69% | 0.55% | 7.88% | 18.34% | 5.86% | 0.06% | 33.46% |
| **5** | 0.06% | 0.30% | 1.45% | 3.14% | 6.03% | 12.88% | 9.68% | 0.56% | 7.68% | 18.52% | 5.84% | 0.06% | 33.79% |
| **6** | 0.06% | 0.29% | 1.42% | 3.03% | 5.90% | 12.82% | 9.67% | 0.56% | 7.44% | 18.74% | 5.82% | 0.06% | 34.18% |
| **7** | 0.06% | 0.28% | 1.39% | 2.90% | 5.73% | 12.74% | 9.66% | 0.57% | 7.17% | 18.99% | 5.80% | 0.05% | 34.65% |
| **8** | 0.06% | 0.27% | 1.36% | 2.75% | 5.54% | 12.65% | 9.65% | 0.58% | 6.83% | 19.30% | 5.77% | 0.05% | 35.20% |
| **9** | 0.06% | 0.25% | 1.31% | 2.56% | 5.30% | 12.54% | 9.63% | 0.59% | 6.43% | 19.67% | 5.74% | 0.05% | 35.88% |
| **10** | 0.06% | 0.23% | 1.25% | 2.32% | 4.99% | 12.40% | 9.61% | 0.61% | 5.91% | 20.14% | 5.70% | 0.04% | 36.74% |

In its currently-adopted WSAP, MWD includes a methodology to calculate a Conservation Demand Hardening Credit for each member agency. The credit's concept suggests that "member agencies whose customers have implemented conservation savings devices and programs have 'harder' demands than those that have not." Accordingly, an additional supply allocation to such agencies that have conserved may be provided to account for hardened demands resulting from conservation savings. TVMWD's Plan will utilize the methodology within the MWD-WSAP to calculate the Conservation Demand Hardening Credit for each of its retail member agencies that request such credit. This reconciliation is performed at the end of the allocation (fiscal) year. Therefore, an agency will not know if an additional allocation (credit) is due until the allocation year is completed. The Conservation Demand Hardening Credits will be allocated using the same percentages shown in Table 1 above. If TVMWD does not qualify for any Conservation Demand Hardening Credit for the allocation period, no additional allocation will be given to any retail member agency even if it can be shown that they would qualify for the credit.

The MWD-WSAP also provides the ability for certain member agencies to increase its allocation of water based on a justified need to sustain a groundwater basin adversely impacted by drought conditions. If TVMWD is able to secure an additional allocation under this provision of the MWD-WSAP, the total additional amount will be allocated in a manner to be determined later by consensus of the retail member agencies.

Table 2 below shows the estimated quantities of TVMWD's allocation from MWD for each regional shortage level. The values in Table 2 are subject to change based on final calculations established by MWD.

**TABLE 2**
**TVMWD ALLOCATION FROM MWD**
**BASED ON REGIONAL SHORTAGE LEVEL**
**(in Acre-Feet)**

| REGIONAL SHORTAGE LEVEL | ALLOCATION | DEMAND HARDENING CREDIT | REPLENISH ALLOCATION | **TOTAL** |
|---|---|---|---|---|
| 1 | 60,708 | 1,159 | 4,845 | **66,712** |
| 2 | 56,796 | 1,545 | 4,590 | **62,931** |
| 3 | 52,884 | 1,932 | 4,335 | **59,151** |
| 4 | 48,972 | 2,318 | 4,080 | **55,370** |
| 5 | 45,060 | 2,704 | 3,825 | **51,589** |
| 6 | 41,148 | 3,090 | 3,570 | **47,809** |
| 7 | 37,236 | 3,477 | 3,315 | **44,028** |
| 8 | 33,324 | 3,863 | 3,060 | **40,247** |
| 9 | 29,412 | 4,249 | 2,805 | **36,467** |
| 10 | 25,500 | 4,636 | 2,550 | **32,686** |

*The quantities shown are preliminary and subject to change based on final calculations by MWD.*

**Allocation Penalty Rates**

TVMWD will pass through MWD's penalty rates for usage in excess of the shortage allocation at each level. These penalty rates are shown in Table 3 below:

**TABLE 3**
**TVMWD PENALTY RATES ($/AF)**

| Water Demand | | Base Water Rate | Penalty Rate | **Total Rate** |
|---|---|---|---|---|
| **Demand** ≤ 100% of Allocation | Tier 1 | $918 | None | **$918** |
| | Tier 2 | $1,052 | | **$1,052** |
| 100% Alloc < **Demand** ≤ 115% Alloc | Tier 1 | $918 | $1,480 | **$2,398** |
| | Tier 2 | $1,052 | | **$2,532** |
| 115% Alloc < **Demand** | Tier 1 | $918 | $2,960 | **$3,878** |
| | Tier 2 | $1,052 | | **$4,012** |

Once the WSAP is implemented by MWD, TVMWD's billing process is expected to remain the same. At the end of any 12-month allocation period (June 30th), TVMWD will receive an invoice from MWD that includes an assessment of penalties if TVMWD's allocation has been exceeded. TVMWD will then look at the total imported water purchases based upon the monthly MWD invoices to TVMWD and determine which agencies have exceeded their individually assigned allocation. Based upon this determination, TVMWD will assess penalties in accordance with its policy on penalty rates and charges. If penalties are incurred, penalty charges will be reflected during the following monthly billing period. Conversely, if no penalties are assessed to TVMWD from MWD after a 12-month allocation period, no penalties will be assessed to any individual retail member agency even if that agency exceeded its individual allocation.

Consistent with current TVMWD practice and the requirements of the WSAP, imported water purchases will be summarized and reported to the retail member agencies and the TVMWD Board on a monthly basis. This information will help TVMWD and its retail member agencies monitor and evaluate water use demands, project annual usage and avoid WSAP penalties where possible. TVMWD will rely on the full cooperation of its retail member agencies to collect monthly water demand and supply information in a timely manner.

**Water Supply Allocation Plan Conclusion**

The principal objectives in the development of this Plan were to ensure equity and fairness throughout the TVMWD service area. However, due to the complexity of these issues and the possibility that unforeseen circumstances may occur at the MWD and/or local level, TVWMD reserves the right to review and revise the components of this Plan as appropriate.

TVMWD and its member agencies will continue to meet monthly to monitor WSAP performance. After each 12-month period of Plan implementation, TVMWD and its member agencies shall have the opportunity to review and revise the Plan, as needed, in order to correct any merited inequities or to refine any administrative procedures.

# APPENDIX J

## Resolution No. 16-05-780:

## TVMWD adoption of 2015 UWMP

RESOLUTION NO. 16-05-780

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE THREE VALLEYS MUNICIPAL WATER DISTRICT ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, the California Urban Water Management Planning Act requires urban water suppliers providing water for municipal purposes to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually prepare and adopt, in accordance with prescribed requirements, an urban water management plan every five years; and

WHEREAS, the California Urban Water Management Planning Act specifies the requirements and procedures for adopting such Urban Water Management Plans; and

WHEREAS, the Board of Directors of Three Valleys Municipal Water District has duly reviewed, discussed and considered such Urban Water Management Plan and has determined the 2015 Urban Water Management Plan to be consistent with the California Urban Water Management Planning Act and to be an accurate representation of the water resources plan for Three Valleys Municipal Water District.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Three Valleys Municipal Water District that, on May 18, 2016, this District hereby adopts this 2015 Urban Water Management Plan for submittal to the state of California.

**PASSED, APPROVED AND ADOPTED this 18TH day of May 2016 by the following vote:**

AYES: Bowcock, De Jesus, Goytia, Horan, Kuhn, Lantz, Ruzicka
NOES:
ABSENT:
ABSTAIN:

Bob G. Kuhn
President, Board of Directors

ATTEST

Brian Bowcock
Secretary, Board of Directors

SEAL

# APPENDIX K

## 2015 UWMP Standardized Data Tables

## (Wholesale Agency Data Tables Required by DWR)

# APPENDIX L

## UWMP Checklist

# Appendix L – 2015 UWMP Checklist

## Checklist Arranged by Subject

| CWC Section | UWMP Requirement | Subject | Guidebook Location | UWMP Location *(Optional Column for Agency Use)* |
|---|---|---|---|---|
| **10620(b)** | Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier. | Plan Preparation | Section 2.1 | 14-15 |
| **10620(d)(2)** | 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. | Plan Preparation | Section 2.5.2 | 16-19 |
| **10642** | Provide supporting documentation that the water supplier has encouraged 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. | Plan Preparation | Section 2.5.2 | 16-19 |
| **10631(a)** | Describe the water supplier service area. | System Description | Section 3.1 | 21-28 |
| **10631(a)** | Describe the climate of the service area of the supplier. | System Description | Section 3.3 | 29 |
| **10631(a)** | Provide population projections for 2020, 2025, 2030, and 2035. | System Description | Section 3.4 | 29-30 |
| **10631(a)** | Describe other demographic factors affecting the supplier's water management planning. | System Description | Section 3.4 | 30-31 |
| **10631(a)** | Indicate the current population of the service area. | System Description and Baselines and Targets | Sections 3.4 and 5.4 | 30 |
| **10631(e)(1)** | Quantify past, current, and projected water use, identifying the uses among water use | System Water Use | Section 4.2 | 32-35 |

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| | sectors. | | | |
| **10631(e)(3)(A)** | Report the distribution system water loss for the most recent 12-month period available. | System Water Use | Section 4.3 | 36 |
| **10631.1(a)** | Include projected water use needed for lower income housing projected in the service area of the supplier. | System Water Use | Section 4.5 | N/A |
| **10608.20(b)** | Retail suppliers shall adopt a 2020 water use target using one of four methods. | Baselines and Targets | Section 5.7 and App E | N/A |
| **10608.20(e)** | Retail suppliers shall 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. | Baselines and Targets | Chapter 5 and App E | N/A |
| **10608.22** | Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100. | Baselines and Targets | Section 5.7.2 | N/A |
| **10608.24(a)** | Retail suppliers shall meet their interim target by December 31, 2015. | Baselines and Targets | Section 5.8 and App E | N/A |
| **10608.24(d)(2)** | If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment. | Baselines and Targets | Section 5.8.2 | N/A |
| **10608.36** | Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions. | Baselines and Targets | Section 5.1 | 37-38 |
| **10608.40** | Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form. | Baselines and Targets | Section 5.8 and App E | N/A |
| **10631(b)** | Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035. | System Supplies | Chapter 6 | Appendix K |
| **10631(b)** | Indicate whether groundwater is an existing or planned source of water available to the | System Supplies | Section | 40-41 |

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| | supplier. | | 6.2 | |
| **10631(b)(1)** | Indicate whether a groundwater management plan has 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. | System Supplies | Section 6.2.2 | 43-44 |
| **10631(b)(2)** | Describe the groundwater basin. | System Supplies | Section 6.2.1 | 42-43 |
| **10631(b)(2)** | Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump. | System Supplies | Section 6.2.2 | 43 |
| **10631(b)(2)** | For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition. | System Supplies | Section 6.2.3 | N/A |
| **10631(b)(3)** | 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 | System Supplies | Section 6.2.4 | 44-45 |
| **10631(b)(4)** | Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped. | System Supplies | Sections 6.2 and 6.9 | 46-47, 52 |
| **10631(d)** | Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis. | System Supplies | Section 6.7 | 51-52 |
| **10631(g)** | Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years. | System Supplies | Section 6.8 | 52 |
| **10631(h)** | Describe desalinated water project opportunities for long-term supply. | System Supplies | Section 6.6 | 51 |
| **10631(j)** | Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source. | System Supplies | Section 2.5.1 | N/A |

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| **10631(j)** | Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types. | System Supplies | Section 2.5.1 | 19 |
| **10633** | For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area. | System Supplies (Recycled Water) | Section 6.5.1 | 49-51 |
| **10633(a)** | Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal. | System Supplies (Recycled Water) | Section 6.5.2 | 49-51 |
| **10633(b)** | 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. | System Supplies (Recycled Water) | Section 6.5.2.2 | 49-51 |
| **10633(c)** | Describe the recycled water currently being used in the supplier's service area. | System Supplies (Recycled Water) | Section 6.5.3 and 6.5.4 | 49-51 |
| **10633(d)** | Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses. | System Supplies (Recycled Water) | Section 6.5.4 | 49-51<br>54-55 |
| **10633(e)** | 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. | System Supplies (Recycled Water) | Section 6.5.4 | 49-51<br>54-55 |
| **10633(f)** | Describe the actions 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. | System Supplies (Recycled Water) | Section 6.5.5 | 49-51,<br>54-55 |
| **10633(g)** | Provide a plan for optimizing the use of recycled water in the supplier's service area. | System Supplies (Recycled Water) | Section 6.5.5 | 49-51,<br>54-55 |

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| **10620(f)** | Describe water management tools and options to maximize resources and minimize the need to import water from other regions. | Water Supply Reliability Assessment | Section 7.4 | 43, 66-68 |
| **10631(c)(1)** | Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage. | Water Supply Reliability Assessment | Section 7.1 | 56-58 |
| **10631(c)(1)** | Provide data for an average water year, a single dry water year, and multiple dry water years | Water Supply Reliability Assessment | Section 7.2 | 58-59 |
| **10631(c)(2)** | For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source. | Water Supply Reliability Assessment | Section 7.1 | 56-58 |
| **10634** | Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability | Water Supply Reliability Assessment | Section 7.1 | 56-58, 69-71 |
| **10635(a)** | Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years. | Water Supply Reliability Assessment | Section 7.3 | 58-66 |
| **10632(a) and 10632(a)(1)** | Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage. | Water Shortage Contingency Planning | Section 8.1 | 72-76 |
| **10632(a)(2)** | 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. | Water Shortage Contingency Planning | Section 8.9 | 81 |
| **10632(a)(3)** | Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies. | Water Shortage Contingency Planning | Section 8.8 | 80-81 |
| **10632(a)(4)** | Identify mandatory prohibitions against specific water use practices during water shortages. | Water Shortage Contingency Planning | Section 8.2 | 76 |
| **10632(a)(5)** | Specify consumption reduction methods in the most restrictive stages. | Water Shortage Contingency | Section 8.4 | 77-78 |

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| | | Planning | | |
| **10632(a)(6)** | Indicated penalties or charges for excessive use, where applicable. | Water Shortage Contingency Planning | Section 8.3 | 76-78 |
| **10632(a)(7)** | Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts. | Water Shortage Contingency Planning | Section 8.6 | 79-80 |
| **10632(a)(8)** | Provide a draft water shortage contingency resolution or ordinance. | Water Shortage Contingency Planning | Section 8.7 | 80, Appendix H |
| **10632(a)(9)** | Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis. | Water Shortage Contingency Planning | Section 8.5 | 77-78 |
| **10631(f)(1)** | Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code. | Demand Management Measures | Sections 9.2 and 9.3 | N/A |
| **10631(f)(2)** | Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program. | Demand Management Measures | Sections 9.1 and 9.3 | 82-87 |
| **10631(i)** | CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU. | Demand Management Measures | Section 9.5 | 82-87 |
| **10608.26(a)** | Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets. | Plan Adoption, Submittal, and Implementation | Section 10.3 | 89 |
| **10621(b)** | Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the | Plan Adoption, Submittal, and Implementation | Section 10.2.1 | 88 |

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| | plan. | | | |
| **10621(d)** | Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016. | Plan Adoption, Submittal, and Implementation | Sections 10.3.1 and 10.4 | 89-90 |
| **10635(b)** | Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR. | Plan Adoption, Submittal, and Implementation | Section 10.4.4 | 90 |
| **10642** | Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan. | Plan Adoption, Submittal, and Implementation | Sections 10.2.2, 10.3, and 10.5 | 88-90, Appendix B |
| **10642** | The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. | Plan Adoption, Submittal, and Implementation | Sections 10.2.1 | 89-99, Appendix B |
| **10642** | Provide supporting documentation that the plan has been adopted as prepared or modified. | Plan Adoption, Submittal, and Implementation | Section 10.3.1 | 2, 89 |
| **10644(a)** | Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library. | Plan Adoption, Submittal, and Implementation | Section 10.4.3 | 90 |
| **10644(a)(1)** | Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption. | Plan Adoption, Submittal, and Implementation | Section 10.4.4 | 90 |
| **10644(a)(2)** | The plan, or amendments to the plan, submitted to the department shall be submitted electronically. | Plan Adoption, Submittal, and Implementation | Sections 10.4.1 and 10.4.2 | 90 |
| **10645** | Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours. | Plan Adoption, Submittal, and Implementation | Section 10.5 | 90 |