



Public Hearing – July 2021

2020 Urban Water Management Plan



Prepared by:



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List of Acronyms and Abbreviations

°F – Degrees Fahrenheit	eAR – Electronic Annual Report
AMR – Advanced Meter Reading	EID – El Dorado Irrigation District
AWWA – American Water Works Association	ETo – Evapotranspiration
BMP – Best Management Practice	FOWD – Fair Oaks Water District
CalWEP – California Water Efficiency Partnership	GMP – Groundwater Management Plan
CASGEM – California Statewide Groundwater Elevation Monitoring	GPCD – Gallons per capita per day
CDP – Census Designated Place	gpd – gallons per day
CHWD – Citrus Heights Water District	gpm – gallons per minute
CII – Commercial, Institutional, and Industrial	GSP – Groundwater Sustainability Plan
CIMIS – California Irrigation Management Information System	HAA5 – Haloacetic Acids
Company – Orange Vale Water Company	kWh – Kilowatt hour
CUWCC – California Urban Water Conservation Council	LHMP – Local Hazard Mitigation Plan
CVP – Central Valley Project	M&I – Municipal and Industrial
CWC – California Water Code	mgd – million gallons per day
DAC – Disadvantaged Community	MTP/SCS – Metropolitan Transportation Plan/Sustainable Communities Strategy
DDW – State Water Resource Control Board, Division of Drinking Water	MWELO – Model Water Efficient Landscape Ordinance
DMM – Demand Management Measure	n/a – Not applicable
DRA – Drought Risk Assessment	ND – Not detected
DWR – California Department of Water Resources	NR – Not reported
	NTU – Nephelometric turbidity units
	OVWC – Orange Vale Water Company

PCWA – Placer County Water Agency

PSA – Public service announcement

RWA – Regional Water Authority

SACOG – Sacramento Area Council of Governments

SASD – Sacramento Area Sewer District

SGA – Sacramento Groundwater Authority

SGMA – Sustainable Groundwater Management Act

SJWD – San Juan Water District

SMUD – Sacramento Municipal Utilities District

SRCSD – Sacramento Regional County Sanitation District

SSWD – Sacramento Suburban Water District

SWE – Snow Water Equivalent

SWRCB – California State Water Resources Control Board

TDS – Total Dissolved Solids

PWSS – Public Water System Statistics

TTHM – Total trihalomethanes

USBR – United States Bureau of Reclamation

UWMP – Urban Water Management Plan

UWMPA – Urban Water Management Plan Act

WCA – Wholesale Customer Agency

WEP – Water Efficiency Program

WFA – Water Forum Agreement

WMP – Water Master Plan

WRCC – Western Regional Climate Center

WSA – Water Supply Agreement

WSCP – Water Shortage Contingency Plan

WTP – Water Treatment Plant

WUE – Water Use Efficiency

WWTP – Wastewater treatment plant

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Executive Summary

Layperson's Description

After the devastating drought in the late 1970s, the California Legislature declared California's water supplies a limited resource, subject to ever-increasing demands and that the long-term, reliable supply of water is essential to protect California's businesses, communities, agricultural production, and environmental interests. The Legislature also recognized a need to strengthen local and regional drought planning and increase statewide resilience to drought and climate change. Thus, in 1983, the California Legislature created the Urban Water Management Planning Act (UWMPA).¹ The UWMPA requires urban water suppliers serving over 3,000 customers or supplying at least 3,000 acre-feet of water annually to prepare and adopt an urban water management plan every five years,² and demonstrate water supply reliability in a normal year, single dry year, and droughts lasting at least five years over a twenty-year planning horizon.³ The UWMPA also requires each urban water supplier to prepare a drought risk assessment and water shortage contingency plan.⁴ And last, beginning in July 2022, each urban water supplier must prepare an annual water supply and demand assessment.⁵ The California Legislature asserts that aggregating all of these legal requirements at the urban water supplier level will improve local, regional, and statewide water planning and water resilience.

At a practical level, the Urban Water Management Plan (UWMP) is the legal and technical water management foundation for urban water suppliers throughout California. A well-constructed UWMP will provide the supplier's elected officials, management, staff, and customers with an understanding of past, current, and future water conditions and management. The UWMP integrates local and regional land use planning, regional water supply, infrastructure, and demand management projects as well as providing for statewide challenges that may manifest through climate change and evolving regulations. Thoughtful urban water management planning provides an opportunity for the supplier to integrate supplies and demands in a balanced and methodical planning platform that addresses short-term and long-term planning conditions. In brief, the UWMP gathers, characterizes, and synthesizes water-related information from numerous sources into a plan with local, regional, and statewide practical utility.

¹ California Water Code Section 10610 *et seq.* (Chapter 1 added by Stats. 1983, Ch. 1009, Sec. 1).

² California Water Code Section 10610 *et seq.*

³ California Water Code Sections 10631-10635

⁴ California Water Code Sections 10632

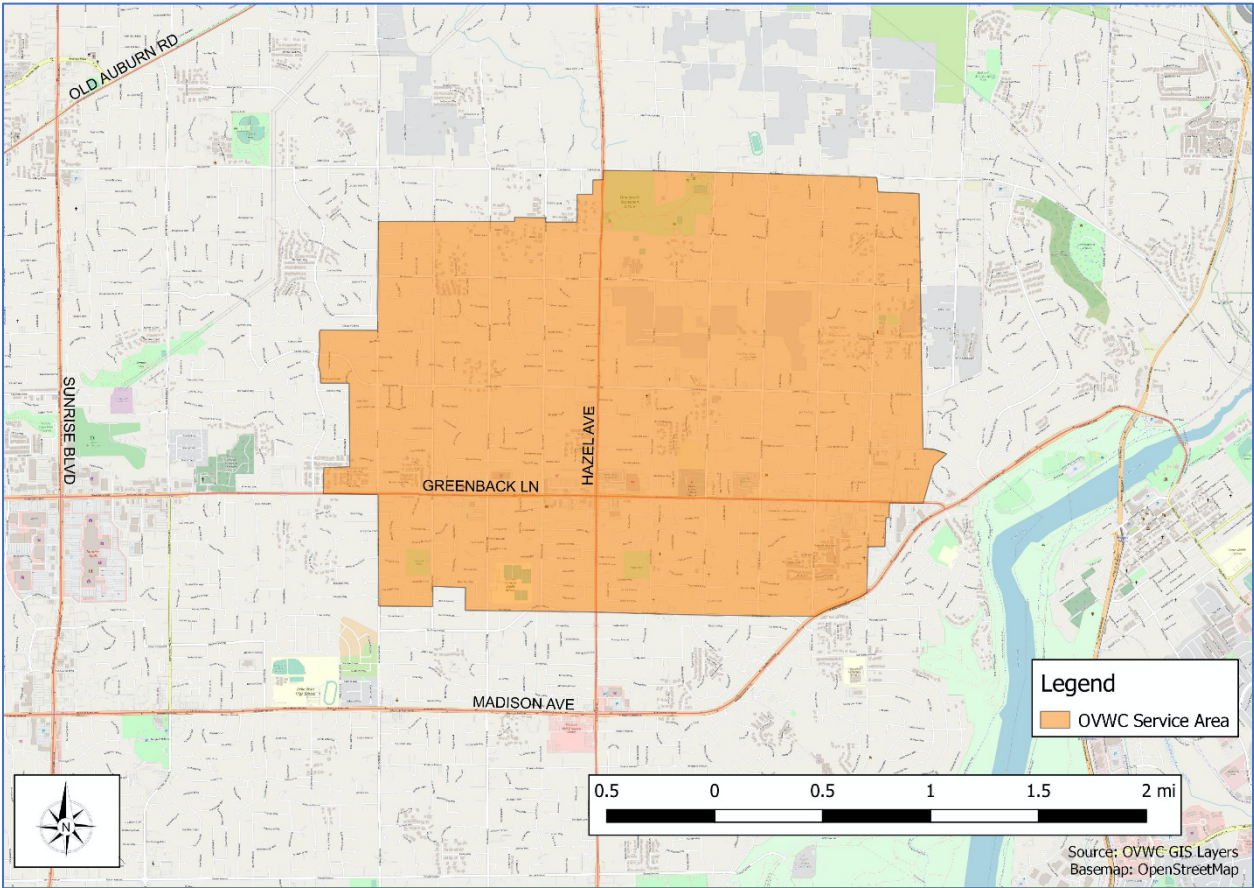
⁵ California Water Code Sections 10632.1



ES-1 Orange Vale Water Company

The Orange Vale Water Company (OVWC, or Company), as an urban water supplier, provides potable water directly to retail customers throughout the approximately five square mile service area boundary, mostly suburban in character with a variety of parcel sizes and densities. The Company is bounded on the west roughly by Kenneth Avenue, to the east where Madison Avenue and Greenback Lane merge, north of Pershing Avenue on the south and Oak avenue to the North. OVWC’s service area is located east of the City of Citrus Heights and west of the City of Folsom. Figure ES-1 shows the Company’s service area.

Figure ES-1: Orange Vale Water Company Service Areas



The retail service meets the needs of nearly 17,000 residents and a variety of non-residential customers, with a current annual water use of approximately 3,500 to 4,000 acre-feet. The service area is projected to have moderate growth, adding approximately 3,000 new residents by 2045, with nominal changes to total water use as a result of on-going reductions in per-capita water use as well as expected regulations in outdoor and outdoor water use.

The Company’s water supplies are provided by the wholesale provider the San Juan Water District (SJWD). SJWD’s supplies include an array of surface water rights and contracts that provide access to



over 80,000 acre-feet during normal hydrologic conditions. These supplies are projected by SJWD to be constrained to approximately 46,500 acre-feet during dry conditions.

ES-2 OVWC’s Water Service Reliability

SJWD possess access to ample wholesale supplies to meet OVWC’s current and growing customer demand. The array of surface water assets utilized by SJWD can be flexibly managed to maintain reliability during drought conditions. Nevertheless, the Company continues to encourage its customers to use water efficiently.

The Company’s normal year water supply and demand conditions represent the expected water supply and demand conditions that would likely occur based upon a reasonable assessment of regional and statewide hydrology and limited regulatory constraints. Under these conditions, the Company anticipates the ability to meet its expected demands with supplies provided by the SJWD.

A representative example of the District’s water system reliability if the next five years were to be consecutively dry is illustrated in Table ES-1. As demonstrated in this representation, the Company is able to reliably meet all unconstrained demands based upon the characterization of the available SJWD supplies as detailed in this 2020 UWMP.

Table ES-1: Five Year Drought Risk Assessment (values in acre-feet)

Category	2021	2022	2023	2024	2025
Supply Totals	3,885	3,885	3,885	3,885	3,885
Demand Totals	3,885	3,885	3,885	3,885	3,885
Difference	0	0	0	0	0

Although the SJWD has access to sufficient supplies to meet OVWC’s needs during single-dry years and extended droughts as evaluated in this 2020 UWMP, other regulatory constraints, like the declaration of a drought emergency by the Governor of the State of California potentially including urban water use reduction mandates, or State-ordered curtailment of water right, could constrain OVWC’s water service to its customers.

Overall, as documented in this 2020 UWMP, the Company’s expected supply from SJWD can meet the water uses in its service area in normal, single dry, and five consecutive dry years from 2020 through 2045.



Chapter 1

Introduction

The Orange Vale Water Company (OVWC or Company), has been a water supplier in northeastern Sacramento County since 1896. The Company operates as a mutual water company, meaning it is owned by the people in the service area and is not a public agency. Its original purpose was to deliver water to its landowners for agricultural purposes but in the 1950s the area gradually started to experience residential and commercial development.

OVWC supplies water to about 3,075 acres of mostly unincorporated areas of Sacramento County. A small—approximately 10 acre—part of the service area is located in the City of Folsom. Most of the original service area land parcels were large multi-acre plots used for agriculture. Residential and commercial development subdivided many of these lots, however many are still large lot customers with significant irrigation and supply demands.

San Juan Water District (SJWD) provides wholesale water supply to OVWC. Its source is almost entirely surface water starting as Sierra Nevada snowpack, which then travels along three forks of the American River to Folsom Lake. SJWD is a wholesale supplier to its own retail district, Citrus Heights Water District, Fair Oaks Water District, and North Folsom, in addition to OVWC.

Ensuring an adequate supply of water is available to serve the existing and future needs for OVWC’s residential and Commercial, Institutional and Industrial (CII) customers is a critical component of successful operations. This Urban Water Management Plan (UWMP) draws on local, regional and statewide inputs to synthesize information from numerous sources into a reliable water management action plan designed to be referred to as management and Board level decisions arise and conditions change.

1.1 Background and Purpose

OVWC has prepared this 2020 UWMP to comply with the Urban Water Management Planning Act (UWMPA) requirements for urban water suppliers. This 2020 UWMP addresses OVWC’s water management planning efforts to assure adequate water supplies to meet forecast demands over the next 25 years. As required by the UWMPA, the OVWC’s 2020 UWMP specifically assesses the availability of its supplies to meet forecast water uses during average, single-dry and five consecutive drought years through 2045. Verification that future demands will not exceed supplies and assuring the availability of supplies in dry-year conditions are critical outcomes of this 2020 UWMP.

The 2020 UWMP is an update to OVWC’s 2015 UWMP and presents new data and analysis as required by the California Department of Water Resources (DWR) and the California Water Code (CWC) since



2015. The 2020 UWMP is also a comprehensive water planning document that describes existing and future supply reliability, forecasts future water uses, presents demand management progress, and identifies local and regional cooperative efforts to meet projected water use.

The UWMP is designed to be a valuable water management and planning tool to guide and inform OVWC, its customers, and the State of California about its water management practices. It reflects the OVWC’s planning assumptions and goals and should be used in combination with other planning resources and documents over the UWMP planning horizon.

The State of California’s drought vulnerability and the additional pressures of climate change and population growth have emphasized the importance of planning ahead to meet water demands with potentially at-risk water supplies. Such forward planning is an important outcome of the 2020 UWMP.

1.2 Basis for Plan Preparation

OVWC operates a Public Water System as described in California Health and Safety Code 116275. The Company qualifies as a Retail Urban Water Supplier as described in Water Code Section 10617, providing water for municipal purposes to more than 3,000 customers or 3,000 acre-feet of water per year. These qualifications require the preparation of an Urban Water Management plan every five years. Details regarding the Company’s retail system are listed in Table 1-1.

Table 1-1: Public Water System Information⁶

Public Water System Number	Public Water System Name	Number of Retail Connections 2020
CA3410016	Orange Vale Water Company	5,682

The State Legislature passed numerous new requirements since the 2015 UWMP which are detailed throughout this 2020 UWMP.⁷ Major updates to the requirements are listed below along with a reference to the corresponding section in which they are addressed in this document.

- ◆ **Five Consecutive Dry-Year Water Reliability Assessment:** The Legislature modified the dry-year water reliability planning from a “multiyear” time period to a “drought lasting five consecutive water years” designation. This statutory change requires a Supplier to analyze the reliability of its water supplies to meet its water use over an extended drought period. This new requirement is addressed in Chapter 3—Water Supply, Chapter 4—Water Use, and Chapter 5—Water Service Reliability Assessment.
- ◆ **Drought Risk Assessment (DRA):** Due to the extensiveness of recent California droughts and the variability associated with climate change predictions, the California Legislature created a DRA requirement for UWMPs. The DRA requires assessment over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability for

⁶ As provided at <https://sdwis.waterboards.ca.gov/PDWW/>

⁷ California Water Code Section 10608 to 10608.44; Section 10609 to 10609.38; Section 10610 to 10657



five consecutive dry years. The DRA is addressed in Chapter 5— Water Service Reliability Assessment and Chapter 6—Water Shortage Contingency Plans.

- ◆ **Seismic Risk:** Evaluating seismic risk to water system infrastructure and facilities and having a mitigation plan is now required by the Water Code. Incorporating the water system into regional or county hazard mitigation planning is an important aspect of this new statute. Seismic risk is addressed in Chapter 6.
- ◆ **Water Shortage Contingency Plan:** In 2018, the Legislature modified the UWMPA to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides a Supplier with an action plan for a drought or catastrophic water supply shortage. The Company’s WSCP is included as Chapter 6 and Appendix B of this UWMP.
- ◆ **Groundwater Supplies Coordination:** 2020 UWMPs are required to be consistent with Groundwater Sustainability Plans following the 2014 Legislature enactment of the 2014 Sustainable Groundwater Management Act (SGMA). The reliance on groundwater is described in Chapter 3—Water Supply.
- ◆ **Lay Description:** A synopsis of the fundamental determinations of the UWMP is a new statutory requirement in 2020. This section of the is intended for new staff, new governing members, customers, and the media, and it can ensure a consistent representation of the UWMP’s detailed analysis.

1.3 Coordination and Outreach

As required by the Urban Water Management Planning Act (UWMPA) OVWC has coordinated with nearby agencies while developing this UWMP in order to ensure consistency with other related planning efforts such as General Plans, Water Master Plan (WMP), and Groundwater Sustainability Plan (GSP). This requirement includes coordination with (a) water suppliers that share a common water source, (b) relevant water management agencies that affect the Company’s water assets, and relevant public agencies that may have land use or other regulatory relationships with OVWC. OVWC has prepared this 2020 UWMP in coordination with regional water purveyors, including San Juan Water District (SJWD), and has appropriately notified and coordinated with other appropriate local government agencies as listed in Table 1-2.

As stipulated in Water Code Section 10621(b), every urban water supplier shall seek active involvement from diverse elements of the community. OVWC sought public participation with its hearing and notices to members of the community. These coordination efforts and Statutory Requirements for Notice are also included in Table 1-2.



Table 1-2: Public and Company Coordination

Coordinating Agencies	Coordinate Regarding Demands	Sent Copy of Draft UWMP	Sent 60-Day Notice	Notice of Public Hearing
Cities, Counties, Customers and Interested Parties				
Sacramento County	X			
Sacramento County Water Agency				
San Juan Water District	X			
Citrus Heights Water District				
Fair Oaks Water District				
City of Folsom				
[others?]				
General Public				

Orange Vale Water Company is part of several regional water supplier organizations. It is a member of the Regional Water Authority (RWA), a joint powers authority, created by water purveyors in the Sacramento region to have a unified approach to regional water issues. The RWA provides members and associates significant regional coordination to enhance water management practices. OVWC is also a part of the Sacramento Groundwater Authority (SGA) which helps support proactive management and monitoring of the regions groundwater basin. Information on the Company’s public outreach is contained in Appendix A.

1.3.1 Water Supplier Information Exchange

Water Code Section 10631 requires wholesale and retail water agencies to provide each other with information regarding water supply and demand. SJWD provides wholesale water to OVWC, and as required by UWMPA, OVWC and SJWD exchange projected water demand in five-year increments for 20 years into the future. OVWC’s service area is surrounded by water suppliers that also wholesale customers of San Juan Water District. Due to its contractual and geographical relationship, SJWD water supplies play a significant role in the OVWC’s water management.

1.4 UWMP Adoption

OVWC held a public hearing regarding its 2020 UWMP on [redacted], 2021. Before the hearing, a draft was made available for public inspection at the Company office, and posted on its website. Pursuant to CWC



Section 10642, general notice of the public hearing was provided through publication of the hearing date and time and posting of the hearing at the OVWC office.

OVWC's elected body adopted this 2020 UWMP on [REDACTED], 2021. A copy of the adopted 2020 UWMP will be submitted to DWR, provided to local cities and counties and the California State Library, and posted onto the OVWC website.

OVWC plans to submit all required documentation related to the UWMPA through the DWR submittal website soon after adoption. This will include the following required DWR Excel workbooks:

- ◆ "FINAL Submittal 2020 UWMP Tables 04.02.2021.xls"
- ◆ "FINAL SBX7-7 Verification Form 04.02.2021.xls"
- ◆ "FINAL Energy Use Tables 04.01.21.xls"

1.5 Document Organization

This UWMP addresses water-planning fundamentals, statutory requirements, and enhancements for the Company's operations.

- ◆ Chapter 2 provides a description of OVWC's service area, demographic characteristics and climate, and describes the future population OVWC anticipates needing to serve.
- ◆ Chapter 3 describes OVWC's current and future water supplies and the availability of the supplies through 2045.
- ◆ Chapter 4 details the customer uses, including the past and future estimated uses, and describes OVWC's past and on-going demand management measures.
- ◆ Chapter 5 presents OVWC's water system service reliability into the future, including an assessment of reliability if a drought occurred over the next five consecutive years.
- ◆ Chapter 6 and Appendix B provide OVWC's stand-alone water shortage contingency plan, incorporated as a chapter in this UWMP, but also available to be shared and utilized separate from the UWMP.



NOTE TO DWR:

Orange Vale Water Company has written this Urban Water Management Plan (UWMP) primarily as a water resources planning tool to effectively manage water supply, reliability and demand. This UWMP also satisfies all the requirements of the Urban Water Management Planning Act (UWMPA).

The body of the document provides narratives, analysis and data that DWR requests in its 2020 UWMP Guidebook, including changes to the California Water Code since 2015. Efforts have also been made to include enhancements to this document wherever possible as recommended in the 2020 UWMP Guidebook.

To facilitate review by DWR for compliance with the UWMPA, data from the body of the document has been transferred into required DWR submittal tables consistent with the organization of the tables in Appendix E of the 2020 UWMP Guidebook. These tables are separately uploaded to DWR's web portal. This UWMP has been reviewed for adequacy according to the UWMP Checklist as contained in Appendix F in the 2020 UWMP Guidebook.



Chapter 2

Water Service and System Description

The Orange Vale Water Company (OVWC, or Company), as an urban water supplier, provides potable water directly to retail customers throughout the approximately five square mile service area boundary. The Company is bounded on the west roughly by Kenneth Avenue, to the east where Madison Avenue and Greenback Lane merge, north of Pershing Avenue on the south and Oak avenue to the North.

In 1896, OVWC was incorporated as a general corporation for the purpose of delivering agricultural water to its landowners (shareholders) and members in an area of approximately 3,000 acres. Land within the service area began experiencing gradual residential and commercial development in the 1950s. In 1994, OVWC adopted the California Non-Profit Mutual Benefit Corporation Law, and its shareholders became members.

2.1 Water Service Area

Most of the service area is within the unincorporated boundary of Sacramento County, while a small portion is within the City of Folsom. OVWC serves a unique mix of residential customers. Many of the original parcels were large 10-acre or larger parcels used for farming. Over time, these parcels have been split and subdivided. However, many parcels are still large lot customers with extensive outdoor irrigation requirements. For instance, approximately 40 percent of the Company's residential customers are on parcels larger than 1/3 of an acre. The many large-lot customers increase the Company's gallon per capita per day (gpcd) value as discussed further in the demand analysis in Chapter 4.

Figure 2-1 displays the Company's service area.

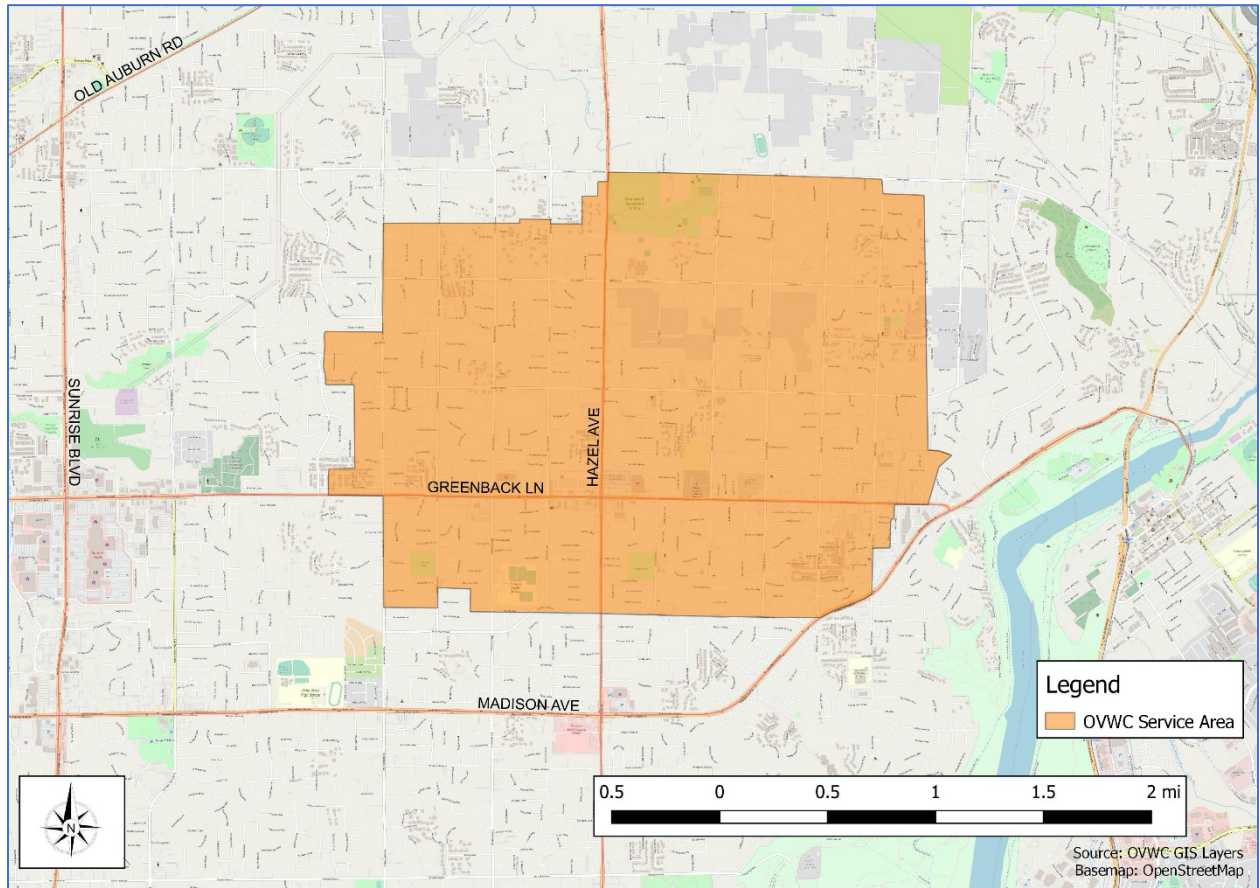
2.1.1 Service Area Climate

OVWC has cool winters and hot, dry summers. The Western Regional Climate Center (WRCC) maintains 30 years of historic climate data for select cities only. WRCC does not have a station within the OVWC service area boundary and therefore the Folsom Dam station was utilized for the climate data analysis. The Folsom Dam station is located less than one mile outside the service area and adequately represents the climate data for OVWC. The WRCC's website (www.wrcc.dri.edu) has maintained historical climate records for the Folsom Dam station, and report monthly temperature in the ranges from an average low of 38.3 degrees Fahrenheit (°F) in January to an average high of 94.4 °F in July.

Precipitation data is also documented on the WRCC website with data from its Folsom Dam station. For the period 1981-2010, average rainfall was measured at 25.80 inches. The wettest months are January, February, and March while the driest months are typically July and August.



Figure 2-1: Orange Vale Water Company Water Service Area



Evapotranspiration (ET_o) varies seasonally, and during dry years the significance of evapotranspiration is magnified because it continues to deplete surface water supplies and reduce soil moisture. The Company monitors ET_o closely. Standard monthly average ET_o data was obtained from the California Irrigation Management Information System (CIMIS) Station 131 located in Fair Oaks, California, which is approximately 2.5 miles south of the Company’s main office. Average annual ET_o for the period 1998-2020 measured 50.54 inches.

California Model Water Efficient Landscape Ordinance (MWELO) ET_o values for Roseville are also reported in Table 2-1. Local agencies are to use the MWELO ET_o values as the standard for approval of landscape plans associated with specific development projects.

Figure 2-2 and Table 2-1 presents the monthly average climate summary based on the historical data.



Figure 2-2: Monthly Average Climate for Orange Vale Water Company

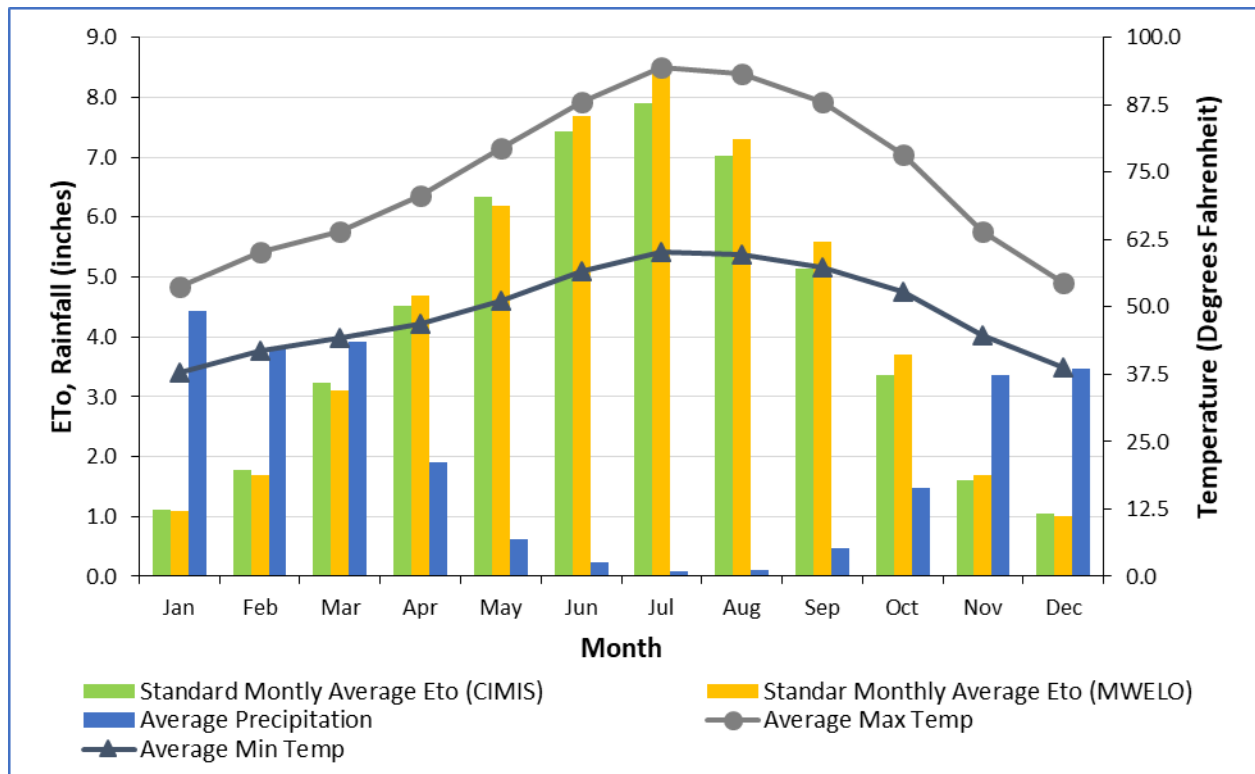


Table 2-1: Orange Vale Water District Climate Information

Month	MWELo Appendix A ETo (inches)	CIMIS Standard Monthly Average ETo (inches)	Average Precipitation (inches)	Average Temperature (°F)	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)
January	1.1	1.12	3.70	46.1	53.9	38.3
February	1.7	1.78	4.63	51.9	61.3	42.5
March	3.1	3.24	4.65	55.4	65.1	45.6
April	4.7	4.52	1.74	60.4	72.4	48.4
May	6.2	6.35	0.67	66.5	80.8	52.2
June	7.7	7.44	0.38	73.2	88.8	57.5
July	8.5	7.91	0.06	77.6	94.4	60.7
August	7.3	7.03	0.11	76.8	93.5	60.0
September	5.6	5.14	0.62	72.7	87.7	57.7
October	3.7	3.36	1.46	66.1	78.6	53.5
November	1.7	1.61	3.96	53.1	61.9	44.2
December	1.0	1.04	3.83	46.7	54.2	39.1
Annual:	52.2	50.54	25.80	62.4	74.6	50.1

Totals may not add due to rounding.
 MWELo Appendix A data from Roseville, CA.
 ETo data from DWR CIMIS Data, Fair Oaks Station 131, 1998-2020.
 Precipitation and Temperature data from WRCC, Folsom Dam (043113) 1981-2010.



2.2 Service Area Population, Land Use, Economy, and Demographics

Service area population and land use projections are critical to developing a useful planning framework as population dynamics and growth are a primary influence on water use. These projections directly influence planning measures for system supply, delivery, infrastructure, and demand management. Similarly, understanding the Company’s economic, social, and demographic trends give valuable insight to water management and planning. This section of the UWMP addresses these factors to provide a supportable basis for forecasting future water use in Chapter 4.

2.2.1 Current and Projected Population

The population served by the OVWC includes a mix of users and user classes, and follows similar demographic and population trends as the community of Orangevale. OVWC’s customer base is comprised of single-family residential (92.3 percent), commercial (2.9 percent), multi-family (2.9 percent), institutional/governmental (1.0 percent), landscape irrigation (0.7 percent), parks (0.2 percent), and agricultural (0.1 percent).⁸ The current service area consists of mainly residential, agricultural, and commercial land uses of varying densities.

Estimation of the 2020 service area population is generated using DWR’s WUE population tool. This application uses census data, service area boundaries, and person per connection data to calculate population estimates. Based on the 2000 and 2010 census data and corresponding number of connections for the census years, the ratio of persons per connection for 2020 is reported as 3.11. Applying this ratio to the 2020 number of residential connections yields the Company’s 2020 population estimate. As reported in Table 2-2, the Company’s 2020 population is estimated as 16,816.

Population projections incorporate information from Sacramento Area Council of Governments (SACOG). Growth projections from the SACOG 2016 and 2020 MTP/SCS are utilized for projecting the Company’s population. Results from the 2016 MTP/SCS indicate an approximate growth rate of 0.6%, for a total of 875 new residential units by 2045 (Tully and Young, 2020). The resulting population projections are included in Table 2-2.

Table 2-2: Current and Projected Population

Population Served	2020	2025	2030	2035	2040	2045
	16,816	17,049	17,438	18,060	18,760	19,537

Note:

OVWC’s service area population for 2020 estimated using DWR population tool and projected based on a SACOG 2016 and 2020 MTP/SCS growth rates for the Company’s service area.

⁸ Percentages are based on 2020 customer connections.



Comparison with Prior Projections

Comparison of the population projections indicate congruence with other planning documents for the region. The Company is located mainly within the unincorporated portions of Sacramento County. Similar to purveyors in the region, the service area is largely built out. Table 2-3 reports the comparison between the current and projected populations as reported in OVWC’s 2015 UWMP and this 2020 UWMP.

Table 2-3: Population Comparison between OVWC’s 2015 and 2020 Urban Water Management Plans

Plan	2020	2025	2030	2035	2040
2015 UWMP	16,974	17,469	17,963	18,475	19,004
2020 UWMP	16,816	17,049	17,438	18,060	18,760
% Difference	0.9%	2.4%	2.9%	2.2%	1.3%

Note: 2015 UWMP did not report population for 2040. Estimated using average growth rate for period 2020-2035 applied to the projected 2035 population.

The 2020 MTP/SCS indicates an average annual growth rate for Established Communities as 0.51 percent for the period 2020-2040⁹, while OVWC’s 2015 UWMP indicates an average annual growth rate of 0.57 percent for the same period (J. Crowley Group, 2016). As shown in Table 2-4 below, the 2020-2040 population projections for OVWC report an average annual growth rate of 0.55 percent, indicating strong compatibility with these planning documents.

Table 2-4: Average Annual Growth Rate comparison between 2020 MTP/SCS (SACOG) and OVWC’s 2015 and 2020 Urban Water Management Plans

Report/Plan	Average Annual Growth Rate (2020-2040)
2020 MTP/SCS ¹	0.51%
2015 UWMP ²	0.57%
2020 UWMP	0.55%

¹SACOG – 2020 MTP/SCS Appendix C for Established Communities within Sacramento County.

²2015 UWMP did not report population for 2040. Estimated using average growth rate for period 2020-2035 applied to the projected 2035 population.

2.2.2 Economic Outlook

OVWC’s service area is primarily contained within the community of Orangevale’s designated boundary¹⁰. While Orangevale’s boundary includes areas that are outside of OVWC’s service area, there is overall agreement with respect to employment and growth characteristics.

⁹ Annual growth rate for dwelling units.

¹⁰ Census Designated Place (CDP).



Since the 1950's, the region has experienced a strong urban growth, typical of post-World War II suburban and metropolitan areas. During the 1950's, Orangevale's population grew from an estimated 1,600 people to 11,600 by 1960, with an average annual growth rate of 22 percent during the period (Sacramento County, 1976). Since that time, average annual growth rates for population has generally slowed down, ranging from 0.16 percent (1990-2000) to 3.58 percent (1960-1970)¹¹. While the growth rate has somewhat stabilized to less than one percent between 2010 and 2020, annual job growth has averaged 1.53 percent during the same period. Job sectors experiencing the largest annual growth for the period include mining, logging, and construction (4.51 percent), professional and business services (2.82 percent), education and health services (2.63 percent), and information (2.14 percent)¹². It is estimated that the Sacramento region is expected to see an increase in jobs of approximately 25.5 percent in 2040 when compared to the 2016 number of jobs (SACOG, 2019).

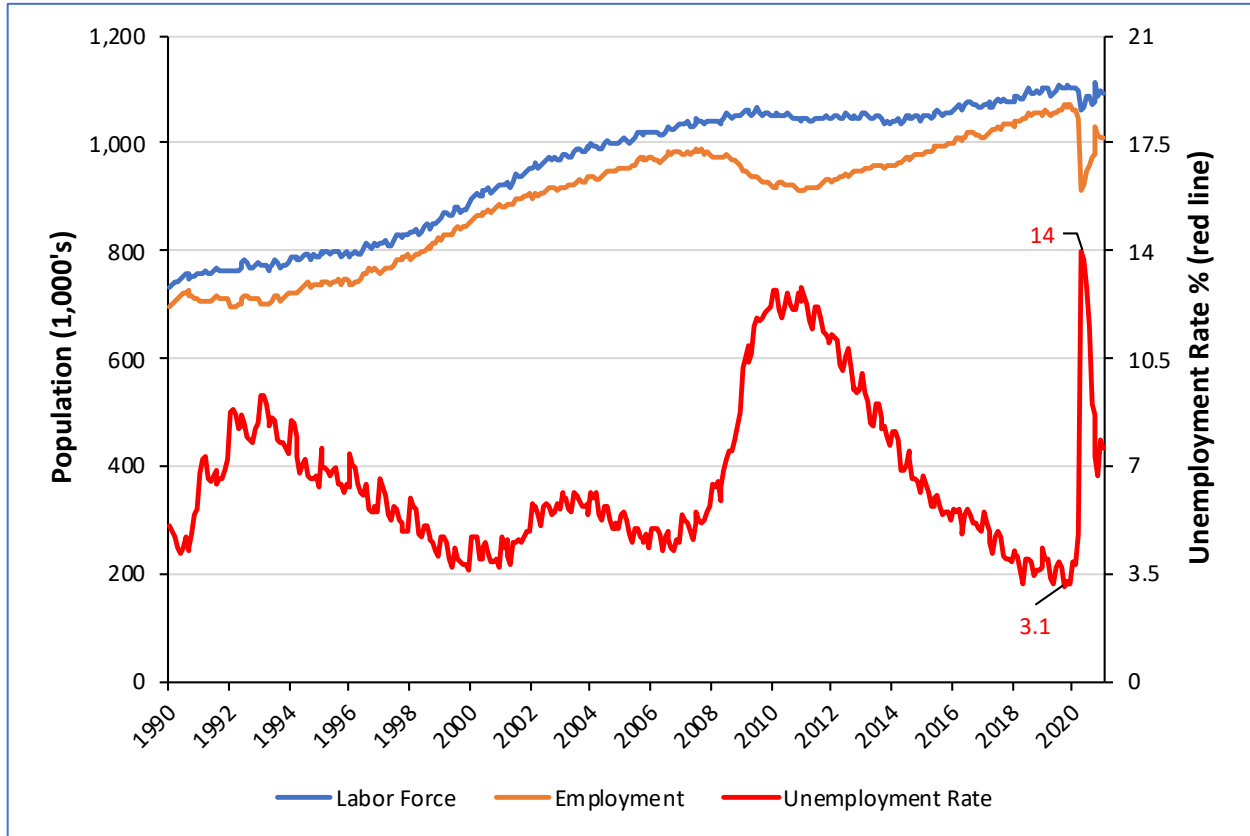
In the years prior to the COVID epidemic, some areas within the greater Sacramento Region experienced a substantially low unemployment rate. Figure 2-3 displays the Sacramento metropolitan area Labor Force and Employed populations as well as the resulting Unemployment Rate for the period 1990 through 2020. As seen on the figure, in September 2019, the region experienced the lowest unemployment rate for the period (3.1 percent). Commensurate with the impacts on the labor market due to the pandemic, 2020 saw the largest increase in the unemployment rate for the period, resulting in a high of 14 percent (April 2020).

¹¹ 1970, 1990, and 2010 population data for Orangevale CDP obtained from U.S. Census Bureau. Population estimate for 1960 obtained from Orangevale Community Plan, Technical Report (Sacramento County, 1976).

¹² <https://datausa.io/profile/geo/orangevale-ca/>



Figure 2-3: Sacramento Region Labor Statistics¹³



The increased unemployment rate experienced during 2020 appears to be rebounding from the historic high. The rate of economic recovery for the region remains to be seen, indicating a high level of uncertainty with respect to pace and type of future economic job growth for the greater Sacramento region.

According to the United States Census Bureau, the ethnic demography of the City of Orangevale is 76.6 percent White, 11.7 percent Hispanic or Latino, 2.9 percent Asian, and 1.7 percent Black or African American, with the remaining percent being attributed to mixed and/or other races.¹⁴

The DWR DAC Mapping Tool does not identify any portions within the OVWC service area as a “Disadvantaged Community”.¹⁵ The community of Orangevale has an estimated median income of \$81,801¹⁶ while the threshold for Disadvantaged Community designation requires community median household income of less than \$56,982.

¹³ Source: United States Bureau of Labor Statistics (Sacramento, Roseville, Arden-Arcade, CA)

¹⁴ 2019: ACS 1-Year Estimates Data Profiles, accessed at, <https://data.census.gov/cedsci/table?q=orangevale%20ca&tid=ACSDP5Y2019.DP05&hidePreview=false>

¹⁵ <https://gis.water.ca.gov/app/dacs/>

¹⁶ <https://www.census.gov/quickfacts/fact/table/orangevalecdpcalifornia/PST045219>



2.2.2 Current and Projected Land Use

The population projections are based upon an analysis completed by the SJWD in 2020 to estimate future water demands – the *25-Year Demand Forecast and Capacity Analysis (Analysis)*.¹⁷ As part of the Analysis, projections of future growth within various land-use classifications were made. The following summarizes the growth estimates documented in the Analysis for OVWC’s system.

Future Customer Connections

The Analysis projected new customer connections for the Company’s service area. The OVWC service area covers a portion of Sacramento County which consists of mostly moderate and large-lot single family homes. The community covers a range of housing ages but is largely considered to be built out. Infill developments have occurred and are expected to continue (e.g., larger legacy properties are subdivided, and multiple single-family homes are constructed), with very few of these larger parcels expected to remain vacant.

The Analysis projected a growth rate for OVWC of approximately 0.6% from current conditions until 2036, resulting in approximately 35 new housing units per year. Extending this rate for 25 years results in 875 new housing units (single-family and multi-family) by 2045. The Analysis split the new residential connections as 650 new single-family homes and 225 new multi-family homes. Nominal additional commercial and public landscaping were assumed, represented as 10 acres of new commercial development and 6 acres of new public landscaped areas.

2.2.3 Other Relevant Service Area Descriptors

OVWC’s service area relies on local water resources, including Folsom Reservoir and groundwater from the North American Sub-basin¹⁸. With a capacity of 975,000 acre-feet, Folsom Reservoir is operated by the United States Bureau of Reclamation (USBR). Surface water diversions from the reservoir serve many entities in the region, including OVWC. In addition to OVWC customers, other regional entities who rely on the reservoir for supplies, directly or indirectly, include:

- ◆ Placer County Water Agency (PCWA)
- ◆ El Dorado Irrigation District (EID)
- ◆ City of Roseville
- ◆ City of Folsom
- ◆ City of Sacramento
- ◆ Carmichael Water District
- ◆ Golden State Water Company
- ◆ Sacramento Municipal Utility District (SMUD)
- ◆ Cal American Water Company
- ◆ Sacramento County
- ◆ South Sutter Water District
- ◆ San Juan Water District (Retail and Wholesale Customers)

The regional dependence on Folsom Reservoir is coordinated with the entities through the Sacramento Water Forum Agreement (WFA). As a signatory to the WFA (Sacramento Water Forum, 2015), the Company has agreed to coordinate with other WFA participants when projected March through

¹⁷ *25-Year Demand Forecast and Capacity Analysis, June 2020, Tully & Young.*

¹⁸ OVWC maintains groundwater wells for emergency back-up supplies.



November unimpaired inflow into Folsom Reservoir is projected to be less than 400,000 acre-feet. The WFA signatories have agreed to meet and consult to develop a regional approach to address meeting demands in times of limited Folsom Reservoir supply.

The North American Sub-Basin is relied on by some of the SJWD’s Wholesale Customer Agencies (WCAs), and is managed through the Sacramento Groundwater Authority (SGA). In response to decreasing groundwater levels, SGA developed a Groundwater Management Plan (GMP) in 2003, with several updates since. The current GMP was completed in 2014 and identified four basin management objectives¹⁹:

1. Maintain groundwater elevations in the SGA area that provide for sustainable use of the groundwater basin.
2. Maintain or improve groundwater quality in the SGA area to ensure sustainable use of the groundwater basin.
3. Maintain groundwater levels to prevent inelastic land surface subsidence that would damage infrastructure or exacerbate flooding.
4. Protect against adverse impacts to surface water or groundwater resulting from interaction between groundwater in the basin and surface water in the American River, the Sacramento River, and other surface water bodies within the SGA area.

The SGA has implemented a groundwater accounting framework that allows for SGA member agencies to account for groundwater banking and conjunctive use efforts, and includes consideration and monitoring of groundwater levels. This information is used to proactively manage the basin’s storage capacity and available yield to support a conjunctive use strategy.

2.4 Delivery System Details

Raw water is moved from the USBR pumping plant at Folsom Reservoir into SJWD’s service area for treatment at the Sidney N. Peterson Water Treatment Plant (WTP). The raw water from Folsom Lake is either gravity fed or pumped (depending on lake levels) from the pumping plant and delivered to the WTP. The treated water is sent to Hinkle Reservoir, a 62 million gallon (MG) storage reservoir, which provides capacity for peaking and emergencies in excess of treatment plant production.

Water is delivered to the Company’s system by SJWD and is distributed via ‘open’ reservoirs at elevation to produce the necessary service pressures throughout the service area. Typical wholesale supply pressures are between 40 and 80 psi depending on reservoir water levels and demand. The OVWC system is operated by OVWC operations staff to maintain service pressures between 35 and 100 psi at all times of the day as required by the County of Sacramento Improvement Standards.

¹⁹ Sacramento Groundwater Authority, Groundwater Management Plan, Section 3.2. Full document can be accessed, <https://www.sgah2o.org/management/>.



The Company’s water distribution system consists of over 80 miles of pipeline ranging in size from 1.5 to 30 inches in diameter. Each active service connection is metered as a requirement from the Company’s wholesale water supply contract with United States Bureau of Reclamation.

The piping systems material consist of dipped and wrapped steel, coated and painted ductile iron, mortar-lined steel, asbestos-cement, and plastic (PVC). The system is in generally good condition and regularly inspected and maintained. System components that are near the end of their asset life are replaced through the Capital Replacement Program and through regular maintenance activities.

The water system is permitted and regulated by the California Water Resources Control Board Division of Drinking Water (DDW). The system meets all requirements and continues to monitor, sample, and submit data to the DDW as required for permit compliance.

2.4.1 Energy Intensity

Among the statutory changes enacted with new requirements for 2020 UWMPs, an urban supplier shall include information it can readily obtain related to the energy use to produce, treat and deliver water.²⁰ Referred to as “Energy Intensity Reporting” for urban water suppliers, energy Intensity is defined as: total amount of energy expended in kilowatt-hours (kWh) by the urban water supplier on a per acre-foot basis to take water from the location where the urban water supplier acquires the water to its point of delivery.

As the SJWD supply to OVWC is gravity fed, there is no energy consumption associated with delivery of water to OVWC’s customer base.

2.5 Future Climate Change Impacts for Consideration

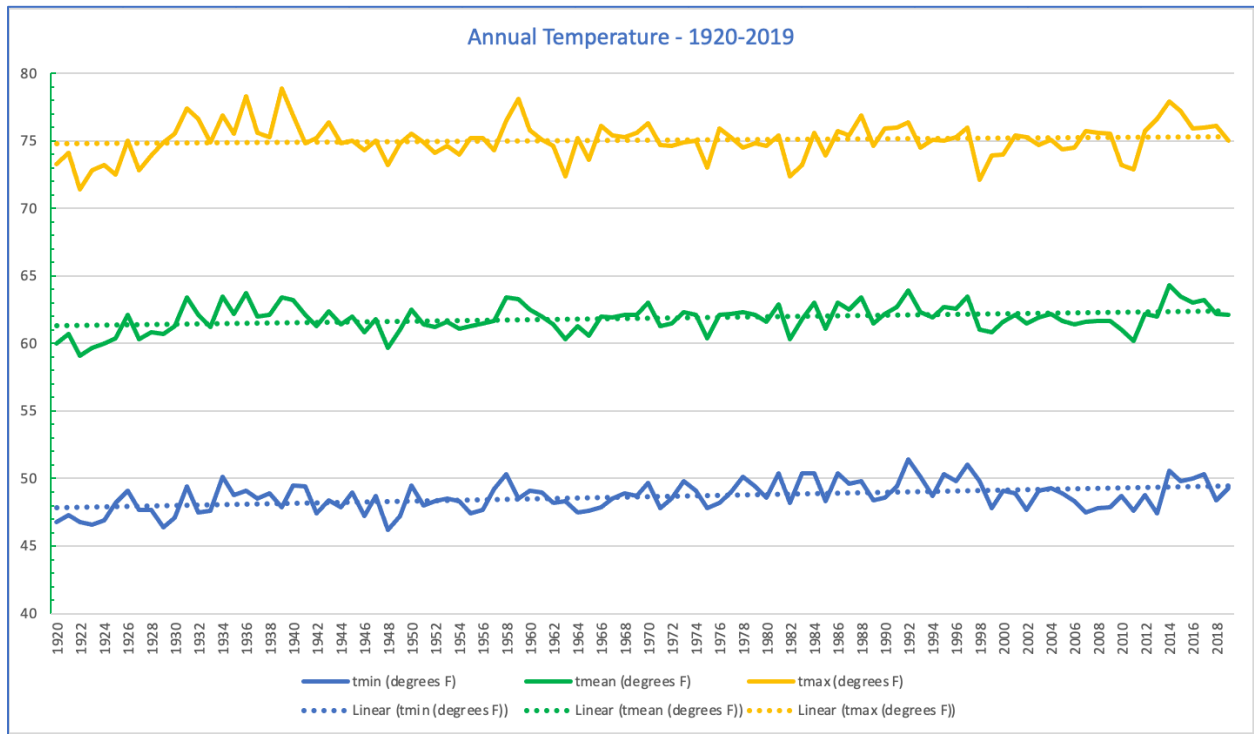
The Regional Water Authority (RWA) of which the Company is a member, partnered with other local water purveyors and the U.S. Department of the Interior, Bureau of Reclamation on a climate change study called the American River Basin Study (ARBS) with the purpose of developing climate change adaptation strategies specific to the Basin²¹. Much of Sacramento County is located in the western portion of the basin and study area. Sacramento County has experienced a general warming trend over the last 100 years, as shown by the trend-lines in Figure 2-4.

²⁰ California Water Code Section 10631.2(a).

²¹ Full findings and approved ARBS study can be found at www.pcwa.net/planning/arbs



Figure 2-4: Historical Annual Temperature (1920-2019)²²



Surface air temperatures are projected to increase steadily, with average summer temperatures increasing by approximately 7.2 degrees Fahrenheit (°F) by the end of the 21st century (Figure 2-4), and winter temperatures increasing by 4.9°F. Projections of daily maximum and minimum temperatures suggest similar warming trends during all seasons, with maximum temperatures projected to increase as much as 7.3°F during the summer months.

Climate change is generally forecast to bring higher temperatures, more variability in precipitation and more frequent and prolonged droughts. Although there is a lack of a clear trend in projected annual precipitation, by the end of the 21st century the average fall and spring precipitation is expected to decrease, with winter and summer precipitation increasing. Increasing variability is also projected in winter and fall precipitation.

Water supplies in the region are inextricably tied to the Sierra snowpack runoff and the ARBS indicates that the Snow Water Equivalent (SWE) is projected to decrease significantly due to higher average surface temperatures and precipitation variability. Historical average SWE for the American River basin is 3.1 inches. It is forecasted to decrease to 2.0 inches across all climate scenarios and future time periods. Areas that accumulate snow are projected to have up to a 12-inch decrease in average annual SWE, resulting in a loss of snow by 50-75% through the end of the century²³. This will place strain on summer and fall water supply in the region and throughout the state due to earlier runoff. Peak runoff is

²² Temperature and rainfall data represents annual averages from 1981-2019 from the PRISM Climate Group <https://prism.oregonstate.edu/> Location: Lat: 38.4474 Lon: -121.4110 Elev: 26ft

²³ American River Basin Study



expected to shift by more than a month earlier by mid to late century. Increased evapotranspiration would also accompany the intensification of hotter extreme temperatures.

For purposes of this UWMP, however, these changes will occur well beyond the planning horizon of this analysis and thus are noted for consideration during future UWMP updates.



Chapter 3

Water Supply

Orange Vale Water Company's (OVWC) wholesale water supplier, San Juan Water District (SJWD) has access to multiple water supply sources to serve OVWC. SJWD's diverse surface water supplies – derived from water rights and contracts – provide significant annual volumes of water that can be used to meet OVWC's demands. In addition, SJWD has access to groundwater from the North American Subbasin through a contract with Sacramento Suburban Water District (SSWD). Together these water assets are managed to meet water demands in SJWD's wholesale service area, including OVWC's. Furthermore, the SJWD's water supply portfolio is subject to potential physical constraints related to operating levels and diversion structures at Folsom Reservoir that may impact long-term reliability projections. SJWD receives all of its surface water assets from Folsom Reservoir as diverted by Reclamation.

As stated above, OVWC's current sole supply is through purchases of surface water from SJWD. However, the Company previously used groundwater as a source of supply and is currently investigating the feasibility of producing groundwater. However, no groundwater supply is projected for future use at this time.

3.1 Description OVWC's Water Supplies

OVWC does not currently possess any surface water rights. The Company does have the ability to exercise groundwater appropriative rights as it overlies the North American Sub-Basin (DWR Basin 5-21.64) and has previously utilized groundwater as a supply. OVWC does not currently produce groundwater for a supply source.

3.1.1 Contracts for Water

OVWC purchases surface water from the SJWD. SJWD obtains its surface water through a combination of rights and contracts totaling 82,200 acre-feet per year. The specifics and reliability of each right and contract is presented in SJWD's UWMP and summarized in Section 5 of this UWMP. All of the surface water supplies are withdrawn from Folsom Reservoir into SJWD's water treatment plant.

OVWC maintains a wholesale Water Supply Agreement (WSA) with SJWD to provide surface water, as does SJWD with all the Wholesale Customer Agencies (WCA). The wholesale WSA does not include a volumetric amount; rather it states that SJWD will provide OVWC the required supply. The other WCA contracts also include the same language.



OVWC maintains multiple connections with SJWD to receive its water supply. Barring failure of these connections, there are no physical constraints to obtaining the required SJWD supply. The SJWD UWMP addresses any restraints within SJWD’s facilities to diverting, treating, and delivering the necessary supplies to OVWC.

SJWD also maintains a contract with the Sacramento Suburban Water District to receive pumped groundwater as a backup supply. SJWD expects this additional supply to provide up to 7,846 AFY (2020 SJWD UWMP) in the case that its surface water supply is reduced. This pump back supply is not additional to SJWD’s surface water supply, and if needed, OVWC would still receive supply under its existing contract with SJWD regardless of source.

3.1.2 Wastewater and Recycled Water

OVWC does not use recycled water nor is recycled water available in the Company’s service area. Accordingly, this section presents the required information per the Guidelines. DWR Submittal Tables 6-3, 6-4, and 6-5 are not applicable and not presented in this UWMP.

Wastewater Collection, Treatment, and Disposal

The Sacramento Regional County Sanitation District (SRCSD), and its companion agency, the Sacramento Area Sewer District (SASD), conducts wastewater collection, treatment, and disposal for the OVWC service area. Wastewater is collected and conveyed approximately 20 miles southwest, near the City Elk Grove, to the regional wastewater treatment plant.

The regional wastewater treatment plant serves most of the entire Sacramento metropolitan area. The treatment plant receives and treats approximately 115-130 million gallons per day (mgd) of wastewater. The current capacity of the plant to treat dry weather flows is approximately 181 mgd. The treatment plant produces a disinfected secondary effluent that is discharged into the Sacramento River below Freeport. The principal treatment processes are primary sedimentation, pure-oxygen activated sludge, secondary sedimentation, and chlorination/de-chlorination. There are no recycled water facilities within the OVWC service area.

Estimated wastewater generation is based on the SRCSD unit wastewater generation factor of 310 gpd per equivalent dwelling unit (SRCSD, 2010). Estimated wastewater collected within the OVWC service area is presented in Table 3-1.

Table 3-1: Wastewater Collected Within Service Area in 2020

Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected from UWMP Service Area 2020 (acre-feet)	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area?
Sacramento Area Service District	Estimated	1,974	Sacramento County Regional Sanitation District	Regional San	No



Notes:

Based on 2020 number of connections and SRCSD wastewater generating unit factor 310 gpcd.

The annual 1,974 acre-feet volume of wastewater collected is typically associated with year-round indoor water use and in 2020 averaged 165 acre-feet per month within the Company's service area. This monthly average quantity compares relatively with OVWC's average water use of 153 acre-feet per month during the 2020 low water use months of January (139 acre-feet), February (164 acre-feet) and December (157 acre-feet) when outdoor irrigation is minimal.

Similarly, this annual volume of wastewater collected within the OVWC service area equates to 1.762 million gallons per day (mgd) on average. When factoring in OVWC's 2020 population of 16,816, the amount of wastewater collected, treated and then either recycled or discharged to the Sacramento River for downstream water supply and environmental benefit is estimated to be 105 GPCD. As noted in Section 4, OVWC's 2020 total annual GPCD was 211. Subtracting from this total the quantity of water returned to the system for other beneficial uses, OVWC's consumer's net impact on the State's surface water resources is estimated to be 106 GPCD in 2020.

No wastewater is treated or discharged within the OVWC service area.

Actions to Encourage and Optimize Future Recycled Water Use

SRCSD developed a recycled water opportunities plan in 2007 (Recycled Water Plan). The Recycled Water Plan divided its service area into specific opportunity areas. Each opportunity area was evaluated for recycled water use potential based on many factors such as demand, supply availability, infrastructure requirements, local support, costs, and others. The process utilized a Water Recycling Advisory Committee that provided a broad stakeholder view and input to the process. The Committee consisted of representatives from cities, water agencies, environmental groups, the State, and business groups. The Regional Water Authority represented OVWC on the Committee.

The OVWC service area is located in the Target Area 3 opportunity area identified in the Recycled Water Plan. Based on the analysis and alternative screening procedures, no potential recycled water applications were identified in the OVWC service area. One of the main reasons for the findings is the relatively small potential demand that would require extensive infrastructure development, including a new local treatment plant to provide a supply source.

The SRCSD Recycled Water Plan concluded there were no viable opportunities for recycled water use in the OVWC service area. However, in the future, basic planning assumptions may change or new issues arise that could result in the identification and development of feasible recycled water programs. OVWC will continue to monitor its water resources issues, and identify recycled water programs should the opportunity arise.

Future recycled water use will be part of a regional solution that involves the many entities involved in the SRCSD Water Recycling Plan. Incentives and methods to encourage recycled water use will depend on SRCSD and its regional partners identifying and developing a recycled water program for the north county area. Potential recycled water supply could also come from remediated groundwater if a plume is detected in the service area. OVWC will continue to follow recycled water use issues and will provide



input as necessary. When a feasible program is identified through cooperation with the regional efforts, OVWC will develop incentives and methods to encourage recycled water use within its service area.

3.2 Description of Groundwater Supplies

The Company maintains emergency supply wells that are capable of producing local groundwater. Although not regularly utilized by the Company, the groundwater production facilities offer the Company greater flexibility and redundancy with respect to the Company's water service reliability.

The groundwater basin underlying the Company is the North American Sub-basin, part of the larger Sacramento Valley groundwater basin. California Department of Water Resources' California's Groundwater Update 2003, Bulletin 118, identifies the basin as 5-21.64.

3.2.1 Groundwater Basin Description

Water-bearing formations beneath the Company occur in two major strata. The upper water-bearing units include the geologic formations of the Victor, Fair Oaks, and Laguna Formations and are typically unconfined. The lower water-bearing unit consists primarily of the Mehrten Formation, which exhibits confined conditions. The Mehrten Formation is the most productive fresh water-bearing unit in the eastern Sacramento Valley, though some of the permeable layers of the Fair Oaks Formation produce moderate amounts of water. Much of the recharge of these aquifer systems comes from rainfall and applied water (36%), subsurface flow from the South (26%), and the Sacramento River (21%) (SGA, 2014). To a lesser extent, aquifer recharge also occurs where the Mehrten Formation reaches the surface in the foothills in eastern Sacramento and western El Dorado County areas.

Supply wells in the Sacramento region draw water primarily from the Mehrten and Fair Oaks formations and typically produce 500-1,500 gallons per minute (gpm). There are areas throughout the basin that exhibit elevated levels of iron, manganese, and arsenic.

The local groundwater basin does contain three significant major groundwater contamination areas: the United Pacific Railroad plume located northwest of the District in Roseville and the McClellan Air Force Base plume located west of the District. Both plumes are down-gradient and not expected to impact OVWC's groundwater quality. A third groundwater contamination plume attributed to Aerojet's historic operations was first detected in groundwater south of the American River in 1979. Since that time, Aerojet has installed groundwater treatment facilities and conducted other efforts to treat and control the plume migration. However, the plume was detected north of the American River near Fair Oaks in 2000, and another plume was detected north of the American River in 2005 near Ancil Hoffman Park in Carmichael. Additional monitoring wells and pump-and-treat facilities have been installed to monitor and treat the plumes attributed to Aerojet.

The basin is not adjudicated. Total usable capacity and safe yield of the basin have not yet been determined. Usable capacity is assumed to be the yield calculated in the DWR's American Basin Conjunctive Use Project Feasibility Study (1997). The study assumed a specific yield of 7 percent and an



assumed thickness of 200 feet. Applying these assumptions to the total basin area results in a usable capacity of 70.2 million acre-feet.

SGMA and AB 3030 GMP Documentation

The Sacramento Groundwater Authority (SGA) is a joint powers authority originally formed in 1998 to manage the North Basin (SGA, 2014) in response to descending groundwater levels. Up until the early 2000s, groundwater levels had been generally declining in Sacramento County for the previous 50 years, with many areas declining at a rate of 1.2 to 2.0 feet per year. A groundwater depression that was evident in 1968 significantly expanded and deepened in 1996. The SGA developed a Groundwater Management Plan (GMP) in 2003, with several updates since. The current GMP was completed in 2014 and identified the following four basin management objectives²⁴:

1. Maintain groundwater elevations in the SGA area that provide for sustainable use of the groundwater basin.
2. Maintain or improve groundwater quality in the SGA area to ensure sustainable use of the groundwater basin.
3. Maintain groundwater levels to prevent inelastic land surface subsidence that would damage infrastructure or exacerbate flooding.
4. Protect against adverse impacts to surface water or groundwater resulting from the interaction between groundwater in the basin and surface water in the American River, the Sacramento River, and other surface water bodies within the SGA area.

The SGA has implemented a groundwater accounting framework that allows for SGA member agencies to account for groundwater banking and conjunctive use efforts and includes consideration and monitoring of groundwater levels. This information is used to proactively manage the basin’s storage capacity and available yield to support a conjunctive use strategy.

As a result of these efforts, SGA reports that groundwater elevation levels have stabilized, or in some cases increased. SGA is also the California Statewide Groundwater Elevation Monitoring (CASGEM) reporting agency for the basin conditions. As a member of SGA, OVWC continues to track contamination threats and participate in conjunctive use programs or other projects to minimize the risk of contamination plumes. The comprehensive SGA basin monitoring program and other strategies to mitigate groundwater overdraft on a regional basis are included in the SGA GMP, located at <https://www.sgah2o.org/programs/groundwater-management-program/groundwater-management-plan/>.

Sustainable Groundwater Management Act (SGMA)

The enactment of the Sustainable Groundwater Management Act (SGMA) in 2014 required “management and use of groundwater in a manner that can be maintained during the planning and

²⁴ Sacramento Groundwater Authority, Groundwater Management Plan, Section 3.2. Full document can be accessed at, <https://www.sgah2o.org/management/>.



implementation horizon without causing undesirable results” (CWC § 10721(v)). SGMA empowered local entities to form Groundwater Sustainability Agencies (GSAs), whose purposes include implementation of SGMA. As such, SGA was designated as the exclusive GSA for its management area in early 2016. SGA has continually participated throughout the SGMA process, including development of the Groundwater Sustainability Plan (GSP), Emergency Regulations, Basin Boundary Modifications process, and the report on the surface water available for replenishment.

SGMA basin prioritization includes a process that identifies a groundwater basin as Very Low, Low, Medium, and High priority basins, with specific SGMA requirements for each. All basins identified as either High or Medium priority basins are required to be managed under a GSP or coordinated GSP (CWC § 10720.7). The North American Sub-Basin is identified as Medium/High priority (although not identified as being in critically overdraft conditions) and accordingly, must be managed under a GSP by January 31, 2022.

Although there are no current restrictions on OVWC’s ability to produce groundwater, basin sustainability may ultimately require certain limitations on groundwater production.

3.3 Water Transfers

OVWC receives all of its surface water from its wholesale agency, SJWD. OVWC does not own rights or contracts to additional water supplies that it could transfer or exchange. Should the Company develop groundwater supplies, OVWC could participate in a conjunctive use program that could result in transfer and exchange opportunities. At this time, OVWC does not plan on any transfer or exchanges. OVWC does maintain interconnections with some of its neighboring water agencies, including SJWD, Fair Oaks Water District (FOWD), and Citrus Heights Water District (CHWD). The interconnections allow for emergency or short-term supply augmentation between agencies.

3.4 Desalination Opportunities

OVWC does not foresee any desalinated water opportunities to provide additional supply. The service area is not located near any sea or brackish water supply sources, and there are no known brackish groundwater supplies nearby. Future issues and opportunities may provide for OVWC, through SJWD, to exchange water supplies with another agency that does have desalination opportunities. OVWC will continue to monitor potential opportunities and develop programs and alternatives as identified.

3.5 Water Quality

The quality of the water supplied to the Company by SJWD after treatment at its water treatment plant meets or exceeds drinking water standards. Table 3-2 shows the water treatment from OVWC’s 2020 consumer confidence report.



Table 3-2: Orange Vale Water Company Water Quality Report (2020 Consumer Confidence)

Water Quality Standards	Goal Level	Max Level	Range	Average
Primary Standards				
Arsenic	0.004	10	ND	ND
Barium	2	1	ND	ND
Fluoride (natural)	1	2	ND	ND
Nitrate (as N)	10	10	ND	ND
Uranium	0.43	20	NR	n/a
Chlorine Residuals	4	4	0.37 – 0.98	0.68
TTHMs (distribution system)	n/a	80	32 – 46	46
HAA5	n/a	60	20 – 46	46
Disinfection By-Product Precursors	1	2	0.8 – 1.25	0.97
Turbidity	n/a	95%≤0.3 NTU	100%	
Secondary Standards				
TDS	n/a	1,000	30	30
Specific Conductance	n/a	1,600	53 – 88	72.5
Chloride	n/a	500	1.8	1.8
Sulfate	n/a	500	3.8	3.8
Lead & Copper				
Lead	0.2	15	ND	
Copper	0.3	1.3	0.067	
Federal Unregulated Contaminates				
Bicarbonate (as HCO ₃)	n/a	None	13	13
Total Hardness (as CaCO ₃)	n/a	None	12	12
Sodium	n/a	None	1.6	1.6
Calcium	n/a	None	3.3	3.3
Magnesium	n/a	None	1	1



3.6 Summary of Existing and Planned Sources of Supply

The Company’s existing supplies are currently derived of wholesale surface water deliveries from the SJWD. SJWD’s surface water assets are made of various rights and contracts, and are diverted from Folsom Reservoir. The Company does have the ability to exercise groundwater appropriative rights from the North American Sub-Basin (DWR Basin 5-21.64) and has previously utilized groundwater as a supply. OVWC does not currently produce groundwater for a supply source, although the Company maintains emergency groundwater production facilities. Table 3-3 presents the Company’s anticipated supplies for the planning period.

Table 3-3: OVWC’s Normal Year Supply Projections (values in acre-feet per year)

Supply Type	Description	2025	2030	2035	2040	2045
Surface Water	SJWD Wholesale	3,700	3,800	3,800	3,800	3,900



Chapter 4

Water Use

Understanding water use characteristics is essential to enable the Company to reliably and cost-effectively manage its water supplies to continue to meet customer needs. This chapter characterizes the Company's customer water needs – current and forecasted over the next few decades.

Characteristics such as how water uses vary among different land use classifications, throughout the year, and under differing hydrologic conditions, all help with that understanding.

A thorough characterization and analysis provides a realistic prediction of future water use based upon the Company's past and current retail customer water use. Considerations of anticipated growth described in Chapter 2, new regulations, changing climate conditions and trends in customer water use behaviors all factor into a comprehensive projection of customer water use that becomes the foundation for integration with the Company's water supplies (see Chapter 3) to assess long-term water system reliability (see Chapter 5).

Several legislative changes were enacted since the Company completed its 2015 UWMP. The new requirements must be addressed in the 2020 UWMP in addition to completing requirements from the prior statutory language. While there have been many changes, the critically important items the Company must address are highlighted below:

- ◆ Provide quantified distribution system losses for each of the 5 preceding years. [CWC 10631(d)(3)(A) and (C)]
- ◆ Include a drought risk assessment (DRA) for a drought period that lasts five consecutive water years, starting from the year following the assessment, which would be 2021 for this round of UWMPs. The DRA requires a comparison of water supplies with total projected water use. Therefore, the Company must estimate projected water use for its service area for the years 2021 through 2025 as part of the water use projections. [CWC 10635(b)]
- ◆ Conduct an annual water supply and demand assessment for the service areas on or before July 1 of each year (following adoption of its 2020 UWMP) where the annual assessment includes current year unconstrained demand. The Company will consider "unconstrained demand" as the expected water use in the upcoming year, based on historical unconstrained water use and other factors, before any projected response actions it may trigger under its Water Shortage Contingency Plan (see Chapter 6). [CWC 10632.1]



This Chapter is organized as follows:

- ◆ Current Customer Water Use – This subsection presents water use data reflecting the Company’s retail customers for recent and current conditions.
- ◆ Compliance with 2020 Urban Water Use Target – This subsection documents the derivation of the Company’s 2020 GPCD value and comparison to the 2020 GPCD target.
- ◆ Demand Management Measures – This subsection provides a narrative description of each water demand management measure implemented by the Company over the past five years, and describes the Company’s planned measures for the foreseeable future.
- ◆ Forecasting Customer Use – This subsection presents the derivation and results of future water use forecasts for potable and non-potable water within the Company’s service area, including land-use classifications, unit demand factors, and estimation of distribution system losses. This subsection also estimates the variations in customer water use the Company should expect during years with low precipitation, and discusses longer-term climate change considerations.
- ◆ Forecasting Water Use for DRA and Annual Assessment – This subsection focuses on the subset of the customer water use forecast that is necessary for completing the 5-year DRA and defining the “unconstrained demand” for purposes of the Company’s annual water supply and demand assessment.
- ◆ Projecting Disadvantaged Community Water Use – This subsection presents the estimated water use necessary to meet lower income households, pursuant to California Water Code 10631.1.

4.1 Current Customer Water Use

As described in Chapter 2, the Company serves potable water to a little more than 5,500 customer connections. Water supplied is supplied from San Juan Water District (SJWD) through contractual agreements in place between SJWD and the Company (see Chapter 3) and delivered through an array of transmission and distribution pipelines to customer meters. The recent and expected water use trends, and the Company’s on-going demand management efforts targeting its customers provide a foundational basis for this UWMP’s water use forecast to 2045.

Furthermore, the actual water use in 2020 is the basis for determining the Company’s compliance with its 2020 gallons per capita per day (GPCD) retail water use target established in its 2015 UWMP. This subsection presents this relevant information.

4.1.1 Customer Water Use: 2016 to 2019

Recent customer water use can help the Company understand water use trends, effects of temporary use restrictions imposed during the most recent prolonged drought and recovery from such temporary restrictions, effects of long-term demand management measures, and other pertinent water use factors relevant to its forecast of future water use. Water Code Section 10631(d)(1) also requires the Company to quantify past customer water use.²⁵

²⁵ California Water Code Section 10631(d)(1)



Table 4-1 presents the Company’s past water use by customer classification for 2016 through 2019. These values are prior to considering distribution system losses. The Company tracks connections and use under six primary categories (see Table 2-1):

- ◆ Single-Family Residential
- ◆ Multi-Family Residential
- ◆ Commercial/Institutional
- ◆ Industrial
- ◆ Landscape Irrigation (including parks and commercial landscapes)
- ◆ Agriculture

Table 4-1: Customer Water Use: 2016 to 2019 (values in acre-feet)

	2016	2017	2018	2019
Single Family	2,506	2,751	2,787	2,744
Multi-Family	289	293	296	288
Comm./Inst.	153	165	154	142
Industrial	159	180	178	189
Landscape	126	134	133	146
Agriculture	22	25	3	12
Total	3,256	3,548	3,551	3,522

This historic data also provides insight into the relative ratio of differing customer classifications to each other as well as seasonal variations. For instance, single-family recovered after conservation mandates imposed in 2014 and 2015 began to be eased in 2016, stabilizing across 2017 through 2019. This customer class represents nearly 80% of the Company’s annual water use.

4.1.2 Customer Water Use in 2020

The Company’s customers are metered at their connection to the distribution system. These metered values are collected periodically for each customer account and summarized into annual reports prepared by the Company and for reporting to the SWRCB Division of Drinking Water and to DWR.²⁶

Table 4-2 represents the delivery to all the Company’s customers for 2020. It does not, however, include the distribution system losses inherent in a pressurized water delivery system that occur during efforts to treat, store and route the water throughout the extensive distribution system to each retail customer’s connection.

²⁶ The annual SWRCB report is referred to as the ‘electronic Annual Report’ or eAR, and the annual DWR report is known as the Public Water System Statistics or PWSS report.



Table 4-2: Customer Use: 2020 (values in acre-feet)

Use Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-family	106	126	134	136	298	349	500	450	446	298	242	122	3,207
Multi-family	18	19	22	19	27	28	35	40	38	20	27	17	310
Commercial/ Institutional	8	10	7	7	10	12	18	16	18	14	15	8	143
Industrial	5	7	7	7	16	24	36	35	30	19	19	8	213
Landscape	1	2	6	5	28	21	31	30	25	12	8	2	171
Agriculture	0	0	0	0	3	3	3	3	2	1	1	0	16
Customer Total	139	164	177	174	381	438	622	573	559	364	311	157	4,059

Further, comparing to the annual values in Table 4-1, the 2020 annual customer use is about 15% higher than the prior average use. Comparing the specific customer classifications, the 2020 data indicates the increase was primarily the result of greater demand from the single-family residential sector, though industrial and landscape use was also higher but had less of an overall quantity impact on the higher volume.

While new customers in 2020 could account for some of the increase, the Company did not add new accounts between 2019 and 2020. Rather, the higher-than-average use in the single-family classification was likely due to the pandemic that dominated 2020 and the multiple advisories and even government-imposed restrictions that resulted in many people working from, learning from, or simply staying at home.

Furthermore, when compared to the total delivered water from San Juan Water District, the metered use recorded in 2020 was slightly higher. The Company recognizes this anomaly and is actively reviewing meter data and continues to work on improved meter accuracy and loss prevention. However, for purposes of this UWMP and compliance with the UWMPA, the currently recorded data for 2020 customer use is being reported. If corrections are identified, data submitted to the DWR and the SWRCB will be updated accordingly.

4.1.3 Existing Distribution System Losses

Distribution system water losses (also known as “real and apparent losses”) are the water losses from the Company’s water distribution system up to the point of delivery to the customer’s system (e.g. up to the residential water meter).

Since 2016, the Company has been required to quantify its distribution system losses using the American Water Works Association (AWWA) Method (Title 23 California Code of Regulations Section 638.1 et seq.). An electronic copy of the audit in Excel format is to be submitted to the Department by October 1 of each year for the prior year’s estimated system losses, using DWR’s online submittal tool pursuant to Code of Regulations Section 638.5.

The 2020 estimate has not been officially submitted to DWR as of the drafting of this UWMP but is estimated to be approximately 175 acre-feet over the year, or about 5% of the water entering the retail



distribution system from the deliveries from SJWD. This value reflects real losses as well as apparent losses, such as from meter inaccuracies. Table 4-3 presents the distribution loss – representing both real and apparent losses. Values for 2016 and 2018 represent the AWWA reported losses.

As can be anticipated given the dynamic functions of a pressurized potable water distribution system, the estimated annual distribution system loss as a percentage of water entering the system will vary year-to-year and month to month. The Company is actively working to reduce transmission and distribution system real losses through pipeline and conveyance replacement, and apparent losses through meter replacement.²⁷ For purposes of this 2020 UWMP, the OVWC is using a distribution loss factor of 5% for future connections.

Table 4-3: Distribution System Loss: 2016 through 2020

2016	2017	2018	2019	2020
4.5%	7.8%	9.9%	2.3%	5%

4.2 Retail Compliance with 2020 Urban Water Use Target

Pursuant to California Water Code Section 10608.24(b),²⁸ the Company must demonstrate its 2020 water use met the GPCD target adopted in its 2015 UWMP. As set forth in the 2015 UWMP, the Company’s 2020 GPCD target was established as 241 GPCD, derived as the “gross water use” divided by the population during a defined baseline period, and reduced pursuant to one of four methods defined under California Water Code Section 10608.20(b). The Company’s 2020 actual GPCD must use the same methodology to derive “gross water use” for 2020, and then divide by the estimated 2020 population presented in Chapter 2.

As presented in the Company’s 2015 UWMP, gross water was determined to be the total water delivered by SJWD. This value was 3,981 acre-feet. This value represents both the customer deliveries shown in Table 4-2 and the distribution system losses recorded in Table 4-3. As described in Chapter 2, the Company’s population in 2020 was estimated to be 16,816. This results in a calculated 2020 compliance value of 211 GPCD, which is less than the OVWC’s established target. Thus, the Company is in compliance with CWC Section 10608.24(b). The compliance calculation parameters are summarized in Table 4-4.

²⁷ The Company is tracking the State Water Resource Control Board’s efforts to set a new distribution system loss standard and intends to comply with future regulations.

https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss_control.html

²⁸ 10608.24(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.



Table 4-4: Demonstration of Compliance with 2020 GPCD Target

2020 Volume into Distribution System =	3,981	acre-feet
Allowable Adjustments	0	acre-feet
2020 Gross Water Use =	3,981	acre-feet
2020 Population =	16,816	people
2020 Actual GPCD =	211	
2020 Target GPCD =	241	
Compliance Achieved?	Yes	



4.3 Demand Management Measures

Information on demand management measures (DMMs) implemented by OVWC are presented below. A discussion on past DMMs implemented, as well as current DMMs employed is provided. DMMs utilized by the Company assist in promoting conservation of supplies while reducing customer demands. The Company has relied upon these DMMs to meet water use targets and objectives, including SBX7-7 targets and conservation targets during the recent drought.

4.3.1 Water Waste Prevention Ordinances

The water waste prohibition is an ongoing component of the OVWC's water conservation program. The OVWC water waste ordinance²⁹ includes the following water waste prohibitions:

- Customer's water shall not be allowed to run off to adjoining property, roadside ditch, or gutter.
- Leaking pipes, fixtures, or sprinklers shall be repaired promptly within five (5) working days or less if warranted by the severity of the problem.
- All swimming pools, ponds and fountains shall be equipped with re-circulating pumps. Pool draining and refilling is only allowed for health, maintenance, or structural reasons and requires water OVWC approval.
- Open-hoses are not permitted. Automatic shut-off nozzles are required on all hoses.
- Use of a hose to clean sidewalks, driveways, patios, streets and parking lots is not permitted except for health and safety reasons.
- No irrigation is permitted between the hours of 10:00 A.M. to 6:00 P.M. The only exception is drip irrigation and commercial agriculture.
- No single-pass laundry system is permitted in commercial applications.

The water waste prohibition program is implemented depending on normal, dry, and drier year conditions. However, OVWC employees regularly patrol the service area and receive feedback from customers to ensure no water waste. The Company provides warnings per the Rules and Regulations, and will cut off water service if customers ignore the requirements.

The Company has implemented this DMM over the planning period and anticipates actively implementing this DMM during the planning horizon.

4.3.2 Metering

The OVWC service area is fully metered for all customer sectors including single-family, multi-family, commercial, institutional, and landscape irrigation since 2005. Beginning in April 2011, OVWC switched to monthly billing. The Company is currently conducting a "Meter Replacement Program". The current "touch-read" meters are being replaced with Automated Meter Reading (AMR) devices, which allow for automatic collection of customer use data. The AMR devices help the Company to better analyze and monitor customer use. Implementation of the replacement program over the last five years has

²⁹ Rule #6 of OVWC's Rules and Regulations, accessible at: <https://www.orangevalewater.com/rules-regulations>



resulted in approximately 20 percent of customer meters being transitioned to the AMR devices. OVWC anticipates full conversion to the AMRs within the next five to ten years, subject to funding availability. AMR devices are installed for all new connections in the service area.

The Company does not evaluate this for water savings as it provides an indirect benefit to the other quantifiable programs. The Company utilizes meters and conservation pricing to develop a value of water for its customers who then can utilize the quantifiable programs to reduce their water use.

4.3.3 Conservation Pricing

All OVWC connections are metered and charged on metered rates since 2005. The rates consist of three parts; fixed, volumetric, and assessment. The volumetric portion promotes customer conservation as the customer is charged based on the quantity used.

OVWC does not evaluate this program for water savings as it provides an indirect benefit to the Company's other quantifiable programs. The Company utilizes meters and conservation pricing to develop a value of water for its customers, who then can utilize the other programs to reduce their water use. OVWC has implemented this DMM over the planning period (2016-2020) and anticipates implementation for the period 2020-2045.

4.3.4 Public Education and Outreach

OVWC's public education and outreach programs include participation in local and regional events. The Company operates a booth at the Orangevale Farmers Market. The farmers market usually runs from May through September each year. OVWC engages the community at the farmers market by offering free materials aimed at increasing customer education on efficient water use. Although participation in the farmers market was limited during 2020, the Company anticipates continuing participation in this event when the opportunity arises.

The Company also presents water resource and efficiency presentation to the Orangevale Chamber of Commerce. The Company presents relevant information on local and regional water issues, including conservation and efficiency. As the presentations to the Orangevale Chamber of Commerce allow for further outreach and educational opportunities, OVWC anticipates continuing participation in this event for the planning horizon.

OVWC also participates in the Orangevale Town Fair (formerly known as Pow Wow Days) where staff offers conservation materials to the general public. Leak detection dye-kits, Plumbers Handbook, hose timers, and efficient hose sprayers and shower heads are distributed. OVWC anticipates further participating in this event for the planning horizon as it offers the Company further opportunities to promote conservation while educating on conservation and water resource issues.

In addition to local public education and outreach programs, OVWC also participates in a regional public education and outreach program through the RWA. In collaboration with 19 water provider members and other wastewater, stormwater and energy partners, RWA formed the Water Efficiency Program



(WEP) in 2001 to bring cost effectiveness through economies of scale to public education and outreach activities.

The WEP operates on an average annual budget of \$530,000 and is supplemented by grant funding. Grants are an important funding resource for the Program. Since 2003, the Program has been awarded \$13.2 million in grant funding for public outreach and education as well as a variety of rebate programs, fixture direct install programs, system water loss, individualized customer usage reports, large landscape budgets and more. Of those funds, \$3.8 million was awarded between 2016 and 2020.

The main function of the WEP is to develop and distribute public outreach messages to customers in the region by collaborating with its water provider members. The Program distributes these messages on a regional scale through regional media and advertising buys and was honored with the United States Environmental Protection Agency WaterSense Excellence in Education and Outreach Award in 2016. From 2016-2020, the WEP created a series of public outreach campaigns. Below is a summary of each campaign and highlighted achievements.

Following the historic 2015 California drought, the WEP launched the “Rethink Your Yard” Campaign in 2016 with a focus on prioritizing landscape watering, putting trees first and transitioning thirsty lawn and landscaping to beautiful, low water use, River-Friendly landscapes. The Program advertised the campaign through online ads, social media, commercial radio, Raley Field (local baseball stadium) and local billboards. The campaign featured local homeowners with their newly redesigned yards on billboards throughout the region.

The campaign launched in 2017 focused on encouraging customers to understand and deliver the amount of water their landscape really needs and to make permanent equipment changes to improve efficiency such as installing weather-based irrigation controllers, more efficient sprinklers and drip irrigation. The Program partnered on this messaging with local nurseries through a “Get Growing this Fall” initiative to encourage residents to plant in the fall when days are cooler and plants don’t need as much water to establish roots.

From 2018 through 2020, the regional campaign focused on tackling the landscape overwatering problem with a “Check and Save” message encouraging residents to check the soil moisture with a moisture meter before turning on sprinklers. To support this message, the Program provided free moisture meters via an online request form and at events. In 2019, WEP distributed 3,000 moisture meters to customers throughout the region.

These campaigns are implemented through both paid advertising buys and earned media from public service announcements (PSAs). Every year the campaigns can be heard on local radio stations such as Capital Public Radio and online through google, Facebook and YouTube advertisements. From 2016-2020, the WEP public outreach campaigns produced:

- Radio Advertising (2016-2020)
 - 3,443 radio advertisements ran
 - 17.2 million impressions
- Digital Advertising (Facebook, Google Display Network and Spotify) (2016-2020)



- 24.3 million impressions
- 262,900 clicks
- Additional advertising (billboards in 2016)
 - 1.8 million digital advertisements ran
 - 51.6 million impressions
- Public Service Announcements (Television and Radio) (2016-2020)
 - 20 million impressions
 - \$570,000 in value had they been purchased as advertising

The Program also continues messaging through its own Facebook page. From 2016-2020, the Program created about 60 Facebook posts a year featuring water saving tips and other relevant information. The WEP hosted several Facebook sweepstake contests including: Tree Hugger in 2016, where participants submitted pictures hugging a tree to raise awareness about the importance of healthy trees and the Under/Over Debate in 2020, where participants were asked to weigh in what is the proper way to hang toilet paper to raise awareness of toilet leaks. The winner of the Under/Over Debate sweepstakes received a case of toilet paper delivered via mail and gift card to a local hardware store.

The Program continues to utilize our public outreach website bewatersmart.info to reach customers throughout the region. The website contains regional and local water provider information on rebates and services, top ways to save, an interactive watering and water waste information map, a water-wise gardening database, recent press releases, the Sacramento Smart Irrigation Scheduler tool, and more. Educational information and customer services were modified to address the COVID pandemic in 2020 including online water efficiency lessons for kids, a list of nurseries that offered curbside pick-up, virtual water wise house calls and numerous virtual educational customer workshops. Between 2016 and 2020, the website averaged 96,000 unique visitors per year.

For more targeted outreach, the Program distributed quarterly e-newsletters to participating residents. The e-newsletters are filled with water savings tips, upcoming events and other interesting articles. They are usually timed around changes in the weather to help signal the need for residents to adjust their irrigation systems, such as day light savings coupled with a message to dial back sprinkler systems. The e-newsletter reaches 6,300 households.

Every year the WEP selects 3 public events to attend for the public to interact with local water efficiency staff. This provides an opportunity for the region to communicate its messages in person. Events have included the Sacramento Home & Landscape Show at Cal Expo, Creek Week, Harvest Day, Farm-to-Fork Festival and several Earth Day events. Additionally, RWA, in coordination with participating local water providers, hosts an annual Mulch Mayhem event in which customers can pick up a truck load of free mulch from selected locations throughout the region. All in-person regional events were canceled in 2020 due to the COVID pandemic.

The Program is also very active in communicating to local media outlets such as the Sacramento Bee. Between 2016 and 2020, RWA issued 50 press releases on WEP activities and regionally significant news and participated in nearly 30 radio public affairs interviews. The RWA and the WEP were mentioned in dozens of news articles published by local and regional media outlets both within and outside of the Sacramento region during the same time frame.



To support public outreach messaging and water savings tips, the Program also coordinated several regional rebate programs, which were partially funded by state and federal grants. A variety of rebate options were provided including toilets, clothes washers and irrigation efficiencies (full summary in Table 4-5). Collectively these rebates and installations will produce an estimated lifetime (10 years) savings of 6 billion gallons of water and 6.4 million kilowatt hours of energy.



Table 4-5: Regional Rebates and Installations (2016-2020)

Rebate/Installation Type	2016	2017	2018	2019	2020	Lifetime Water Savings per Type 2016-2020 (acre-feet)	Lifetime Energy Savings per Type 2016-2020 (kWh) ²
High Efficiency Clothes Washer Rebates	491	480	453	366	518	341.3	118,094
High Efficiency Toilets Rebates	4,494	3,124	2,255	4,868	904	1,572.2	544,076
Smart Irrigation Controllers Rebates	245	358	801	556	1,298	2,049.7	709,299
Irrigation Efficiencies Rebates ¹	21,271	5,879	5,548	1,724	NA	11,620.0	4,021,178
Turn Replacement Rebates (square feet)	376,613	584,535	236,064	85,375	NA	1,456.5	503,980
Toilet Direct Installation	1,943	4,542	968	NA	NA	728.6	252,066
Showerhead Direct Installation	1,141	2,512	704	NA	NA	683.1	236,447
Faucet Aerators Direct Installation	1,162	4,314	317	NA	NA	56.8	19,648
Urinal Direct Installation	NA	403	79	NA	NA	31.3	10,878
Total Water Savings per year/Lifetime (acre-feet)	874.6	424.1	320.4	131.7	100.7	18,539.5	--
Total Energy savings per year/Lifetime (kwh)	303,626	146,717	110,915	45,509	34,799	--	6,415,666
¹ Includes: pressure regulator equipment, pipe and pipe fittings, drip or low volume equipment, and sprinkler heads or nozzles. ² Regional average for Energy Intensity is 346 kWh/acre-feet (GEI, 2014). NA = No funding available Lifetime = 10 years							

In addition to public outreach, the Program also coordinates school education activities. Since 2012, the Program has hosted the Water Spots Video Contest for high school and middle school students. The WEP provides a new contest theme each year and provides the region’s teacher and students with relevant facts and images to help develop 30 second video PSAs. Students submit their videos to RWA who hosts a panel of local celebrities including Monica Woods from ABC 10 to decide on a first, second and third place winner. The top 10 scoring videos are then posted online for public voting to select a “people’s choice” winner as well. Both teachers and student receive cash prizes and the winning videos are played at Raley Field during River Cats games and in select movie theaters throughout the region. The winning PSAs are incorporated into the WEP’s media activities as well. Past themes include *WATER MYTHS BUSTED!*, *H2o Hero*, and *Show Off Your Water Smarts*. Between 2016 and 2019, 450 videos were submitted (average of 90 videos a year). The 2020 Water Spots Video Contest was canceled due to the COVID pandemic.

4.3.5 Programs to assess and manage distribution system real loss

OVWC has conducted water audits and leak detection and repairs annually since 2002 using the methodology consistent with that described in the American Water Work Association (AWWA) Water Audit and Leak Detection Guidebook. A leak detection contractor is hired to survey approximately 10 percent of the system per year. Results indicate that very few leaks are detected, with a range of 0-4 leaks per year detected through the survey. OVWC operation and maintenance crews also monitor for leaks through visual inspection and repair leaks as detected. An estimate of water loss is calculated for each leak and maintained in a water loss database along with estimates of other non-revenue water such as flushing, fire, or others.

4.3.6 Water Conservation program coordination and staffing support

OVWC has an established conservation coordinator position whose duties include the following:

- Coordination and oversight of conservation program and BMP implementation.
- Preparation and submittal of the CUWCC BMP Implementation Report.
- Preparation and submittal of the USBR 5-Year Water Management Plan.
- Coordination of conservation efforts and programs with executive team, other staff, and other agencies.
- Preparation of annual BMP budgets.
- Customer demand analysis and tracking.

The conservation coordinator is a full-time position. In addition to the coordinator, OVWC also makes up to three full-time-equivalents available to assist the coordinator during surveys and audits, public information programs, rebate processing, customer demand analysis, or other tasks.

4.3.7 Other Demand Management Measures

Other DMMs utilized by the Company include:

- Membership in the Sacramento Regional Water Authority (RWA)



- Water Survey Programs for Single Family and Multi-Family Residential Customers
- Residential Plumbing Retrofit
- Large Landscape Conservation Programs and Incentives
- High Efficiency Washing Machine Rebate
- Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

More information on each is presented below.

Sacramento Regional Water Authority

OVWC is an active member of the Sacramento Regional Water Authority (RWA). RWA is a member of the California Water Efficiency Partnership (CalWEP, formerly known as CUWCC), promoting conservation and efficient water use. RWA is a joint power agency originally formed in 2001 to assist local water suppliers in implementing the Water Forum Agreement (WFA), specifically the conjunctive use, groundwater management, and water conservation elements of the WFA. Representing the interests of water providers in Sacramento, Placer, and El Dorado counties, RWA's goals, missions, and support efforts have evolved, and now include drought assistance programs, integrated regional water management planning and implementation, and procurement of grant funding. RWA seeks to influence legislative and regulatory policies and actions that may affect the region, including water supply reliability through proactive advocacy. The integrated goals of planning, implementation, communication, and advocacy represent a comprehensive and cohesive approach to identify regional projects and partnerships that help the region meet its future water needs.

Water Survey Programs

OVWC has implemented a water survey program for single-family and multi-family residential customers in the service area since 2003. Surveys are offered to all single-family and multi-family customers every year. OVWC will continue to offer these audits to all residential customers. This program includes the following:

- Instruct customers of meter reading program and applicable tiered rates.
- Detection of outside leaks, and instruct homeowners on interior leak detection.
- Provide low-flow devices as appropriate.
- Recommend High Efficiency Toilet (HET) replacements.
- Check irrigation system for leaks/overlap and determine timer functioning and seasonal scheduling.
- Measure landscape area and develop irrigation schedule.
- Provide customer with evaluation results, water saving recommendations, and other information.

The Company markets the program through its public outreach efforts. All residential customers are offered the survey. A database is kept of each customer receiving the audit along with other customer-specific information and notes. The database enables the Company to identify and analyze high-water residential users for identification of opportunities to manage demand.

Residential Plumbing Retrofit



This DMM was implemented through 2020. OVWC provides plumbing retrofit kits as part of the conservation program. The kits are available for all customers at their request and at the counter in the OVWC office lobby. The plumbing retrofit kits consisted of the following:

- High quality 2.5 gpm showerheads.
- 2.2 gpm faucet aerators.
- Toilet displacement device, dye tablets, and hose nozzles.

The Company markets the program through its public outreach efforts and during a water survey visit. All residential customers are offered the kit through the public outreach program. A database is kept of each customer receiving the kit along with other customer-specific information and notes. The Company identifies and analyzes high-water residential users through its customer database and directly targets these users by offering the retrofit kit as well as other DMM programs.

Large Landscape Conservation Programs and Incentives

OVWC provides education and assistance to its landscape, commercial, and institutional customers through audits, rebates, and information to improve their landscape water-use efficiency. The large landscape conservation program is offered to all accounts with dedicated irrigation meters and mixed-use metered accounts. The landscape audit consists of:

- Irrigation system check
- Distribution uniformity analysis
- Review and/or develop irrigation schedules
- Measure landscape area and total irrigable area
- Customer report and information

The Company markets the program through its public outreach program. All irrigation and CII customers are offered the survey. A database is kept of each customer receiving the survey along with other customer-specific information and notes. OVWC plans to conduct approximately 10 surveys per year for the next five years. Customer data is kept in the billing database and is used to evaluate impacts on demands over time. Accounts given water budgets will be analyzed for use versus the budget and contacted if additional assistance is required. The Company actively updates its demand analysis and water savings estimates to evaluate overall program effectiveness.

High-Efficiency Washing Machine Rebates

OVWC implemented this rebate program with the assistance of the local utility, Sacramento Municipal Utilities District (SMUD). SMUD's rebate program is based on rebates for efficient appliances, but also includes an amount for water efficiency in the overall rebate. SMUD notifies OVWC of number of rebates issued, and OVWC pays SMUD for the rebates that SMUD issues to OVWC customers. This program ran through 2020, and may be employed in the future (depending on funding and saturation level).

The Company marketed the program through its public outreach program. All residential customers were offered the rebate. A database is maintained of each customer who received the rebate along



with other customer-specific information and notes. Customer data is kept in the billing database and is used to evaluate impacts on demands over time.

Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

OVWC provides conservation programs for each CII account through audits, rebates, water budgets, and other special targeted programs. The CII audit includes:

- Site visit
- Evaluation of water-using devices
- Report identifying recommended efficiency measures and potential incentives available to the customer

OVWC previously participated in the spray and rinse valve replacement program through Regional Water Authority (RWA) in previous years. CII customers with mixed-use meters are also offered landscape audits and information through a survey program.

The Company markets the program through its public outreach program. CII customers are ranked on water use and the highest water users are targeted with outreach efforts. A database is kept of each customer receiving an audit along with other customer-specific information and notes. The Company plans to offer this program to all of its CII customers for the next five years. Customer data is kept in the billing database and is used to evaluate impacts on demands over time. As stated above, the Company actively updates its demand analysis and water savings estimates to evaluate overall program effectiveness.

4.4 Forecasting Customer Use

Forecasting future water demands begins with an understanding of existing customer demands and trends, recognizing the additional customers expected through growth, and considering the factors that will influence the water use of both existing and new customers well into the future – especially factors that directly affect the efficiency of water use.

Pursuant to California Water Code 10610.4(c), an urban water supplier “shall be required to develop water management plans to actively pursue the efficient use of available supplies.” One challenge from this directive is reflecting how the pursuit of efficient use is best represented in the forecast water uses that are the cornerstone of good planning. As required by the Act, the future water uses of both existing customers and those added over the 25-year planning horizon should reflect the “efficient use” of water.

In June 2020, the San Juan Water District completed a 25-Year Demand Forecast and Capacity Analysis (Analysis) to forecast the future water use for its own retail service area as well as the Wholesale Customer Agencies (WCAs).³⁰ The Company is one of the WCAs and a unique water use forecast was prepared for the Company’s service area. The Analysis included a detailed representation of the

³⁰ <https://www.sjwd.org/files/35d17be85/SJWD+25+Year+Study+-+Final.pdf>
2020 UWMP – Public Draft



methodology and assumptions used to forecast water use, including discussing how the efficient use of water will affect future customer water needs.

This 2020 UWMP uses the Company-specific forecast presented in the Analysis. The results are presented in Table 4-6. Based upon the estimated water use of the existing and new customers, the Company anticipates a continued increase in potable water use over the planning horizon. Values in the table have been rounded to the nearest 10 acre-feet to recognize the approximate nature of this forecast. This information will be used to evaluate the Company’s water system reliability in Chapter 5.

Table 4-6: Customer Water Use Forecast (values in acre-feet per year)³¹

Land Class		Forecast Demand (acre-feet/year)				
		2025	2030	2035	2040	2045
Existing Customers	Single Family	2,737	2,737	2,657	2,657	2,657
	Multi-family	294	294	294	294	294
	Commercial	165	165	165	165	165
	Industrial	180	180	180	180	180
	Landscape	34	34	34	34	34
	Agriculture	101	101	101	101	101
	Subtotal	3,511	3,511	3,432	3,432	3,432
	Non-revenue water	176	176	172	172	172
	Total Existing Customers	3,700	3,700	3,600	3,600	3,600
New Customers	Single Family	18	54	99	171	234
	Multi-family	4	8	19	23	34
	Commercial/Inst.	3	6	13	13	13
	Public Landscape	9	17	26	26	26
	Subtotal	33	85	156	232	306
	Non-revenue water	2	6	11	16	21
	Total Future Customers	35	91	167	248	327
Total Water Demand		3,700	3,800	3,800	3,800	3,900

4.4.4 Adjusting Water Use Forecasts for Single and Multiple Dry Year Conditions

The demand forecasts presented in the prior subsection represent expected water needs under normal hydrologic conditions. To accurately forecast potential maximum future water use, the forecasted normal-year water uses must be modified to reflect anticipated increases in demand during drier conditions.

³¹ This is Table 2-37 from the San Juan Water District’s 25-year Demand Forecast and Capacity Analysis. 2020 UWMP – Public Draft



The Analysis also provided this modified forecast. Conservative modifications to the normal year water use forecast to more likely reflect use conditions during drier and dry years are warranted to help adequately address water service reliability in Chapter 5. The Analysis made the following single-dry year adjustment and is used for this 2020 UWMP:

- Single dry year: Landscape irrigation needs would increase to reflect the generalized earlier start of the landscape irrigation season due to limited rainfall in the single driest year. Since this increase only applies to the outdoor portion of a customer’s forecast use, an adjustment factor of 5% is applied to the total normal-year forecasts to conservatively reflect the expected increase in demand for water for landscaping. This adjustment reflects rudimentary relationships between historic use variances and other conditions, and is meant only to highlight the anticipated increase in demands for purposes of Company planning.

The Analysis did not provide a multiple dry year adjustment. For purposes of this 2020 UWMP, the following adjustments are made for a 5-year drought.

- Multiple dry years: During multiple dry years, demands are also expected to increase similar to the single dry year. For multiple dry year conditions, the single dry year increase of 5% is held in each of the subsequent years. This is representative of an “unconstrained demand” as should be represented when evaluating whether Water Shortage Contingency Plan actions may be warranted.³²

These values are reflected in tables provided for the Drought Risk Assessment and Annual Reliability Assessment presented in later subsections.

4.4.6 Climate Change Considerations

Including climate change analysis into a water use analysis will assist the Company in understanding the potential effects on long-term reliability, which in turn, allows the Company to proactively begin planning appropriate responses. For example, hotter and drier weather may lead to an increased demand in landscape irrigation, especially during spring and fall months, increasing the pressure on water supplies that may have availability restrictions during these periods.

This potential is reflected in the consideration of the single dry year increase of 5% that is used for the water service reliability analysis, as discussed previously. Whether the elevated single dry year water forecast becomes more akin to the “normal” demand will become more apparent in the future as the Company continues to assess monthly water use trends throughout its service area.

³² California Water Code Section 10632(a)(2) states water suppliers should use “unconstrained demand” when performing their annual water supply and demand assessment.
2020 UWMP – Public Draft



4.5 Forecasting Water Use for the DRA and Annual Assessment

The California Legislature created two new UWMP requirements to help suppliers assess and prepare for drought conditions: The Drought Risk Assessment,³³ and the Annual Water Supply and Demand Assessment.³⁴ These new planning requirements were established in part because of the significant duration of recent California droughts and the predictions about hydrological variability attributable to climate change.

The Drought Risk Assessment (DRA) requires assessing water supply reliability over a five-year period from 2021 to 2025 that examines water supplies, water uses, and the resulting water supply reliability under a reasonable prediction for five consecutive dry years.

As a slight variant, the Annual Water Supply and Demand Assessment (Annual Assessment) undertakes a similar analytical exercise as the DRA but is designed to focus on actual, and not hypothetical, conditions anticipated for the upcoming water year. The previously presented water use forecasts facilitate both of these planning exercises as described in the following subsections.

4.5.1 Projecting Water Use for 5-Year Drought Risk Assessment

A critical component of new statutory language for the 2020 UWMP cycle is the requirement to prepare a five-year DRA using a supplier-defined hypothetical drought conditions expected to occur from 2021 through 2025. This drought condition is meant to allow suppliers to test the resiliency of their water supply portfolio and their Water Shortage Contingency Plan (WSCP) actions to meet severe conditions.

DWR recommends that suppliers first estimate expected water use for the next five years without drought conditions (also known as unconstrained demand). In other words, unconstrained demand is water demand absent any water supply restrictions and prior to implementing any short-term WSCP demand reduction actions. If normal water use includes water conservation programs, either currently implemented or planned for implementation, estimated water use values would incorporate the effect of those conservation programs when reporting projected water use during this period.

For conservative planning purposes, each year of the DRA assumes the 2025 projected demands (Table 4-6) increased by five percent. The resulting forecast use for 2021 through 2025 is shown in Table 4-7.

Table 4-7: Forecast DRA Water Use for 2021 through 2025 (acre-feet per year)

	2021	2022	2023	2024	2025
Total Water Use	3,885	3,885	3,885	3,885	3,885

4.5.2 Projecting Water Use for Annual Assessments

The Company will need to perform an Annual Assessment and submit the findings to DWR beginning in 2022. To evaluate the plausible water service reliability conditions for 2021 or 2022 as described in

³³ California Water Code Section 10635(b)

³⁴ California Water Code Section 10632.1



Chapter 5, requires two separate representative “current” water use conditions to be developed. The first condition uses the normal-year 2021 water use characterization used to develop the 2021 value in Table 4-7. This demand represents the water use under a normal condition and was provided as the “current” condition value in the SJWD’s Analysis for the Company. Alternatively, a “single-dry year current” forecast is also calculated to provide the Company with representative current unconstrained demands. This second characterization of current water use applies the same single-dry year adjustment described previously, represented by a 5% increase in the 2021 customer water use values. Table 4-8 provides the Normal Year and Single Dry Year current water use for the Company’s water service area. These are used in Chapter 5.

Table 4-8: Normal and Single Dry Year “Current” Water Use (acre-feet)

	Normal	Single-Dry
Total Water Use	3,700	3,885

4.6 Projecting Disadvantaged Community Water Use

Pursuant to CWC Section 10631.1, retail suppliers are required to include the projected water use for lower income households in 2020 UWMPs. Per California Health and Safety Code Section 50079.5, a lower income household has an income below 80 percent of area median income, adjusted for family size. For purposes of this UWMP, annual median income was derived from 2019 U.S. Census Bureau and determined to be about \$81,800 for the Company.³⁵ Therefore, 80% of this is estimated to be about \$65,400 per year. According to the detailed data, approximately 40% of the households in the District’s service area earn at or below this 80-percentile income.

For purposes of estimating the future water needs, 40% of the total single-family and multi-family connections are presumed to represent disadvantaged households by this definition. However, according to the State of California’s designations, there are no disadvantaged communities within the District’s Retail service area.³⁶ Applying this condition to the forecast water use for the entire District results in the estimate provided in Table 4-9.

Table 4-9: Estimated Low-Income Water Use Forecast (values in acre-feet)

	2025	2030	2035	2040	2045
Total Potable Use	3,700	3,800	3,800	3,800	3,900
Low Income Use	1,213	1,213	1,181	1,181	1,181
% of Total Potable	33%	32%	31%	31%	30%

³⁵ <https://censusreporter.org/profiles/16000US0654092-orangevale-ca/>

³⁶ <https://gis.water.ca.gov/app/dacs/>



Chapter 5

Water System Reliability

This chapter provides the Company’s water system reliability findings as required under Water Code Section 10635 and provides reliability information that OVWC may use in completing an annual supply and demand assessment pursuant to Water Code Section 10632.1.

Assessing water service reliability is the fundamental purpose for the Company in preparing its 2020 UWMP. Water service reliability reflects the Company’s ability to meet the water needs of its customers under varying conditions. The Company’s 2020 UWMP considers the reliability of meeting customer water use by analyzing plausible hydrological variability, regulatory variability, climate conditions, and other factors that impact the Company’s water supply and its customers’ water uses. The reliability assessment looks beyond past experience and considers what could be reasonably foreseen in the future. This chapter synthesizes the details imbedded in Chapters 3 and 4, and provides a rational basis for future decision-making related to supply management, demand management, and project development. This chapter presents two system reliability findings:

Five Year Drought Risk Assessment: The 2021 through 2025 Drought Risk Assessment (DRA) for the Company’s service area.

Long-Term Service Reliability: The reliability findings for a normal year, single dry year, and five consecutive dry years in five-year increments through 2045.

Annual Reliability Assessment: The reliability findings for an existing condition for both a normal year and single dry year that can inform an annual supply and demand assessment for 2021 or 2022.

The analysis shows the Company has reliable water supplies available for its service area through the planning horizons.

5.1 Five-Year Drought Risk Assessment

The Drought Risk Assessment is a new requirement for the 2020 UWMP cycle. The DRA requires a methodical assessment of water supplies and water uses under an assumed drought period that lasts five consecutive years.

SJWD has indicated the ability to provide OVWC supplies during the DRA-simulated drought. Nevertheless, the Company continues to encourage its customers to use water efficiently.



5.1.1 Constraints on Supply Source

SJWD’s water supplies to OVWC are subject to legal constraints through the CVP and State Board cutbacks and use restrictions as described in the 2020 SJWD UWMP. Total supply availability is also influenced by the WFA, which stipulates that SJWD supply can be cut back to a minimum of 54,200 acre-feet per year, however, it is not a legal mandate such as the CVP and State Board restrictions. As discussed above, impacts to surface water supply from climate change are not expected during the planning horizon. The potential for impacts to supplies from regulatory conditions is acknowledged, although the degree and duration of such impacts are unknown. Should regulatory conditions warrant reduction in supplies, OVWC may enact an appropriate Water Shortage Contingency Plan (WSCP) stage to address any identified supply shortage.

The quality of water from Folsom Reservoir is considered good as the drainage basin is mostly alpine-based snowpack at the higher elevations and forest at the lower elevations with little to no urbanization. There are no water quality impacts expected that would reduce supply.

There are no legal constraints in the wholesale/water supply agreement (WSA) regarding supply allotment or shortage requirements. Instead, the SJWD and retailers agree to water supply allocations during drought periods based on circumstances of each shortage period.

5.1.2 Five-Year Drought Risk Assessment Results

OVWC’s current supply is surface water purchased from SJWD. During the recent drought (2012-2016), SJWD delivered the required supply to OVWC. Based on SJWD’s recent reliability analysis, surface water supplies from SJWD are expected to be reliable under the five-year simulated drought. Pursuant to the WFA, the Company’s demands are reduced 15 percent during the DRA, with supplies being set equal to demands. As indicated from the results, the Company anticipates the ability to meet the expected WFA-reduced demands during the five-year simulated drought. Results are presented in Table 5-1.



Table 5-1: Five-Year Drought Risk Assessment (values in acre-feet)

	2021 Total	2022 Total	2023 Total	2024 Total	2025 Total
Total Water Use (acre-feet)	3,885	3,885	3,885	3,885	3,885
Total Supplies (acre-feet)	3,885	3,885	3,885	3,885	3,885
Surplus/Shortfall w/o WSCP Action	0	0	0	0	0
Planned WSCP Action	n/a	n/a	n/a	n/a	n/a
WSCP – Supply Augmentation Benefit	n/a	n/a	n/a	n/a	n/a
WSCP – Use Reduction Savings Benefit	n/a	n/a	n/a	n/a	n/a
Resulting % Use Reduction from WSCP Action	n/a	n/a	n/a	n/a	n/a



5.2 Long-term Service Reliability

Water Code requires the inclusion of three scenarios when considering the long-term reliability of a supply source, including Normal Year, Single Dry Year, and Five-Year Consecutive Drought scenarios. Table 5-2 presents the Reliability Assessment for purchased water for each year type. Surface water supplies for Single-Year and the Five-Year Consecutive Drought assume SJWD's reliability. SJWD provided information to OVWC regarding surface water supply availability during each year type. Through 2045, SJWD projects they will have sufficient surface water supply if demands are reduced 15 percent during dry years per the WFA. Average year surface water available listed in the table are SJWD's full entitlement, including contract water and surface water rights. Dry year (single and consecutive years) surface water available assumes 28,400 acre-feet of Pre-1914 surface water rights, 4,600 acre-feet of License 6321 water, 1,000 acre-feet of CVP M&I allocation, and 12,500 acre-feet of PCWA contract water. More information on development of supplies and demands for each scenario is presented in the following subsections.

Table 5-2: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year	Surface Water Available (acre-feet)
Average Year	2010	82,200
Single-Dry Year	1977	46,500
Consecutive Dry Years 1 st Year	2012	46,500
Consecutive Dry Years 2 nd Year	2013	46,500
Consecutive Dry Years 3 rd Year	2014	46,500
Consecutive Dry Years 4 th Year	2015	46,500
Consecutive Dry Years 5 th Year	2016	46,500

Notes:

SJWD supply table. Includes 33,000 acre-feet of SJWD's surface water rights, 1,000 acre-feet of SJWD's CVP Allocation, and 12,500 acre-feet of SJWD's PCWA Contract water.



5.2.1 Normal Year

Normal year supply and demand totals are presented in Table 5-3, below. Projected supply totals are taken from Table 3-3, while projected demands are from Table 4-6. Projections indicate there is sufficient supply for OVWC’s projected demands under the Normal Year scenario.

Table 5-3: Normal Year Supply and Demand Totals (values in acre-feet)

Category	2025	2030	2035	2040	2045
Supply Totals ¹	3,700	3,800	3,800	3,800	3,900
Demand Totals ²	3,700	3,800	3,800	3,800	3,900
Difference	0	0	0	0	0

Notes:

¹From Table 3-3.

²From Table 4-6.

5.2.2 Single-Dry Year

Single-dry year supply and demand projections are presented in Table 5-4, below. Projected demands during the single-dry year are increased 5 percent from Normal Year conditions (from Table 5-3). As seen in the table, projected supplies during a single-dry year are sufficient to meet the expected demands.

Table 5-4: Single-Dry Year Supply and Demand Totals (values in acre-feet)

Category	2025	2030	2035	2040	2045
Supply Totals ¹	3,885	4,000	4,000	4,000	4,100
Demand Totals ²	3,885	4,000	4,000	4,000	4,100
Difference	0	0	0	0	0

5.2.3 Multi-Year Drought

Table 5-5 presents the multi-year drought scenario supply and demand projections. Similar to the single dry year, demands are assumed to be unconstrained and therefore increased five percent during each of the multi-year drought years. This scenario assumes the same supply reliability throughout the drought, as supply is set equal to demands.



Table 5-5: Multiple-Dry Years Supply and Demand Totals (values in acre-feet)

Category		2025	2030	2035	2040	2045
First Year	Supply Totals	3,885	4,000	4,000	4,000	4,100
	Demand Totals	3,885	4,000	4,000	4,000	4,100
	Difference	0	0	0	0	0
Second Year	Supply Totals	3,300	4,000	4,000	4,000	4,100
	Demand Totals	3,300	4,000	4,000	4,000	4,100
	Difference	0	0	0	0	0
Third Year	Supply Totals	3,300	4,000	4,000	4,000	4,100
	Demand Totals	3,300	4,000	4,000	4,000	4,100
	Difference	0	0	0	0	0
Fourth Year	Supply Totals	3,300	4,000	4,000	4,000	4,100
	Demand Totals	3,300	4,000	4,000	4,000	4,100
	Difference	0	0	0	0	0
Fifth Year	Supply Totals	3,300	4,000	4,000	4,000	4,100
	Demand Totals	3,300	4,000	4,000	4,000	4,100
	Difference	0	0	0	0	0



Chapter 6

Water Shortage Contingency Plan

OVWC’s Water Shortage Contingency Plan (WSCP) is provided in Appendix A. The WSCP has been updated to address new requirements³⁷ of the CWC.

The WSCP presents the Company’s response actions, as well as regulations on end-uses that, when taken together, facilitate reduction in a supply-demand shortage conditions.

Key components of the WSCP include:

Legal Authorities – Explains the legal authorities relied on by SJWD to employ the WSCPs

Water Supply Reliability Analysis – Presents results from SJWD’s near- and long-term reliability assessments included in this 2020 UWMP.

Water Supply and Demand Assessment Procedures – Outlines the data and annual procedures SJWD will rely on to identify shortage conditions.

Water Shortage Stages – Presents the shortage response actions to be employed during the four water shortage stages.

Communication Protocols – Provides communication protocols SJWD will utilize for conveying WSCP messaging.

Financial Consequences of Enacting WSCP – Presents the potential financial consequences and mitigation actions resulting from enactment of the WSCP.

³⁷ In 2018, Senate bill 606 (Hertzberg) and Assembly Bill 1668 (Friedman) (collectively referred to as the 2018 Water Conservation and Drought Planning Legislation) were enacted, which included new requirements for water shortage contingency planning.



Appendix A

Public Outreach Information

Insert Information



Appendix B

Water Shortage Contingency Plan

B.1 Water Shortage Contingency Plan

This Water Shortage Contingency Plan (WSCP) presents Orange Vale Water Company’s (OVWC or Company) approach for identifying and mitigating various water shortage conditions should they arise. This WSCP satisfies the requirements of California Water Code (CWC) §10632 and has been produced as part of OVWC’s 2020 Urban Water Management Plan (UWMP) update, although the WSCP can be amended, as needed, without the need to amend the UWMP. It is noted, the CWC does not exclude the Company from taking actions not specifically contained in its WSCP in response to supply shortage conditions.

This WSCP is applicable to any shortage condition identified or incurred by the District, including shortages identified by the annual assessment. Further, the WSCP shortage levels are also applicable to catastrophic interruption in supplies, including but not limited to, an earthquake, a regional power outage, and other emergency events.

B.1.1 Legal Authorities

OVWC is organized under the Nonprofit Mutual Benefit Corporation Law as defined in the California Corporations Code (CCC) §§7110-8910. Company Rule #6 restricts waste and requires that Company waters are to be used for beneficial purposes. This requirement is consistent with California Constitution Article X, Section 2, which declares and requires that water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use of water be prevented.

The aforementioned powers derived from OVWC’s organizing statutes are in addition to general powers granted to water distributors in CWC §§350-359. CWC §350 authorizes the governing body of a distributor of a public water supply to declare a water shortage emergency whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent there would be insufficient water for human consumption, sanitation, and fire protection. Upon a finding of such an emergency condition, the distributor can adopt such regulations and restrictions on the delivery and consumption of water as will conserve the water supply for the greatest public benefit, with particular regard to domestic use, sanitation, and fire protection (CWC §353). The regulations and restrictions remain in force and effect until the supply of water available for distribution within such area has been replenished or augmented,



and restrictions may include the right to deny new service connections and discontinue service for willful violations (CWC §355 and §356).

The Company will vote to adopt its UWMP and WSCP as stated in Resolution/Ordinance XXX and XXX, respectively. The two Resolutions authorize the implementation and enforcement of this WSCP, which is included in the 2020 UWMP.

OVWC also coordinates with any city or county within which it provides water supply services for the possible proclamation of a “local emergency” under California Government Code, California Emergency Services Act (Article 2, Section 8558).

B.1.2 Water Supply Reliability Analysis

OVWC’s water supply consists of surface water purchased from San Juan Water District (SJWD). The surface supply source can be impacted by climate factors, catastrophic events, and regulatory measures. The Company evaluates its overall water supply reliability through its Urban Water Management Plan (UWMP), as well as through other regional and SJWD planning efforts. The following summarizes the Company’s current understanding of its supply reliability.

As part of OVWC’s UWMP, reliability planning was conducted to evaluate the Company’s ability to meet demands. Two separate efforts were conducted to characterize both long- and near-term reliability scenarios. The Water Reliability Assessment is conducted for a normal year, single dry year, and a drought lasting five consecutive years, and is used to evaluate long-term supplies with demands over the next 25 years, in five-year increments. OVWC’s Drought Risk Assessment assumes the occurrence of a drought over the next five years, and aims to assess the Company’s near-term reliability.

Results from OVWC’s Water Reliability Assessment indicate the Company has ample supplies through 2045 to meet demands under the normal, single dry year, and five-year drought conditions. Similarly, OVWC’s Drought Risk Assessment indicates sufficient supplies to meet OVWC’s expected demands during an assumed drought occurring in the next five consecutive years (2021-2025).

OVWC’s supply is provided by the SJWD. There does exist the potential for OVWC to develop groundwater supplies within the North American Sub-basin (Basin 5-21.64, part of the larger Sacramento Valley groundwater basin). OVWC currently has emergency back-up wells capable of producing from the North American Sub-Basin, should conditions warrant. The potential for groundwater production offers OVWC another supply option, potential increasing the Company’s overall supply reliability.

OVWC’s current strategy to address supply shortages includes both demand reductions and supply augmentation depending on the declared shortage, as described below.

B.1.3 Annual Water Supply and Demand Assessment Procedures

OVWC conducts an annual analysis of supply and demand projections to help inform water resources management decisions for the coming year. The analysis incorporates numerous data sources used as



evaluation criteria to project probable demands and supply availability for the coming year. Sources to consider include:

- Projected weather conditions
 - Precipitation versus historical on monthly basis
- Projected Unconstrained Demand
 - Production versus historic on monthly basis
 - New customer growth
 - Identify artificially supplied water features separate from swimming pools and parks
 - Water Use Objective tracking
- Projected Supply Availability
 - Wholesale supply projections
 - Regulatory Conditions
 - State mandated conservation orders

The general procedure is listed below. OVWC may modify this process based on available data, significant events, process restrictions, or other external factors that may impact the process.

1. Compile existing weather data and available forecasts.
2. The projected dry year supply availability is based on SJWD’s dry year supply conditions, which assume 2015 conditions. The corresponding dry year supply available to SJWD totals 54,200 acre-feet³⁸.
3. Estimate unconstrained OVWC demands based on recent and representative customer use data. Development of unconstrained demand will incorporate recent use patterns (unit factors for each customer type) and anticipated customer growth.
4. Assess available supply based on projections for current year and dry year scenarios.
5. Identify and incorporate any applicable constraints (infrastructure, regulatory, etc.) regarding accessibility of supply.
6. Compare projected supplies with anticipated OVWC demands.
7. Develop, analyze, and propose water resource management strategies to address the projected demand to supply comparison, including reference to the water shortage stages identified in this WSCP.
8. Present to Board Annual Water Supply and Demand Assessment (and resulting conservation stage declaration, if applicable).

The general proposed timeline is as follows:

- Begin assessment by Company staff – March/April
- Present assessment to Board of Directors – May
- Submit to State per CWC §10632.1 – No later than July 1

³⁸ Based on limitation of diversions defined for conference years in San Juan Water District’s Purveyor-Specific Agreement in the Water Forum Agreement. 2015 was a conference year.



B.1.4 Water Shortage Stages

The following subsections and tables present information on the Company’s supply scenarios, including Normal Water Supply and the six water shortage stages. Results from the annual Water Supply and Demand Assessment are used to declare a respective shortage stage.

No provisions of this WSCP shall apply to fire hydrants, fire mains, fire sprinkler lines or other equipment used solely for fire protection purposes. Nor shall any provisions apply to any hospital, health care or convalescent facility or any other type of facility where the health and welfare would be affected by restrictions on water used, nor shall it apply to veterinary hospitals. Such facilities are encouraged to conserve water to the extent possible. However, this WSCP does apply to the outdoor grounds, yards, and parking areas of these facilities.

Normal Water Supply

Under Normal Water Supply conditions, the Company’s water supply and distribution system is expected to be able to meet all the water demands of its customers in the immediate future. Regulations for Normal Water Supply are applicable to all stages and include the following:

1. Water shall be used for beneficial purposes only; all necessary and wasteful uses of water are prohibited.
2. Water shall be confined to the customer’s property and shall not be allowed to run off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired within five working days or less if warranted by the severity of the problem.
5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic, or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the Company’s water conservation programs and rebates.



Stage 1 – Alert (10% Supply Shortage)
<p>Actions and regulations in place under Normal Water Supply conditions, plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 10 percent gap between supplies and demands.</p>
<p>Company Actions</p> <ul style="list-style-type: none"> • Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support. • Leak repair on Company mains and laterals receives higher priority. • Standard rates in effect. • Increased monitoring of customer use. • Accelerate applicable infrastructure repairs and improvements.
<p>Customer Actions</p> <ul style="list-style-type: none"> • Reduce total water use by 10% compared to normal use. Contact the Company or visit orangevalewater.com for tips and techniques to reduce indoor and outdoor water use. • Leaking customer pipes or faulty sprinklers shall be repaired within two working days or less if warranted by the severity of the problem. • Outdoor irrigation is limited to three days per week. Odd addresses, streetscapes, and medians shall limit watering to Tuesdays, Thursdays, and Saturdays; even addresses shall limit watering to Wednesdays, Fridays, and Sundays. • Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations. • Users of construction meters and fire hydrant meters will be monitored for efficient water use.

Stage 2 – Warning (25% Supply Shortage)
<p>Actions and regulations in place under preceding stages, plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 25 percent gap between supplies and demands.</p>
<p>Company Actions</p> <ul style="list-style-type: none"> • Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support. • Decrease system flushing frequency. • Implement Drought Rates consistent with California law. • Implement water waste/use patrols.
<p>Customer Actions</p> <ul style="list-style-type: none"> • Reduce total water use by 25% compared to normal use. Contact the Company or visit orangevalewater.com for tips and techniques to reduce indoor and outdoor water use. • Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem. • Outdoor irrigation is limited to two days per week on the assigned day, and shall be confined to customer’s property. Odd addresses, streetscapes, and medians shall limit watering to Tuesdays and Saturdays; even addresses shall limit watering to Wednesdays and Sundays. No irrigation is permitted on Mondays, Thursdays and Fridays. Irrigation should be limited to the minimal amount of water necessary to keep plants and trees alive. • Application of potable water to outdoor landscapes during and within 24 hours after measureable rainfall is prohibited. • Restaurants shall serve water only upon request.



Stage 3 – Crisis (50% Supply Shortage)
<p>Actions and regulations in place under preceding stages, plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 50 percent gap between supplies and demands.</p>
<p>Company Actions</p> <ul style="list-style-type: none"> • Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support. • No commitments will be made to provide service for new water service connections. • Increase water waste/use patrols.
<p>Customer Actions</p> <ul style="list-style-type: none"> • Reduce total water use by 50% compared to normal use. Contact the Company or visit orangevalewater.com for tips and techniques to reduce indoor and outdoor water use. • Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made. • Outdoor irrigation is limited to one day per week on the assigned day, and shall be confined to customer’s property. Even number addresses may irrigate only on Tuesdays and odd number addresses may irrigate only on Wednesdays. • Application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited. • Water for flow testing and construction purposes from fire hydrants and blow-offs using Company water supplies is prohibited. Prohibited uses include, but not limited to, dust control, compaction, or trench jetting. Use of regulatory compliant reclaimed water for construction purposes is encouraged. Reclaimed water is not currently available within the Company’s service area and would need to be obtained elsewhere. • Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations or unless specifically authorized by the Company. • Installation of new turf, lawn, and/or landscaping is prohibited until the Company moves to a Stage 2 or less. • Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water. • <u>Special Water Feature Distinction</u> – No potable water from the Company’s system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds, artificial lakes, and/or fountains is prohibited.



Stage 4 – Emergency (Over 50% Supply Shortage)
Actions and regulations from preceding stages plus those listed below. Actions will be identified to address each specific shortage situation to eliminate the gap between supplies and demands.
<p>Company Actions</p> <ul style="list-style-type: none"> • Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support. • Health and safety use of water only. • Declare Water Shortage Emergency in accordance with Section 350 of Division 1, Chapter 3 Water Shortage Emergencies of the California Water Code.
<p>Customer Actions</p> <ul style="list-style-type: none"> • Health and safety use of water only. • No outdoor irrigation is allowed.

B.1.5 Cross-reference to State Mandated Water Shortage Levels

The stages presented in this WSCP differ, consistent with DWR guidance, from the State identified shortage levels of 10, 20, 30, 40, 50, and greater than 50 percent shortage. Pursuant to CWC §10632(a)(3)(B), Table B-1 cross-references this WSCP’s shortage levels to the State identified levels above. OVWC supply characteristics and reliability are better suited for the existing four drought stages identifying 10, 25, 50, and >50 percent supply shortages.

Table B-1. Corresponding Shortage Levels

State Mandated Shortage Levels	OVWC WSCP Stages	
Stage 1: 0 – 10%	Stage 1 – Alert	0 – 10%
Stage 2: 10 – 20%	Stage 2 – Warning	10 – 25%
Stage 3: 20 – 30%	Stage 2 – Warning Stage 3 – Crisis	10 – 25% 25 – 40%
Stage 4: 30 – 40%	Stage 3 – Crisis	25 – 40%
Stage 5: 40 – 50%	Stage 3 - Crisis	40 – 50%
Stage 6: >50%	Stage 4 - Emergency	>50%



B.1.6 Enforcement and Variances

Water conservation enforcement measures for all stages, including Normal Water Supply, are outlined in the Company’s current rates and fees and include a charge for “unauthorized water use”. The sequence of customer notification, discontinuance of service and progressive reconnect fees are as follows:

- A. Notify Customer of water waste condition in writing offering Company conservation coordinator support, use of resource library, etc., to help correct the situation, and follow up with one-on-one contact.
- B. If the correction is not made a second letter will be sent giving specific date for correction and notice that the Company will, after that date, terminate service until a reconnection fee is paid and the correction is made.

The Company’s Rules and Regulations and Fees and Rate structure provide the additional details on enforcement procedures. Variances are reviewed by the staff and Board on case-by-case basis.

B.1.7 Communication Protocols

Communication protocols for the WSCP include public outreach and notification to customers and entities within service area upon a change in stage declaration. Information shall include and describe the appropriate shortage response actions for the declared stage. Such communication will be delivered by direct-mail, Company web-site, and media outlets. Other regional agencies, including SJWD and the Regional Water Authority (RWA), will be notified of the identified shortage and subsequent WSCP stage declaration.

OVWC will also coordinate with the community of Orangevale and Sacramento County, if anticipated water supplies and demands necessitate the declaration of a local emergency.

B.1.8 Financial Consequences of WSCP

The Company understand the potential for decreased revenues and increased costs during prolonged water shortage conditions and enforcement of excessive residential water use during a drought (compliance with Chapter 3.3, Division 1 of the CWC). The decreased revenues can be expected due to a reduction in water sales. Approximately 40 percent of the Company’s retail revenues are derived from volumetric charges³⁹. Assuming a reduction in sales commensurate with the particular WSCP stage declaration, a decrease in total revenues in the range of 4 – 20 percent may be expected.

Additional monitoring, public outreach, and enforcement is expected to increase total costs to the Company in declaring a water shortage. These additional efforts are prioritized for current staff, and other normal work efforts and projects are delayed or reassigned. If conditions warrant, the Company

³⁹ 2015 OVWC Urban Water Management Plan



will seek the assistance through additional staffing for third-party service providers. These costs depend on the level of support and will be evaluated on a case-by-case basis.

OVWC utilizes its financial reserves in response to financial impacts of reduced water sales during a WSCP stage declaration. The financial reserves allow the Company to maintain stable rates during times of imbalanced revenues and expenses. When the Company has generated revenue in excess of expenses, contributions to the reserve ensues. Conversely, when the Company has generated revenue in an amount less than total expenses, reserves are used to alleviate the financial shortfall. In addition to utilizing financial reserves, the Company may enact a range of management and financial resources depending on the specific situation that include:

- Consider Water Shortage Rate Structure enactment
- Capital project deferment
- Operational and maintenance expense deferment
- Increased revenues from penalties
- And others as identified

B.1.9 Monitoring and Reporting

The Company anticipates the ability to monitor customer use through Automated Meter Reading (AMR) devices. Data collected from the AMR devices allow for real-time tracking of water demands during a declared shortage stage. The ability to track performance metrics allow refinement and enhancement of the WSCP by providing valuable data, including information on customer use and system loss. The real-time monitoring offers insight on the efficacy of a declared shortage stage and associated shortage response actions.

Reporting on the implementation of the WSCP is conducted by OVWC staff. Specifically, at regularly scheduled Board meeting, staff will update the Board (and public) with information on the water efficiency program, including information on the performance of the declared shortage stage.

The Company will report to on the implementation of this WSCP as specifically required by the State, as applicable.

B.1.10 Response Action Estimates

The following table presents the individual estimated demand savings of each response action. Actual savings will likely vary greatly based on external influences, shortage stage level, and general customer understanding of drought severity. It is assumed the savings estimates are not necessarily additive, but when implemented together as a program with all the actions in each respective stage, they are intended and estimated to eliminate each stage’s identified supply to demand shortage gap.



Table B-2. Shortage Response Actions Measures Estimates

Stage	Shortage Response Action	Potential Shortage Gap Reduction
1+	Company – Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support.	3 – 5%
1+	Company – Leak repair on Company mains and laterals receives higher priority.	0 – 2%
1+	Company – Increased monitoring of customer use.	0 – 3%
1+	Company – Accelerate applicable infrastructure repairs and improvements.	0 – 3%
1	Customer – Reduce total water use by 10%.	up to 10%
1	Customer – Leaking pipes or faulty sprinklers shall be repaired within two working days or less if warranted by the severity of the problem.	0 – 1%
1	Customer – Outdoor irrigation is limited to three times per week. Odd addresses, streetscapes, and medians shall limit watering to Tuesdays, Thursdays, and Saturdays; even addresses shall limit watering to Wednesdays, Fridays, and Sundays.	3 – 5%
1+	Customer – Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.	0 – 1%
1+	Customer – Users of construction meters and fire hydrant meters will be monitored for efficient water use.	0 – 2%
2+	Company – Decrease system flushing frequency.	1 – 2%
2+	Company – Implement water waste/use patrols.	0 – 2%
2	Customer – Reduce total water use by 25%.	up to 25%
2	Customer – Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem.	0 – 1%
2	Customer – Outdoor irrigation is limited to two days per week. Odd addresses, streetscapes, and medians shall limit watering to Tuesday, and Saturday; even addresses shall limit watering to Wednesdays and Sundays. No irrigation is permitted on Mondays, Thursdays, and Fridays. Irrigation should be limited to the minimal amount of water to keep plants and trees alive.	5 – 20%
2	Customer – Application of potable water to outdoor landscapes during and within 24 hours after measureable rainfall is prohibited.	1 – 2%
2+	Customer – Restaurants shall serve water only upon request.	0 – 1%
3+	Company – No commitments will be made to provide service for new water service connections.	1 – 2%
3+	Company – Increase water waste/use patrols.	0 – 2%
3	Customer – Reduce total water use by 50%.	up to 50%
3+	Customer – Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made.	0 – 1%
3	Customer – Outdoor irrigation is limited to trees and shrubs. Irrigating turf grass is prohibited. Even number addresses may irrigate trees and shrubs only on Tuesdays and odd number addresses may irrigate trees and shrubs only on Wednesdays.	20 – 40%
3	Customer – Application of potable water to outdoor landscapes during and within 48 hours after measureable rainfall is prohibited.	1 – 2%
3	Customer – Water for flow testing and construction purposes from fire hydrants and blow-offs using Company water supplies is prohibited.	0 – 1%
3	Customer – Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations or unless specifically authorized by the Company.	0 – 2%



Stage	Shortage Response Action	Potential Shortage Gap Reduction
3+	Customer – Installation of new turf, lawn, and/or landscaping is prohibited until the Company moves to a Stage 2 or less.	0 – 3%
3+	Customer – Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.	0 – 1%
3+	Customer – No potable water from the Company’s system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds, artificial lakes, and/or fountains is prohibited.	0 – 1%
4	Company – Health and safety use of water only.	2 – 4%
4	Company – Declare Water Shortage Emergency in accordance with Section 350 of Division 1, Chapter 3 Water Shortage Emergencies of the California Water Code.	varies
4	Customer – Health and safety use of water only.	at least 50%
4	Customer – No outdoor irrigation is allowed.	15 – 25%

B.1.11 WSCP Refinement Procedures

The Company’s WSCP is an adaptive plan that allows for active refinement to respond to particular shortage conditions. The general procedures for refinement are presented below.

1. For each shortage response action, compare expected results with actual shortage response and identify any shortfall or over achievement.
2. Revise expected reduction for a specific shortage response action based on updated information.
3. Assess the aggregate expected reductions (from revised shortage response actions) for each shortage stage.
4. Revise stage declaration or modify stage shortage response actions to better balance demands with supplies.

The procedures presented above aim ensure an adaptive WSCP that is able to be relied upon under various and changing circumstances.



B.1.12 Plan Adoption, Submittal, and Availability

The WSCP (including subsequent updates) shall be adopted in accordance with standard Company procedures, including requirements for public participation (public hearing), and approval by the OVWC Board of Directors. Upon adoption, the WSCP will be provided to Sacramento County and submitted to DWR within 30 days. The adopted WSCP will be available on the Company’s website, as well as at the Company’s main office.

B.1.13 Seismic Risk Assessment and Mitigation Plan

Sacramento County has completed a Local Hazard Mitigation Plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390). Per DWR requirements, a copy of the most recent adopted plan is included by way of electronic reference at the following location:

<https://waterresources.saccounty.net/stormready/Pages/Local-Hazard-Mitigation-Report.aspx>

Sacramento County is currently in the process of updating the LHMP 2016. The update includes participation with other entities, including Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, Isleton, Rancho Cordova, and other special districts. The update is anticipated to be completed and finalized during 2021.



Appendix C

References

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