Public Review Draft – June 8, 2026

2025 Urban Water Management Plan

CITRUS HEIGHTS WATER DISTRICT

Prepared By:

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This 2025 Urban Water Management Plan was prepared under the direction of a California licensed civil engineer.

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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 as a limited resource, subject to ever-increasing demands and that 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 (AF) of water annually to prepare and adopt an Urban Water Management Plan (UWMP) every five years,[2] which shall 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 (WSCP).[4] Additionally, 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.

The UWMP is the legal and technical water management foundational document for urban water suppliers throughout California. A well-constructed UWMP provides 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 analyzing 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- and long-term planning conditions. In short, the UWMP

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

[2] CWC §10610 *et seq*.

[3] CWC §§10631-10635

[4] CWC §§10632

[5] CWC §§10632.1

gathers, characterizes, and synthesizes water-related information from numerous sources into a plan with local, regional, and statewide practical utility.

ES-1 Citrus Heights Water District

Citrus Heights District (District) is a public water agency located in northeastern Sacramento County and southern Placer County, approximately 20 miles northeast of downtown Sacramento. Formed in 1920 under the California Irrigation District Law, the District is governed by a three-member, publicly elected Board of Directors.[6]

The District provides potable water service to portions of the cities of Citrus Heights and Roseville, as well as unincorporated areas including Orangevale, Fair Oaks, and Carmichael. The service area encompasses approximately 7,780 acres and serves a population of approximately 66,600.

The District's primary water supply is treated surface water from the American River, purchased from the San Juan Water District (SJWD), which secures supplies through a combination of rights and contracts and serves multiple wholesale customer agencies in the region. Groundwater is used as a supplemental supply to meet peak, emergency, and drought-related demands, supporting a reliable and integrated system serving primarily residential, along with commercial and institutional customers. **Figure ES-1** presents the water service area.

ES-2 Water Service Reliability

Based on the information and analysis presented in this 2025 UWMP, the District anticipates reliable, sufficient water supplies necessary to meet expected demands under normal, single dry, and a five-year consecutive drought over the 25-year planning horizon through 2050. Under normal conditions, the District projects it will need approximately 13,200 AF to meet expected demands in 2050. The District's wholesale supplier (San Juan Water District, or SJWD) has confirmed the ability to deliver the amount of water necessary to meet the District's projected demands, including during dry year and consecutive drought year conditions. CHWD anticipates utilizing approximately 900 AF per year (AFY) of groundwater production during normal year types, and up to 3,000 AF during the single dry year and multi-dry year planning scenarios, while maintaining the ability to produce up to 5,000 AFY. The District can rely on remaining available groundwater capacity should circumstances change with respect to wholesale supply availability. The District has updated its Water Shortage Contingency Plan (WSCP) in conjunction with this UWMP in Section 6. The WSCP is a tool to address supply shortages identified through an annual assessment of available supplies and

[6] *A Brief History of Citrus Heights Water District*, available at: https://chwd.org/our-story/

unconstrained demand. The District's demand management and supply augmentation tools provide necessary actions to address and mitigate supply shortfalls, if necessary.

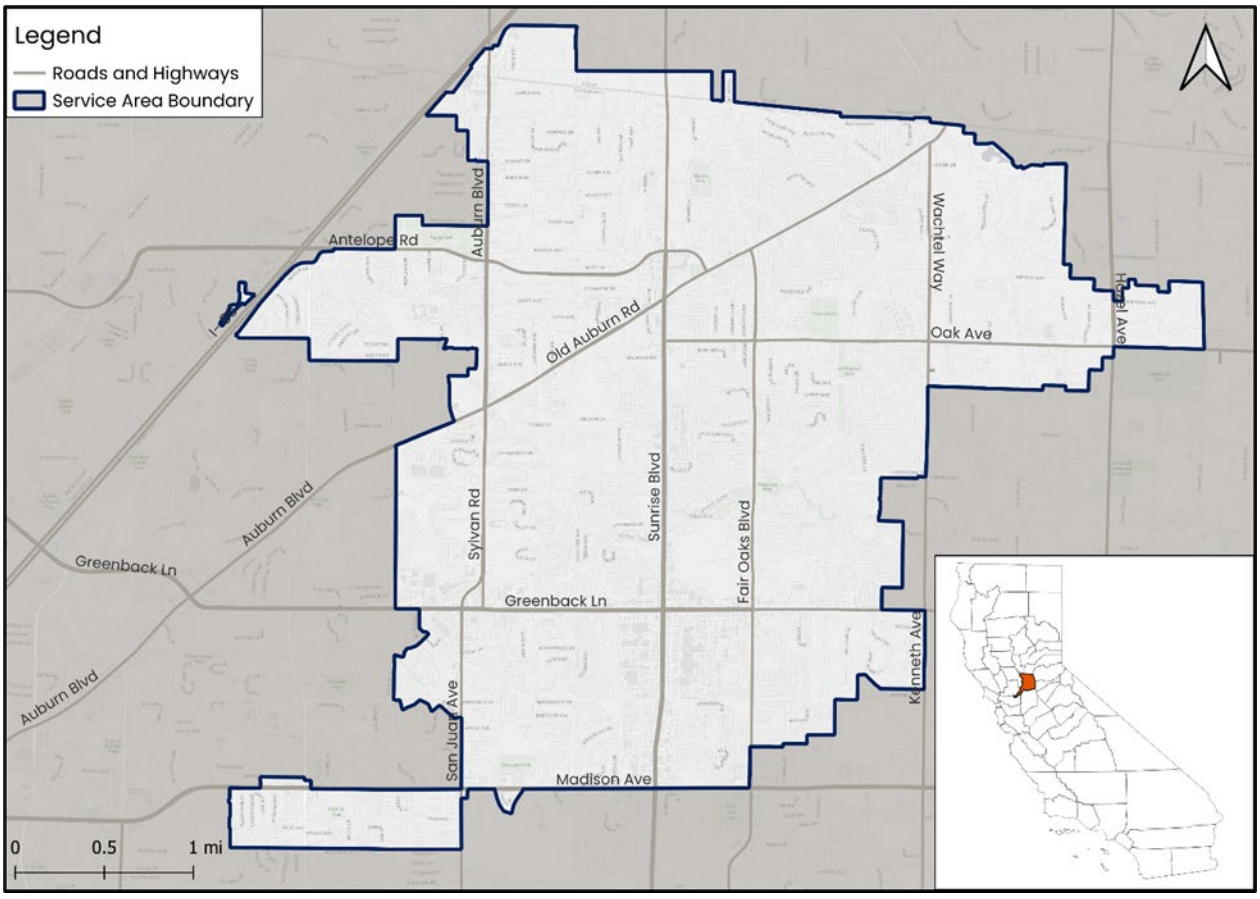


Figure ES-1. CITRUS HEIGHTS WATER DISTRICT WATER SERVICE AREA

CHAPTER 1
INTRODUCTION

For more than a century, the Citrus Heights Water District (CHWD) has been dedicated to providing safe, reliable, and high-quality water to its community. Founded in 1920, CHWD grew from the legacy of the North Fork Ditch, first constructed in 1856 to bring water from the American River to support Gold Rush mining and later, the fertile soils that fueled regional agriculture. From its early days serving 225 farms over 4.7 square miles, CHWD has evolved into a modern, independent water district committed to meeting the needs of a growing population.

CHWD's history is marked by a strong focus on water use efficiency, resource stewardship, and community service. As early as the 1920s, the District promoted efficient water use, introducing measures such as metering and irrigation scheduling. Over time, CHWD became a partner in the establishment of the San Juan Water District, which today serves as its wholesale water supplier. Through this partnership, surface water supplies from Folsom Lake are treated to the highest standards and delivered to CHWD customers across Citrus Heights, Roseville, and neighboring unincorporated communities.

Today, CHWD continues to build on its legacy of service by investing in infrastructure, planning for long-term reliability, and prioritizing customer needs. With a mission grounded in safety, dependability, and sustainability, CHWD's 2025 Urban Water Management Plan (UWMP) reflects both the District's historic commitment to water stewardship and its forward-looking approach to ensuring a resilient water future for generations to come.

1.1. Background and Purpose

The Urban Water Management Planning Act (UWMPA) was enacted by the California Legislature in 1983 to address the growing need for comprehensive water supply planning across the state's urban areas. Codified in California Water Code (CWC) §§10610-10656, the UWMPA requires urban water suppliers serving more than 3,000 customers or delivering more than 3,000 acre-feet (AF) annually to prepare and adopt comprehensive water management plans every five years. The District has prepared this 2025 UWMP to comply with the UWMPA requirements and addresses the District's water management planning efforts to assure adequate water supplies to meet forecast demands over the next 25 years.

As required by the UWMPA, this 2025 UWMP specifically assesses the availability of the District's supplies to meet forecast water uses during average, single-dry, and five

consecutive drought years through 2050. Verification that future demands will not exceed supplies and assuring the availability of supplies in dry-year conditions are critical outcomes of this plan. The 2025 UWMP is an update to the District's 2020 UWMP and presents new data and analysis as required by the California Department of Water Resources (DWR) and the CWC since 2020. This comprehensive water planning document 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 the District's managers, customers, and the State of California about the District's practices. It reflects the District's planning assumptions and goals and should be used in combination with other planning resources and documents over the UWMP planning horizon, representing the District's continued commitment to responsible water stewardship and proactive strategies that protect both water reliability and community prosperity.

1.2. Basis for Plan Preparation

The District operates a Public Water System as described in California Health and Safety Code §116275. The District qualifies as a Retail Urban Water Supplier as described in CWC §10617, providing water for municipal purposes to more than 3,000 customers or 3,000 AF of water per year. This qualification requires the preparation of an UWMP every five years.

The District's Public Water System details are listed in **Table 1-1**.

Table 1-1. Public Water System Information

Public Water System Number	Public Water System Name	Volume of Water Supplied (AF)	Number of Municipal Connections 2025
CA3410006	Citrus Heights Water District	11,027	20,446

The State Legislature passed numerous new requirements for the 2020 UWMP cycle which continue to apply to this 2025 UWMP. Since there have been no additional statutory changes to UWMP requirements between 2020 and 2025, this plan incorporates the same comprehensive framework established for 2020 UWMPs. Major requirements implemented in 2020 and continued in this 2025 UWMP are listed below along with references to the corresponding sections where 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 the District to analyze the reliability of its water supplies to meet its water use over an extended drought period. This requirement is addressed in Chapter 3—Water Supply Characterization, 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 2026 to 2030 that examines water supplies, water uses, and the resulting water supply reliability for 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 CWC. Incorporating the water system into regional or county hazard mitigation planning is an important aspect of this statute. Seismic risk is addressed in Chapter 6.

Water Shortage Contingency Plan: The Legislature modified the UWMPA to require a Water Shortage Contingency Plan (WSCP) with specific elements. The WSCP is a document that provides the District with an action plan for a drought or catastrophic water supply shortage. The WSCP is included in Chapter 6 of this UWMP.

Groundwater Supplies Coordination: For suppliers who rely on groundwater, UWMPs must include information regarding the applicable Groundwater Sustainability Plan or alternatives, describe the groundwater basin, identify basin priority or adjudication status, and describe the supplier's coordination with groundwater sustainability agencies or groundwater management agencies to maintain or achieve sustainable groundwater conditions. The District's groundwater supplies are described in Chapter 3—Water Supply Characterization.

Lay Description: A synopsis of the fundamental determinations of the UWMP is a statutory requirement. This section is intended for new staff, new governing members, customers, and the media, and ensures a consistent representation of the District's detailed analysis.

1.3. COORDINATION AND OUTREACH

The District has complied with the UWMPA by engaging in coordination with local and regional agencies to ensure a consistent, transparent, and regionally integrated approach to water resource planning. Coordination and communication among agencies play a critical role in promoting reliability, resilience, and sustainability of the region's water supplies. In accordance with CWC §10620(d)(3), the District coordinated the preparation of this UWMP with other appropriate agencies within and adjacent to its service area, including water suppliers sharing common sources, water management agencies, and relevant public entities.

The District actively participates in regional coordination efforts as a member of both the Regional Water Authority (RWA) and the Sacramento Groundwater Authority (SGA). The RWA includes most of the region's water agencies and focuses on regional water supply planning, program development, and representation on statewide water issues. The SGA is primarily responsible for managing and monitoring the Sacramento area's groundwater basin to ensure its long-term sustainability. Coordination with these regional partners ensures

consistency between the UWMP and related planning documents such as Groundwater Sustainability Plans (GSPs), General Plans, and Water Master Plans. These efforts strengthen integrated regional water management and support alignment with other regional and state planning initiatives.

In compliance with CWC §10621(b), the District provided notification to all affected cities and counties at least 60 days prior to the public hearing on this UWMP update, ensuring adequate opportunity for review and participation. Additionally, the District conducted outreach to community stakeholders and encouraged the involvement of diverse social, cultural, and economic elements within the service area, as required under CWC §10642. These efforts reflect the District's ongoing commitment to public transparency and engagement in water resource planning. A summary of these notifications is provided in **Table 1-2**, and copies of the notification letters are included in Appendix A.

TABLE 1-2. PUBLIC AND AGENCY 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				
City of Citrus Heights		Posted on District's Website	X	Publication on April 23, 2026
City of Roseville			X	
Placer County			X	
Regional Water Authority				
Sacramento County			X	
Sacramento County Planning Department				
Sacramento County Water Agency				
Sacramento Groundwater Authority				
Sacramento County LAFCo				
Sacramento Suburban Water District			X	
San Juan Water District	X		X	
General Public				

1.3.1. WATER SUPPLIER INFORMATION EXCHANGE

In accordance with CWC §10631(h), the District coordinated closely with its wholesale water supplier, the San Juan Water District (SJWD), to exchange data and projections necessary for both agencies' UWMPs. SJWD provides wholesale water to the District, and as required by the UWMPA, both agencies exchange projected water demand in five-year increments for at least 20 years into the future.

1.3.2. Statutory Requirements for Notice

In compliance with CWC §10621(b), the District notified the City of Citrus Heights and Sacramento and Placer counties on February 11, 2026 and on April 23, 2026 regarding its intent to update and adopt this 2025 UWMP. The notification was provided more than 60 days prior to the scheduled public hearing, fulfilling statutory requirements. Furthermore, consistent with CWC §10642, the District encouraged public participation by providing notice through newspaper publications of the hearing date, time, location, and methods for accessing the draft UWMP. Notifications were published in local newspapers and sent directly to interested stakeholders to promote inclusive community involvement in the plan's development.

1.4. Public Hearing, Adoption, and Submittal

In compliance with CWC §10642, the District held a publicly noticed hearing on June 23, 2026 [ANTICIPATED DATE OF PUBLIC HEARING, SUBJECT TO CHANGE] to review and consider adoption of the 2025 UWMP and associated Water Shortage Contingency Plan (WSCP). The hearing provided an opportunity for community members and regional stakeholders to comment on the proposed Plan. Following public input, the Board of Directors formally adopted [ANTICIPATED, SUBJECT TO CHANGE] the 2025 UWMP and WSCP by resolution.

Consistent with CWC §10644(a), the adopted Plan was submitted within 30 days to the California State Library, the City of Citrus Heights, and Sacramento and Placer counties. Additionally, the District electronically submitted the Plan and all required data tables to the DWR prior to the regulatory deadline of July 1, 2026, completing all statutory submittal obligations.

1.5. Document Organization

This 2025 UWMP is organized as follows:

- **Executive Summary** provides an overview of the purpose and findings of this 2025 UWMP.
- **Chapter 1** establishes the basis for the UWMP, describes the outreach activities and introduces the document organization.
- **Chapter 2** provides a description of the District's service area, demographic characteristics and climate, and describes the future population the District anticipates needing to serve.
- **Chapter 3** describes the 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 District's past and on-going demand management measures.
- **Chapter 5** presents the District'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** is the District'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:

The Citrus Heights Water District has prepared 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). This UWMP is considered an individual plan as it is not part of a Regional Alliance.

The body of the document provides narratives, analysis and data that DWR requests in its 2025 UWMP Guidebook, including changes to the California Water Code since 2020. Efforts have also been made to include enhancements to this document wherever possible as recommended in the UWMP Guidebook.

Unless otherwise noted, annual reporting is on a calendar year basis and units for volumetric values are reported in acre-feet (AF).

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 2025 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 2025 UWMP Guidebook.

CHAPTER 2
WATER SERVICE AND SYSTEM DESCRIPTION

CHWD is located in the northeast portion of Sacramento County and south Placer County, California, approximately 20 miles northeast of downtown Sacramento. The District was formed on October 25, 1920, under Division 11, the Irrigation District Act of the State of California Water Code. The District is governed by a three-member Board of Directors elected at large from divisions within the District.

CHWD provides water service to portions of the cities of Citrus Heights and Roseville, and portions of the unincorporated communities of Orangevale, Fair Oaks, Carmichael, and a portion of unincorporated Placer County, as shown in **Figure 2-1**. The service area covers approximately 7,780 acres in Sacramento and Placer Counties. A small portion of the District's service area, approximately 140 acres, is located in Placer County.

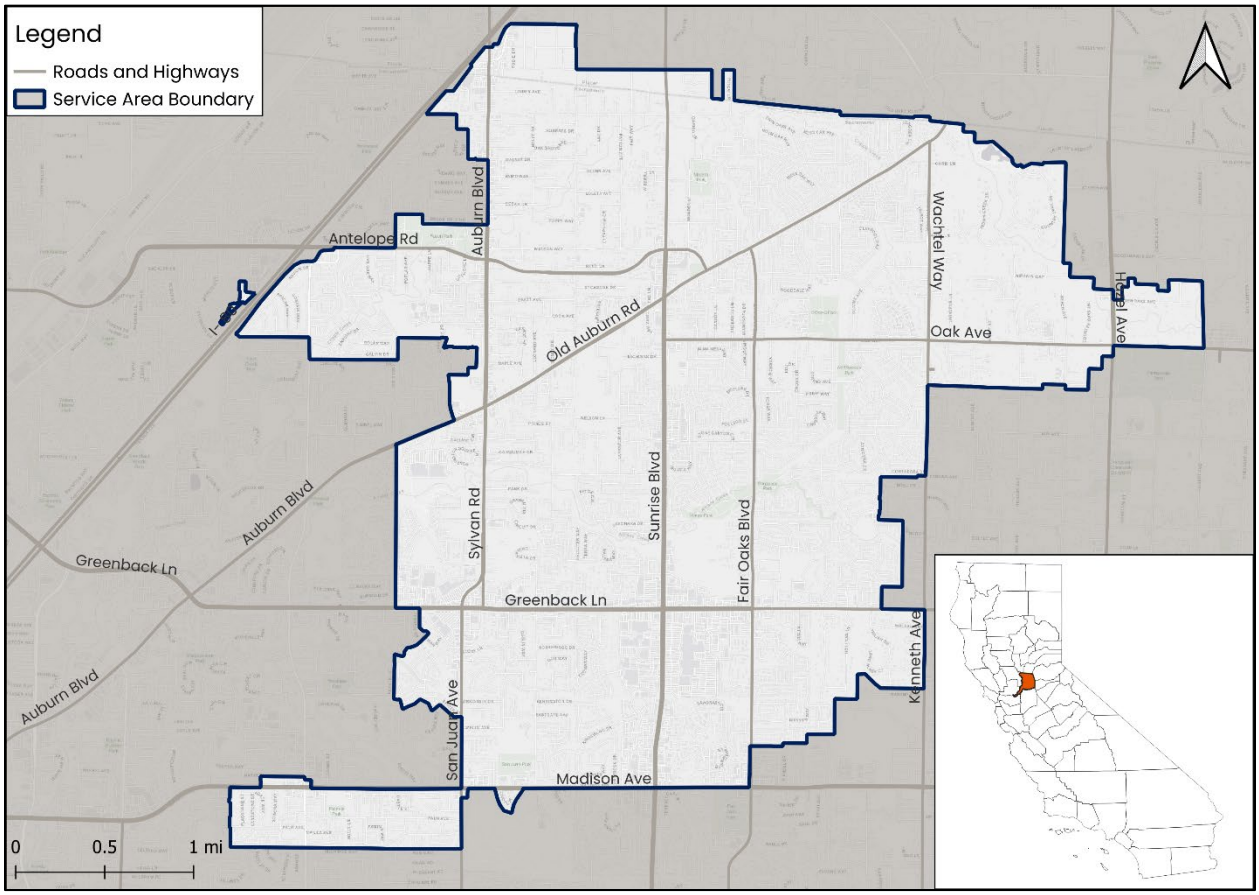


FIGURE 2-1. WATER SERVICE AREA

2.1. GENERAL WATER SERVICE AREA DESCRIPTION

The District initially used American River surface water supply from the North Fork Ditch Company to serve its customers. The customer base was primarily comprised of small family farms and limited urban areas. Concurrent with the completion of Folsom Dam in 1956, San Juan Water District (SJWD) was formed and acquired the facilities and water rights of the North Fork Ditch Company. SJWD has also contracted for additional water from the United States Bureau of Reclamation (USBR) and Placer County Water Agency (PCWA). CHWD now receives surface water from the American River through SJWD. Along with CHWD, SJWD provides treated surface water to Fair Oaks Water District, Orange Vale Water Company, portions of the City of Folsom, and SJWD's own retail service area. These agencies are collectively referred to as the SJWD Wholesale Customer Agencies (WCAs). CHWD continues to supplement its surface water supply with groundwater for readiness-to-serve purposes and to meet peaking, pressure, shortage, and emergency demands.

Table 2-1 below summarizes the District's water service connections by type.

TABLE 2-1. CUSTOMER WATER SERVICE CONNECTIONS

Customer Class	2020	2021	2022	2023	2024	2025
Single Family Residential	16,592	16,870	16,863	16,891	17,052	16,943
Multi-Family Residential	2,189	2,191	2,191	2,191	2,291	2,193
Commercial/Institutional	701	706	702	703	889	703
Industrial	57	57	54	55	58	55
Landscape	401	406	407	410	410	408
District Total	**19,940**	**20,230**	**20,217**	**20,250**	**20,700**	**20,302**

Wastewater in CHWD's service area is collected, treated and disposed of by the Sacramento Area Sewer District (SASD). Wastewater is collected and conveyed approximately 25 miles southwest, near Elk Grove, to the regional wastewater treatment plant.

2.2. SERVICE AREA CLIMATE

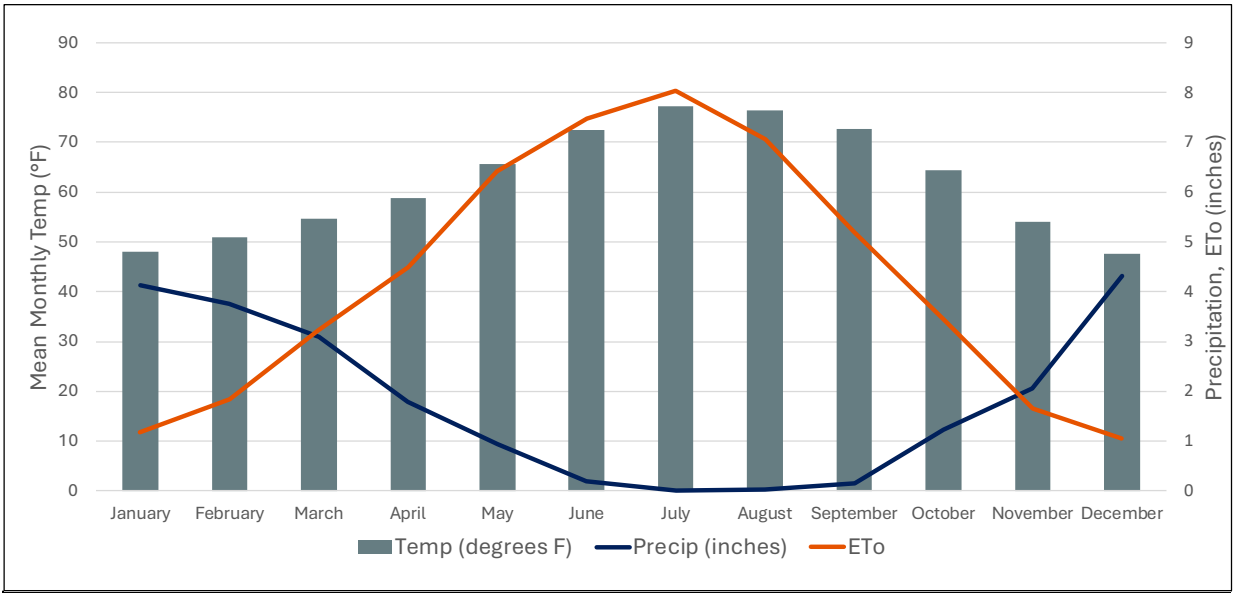
The CHWD service area experiences cool winters and hot, dry summers. The California Irrigation Management Information System (CIMIS) maintains historic climate data for select sites only. CIMIS does not have a station within the CHWD service area boundary and therefore the Fair Oaks station was utilized for the climate data analysis. The Fair Oaks station is located less than three miles outside the district service area and adequately represents the climate data for CHWD. The CIMIS website maintains historical climate records for the Fair Oaks station beginning in 1997 and reports the monthly temperature ranges from an average low of 39.0 (December) to an average high of 94.1 (July) degrees Fahrenheit (°F)[7]. During the historical period of record, extreme conditions were recorded at 21.3 °F for the lowest temperature (1998) and 119.5 °F for the highest (2019).

Precipitation data is also documented from the CIMIS Fair Oaks station. For the period 1997 through 2025, average rainfall was measured at 20.14 inches. The wettest months are January, February, March, and December while the driest months are typically July and August.

Evapotranspiration (ETo) varies seasonally. Standard monthly average ETo data was obtained from the CIMIS Fair Oaks station. Average annual ETo for the period 1997-2020 measured 50.79 inches.

Figure 2-2 presents the monthly average climate summary based on the historical data for the CIMIS Fair Oaks station.

[7] cimis.water.ca.gov



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temp	48.0	50.9	54.7	58.9	65.7	72.5	77.3	76.4	72.7	64.4	54.1	47.7
Precip	4.12	3.76	3.09	1.79	0.95	0.20	0.00	0.03	0.15	1.23	2.05	4.33
ETo	1.19	1.83	3.24	4.49	6.42	7.47	8.03	7.06	5.19	3.46	1.66	1.06

FIGURE 2-2. AVERAGE CLIMATE CONDITIONS[8]

2.2.1. CLIMATE CHANGE

The CWC recognizes climate change as an important consideration for water suppliers assessing drought risk, water conservation and use efficiency, and demand management and supply.

Precipitation patterns in the Sacramento region, shown in Figure 2-3, show considerable variability and uncertainty in future projections. While annual precipitation totals may not change dramatically, climate projections suggest a shift toward more intense, less frequent precipitation events.[9]

As shown by the trendlines in Figure 2-4, the region has experienced gradual warming, with annual temperatures having increased by approximately 2°F since the mid-20th century. This warming trend will likely continue, with potential temperatures increasing by 4.9-7.2°F by the end of the century.[10] Warming temperatures contribute to decline within the Sierra Nevada snowpack, with more precipitation falling as rain rather than snow and earlier snowmelt fundamentally altering runoff patterns. As a result, flows into reservoirs will be higher during winter months. However, much of this additional flow cannot be stored effectively as

[8] Data obtained from CIMIS

[9] See Chapter 7.1. *Projected Future Conditions* of the American River Basin Study (ARBS), a collaborative project between USBR and regional partners to develop basin-specific climate change adaptation strategies.

[10] See Chapter 2.3.5. *Projected Future Temperature* of the ARBS.

reservoirs approach critical operational thresholds and face stricter flood control levels during the winter.[11] Given its reliance on imported water from other watersheds, any effect from climate change on Sierra Nevada snowpack or flows into Northern California reservoirs will have a serious impact on water availability. Additional details and discussion regarding the potential effects of climate change are included in Chapter 3.

On the demand side, increasing temperatures and longer, more intense heat waves are likely to increase outdoor water demands, particularly for landscape irrigation, even as conservation measures continue to improve efficiency.

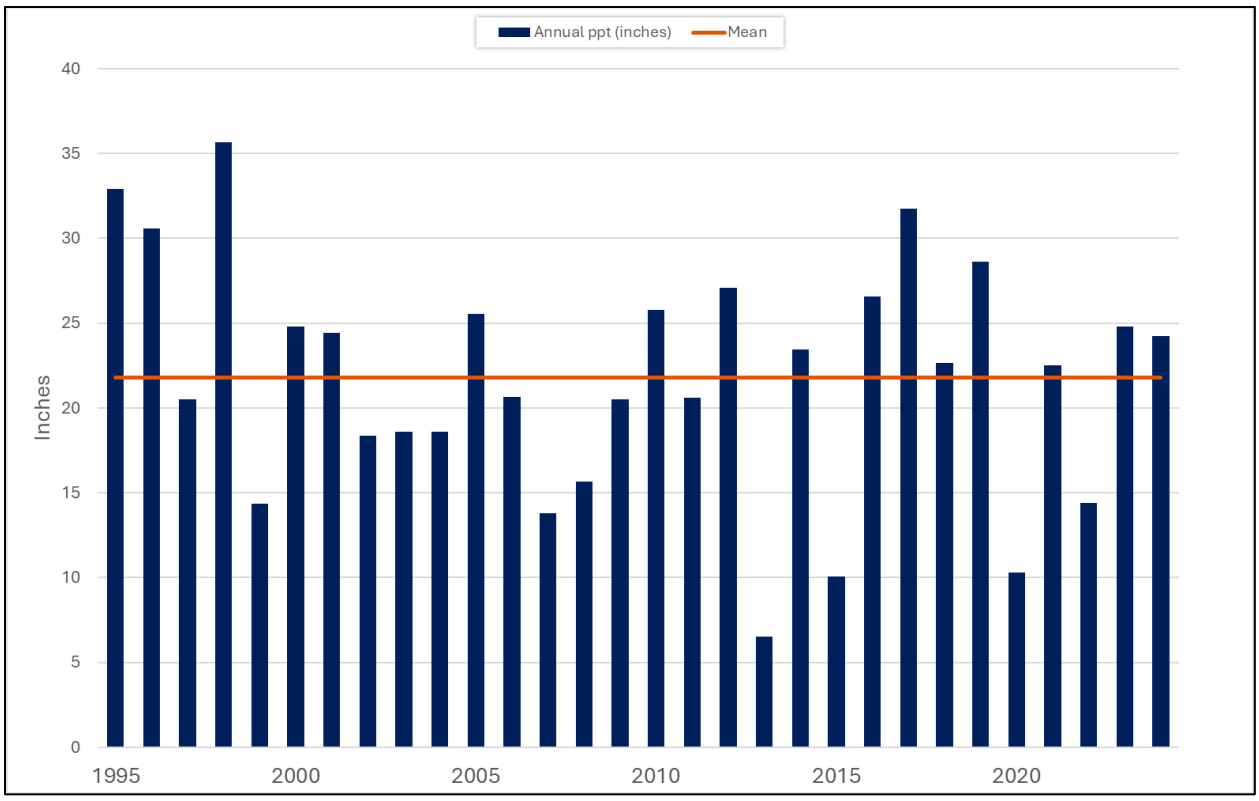


FIGURE 2-3. ANNUAL PRECIPITATION VARIABILITY (YEARS)

[11] See Section 6.2. *Overall Effects of Climate Change* of the Draft Delivery Capability Report published by DWR for 2025.

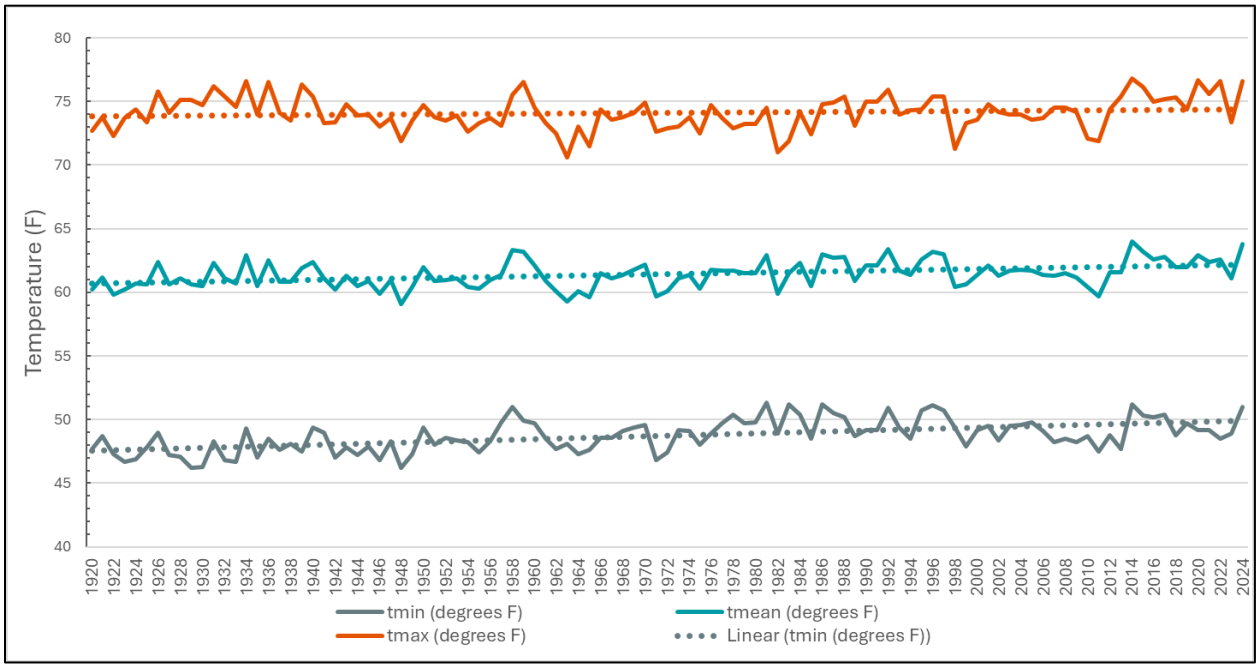


FIGURE 2-4. HISTORICAL ANNUAL TEMPERATURE (YEARS)[12]

2.3. CURRENT AND PROJECTED 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 driver on water use. These projections directly influence planning decisions for system supply, delivery, infrastructure, and demand management. Similarly, understanding the District's economic, social, and demographic trends is requisite for water management and planning. This section of the UWMP addresses these factors to provide a supportable basis for forecasting future water use.

Developing these planning frameworks and growth projections begins with calculating an informed estimate of the CHWD's current service area population, consistent with DWR requirements.

2.3.1. SERVICE AREA POPULATION AND DEMOGRAPHICS (CURRENT AND PROJECTED)

The CHWD service area boundary does not directly match up with census tract or block group zones. The existing service population is therefore estimated using the person per connection method. The United States Census Bureau (US Census) information regarding

[12] Temperature data is from the PRISM Climate Group https://prism.oregonstate.edu/ Location: Lat: 39.1239 Lon: -121.6174 Elev: 56ft

total population and number of housing units were used to estimate the person per connection within the District's service area. Geographic Information System (GIS) data was obtained from the US Census website[13] utilizing the most recent census data (2020). Census blocks were identified as within the District's service area, and the associated population and number of dwelling units were used to estimate the person per connection for a single census block. The average person per connection for each block within the District's service area is estimated as 2.83. The number of residential connections is then factored in to calculate the capita per connection. Projected populations assume the current capita per connection value of 2.83 and include projected connections from future developments, including the Sunrise Marketplace Redevelopment. See Chapter 3 for a more detailed discussion of projected customer connections. Population projections are summarized in **Table 2-2**.

TABLE 2-2. CURRENT AND PROJECTED POPULATION

Population Served	2025	2030	2035	2040	2045	2050
	66,617	68,221	69,825	71,428	73,032	76,309

2.3.2. CURRENT AND PROJECTED LAND USE

Per the City of Citrus Heights General Plan (City of Citrus Heights, 2020), land uses within the CHWD service area include Residential (various densities), General Commercial, Business Professional, Industrial, Open Space, Public, and Corridor Transition Overlay. The Citrus Heights General Plan does not specifically inform on land use projections but does identify the Sacramento Area Council of Governments (SACOG) as the responsible entity relating to such planning projections. The CHWD service area is included in the SACOG planning area and is mainly classified as "Established Community". With exception to the Sunrise MarketPlace project, no land use changes that would affect CHWD's water management planning are anticipated. Based on current and projected land use, SACOG's 2025 Blueprint projects approximately 2,300 new residential units within the service area by 2050.

Although in the early stages, redevelopment of the Sunrise Mall is expected. The proposed project includes redevelopment and conversion of the existing parcels into residential and commercial properties. A total of 2,220 residential units could be added, including a mixture of townhouses, multi-family lifestyle units (apartments, flats, and mixed-use), and senior housing, while commercial operations could include a hotel, retail shops, offices, and community and institutional developments totaling 1,730,000 square feet (Gensler, 2021).

The District has identified various commercial and residential infill development projects likely to be constructed within the planning horizon of this UWMP. **Table 2-3** below provides the dwelling unit potential for residential infill development as well as the total acres for commercial infill development. These metrics are used to project total number of future

[13] https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html

connections (and population), as well as the basis for estimating future demands (see Chapter 4).

TABLE 2-3. SUMMARY OF LAND USE PLANS IN SERVICE AREA WITH FUTURE RESIDENTIAL UNITS

Planned Development Name	Land Use Type	Dwelling Unit Potential	Acres
Expected Infill Projects - Residential	Residential	52	
Expected Infill Projects - Commercial	Commercial		26.18
Sunrise Tomorrow - Residential	Residential	2,220	
Sunrise Tomorrow - Commercial	Commercial		39.72
	Total	**2,272**	**65.90**

Land uses within the District's service area are presented in **Figure 2-5** below. As the service area overlies various land use jurisdictions (City of Citrus Heights, unincorporated Sacramento and Placer Counties), the figure provides the land uses as defined by each land use authority and were obtained from the relevant General Plans.

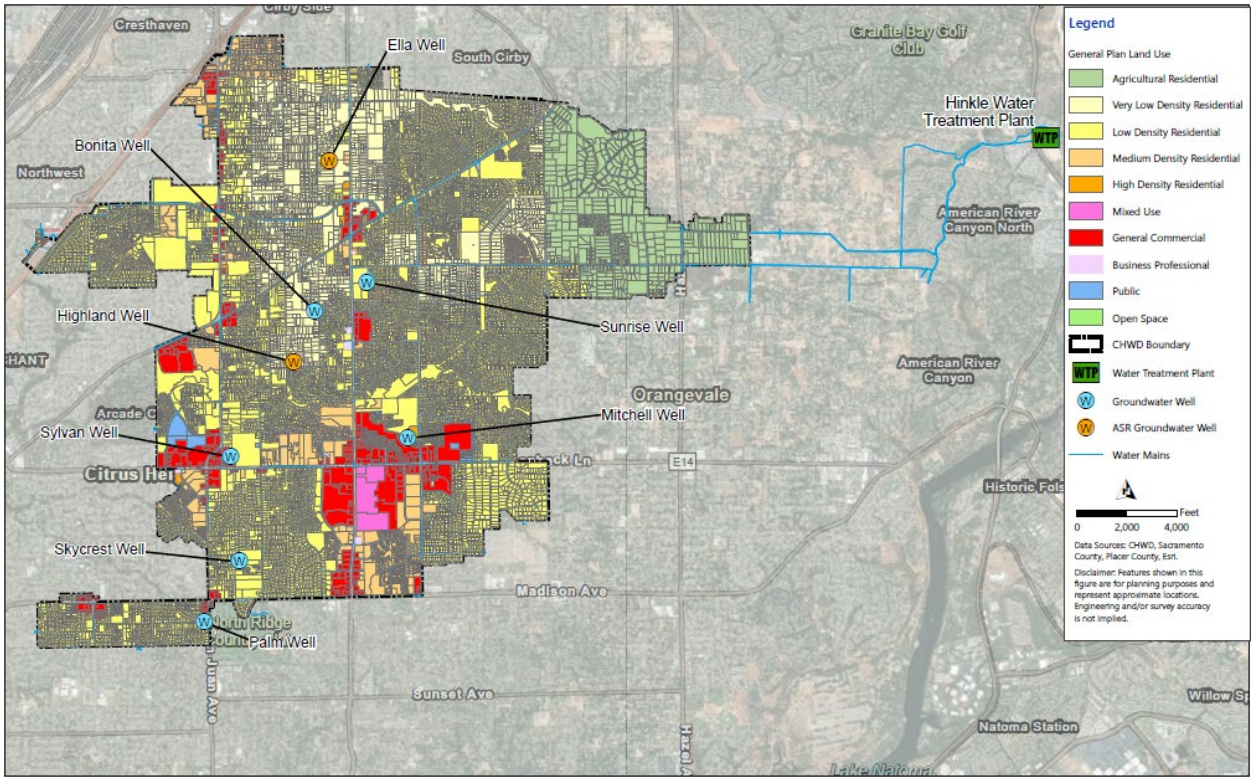


FIGURE 2-5. General Plan Land Use Map[14]

[14] General Plan Land Use mapping obtained from CHWD.

2.3.3. Economic Trends & Other Social and Demographic Factors

In the early years of the District, residential and agricultural growth was nominal. Since then, urban development continued to such a degree that presently there is no significant agricultural water use within the District. CHWD now serves a predominantly residential customer base, with a 2025 residential demand equal to 84 percent of its total annual retail deliveries.

In the years prior to the Covid-19 pandemic, some areas within the greater Sacramento Region experienced substantially low unemployment rates. **Figure 2-6** displays the Sacramento metropolitan area Labor Force and Employed populations as well as the resulting Unemployment Rate for the period January 2010 through September 2025. 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 14.3 percent (April 2020). Since then, the area has experienced an overall decrease in the unemployment rate, although recent trends indicate that the rate has rebounded from a local low of 3.1% (May 2022) up to 5.2% as of September 2025.

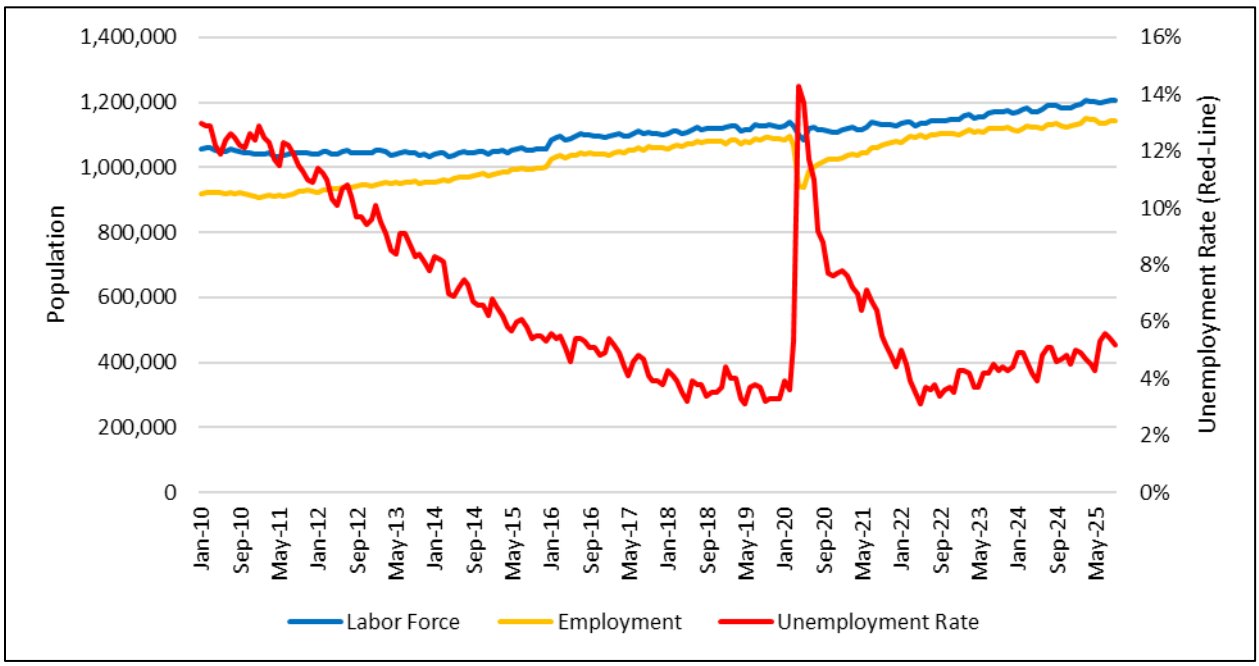


FIGURE 2-6. AGENCY AREA EMPLOYMENT DATA[15]

The United States (US) Census Bureau provides demographic statistics for the City of Citrus Heights. Although the City's boundary does not match CHWD's service area boundary,

[15] U.S. Bureau of Labor Statistics: Sacramento – Arden Arcade – Roseville, CA.

information pertaining to the City is considered a proxy for CHWD, as approximately 70 percent of the District's service area boundary is within the City boundary. Per the US Census Bureau, approximately 9.8 percent of the population within the City of Citrus Heights is considered "in poverty", while the annual per capita income for the period 2019-2023 is $36,645. The US Census Bureau also reports that 20.8 percent of the City's population (aged five years and higher) speak a language other than English at home, with 14.9 percent being foreign-born. **Table 2-4** displays the percentage of the City's population based on age groups.

TABLE 2-4. AGE DISTRIBUTION OF THE CITY OF CITRUS HEIGHTS

Age Range	Percent of Population
Persons Under 5 Years	5.4
Persons Under 18 Years	20.3
Persons Under 65 Years	81.8
Persons 65 Years and Older	18.2

Source: US Census Bureau, Quick Facts

2.4. DELIVERY SYSTEM DETAILS

The District operates a potable water system to provide water service to its customers. **Figure 2-7** represents the major features of CHWD's water system.

CHWD purchases surface water from SJWD. All of SJWD's surface supplies are withdrawn from Folsom Reservoir and treated at SJWD's water treatment plant. The District does not have any water treatment facilities within its service area. CHWD maintains four total connections with SJWD to receive its water supply. One connection on the CHWD 42-inch transmission main and three on the SJWD 72-inch Cooperative Transmission Pipeline.

In addition to treated surface water supplies from SJWD, the District also produces groundwater from multiple wells located throughout the service area. **Figure 2-7** also provides the approximate locations of groundwater production wells.

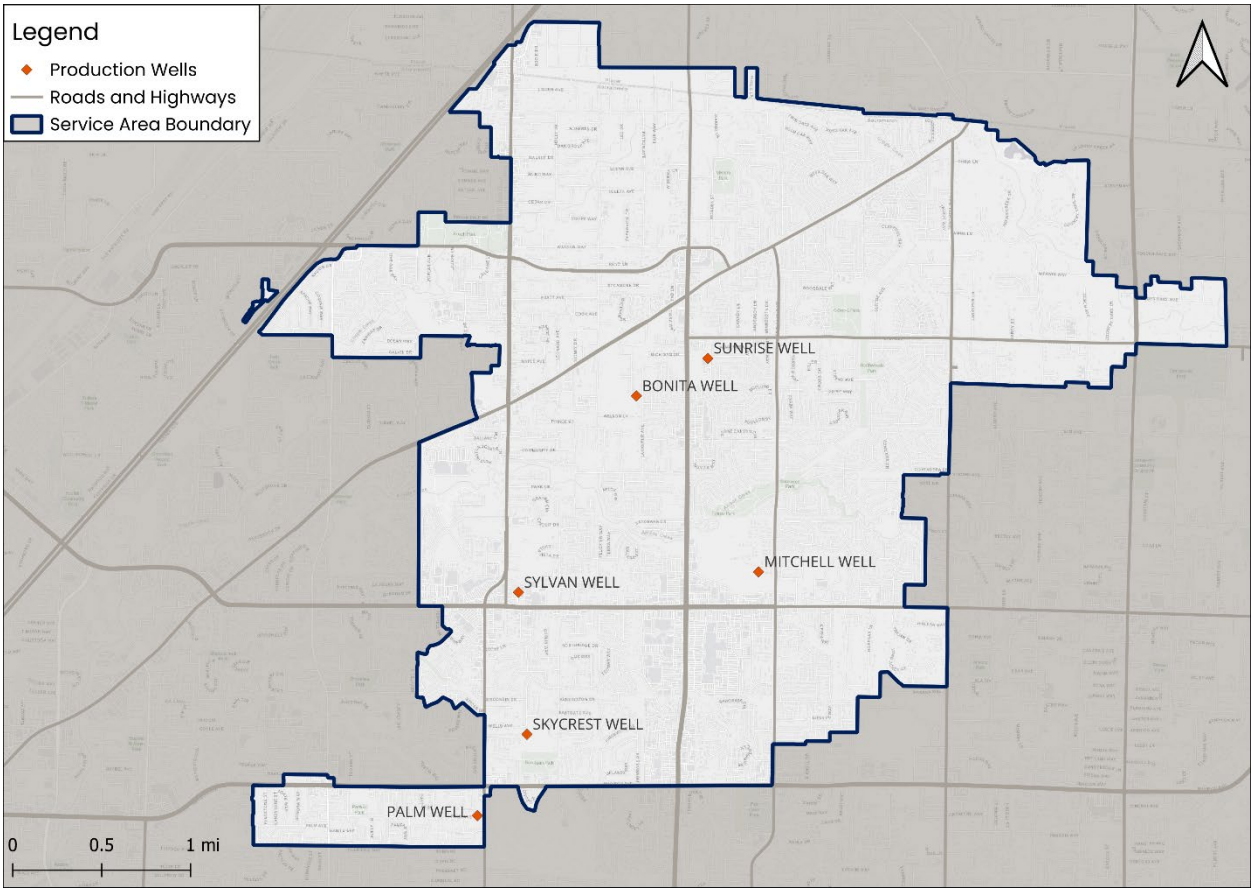


FIGURE 2-7. CHWD'S WATER SYSTEM

2.5. ENERGY INTENSITY

The energy required to supply water to CHWD's customer base is reported in **Table 2-5** below, per UWMP requirements. The treated surface water supplied by SJWD is gravity fed into CHWD's service area. The majority of CHWD's energy consumption to supply water is attributed to groundwater pumping. In 2025, a total of 421,790 kilowatt-hours (kWhs) were needed to deliver 673 AF of groundwater to CHWD's customer base. As the surface water supply is gravity fed to the District's distribution system, there is no energy use associated with SJWD supplies. The resulting energy intensity, expressed in kilowatt-hours per AF of water delivered (kWh/AF), is reported as 627 kWh/AF.

TABLE 2-5. ENERGY INTENSITY – TOTAL UTILITY APPROACH

Supply	Energy Consumed (kWh)	Volume of Water Entering Process (AF)	Energy Intensity (kWh/AF)
Surface Water	0	10,354	0
Groundwater	421,790	673	627

CHAPTER 3
WATER SUPPLY

CHWD uses both surface water and groundwater to supply its customers. The District purchases surface water from the San Juan Water District (SJWD). Groundwater is obtained from the District's four active wells and two standby wells. The District has drilled two additional wells and is in the design and construction phases for the well housing.

In addition to the connections to SJWD, the District also maintains interties with the City of Roseville, the Carmichael Water District, as well as the Fair Oaks Water District. These interties can be used during emergency events to facilitate overall supply reliability.

The following subsections present information on the District's supply portfolio and conditions regarding such supplies.

3.1. Surface Water Supply

Citrus Heights Water District purchases all of its surface water supplies from SJWD. CHWD does not hold any surface water rights of its own. SJWD obtains its surface water through a combination of rights and contracts totaling 82,200 acre-feet per year (AFY). The specifics and reliability of each right and contract is presented in SJWD's UWMP (Chapters 3 and 5) and summarized in Chapter 5 of this UWMP. All of SJWD's surface water supplies are withdrawn from Folsom Reservoir into SJWD's water treatment plant.

CHWD maintains a wholesale Water Supply Agreement (WSA) with SJWD to provide surface water, as does SJWD with all the WCAs. The WSA is dated 2008 and is valid until 2045. The wholesale WSA does not include a volumetric amount; rather it states that SJWD will provide CHWD the required supply. The other WCA contracts also include the same language. CHWD projects it will primarily rely on surface water to meet the majority of its customer demands.

CHWD maintains multiple connections with SJWD to receive its water supply, one on the CHWD 42-inch transmission main and three on the SJWD 72-inch Cooperative Transmission Pipeline. Barring the failure of these connections, there are no physical constraints to obtaining the required SJWD supply.

Table 3-1 provides the District's historical utilization of SJWD purchases for the period 2021 through 2025.

TABLE 3-1. HISTORICAL WHOLESALE UTILIZATION, 2021 – 2025 (VALUES IN ACRE-FEET)

Year	Utilization
2021	7,749
2022	7,968
2023	9,719
2024	10,783
2025	10,354

3.2. GROUNDWATER SUPPLY

The groundwater basin underlying the District is the North American Sub-basin, part of the larger Sacramento Valley groundwater basin. In the California's Groundwater Update 2003 (Bulletin 118), DWR identifies the basin as 5-21.64.

3.2.1. BASIN DESCRIPTION

Water-bearing formations beneath the District 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. CHWD's wells do not exhibit any water quality issues that impact its use as potable water supply or require treatment other than disinfection prior to service.

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 the District'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 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 AF. More information on the management of the basin is presented in the following subsections.

3.2.2. Groundwater Management

Sacramento Groundwater Authority (SGA)

The 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 objectives:

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.

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, CHWD 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://sgah2o.org/programs/groundwater-management-program/groundwater-management-plan/.

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)

The enactment of SGMA in 2014 required "management and use of groundwater in a manner that can be maintained during the planning and 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 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 there are no current restrictions on CHWD's ability to produce groundwater, basin sustainability may ultimately require certain limitations on groundwater production.

3.2.3. OVERDRAFT CONDITIONS

DWR Bulletin 118 does not identify the North American Sub-Basin as being in overdraft. Groundwater management efforts in the region through SGA and other partnerships have improved and stabilized basin groundwater levels. Hydrographs for the basin's monitoring wells are shown in **Figure 3-1** below and can be accessed at https://www.sgah2o.org/basin-conditions/groundwater-hydrographs/. The red points indicate the Spring season groundwater level measurement, usually correlating to the highest groundwater level for the year (before pumping for agricultural purposes). The y-axis displays the reported groundwater surface elevation above (or below) mean sea level.

FIGURE 3-1. HYDROGRAPHS FOR BASIN MONITORING

3.2.4. HISTORICAL GROUNDWATER PRODUCTION

CHWD maintains four active operating wells with a projected total yield of approximately 5,000 AFY based on approximately seven months operation during the dry season. Well production rates vary from 800 to 2,000 gpm. CHWD cycles its wells weekly to maintain operational readiness-to-serve capabilities and to supplement the surface water supply. Over the last five years, this "maintenance" groundwater production has averaged approximately 2,083 AFY.

CHWD plans to construct an additional four wells over the next 10 years to replace existing wells nearing their end of useful life and provide additional dry-year supplies. The District plans to maintain groundwater production capacity equivalent to at least 5,000 AFY from its well system. However, groundwater production could increase up to the full well capacities in successive dry-year scenarios. Well site availability could impact the number of wells constructed or the construction implementation schedule. The District continues to monitor its service area for potential well sites and obtains the land as available. The District actively evaluates its needs for new wells and will update the number or timing of new wells as appropriate.

Table 3-2 provides the District's historical utilization of groundwater for the period 2021 through 2025.

TABLE 3-2. HISTORICAL GROUNDWATER UTILIZATION, 2021 – 2025 (VALUES IN ACRE-FEET)

Year	Utilization
2021	4,334
2022	3,597
2023	1,124
2024	687
2025	673

3.3. OTHER WATER SOURCES

General information on other water sources is provided in the following subsections.

3.3.1. STORMWATER

Multiple entities are responsible for stormwater management within CHWD's service area. For portions within the City of Citrus Heights' boundary, stormwater is managed by the City of Citrus Heights and currently discharged to Arcade, Brooktree, and Cripple Creeks (including tributaries)[16]. For portions of CHWD's service area outside of the City's boundary (but within Sacramento County), Sacramento County Department of Water Resources is the responsible entity. For the small portion of the District's service area located in Placer County, the management of stormwater is within the purview of Placer County and the City of Roseville (Placer County, rev. 2018).

[16] https://www.citrusheights.net/415/Stormwater-Program

No treatment facilities are within CHWD's service area, and therefore, stormwater is not considered a viable option for beneficial use at this time. Opportunities for development of stormwater as a supply source will be monitored and evaluated for feasibility.

3.3.2. Wastewater Collection, Treatment, and Disposal

The Sacramento Area Sewer District (SASD)[17] conducts wastewater collection, treatment, and disposal for the CHWD service area. Wastewater is collected and conveyed approximately 25 miles southwest, near 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 CHWD service area.

Estimated wastewater generation is based on the SASD unit wastewater generation factor of 310 gpd per equivalent dwelling unit (SASD, 2010). Estimated wastewater collected within the CHWD service area is presented in **Table 3-3**. No wastewater is treated or discharged within the CHWD service area.

Table 3-3. 2025 Amount of Wastewater Collected within Service Area (values in acre-feet)

Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume Collected in Service Area[1]	Wastewater Receiving Entity	Treatment Plant Name	Is WWTP Located within Service Area?
Sacramento Area Sewer District	Estimated	6,300	Sacramento Area Sewer District	EchoWater	No

[1]Volume estimated based on estimated SRCSD unit factor of 85 gpcd

3.3.3. Recycled Water System Description

CHWD does not use recycled water nor is recycled water available in the District's service area. Accordingly, this subsection presents the required information per the DWR requirements.

[17] SASD merged with Sacramento Regional County Sanitation District (SRCSD) in 2024; the combined agency operates as SacSewer.

Potential, Current, and Projected Recycled Water Uses

Recycled water is currently not, nor has been, a supply option for the District. Due to this fact, DWR reporting Tables 6-4 and 6-5 are not presented in this UWMP.

Actions to Encourage and Optimize Future Recycled Water Use

SASD 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. CHWD was represented on the Committee by the Regional Water Authority.

The CHWD 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 CHWD service area. One of the main reasons for the findings is relatively small potential demands that would require extensive infrastructure development, including a new local treatment plant to provide a supply source. **Table 3-4** summarizes these planning efforts.

The SRCSD Recycled Water Plan concluded there were no viable opportunities for recycled water use from SRCSD in the CHWD 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. CHWD 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 Opportunities Study. 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 area of Sacramento County. Potential recycled water supply could also come from remediated groundwater if a plume is detected in the service area. CHWD 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, CHWD may develop incentives and methods to encourage recycled water use within its service area. **Table 3-4** lists the current methods and programs to encourage recycled water use as zero as there is no recycled water supply.

TABLE 3-4. METHODS TO EXPAND FUTURE RECYCLED WATER USE

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
SASD Water Recycling Opportunities Study	A periodically updated regional study that investigates feasible water recycling opportunities throughout the region	Ongoing	None at this time for CHWD service area

The City of Roseville to the north also produces recycled water at both the Pleasant Grove and Dry Creek wastewater treatment plants. However, the City's water resource strategy anticipates the City will utilize all of its recycled water for its own long-term supply requirements.

3.3.4. DESALINATED WATER OPPORTUNITIES

CHWD 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 CHWD, through SJWD or another agency, to exchange water supplies with another agency that does have desalination opportunities. CHWD will continue to monitor potential opportunities and develop programs and alternatives as identified.

3.3.5. WATER EXCHANGE AND TRANSFERS

CHWD receives all of its surface water from its wholesale agency, SJWD. CHWD does not own rights or contracts to additional surface water supplies that it could transfer or exchange. In 2018, CHWD (through SJWD) participated in the American River Water Transfer, a regional groundwater substitution that reduced CHWD's surface water supply entitlement The District participated in another water transfer in 2022 as well.

It is noted that CHWD could participate in a conjunctive use program through SJWD that could result in future transfer and exchange opportunities. At this time, CHWD does not anticipate any transfer or exchanges for the planning period for this UWMP.

3.3.6. FUTURE WATER PROJECTS

CHWD plans to construct an additional four wells over the next 10 years to provide additional dry-year supplies. The District plans to maintain groundwater production capacity equivalent to at least 5,000 AFY from its well system. However, groundwater production could increase up to the full well capacities in successive dry-year scenarios. Well site availability could impact the number of wells constructed or the construction implementation schedule. The District continues to monitor its service area for potential well sites and obtains the land as available. The District actively evaluates its needs for new wells and will update the number or timing of new wells as appropriate. Future supply projects are summarized in **Table 3-5**.

TABLE 3-5. EXPECTED FUTURE WATER SUPPLY PROJECTS OR PROGRAMS

Name of Future Project or Program	Joint Project with Other Suppliers	Planned Year of Implementation	Planned for Use in Year Types	Expected Increase in Water Supply
Well #7	No	2026	All Year Types	1,200 gpm
Well #8	No	2028	All Year Types	1,500 gpm
Well #9	No	2030+	All Year Types	1,000 gpm
Well #10	No	2030+	All Year Types	1,000 gpm

3.4. SUMMARY OF EXISTING AND PLANNED SOURCES OF SUPPLY

Existing supplies for CHWD include both purchased water and groundwater. Groundwater is currently used to augment purchased water supplies. Planned sources of supply include new groundwater production facilities as stated above. The increased groundwater production capabilities will allow CHWD greater flexibility with respect to meeting customer demands under different scenarios.

CHWD's 2025 supplies, by type, are presented in **Table 3-6**, while **Table 3-7** presents projected supplies that are "reasonably available" in five-year increments through 2050. As the SJWD WSA provides CHWD sufficient supply to meet its needs, SJWD supply is set equal to projected demands minus groundwater usage. Groundwater usage from "maintenance" pumping during normal years is assumed to be approximately 900 AFY.

TABLE 3-6. 2025 WATER SUPPLIES

Water Supply	Additional Detail on Water Supply	Actual Volume (AF)	Water Quality
Purchased or Imported Water	SJWD	10,354	Drinking Water
Groundwater (not desalinated)	CHWD	673	Drinking Water
	Total	**11,027**	

TABLE 3-7. PROJECTED WATER SUPPLIES (REASONABLY AVAILABLE SUPPLY)

Water Supply	Additional Detail on Water Supply	2030	2035	2040	2045	2050
Purchased or Imported Water	SJWD	11,054	11,374	11,691	12,006	12,322
Groundwater (not desalinated)	CHWD	900	900	900	900	900
	Total	**11,954**	**12,274**	**12,591**	**12,906**	**13,222**

3.5. CLIMATE CHANGE EFFECTS

The American River Basin (Basin) region conducted a climate change study in partnership with local water purveyors and the United States Bureau of Reclamation (USBR). The purpose of the American River Basin Study (ARBS or Study) was to develop data tools and analyses, identify supply-demand imbalances, and climate change adaptation strategies specific to the Basin. Under the "new normal" of a changing climate, the ARBS aims to improve the resolution of regional climate change data and to develop regionally-specific mitigation and adaptation strategies. More detail regarding the ARBS can be found at https://www.pcwa.net/planning/arbs. CHWD participated in the American River Basin Study as a member of the RWA. More information on the findings from the ARBS are provided in the following subsections.

3.5.1. PROJECTED FUTURE CONDITIONS

Analysis of projected future climate conditions in the American River Basin and development of climate scenarios for the ARBS were based on an ensemble of bias-corrected and spatially downscaled climate projections.[18] This ensemble has been used by the California Water Commission and DWR as the primary source of climate projection information in several recent studies, including the Water Storage Investment Program (WSIP) and California's Fourth Climate Change Assessment (Pierce et al., 2018). Projected future climate conditions were evaluated and characterized based on the ensemble of downscaled climate projections.

Hydrology scenarios were used to develop streamflow inputs to CalSim 3.0, which was then used to evaluate changes in water supplies, demands, and management throughout the Central Valley Project (CVP) and State Water Project (SWP), including the Study Area. Demands for each water purveyor largely relied upon water purveyors' information provided

[18] Climate projections were developed using Global Climate Models from the Coupled Model Intercomparison Project Phase 5 (CMIP5) and downscaled using Localized Constructed Analogs (LOCA) method projected and coupled with two future emission scenarios (RCP 4.5 and RCP 8.5) available from Dr. David Pierce at the Scripps Institution of Oceanography.

in the Regional Drought Contingency Plan/Regional Water Reliability Plan (RWA, 2017/2019) and 2015 UWMPs.

3.5.2. TEMPERATURE

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, 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.

3.5.3. PRECIPITATION

Annual precipitation projections show no significant trend in the median of change over the 21st century. Many of the available general circulation model (GCM) projections show change in precipitation, but there is no consistency in the magnitude and direction of projected change between models. Approximately half of the projections indicate a minor increase in annual precipitation and half indicate a minor decrease, highlighting the large uncertainty in future precipitation over this region. Although lacking 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. **Table 3-8** displays the projected (2070-2099) change in precipitation and temperature compared to 1980-2009 averages.

TABLE 3-8. PROJECTED CHANGE IN PRECIPITATION AND TEMPERATURE OVER THE AMERICAN RIVER BASIN STUDY AREA BETWEEN 1980-2009 AND 2070-2099

Season	Percent Change in Basin-Averaged Annual Mean Precipitation (%)	Change in Basin-Averaged Annual Mean Air Temperature (°F)	Change in Annual Mean of Daily Maximum Air Temperature (°F)	Change in Annual Mean of Daily Minimum Air Temperature (°F)
Fall	-6.0	5.8	6.1	5.5
Winter	4.7	4.9	5.0	4.8
Spring	-11.9	5.8	6.3	5.1
Summer	10.4	7.2	7.3	7.0

3.5.4. SNOWPACK

Snow water equivalent (SWE) is a key indicator of water supplies in this region, where runoff is largely influenced by snowmelt. The increasing variability in precipitation, combined with increases in surface air temperatures, are key drivers in projections of a reduction in annual average SWE. Average SWE is forecasted to decrease by 50-85% across all climate scenarios and future time periods. In addition, areas that accumulate snow above Folsom Reservoir are

also projected to have up to a 12-inch decrease in maximum snowpack by end of the century.

3.5.5. EVAPOTRANSPIRATION

Potential evapotranspiration (PET) serves as a key indicator of landscape water demands, including consumptive use by evaporation and transpiration from bare soil, water surfaces, native vegetation, and crops. Average annual PET is expected to increase 1.2 to 6.2 inches across all climate scenarios and future time periods. PET is strongly correlated with air temperature and thus expected to increase more under the hot scenarios (HD, HW) than under the warm scenarios (WD, WW).

3.5.6. RUNOFF

Watershed runoff is a direct indicator of local water supply available, as well as to statewide CVP-SWP system. Climate change projections indicate a pronounced shift in the distribution of runoff from May and June to earlier in the season (December to March), implying a transition in precipitation from snow to rainfall and/or earlier snowmelt and increasing the amount of runoff during the winter months. Peak runoff is expected to shift by more than a month earlier by mid to late century (**Figure 3-2**). Spring runoff will decrease due to reduced winter snowpack.

Similar to the precipitation scenarios, there is large uncertainty in projected runoff where the 'wet' scenarios suggest an increase in annual runoff and the 'dry' scenarios suggest a decrease in annual runoff. The projected changes in basin-wide runoff range from an increase of 486 thousand acre-feet (TAF) under the warm-wet scenario to a decrease of 203 TAF under the hot-dry scenario by the end of the century.

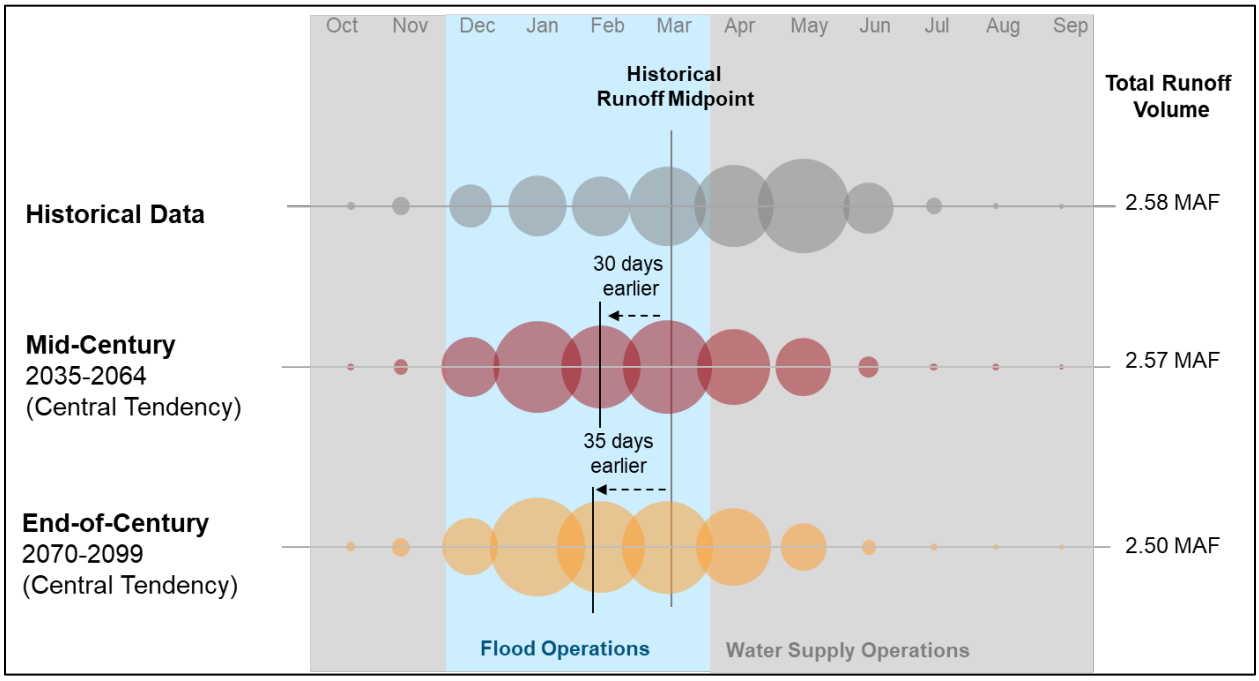


FIGURE 3-2. DISTRIBUTION OF AVERAGE MONTHLY RUNOFF FOR HISTORICAL RECORD (1922-2015) AND FUTURE PROJECTIONS UNDER CENTRAL TENDENCY CLIMATE SCENARIO[19]

Table 3-9 lists the change in annual climatic and hydrologic indicators between historical baseline observations (1915 to 2015) and projected future conditions for the ARBS area.

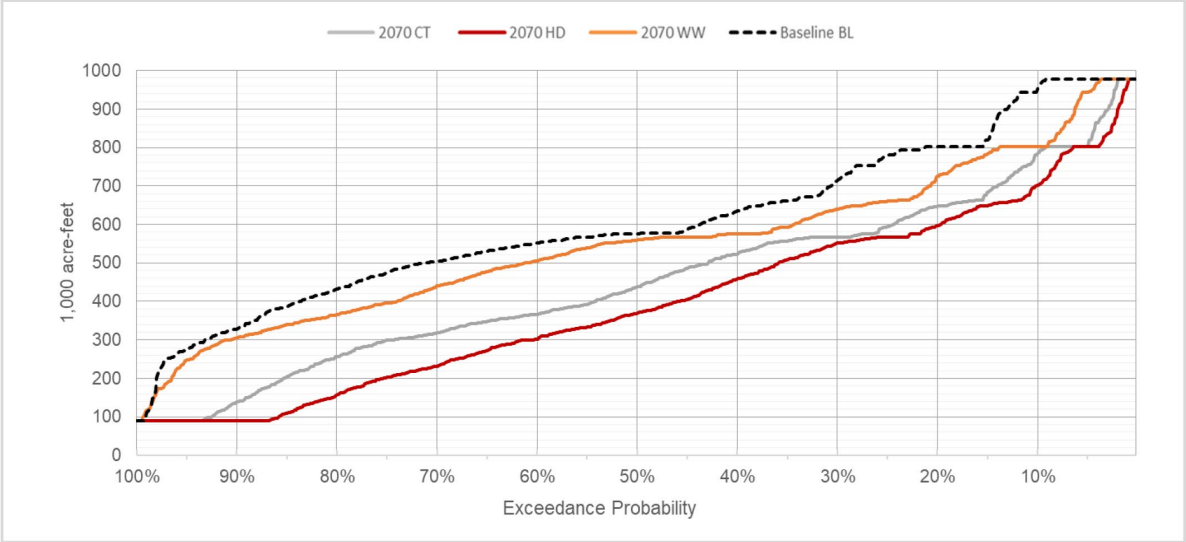
[19]Figure provided by Sacramento Regional Water Authority.

TABLE 3-9. CHANGE IN HYDROLOGIC INDICATORS BETWEEN HISTORICAL OBSERVATIONS AND PROJECTED FUTURE HYDROLOGY

Time Period	Climate Scenario	Precip (in)	T_{avg} (°F)	T_{max} (°F)	T_{min} (°F)	PET (in)	SWE ave (in)	SWE max (in)	Runoff (TAF)
1915-2015	Historical Observations	38.2	54.8	67.8	35.6	42.8	1.5	5.7	1,458
2040-2069	Warm-Wet	1.9	4	6.2	1.6	1.6	-0.7	-2.3	701
	Central Tendency	0.1	5	8.1	2.1	2.7	-0.9	-2.8	-2
	Hot-Dry	-2.8	6.2	10.4	2.7	3.7	-1.1	-3.4	-206
2055-2084	Warm-Wet	3.8	4.7	7.4	2	2	-0.8	-2.5	199
	Central Tendency	-1.1	6.3	11.1	2.6	4.1	-1.08	-3.5	-93
	Hot-Dry	-3.4	7.9	13.3	3.7	5	-1.2	-3.8	-185
2070-2099	Warm-Wet	7	5.4	8.3	2.5	1.8	-0.9	-2.9	486
	Central Tendency	-0.6	6.5	11	2.8	3.9	-1	-3.3	-54
	Hot-Dry	-4.6	8.9	15.7	4.1	6.2	-1.3	-4.3	-203

3.5.7. WATER SUPPLY RELIABILITY

Changing climate conditions in the Sierra Nevada Mountains affect the volume of water stored in the snowpack and the timing of runoff entering Folsom Reservoir. Consequently, they can also affect the critical role of Folsom Reservoir in the CVP Operations. Reliance on Folsom Reservoir is expected to increase commensurate with the impact of sea level rise on salinity in the Sacramento-San Joaquin Bay Delta (Delta). Modeling of these factors has illustrated that, without operational adjustments, Folsom Reservoir is projected to have lower end of conservation season (end of September) storage levels and approach "dead pool" more often under most future climate scenarios (see **Figure 3-3**). Similarly, increased early season runoff would increase flood risks along the Lower American River, leaving less water in the upper watershed available during water supply operations.



Key:
Baseline BL = Historic Conditions, 2070 CT = Central Tendency 2070 Climate Scenario, HD = Hot-Dry 2070 Climate Scenario, WW = Warm-Wet 2070 Climate Scenario

FIGURE 3-3. EXCEEDANCE PLOT OF FOLSOM RESERVOIR STORAGE (END OF SEPTEMBER) UNDER FUTURE CLIMATE CHANGE[20]

Under the 2070 level of development, the ARBS projects a supply-demand imbalance of 63 to 78 TAF/year in the Upper Basin (or Foothills Area) without further conservation or management actions. In the Lower Basin, groundwater extraction is expected to increase by 62 to 155 TAF/year to offset the projected imbalance, which would affect groundwater sustainability.

Based on the water supply and demand imbalance results, the region's water supply reliability has vulnerabilities. The ARBS assessed several adaptation portfolios for addressing the range of vulnerabilities and future supply-demand imbalances for the Study Area for regional benefits. Portfolios analyzed were:

1. Foundational Institutions
2. No Assurances for Long-term CVP Water Contract
3. Alder Creek Storage and Conservation Project
4. Sacramento River Diversion Project
5. Federally Recognized Groundwater Bank (North and South Basin)
6. Folsom Dam Raise with Groundwater Banking (South Basin)
7. Modified Flow Management Standard

The seven formulated adaptation portfolios were quantitatively evaluated using CalSim 3.0 to alleviate supply-demand imbalances and benefits to the region. The Study's intent was not

[20]Figure provided by Sacramento Regional Water Authority.

focused on water-supplier's portfolio, but rather how the region could plan to increase regional reliability. The precise composition, scale, operations, partnerships, funding, and governance to advance these project concepts will require further evaluations and coordination among American River Basin interests, including the USBR, DWR, and the State Water Resources Control Board (SWRCB).

While climate change does have an impact on the basin, impacts are largely seen closer to the end of the century, and not within the timeline of this UWMP. Through proactive adaptation management actions, the Study highlights ways for the region to alleviate climate change impacts by the end of century; therefore, in consideration of the timeline of this UWMP, CHWD does not reflect any climate change impacts in supply and demand scenarios within this Plan.

3.6. Regulatory Conditions and Project Development

Regulatory conditions and projects that may directly/indirectly impact District supplies include:

- Bay-Delta Plan Update
- SWRCB Mandatory Conservation Orders

It is anticipated that effects from these regulatory conditions and projects could impact the amount of supply available to the District, although the magnitude of such impacts is not yet fully known.

3.6.1. Bay-Delta Plan Update

The Bay-Delta Water Quality Control Plan Update (Plan) is a pending SWRCB action that could implicate water supplies that connect to the Delta. Although the Plan has not yet been adopted, the various proposed SWRCB actions could impact each urban water purveyor's water supply reliability. The Healthy Rivers and Landscapes Program (HRLP) is an alternative to the Plan and provides opportunities for urban purveyors to meet the Plan's species and water quality objectives through coordinated regional management activities. In addition, the Plan has numerous post-adoption water management activities, such as cold-water storage and management, that are to-be-determined as the Plan is implemented. These to-be-determined management actions could impact how water supplies are made available to each urban purveyor. Finally, the Plan appears to exempt some tributaries and other geographical areas from strict adherence to the Plan or HRLP program that would not affect long-term urban water planning projections.

The water supply reliability projections described in this UWMP update reflect characterizations of water supplies and demands as they exist based upon reasonably available information. Although the Plan, HRLP, and post-Plan water management adjustments could change UWMP water supply reliability projections, the water supply implications are not yet suitable for analytical integration into the current water supply

reliability projections for this UWMP iteration. Once the Plan or HRLP is adopted, and post-adoption implementation actions become better known, the projections for urban water supply reliability can be reasonably calculated. We anticipate that the 2027 through 2030 iterations of Annual Assessments will guide urban purveyors in assessing near term impacts of the Plan on water supply reliability and generate useful information that can be incorporated into the next UWMP update in 2030.

3.6.2. SWRCB Mandatory Conservation Orders

In response to recent droughts, the SWRCB has previously issued curtailment orders on some surface water rights, affecting the availability of supplies utilized under such rights. These curtailment orders require cessation of surface water diversions for identified water rights, based on watershed hydrologic parameters as well as priority dates of these surface water rights. These curtailment orders do not affect previous surface water diversions to storage. That is, there are no constraints associated with curtailment orders for accessing previously stored surface water.

As the SJWD provides surface water supplies to the District, there is potential that future hydrologic conditions require reduction or cessation of surface water diversions. However, these curtailment orders do not affect stored water, which make a substantial portion of supplies available to the District. It is anticipated that any reduction in surface water supplies to the District can be mitigated with groundwater production and/or demand management measures, including enactment of the District's Water Shortage Contingency Plan.

3.7. Other Locally Applicable Criteria

USBR implements the Central Valley Project Municipal and Industrial Water Shortage Policy for applicable Central Valley Project (CVP) Municipal and Industrial (M&I) conditions, including procedures for determining available CVP supplies during shortage conditions and for evaluating public health and safety needs and historical use. Under the CVP M&I Water Shortage Policy, M&I allocations may be reduced below full historical use during shortage conditions. In progressively more severe shortages, M&I contractors may receive reduced allocations measured as a percentage of historical use, and in the most severe conditions may be limited to public health and safety needs. The policy generally protects M&I public health and safety needs by reducing agricultural water service contractor allocations first, before limiting M&I deliveries to public health and safety quantities.

CHWD and SJWD participate in the Water Forum Agreement 2050 through the San Juan Water District Consortium Purveyor Specific Agreement, which includes CHWD, Fair Oaks Water District, Orange Vale Water Company, SJWD, and a portion of the City of Folsom. Under that agreement, "driest years" or "conference years" occur when projected March through November unimpaired inflow to Folsom Reservoir is less than 400,000 AF. In those years, SJWD reduces surface-water diversions for use within the wholesale service area and the SJWD Consortium participates with other stakeholders to address how available water should be

managed when supplies may be insufficient to meet both purveyor demands and expected Lower American River flow needs.

3.8. WATER QUALITY

The drinking water quality of the District's system must comply with the Safe Drinking Water Act (SDWA), which is composed of primary and secondary drinking water standards. Compliance with primary drinking water standards is regulated by the U.S. Environmental Protection Agency (EPA). Compliance with both primary and secondary standards is required by the State Water Resources Control Board, Division of Drinking Water (DDW).

Table 3-10 below shows the most recent water quality report issued for the service area demonstrating compliance with water quality regulatory standards.

TABLE 3-10. CHWD POTABLE WATER QUALITY

Water Quality Standard	Public Health Goal	Maximum Contamination Level	Surface Water		Groundwater	
			Range	Average	Range	Average
Primary Standards						
Arsenic (ppb)	0.004	10	ND	ND	ND – 2.6	ND
Barium (ppm)	2	1	ND	ND	ND – 0.14	ND
Fluoride (ppm)	1	2.0	ND	ND	0.11 – 0.18	0.15
Hexavalent Chromium (ppb)	0.02	10	ND	ND	1.4 – 3	2.13
Nitrate as N (ppm)	10	10	ND	ND	1.4 – 4.1	3.0
Uranium (pCi/L)	0.43	20	NR	n/a	ND – 2	ND
Chlorine Residuals (ppm)	4	4	0.14 – 1.12	0.72	ND – 1.7	ND
TTHMs – Distribution System (ppm)	n/a	80	38 - 61	53.3	0.27 – 1.54	0.8
HAA5 – Distribution System (ppb)	n/a	60	19 - 62	44	ND – 49	44
Disinfection By-Product Precursors (ppm)	n/a	2	1.32 – 1.9	1.61	ND – 44	38
Turbidity (% of samples)	n/a	≤0.3 NTU	100%		NR	n/a
Secondary Standards						
Total Dissolved Solids (ppm)	n/a	1,000	31	31	240 – 310	267.5
Specific Conductance (µS/cm)	n/a	1,600	45	45	300 – 420	352.5
Chloride (ppm)	n/a	500	2.6	2.6	18 – 21	18.8
Sulfate (ppm)	n/a	500	5.3	5.3	8.2 – 18	14.1
Lead and Copper						
Lead (ppb)	0.2	15	ND – 26		ND	
Copper (ppm)	0.3	1.3	ND – 0.5		ND – 0.32	
Federal Unregulated Contaminates						
Bicarbonate (HCo3) (ppm)	n/a	none	15 – 33	24	110 – 160	132.5
Total Hardness (ppm)	n/a	none	17	17	100 – 170	137.5
Sodium (ppm)	n/a	none	2.2	2.2	17 – 21	19.3
Calcium (ppm)	n/a	none	4.6	4.6	23 – 37	30.5
Magnesium (ppm)	n/a	none	1.4	1.4	11 – 19	15

Legend: ND = Analyzed; Not Detected
NTU = Nephelometric Turbidity Unit
PCi/L = Picocuries per Liter
n/a = Not Applicable
PPM = Parts per Million
PPB = Parts per Billion
TT = Treatment Technique

CHAPTER 4
WATER USE

Developing a thorough understanding of water use enables the District to reliably and cost-effectively manage its water supplies to continue to meet customer needs. This chapter characterizes CHWD's current and forecasted retail customer water needs, examining how various factors such as seasons, land use classifications, and differing hydrologic conditions impact water use.

A thorough analysis of the District's past and current water use enables realistic water use predictions to be made for the future that consider anticipated growth, new regulations, changing climate conditions, and trends in customer water use behaviors. After individually analyzing each water use sector, information can be aggregated into a comprehensive projection of customer water use that becomes the foundation for integration with the District's water supplies (see Chapter 3) to assess long-term water system reliability (see Chapter 5).

4.1. Current Customer Water Use

As described in Chapter 2, CHWD serves potable water to approximately 20,450 customer connections. Under normal circumstances, customers are served potable water derived from surface and groundwater sources (see Chapter 3). Information about the District's current customers, their recent and expected water use trends, and CHWD's on-going demand management efforts targeting these customers provide a foundational basis for this UWMP's water use forecast through 2050.

Furthermore, annual records of actual water use are the basis for determining the District's compliance with its urban water use objective, which has been reported annually to the State beginning in January of 2024.

4.1.1. Customer Water Use: 2021 to 2024

Recent customer water use data can help the District 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. Additionally, the District is required to quantify past customer water use pursuant to CWC §10631(d)(1). **Table 4-1** below presents the District's past customer potable water use by customer classification for 2021 through 2024 in AF.

TABLE 4-1. POTABLE CUSTOMER USE: 2021-2024 (VALUES IN ACRE-FEET)

	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-Family Residential	2021	211	331	376	326	608	1,030	741	1,121	1,100	623	629	344	**7,441**
	2022	276	314	410	330	479	856	555	1,258	618	822	712	285	**6,915**
	2023	342	309	224	327	475	556	787	1,189	607	907	599	286	**6,608**
	2024	388	310	177	384	320	709	1,015	879	931	1,043	432	465	**7,051**
Multi-Family Residential	2021	122	145	230	52	211	269	197	299	332	94	270	77	**2,296**
	2022	135	135	223	61	235	171	190	291	201	220	278	51	**2,190**
	2023	227	78	110	136	250	77	230	284	210	254	245	58	**2,159**
	2024	231	74	112	161	140	179	359	113	257	273	167	174	**2,240**
Commercial	2021	32	56	66	44	68	176	68	206	134	94	97	63	**1,103**
	2022	41	63	75	54	69	132	56	193	61	149	103	44	**1,040**
	2023	67	45	31	93	90	70	91	183	71	184	80	50	**1,058**
	2024	81	39	36	69	46	109	139	125	114	184	70	90	**1,103**
Industrial	2021	10	11	9	7	33	31	77	33	84	14	49	10	**368**
	2022	10	10	22	8	34	26	59	34	76	24	48	8	**358**
	2023	22	12	18	11	32	13	52	33	60	32	37	11	**332**
	2024	22	11	11	11	31	16	70	18	74	31	57	18	**371**
Gov.	2021	2	1	4	3	28	38	47	39	56	17	23	1	**258**
	2022	3	1	4	1	23	35	39	55	41	22	16	10	**250**
	2023	7	1	12	1	20	24	44	62	43	43	24	1	**282**
	2024	5	1	3	1	15	27	56	46	57	44	28	2	**285**
Other	2021	0	0	1	16	2	3	4	3	3	4	2	1	**39**
	2022	1	1	1	2	1	5	3	5	3	3	2	2	**29**
	2023	1	1	1	0	1	4	3	5	3	5	2	1	**25**
	2024	0	0	0	1	0	3	1	7	2	5	1	2	**24**
Total Metered Deliveries	**2021**	**378**	**543**	**686**	**448**	**950**	**1,546**	**1,135**	**1,700**	**1,710**	**845**	**1,069**	**495**	**11,506**
	2022	**467**	**522**	**735**	**457**	**841**	**1,225**	**902**	**1,836**	**999**	**1,241**	**1,159**	**400**	**10,782**
	2023	**665**	**446**	**395**	**568**	**867**	**745**	**1,207**	**1,756**	**994**	**1,425**	**988**	**406**	**10,464**
	2024	**728**	**434**	**339**	**627**	**553**	**1,043**	**1,640**	**1,187**	**1,435**	**1,582**	**755**	**751**	**11,074**

Note: Values presented are from bi-monthly customer meter readings. "Other" water uses include construction water, fire systems, temporary meters, and other authorized uses.

4.1.2. CUSTOMER USE IN 2025

Customers served by the District are metered at their connection to the potable water distribution system. As of January 1, 2024, for each customer account, the District is required to collect and submit metered delivery values to the State Water Resources Control Board (SWRCB) on a monthly basis, summarized annually in an auto-generated Clearinghouse

Annual Inventory Report (CAIR Report). This data was formerly submitted as part of CHWD's annual reporting to the SWRCB Division of Drinking Water. The 2025 actual customer use presented in **Table 4-2** represents the summarized delivery to all the District's potable customers during calendar year 2025. It does not, however, include the distribution system losses inherent in a pressurized water delivery system that occur during the District's efforts to treat, store, and route the water throughout the extensive distribution system to each customer's connection.

TABLE 4-2. POTABLE CUSTOMER WATER USE: 2025 ACTUAL USE (VALUES IN ACRE-FEET)

Use Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-Family Residential	597	319	275	403	316	777	1,029	764	985	726	516	351	**7,058**
Multi-family Residential	284	144	126	155	132	208	348	110	299	182	171	147	**2,306**
Commercial/Institutional	101	44	51	56	49	89	128	79	124	91	75	48	**936**
Industrial	34	10	20	12	38	15	80	13	83	14	41	9	**368**
Landscape Irrigation	19	9	7	14	19	49	99	70	91	58	19	16	**471**
Other	0	0	0	1	0	3	2	5	1	5	0	1	**19**
Total	**1,035**	**526**	**480**	**641**	**554**	**1,141**	**1,686**	**1,041**	**1,583**	**1,076**	**824**	**572**	**11,158**

Note: Values presented are from bi-monthly customer meter readings.

4.1.3. EXISTING DISTRIBUTION SYSTEM LOSSES

Distribution system water losses (also known as "real losses") are the physical water losses from the 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 District has been required to quantify its distribution system losses using the American Water Works Association (AWWA) Method. An electronic copy of the audit in Excel format is to be submitted to the DWR by January 1 of each year for the estimated system losses, using DWR's online submittal tool pursuant to Code of Regulations §638.5.[21] The District's submittals for the last 5 years are shown in **Table 4-3**. The 2025 estimate has not been officially submitted to DWR as of the drafting of this UWMP but is estimated to be approximately 203 AF over the year, or about 1.8% of the water entering the District's distribution system.

TABLE 4-3. DISTRIBUTION SYSTEM LOSS: 2021 THROUGH 2025 (VALUES IN ACRE-FEET)

	2021	2022	2023	2024	2025[1]
Real Water Loss	256	426	42	76	203
% of Total Supply	2.1%	3.7%	0.4%	0.7%	1.8%

[1]As the 2025 AWWA Water Loss Audit is not finalized, the value reported uses average Real Loss as a percentage of total customer deliveries to estimate 2025 values.

[21] Historical reports submitted to the State of California can be accessed at, https://wuedata.water.ca.gov/

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.

4.1.4. Water Loss Control Standard

The CWC §10608.34 required the State Water Resources Control Board (SWRCB) to develop water loss control and performance standards (Real Water Loss Standards) applicable to urban retail water suppliers. The Real Water Loss Standard for the District was developed utilizing information submitted as part CHWD's annual water loss reporting to the State, specifically for the period 2017 through 2020. The resulting Real Water Loss Standard is 9.3 gallons per (active and inactive) service connection per day. The resulting Real Water Loss Standard as an average percent of total water supplied is 1.8%. Using the information from the same period, the average "apparent" water loss averaged 2.8% (of total water supplied). The total water loss estimate as a percentage of total water supplied, for purposes of projecting future requirements is approximately 5%. This loss estimate is applied to total production for purposes of forecasting efficient water use through 2050.

The District's recent performance with the Water Loss Control Standard is included in Appendix B.

4.2. Compliance with Water Use Targets and Objectives

This section examines CHWD's derivation and compliance with state-mandated water use targets and objectives. The Water Conservation Act of 2009, also known as SBX7-7, introduced water conservation targets that served as a valuable measure of progress through 2020. Urban water retailers were tasked with achieving a 10% reduction in per capita water from a baseline period[22] use by December 31, 2015, and a 20% reduction by December 31, 2020, and show the 20% reduction was achieved in this 2025 UWMP.

The District's 2020 gallons per capita per day (GPCD) target was established in the 2015 UWMP as 229 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 CWC §10608.20(b). The District's calculation of their 2020 actual GPCD used the same methodology.

"Gross water" was defined as the total "Potable Water" entering the District's distribution system, representing both the customer deliveries and the distribution system losses. This value, divided by the District's estimated population in 2020, resulted in a compliance value of

[22] The District's baseline period for calculating its SBX7-7 target is 1995 through 2004.

175 GPCD. Because this value was less than the District's established target, the District was determined to be in compliance with CWC §10608.24(b).

4.3. Demand Management Measures

Pursuant to CWC §10631(e), the District needs to provide a narrative discussion of the water demand management measures it has implemented, is currently implementing, and plans to implement. The historic and on-going measures can help the District understand the effectiveness of managing existing customer uses so as to help guide refinements, emphasis, or augmentation that will help CHWD position to best meet its water use objective.

To date, the District's overall water management efforts have resulted in significant and long-term water conservation savings. During recent droughts, the District's residents showed tremendous ability to temporarily reduce water usage and many of the efforts have had long-term viability, providing on-going savings well into the future.

The District's demand management measures are highlighted in this subsection.

4.3.1. Foundational Demand Management Measures

This subsection describes the foundational demand management measures (DMMs) that underpin the District's operations and customer deliveries. These particular DMMs represent adopted ordinances, policies, and long-standing budgeted conservation programs.

Water Waste Prevention Ordinances

CHWD prohibits water waste and requires water to be used for beneficial purposes under normal conditions and throughout all water shortages stages in CHWD's WSCP. The WSCP includes graduated penalties for waste and/or unreasonable use. Restrictions on waste include:

- Runoff from landscape watering or irrigation is prohibited
- Free-flowing hoses for all uses are prohibited
- Pools, spas, ponds, and fountains are required to use recirculated water
- Washing streets, parking lots, driveways, sidewalks, or buildings is prohibited (except for health and sanitary purposes)

In addition, CHWD utilizes a "Report Water Waste" link on their website[23] which facilitates the identification of water waste and promotes active urban conservation. This feature allows CHWD to better respond to potential waste through proactive management.

CHWD has implemented this DMM over the last five years and anticipates actively implementing this DMM for the planning horizon (2025-2050).

[23] chwd.org

Metering

The USBR contract in which the SJWD operates requires all water connections using USBR contract water to be metered by 2025, including CHWD customers. As such, The District began implementing a meter replacement program in 1997. As of December 2006, CHWD's customers are fully metered. There are no un-metered customer connections in which the CHWD provides water.

CHWD is currently exploring a Meter Replacement Program Advanced Planning Study. The meters currently being considered for potential installation in the future will allow customers to track their water use through real-time measurements..

This DMM is active and ongoing. CHWD has implemented this DMM over the planning period and anticipates actively implementing this DMM for the planning horizon (2025-2050).

Conservation Pricing

CHWD employs a bi-monthly fixed meter charge and a volumetric rate for all domestic, commercial, and irrigation customers' water use. The volumetric rate promotes conservation as the customer is charged based on the quantity of water used. The District also maintains the ability to employ a "Water Shortage Rate Structure" at various drought stages. The "Water Shortage Rate Structure" serves to re-coup revenues associated with decreased deliveries and encourage conservation.

The District does not evaluate this DMM for water savings as it provides indirect benefits to the District's other, quantifiable DMMs.

CHWD has employed conservation pricing over the past five years and anticipates actively implementing this DMM for the planning horizon (2025-2050).

Public Education and Outreach

The District is committed to public education and outreach. CHWD offers a series of free water educational workshops to the public. The WaterSmart Workshops present tips and tools to assist residents in increasing their water efficiency. Past classes are archived and accessible at CHWD's website. CHWD also uses a Community Garden to present water efficient garden practices and encourage active community involvement through a volunteer program. Updates on District activity and materials regarding public education and outreach are provided to customers through the District's newsletter titled, "Waterline." The newsletter is delivered to customers through direct mail, e-blasts, and archives are available through the District's website.

The District also partners with local schools within its service area to promote water awareness and education among students. One example is the annual poster contest hosted in partnership with neighboring water agencies. Presentations center around the water cycle, water treatment, and other water conservation-related material.

As part of its water conservation and efficiency efforts, CHWD also implements a public information program through active participation in the RWA Regional Water Efficiency Program. In collaboration with several water provider members and other wastewater, stormwater, and energy partners, RWA formed the Water Efficiency Program (WEP, or Program) 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 $610,000 and is supplemented by grant funding. Grants are an important funding resource for the Program. Since 2003, the Program has been awarded $19.9 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, $6.7 million was awarded between 2021 and 2025.

The main function of the WEP is to develop and distribute public outreach messages to customers in the region by collaborating with its water supplier 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 Partner of the Year award in 2021 along with three Public Relations Society of America (PRSA), California Capital Chapter awards in 2023/2024 for WEP's public outreach and school education programs. From 2021-2025, the WEP created a series of public outreach campaigns. Below is a summary of each campaign and highlighted achievements.

2021 was a year for nimble messaging and maximum flexibility to adapt outreach to the rapidly changing conditions. RWA's WEP began 2021 with a focus on household leaks and then transitioned to the fourth year of an award-winning outreach campaign focused on tackling the landscape overwatering problem by encouraging residents to check soil moisture before turning on sprinklers (Check & Save). With the sudden emergence of drought in May 2021, the program introduced new creative and tools for WEP participants. The goal: Help provide consistent and actionable tips region-wide while providing flexibility for RWA members to customize materials to reflect their unique water supply situation and call to action.

As the drought grew more serious through late 2021 and into 2022, the WEP updated messaging again and ramped up outreach, asking residents to reduce lawn watering while continuing to water trees (Stress Your Lawn, Save Your Trees), understanding that lawns can handle less water but that drought-stressed trees can be lost forever. This messaging supported the Governor's request for water suppliers to voluntarily reduce water use by 15 percent. Additionally, the WEP continued to partner with the Sacramento Tree Foundation to help educate residents and businesses on how to maintain and expand the region's healthy tree canopy and included a series of co-branded educational videos and materials.

After the drought subsided in 2023, the WEP launched a new multi-year outreach program aimed at encouraging water efficiency during a non-drought year. Research indicates that public engagement in water conservation tends to surge during drought periods, such as 2022, but declines during non-drought years, like 2023. Consequently, garnering attention

and motivating action becomes more challenging during non-drought periods. To tackle this challenge, the 2023 outreach program focused on two main messages:

- **SUMMER STRONG**—focused on promoting water-wise best practices outdoors. A Summer Strong yard is tough enough to muscle through the Sacramento region's hottest days and still look its best. The campaign featured eye-catching graphics to promote efficient tree watering, adding low-water and native plants, checking soil moisture, using weather-based sprinkler timers, and watering early to minimize evaporation.
- **SUDS WOULD BE DUDS WITHOUT H2O**—With clean, reliable water essential to great beer (and to the success of local breweries), the WEP launched a pilot project to partner with local craft brewers, aiming to educate patrons about the importance of water to beer and how to preserve this natural resource. Initial partners included Jack Rabbit Brewing Company and Red Bus Brewing Company, which committed to distributing Be Water Smart materials to their customers. This campaign featured the development of a rebate program to upgrade brewing equipment to be more water efficient and the distribution of coasters, koozies and stickers with water savings messages.

In 2024, the WEP enhanced its existing Summer Strong campaign with the Summer Strong Yard Champs promotion, spotlighting Sacramento-area residents who transformed their landscapes into water-efficient yards. Homeowners nominated yards featuring low-water plants and efficient irrigation systems for a chance to be featured on regional billboards. Nearly 50 nominations were reviewed, with winners receiving professional photoshoots. Featured yards included a mix of DIY and professionally designed landscapes, all showcasing water-saving practices like low-water and native plants, drip irrigation, and rainwater capture, inspiring others to adopt similar approaches. In 2025, the Summer Strong campaign added a new mascot, Jack LaPlant, an animated plant figure that carried on all the same water savings tips but with refreshed visuals to draw in a new audience. In 2024, the WEP expanded its successful pilot project, Suds Would be Duds without H2O, with local craft breweries to raise awareness about water's role in craft beer production and to promote water efficiency. The campaign visited 52 breweries across the Sacramento region. Around 20 breweries are considered active partners, including six of the top craft breweries in the area. Promotional materials, including 10,500 coasters and 7,200 stickers, were distributed by these partners and included water-saving tips and a link to their BeWaterSmart.Info website to access rebates. Additionally, two breweries, Urban Roots Brewery & Smokehouse and Solid Ground Brewing participated in WEP's commercial indoor rebate program. Each brewery received $15,000 to upgrade or add equipment that reduced water used for chilling and sanitizing processes.

Both campaigns, Summer Strong and Suds Would be Duds without H2O, were continued through the end of 2025 and were implemented through both paid advertising buys and earned media from public service announcements (PSAs) and aired in English and Spanish.

Every year the campaigns' messaging can be heard on local radio stations such as Capital Public Radio and online through Google, Facebook, and YouTube advertisements. For clarification below, impressions represent how many times an ad was seen.

From 2021-2025, the WEP public outreach campaigns produced:

- Television Advertising
  3,926 television advertisements
  23,212,700 impressions
- Streaming Video Advertising (Comcast, EyeQ, Hearst, Paramount Plus, & Premion)
  3,532,621 advertisements
  3,532,621 impressions
- Radio Advertising
  5,273 radio advertisements
  19,994,200 impressions
- Digital Advertising (Facebook, Google Display Network & Spotify)
  29,472,602 million impressions
  297,870 clicks
- Billboard advertising
  2,037,102 digital advertisements
  62,807,653 impressions
- Public Service Announcements (Television and Radio)
  24,248,000 impressions
  $683,400 in value had they been purchased as advertising
- Facebook
  60 posts per year

The Program continues to utilize the public outreach website, BeWaterSmart.Info, and the "Be Water Smart" brand to reach customers throughout the region. The website, which completed a major redesign and upgrade in 2025, contains customer-specific (enter your address) local water supplier information on rebates and services, general top ways to save for residents and businesses, an interactive watering guidelines and water waste reporting tool, a water-wise plant and gardening database, recent press releases, the Sacramento Smart Irrigation Scheduler tool, and more. Between 2021 and 2025, the website averaged 37,000 unique visitors per year.

For more targeted outreach, the Program distributed quarterly e-newsletters to enrolled residents. The e-newsletters are filled with water savings tips, upcoming events, and region specific articles. They are usually timed around changes in the weather to help signal the need for residents to adjust their irrigation systems, such as daylight savings coupled with a

message to dial back/reduce sprinkler systems run times. The e-newsletter reaches 9,361 households.

The WEP selects two public events each year to attend as an opportunity for the public to interact with local water efficiency staff. This provides an opportunity for the region to communicate its messages in person. From 2023-2024, WEP attended ECOS Earth Day (April) and the Farm-to-Fork Festival (September).[24] In 2025, the WEP opted to attend the Sacramento Republic Brew Festival (June) instead of the Farm-to-Fork Festival to elevate the existing partnership with Sacramento Republic FC. At these events, the Be Water Smart team provided water-wise tips, encouraged visitors to sign the pledge banner, collected e-mails for those who wish to sign up for the e-newsletter list, as well as identified a customer's water supplier and connected them with rebates and services. Additionally, WEP, in coordination with participating local water suppliers, hosts an annual Mulch Mayhem event (May) in which customers can pick up a truck load of free mulch from selected locations throughout the region.[25] Combined, these in person events are attended by thousands of people each year throughout the region.

The Program provides a variety of "give-a-way" items to customers at in person public events and through direct mail requests from the BeWaterSmart.Info website. From 2021-2025, WEP has distributed thousands of leak detection tablets, moisture meters, garden gloves, and drink koozies to customers to encourage the water savings practices described in our public outreach campaigns and brewery partnerships.

The Program is also highly active in communicating to local media outlets. Between 2021 and 2025, RWA issued 23 press releases on WEP activities and regionally significant news and participated in 17 radio public affairs interviews airing on 18 stations across the Sacramento region's major commercial radio networks. 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.

Finally, the WEP partners with professional sports teams in the region to expand the Be Water Smart advertising to new and captive audiences. WEP partnered with the Sacramento River Cats (local Triple – A affiliate of the San Francisco Giants) in 2021, which included long-standing water savings advertisements on all bathroom stall doors. The partnership also included 30-second Check & Save spots broadcast on KMAX Channel 31 during each Saturday game and multiple 30-second radio spots broadcast during every game via their streaming radio coverage. The total attendance for regular season games was 342,861. In addition, 24 special events at Sutter Health Park drew 66,300 people in 2021. In 2023, RWEP launched a new partnership with Sacramento Republic FC (local USL professional soccer team), displaying water-wise messages at games to promote "Summer Strong" yards. The

[24]No public events were attended in 2021 and 2022 due to the COVID pandemic.

[25]The 2021 Mulch Mayhem event was held in September due to the COVID pandemic.

partnership continued through 2025 and included the following activities: a 30-second LED ad, messaging on water refill stations, and giveaways booths at events/games.

To support public outreach messaging and promote water savings tips, the Program also coordinated several regional rebate programs, which were partially or fully funded by state, federal, and private foundation grants. A variety of high efficiency rebate options were provided including toilets, clothes washers, and irrigation efficiencies (full summary in **Table 4-4**). Additionally, from August 2023 - November 2025, RWA managed a regional direct installation program, in which a contractor was hired to replace old high use fixtures in multifamily and commercial/institutional properties in disadvantaged communities in the region. Collectively these rebates and direct installations will produce an estimated lifetime (10 years) savings of 7.4 billion gallons of water and 7.9 million kilowatt hours of energy.

TABLE 4-4. REGIONAL REBATES AND INSTALLATIONS FROM 2021-2025

Rebate/Installation Type	2021	2022	2023	2024	2025	Lifetime Water Savings 2021-25 (AF)	Lifetime Energy Savings 2021-25 (kWh)**
High Efficiency Clothes Washer Rebates	359	256	307	321	298	229.2	79,309
High Efficiency Toilet Rebates	767	1,275	602	423	326	422.0	145,990
Smart Irrigation Controller Rebates	686	1,049	3,051	556	464	3,652.6	1,264,024
Irrigation Efficiencies Rebates*	5,941	7,153	13,327	11,160	10,321	16,170.6	5,595,912
Turf Replacement Rebates (sq ft)	153,880	239,645	135,607	300,152	266,840	1,244.7	430,711
Toilet Direct Installation	n/a	n/a	584	2,183	1,688	435.5	150,671
Showerhead Direct Installation	n/a	n/a	562	1,766	1,532	605.2	209,475
Faucet Aerators Direct Installation	n/a	n/a	884	3,215	2,343	63.2	21,850
Urinal Direct Installations	n/a	n/a	n/a	19	40	4.0	1,348
					Total Water Savings	**22,826.7**	**7,899,291**

*Includes: pressure regulator equipment, pipe and pipe fittings, drop or low volume equipment, and sprinkler heads or nozzles.
**Regional average of 346 kWh per AF
kWh = kilowatt-hour
AF = acre-feet
n/a = no funding available
Lifetime = 10 years

In addition to public outreach, the Program also coordinates regional school education activities. The RWA-sponsored water efficiency exhibits ($500,000 sponsorship) opened for viewing in 2021 at the new SMUD Museum of Science and Curiosity (MOSAC) in downtown Sacramento, reflecting years of input by RWA Water Efficiency Program Manager, Amy Talbot, who helped shape the exhibits. The exhibits teach visitors to become a "Home Water Detective," create their own mix tape from water conserving sounds in "Drop a Beat" and learn about local "Water Champions. MOSAC currently welcomes around 150,000 visitors a year from all over the region.

Since 2012[26] , 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 them develop 30 second video PSAs. The contest themes for 2022 and 2023 were "When in Drought…take action to reduce water use" and Do Your Part to Be Water Smart" respectively. Students submit their videos to WEP 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 (Example: Century Blue Oaks theatre in Rocklin and Century Laguna 16 in Elk Grove). The winning PSAs are incorporated into the WEP's media activities as well. The 2022 Grand Prize winner video "Doing Your Part" appeared 2,619 times in theatres and delivered 49,000 impressions. The 2023 Grand Prize winner video "Saving Water" appeared 2,149 times in theatres and delivered 47,000 impressions. Students from about a dozen area schools submitted a total of 54 videos total for the 2022 and 2023 contests.

In late 2023, WEP sunset the Water Spots Video Contest and launched a new school education program, Drip Drop, Hip Hop, in collaboration with NorCal School of the Arts (NorCal Arts), which brings together the worlds of art and sustainability to empower children, families, and communities in the Sacramento region. Funded by a $300,000 grant from the Capital Region Creative Corps and California Arts Council, Drip Drop, Hip Hop educates students and families about water efficiency through a two-person play and arts-integrated lesson plan. The program is free of charge for primarily Title I schools and community venues in Sacramento, Placer, and El Dorado counties plus the City of West Sacramento. The children receive a shower timer with water-efficiency tips with each classroom visit. Additionally, in 2024 the program developed a 30-second television and radio Public Service Announcement (PSA) showcasing local children spreading the water efficiency message to a broader audience in both English and Spanish. In 2024, the PSA was broadcast 1,205 times in 7 television outlets for a total of 5.6 million impressions for an added value of $124,250 and 567 times in 17 radio outlets for a total of 1.2 million impressions and an added value of $45,290. As of the end of 2025, the Drip Drop Hip Hop reached 13,232 students through 509 classroom

[26]The program did not host a Water Spots Video Contest in 2021 due to the COVID pandemic.

performances and additional community events in Sacramento, Placer, and El Dorado counties. Teachers reported increased water conservation knowledge and that students shared the information with their families.

Implementation of this DMM is active and ongoing. CHWD plans to continue to develop information and activities aimed at public education and outreach.

Programs to Assess and Manage Distribution System Real Loss

The District maintains information specific to the distribution system, including age of infrastructure and performance, to inform the Capital Improvement Program (CIP). The CIP is the primary program to assess and manage distribution system real loss, and budget allocations consistently reflect the District's commitment thereto. Recent budget allocations aimed at addressing distribution system real loss include water main pipeline, valve, and meter replacements.

Additionally, CHWD conducts annual Distribution System Water Audits (consistent with AWWA M36 methodology using software analysis) to characterize water system loss. The audits use detailed internal records and allow CHWD to assess and report distribution system water loss on an annual basis. Results from the audits inform the CIP by identifying the need for addressing distribution system real loss. Copies of CHWD's recent validated water audits are available through the DWR Water Use Efficiency Data (WUEdata) Portal.[27]

Water Conservation Program Coordination and Staffing Support

In addition to the public outreach presented above, the District also employs an active Water Conservation/Efficiency Program (Efficiency Program). The Efficiency Program is supported by a diverse team of staff who coordinate with the Board of Directors regarding projected water supply and conservation stages to be implemented. Goals and objectives of the Efficiency Program include:

- Implementation of the District's conservation program
- Track and monitor State and Federal legislation that may impact conservation efforts
- Work with RWA Water Efficiency Program Advisory Committee to develop and implement beneficial water efficiency programs

In addition, the District has established and maintains a Water Efficiency Reserve (Efficiency Reserve). The Efficiency Reserve aims to provide funds for use in a water supply shortage, water supply interruption, government mandates (Federal, State, Regional, and Local), and other programmatic needs and can be used to fund additional staff as well as other efforts.

[27] DWR WUE data Portal: https://wuedata.water.ca.gov/

4.3.2. Recent DMM Activities

CHWD has continued to aggressively promote and implement water conservation actions with great success. Prior to the recent droughts, the District reached remarkable on-going conservation levels through the attentive actions of its citizens. Highlights of the District's recent actions and conservation measures include:

- Free Smart Irrigation Controller Program – 271 controllers provided
- Pressure Reducing Valve Rebates – 103 rebates
- Ultra-Low Flush Toilet Rebates – 296 rebates
- High-Efficiency Clothes Washer Rebates – 100 rebates
- Home Water Audits – 378 audits
- Poster Contest - various

More information on the District's DMMs can be found at, https://chwd.org/.

4.3.3. Planned DMM Activities

In addition to ongoing water conservation commitments, the District will continue to evaluate the need for additional programs and actions necessary to achieve water use objectives in compliance with CWC §10609.20. Resources will be dedicated in the District's budget for demand management activities which will help comply with these future water use objectives. Special consideration will be taken regarding changing urban water use patterns in the service area as well as the configuration of anticipated new residential customers to ensure use remains efficient.

4.4. Forecasting Customer Water Use

Forecasting future water demands begins with an understanding 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 customer well into the future – especially factors that directly affect the efficiency of water use.

Pursuant to CWC §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, the future water uses of both existing customers and those added over the 25-year planning horizon should reflect the "efficient use" of water.

4.4.1. Representative Current Water Use

Table 4-1, **Table 4-2**, and **Table 4-3** provided the actual monthly customer water use for 2021 through 2025 for potable customers. From this information, an estimate of the representative "current" water use by existing customers has been developed. Knowing that actual use by

existing customers varies slightly year-to-year based on a variety of factors (e.g., total rainfall and the timing of spring rain events impacting when landscape irrigation may begin), the recent data provides a basis for estimating current water use.

This representative water use for current conditions provides the foundation for estimating the future needs of these existing customers. **Table 4-5** provides the representative monthly and annual current water use, including distribution system losses.

TABLE 4-5. REPRESENTATIVE CURRENT RETAIL CUSTOMER WATER USE (VALUES IN ACRE-FEET)

Use Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Single-Family Residential	600	320	270	400	320	780	1,030	760	990	730	520	350	**7,070**
Multi-family Residential	280	140	130	150	130	210	350	110	300	180	170	150	**2,300**
Commercial/Institutional	100	40	50	60	50	90	130	80	120	90	80	50	**940**
Industrial	30	10	20	10	40	10	80	10	80	10	40	10	**350**
Landscape Irrigation	18	9	9	9	18	45	90	63	81	54	18	18	**432**
Other	0	0	0	0	0	0	0	10	0	10	0	0	**20**
Total	**1,028**	**519**	**479**	**629**	**558**	**1,135**	**1,680**	**1,033**	**1,571**	**1,074**	**828**	**578**	**11,112**

Note: The demands presented in this table are derived from 2025 actual deliveries with minor modifications.

4.4.2. FACTORS AFFECTING FUTURE CUSTOMER USE

There are several factors that affect the forecast of future customer use, ranging from State and local landscape regulations, building code requirements, and other water-use mandates, to changes in the types of housing products being offered. These factors are incorporated into determining appropriate per-dwelling unit or per customer connection water demand values for use in forecasting future water needs. Relevant characteristics of the factors are described here.

WATER CONSERVATION OBJECTIVES

In 2009, Governor Arnold Schwarzenegger signed Senate Bill No. 7 (SBX7-7), which established a statewide goal of achieving a 20 percent reduction in urban per capita water use by 2020 for urban retail water suppliers.[28] As presented previously, the District has met and maintained this mandated target.

Furthermore, the efforts undertaken by the District and its customers to meet these targets, as well as efforts throughout the State by other urban retail suppliers, have changed the availability and use of appliances, fixtures, landscapes, and other water using features, through changes or additions to ordinances and/or through a continuing "conservation ethic."

[28]CWC §10608.20

In response to the recent multi-year drought conditions, then Governor Brown issued Executive Order B-37-16 in May 2016 entitled "Making Water Conservation a California Way of Life." In May 2018, Governor Brown signed into law SB 606 and AB 1668, which imposed additional statutory requirements beyond the 20 percent by 2020 target reflected in the 2009 legislation (also known as "Urban Water Use Objectives). This has resulted in continued efforts by the District to increase water use efficiency and ultimately to reduce water demands of existing water users and continue to influence the expected demands of future water users.

Prohibition on Non-Functional Turf

In 2023, the Legislature determined that the use of treated, potable drinking water for irrigating decorative or aesthetic landscaping that serves no recreational or public use is inefficient and inconsistent with state water conservation and climate resilience objectives.[29] Under CWC §10608.12(u), "nonfunctional turf" (NFT) is defined as "any turf that is not functional turf, and includes turf located within street rights-of-way and parking lots." Per CWC §10608.12(m), "functional turf" is defined as "a ground cover surface of turf located in a recreational use area or community space. Turf enclosed by fencing or other barriers to permanently preclude human access for recreation or assembly is not functional turf". The NFT definition explicitly excludes cemeteries, parks, sports fields, and lawns that are regularly used for recreation or community gathering.[30]

The prohibition on NFT applies primarily to commercial, industrial, institutional, and municipal properties, as well as common areas maintained by homeowners' associations and common interest developments[31]. Potable water may continue to be used to maintain the health of trees and other perennial, non-turf landscaping, and where irrigation is necessary to address immediate public health or safety concerns. For example, potable irrigation may be allowed where discontinuation would compromise fire prevention or fuel reduction efforts, dust control, or other measures needed to protect human health and safety.

Implementation of the NFT provisions is phased over several years and may be enforced at the local level by public water systems, cities, and/or counties.[32] Non-compliance of the NFT provisions may result in civil penalties imposed on property owners, or other locally defined enforcement actions.

Initial compliance begins in 2026, with progressively broader property categories subject to the prohibition through 2030 and beyond, including later deadlines for properties located in

[29] In 2025 provisions of Assembly Bill 1572 were codified into the California Water Code.

[30] CWC §10608.12

[31] Per Civil Code §4100, common interest developments are defined as community apartment projects, condominium projects, planned developments, and stock cooperatives.

[32] CWC §10608.14

disadvantaged communities.[33] In 2026, public water systems are required to update local ordinances and customer policies to reflect the new restrictions.

The following timeline outlines the dates set forth by the CWC and corresponding requirements:

- **By January 1, 2027**: Public water systems must update local ordinances, regulations, or policies to reflect NFT requirements and must notify customers.
- **Beginning January 1, 2027:** State properties owned or leased by the Department of General Services will no longer be allowed to irrigate NFT with potable water. In addition, all potable irrigation of NFT will be prohibited for local governments, public agencies, public water systems[34], as well as municipal and institutional properties. Revised water systems ordinances and customer communications must be in effect statewide.
- **Beginning January 1, 2028**: All potable irrigation of NFT will be prohibited statewide for all other commercial and industrial properties.
- **Beginning January 1, 2029**: All potable irrigation of NFT will be prohibited for multifamily residential properties, excluding disadvantaged communities. This limitation also applies to common areas of homeowners' associations and similar entities.
- **June 30, 2030:** Commercial, industrial, and institutional property owners with more than 5,000 square feet of irrigated area must begin certifying compliance to the State Water Resources Control Board. Certification is required every three years thereafter (through 2039).
- **June 30, 2031:** Owners of HOA and common-interest development properties with more than 5,000 square feet of irrigated common area must begin certifying compliance. Certification is required every three years thereafter (through 2040).

Requirements in California Building Code

Beginning in January 2010, the California Building Standards Commission adopted the statewide mandatory Green Building Standards Code (hereafter the "CAL Green Code") requiring the installation of water-efficient indoor and outdoor infrastructure for all new projects after January 1, 2011. The CAL Green Code was incorporated as Part 11 into Title 24 of the California Code of Regulations and was revised in 2013 and in 2016 to address changes to the State's Model Water Efficient Landscape Ordinance ("MWELO") adopted during the

[33] Per CWC 10608.12 (l), "disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

[34] Per CWC §10608.14(a)(5), properties owned by public agencies, local governments, and public water systems located in a disadvantaged community have an implementation date beginning January 1, 2031.

drought.[35] Revisions to the CAL Green Code in 2019 modified sections to direct users to MWELO regulations contained in other regulatory sections.[36]

The CAL Green Code applies to the planning, design, operation, construction, use, and occupancy of every newly constructed or remodeled building or structure. All new residential and non-residential customers must meet the water use requirements of the CAL Green Code as well as the outdoor requirements described by MWELO. The CAL Green Code's requirements generally manifest through: (1) installation of plumbing fixtures and fittings that meet the 20 percent reduced flow rate specified in the CAL Green Code, or (2) by demonstrating a 20 percent reduction in water use from the building "water use baseline."56 Future customers are expected to satisfy one of these two requirements through the use of appliances and fixtures such as high-efficiency toilets, faucet aerators, on-demand water heaters, or other fixtures as well as Energy Star and California Energy Commission-approved appliances.

California Model Water Efficient Landscape Ordinance and County Ordinance

The Water Conservation in Landscaping Act was enacted in 2006, and has since been revised and expanded multiple times by DWR resulting in today's MWELO.57 In response to Governor Brown's executive order dated April 1, 2015, (EO B-29-15), DWR updated the MWELO and the California Water Commission approved the adoption and incorporation of the updated State standards for MWELO on July 15, 2015. MWELO requires a retail water supplier or a county to adopt the provisions of the MWELO or to enact its own provisions equal to or more restrictive than the MWELO provisions.[37]

The changes included a reduction to 55 percent of reference evapotranspiration rates for the maximum amount of water that may be applied to residential landscapes, and non-residential projects to 45 percent, which effectively reduces the landscape area that can be planted with high water use plants, such a turf. For residential projects, the allowable maximum coverage of high-water use plants is reduced to 25% of the landscaped area (down from 33%). The newly updated MWELO also now applies to new construction with a landscape area greater than 500 square feet (the prior MWELO only applied to landscapes greater than 2,500 square feet).[38]

[35]The 2016 Triennial Code Adoption Cycle consisted primarily of the MWELO updates adopted in response to the drought. Indoor infrastructure changes were limited to some minor non-residential fixture changes and changes to the voluntary Tier 1 and Tier 2 requirements. Additionally, the Code was updated to match the new Title 20 Appliance Efficiency Regulations.

[36]The 2019 updated sections to direct CAL Green code users to Title 23 of the California Code of Regulations to allow Title 23 to be the sole location of MWELO requirements.

[37]The City has incorporated the State's MWELO requirements and includes a Water Efficiency Application Form that must be submitted with any new project brought before the City's Planning Department.

[38] CCR Title 23, Div. 2, Ch. 27, Sec. 490.1.

Metering, Volumetric Pricing, and Water Budgets

CWC §525 requires water purveyors to install meters on all new service connections after January 1, 1992. CWC §527 requires water purveyors to charge for water based upon the actual volume of water delivered if a meter has been installed. This action alone is not expected to substantially reduce water use. However, it is anticipated that the retail billing system will encourage and help maintain reasonable use (e.g., through implementation of a tiered rate structure and/or water budgets), so that individual customer water demands are reasonably not expected to increase over time.

4.4.3. Customer Water Use Forecast

The following subsections detail the assumptions used to forecast customer water use and gross water needs for CHWD's water service area, separated into the needs of (a) existing potable water use customers, and (b) new potable water use customers.

Existing Customer Future Water Use

To be conservative and assure the analysis of water system reliability is adequate (see Chapter 5), the District is maintaining the annual "current" customer demand as shown in **Table 4-5** (above), a total annual customer demand of about 11,112 AF, with a production need of just about 11,640 AF when considering system losses.

While these existing customers may undertake a variety of conservation measures – actively through decisions to modify a behavior or a water use, or passively through the purchase of appliances and fixtures that simply use less water – they may also maintain their use as-is. Holding the current use as a constant for all existing customers into the future will provide a conservative number that can be re-evaluated prior to the 2025 UWMP and compliance with urban water use objectives.[39]

New Customer Future Water Use

As detailed in Chapter 2, the District anticipates continued growth with an associated increased demand placed upon the District's water supplies. Forecasting the needs of these future customers is dependent upon the type and number of customers and the unit water demand factors associated with each customer type.

For this UWMP, two distinct customer classifications are anticipated: (1) residential, and (2) non-residential. Residential customers will include both single-family dwelling units built under a variety of densities and multi-family residential dwelling units. Non-residential uses are expected to include a blend of commercial, institutional, industrial, and active landscapes, such as parks, in ratios similar to the District's current residential-to-non-residential customers.

[39] Per CWC §10609.20, urban water suppliers shall calculate a water use objective composed of, among other factors, aggregated efficient indoor water use based upon State derived standards.

Values developed for each distinct land use are based on several sources of information, details of which are provided in the following subsections.

New Residential Customer Water Use

Table 2-3 summarized the District's anticipated new residential growth over the UWMP planning horizon. This growth provides the basis for the estimated future customer water needs, as the non-residential customers will be a ratio of the new residential customers. **Table 4-6** presents the relevant residential growth information from **Table 2-3**.

Table 4-6. Anticipated New Residential Units through 2050 (from Table 2-3)

Planned Development Name	Dwelling Unit Potential
Expected Infill Projects - Residential	52
Sunrise Tomorrow - Residential	2,220
Total	**2,272**

In addition to the new developments characterized above, the District anticipates new residential demands associated with the construction of Accessory Dwelling Units (ADUs) within the service are over the planning horizon. ADUs are residential structures constructed on parcels that currently have homes and are usually smaller in overall construction footprint. Based on recent forecasts, the District estimates a total of 1,500 ADUs being provided service within this 2025 UWMP's planning horizon. Accordingly, these additional units are incorporated into the demand projections.

The District anticipates these new residential elements will be built in accordance with all applicable building codes including the Cal Green Code discussed previously, and relevant local ordinances.

Distinct demand factors are provided for the following residential uses:

- Indoor Residential Use – this category identifies the generally anticipated water use for single-family and multi-family dwelling units.
- Outdoor Residential Use – this category addresses the landscape water demands commonly anticipated for the two primary dwelling unit types.

For purposes of this UWMP, residential unit water demand factors are described as "the acre-feet of water use annually per dwelling unit" – or AF/dwelling unit ("AF/du").

Residential unit factors for new customers were obtained from the recently completed Master Plan Technical Memorandum (draft dated 2025) and incorporated into these demand projections. For planning purposes, the per capita water use associated with residential customers is 149 gallons per capita per day.

New Non-Residential Customer Water Use

Also as described in Chapter 2, the District anticipates several acres of non-residential uses to be developed in the future associated with known development projects. Non-residential per-connection demand factors were also estimated for purposes of forecasting the water needs of these anticipated commercial, institutional, industrial, and irrigated landscape customers. **Table 4-7** presents non-residential growth information from **Table 2-3** and is used to develop demand projections presented in the following subsection.

Table 4-7. Anticipated New Non-Residential Area (from Table 2-3)

Planned Development Name	Acres
Expected Infill Projects – Commercial	26.18
Sunrise Tomorrow - Commercial	39.72
Total	**65.90**

For purposes of this 2025 UWMP, the demand factor for new, non-residential customers was obtained from the District's Master Plan, where an average of 1,400 gallons day per acre was utilized.

The resulting forecast future use of existing and new non-residential customers is provided below in **Table 4-8**.

4.4.4. Summary of Forecast Water Use

Based upon the estimated water use of the existing and new customers, the District anticipates a minor increase in potable water use over the planning horizon. **Table 4-8** presents the resulting customer water use forecast. Although the forecast is presented on an annual basis in 5-year increments through 2050, the monthly pattern is expected to mimic the current monthly pattern detailed in prior tables. This characterization is important when evaluating the District's water service reliability as detailed in Chapter 5.

TABLE 4-8. FORECAST FUTURE WATER USE (VALUES IN ACRE-FEET PER YEAR)

	Water Use Sector	2030	2035	2040	2045	2050
Existing	SFR	7,070	7,070	7,070	7,070	7,070
	MFR	2,300	2,300	2,300	2,300	2,300
	Com./Inst.	940	940	940	940	940
	Industrial	350	350	350	350	350
	Landscape Irrigation	432	432	432	432	432
	Other	20	20	20	20	20
New	Residential	280	550	817	1,083	1,349
	Com./Inst.	36	72	108	143	179
Total	Residential	9,650	9,920	10,187	10,453	10,719
	Com./Inst.	976	1,012	1,048	1,083	1,119
	Industrial	350	350	350	350	350
	Landscape Irrigation	432	432	432	432	432
	Other	20	20	20	20	20
	Loss	526	540	554	568	582
Total		**11,954**	**12,274**	**12,591**	**12,906**	**13,222**

As previously stated, the demands associated with "Existing" customer water use presented in **Table 4-8** assumes a 10% reduction for the Landscape Irrigation demands associated with CWC §§10608.14. No new Landscape Irrigation demands are incorporated as the District does not anticipate new connections associated with functional turf.

4.4.5. DRY YEAR ADJUSTMENTS

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

Conservative modifications to the forecasted normal year water use to more likely reflect use conditions during drier and dry years are warranted to help adequately address water service reliability in Chapter 5. For purposes of this UWMP, the following adjustment is made:

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.

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.[40]

4.5. PROJECTING DISADVANTAGED COMMUNITY WATER USE

Legislation requires the District to project water demands for low-income housing needs. Although the CHWD service area does not match the City of Citrus Heights boundary, CHWD's service area encompasses about two-thirds of the geographic area of the City of Citrus Heights. This analysis assumes the City's housing element is representative of the CHWD service area as approximately 70 percent of CHWD's service area is within the City's boundary.

Per California Health and Safety Code §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 the American Community Survey for 2024 (most recent) and determined to be about $91,000 for the City.[41] Therefore, 80% of this is estimated to be about $72,800 per year. According to the detailed data, approximately 40% of the households 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. Applying this condition to the forecast water use for the entire City results in the estimate provided in **Table 4-9**.

TABLE 4-9. ESTIMATED LOW-INCOME WATER USE FORECAST

	2030	2035	2040	2045	2050
Total Potable Use	11,954	12,274	12,591	12,906	13,222
Low Income Use	3,598	3,699	3,799	3,898	3,997
% of Total Potable	30.1%	30.1%	30.2%	30.2%	30.2%

[40] CWC §10632(a)(2) states water suppliers should use "unconstrained demand" when performing their annual water supply and demand assessment.

[41] This data is from the Household Income, American Community Survey 1-year estimates for 2024 (most recent). https://censusreporter.org/profiles/16000US0613588-citrus-heights-ca/

CHAPTER 5
WATER SERVICE RELIABILITY

This chapter provides the District's water service reliability findings as required under CWC §10635.

Assessing water service reliability is the fundamental purpose for the District in preparing its 2025 UWMP. Water service reliability reflects the District's ability to meet the water needs of its customers under varying conditions throughout the planning horizon to 2050. The District's 2025 UWMP considers the reliability of meeting customer water use by analyzing anticipated hydrological variability, regulatory variability, climate conditions, and other factors that impact the District's water supply and its customer water use. The reliability assessment looks beyond past experience and considers what could be reasonably expected in the future. This chapter synthesizes the details embedded 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 the reliability findings of the Five-Year Drought Risk Assessment as well as Long-Term Service Reliability.

This analysis confirms the District has reliable water supplies available for its entire service area through 2050.

5.1. Five Year Drought Risk Assessment

The Drought Risk Assessment requires a methodical assessment of water supplies and water uses under an assumed drought period that lasts five consecutive years.

The District maintains sufficient water supplies to meet current and projected customer demands under extended dry conditions. The District's supply portfolio consists primarily of purchased surface water supplemented by groundwater production, which provides operational flexibility during both single dry year and multiple dry year conditions.

For purposes of this assessment, water demands during the five-consecutive-year drought period reflect dry-year demand conditions, consistent with the District's drought planning assumptions described in Chapter 4. Groundwater production is assumed to be approximately 900 – 1,150 acre-feet per year during all years of the analysis, with purchased water supplies adjusted to meet the remaining demand. Surface water availability is directly tied to the reliability of SJWD supplies from the American River watershed and Folsom Reservoir. Information regarding historical inflow and storage for Folsom Reservoir indicate that the recent 5-year period from 2012 through 2016 provides the basis for the surface water

supply characterization incorporated into this DRA as this represents the driest 5-year sequence since 1901. For this period, average surface water deliveries from SJWD to the District was 11,400 AF, with groundwater making up the remaining portion of District supplies.

Table 5-1 presents the District's five-year drought risk assessment for the period 2026 through 2030. Based on the historical conditions, total available supply is sufficient to meet projected dry-year demands in each year of the analysis.

TABLE 5-1. FIVE YEAR DROUGHT RISK ASSESSMENT (ACRE-FEET)

	2026	2027	2028	2029	2030
Surface Water	11,400	11,400	11,400	11,400	11,400
Groundwater	874	944	1,013	1,083	1,152
Total Supply	12,274	12,344	12,413	12,483	12,552
Demand	12,274	12,344	12,413	12,483	12,552
Difference	0	0	0	0	0

As shown in the table, total projected water use increases over the five-year period, reflecting anticipated growth in municipal demands. Available water supplies are assumed to be sufficient to meet these demands through a combination of purchased water and groundwater production.

The District does not project a supply shortfall during the five-consecutive-year drought period. This demonstrates that, with implementation of planned water management strategies and demand reductions, the District can maintain reliable water service under extended dry conditions.

5.2. LONG TERM SERVICE RELIABILITY

The Urban Water Management Planning Act directs urban water purveyors to analyze water supply reliability in a normal, single dry, and five consecutive dry years over a 20-year planning horizon. The 2025 UWMP Guidebook recommends extending that period to twenty-five (25) years to provide a guiding document for future land use and water supply planning through the next UWMP cycle. The following subsections describe the long-term water service reliability for the District through a 25-year planning horizon.

5.2.1. LONG TERM SERVICE RELIABILITY

The District's long-term service reliability reflects the recommended 25-year planning horizon anticipating a normal, single dry, and five consecutive dry years from 2025 through 2050.

NORMAL AND SINGLE DRY CONDITIONS 2030-2050

The District's projected water supplies under normal and single dry year conditions are based on the hydrologic, regulatory, and institutional assumptions described in previous sections. As

shown in **Table 5-2**, the District has sufficient water supplies to meet projected customer demands through 2050 under both normal and single dry year conditions.

Projected demands under single dry year conditions reflect increased water use associated with hotter and drier conditions, particularly for outdoor irrigation. For purposes of this analysis, landscape irrigation demands are assumed to increase by approximately 5 percent during single dry year conditions relative to normal year conditions. This results in higher total system demand during dry years.

Groundwater production is assumed to be approximately 900 acre-feet per year under normal conditions, with purchased surface water supplies adjusted to meet the remaining demand. Conversely, groundwater production is assumed to be increased to approximately 3,000 acre-feet per year under the single dry year condition, with purchased surface water supplies adjusted to meet the remaining demand (up to assumed 11,400 AF).

As shown in **Table 5-2**, total available supply is sufficient to meet projected demands in each planning year under both normal and single dry year conditions, and no supply shortfalls are anticipated.

TABLE 5-2. NORMAL AND SINGLE DRY YEAR WATER SUPPLY AND DEMAND THROUGH 2050 (ACRE-FEET PER YEAR)

Normal Year	2030	2035	2040	2045	2050
Surface Water	11,054	11,374	11,691	12,006	12,322
Groundwater	900	900	900	900	900
Total Supply	11,954	12,274	12,591	12,906	13,222
Demand	11,954	12,274	12,591	12,906	13,222
Difference	0	0	0	0	0
Single Dry Year	**2030**	**2035**	**2040**	**2045**	**2050**
Surface Water	9,552	9,888	10,221	10,552	10,883
Groundwater	3,000	3,000	3,000	3,000	3,000
Total Supply	12,552	12,888	13,221	13,552	13,883
Demand	12,552	12,888	13,221	13,552	13,883
Difference	0	0	0	0	0

FIVE CONSECUTIVE DRY YEARS 2030-2050

The Districts surface water supplies experience constraints in dry years; however, these constraints are manageable, and the supplies are considered reliable. Although the District has sufficient supplies to meet its five consecutive dry year demands, additional regulatory constraints, such as drought emergency declarations by the Governor or State-ordered curtailment of the District's water rights, could affect supply availability. To the extent that such conditions can be reasonably projected, the District has considered potential regulatory

and operational constraints and has determined that the supply estimates presented herein appropriately reflect expected conditions during multiple dry years.

The District also assumes that water demand during a dry-year would remain unconstrained, causing a slight increase in the actual water need of the District's customers. This characterization of water demand provides a conservative estimate of demand conditions in a five-year drought scenario. Comparing the District's supply availability with the slightly increased demand conditions, the District has sufficient supplies to meet five consecutive dry year conditions through 2050.

Table 5-3 below shows the annual water supply and demand conditions in five consecutive dry years from 2030 through 2050. Actual supply and demand conditions experienced during a multi-year drought could vary from the representations presented here and as described in detail in Chapter 3 and Chapter 4.

TABLE 5-3. FIVE CONSECUTIVE DRY YEARS WATER SUPPLY AND DEMAND THROUGH 2050 (ACRE-FEET PER YEAR)

		2030	2035	2040	2045	2050
Year 1	Supply	12,552	12,955	13,221	13,552	13,883
	Demand	12,552	12,955	13,221	13,552	13,883
	Difference	0	0	0	0	0
Year 2	Supply	12,619	12,955	13,287	13,618	13,950
	Demand	12,619	12,955	13,287	13,618	13,950
	Difference	0	0	0	0	0
Year 3	Supply	12,687	13,021	13,353	13,684	14,016
	Demand	12,687	13,021	13,353	13,684	14,016
	Difference	0	0	0	0	0
Year 4	Supply	12,754	13,088	13,419	13,751	14,082
	Demand	12,754	13,088	13,419	13,751	14,082
	Difference	0	0	0	0	0
Year 5	Supply	12,821	13,154	13,485	13,817	14,149
	Demand	12,821	13,154	13,485	13,817	14,149
	Difference	0	0	0	0	0

5.3. ANNUAL RELIABILITY ASSESSMENT

Each year, the District considers current supply and demand conditions and performs an annual water supply and demand assessment (Annual Assessment) pursuant to CWC §10632.1 to evaluate real time circumstances, which may differ from the projected DRA scenario. This assessment evaluates current water supply and use for a 12-month forecast

from July through the following June. Procedures for conducting the Annual Assessment are contained in the District's Water Shortage Contingency Plan. The District has conducted the assessment as required by the CWC and will continue to provide a reliability assessment for current conditions regarding supplies and expected demands.

5.4. Water Service Reliability Summary

The District's water supply portfolio is capable of meeting the water uses in its service area in normal, single dry, and five consecutive dry years from 2025 through 2050.

CHAPTER 6
WATER SHORTAGE CONTINGENCY PLAN

This Water Shortage Contingency Plan (WSCP) presents Citrus Heights Water District's (District or CHWD) approach for identifying and mitigating various water shortage conditions, pursuant to California Water Code (CWC) §10632. This WSCP is included in the District's 2025 UWMP, although the WSCP can be amended, as needed, without the requirement to amend the UWMP. It is noted that the CWC does not exclude the District from taking actions not specifically contained in its WSCP in response to supply shortage conditions.

This WSCP applies to any shortage condition identified or incurred by the District, including shortages identified by the Annual Water Supply and Demand Assessment (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.

6.1. Legal Authorities

The District has the legal authority to implement and enforce its WSCP. California Constitution Article X, Section 2 and CWC section 100 provide that water must be put to beneficial use, the waste or unreasonable use or unreasonable method of use of water shall be prevented, and the conservation of water is to be exercised with a view of the reasonable and beneficial use thereof in the interest of the people and the public welfare. Sections of CWC Chapter 3 commencing with Section 350 of Division 1, provide the authority for the governing body of a water agency to declare a water shortage and to adopt and enforce water conservation restrictions. (CWC §§ 350- 359, 375-378.0.)

If necessary, the District shall declare a water shortage emergency in accordance with CWC Chapter 3 of Division 1. Once having declared a water shortage, the District is provided with broad powers to implement and enforce regulations and restrictions for managing a water shortage. For example, CWC section 375(b) grants the District with the authority to set prices to encourage water conservation.

Under California law, including CWC Chapters 3.3 and 3.5 of Division 1, Parts 2.55 and 2.6 of Division 6, Division 13, and Article X, section 2 of the California Constitution, the District is authorized to implement the water shortage actions outlined in this WSCP. In water shortage cases, shortage response actions to be implemented will be at the discretion of the District

and will be based on an assessment of the supply shortage, customer response, and need for demand reductions as outlined in this WSCP.

CHWD is organized under the Irrigation District Law (CWC §§ 20500-29978) and is authorized to do any act necessary to furnish sufficient water in the district for any beneficial use (CWC § 22075), and is therefore granted the authority to enforce its rules and regulations. As a public entity, the District is authorized to "adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity" (CWC § 375). For the ordinance or resolution regarding the adoption of a conservation plan, the ordinance/resolution is made effective upon adoption (CWC § 376).

The aforementioned powers derived from CHWD's organizing statutes are in addition to general powers granted to water distributors in CWC section 350-359. CWC section 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 District will vote to adopt its UWMP and WSCP as stated in Resolutions No. 03-2021 and No. 04-2021, respectively. The two Resolutions authorize the implementation and enforcement of this WSCP, which is included in the 2025 UWMP.

It is noted that upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the state will defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

CHWD will also coordinate with the City of Citrus Heights, as well as the counties of Sacramento and Placer for the possible proclamation of a "local emergency" under California Government Code, California Emergency Services Act (Article 2, Section 8558).

6.2. Water Supply Reliability Analysis

CHWD's water supply consists of surface water purchased from San Juan Water District (SJWD) and locally produced groundwater from its own wells. Both supply sources can be impacted by climate factors, catastrophic events, and regulatory measures. The District

evaluates its overall water supply reliability through its Urban Water Management Plan, as well as through other regional and San Juan Water District planning efforts. The following summarizes the District's current understanding of its supply reliability.

SJWD holds a pre-1914 appropriative water right of 26,400 acre-feet per year (AFY) and an appropriative water right of 6,600 AFY both from the American River. The senior water right status prompted the U.S. Department of the Interior, Bureau of Reclamation (USBR) to enter into an agreement with SJWD upon construction of Folsom Reservoir, setting the District's maximum diversion under its water rights to 33,000 AFY at a rate of 75 cubic feet per second. SJWD also has the following contractual water entitlements: (1) a Central Valley Project (CVP) water supply contract for 24,200 AFY; and (2) a water supply contract with Placer County Water Agency (PCWA) for 25,000 AFY. SJWD has an existing Warren Act Contract with USBR to wheel non-CVP water supply through federal facilities, such as Folsom Reservoir and the intake facilities that connect to the District's water treatment plant (WTP).

The District's groundwater supplies are projected to be available for pumping during drought periods or when surface water availability is limited. The groundwater supply, the North American Subbasin, is sustainably managed by all the region's pumpers in coordination with the region's groundwater sustainability agencies. The District does not currently project any groundwater shortages during a drought lasting up to five years. However, the ability to pump groundwater may be limited by regulatory or legal requirements, including under the Sustainable Groundwater Management Act (SGMA). The District will address these restrictions as they materialize and modify its water shortage supply strategy as necessary.

CHWD's current strategy to address supply shortages includes both demand reductions and increasing groundwater pumping depending on the declared shortage, as described below.

6.3. Annual Water Supply and Demand Assessment Procedures

The District 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 the District will consider include:

- Projected weather conditions
    - Precipitation versus historical on a monthly basis
- Projected Unconstrained Demand
    - Production versus historic on a monthly basis
    - New customer growth
    - Identify artificially supplied water features separate from swimming pools and parks

    - Water Use Objective tracking
- Projected Supply Availability
    - SJWD supply projections
    - Groundwater production capacity

The general procedure is listed below. The District 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 to characterize past 12 months' conditions. Considering recent conditions and available forecasts, identify the projected dry year scenario available supply from:
    - SJWD-provided supply availability
    - CHWD groundwater well current capacity
2. Estimate unconstrained District 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.
3. Identify and incorporate any applicable constraints (infrastructure, regulatory, etc.) regarding receiving wholesaler supply or groundwater production.
4. Compare projected wholesaler supplies and available groundwater production facilities with anticipated District demands.
5. 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.
6. Present to Board of Directors for approval of Annual Water Supply and Demand Assessment (and resulting Conservation Stage Declaration, if applicable).

The general proposed timeline is as follows:

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

6.4. Water Shortage Stages

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

associated response actions described in this section, was adopted by the Board of Directors through Ordinance No. 01-2021 (June 16, 2021).

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.

6.4.1. Normal Water Supply

The District's water supply and distribution system is able to meet all the water demands of its customers in the immediate future. Regulations for Normal Water Supply apply to all stages and include the following:

- Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
- 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.
- Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached to any hose or filling apparatus in use.
- Leaking customer pipes or faulty sprinklers shall be repaired within five working days or less if warranted by the severity of the problem.
- All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof.
- Washing streets, parking lots, driveways, sidewalks, or buildings, is prohibited except as necessary for health, esthetic, or sanitary purposes.
- Customers are encouraged to take advantage of the District's water conservation programs and rebates.

Table 6-1 through **Table 6-6** show a summary of the staged response actions.

TABLE 6-1. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 1

Water Alert: Savings up to 10%
Actions include regulations from Normal stage 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.
Customers - Actions to Reduce Demand up to 10 Percent • Reduce total water use by 10%. Contact the District for tips and techniques to reduce indoor and outdoor water use. • 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.
District Actions • Leak repair receives higher priority. • Increase drought awareness through additional public outreach measures that notify public and customers of declared stage, requirements, and available conservation program support. • Standard rates in effect. • Increased monitoring of customer use. • Accelerate infrastructure repairs and improvements. • Increase groundwater pumping as available.

TABLE 6-2. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 2

Moderate Shortage: Savings up to 20%
Actions include regulations from Stage 1 plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 20 percent gap between supplies and demands.
Customers - Actions to Reduce Demand up to 20 Percent • Leaking customer pipes or faulty sprinklers shall be repaired within two working days or less if warranted by the severity of the problem. • Reduce total water use by 20%. Contact the District for tips and techniques to reduce indoor and outdoor water use. • Requested to only irrigate three times per week. • Application of potable water to outdoor landscapes during and within 12 hours after measurable rainfall is prohibited.
District Actions • Communicate mandatory reduction targets to customers. • Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors. • Decrease system flushing frequency. • Increase groundwater pumping as available.

TABLE 6-3. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 3

Severe Shortage: Savings up to 30%
Actions include regulations from preceding stages plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 30 percent gap between supplies and demands
Customers - Actions to Reduce Demand up to 30 Percent • Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem. • Special Water Feature Distinction - All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds, or streams. Water use for ornamental ponds and fountains is prohibited. • Reduce total water use by 30%. Contact the District for tips and techniques to reduce indoor and outdoor water use. • Irrigation shall be limited to two days per week. The days of the week when outdoor water will be permitted shall be set based on the last digit of the street address. 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, or 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 48 hours after measurable rainfall is prohibited. • Use of reclaimed water for construction purposes is encouraged. • Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations or unless specifically authorized by the District. • Installation of new turf, lawn, and/or landscaping is prohibited. • Restaurants shall serve water only upon request.
District Actions • Communicate mandatory reduction targets to all customers. • Provision of the Water Shortage Rate Structure may be implemented by the Board of Directors. • Increase groundwater pumping to the maximum feasible level to help avoid a Stage 4 supply shortage. • Suspend commitments for new water service connections unless all requirements of the Department of Water Resources Model Water Efficient Landscape Ordinance (MWELO) are met and landscape plans are approved by the appropriate city or county building department. • Apply all Stage 3 landscape restrictions to any landscape authorized for new service connections.

TABLE 6-4. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 4

Critical Shortage: Savings up to 40%
Actions include regulations from preceding stages plus those listed below. When implemented as a whole program, these actions together are expected to eliminate up to a 40 percent gap between supplies and demands.
Customers - Actions to Reduce Demand up to 40 Percent • Water for flow testing and construction purposes from water agency fire hydrants and blowoffs is prohibited. • Reduce total water use by 40%. Contact the District for tips and techniques to reduce indoor and outdoor water use. • Irrigation is allowed only once per week. Odd addresses, streetscapes, and medians shall limit watering to Tuesdays; even addresses shall limit watering to Thursdays.
District Actions • Communicate mandatory reduction targets to customers. • Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors. • Increase groundwater pumping as much as possible to avoid Stage 5 supply shortage condition. • New connections to the District's water distribution system will not be allowed.

TABLE 6-5. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 5

Shortage Crisis: Savings up to 50%
Actions include regulations from 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.
Customers - Actions to Reduce Demand up to 50 Percent • Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made. • Reduce total water use by more than 50%. Contact the District for tips and techniques to reduce indoor and outdoor water use. • Landscape and pasture irrigation is prohibited. • Use of construction meters and fire hydrants is prohibited except in case of emergency and for essential operations or unless specifically authorized by the District. • No potable water from the District's system shall be used for construction purposes including but not limited to dust control, compaction, or trench jetting. • Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.
District Actions • Communicate mandatory reduction targets to customers. • Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors. • Increase groundwater pumping as much as possible to avoid Stage 6 supply shortage condition.

TABLE 6-6. WSCP ACTIONS TO REDUCE CUSTOMER USE – STAGE 6

Emergency Shortage: Savings greater than 50%
Actions include 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.
Customers - Actions to Reduce Demand greater than 50 Percent • Health and safety use of water only.
District Actions • Communicate mandatory reduction targets to customers. • Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors. • Other actions as identified specific to the shortage condition. • Declare Water Shortage Emergency in accordance with Section 350 of Division 1, Chapter 3 Water Shortage Emergencies of the California Water Code.

6.4.2. ENFORCEMENT AND VARIANCES

Enforcement measures for all stages, including Normal Water Supply, are presented below. The following enforcement measures and variance procedures are consistent with and authorized by Ordinance No. 01-2021, which adopted the District's Water Conservation Program, Mandatory Water Conservation Stage Regulations, and Enforcement Measures.

A. Upon initial observation by District personnel or authorized designee of a violation of any of the regulations enumerated in this Water Shortage Contingency Plan, the violator shall be informed of the District's current Water Conservation Stage Regulations, shall be provided with appropriate water conservation information, and offered a free Water Efficiency Review. If no contact is made, a Courtesy Notice will be left at the premises informing the customer of the observed violation. The customer will be informed of the consequences of further violations, including potential penalties as set forth in the District's miscellaneous charges and fees.

B. Upon a second observation by District personnel or authorized designee of a violation of any of the regulations enumerated in this Water Shortage Contingency Plan, a Notice of Violation will be issued and left at the premises informing the customer of the violation and the consequences of further violations. A penalty will be applied to the customer's account for noncompliance with the Mandatory Conservation Stage Regulations, pursuant to the District's miscellaneous charges and fees. The customer's water service will be terminated (at District's discretion) until the violation is corrected. Prior to a scheduled water service termination, the customer may choose to pay the penalty fee and correct the violation as specified in the required time frame designated by the current Stage Declaration.

C. Upon a third observation by District personnel or authorized designee of a violation of any of the regulations enumerated in this Water Shortage Contingency Plan, a Notice of

Violation will be issued and left at the premises informing the customer of the violation and the consequences of further violations. A penalty will be applied to the customer's account for noncompliance of the Mandatory Water Conservation Stage Regulations, pursuant to the District's miscellaneous charges and fees. The customer's water service will be terminated (at District's discretion) until the violation is corrected. Prior to a scheduled water service termination, the customer may choose to pay the penalty fee and correct the violation as specified in the required time frame designated by the current Stage Declaration.

D. Upon a fourth observation by District personnel or authorized designee of a violation of any of the regulations enumerated in this Water Shortage Contingency Plan, a Notice of Violation will be issued and left at the premises informing the customer of the violation and the consequences of further violations. A penalty will be applied to the customer's account for noncompliance of the Mandatory Water Conservation Stage Regulations, pursuant to the District's miscellaneous charges and fees. The customer's water service will be terminated (at District's discretion) until the violation is corrected. Prior to a scheduled water service termination, the customer may choose to pay the penalty fee and correct the violation as specified in the required time frame designated by the current Stage Declaration.

E. Customers for whom these Mandatory Water Conservation Stage Regulations may present an undue hardship may request a variance from the District. Variance requests shall be submitted to the Water Efficiency Coordinator and shall accurately describe the reason for noncompliance with specific requirements in the Mandatory Water Conservation Stage Regulations. A variance request will be approved or denied in writing by the District's General Manager or the Board of Directors.

F. Violation notices from other than the current calendar year shall be considered null and void when applying the enforcement provision of the Mandatory Water Conservation Stage Regulations.

6.4.3. Communication Protocols

Communication protocols for the WSCP include public outreach and notification to entities within the District upon a change in stage declaration. Information shall include the appropriate shortage response actions for the declared stage. Such communication will be delivered by direct mail, District website, and media outlets. Other regional agencies, including SJWD and RWA, will be notified of the identified shortage.

CHWD will also coordinate with the City of Citrus Heights and the counties of Placer and Sacramento, to declare a local emergency with respect to anticipated water supplies and demands in the event conditions necessitate.

6.4.4. Financial Consequences of WSCP

The District understands 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. 2025 volumetric sales were approximately 30 percent of total revenue. Assuming a reduction in sales commensurate with the particular WSCP stage declaration, a decrease in total revenues in the range of 2 – 12 percent may be expected.

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

The District maintains a Water Efficiency Reserve (Efficiency Reserve) for purposes including water efficiency projects, drought response, and water loss programs. When required, budget allocations to the Efficiency Reserve are provided annually. The target amount of $200,000 is to be maintained for the Efficiency Reserve per the District's Budget Policy (§6280.00). In addition to the Efficiency Reserve, the District may enact a range of management and financial resources depending on the specific situation that include:

- Water Shortage Rate Structure enactment (Stage 3 and higher)
- Capital project deferment
- Operational and maintenance expense deferment
- Increased revenues from penalties
- Others as identified

In addition, the District employs a volumetric rate structure aimed at incentivizing efficient use and may rely on the "Water Shortage Rate Structure" pursuant to this WSCP if warranted.

6.4.5. Monitoring and Reporting

The District anticipates the ability to monitor customer use through real-time metering. Data collected from the real-time meters allows tracking of water demands during a declared shortage stage. The ability to track performance metrics allows refinement and enhancement of the WSCP by providing valuable data, including information on customer use and system loss. The real-time monitoring offers insight regarding the efficacy of a declared shortage stage and associated shortage response actions.

Reporting on the implementation of the WSCP is conducted by District staff. Specifically, at a regularly scheduled Board meeting, District 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 District will report on the implementation of this WSCP as specifically required by the State, as applicable.

6.4.6. 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 additive, but when implemented together as a program with all the actions in each respective stage, they will eliminate the supply to demand shortage gap.

Table 6-7. Shortage Response Action Measure Estimates

Stage	Shortage Response Actions	Potential Shortage Gap Reduction
1	Customer – Asked to reduce total water use by 10%	Up to 10%
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%
1+	District – Leak repairs receive higher priority	0-3%
1+	District – 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+	District – Increased monitoring of customer use	0-3%
1+	District – Accelerate infrastructure repairs and improvements	0-5%
1+	District – Increase groundwater pumping as available	Up to full gap shortage
2	Customer –Reduce total water use by 20%	Up to 20%
2	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%
2	Customer – Requested to only irrigate three times per week	3-5%
2+	Customer – Application of potable water to outdoor landscape during and within 12 hours after measurable rainfall prohibited	0-2%
2+	District – Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors	5-7%
2+	District – Decrease system flushing frequency	1-3%
3	Customer – Reduce total water use by 30%	Up to 30%
3+	Customer – Leaking pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem	0-1%
3+	Customer – All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to	0-2%

Stage	Shortage Response Actions	Potential Shortage Gap Reduction
	be leak-proof. No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds, or streams. Water use for ornamental ponds and fountains is prohibited	
3	Customer – Irrigation shall be limited to two days per week. Irrigation should be limited to minimal the amount of water necessary to keep plants and trees alive	5-20%
3+	Customer – Application of potable water to outdoor landscapes during and within 48 hours after measurable rainfall is prohibited	1-4%
3+	Customer – Use of reclaimed water for construction purposes is encouraged	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 District	0-2%
3+	Customer – Installation of new turf, lawn, and/or landscape is prohibited	0-3%
3+	Customer – Restaurants shall serve water only upon request	0-1%
3+	District – Provisions of the Water Shortage Rate Structure may be implemented by the Board of Directors	10-15%
3+	District – No commitments will be made to provide service for new water service connections unless the DWR MWELO is followed and the plans have been approved by the appropriate building department(s)	3-6%
4	Customer – Reduce total water use by 40%	Up to 40%
4+	Customer – Water for flow testing and construction purposes from fire hydrants and blow-offs is prohibited	0-1%
4	Customer – Irrigation is allowed only once per week	20-30%
4+	District – New connections to the District water distribution system will not be allowed	0-3%
5	Customer – Reduce total water use more than by 50%	Up to 50%
5+	Customer – Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made	0-1%
5+	Customer – Landscape and pasture irrigation is prohibited	25-40%
5+	Customer – Use of construction meters and fire hydrants is prohibited except in case of emergency and for essential operations or unless specifically authorized by the District	1-3%

Stage	Shortage Response Actions	Potential Shortage Gap Reduction
5+	Customer – No potable water from the District's system shall be used for construction purposes including but not limited to dust control, compaction, or trench jetting	0-2%
5+	Customer – Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water	0-1%
6	Customer – Health and safety use of water only	Up to 50%
6	District – Communicate mandatory reduction targets to customers	2-4%
6	District – Other actions as identified specific to the shortage condition	Varies
6	District – Declare Water Shortage Emergency in accordance with Section 350 of Division 1, Chapter 3 Water Shortage Emergencies of the California Water Code	Varies

6.4.7. WSCP Refinement Procedures

The District's WSCP is an adaptive plan that allows for active refinement 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 balance demands with supplies.

The procedures presented above will be relied upon during all shortage stage declarations, ensuring an adaptive WSCP, capable of being relied upon under various circumstances, is produced.

6.4.8. Water Shortage Contingency Plan Adoption, Submittal, and Availability

The WSCP (including subsequent updates) shall be adopted in accordance with the CWC and standard District procedures, including requirements for public participation (public hearing), and approval by the Board. Upon adoption, the WSCP will be submitted to DWR no later than 30 days after and made available for inspection at the District Office and website.

Further, the WSCP will be provided to the City of Citrus Heights and the counties of Placer and Sacramento no later than 30 days after the submission to DWR.

6.4.9. Seismic Risk Assessment and Mitigation Plan

CWC §10632.5 requires urban water suppliers to include a seismic risk assessment and mitigation plan as part of their Urban Water Management Plan. This requirement may be met by submitting the most recently adopted Local Hazard Mitigation Plan or Multi-Jurisdictional Hazard Mitigation Plan prepared under the federal Disaster Mitigation Act of 2000, provided the plan addresses seismic hazards relevant to the supplier's service area.

CHWD satisfies this requirement by submitting the Sacramento County Multi-Jurisdictional Local Hazard Mitigation Plan. Sacramento County, together with the Cities of Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, Isleton, and Rancho Cordova, as well as numerous special districts, completed an update to the countywide LHMP in 2021. The 2021 plan includes a comprehensive assessment of earthquake hazards and liquefaction potential within Sacramento County, including the CHWD service area.

According to the hazard assessment in the 2021 LHMP, earthquake probability within the CHWD service area is categorized as occasional, while liquefaction potential is considered unlikely. The overall significance of both hazards is rated as low, indicating minimal projected impacts on District facilities and infrastructure. Communities with a FEMA-approved LHMP remain eligible for FEMA pre- and post-disaster mitigation grant funding and benefit from reduced flood insurance premiums through the National Flood Insurance Program Community Rating System.

Sacramento County has initiated a new LHMP update process, beginning in late 2025, to develop the 2026 Multi-Jurisdictional LHMP. This update will include revised hazard identification, updated risk assessments, and a reprioritization of mitigation actions and projects for all participating jurisdictions. Once adopted, CHWD will incorporate the 2026 LHMP into its planning documents and will submit the most recent adopted version to satisfy CWC §10632.5.

The District will continue to monitor seismic hazard information and incorporate mitigation actions identified in the LHMP into its capital improvement planning, asset management, and emergency response procedures.

A copy of the Districts recent LHMP annex is included as Attachment C.

APPENDIX A
NOTIFICATION LETTERS

CITRUS HEIGHTS WATER DISTRICT

6230 Sylvan Road
P.O. Box 286
Citrus Heights
California
95611-0286

phone
916/725-6873

fax
916/725-0345

website
www.chwd.org

Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Ash Feeney
City Manager
City of Citrus Heights
6360 Fountain Square Drive
Citrus Heights, CA 95621

Dear Ash,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

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Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Daniel Chatigny
County Executive Officer
Placer County
175 Fulweiler Ave
Auburn, CA 95603

Dear Daniel,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

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Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Sean Bigley
Environmental Utilities Director
City of Roseville
2005 Hilltop Circle
Roseville, CA 95747

Dear Sean,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Todd Smith
Planning Director
Sacramento County Community Development
827 7th Street Room 225
Sacramento, CA 95814

Dear Todd,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

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Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Michael Simi
Operations Manager
Sacramento Suburban Water District
3701 Marconi Avenue, Ste 100,
Sacramento, CA 95821

Dear Michael,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

Citrus Heights Water District – Notice of Public Hearing

April 23, 2026

Greg Zlotnick
Director of Water Resources & Strategic Affairs
San Juan Water District
P.O. Box 2157
Granite Bay, CA 95746

Dear Greg,

We sent notice in February to inform you that the Citrus Heights Water District (CHWD) had begun preparation of the 2025 Urban Water Management Plan (UWMP).

A Public Hearing will be held on June 23, 2026 at 6:30 p.m. at the CHWD office, located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, and accessible via Zoom, to consider adoption of CHWD's 2025 UWMP and Water Shortage Contingency Plan. The Zoom information will be posted to the District's website at **https://chwd.org/about/board-of-directors/#agenda** under "Next Meeting Agenda Packet." Copies of the draft documents may be reviewed at CHWD's website, www.chwd.org/our-water/.

Spoken or written comments on the draft documents may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address by June 18, 2026.

If you have any questions regarding this notification or the District's 2025 UWMP process, please contact Jace Nunes, Senior Management Analyst, at 916-735-7721 or by email at jnunes@chwd.org.

Sincerely,
Jace Nunes, Senior Management Analyst

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APPENDIX B
DWR SUBMITTAL TABLES

Copies of the DWR Submittal Tables are included on the following pages.

APPENDIX C
LOCAL HAZARD MITIGATION PLAN

Annex H Citrus Heights Water District

H.1 Introduction

This Annex details the hazard mitigation planning elements specific to CHWD (CHWD or District), a new participating jurisdiction to the 2021 Sacramento County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the Base Plan document. As such, all sections of the Base Plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to CHWD, with a focus on providing additional details on the risk assessment and mitigation strategy for this District.

H.2 Planning Process

As described above, the District followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Sacramento County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table H-1. Additional details on plan participation and District representatives are included in Appendix A.

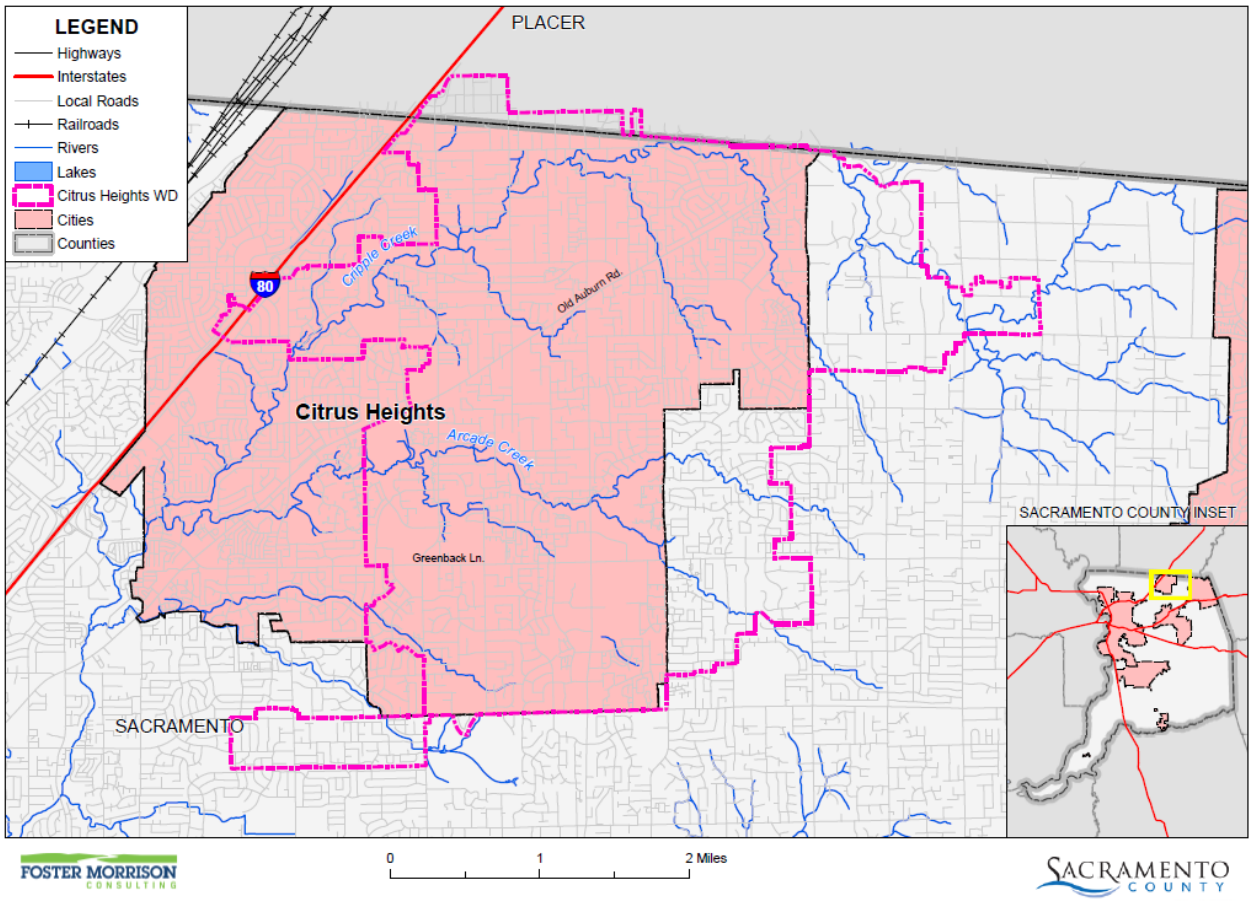
Table H-1 CHWD – Planning Team

Name	Position/Title	How Participated
Rebecca Scott	Director of Operations	Attended meetings. Assisted with Plan development
Brian Hensley	Water Resources Supervisor	Assisted with Plan development
Kelly Drake	Senior Water Efficiency Specialist	Assisted with Plan development

H.3 District Profile

The District profile for the CHWD is detailed in the following sections. Figure H-1 displays a map and the location of the District within Sacramento County.

Figure H-1 CHWD



Data Source: Citrus Heights Water District, Sacramento County GIS, Cal-Atlas; Map Date: 09/2020.

H.3.1. Overview and Background

The Citrus Heights Water District is an Irrigation District, founded in 1920, operating under the State of California Water Code. CHWD provides drinking water to an estimated service area population of 67,000 customers via approximately 19,600 water service connections in Sacramento and Placer Counties, including about 60% of the area within the boundaries of the City of Citrus Heights. The District constructs and maintains water facilities and supplies domestic water in an area of approximately 12.8 square miles, including a system of approximately 250 miles of underground pipes, approximately 2,200 fire hydrants and valves, and nearly 20,000 water service connections. The District has 22 interconnections with neighboring water agencies to provide water in the event water from Folsom Lake or its wells are unable to provide adequate water supply.

H.4 Hazard Identification

CHWD identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to District (see Table H-2).

Table H-2 CHWD—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Climate Change	Extensive	Likely	Limited	Medium	–
Dam Failure	Significant	Unlikely	Catastrophic	Medium	Medium
Drought & Water Shortage	Extensive	Likely	Limited	High	High
Earthquake	Extensive	Occasional	Limited	Medium	Low
Earthquake Liquefaction	Limited	Occasional	Limited	Low	Low
Floods: 1%/0.2% annual chance	Significant	Likely	Negligible	Low	Medium
Floods: Localized Stormwater	Extensive	Highly Likely	Negligible	Low	Medium
Landslides, Mudslides, and Debris Flow	Limited	Occasional	Negligible	Low	Medium
Levee Failure	Extensive	Occasional	Negligible	Low	Medium
Pandemic	Extensive	Likely	Limited	Low	Medium
Severe Weather: Extreme Cold and Freeze	Extensive	Occasional	Limited	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Negligible	Low	High
Severe Weather: Heavy Rains and Storms	Extensive	Highly Likely	Negligible	Low	Medium
Severe Weather: Wind and Tornado	Extensive	Highly Likely	Negligible	Low	Low
Subsidence	Significant	Unlikely	Negligible	Low	Medium
Volcano	Extensive	Unlikely	Negligible	Low	Low
Wildfire	Significant	Unlikely	Negligible	Low	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Likelihood of Future Occurrences
Highly Likely: Near 100% chance of occurrence in next year, or happens every year.
Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less.
Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years.
Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.

Magnitude/Severity
Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths
Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability
Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability
Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Climate Change Influence
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

H.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile the District's hazards and assess the District's vulnerability separate from that of the Sacramento County Planning Area as a whole, which has already been assessed in Section 4.3 Hazard Profiles and Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Sacramento County Planning Area and describes the hazard problem description, hazard location and extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the District is included in this Annex. This vulnerability assessment analyzes the property and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

H.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section H.5.3, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table H-2) affects the District and includes information on past hazard occurrences and the likelihood of future hazard occurrence. The intent of this section is to provide jurisdictional specific information on hazards and further describes how the hazards and risks differ across the Sacramento County Planning Area.

H.5.2. Vulnerability Assessment and Assets at Risk

This section identifies the District's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the District. This data is not hazard specific, but is representative of total assets at risk within the District.

Assets at Risk and Critical Facilities

This section considers the CHWD's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this Plan. Critical facilities are defined for this Plan as:

> ***Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.***

A critical facility is classified by the following categories: (1) Essential Services Facilities, (2) At-risk Populations Facilities, (3) Hazardous Materials and Solid Waste Facilities.

Table H-3 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. CHWD's physical assets, valued at over $6.3 million, consist of the buildings and infrastructure to support the District's operations.

Table H-3 CHWD Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Corporation Yard	Land & Buildings	$4,300,000	Earthquake
Well Sites	Wells & Buildings	$2,000,000	Earthquake
Total		**$6,300,000**	

Source: CHWD

Natural Resources

CHWD has a variety of natural resources of value to the District. These natural resources parallels that of Citrus Heights as a whole. Information can be found in the City of Citrus Heights Annex to this Plan Update.

Historic and Cultural Resources

CHWD has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallels that of Sacramento County as a whole Information can be found in the City of Citrus Heights Annex to this Plan Update.

Growth and Development Trends

General growth in the District parallels that of the City of Citrus Heights as a whole. Information can be found in Section 4.3.1 of the Base Plan. Information can be found in the City of Citrus Heights Annex to this Plan Update.

Future Development

The District has no control over future development in areas the District services. Future development in these areas parallels that of the Citrus Heights. Though development is not controlled by CHWD, the District does plan for future water uses. New connections are added by the District as new development occurs. The 2015 CHWD Urban Water Management Plan noted CHWD plans to construct an additional three wells over the next seven years to provide additional dry-year supplies. The District plans to maintain groundwater supply equivalent of 5,000 AFY from its well system. However, groundwater production could increase up to the full well capacities in successive dry year scenarios. Well site availability could impact the number of wells constructed or the construction implementation schedule. The District continues to monitor its service area for potential well sites and obtains the land as available. The District is currently evaluating its needs for new wells in the future as it completes a new UWMP (in draft state as of April 2021) which will update the number or timing of new wells as appropriate. Future supply projects are summarized in Table H-4.

Table H-4 CHWD – Expected Future Water Supply Projects and Programs

Name of Future Projects or Programs	Joint Project with other suppliers?	Description	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply
Well #7	No		2023	All Year Types	
Well #8	No			All Year Types	
Well #9	No			All Year Types	
Well #12	No			All Year Types	

Source: 2021 Draft CHWD Urban Water Management Plan

Projected supply needs are summarized in Table H-5. As the San Juan Water District (SJWD) provides CHWD sufficient supply to meet its needs, SJWD supply is set equal to projected demands minus groundwater usage. Groundwater usage from "maintenance" pumping during normal years is assumed to be an average 900 acre-feet per year.

Table H-5 CHWD – Projected Water Supplies

Water Supply	Additional Description	2025	2030	2035	2040	2045
Purchased or Imported Water	SJWD	10,949	11,273	11,537	12,006	12,455
Groundwater (not desalinated)	CHWD	900	900	900	900	900
Total	**–**	**11,849**	**12,173**	**12,437**	**12,906**	**13,355**

Source: 2021 Draft CHWD Urban Water Management Plan

H.5.3. Vulnerability to Specific Hazards

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table H-2 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification in the Base Plan for more detailed information about these hazards and their impacts on the Sacramento County Planning Area). Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.3 of the Base Plan.

An estimate of the vulnerability of the District to each identified priority hazard, in addition to the estimate of likelihood of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.

- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Depending on the hazard and availability of data for analysis, this hazard specific vulnerability assessment also includes information on values at risk, critical facilities and infrastructure, populations at risk, and future development.

Power Outage/Power Failure

An impact of almost all hazards below relates to power outage and/or power failures. The US power grid crisscrosses the country, bringing electricity to homes, offices, factories, warehouses, farms, traffic lights and even campgrounds. According to statistics gathered by the Department of Energy, major blackouts are on the upswing. Incredibly, over the past two decades, blackouts impacting at least 50,000 customers have increased 124 percent. The electric power industry does not have a universal agreement for classifying disruptions. Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. In addition to blackouts, brownouts can occur. A brownout is an intentional or unintentional drop in voltage in an electrical power supply system. Intentional brownouts are used for load reduction in an emergency. Electric power disruptions can be generally grouped into two categories: intentional and unintentional. More information on types of power disruptions can be found in Section 4.3.2 of the Base Plan.

Public Safety Power Shutoff (PSPS)

A new intentional disruption type of power outage/failure event has recently occurred in California. In recent years, several wildfires have started as a result of downed power lines or electrical equipment. This was the case for the Camp Fire in 2018. As a result, California's three largest energy companies (including PG&E), at the direction of the California Public Utilities Commission (CPUC), are coordinating to prepare all Californians for the threat of wildfires and power outages during times of extreme weather. To help protect customers and communities during extreme weather events, electric power may be shut off for public safety in an effort to prevent a wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3.2 of the Base Plan. The District has not seen any of these events. The District noted it has sufficient backup power to mitigate against any power outages in the future.

Climate Change

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Climate change adaptation is a key priority of the State of California. The 2018 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the District, Sacramento County, and State of California. There is no scale to measure the extent of climate change. Climate change exacerbates other hazards, such as drought, extreme heat, flooding, wildfire, and others. The speed of onset of climate change is very slow. The duration of climate change is not yet known, but is feared to be tens to hundreds of years.

Past Occurrences

Climate change has never been directly linked to any declared disasters. While the District noted that climate change is of concern, no specific impacts of climate change could be recalled. The District and HMPC members did, however, note that in Sacramento County, the strength of storms does seem to be increasing and the temperatures seem to be getting hotter.

Vulnerability to and Impacts from Climate Change

The 2014 California Adaptation Planning Guide (APG), prepared by California OES and CNRA was developed to provide guidance and support for local governments and regional collaboratives to address the unavoidable consequences of climate change. California's APG: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. Sacramento County falls within the North Sierra Region characterized as a sparsely settled mountainous region where the region's economy is primarily tourism-based. The region is rich in natural resources, biodiversity, and is the source for the majority of water used by the state. This information can be used to guide climate adaptation planning in the District and Sacramento County Planning Area.

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Sierra region in which the Sacramento County Planning Area is part of:

- Temperature increases
- Decreased precipitation
- Reduced snowpack
- Reduced tourism
- Ecosystem change
- Sensitive species stress
- Increased wildfire

CHWD participated in the American River Basin Study as a member of the RWA The American River Basin (Basin) region conducted a climate change study in partnership with local water purveyors and the United States Bureau of Reclamation (USBR). The purpose of the American River Basin Study (ARBS or Study) was to develop data tools and analyses, identify supply-demand imbalances, and climate change adaptation strategies specific to the Basin. Under the "new normal" of a changing climate, the ARBS aims to improve the resolution of regional climate change data and to develop regionally-specific mitigation and adaptation strategies. These are not yet published as of June 2021.

Assets at Risk

The District noted that its facilities will most likely not be at risk from climate change.

Dam Failure

Likelihood of Future Occurrence–Unlikely
Vulnerability–Medium

Hazard Profile and Problem Description

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any one year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

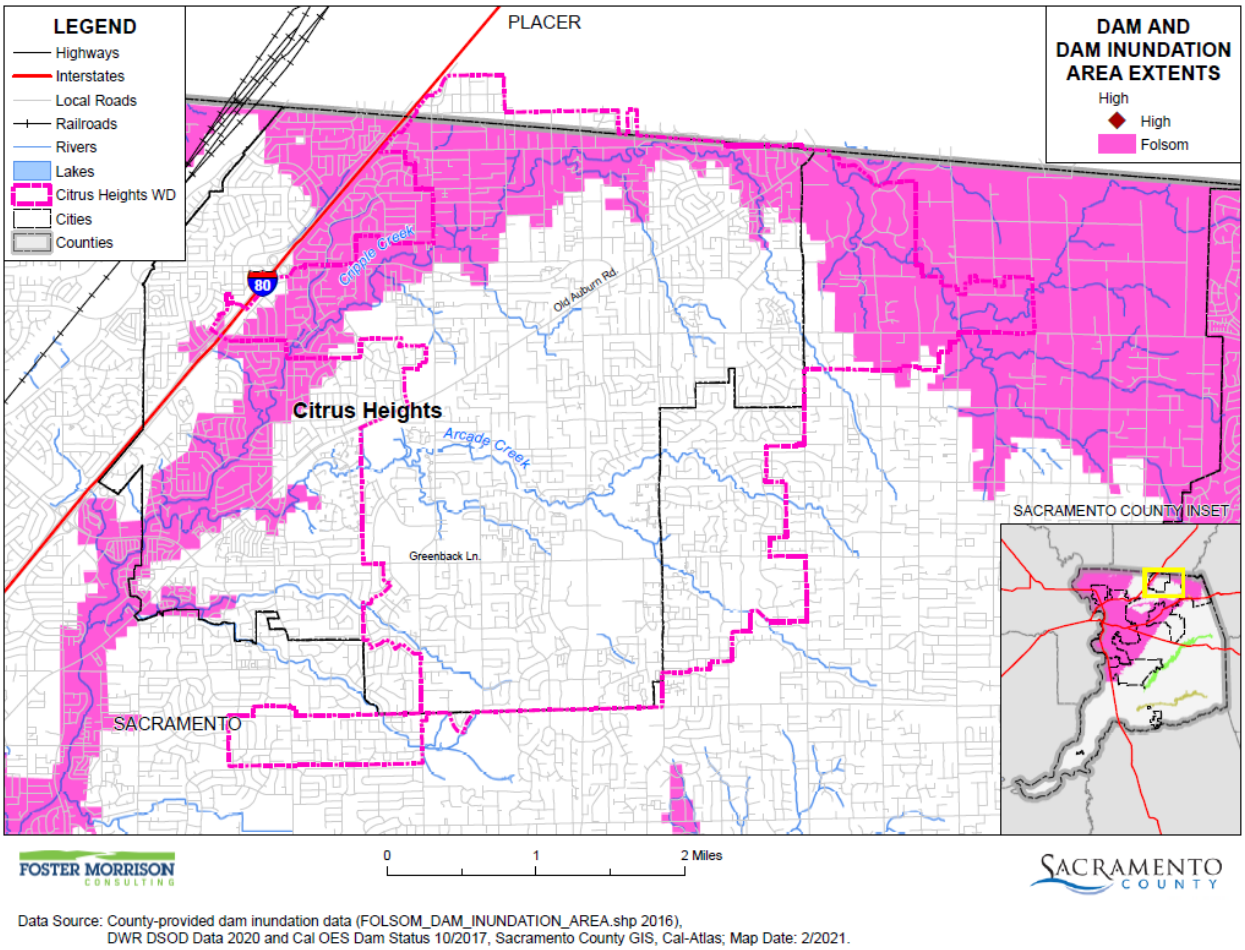
Location and Extent

Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake. There is no scale with which to measure dam failure. However, Cal DWR Division of Safety of Dams (DOSD) assigns hazard ratings to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. Dams are classified in four categories that identify the potential hazard to life and property: Low, Significant, High, and Extremely High. These were discussed in more detail in Section 4.3.7 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water the dam held back. The District would be affected for as long as the flood waters from the dam failure took to drain downstream.

Dams inside the County that can affect the District can be seen on Figure H-2. This includes inundation from a Folsom Dam failure event, which with the most recent improvements of the Folsom Dam, is more unlikely to occur. The District is not affected by dams from outside the County. The District is also not affected by the Folsom Dam 235,000 cfs scenario discussed in Section 4.3.7 of the Base Plan, which is considered the likely Folsom Dam scenario since improvements on the Dam have been completed.

Figure H-2 CHWD – Dam Inundation Areas from Dams Inside the County



Data Source: County-provided dam inundation data (FOLSOM_DAM_INUNDATION_AREA.shp 2016), DWR DSOD Data 2020 and Cal OES Dam Status 10/2017, Sacramento County GIS, Cal-Atlas; Map Date: 2/2021.

Past Occurrences

There has been no federal or state disaster declarations for dam failure in the County. The District noted no other dam failure occurrences that have affected the District.

Vulnerability to and Impacts from Dam Failure

Dam failure flooding would vary by community depending on which dam fails and the nature and extent of the dam failure and associated flooding. Impacts to the District from a dam failure flood could include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Additionally, mass evacuations and associated economic losses can also be significant. The District noted that flooding has a small chance of affecting the City of Citrus Heights, but not CHWD.

Assets at Risk

No District assets from Table H-3 are at direct risk from this hazard.

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–High

Hazard Profile and Problem Description

Drought is a complex issue involving many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects. Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the District, is at risk. The US Drought Monitor categorizes drought conditions with the following scale:

- None
- D0 – Abnormally dry
- D1 – Moderate Drought
- D2 – Severe Drought
- D3 – Extreme drought
- D4 – Exceptional drought

Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages and for longer periods. Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the District and the County are shown in Section 4.3.8 of the Base Plan.

Past Occurrences

There has been two state and one federal disaster declaration due to drought since 1950. This can be seen in Table H-6.

Table H-6 Sacramento County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	2	2008, 2014	1	1977

Source: Cal OES, FEMA

Since drought is a regional phenomenon, past occurrences of drought for the District are the same as those for the County and includes 5 multi-year droughts over an 85-year period. Details on past drought occurrences can be found in Section 4.3.8 of the Base Plan.

Vulnerability to and Impacts from Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the District, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts can be extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Tracking drought impacts can be difficult.

According to the CHWD website, CHWD's main source of surface water is Folsom Lake. The US Bureau of Reclamation controls the Folsom Lake water supply. The water is treated by the San Juan Water District (SJWD) and provided to CHWD and other water agencies. Groundwater from CHWD's six wells is used to supplement the Folsom Lake surface water supply for customers. Even with these water sources, it is important to conserve water as the ever-increasing need for water in CHWD.s region and throughout California will continue to place demands on both surface and groundwater supplies. Water use efficiency and conservation are keys to meeting future demands. Total annual water consumption by CHWD customers peaked in 1999 at 23,000 acre-feet. Since then, it has ranged from a high of about 21,100 acre-feet to a low of about 9,970 acre-feet.

The 2021 Draft Urban Water Management Plan for CHWD noted that CHWD maintains two connections with SJWD to receive its water supply, one on the CHWD 42-inch transmission main and three on the SJWD 72-inch Cooperative Transmission Pipeline (CTP). 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 CHWD.

The 2021 Draft Urban Water Management Plan for CHWD noted SJWD's water supplies are subject to legal constraints through the Central Valley Project (CVP) and State Board cutbacks and use restrictions as described in the 2020 SJWD Urban Water Management Plan. Total supply availability is also influenced by the Water Forum Agreement (WFA). Both CHWD and SJWD are signatories of the WFA. The WFA stipulates that SJWD supply can be cut back to a minimum of 54,200 AFY, however, it is not a legal

mandate such as the CVP and State Board restrictions. 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 the supply.

CHWD's groundwater supplies are subject to factors that could impact reliability. Groundwater basin issues could impact CHWD's groundwater supply. If the wells begin to produce contaminated groundwater, the supply could either be eliminated, reduced or treated. The basin elevation levels have historical decreased, and only recently stabilized or even increased in some locations. If the groundwater levels decrease further, CHWD well capacities could be impacted or even eliminated. However, the SGA has a groundwater accounting framework implemented by the region's water agencies to mitigate and improve the groundwater basin conditions. It is assumed the only issue that could impact supply availability is groundwater contamination. Should this occur, CHWD will evaluate pump-and-treat alternatives versus drilling new wells.

Climate change may create additional impacts to drought and water shortage in the County and the District. During periods of drought, vegetation can dry out which increases fire risk. Drought that occurs during periods of extreme heat and high winds can cause Public Safety Power Shutoff (PSPS) events to be declared in the County. More information on power outage and failure can be found in the discussion at the beginning of Section H.5.3, as well as in Section 4.3.3 of the Base Plan.

Assets at Risk

No District assets from Table H-3 are at direct risk from this hazard.

Earthquake

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction.

Location and Extent

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.3.9 of the Base Plan. Geological literature indicates that no major active faults transect the County; however, there are several subsurface faults in the Delta. The Midland fault, buried under alluvium, extends north of Bethel Island in the Delta to the east of Lake Berryessa and is considered inactive but possibly capable of generating a near 7.0 (Richter Scale) earthquake. This magnitude figure is speculative based on an 1895 earthquake measuring 6.9 on the Richter Scale with an epicenter possibly in the Midland Fault vicinity. However, oil and gas companies exploring the area's energy potential have identified several subsurface faults, none of which show any recent surface rupture. A second, presumably inactive, fault is in the vicinity of Citrus Heights near Antelope Road. This fault's only exposure is along a railroad cut where offsetting geologic beds can be seen. Neither the lateral extent of the trace, the magnitude of the offset, nor the age of faulting has been determined. To the east, the Bear Mountain fault zone trends northwest-southeast through Amador and El Dorado Counties. Geologists believe this series of faults has not been active in historic time.

Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. Seismic shaking is typically the greatest cause of losses to structures during earthquakes. The District is located in an area where few earthquakes of significant magnitude occur, so both magnitude and intensity of earthquakes are expected to remain low. Seismic shaking maps for the area show Sacramento County and the District fall within a low to moderate shake risk, with most of the moderate risk in the Delta area of the County.

Past Occurrences

There have been no past federal or state disaster declarations from this hazard. The District noted no past occurrences of earthquakes or that affected the District in any meaningful way.

Vulnerability to and Impacts from Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquake as a result of the periodic release of tectonic stresses. Sacramento County lies in the center of the North American and Pacific tectonic plate activity. There have been earthquakes as a result of this activity in the historic past, and there will continue to be earthquakes in the future of the California north coastal mountain region.

Fault ruptures itself contributes very little to damage unless the structure or system element crosses the active fault; however, liquefaction can occur further from the source of the earthquake. In general, newer construction is more earthquake resistant than older construction due to enforcement of improved building codes. Manufactured buildings can be very susceptible to damage because their foundation systems are rarely braced for earthquake motions. Locally generated earthquake motions and associated liquefaction, even from very moderate events, tend to be more damaging to smaller buildings, especially those

constructed of unreinforced masonry (URM) and soft story buildings. The District noted no URM or soft story buildings owned by the District.

The Uniform Building Code (UBC) identifies four seismic zones in the United States. The zones are numbered one through four, with Zone 4 representing the highest level of seismic hazard. The UBC establishes more stringent construction standards for areas within Zones 3 and 4. All of California lies within either Zone 3 or Zone 4. The CHWD is within the less hazardous Zone 3.

Impacts from earthquake in the District will vary depending on the fault that the earthquake occurs on, the depth of the earthquake strike, and the intensity of shaking. Large events could cause damages to infrastructure, critical facilities, residential and commercial properties, and possible injuries or loss of life.

Assets at Risk

The District noted that the Corporation Yard & Well Buildings could be impacted, and well casings could collapse in an earthquake event.

Severe Weather: Extreme Cold and Freeze

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile and Problem Description

According to the National Weather Service (NWS), extreme cold often accompanies a winter storm or is left in its wake. Freezing temperatures can also occur without the accompanying winter storm.

Location and Extent

Extreme cold and freeze are regional issues, meaning the entire City is at risk to cold weather and freeze events. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of extreme cold and freeze, temperature data from the County from the WRCC indicates that there are 21.8 days that fall below 32°F in western Sacramento County. Freeze has a slow onset and can generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time.

Past Occurrences

There has been no federal or state disaster declarations in the County for cold or freeze. The District noted that cold and freeze is a regional phenomenon; events that affected the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.2. During some of these past events, clay valves at well sites cracked, all additional damage was on private property.

Vulnerability to and Impacts from Severe Weather: Freeze and Winter Storms

The District experiences temperatures below 32 degrees during the winter months. Freeze can cause injury or loss of life to residents of the District. While it is rare for buildings to be affected directly by freeze,

damages to pipes that feed building can be damaged during periods of extreme cold. The District noted that this concern was already mitigated by installing protective bags over these valves.

Assets at Risk

No District assets from Table H-3 are at direct risk from this hazard.

H.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, and mitigation education, outreach, and partnerships.

H.6.1. Regulatory Mitigation Capabilities

Table H-7 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the CHWD.

Table H-7 CHWD Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan/General Plan	N	
Capital Improvements Plan	Y: 2020	N/A
Economic Development Plan	N	
Local Emergency Operations Plan	Y: 2019	Yes, addresses hazards
Continuity of Operations Plan	Y: 2021	
Transportation Plan	N	
Stormwater Management Plan/Program	N	
Engineering Studies for Streams	N	
Community Wildfire Protection Plan	N	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	N	
Building Code, Permitting, and Inspections	**Y/N**	**Are codes adequately enforced?**
Building Code	N	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	N	Score:
Fire department ISO rating:	N	Rating:

Site plan review requirements	N	
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?**
Zoning ordinance	N	
Subdivision ordinance	N	
Floodplain ordinance	N	
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	N	
Flood insurance rate maps	N	
Elevation Certificates	N	
Acquisition of land for open space and public recreation uses	N	
Erosion or sediment control program	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
CHWD staff will periodically review all plans for accuracy and make any necessary revisions. In addition, annual emergency trainings will be held to ensure that all staff are aware of the steps and procedures related to an emergency.		

Source: CHWD

Citrus Heights 2021 Draft Urban Water Management Plan

The Urban Water Management Act (Act) became part of the California Water Code with the passage of Assembly Bill 797 during the 1983-1984 regular session of the California Legislature. The California Water Code requires every urban water supplier providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually (AFY) to adopt and submit an Urban Water Management Plan (UWMP) every five years to the California Department of Water Resources (DWR). The specific planning requirements are in the California Water Code Division 6, Part 2.6 Urban Water Management Planning.

Subsequent legislation has been passed that updates and provides for additional requirements for UWMPs and water management. In particular, SB X7- 7 Water Conservation, requires the State to achieve a 20 percent reduction in urban per capita water use by December 31, 2020, known as 20x2020. 20x2020 requirements are incorporated into the 2015 UWMP requirements. In summary, the UWMP must include the baseline demand analysis, water use target analysis use for 2015 and 2020, and present a compliance plan to achieve the target demand reductions in the UWMP.

The core requirements for the UWMP include:

- A description of the water service area.
- A description of the existing and planned supply sources.
- Estimates of past, present, and projected water use.
- 20x2020 analysis and target compliance.
- A description of water conservation Demand Management Measures (DMMs) already in place and planned, and other conservation measures.
- A description of the Water Shortage Contingency Plan/Conservation Program.

Ordinance No 01-2021

This ordinance establishes a water conservation program within CHWD. It lays the groundwork on why the District needs such an ordinance, sets water conservation stage definitions, declarations, and regulations, and enforcement measures.

H.6.2. Administrative/Technical Mitigation Capabilities

Table H-8 identifies the District department(s) responsible for activities related to mitigation and loss prevention in CHWD.

Table H-8 CHWD's Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	N	
Mitigation Planning Committee	N	
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Y	
Mutual aid agreements	Y	
Other		
Staff	**Y/N FT/PT**	**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Floodplain Administrator	N	
Emergency Manager	N	
Community Planner	N	
Civil Engineer	Y	
GIS Coordinator	Y	
Other	N	
Technical		
Warning systems/services (Reverse 911, outdoor warning signals)	Y	(We can use the County's Reverse 911 system if needed)
Hazard data and information	Y	
Grant writing	Y	
Hazus analysis	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
CHWD will hire an additional engineer in the next several years to assist with assessing water mains. In addition, staff will look for opportunities to attend grant writing trainings.		

Source: CHWD

H.6.3. Fiscal Mitigation Capabilities

Table H-9 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table H-9 CHWD's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Y	Y: new wells (water sources), yes, can be used for future mitigation actions
Authority to levy taxes for specific purposes	N	
Fees for water, sewer, gas, or electric services	Y	
Impact fees for new development	N	
Storm water utility fee	N	
Incur debt through general obligation bonds and/or special tax bonds	Y	
Incur debt through private activities	N	
Community Development Block Grant	N	
Other federal funding programs	Y	Grant funding: new well
State funding programs	Y	Grant funding: new well
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
CHWD will continue to look for grant opportunities for new wells. In addition, CHWD will allocate funding for capital improvement projects in its annual budget.		

Source: CHWD

H.6.4. Mitigation Education, Outreach, and Partnerships

Table H-10 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information.

Table H-10 CHWD's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	N	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Y	Water Efficiency messaging, drought messaging

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Natural disaster or safety related school programs	N	
StormReady certification	N	
Firewise Communities certification	N	
Public-private partnership initiatives addressing disaster-related issues	N	
Other	N	
How can these capabilities be expanded and improved to reduce risk?		
CHWD is hiring a Communications Manager to assist with increased public information efforts. In addition, the District will continue to expand its Water Efficiency classes and programs for the local community.		

Source: CHWD

H.7 Mitigation Strategy

H.7.1. Mitigation Goals and Objectives

The CHWD adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

H.7.2. Mitigation Actions

The planning team for the CHWD identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Severe Weather: Extreme Cold and Freeze

After a review of mitigation actions and efforts, because District infrastructure is primarily underground, it's not at risk from flooding/storms, etc. The one thing that used to be an issue (freeze) was mitigated years ago with a wrap around the above-ground appurtenances that were prone to freezing/breaking. As a result, the following hazards were dropped from concern:

- Dam Failure
- Severe Weather: Extreme Cold and Freeze

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts

are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5-years covered by this plan. It should further be noted, that although a jurisdiction may not have specific projects identified for each priority hazard for the five year coverage of this planning process, each jurisdiction has focused on identifying those projects which are realistic and reasonable for them to implement and would like to preserve their hazard priorities should future projects be identified where the implementing jurisdiction has the future capacity to implement.

Multi-Hazard Actions

Action 1. Implement ASR Technology

Hazards Addressed: Climate Change, Drought & Water Shortage

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Historical droughts

Project Description: Increase water supply during dry periods

Other Alternatives: Storage tank

Existing Planning Mechanisms through which Action will be Implemented: Regional and CHWD-specific ASR Studies

Responsible Office: Operations Department

Priority (H, M, L): H

Cost Estimate: $250K per well site

Potential Funding: CHWD CIP Budget

Benefits (avoided Losses): Additional water storage capabilities

Schedule: TBD, requires 2 months for retrofitting, adding to a new well would be built into the cost.

Action 2. Construction of a New Storage Tank

Hazards Addressed: Drought & Water Shortage, Climate Change

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Historical droughts have occurred which have affected the District. There is concern that future climate change will increase droughts and water shortages.

Project Description: Increase water supply during dry periods

Other Alternatives: Groundwater banking

Existing Planning Mechanisms through which Action will be Implemented: Regional and CHWD-specific ASR Studies

Responsible Office: Operations Department

Priority (H, M, L): L

Cost Estimate: $9 Million

Potential Funding: CHWD CIP Budget, State or Federal Grant

Benefits (avoided Losses): Additional water storage capabilities

Schedule: TBD, One year for construction

Action 3. Construction of a New Operations Building

Hazards Addressed: Earthquake

Goals Addressed: 1, 2, 3, 4, 5

Issue/Background: Potential for earthquake damage

Project Description: Increase building resiliency to earthquakes. The new Operations building will be built to withstand earthquake.

Other Alternatives: Retrofitting the building.

Existing Planning Mechanisms through which Action will be Implemented: Staffing Study, Pre-Architectural Planning Study

Responsible Office: Operations & Engineering Departments

Priority (H, M, L): H

Cost Estimate: $4 Million

Potential Funding: CHWD CIP Budget, State or Federal Grant

Benefits (avoided Losses): Additional water storage capabilities

Schedule: TBD, 2 years for construction