

# CITRUS HEIGHTS WATER DISTRICT



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HEIGHTS**  

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**WATER  
DISTRICT**

## 2010 Urban Water Management Plan

June 2011



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**June 2011**



**J. CROWLEY GROUP  
WATER RESOURCES PLANNING AND POLICY**

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# 1 Plan Preparation

The Urban Water Management 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 connections or supplying more than 3,000 acre-feet of water annually 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.

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.
- 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.
- Recycled water opportunities.

The Delta Legislation passed in late 2009 resulted in a sweeping change for water management within the state. Although the majority of the legislation addresses new governance structures aimed at improving the health and management of the Delta, some elements also address demand management by water agencies throughout the state. In particular, SB 7X 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 now incorporated into the 2010 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 Citrus Heights Water District (CHWD) 2010 UWMP presents each required element per the Department of Water Resources (DWR) 2010 Urban Water Management Plan Guidelines. With the passage of SB 7X 7, DWR was tasked with developing the 20x2020 methodologies and guidelines to include in the 2010 UWMP. The legislation also provided an extra six months for agencies to complete the UWMP to incorporate all the new requirements. Therefore, the 2010 UWMP must be approved by an agency by June 30, 2011, and submitted to the DWR by August 1, 2011.

## **1.1 Coordination**

CHWD is part of the San Juan Water District Family, and routinely coordinates water resources with the other members of the San Juan Family. CHWD is also a member of the Regional Water Authority (RWA), and the Sacramento Groundwater Authority (SGA) and regularly coordinates water resources planning issues.

The UWMP requires specific coordination efforts as well. The agency must send a notice to all county and city governments within its service area of its intent to develop and adopt a 2010 UWMP. This notice must be sent at least 60 days prior to the public hearing to discuss the UWMP. A notice was sent to Sacramento County, Placer County, Citrus Heights, and Roseville informing them of CHWD's UWMP process as presented in Appendix A.

A public review process was included in the UWMP development. CHWD held a public review of the UWMP to discuss the plan and receive comments from the public. The meeting was conducted at the May 10, 2011 Board of Directors Meeting. Public notice of the meeting was provided at the previous Board meeting, as is included in Appendix B.

The UWMP was approved at the June 14, 2011 Board of Directors meeting. The adoption resolution is provided in Appendix C. Within 60 days of submittal to the DWR, CHWD will submit a copy of the UWMP to Sacramento County and Citrus Heights. Within 30 days of submittal to the DWR, CHWD will also submit a copy of the UWMP to California State Library, and make a copy of the UWMP available for public viewing at the District Office during normal business hours located at 6230 Sylvan Road, Citrus Heights CA 95610.

Table 1-1 summarizes the coordination for CHWD's 2010 UWMP development process.

## **1.2 Implementation**

The 2005 UWMP presented the District's plans for investigating additional supplies and continued implementation of the conservation program. The District continues to implement its conservation program and maintains its membership with the California Urban Water Conservation Council (CUWCC), submitting annual reports to CUWCC.

The District is also a member of the Water Forum Agreement (WFA), a regional agreement between government agencies, water purveyors, the business community, and environmental groups with the co-equal objectives of providing a reliable water supply for planned development to the year 2030; and to preserve the region's environmental crown jewel, the lower American River. The District's agreement with WFA contains requirements for implementing conservation programs. The District continues to implement the required programs and files annual progress reports to the Water Forum.

The District's water resources strategy includes the continuation of groundwater to supplement its surface water supply from SWJD. The District has five wells of varying

age. Over time, the older wells can become inefficient and must be abandoned. New wells are installed to maintain or increase the reliable groundwater supply. Over the last five years, the District has placed two new wells on line. The District continues to plan for well retirement and installation of new wells.

CHWD worked with its wholesaler, SJWD, and the other retailers to update the wholesale water shortage contingency plan to reflect a conjunctive use strategy to be implemented during water shortages. With the new strategy, the San Juan Family as a group can respond to surface water shortages by providing groundwater to the system and moving supplies to those retailers with limited or no groundwater.

Implementation of the 2010 UWMP will be tracked through a variety of methods. Supply reliability issues will mostly be tracked through the SJWD Family supply strategies. Progress and results of the conservation program will continue to be submitted to CUWCC and Water Forum, as well as to the DWR through the AB1420 compliance requirements. Compliance with the 20x2020 water demand targets will be tracked through the customer billing database and supply production numbers.

**Table 1-1. Coordination With Appropriate Agencies (DWR Table 1)**

Agency	Participated in Developing Plan	Commented on Draft	Attended Public Hearing	Contacted for Assistance	Sent Copy of Draft	Sent Notice of Intention to Adopt	Not Involved/ No Info.
San Juan Water District	X			X			
Orange Vale Water Company				X			
City of Folsom				X			
Fair Oaks Water District				X			
RWA						X	
SGA						X	
County of Sacramento						X	
City of Roseville				X		X	
Placer County						X	

## 2 System Description

The Citrus Heights Water District (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. A three member Board of Directors elected at large from divisions within the District governs the District.

### 2.1 Service Area Description

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. Only a small portion of the District’s service area, approximately 140 acres, is located in Placer County.

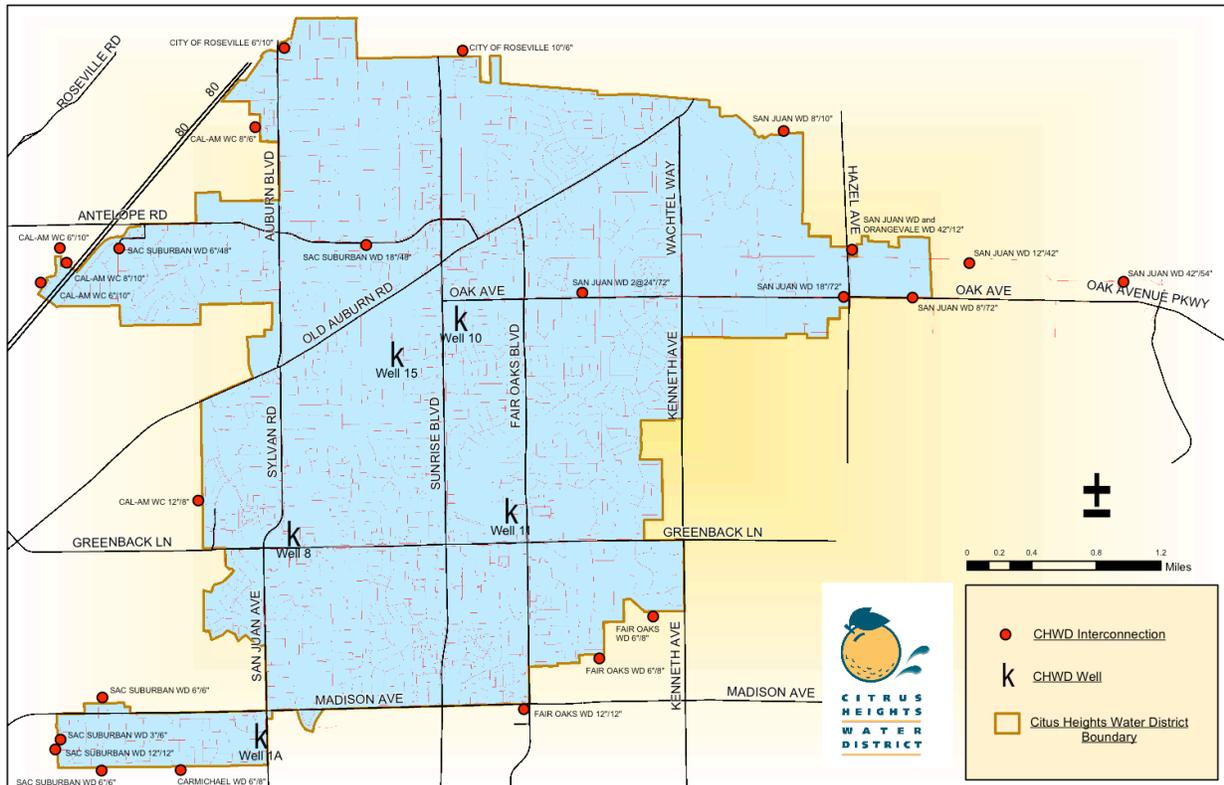


Figure 2-1. Service Area

The District initially used American River surface water supply from the North Fork Ditch Company to serve its customers. The customer base was initially comprised of

small family farms and limited urban areas. Concurrently with the completion of Folsom Dam in 1956, the San Juan (Suburban) 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). Citrus Heights Water District now receives surface water from the American River through the San Juan Water District. 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 Family of Agencies. SJWD also provides treated surface water to Sacramento Suburban Water District and the City of Roseville. CHWD continues to supplement its surface water supply with groundwater to meet peaking, pressure, shortage, and emergency demands.

In the early years of the District, residential and agricultural growth was nominal. Since then, urban development has flourished to such a degree that presently there is no significant agricultural water use within the District. The District now serves a predominantly residential customer base, with a 2010 residential demand equal to 83 percent of its total annual demand of 12,663 AFY. There were a total of 19,513 customer connections in 2010.

The service area has cool, rainy winters, and hot, dry summers. The monthly temperature in the Sacramento area ranges from an average low of 39.5 to an average high of 91.5 degrees Fahrenheit (Western Regional Climate Center). In the past, extreme conditions have been recorded at 17 degrees Fahrenheit for the lowest temperature and 114 degrees Fahrenheit for the highest. The historical annual mean precipitation is 18.2 inches with a monthly precipitation as high as 14.2 inches and as low as 0 inches. The average evapotranspiration rate (ET<sub>o</sub>) is 50.5 inches.

## **2.2 Population**

The 2010 UWMP Guidelines provide methodologies to use in calculating the service area population. The CHWD service area boundary does not match up with census tract or block group zones, and therefore population is estimated by applying factors obtained through the census data. The District service area covers all or a portion of 40 census block groups within Sacramento and Placer counties. The block groups in union with the CHWD service area are estimated and the corresponding percentage is applied to the census data. The Guidelines list a population analysis method that divides single family and multi-family residential units for use in estimating population during non-census years. However, the District's customer data was modified over this time period as many multi-family and group quarter customers were switched to the single-family customer category to better reflect their water use. This resulted in inconsistent customer classification over the time period. To account for this, a simplifying method was developed that assigns total population to the total number of residential accounts (single family and multi-family).

Block group information from the 2000 Census was obtained to quantify population, housing units, capita per housing unit, and other information. The calculation assumes even distribution across the census area. Results are summarized in Table 2-1.

**Table 2-1. 2000 Population Analysis**

Total Full 2000 Census Block Population	2000 Population in CHWD Service Area	2000 CHWD Number of Residential Accounts	2000 CHWD Capita per Residential Connection
90,426	65,610	17,926	3.66

Note: population data from 2000 Census.

The estimated 2000 population value divided by the 2000 residential connection value provides a capita per residential connection of 3.66. This value is higher than the Census capita per household value (2.69) because the multi-family connections often serve multiple households. Total population served is estimated as the number of residential connections times 3.66. This methodology assumes the capita per connection does not vary significantly over the analysis time period. Future population projections use the same value of 3.66 capita per connection times the future estimated connections. Future estimated connections are presented in Section 3, Water Demands. Resulting population projections are presented below in Table 2-2.

**Table 2-1. Population – Current and Projected (DWR Table 2)**

	2010	2015	2020	2025	2030	2035
Total Population	67,475	68,400	70,100	71,800	73,600	75,300

### 3 Water Demands

This section presents past and projected water demands. CHWD serves an older, established area where future growth is expected to be slow as the area nears buildout. The section also presents the 20x2020 baseline and target analysis. The District projects that it will meet its 20x2020 requirements through continued implementation of its conservation program as described in Section 5.

#### 3.1 Past Demands

2005 and 2010 number of accounts and demands are listed in Tables 3-1 and 3-2, respectively. Starting in 2008, virtually all customers were metered and charged on a metered rate. There are ten remaining un-metered accounts due to unique legal, property, and/or engineering challenges. These accounts will be metered when each of their respective circumstances are resolved. There are no connections that are classified as Industrial. The Other category includes accounts such as construction meters, vacant accounts, and vacant land. Actual unaccounted-for water (UAW) in 2005 was estimated because the District was not fully metered at that time.

**Table 3-1. 2005 Demands (DWR Table 3)**

	Metered		Not Metered		Total
	No. Accts	Volume, AFY	No. Accts	Volume, AFY	Volume, AFY
Single Family	13,663	8,346	2,351	1,436	9,782
Multi-Family	2,213	2,493	0	0	2,493
Commercial	639	1,391	0	0	1,391
Industrial	0	0	0	0	0
Institutional/ Government	87	365	0	0	365
Landscape	525	1,031	28	115	1,146
Agricultural	0	0	0	0	0
Other	26	5	0	0	5
UAW	--	--	--	3,852	3,852
Total:	17,153	13,631	2,379	5,403	19,034

**Table 3-2. 2010 Demands (DWR Table 4)**

	Metered		Not Metered		Total
	No. Accts	Volume, AFY	No. Accts	Volume, AFY	Volume, AFY
Single Family	16,219	8,151	10	5	8,156
Multi-Family	2,176	2,300	0	0	2,300
Commercial	648	970	0	0	970
Industrial	0	0	0	0	0
Institutional/ Government	51	293	0	0	293
Landscape	378	929	0	0	929
Agricultural	0	0	0	0	0
Other	37	15	0	0	15
UAW	--	--	--	1,013	1,013
Total:	19,509	12,663	10	1,018	13,676

Note: un-metered accounts demand estimated based on 2010 overall single-family unit demand per account (0.5 AF/account).

### **3.2 Baseline Demand and Target**

The 20x2020 process requires that a baseline demand be calculated and then target water demands are determined. The baseline demand is taken as the 10-year average gallon per day per capita, ending no earlier 2004. The baseline demand calculation is based on total supply into the system, and estimated service population for each year.

The SJWD maintains its own meters on all of its wholesale connections. The District also maintained its own meters on the wholesale connections. SJWD and some of its retailers noticed in 2007 that the wholesale meters might have been out of calibration. Since that time, SJWD has installed all new meters on its connections with updated calibrations. CHWD reviewed the supply meter data for SJWD meters and its own meters. It appears that supply values reported from each respective meter were relatively equal for years 1994-2004 (with data missing for some years). In 2005 and 2006, the SJWD meters may have been under-reading by as much as 12-16 percent. Although this is significant for those two years, CHWD is using the SJWD meter data for all years in the 2020 baseline calculations to remain consistent. CHWD may revisit this strategy in the future and analyze potential adjustment factors that could be used to modify the supply volumes for inaccurate meter readings.

The population served, water supplied, and resulting gpcd are summarized in Table 3-3. The 10-year running average for gpcd is indicated in the right column. The UWMP Guidelines list the methodology for 20x2020 requirements, including the baseline demand analysis. The baseline demand is the 10-year ending no earlier than 2004. A 15-year average is allowed depending on recycled water use. As there is no recycled water use, the 10-year average is used for the baseline calculations. CHWD is selecting the 10-year period from 1995-2004 as its baseline period, with an average gpcd of 287 gpcd.

**Table 3-3. Base Daily Per Capita Use (DWR Table 14)**

Year	Population Served	Water Supplied, mgal	Annual gpcd	10-year Running gpcd
1995	59,823	6,000	275	--
1996	60,979	6,770	304	--
1997	62,136	7,093	313	--
1998	63,292	6,667	289	--
1999	64,449	7,509	319	--
2000	65,609	6,695	280	--
2001	63,186	6,887	299	--
2002	66,367	6,473	267	--
2003	66,627	6,030	248	--
2004	67,231	6,873	280	287
2005	66,711	6,200	255	285
2006	67,545	6,135	249	280
2007	67,765	5,418	219	270
2008	67,494	5,702	231	265
2009	67,388	4,855	197	252
2010	67,326	4,468	182	243

**Table 3-4. 5-Year Range Base GPCD (DWR Table 15)**

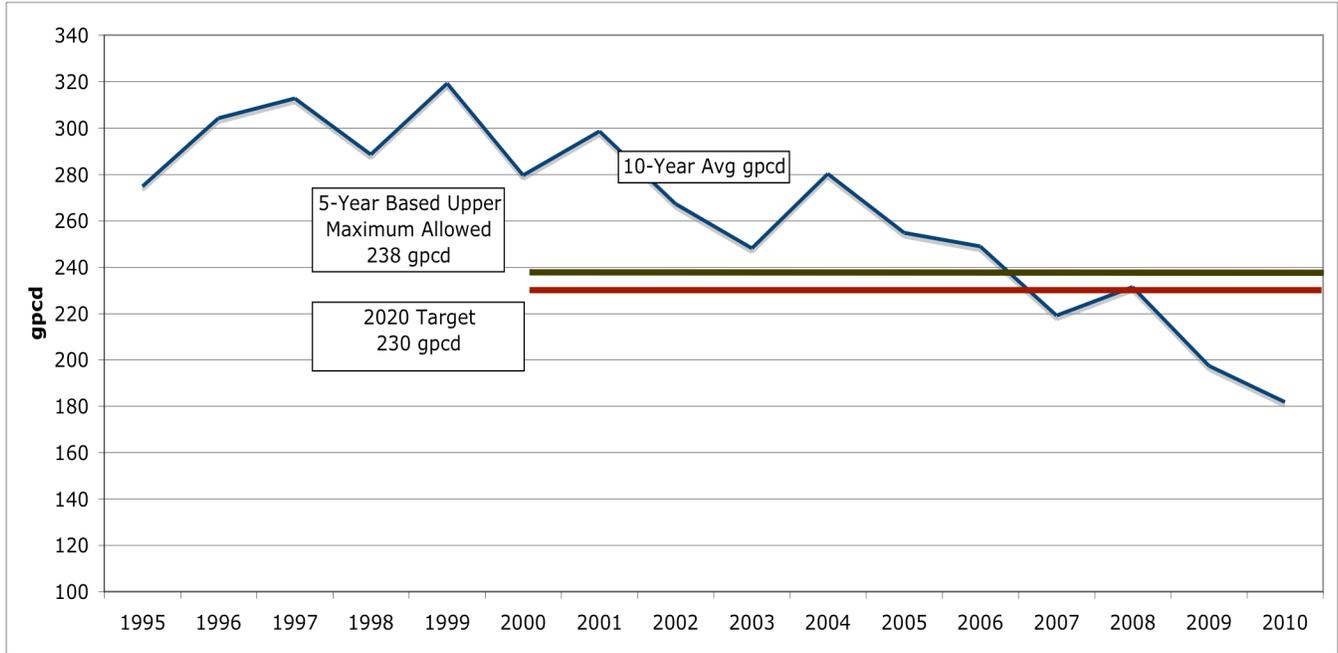
Year	Population Served	Water Supplied, mgal	Annual gpcd	5-year Running gpcd
2003	66,627	6,030	248	--
2004	67,231	6,873	280	--
2005	66,711	6,200	255	--
2006	67,545	6,135	249	--
2007	67,765	5,418	219	250
2008	67,494	5,702	231	247
2009	67,388	4,855	197	230
2010	67,326	4,468	182	216

There are four target methodologies as defined by the DWR in the 2010 UWMP Guidelines:

1. 20 percent reduction of baseline demand.
2. Maintain demands equal to individual water budgets.
3. 95 percent of 2020 Task Force hydrologic region gpcd goal.
4. Calculated potential savings.

Per the UWMP Guidelines, the 2020 goal must be no more than 95 percent of a five-year gpcd average ending no earlier than 2007. The 5-year gpcd average is calculated in Table 3-4. The 2007 five-year average of 250 gpcd is selected.

CHWD is selecting Method 1, 20 percent of baseline demand as its 2020 goal. With a baseline demand of 287 gpcd, the 2015 goal is 258 gpcd, and the 2020 goal is 230 gpcd. The selected base year information and selected targets are summarized in Tables 3-5 and 3-6, respectively. Figure 3-1 summarizes the historic data and the calculated targets.



**Figure 3-1. 20x2020 Analysis and Targets**

**Table 3-5. Base Period Ranges (DWR Table 13)**

Base	Parameter	Value
10-15-Year Base Period	2008 total water deliveries	5,702 mgal
	2008 total volume recycled water delivered	0 mgal
	2008 recycled water as percent of total	0 percent
	Years in base period	10 years
	Year beginning base period	1995
	Year ending base period	2004
5-Year Base Period	Years in base period	5 years
	Year beginning base period	2003
	Year ending base period	2007

**Table 3-6. Water Demand Targets**

Year	GPCD Target
2015	258 gpcd
2020	230 gpcd

### 3.3 Projected Water Demands

Water demands are projected using unit water demand factors and projected connections. The unit water demand factors will change over time as the 20x2020 compliance plan is implemented and results in lower water demand factors. The following presents the water demand projection methodology and resulting demand projections.

#### 3.3.1 Customer Account Projections

The CHWD service area and customers include mostly residential-type development. Future residential growth is expected to come from infill and splitting of large lot parcels in the service area. Future customer connections have been projected in the 1998 Master Plan and the 2005 UWMP. In general, growth was projected at 0.90 percent per year up to 2030. These projections were developed prior to the recession and current economic conditions that began in 2008. As a result of the current economic conditions, customer account growth is reduced through 2015. A growth rate of 0.5 percent is assumed from 2015 through 2035, as shown in Table 3-7. The Sacramento Area Council of Governments (SACOG) is a regional planning agency that produces growth projections for the planning areas within the greater Sacramento area. The CHWD service area is included in a SACOG area that mainly includes Citrus Heights, Orangevale, Fair Oaks, Carmichael, and Arden Arcade. SACOG projected a range of growth for this area from 3.8-15.1 percent from 2000 to 2050. However, these projections were made prior to the economic climate of the last few years. In order to achieve growth rates in the SACOG range, a significant change in housing density would be required. CHWD does not project such a change, and believes the majority of their customer base will continue to be a mix of traditional density single-family residential parcels and multi-family units. The District will continue to monitor its customer growth rates and characteristics and modify its projections as necessary.

**Table 3-7. Projected Customer Category Units (DWR Tables 5-7)**

Customer Category	Number of Accounts						
	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Single Family	16,014	16,221	16,481	16,893	17,305	17,717	18,129
Multi-Family	2,213	2,178	2,213	2,268	2,324	2,379	2,434
Commercial	639	648	658	675	691	708	724
Industrial	0	0	0	0	0	0	0
Institutional/ Government	87	51	52	53	54	56	57
Landscape	280	378	383	394	403	413	422
Agricultural	0	0	0	0	0	0	0
Other	17	37	50	50	50	50	50
Total:	19,250	19,513	19,839	20,333	20,828	21,323	21,817

### 3.3.2 Customer Water Demand Projections

The District's high percentage of single family residential accounts affect the unit water demands as evidenced in the gpcd factor discussed above. Past planning efforts have kept the unit water demand factors constant. However, the new 20x2020 mandates require that water demand decrease over time to the target levels.

Although overall water demands have decreased in the last two years (see Table 3-5), the exact causes are unknown. It is believed that economic conditions, water conservation programs, hydrologic and climate factors, rate increases, and state-wide and regional drought messaging all contributed to the reduced unit demand factors. As these parameters likely reduced demands, it is expected that the removal of some of these parameters will also influence demands. For conservative planning purposes, it is assumed the unit water demands will increase in the short term as economic conditions improve, hydrologic conditions deliver more rain and snow, and drought messaging is reduced. However, the District's conservation program and other demand management efforts will work to reduce the demands so that the 2015 and 2020 targets will still be met. The resulting water demand projections per customer class are summarized in Table 3-8. Unaccounted-for water is assumed to remain constant at eight percent of total demands. The conservation program and other demand management efforts that will be implemented to meet the 2015 and 2020 gpcd goals are discussed in Section 5.

**Table 3-8. Projected Customer Water Demands (DWR Tables 5-7)**

Customer Category	Water Demands, acre-feet per year				
	2015	2020	2025	2030	2035
Single Family	12,361	11,487	11,768	12,048	12,328
Multi-Family	2,656	2,722	2,788	2,855	2,921
Commercial	1,119	1,046	1,072	1,097	1,123
Industrial	0	0	0	0	0
Institutional/ Government	311	308	316	323	331
Landscape	1,037	984	1,008	1,032	1,056
Agricultural	0	0	0	0	0
Other	20	20	20	20	20
Total:	17,504	16,568	16,971	17,375	17,778

Note: All accounts are metered.

New legislation requires an agency to project water demands for low-income housing needs. Although 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 Height, and this analysis assumes the City's housing element is representative of the CHWD service area. The City of Citrus Heights developed the housing element of their general plan in 2009. The Housing element identified the City's portion of the regional housing need for very low and low/medium income household housing needs. The 2009 projections for very low and low/medium housing needs are 108 units. Water demands for these units assume that all units are single-family units. Table 3-9 lists the projected water demands for very low and low/medium income

households. The table assumes that no new needs will be identified beyond the 108 units. Total demands decrease in 2020 due to 20x2020 effects on unit water usage.

**Table 3-9. Very Low and Low/Medium Income Projected Water Demands (DWR Table 8)**

	Very Low and Low/Medium Income Projected Water Demands, acre-feet per year				
	2015	2020	2025	2030	2035
Single Family	81	73	73	73	73

### 3.3.3 Sales to Other Water Agencies

CHWD maintains 20 interconnections with its neighboring water agencies. However, all the connections are used for emergency supply and short-term shortage conditions. CHWD has not, and does not plan to sell water to other agencies at this time.

### 3.3.4 Additional Water Uses and Losses

Table 3-10 lists additional past and projected water uses. System losses are assumed to remain constant at eight percent. Loss was estimated for 2005 as the system was only partially metered, as discussed in Section 3.1.

The San Juan Family and RWA are discussing the potential for conjunctive use projects throughout the region through groundwater and surface water management. In addition, RWA is the lead agency for the American River Basin Integrated Regional Water Management Plan (IRWMP), of which CHWD is an active participant. In the future, the IRWMP may identify and develop conjunctive use projects in which CHWD may be involved. However, at this time, there are no identified additional water uses.

The San Juan Family recently developed a water shortage contingency plan. If SJWD is unable to use its full surface water rights and contacts, the Family will implement a conjunctive use program. Members with groundwater capacity will provide groundwater to make up any shortfall in surface water. As this is an emergency condition response, any potential future groundwater use is not included in the following projections.

**Table 3-10. Additional Water Uses and Losses (DWR Table 10)**

	Water Use, acre-feet per year						
	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Saline Barriers	0	0	0	0	0	0	0
Groundwater Recharge	0	0	0	0	0	0	0
Conjunctive Use	0	0	0	0	0	0	0
Raw Water	0	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0	0
System Losses	3,857	1,013	1,400	1,325	1,358	1,390	1,422
Total:	3,857	1,013	1,400	1,325	1,358	1,390	1,422

Note: system losses are estimated.

### 3.3.5 Total Water Demands

Total water demands are summarized in Table 3-11. CHWD water demand projections were provided to SJWD as listed in Table 3-12.

**Table 3-11. Total Water Demands (DWR Table 11)**

	Total Water Use, acre-feet per year						
	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Water Deliveries to Customers	15,183	12,663	17,504	16,568	16,971	17,375	17,778
Sales to Other Agencies	0	0	0	0	0	0	0
Additional Use and Losses	3,857	1,013	1,400	1,325	1,358	1,390	1,422
Total:	19,040	13,676	18,904	17,893	18,329	18,765	19,201

**Table 3-12 Retail Water Demand Projections to Wholesaler (DWR Table 12)**

	Demand Projections Provided to Wholesaler, acre-feet per year						
	Contracted Volume	2010 (actual)	2015	2020	2025	2030	2035
SJWD	N/A	13,676	18,904	17,893	18,329	18,765	19,201

Note: the SJWD wholesale contract does not contain a contract volume. See Section 4.

## 4 Water Supplies

CHWD uses both its 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 five active wells. This chapter presents the supply analysis and discussion.

### 4.1 Surface Water

SJWD obtains its surface water through a combination of rights and contracts totaling 82,200 acre-feet per year. The specifics and reliability of each right and contract is presented in SJWD's UWMP. All of the surface water supplies are withdrawn from Folsom Lake into SJWD's water treatment plant. A summary of SJWD's supplies is presented in Table 4-1.

**Table 4-1. SJWD Supply Summary**

Source	Annual Amount, AF	Notes
USBR CVP Folsom Lake	11,200	Subject to 25 percent reduction in dry years.
USBR CVP Folsom Lake Fazio Water	13,000	Use only in Sacramento County, subject to 25 percent reduction in dry years.
Pre-1914 Right	33,000	Use only for SJWD wholesale area.
Placer County Water Agency	25,000	Placer County use is prioritized over Sacramento County use.

SJWD's water supplies are subject to legal constraints through cutbacks and use restrictions as described in the SJWD UWMP and summarized in Table 4-1. However, total supply availability is also governed by the Water Forum Agreement (WFA). Both CHWD and SJWD are signatories of the WFA. The WFA stipulates available supply volumes based on the March through November unimpaired inflow into Folsom Reservoir. The SJWD supply cutbacks as listed in the WFA are summarized in Table 4-2. In the conference years, the WFA convenes a conference to develop the available supplies based on the specific water conditions for the conference year.

**Table 4-2. SJWD Supply and WFA Impact Summary**

Year Type	March-November Unimpaired Inflow Into Folsom Reservoir AFA	SJWD Allowable Supply, AFA
Normal Years	≥ 950,000	82,200
Drier Years	950,000 < inflow > 400,000	Decreasing down to 54,200 AFA in proportion to decreased inflow to Folsom
Driest Years (Conference Years)	≤ 400,000	< 54,200

CHWD maintains a wholesale contract with SJWD to supply surface water, as does SJWD with all the San Juan Family retailers. The wholesale contract does not include a volume amount; rather it states that SJWD will provide CHWD the supply it needs. The

other retailer contracts also include the same language. There are no legal constraints in the wholesale/retail contract regarding supply allotment or shortage requirements.

SJWD and the Family members developed the current supply contracts to support SJWD's strategy to manage its supplies at the group level instead of at the retailer level. SJWD's strategy is to provide supply to all its retailers as feasible, but in the event of a shortage, distribute more of the available supply to those who cannot obtain other supplies, such as groundwater. Those retailers with groundwater, or access to other supplies, are expected to reduce their SJWD supply requirements, making available more supply for the other retailers. CHWD projects that during normal supply years, it will use approximately 840 AF of groundwater (discussed below), and rely on surface water to meet the majority of its customer demands. The supply reliability and water shortage contingency plan is presented in Appendix E. Projected supply availability is summarized in Table 4-3.

**Table 4-3. Surface Water Supplies (DWR Table 17)**

	Projected Supply Availability, acre-feet per year					
	2010 (actual)	2015	2020	2025	2030	2035
SJWD	12,156	18,064	17,053	17,489	17,925	18,361

Note: surface supply availability assumes CHWD will augment total supply with 840 AFY groundwater.

CHWD maintains two connections with SJWD to receive its water supply, one on the 42-inch section of the transmission line, and one on the 72-inch section of the transmission line. 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 quality of water from Folsom Reservoir is considered good as the drainage basin is mostly alpine-based snow pack at the higher elevations and forest at the lower elevations with little to no urbanization.

## 4.2 Groundwater

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

### 4.2.1 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 the Sacramento and American Rivers and their tributaries where gravel deposits exist. To a lesser extent, aquifer recharge also occurs where the Merhten Formation reaches the surface in the foothills in eastern Sacramento and western El Dorado County.

Supply wells in the Sacramento Region draw water primarily from the Mehrten and Fair Oaks formations and typically produce 500-1,500 gpm of good to excellent quality water. 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 prior to service.

The groundwater basin does contain three significant major groundwater contamination areas. The United Pacific Railroad plume, located in Roseville, and the McClellan Air Force Base plume, located northwest of the District, are both down gradient and not expected to impact the District's groundwater quality. A groundwater contamination plume attributed to Aerojet historic operations was first detected in groundwater south of the American River in 1979. Since that time, Aerojet has installed groundwater treatment facilities and has conducted other efforts to treat and control the plume migration. However, a 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 plume.

Bulletin 118 does not specifically identify the sub-basin as being in overdraft, but does identify issues with groundwater levels. Groundwater levels have been generally declining in Sacramento County for the last 50 years, with many areas declining at a rate of 1.5 to 2.0 feet per year. A groundwater depression that was evident in 1968 significantly expanded and deepened in 1996. The groundwater depressions were also thought to affect the movement of the contamination plumes. The region responded in part through the development of the Sacramento Groundwater Authority (SGA) Groundwater Management Plan and development of multiple conjunctive use projects. As a result of these efforts, SGA reports that groundwater elevation levels have stabilized, or in some cases increased. CHWD is a member of SGA and, through SGA, will continue to track contamination threats and participate in conjunctive use programs or other projects to minimize the risk of the contamination plumes. The comprehensive SGA conjunctive use program and other strategies to mitigate groundwater overdraft on a regional basis are included in the SGA Groundwater Management Plan in Appendix D.

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 Department of Water Resources' American Basin Conjunctive Use Project Feasibility Study (1997). The study assumed a specific yield of 7 percent and an assumed thickness of 200 feet. Applying these assumptions to the total basin area results in a usable capacity of 70.2 million acre-feet. The Sacramento Groundwater Authority has recently adopted a groundwater accounting framework. The framework allows for SGA-member agencies to account for

groundwater banking and conjunctive use efforts, and includes consideration and monitoring of groundwater levels. This information will be used to proactively manage the basin's storage capacity and available yield to support the conjunctive use strategy.

#### 4.2.2 Groundwater Use

CHWD maintains five operating wells with a projected total yield of approximately 2,500 AFY. Well production rates vary from 800 to 1,600 gallons per minute. Over the last 50 years, groundwater production has averaged approximately 850 acre-feet per year. Past groundwater usage from 2006-2010 is presented in Table 4-4. CHWD cycles its wells to maintain operational capabilities and to supplement the surface supply. Projected groundwater usage is presented in Table 4-5 and is based on the equivalent of one well operating at all times, 840 acre-feet per year. The District projects installing a new well every four years to maintain groundwater supply reliability. These new wells are discussed further in Section 4.5. Total available groundwater supply with all five wells running is estimated at 6,000 acre-feet per year.

**Table 4-4. Past Groundwater Usage (DWR Table 18)**

Basin Name	Metered or Un-metered	Volume of Groundwater Pumped				
		2006	2007	2008	2009	2010
North American Sub-basin	metered	100	98	352	2,120	1,560
As a percent of total water supply	--	0.5%	0.6%	2%	16%	13%

Note: Total water supply for 2006-2010 provided in Table 3-5

**Table 4-5. Projected Groundwater Usage (DWR Table 19)**

Basin Name	Projected Groundwater Usage, acre-feet per year				
	2015	2020	2025	2030	2035
North American Sub-basin	840	840	840	840	840

### 4.3 Recycled Water

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

The regional plant serves most of the entire Sacramento metropolitan area. The treatment plant receives and treats approximately 150 million gallons per day (mgd). 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. SRCSD does currently produce 1,000-1,700 acre-feet per year of Title 22 recycled water. The recycled water is mostly used for irrigation demand adjacent at a newer development community near the treatment plant in Elk Grove. There are no recycled water facilities within the CHWD service area.

SRCSD developed a recycled water opportunities plan in 2007 (Recycled Water Plan). The Recycled Water Plan divided its service area into specific opportunity areas. Each opportunity area was evaluated for recycled water use potential based on many factors such as demand, supply availability, infrastructure requirements, local support, costs, and others. The process utilized a Water Recycling Advisory Committee that provided a broad stakeholder view and input to the process. The Committee consisted of representatives from cities, water agencies, environmental groups, the State, and business groups. 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. The 2005 CHWD UWMP projected zero recycled water use for 2010, as summarized in Table 4-6.

**Table 4-6. 2005 to 2010 Recycled Water Use Comparison (DWR Table 24)**

User Type	2010 Actual Use	2005 UWMP Projection for 2010
Agricultural	0	0
Landscape	0	0
Commercial Irrig.	0	0
Golf Course	0	0
Wildlife Habitat	0	0
Wetlands	0	0
Industrial	0	0
Groundwater Recharge	0	0
Seawater Barrier	0	0
Geothermal/Energy	0	0
Indirect Potable Reuse	0	0
Other	0	0
Total:	0	0

As discussed above, wastewater from the CHWD service area is collected by SRCSD and treated at the treatment plant located in Elk Grove, approximately 20 miles to the south. Table 4-7 estimates CHWD customer wastewater generation based on the SRCSD unit wastewater generation factor of 138 gpd per capita (Sacramento Regional Wastewater Treatment Plan 2020 Master Plan, 2001). Tables 4-7 and 4-8 illustrate that there are no

treatment plants located within the service area and therefore no recycled water supply or wastewater discharge within the service area.

**Table 4-7. Wastewater Collection and Treatment (DWR Table 21)**

	Annual Volume, acre-feet per year						
	2005	2010	2015	2020	2025	2030	2035
Wastewater Collected in Service Area	10,312	10,430	10,573	10,836	11,099	11,377	11,640
Volume Treated to Recycle Water Standard	0	0	0	0	0	0	0

Note: None of the recycled water produced by SRCSD is produced in or near the CHWD service area.

**Table 4-8. Projected Wastewater Disposal (DWR Table 22)**

Disposal Method	Treatment Level	Annual Volume, acre-feet per year					
		2010 (actual)	2015	2020	2025	2030	2035
none	N/A	0	0	0	0	0	0

The SRCSD Recycled Water Plan concluded there were no viable opportunities for recycled water use 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. Table 4-9 presents the future CHWD potential recycled water uses as zero, but 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 Plan. Incentives and methods to encourage recycled water use will depend on SRCSD and its regional partners identifying and developing a recycled water program for the north county area. Potential recycled water supply could also come from remediated groundwater if a plume is detected in the service area. 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 will develop incentives and methods to encourage recycled water use within its service area. Table 4-10 lists the current methods and programs to encourage recycled water use as zero as there is no recycled water supply.

**Table 4-9. Potential Future Recycled Water Uses (DWR Table 23)**

User Type	Feasibility	2015	2020	2025	2030	2035
Agricultural	0	0	0	0	0	0
Landscape	0	0	0	0	0	0
Commercial Irrig.	0	0	0	0	0	0
Golf Course	0	0	0	0	0	0
Wildlife Habitat	0	0	0	0	0	0
Wetlands	0	0	0	0	0	0
Industrial	0	0	0	0	0	0
Groundwater Recharge	0	0	0	0	0	0
Seawater Barrier	0	0	0	0	0	0
Geothermal/Energy	0	0	0	0	0	0
Indirect Potable Reuse	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total:	0	0	0	0	0	0

**Table 4-10. Methods to Encourage Recycled Water Use (DWR Table 25)**

Action	Projected Additional Recycled Water Use, acre-feet per year					
	2010	2015	2020	2025	2030	2035
Financial Incentive	0	0	0	0	0	0

#### 4.4 Transfer Opportunities

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. CHWD could participate in a conjunctive use program through the wholesaler that could result in transfer and exchange opportunities. However, the transfer would most likely be attributed to the supply rights owner, SJWD. At this time, CHWD does not plan on any transfer or exchanges as shown in Table 4-11.

**Table 4-11. Transfers and Exchange Opportunities (DWR Table 20)**

Transfer Agency	Transfer or Exchange	Short Term or Long Term	Proposed Volume, acre-feet per year
None	--	--	0

CHWD does maintain interconnections with its neighboring water agencies. The interconnections allow for emergency or short-term supply augmentation between agencies. In addition, the San Juan Family Water Shortage Contingency Plan establishes scenarios where agencies would transfer water to each other using groundwater or other supplies to make up for any shortfall in SJWD supply. However, these situations are considered operational and emergency procedures, and not considered transfers or exchanges that provide additional supply on a regular basis.

## 4.5 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.

## 4.6 Future Water Supply Projects

CHWD plans to construct an additional three wells over the next 20 years to replace older wells and to provide additional dry-year supplies. The District plans to maintain groundwater supply equivalent to one well, or 840 acre-feet per year, in normal supply years. However, groundwater production will increase up to the full well capacities in successive dry year scenarios, as summarized in Table 4-12. The District plans to construct a new well approximately every four years. 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 will re-evaluate its needs for new wells in the future and will update the number or timing of new wells as appropriate.

**Table 4-12. Future Water Supply Projects (DWR Table 26)**

Project	Start-Online Date	Supply Volume, acre-feet per year				
		Normal Year Supply	Single Dry Year Supply	Multiple Dry Year - Year 1 Supply	Multiple Dry Year - Year 2 Supply	Multiple Dry Year - Year 3 Supply
New Well 1	2013	840	900	900	1,000	1,100
New Well 2	2017	840	900	900	1,000	1,100
New Well 3	2021	840	900	900	1,000	1,100
Total:	--	2,520	2,700	2,700	3,000	3,300

Note: Although Normal Year Supply volume is shown as the sum of three new wells, CHWD will continue to only supply 840 AFY groundwater during normal supply conditions.

## 4.7 Supply Summary and Reliability

This section describes the supply reliability and summarizes the total water supplies for CHWD. Surface supply reliability is entirely dependent on SJWD's reliability analysis of its supplies.

### 4.7.1 SJWD Supply Reliability and Shortage Strategy

SJWD was not able to provide an updated reliability analysis in time for inclusion in CHWD's UWMP. The analysis from the 2005 SJWD UWMP is used. Because the WFA is the more controlling supply cutback requirement, and the WFA cutbacks have not changed from 2005, it is assumed the 2005 reliability analysis is still valid. Per the UWMP Guidelines, the analysis assumes historic time periods reflective of a single-year dry event, and multi-year dry event as summarized in Table 4-13.

**Table 4-13. Basis of SJWD Surface Water Year Data (DWR Table 27)**

Water Year Type	Base Year(s)
Singly Dry-Water Year	1976-1977
Multiple Dry-Water Years	1987-1992

In evaluating the water supply reliability, it is assumed the single dry year and multiple dry year scenarios are equal to the drier and driest years from the Water Forum Agreement. SJWD's projected supply reliability per the UWMP Guidelines is presented in Table 4-14. The single-dry year and multiple dry-year supply area presented as the range of WFA restrictions. The supply could be reduced even further in the critical "Conference" years. Environmental, legal, and climatic issues could impact SJWD supplies in the future. However, no additional impacts other than the WFA and contract restrictions are known at this time. SJWD does not anticipate water quality affecting supply as the American River and its tributaries produce high quality water that flows into Folsom Lake.

**Table 4-14. San Juan Water District Wholesale Water Supply Reliability (DWR Table 28)**

Source	Average Water Year, acre-feet	Single Dry-Water Year, acre-feet	Multiple Dry-Water Years, acre-feet			
			Year 1	Year 2	Year 3	Year 4
Surface	82,200	54,200-82,200	54,200-82,200	54,200-82,200	54,200-82,200	54,200-82,200
Percent of Average Water Year:	100	66-100	66-100	66-100	66-100	66-100

SJWD's supply strategy manages its supplies and retailer requirements at a total supply level. Individual retailer contracts do not list fixed contract delivery requirements. The San Juan Family expects to implement its water shortage contingency conjunctive use plan should SJWD's supplies be reduced below retailer demands. In this case, the San Juan Family expects to work collaboratively to ramp up retailer groundwater supplies and utilize system interconnections to move supply to retailers. In addition, the San Juan Family will institute water shortage measures to reduce demand to the level of service determined for the particular shortage.

Currently, members of the San Juan Family have a combined estimated groundwater capacity of 11,730 gpm considered in the SJWD supply shortage plan. Of this total, CHWD contributes 4,405 gpm from four wells. The actual amount of groundwater available during a shortage will be determined at that time and is a function of well yields, groundwater basin conditions, well operational status, infrastructure conditions, and other elements. The San Juan Family will evaluate each supply shortage condition, and develop the appropriate mix of demand reductions, groundwater, and surface water supply to meet total demands. The complete Surface Water Supply and Shortage Management Plan is included in Appendix E.

### 4.7.2 CHWD Supply Summary and Reliability

CHWD projected regular water supplies are summarized in Table 4-15. As indicated, CHWD relies mostly on SJWD surface water, and plans to only use 840 acre-feet per year of groundwater. Should SJWD supply be reduced, CHWD intends to use its wells as emergency backup supply.

**Table 4-15. Current and Projected Supplies (DWR Table 16)**

Source	Annual Volume, acre-feet					
	2010 (Actual)	2015	2020	2025	2030	2035
SJWD	12,156	18,064	17,053	17,489	17,925	18,361
Supplier Produced Groundwater	1,560	840	840	840	840	840
Supplier Produced Surface Water	0	0	0	0	0	0
Transfers In	0	0	0	0	0	0
Exchanges In	0	0	0	0	0	0
Recycled Water	0	0	0	0	0	0
Desalinated Water	0	0	0	0	0	0
Total:	13,676	18,904	17,893	18,329	18,765	19,201

CHWD's 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 or reduced. The basin elevation levels have historically 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 been working on a groundwater accounting framework to be 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 a new well. Table 4-16 summarizes the potential impacts to CHWD's supplies and Table 4-17 summarizes the potential impacts to supply volumes. Recycled water values are zero as there is no projected recycled water supply.

**Table 4-16. Factors Resulting in Inconsistency of Supply (DWR Table 29)**

Source	Limitation Quantification	Legal	Environmental	Water Quality	Climatic
Surface	unknown	Yes	Yes	No	Yes
GW	Up to 1,100 AFY per well lost	No	No	Yes	No
Recycled	--	No	No	No	No

**Table 4-17. Current and Projected Water Quality Supply Impacts (DWR Table 30)**

Source	Quality Issue	Potential Impact to Supply Total, acre-feet					
		2010 (actual)	2015	2020	2025	2030	2025
Surface	Unknown at this time	0	0	0	0	0	0
GW	Contaminated groundwater	0	1,100	1,100	1,100	1,100	1,100
Recycled	NA	0	0	0	0	0	0

Note: Groundwater values assume one well would be lost due to groundwater contamination, value represents maximum well production.

CHWD’s supply historic reliability is summarized in Table 4-18. The surface water supply values are based on the overall SJWD supply availability as determined by the Water Forum Agreement. CHWD surface water supplies were not cut back during these shortage periods.

**Table 4-18. Supply Reliability – Historic Conditions (DWR Table 28)**

Source	Average Water Year, acre-feet	Single Dry-Water Year, acre-feet	Multiple Dry-Water Years, acre-feet			
			Year 1	Year 2	Year 3	Year 4
SJWD overall surface supply	82,200	54,200-82,200	54,200-82,200	54,200-82,200	54,200-82,200	54,200-82,200
GW	6,000	6,000	6,000	6,000	6,000	6,000
Recycled	0	0	0	0	0	0
Percent of Average Water Year:	100	See note	See note	See note	See note	See note

Note: CHWD’s supply from SJWD has never been reduced due to dry year conditions. SJWD’s overall supply is restricted by the Water Forum Agreement and can be reduced according to the ranges provided in the table.

Projected CHWD supply reliability for the next three years is summarized in Table 4-19. As the San Juan Family retailers are not near their ultimate buildout water demands, CHWD does not anticipate any impacts to its SJWD supply despite potential impacts to the full 82,200 AFY SJWD supply in the next three years. CHWD expects to receive full supply from SJWD.

**Table 4-19. Supply Reliability (DWR Table 31)**

Source	Average Water Year, acre-feet	Multiple Dry-Water Years, acre-feet		
		2011	2012	2013
Surface	Equal to demand, maximum not quantified	14,889	16,679	16,749
GW	840	840	840	840
Recycled	0	0	0	0
Percent of Average Water Year:	100	100	100	100

## 5 Conservation and Demand Management

CHWD maintains a comprehensive and successful water conservation program. The District is a member of the California Urban Water Conservation Council (CUWCC) and annually reports best management practice (BMP) results. Annual monitoring and reporting for both the CUWCC and USBR requirements are accomplished through the CUWCC annual reporting website. In addition, CHWD is a signatory to the Sacramento Water Forum Agreement, and submits its BMP efforts, status and results annually to the Water Forum.

This 2010 UWMP Guidebook provides a list of required Demand Management Measures (DMM). The DMM list is equivalent to the CUWCC BMP list. This section lists each required DMM per the Guidebook.

### **5.1 DMM A: Water Survey Programs for Single-Family and Multiple-Family Residential Customers**

CHWD has implemented a water survey program for single-family and multi-family residential customers in the service area since 1998. Surveys are offered to all single-family and multi-family customers every year. CHWD will continue to offer these audits to all residential customers.

CHWD does not conduct interior water audits due to liability concerns. The District does include an indoor retrofit kit to new residents and all survey participants. Leak checks are conducted when a resident experiences an unexplained increase in their water bill and requests an inspection of their residence exterior and property.

This program includes the following:

- All residential customers are notified of availability of survey in bi-monthly bill
- Instruct customers of meter reading program and applicable tiered rates
- Detection of outside leaks and instruct residents on interior leak detection
- Provide interior low-flow devices as appropriate in lieu of interior audit
- Recommend ultra-low flow toilet (ULFT) or high efficiency toilet (HET) replacements
- Check irrigation system for leaks/overlap and determine timer functioning and seasonal scheduling
- Measure landscape area and develop irrigation schedule
- Provide customer with evaluation results, water saving recommendations and other information.

Implementation. The District markets the program through its public outreach program and is an active participant in the Regional Water Authority (RWA) public outreach program. All residential customers are offered the survey. A database is kept of each customer receiving the audit along with other customer-specific information and notes. The District has a program of contacting new residential customers and offering a survey.

High consumption reports are generated after the meters are read on a particular cycle and District personnel contact customers. Consumption history is analyzed and suggestions are made on ways to reduce indoor and outdoor water use. The District plans to conduct 120 surveys per year for the next five years.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness. The District also monitors requests for surveys over the year and from year to year to identify customer trends and needs to improve the program.

## **5.2 DMM B: Residential Plumbing Retrofit**

CHWD offers residential plumbing retrofit kits since 1998. These kits are available for all customers at their request and at the customer counter in the CHWD office lobby. The kits are also offered as part of the District's new customer package.

CHWD, the cities of Citrus Heights and Roseville and the counties of Sacramento and Placer do not have an ordinance to mandate plumbing retrofits. Until the agencies with authority pass such an ordinance, CHWD will continue to offer the retrofit kits as a voluntary option for its customers.

The plumbing retrofit kits consist of the following:

- High quality 2.5 gpm showerheads
- 2.2 gpm swivel faucet aerators
- Toilet leak dye tablets and displacement device
- 1.5 gpm duel thread aerator
- Conservation and water saving literature

Implementation. The District markets the program through its public outreach program. All residential customers are offered the survey. CHWD markets this program through its newsletter, website, bill stuffer, and bill messages. A database is kept of each customer receiving the audit along with other customer-specific information and notes. The District plans to distribute 400 retrofit kits per year for the next five years.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness.

## **5.3 DMM C: System Water Audits, Leak Detection, and Repair**

The District continually evaluates its system for unaccounted for water. The District utilizes audit procedures as outlined by the AWWA M36 water audit protocol and maintains audit results for each year. In 2010, the unaccounted for water audit indicated an unaccounted for water factor of seven percent, well below the 10 percent goal.

The District operates a system leak detection program and monitors the system through pressure recorders, customer reports, and visual inspection by employees and crews who can react quickly to repair a detected or reported leak. The District has enlisted the assistance of a leak detection contractor to inspect portions of the District's system that have a history of leaks. Water main leaks are typically repaired within three days (to allow proper utility pre-excavation notification) and responsible field operations personnel prepare a leak repair report. These reports are reviewed and tabulated by management staff including plotting of leak locations and frequency on a water distribution map. From these records, short and long-term plans are developed for replacement of chronically leaking infrastructure. The District has been tracking leaks in this manner since 1973. Presently, 93 percent of all water main leaks are occurring on coal-tar dipped and wrapped steel pipelines installed prior to the 1960's. This type of pipeline material represents only four percent of the District's water transmission and distribution system.

#### **5.4 DMM D: Metering with Commodity Rates for all New Connections and Retrofit of Existing**

The CHWD service area is 99.9 percent metered for all customer sectors including single-family, multi-family, commercial, institutional and landscape irrigation. All CHWD metered customers are billed bi-monthly based on commodity rates, including a three-tier price structure for all residential, irrigation and combination meters. There are 10 single family customers not yet metered out of the total 19,519 connections. These accounts generally represent older large lots that were subdivided prior to District involvement. The District is working to eventually resolve the easement and property issues and convert these customers to meters.

The District does not evaluate this DMM for water savings as it provides an indirect benefit to the District's other, quantifiable DMMs. The District utilizes meters and tiered pricing to develop a value of water for its customers who then can utilize the quantifiable DMMs to reduce their water use.

#### **5.5 DMM E: Large Landscape Conservation Programs and Incentives**

CHWD provides education and assistance to non-residential customers with support and incentives to improve their landscape water-use efficiency. The program was first offered in 1998. The District contacts specific accounts noted for high water use through direct mailing and personal contact. The District maintains a water efficient landscape system at its headquarters and is developing plans for an additional system at one of its groundwater well sites. The District provides start and end of irrigation season notices to all its customers. The large landscape survey includes:

- Irrigation system check.
- Distribution uniformity analysis.
- Review and/or develop irrigation schedules.

- Measure landscape area and total irrigable area.
- Customer report and information.
- Water budget.

In 2010, the District had 378 irrigation meter customers and 699 CII accounts. The District has completed five surveys and developed five budgets through 2010.

Implementation. The District markets the program through its public outreach program. All irrigation and CII customers are offered the survey. CHWD markets this program through its newsletter, website, bill stuffer, and bill messages. A database is kept of each customer receiving the survey along with other customer-specific information and notes. The District has a program of contacting CII customers and offering a survey and a water budget. High consumption reports are generated after the meters are read on a particular cycle and District personnel contact customers. Consumption history is analyzed and suggestions are made on ways to reduce indoor and outdoor water use. The District plans to conduct seven surveys per year for the next five years.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness.

## **5.6 DMM F: High-Efficiency Washing Machine Rebate Program**

CHWD implements this rebate program with the assistance of the local power company, Sacramento Municipal Utilities District (SMUD). SMUD's rebate program is based on rebates for efficient appliances, but also includes an amount for water efficiency in the overall rebate. CHWD provides funding for a predetermined number of rebates to SMUD in advance, and SMUD administers and processes the rebates on CHWD's behalf and notifies CHWD of number of rebates issued. CHWD offers up to \$50 in rebates depending on rating of washing machine. The program began in 2009.

Implementation. The District markets the program through its public outreach program. All residential customers are offered the rebate. CHWD markets this program through its newsletter, website, bill stuffer, and bill messages. A database is kept of each customer receiving the rebate along with other customer-specific information and notes. The District plans to distribute 125 rebates per year for the next five years.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness.

## **5.7 DMM G: Public Information Programs**

CHWD provides information on its water conservation program and on water conservation to the public through speakers for community groups, events, and schools. In addition, customers receive information through paid and public service advertising. The District is an active participant in the Regional Water Authority's (RWA) regional

water efficiency program, which produces public service announcements in print and radio ads. The District also participates in numerous fairs and community events with a booth and distributes free conservation materials. The conservation public information program officially began in 1993, but the District has always provided information to its customers regarding water supply and water use.

The District also participates in RWA's Blue Thumb campaign. The campaign is designed to help the region's residents use less water outdoors. The ongoing campaign shows residents how to use water efficiently outdoors through every-day tasks such as adjusting their irrigation system according to the season or using a shut-off nozzle on their hose. The program partners with local media figures, Home Depot, and the River Cats, the local minor league baseball team. In 2010, the public information program provided nearly 3.9 million television and 6.3 million radio impressions via paid advertising. The program also provided more than 1.2 million television and over 3 million radio impressions via free, public service announcements.

The District participates in funding a cooperative demonstration garden at its wholesaler, San Juan Water District. CHWD maintains a water efficient landscape at its headquarters and is developing an additional residential water efficient landscape at one of its groundwater well sites. CHWD maintains a conservation education center in the office lobby. Information is provided on both general conservation and school education programs. The CHWD website provides a full listing of all available public information materials plus links to other conservation information web sites.

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

### **5.8 DMM H: School Education Programs**

CHWD participates with the SJWD family agencies in a school education program to provide institutional assistance, educational materials and classroom presentations that identify urban, agricultural and environmental issues and conditions in the local watershed that meets State education framework requirements. CHWD sponsors an annual poster contest with 4th, 5th, and 6th grade students in their service area. Each student is awarded a t-shirt and a conservation-themed calendar. The first place winner receives a \$100 savings bond and the two second place winners receive a \$50 savings bond. The classroom teacher of each winner receives a \$100 check for their classroom's use. In addition, a grand prize winning poster is chosen from the four water agencies' 12 winning posters (three winners from each agency) and that winner receives an additional \$100 savings bond and their poster is featured on the following year's Water Awareness Calendar's front covers and the month of May (California's Water Awareness Month). The other winning posters are used on the other months of the Water Awareness Calendar that is distributed to all the participating schools. Additional calendars are available on request while supplies last.

CHWD has conducted class presentations to kindergarten through eighth grade since 1994. CHWD maintains a conservation education center in the office lobby. Information is provided on the conservation calendars, and the winning posters are highlighted. A regional water wise gardening handbook is provided. The District also has several conservation coloring books for elementary grade students that visit the District office.

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

### **5.9 DMM I: Conservation Programs for Commercial, Industrial and Institutional (CII) Accounts**

CHWD has provided conservation programs for each CII account since 1998. The program provides water audits and surveys. The District identifies its highest CII water users each year, but offers the survey and audit to all its CII customers. The CII audit includes:

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

CII customers are also offered water audits and surveys through DMM E – Large Landscape.

Implementation. The District markets the program through its public outreach program. All CII customers are offered the audit and survey. CHWD markets this program through its newsletter, website, bill stuffer, and bill messages. A database is kept of each customer receiving the rebate along with other customer-specific information and notes. The District plans to offer this program to all of its CII customers for the next five years.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness.

### **5.10 DMM J: Wholesale Agency Assistance Programs**

CHWD is a retail water agency and, as such, DMM J is not applicable. However, as a wholesale customer, CHWD continues to coordinate its collective conservation efforts with SJWD.

### **5.11 DMM K: Conservation Pricing**

Virtually all (99.9 percent) CHWD connections are metered and charged on a three-tiered inclining block metered rate. The remaining unmetered accounts pose unique legal, property, and/or engineering challenges and will be metered when each of their

respective circumstances are resolved. The metered rates consist of two components: service charge and volumetric charge. Each customer is charged a fixed service charge based on meter size. The three-tiered water rate structure contains increasing volumetric prices and is applicable to all residential, irrigation, and combination meters. Meters are read bi-monthly and customers are billed bi-monthly.

The District has begun to adjust its rate structure toward meeting CUWCC BMP 11 requirements for 70 percent revenue from volumetric charges. Achieving this will be a gradual process over ten or more years as the District builds financial reserves to withstand revenue fluctuations as well as giving customers time to adjust consumption habits to the new pricing structure.

The District does not evaluate this DMM for water savings as it provides an indirect benefit to the District's other, quantifiable DMMs. The District utilizes meters and tiered pricing to develop a value of water for its customers who then can utilize the quantifiable DMMs to reduce their water use.

### **5.12 DMM L: Conservation Coordinator**

CHWD began funding a full-time conservation coordinator in 1987. The District also utilizes one full time equivalent (FTE) through other staff to support the conservation program and coordinator for certain public outreach or implementation needs. The conservation coordinator duties include the following:

- Coordination and oversight of conservation program and BMP implementation
- Preparation and submittal of the CUWCC BMP Implementation Report
- Preparation and submittal of the USBR Five-Year Water Management Plan and Updates
- Coordination of conservation efforts and programs with District executive team, other staff and other agencies
- Preparation of annual BMP budgets
- Participation in CUWCC meetings
- Preparation of conservation elements in the District's Urban Water Management Plan
- Participation in RWA Water Efficiency Program committee meetings
- Supervision of the District's Water Conservation Specialist.

The District does not evaluate this DMM for water savings as it provides the overall direction and implementation of the program for the quantifiable DMMs.

### **5.13 DMM M: Water Waste Prohibition**

The District's water waste prohibition is an ongoing component of the water conservation program. The CHWD water waste ordinance includes the following water waste prohibitions:

- 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 on 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. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.
- Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic, or sanitary purposes, is prohibited.
- Customers are encouraged to take advantage of the water agency's conservation programs and rebates.

The water waste prohibition is enforced at all times. Depending on hydrologic or supply conditions, additional constraints on water use are enforced by the District through the water shortage and contingency plan. The CHWD water waste prohibition is part of the Water Shortage Contingency Plan included in Appendix F.

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

#### **5.14 DMM N: Residential Ultra Low Flow Toilet (ULFT) Replacement Programs**

CHWD, together with the California Department of Water Resources, RWA and Sacramento Regional County Sanitation District (SRCSD), provides ULFT and HET rebates for all its customers. Starting in 1998, a rebate of up to \$75 per toilet is offered for any customer that replaces a 3.5 gallon per flush (gpf) or higher toilet with a 1.6 gpf or lower ULFT/HET, with additional rebate amounts to be offered in the past under grant programs from DWR and SRCSD. Additional eligible expenses include toilet seat, supply line, wax ring, caulking, bolts, bolt covers and cost of installation up to rebate amount. The customer is required to provide proof of purchase and the District inspects the installation prior to approval.

Applications are processed on a first-come, first-served basis. The program is in effect until budgeted funds are expended or the Board of Directors alters the program or funding. Not all customers qualify for the SRCSD portion of the rebate, when available. If SRCSD does not approve the rebate, CHWD will only provide up to \$75 per toilet replaced.

Implementation. The District markets the program through its public outreach program. All residential customers are offered the rebate. CHWD markets this program through its newsletter, website, bill stuffer, and bill messages. The program is also marketed through RWA and SRCSD public information campaigns. A database is kept of each customer

receiving the rebate along with other customer-specific information and notes. The program is in effect until budgeted funds are expended or the Board of Directors alters the program or funding. Not all customers will qualify for the SRCSD portion of the rebate. If SRCSD does not approve the rebate, CWHD will provide up to \$75 per toilet replaced.

Evaluation. Customer data is kept in the billing database and is used to evaluate impacts of DMM on demands over time. The District actively updates its demand analysis and DMM water savings estimates to evaluate overall program effectiveness.

## 6 Demand to Supply and Contingency Planning

Projected demands are compared to projected supplies in this section. Citrus Heights Water District maintains a water shortage contingency plan to address instances when supplies are reduced. The Water Shortage Contingency Plan covers both short-term emergency shortages and long-term supply reductions.

### 6.1 Demand to Supply Analysis

Normal year and dry year supply and demand scenarios are presented in Tables 6-1 through 6-3. The SJWD Family water shortage plan does not allocate supply to the retailers on a volumetric basis, as discussed in Section 4. However, it is acknowledged that SJWD supply could be reduced to some level during extreme water shortages. The shortage plan identifies up to 18,000 AF of groundwater that can be used to offset surface water shortages. If supply is reduced to 54,200 AF in the Water Forum, and 18,000 AF groundwater is supplied, the net supply is 72,200 AF compared to the total of 82,200 AF. This represents a net percent reduction of 12 percent. However, with all the retailers now meeting the 20 percent reduction by 2020 requirements, the SJWD net supply should be sufficient to meet the District's demands, even after overall supply reductions. CHWD does not anticipate any supply reductions except under extreme circumstances, such as a Water Forum Conference year, or catastrophic failure of SJWD's infrastructure. CHWD may decide to reduce its demands and supply delivery during certain future conditions to assist in regional water shortage issues.

**Table 6-1. Normal Year Supply to Demand (DWR Table 32)**

	Volume, acre-feet				
	2015	2020	2025	2030	2035
Supply Total	18,904	17,893	18,329	18,765	19,201
Demand Total	18,904	17,893	18,329	18,765	19,201
Difference	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % of Demand	0	0	0	0	0

**Table 6-2. Single Dry-Year Supply to Demand (DWR Table 33)**

	Volume, acre-feet				
	2015	2020	2025	2030	2035
Supply Total	18,904	17,893	18,329	18,765	19,201
Demand Total	18,904	17,893	18,329	18,765	19,201
Difference	0	0	0	0	0
Difference as % of Supply	0	0	0	0	0
Difference as % of Demand	0	0	0	0	0

**Table 6-3. Multiple Dry-Year Supply to Demand (DWR Table 34)**

		Volume, acre-feet				
		2015	2020	2025	2030	2035
First Year Supply	Supply Total	18,904	17,893	18,329	18,765	19,201
	Demand Total	18,904	17,893	18,329	18,765	19,201
	Difference	0	0	0	0	0
	Difference as % of Supply	0	0	0	0	0
	Difference as % of Demand	0	0	0	0	0
Second Year Supply	Supply Total	18,904	17,893	18,329	18,765	19,201
	Demand Total	18,904	17,893	18,329	18,765	19,201
	Difference	0	0	0	0	0
	Difference as % of Supply	0	0	0	0	0
	Difference as % of Demand	0	0	0	0	0
Third Year Supply	Supply Total	18,904	17,893	18,329	18,765	19,201
	Demand Total	18,904	17,893	18,329	18,765	19,201
	Difference	0	0	0	0	0
	Difference as % of Supply	0	0	0	0	0
	Difference as % of Demand	0	0	0	0	0

## 6.2 Water Shortage and Drought Contingency Plan

CHWD maintains two water shortage and drought contingency plans. The plan maintained at the San Juan Family level, the Surface Water Supply and Water Shortage Management Plan was discussed in Section 4 and covers contingency for supply shortages across the entire San Juan Family. This plan also relies on each retailer's own water shortage contingency plan to enact demand reduction measures as necessary to meet supply cutbacks. The second plan, the CHWD Water Shortage and Drought Contingency Plan, is specific to its customers and is summarized below and presented in Appendix F.

CHWD applies a five-stage rationing plan during declared water shortages. The rationing plan also applies to catastrophic loss of water. The rationing plan determines a consumption reduction of over 50 percent of the normal consumption depending of causes, severity, and anticipated duration of the water supply shortage. Table 6-4 summarizes the CHWD rationing plan stages of action.

**Table 6-4. Water Supply Shortage Stages and Conditions (DWR Table 35)**

Stage No.	Water Supply Condition	Percent Reduction
1. Normal Water Supply	Normal or wet year supply conditions.	0%
2. Water Alert	Beginning of drought with multiple dry months and SJWD warning of potential cutbacks.	5-10%
3. Water Warning	SJWD available supply between 82,200 and 52,400 AFY	11-25%
4. Water Crisis	SJWD supply cutback below 52,400 AFY	26-50%
5. Water Emergency	SJWD supply loss.	At least 50%

CHWD assigns requirements and actions to apply in each stage designed to achieve the necessary demand reduction. Stages 4 and 5 are divided into short-term and long-term scenarios. Mandatory prohibitions for each stage are summarized in Table 6-5 and water shortage demand reduction measures are summarized in Table 6-6. A more complete and detailed list is included in Appendix F. The District will implement water crisis/emergency tiered pricing in Stages 4 and 5, but currently does not levy penalties or charges for failure to meet stage requirements.

**Table 6-5. Water Shortage Mandatory Prohibitions (DWR Table 36)**

Requirement	Stage When Initially Mandated
Water shall not be allowed to run off customer's property	1
Free-flowing hoses prohibited	1
Street and sidewalk washing prohibited except for sanitary purposes.	1
No single pass pool or water features allowed	1
Restaurants serve water upon request	3
No uncorrected plumbing leaks	3
Sewer/fire hydrant flushing prohibited unless emergency	4
No refilling or filling of pools	4
New turf installations prohibited	4
No new service commitments	4
No construction water use	4
No washing cars	5
No Landscape irrigation	5

Note: See Appendix F for a complete listing of requirements for each stage.

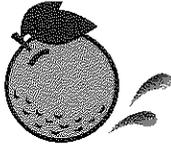
**Table 6-6. Water Shortage Demand Reduction Measures (DWR Table 37)**

Measure	Stage When Initially Implemented	Percent Reduction
Residential indoor BMPs	1	0-5%
Residential landscape irrigation BMPs	1	0-10%
Conservation education programs	1	0-5%
Use prohibitions	1-5	0-10%
CII BMPs	1	0-10%
Restricted or no irrigation use	4-5	0-50+%
Restricted or no new connections	4	0-10%

During a water shortage condition where customer demands are decreased, it is anticipated that personnel and operations costs will not decrease at all, and may even increase depending on the shortage situation. The District maintains a cash reserve that can be used to offset short-term revenue reductions. However, if the supply shortage is projected to last longer, the District may enact water crisis/emergency pricing or may update the entire rate structure, depending on expected length of shortage and estimate impacts to revenue.

In addition to reducing demands during a catastrophic loss of supply, CHWD has also identified actions to maintain short-term emergency supplies for health and fire-fighting needs. The District will power its well sites through portable and fixed power generators to pump groundwater. The District also maintains 20 emergency interconnections with its neighboring water agencies and can obtain additional supply as needed through these interconnections.

**Appendix A**  
**2010 UWMP 60-Day Notification**



**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](http://www.chwd.org)

March 8, 2011

Mr. Tom Miller  
County Executive Office  
Placer County  
175 Fulweiler Avenue,  
Auburn, CA 95603

Subject: Citrus Heights Water District 2010 UWMP Notice

Dear Mr. Miller:

The Citrus Heights Water District is preparing its 2010 Urban Water Management Plan (UWMP). The UWMP is required to be submitted to the California Department of Water Resources every five years (Water Code Sections 10610-10657). The law requires a water agency notify the county and city in which it serves water of its UWMP update. The District is updating its UWMP for 2010 and intends to present its findings at a public hearing on May 10, 2011. If you have any questions or comments regarding this process please contact me at (916) 725-6873.

Sincerely,

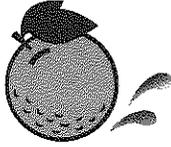
David B. Kane  
Assistant General Manager

*Board of Directors*  
Allen B. Dains  
Joseph M. Dion  
Charles T. Rose

*General Manager/  
Secretary*  
Robert A. Churchill

*Assistant General  
Manager/Treasurer*  
David B. Kane

*Assessor/Collector*  
Nancy E. Alaniz



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www.chwd.org

March 8, 2011

Mr. Ed Kriz  
Water Utility Manager  
City of Roseville  
2005 Hilltop Circle  
Roseville, CA 95747

Subject: Citrus Heights Water District 2010 UWMP Notice

Dear Ed:

The Citrus Heights Water District is preparing its 2010 Urban Water Management Plan (UWMP). The UWMP is required to be submitted to the California Department of Water Resources every five years (Water Code Sections 10610-10657). The law requires a water agency notify the county and city in which it serves water of its UWMP update. The District is updating its UWMP for 2010 and intends to present its findings at a public hearing on May 10, 2011. If you have any questions or comments regarding this process please contact me at (916) 725-6873.

Sincerely,

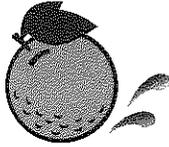
David B. Kane  
Assistant General Manager

*Board of Directors*  
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[www.chwd.org](http://www.chwd.org)

March 8, 2011

Mr. Henry Tingle  
City Manager  
City of Citrus Heights  
6237 Fountain Square Drive  
Citrus Heights, CA 95621

Subject: Citrus Heights Water District 2010 UWMP Notice

Dear Mr. Tingle:

The Citrus Heights Water District is preparing its 2010 Urban Water Management Plan (UWMP). The UWMP is required to be submitted to the California Department of Water Resources every five years (Water Code Sections 10610-10657). The law requires a water agency notify the county and city in which it serves water of its UWMP update. The District is updating its UWMP for 2010 and intends to present its findings at a public hearing on May 10, 2011. If you have any questions or comments regarding this process please contact me at (916) 725-6873.

Sincerely,

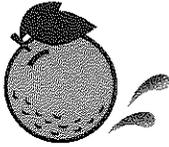
David B. Kane  
Assistant General Manager

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March 8, 2011

Mr. Steve Pedretti  
Planning Director  
Sacramento County Department of Planning and Community Development  
827 7<sup>th</sup> Street Room 225  
Sacramento, CA 95814

Subject: Citrus Heights Water District 2010 UWMP Notice

Dear Mr. Pedretti:

The Citrus Heights Water District is preparing its 2010 Urban Water Management Plan (UWMP). The UWMP is required to be submitted to the California Department of Water Resources every five years (Water Code Sections 10610-10657). The law requires a water agency notify the county and city in which it serves water of its UWMP update. The District is updating its UWMP for 2010 and intends to present its findings at a public hearing on May 10, 2011. If you have any questions or comments regarding this process please contact me at (916) 725-6873.

Sincerely,

David B. Kane  
Assistant General Manager

*Board of Directors*  
Allen B. Dains  
Joseph M. Dion  
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Secretary*  
Robert A. Churchill

*Assistant General  
Manager/Treasurer*  
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*Assessor/Collector*  
Nancy E. Alaniz

**Appendix B**  
**2010 UWMP Public Hearing Notification**

Legal Notices

2005

Legal Notices

2005

Sacramento Bee Classified 321.1234

Sacramento Bee Classified 321.1234

**NO 450 PUBLIC NOTICE**

**CITRUS HEIGHTS WATER DISTRICT**

**NOTICE OF HEARING FOR 2010 URBAN WATER MANAGEMENT PLAN**

A Public Hearing will be held on May 10, 2011 at 6:30 p.m. at the office of the Citrus Heights Water District (CHWD), located at 6230 Sylvan Rd., Citrus Heights, CA, 95610, to consider a draft of CHWD's 2010 Urban Water Management Plan.

The purpose of this Public Hearing is to present the draft Plan to the CHWD Board of Directors and accept and respond to any public questions or comments regarding the draft Plan. This Plan is being prepared to provide guidelines for long-term water management for CHWD. Spoken or written comments on the draft Plan may be presented at the Public Hearing, and written comments may be submitted in advance of the Hearing at the aforementioned address. Copies of the draft Plan may be reviewed at the aforementioned address or at CHWD's website, [www.chwd.org](http://www.chwd.org). Questions or comments about the draft Plan may be directed to Assistant General Manager David Kane at (916) 725-6873.

CITRUS HEIGHTS WATER DISTRICT  
By Robert A. Churchill, General Manager

**Appendix C**  
**2010 UWMP Adoption Resolution**

CITRUS HEIGHTS WATER DISTRICT  
RESOLUTION NO. 05-2011

RESOLUTION ADOPTING THE 2010 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Citrus Heights Water District Urban Water Management Plan is prepared and submitted to fulfill the requirements of the California Urban Water Management Planning Act of 1983, Assembly Bill No. 797, Water Code Section 10610 et seq.; and

WHEREAS, the District has prepared and made available for public review a draft Urban Water Management Plan, and a properly noticed public hearing regarding said Plan was conducted by the Board of Directors on May 10, 2011; and

WHEREAS, the Board of Directors intends that the Plan shall serve as a guideline to assist the District in its efforts to encourage conservation and efficient use of water.

NOW THEREFORE, BE IT RESOLVED by the Board of Directors of Citrus Heights Water District as follows:

1. The 2010 Urban Water Management Plan is hereby adopted; and the District Secretary is hereby authorized and directed to file the Plan with the California Department of Water Resources; and
2. The District General Manager is hereby directed to implement the programs as set forth in the 2010 Urban Water Management Plan, subject to review and express authorization of the Board of Directors for all actions requiring the approval of the Board of Directors.

PASSED AND ADOPTED by the Board of Directors of the CITRUS HEIGHTS WATER DISTRICT this 14<sup>th</sup> day of June, 2011, by the following vote, to wit:

AYES:	Directors:	Dains, Dion, Rose
NOES:	Directors:	None
ABSTAIN:	Directors:	None
ABSENT:	Directors:	None

SEAL



A handwritten signature in black ink, appearing to read "Joseph M. Dion", written over a horizontal line.

JOSEPH M. DION, President  
Board of Directors  
Citrus Heights Water District

ATTEST:

A handwritten signature in black ink, appearing to read "Robert A. Churchill", written over a horizontal line.  
ROBERT A. CHURCHILL, Secretary

**Appendix D**  
**SGA Groundwater Management Plan**

*Also located at [www.sgah2o.org](http://www.sgah2o.org)*

**Appendix E**  
**San Juan Water District's Surface Water Supply and**  
**Water Shortage Management Plan**

# **SAN JUAN WATER DISTRICT'S SURFACE WATER SUPPLY AND WATER SHORTAGE MANAGEMENT PLAN**

## **BACKGROUND INFORMATION**

San Juan Water District ("San Juan") is the owner of certain surface water rights and contractual water entitlements, and facilities and entitlements for the diversion, treatment and conveyance of water from Folsom Reservoir, to make available treated water supplies within its wholesale and retail service area, which includes: (1) Citrus Heights Water District; (2) Fair Oaks Water District; (3) Orange Vale Water Company; (4) San Juan in its capacity as a retail water service provider; and (5) the City of Folsom relative to that portion of its service area north of the American River ("Member Agencies"). San Juan has entered into wholesale water supply agreements with the Member Agencies. The wholesale water supply agreements provide that San Juan and the Member Agencies will develop a surface water supply and water shortage management plan to manage water supplies during times of shortage.

This document sets forth San Juan's Surface Water Supply and Water Shortage Management Plan ("Plan"). Under this Plan, certain Member Agencies with groundwater production facilities commit to relying on groundwater supplies during times of shortage and thereby make supplemental surface water supplies available for other Member Agencies, and in exchange: (1) will receive annual payments from the other Member Agencies to pay the capital and operation and maintenance costs specified below; and (2) in addition, will receive payments to cover the cost of pumping groundwater in years when groundwater is pumped under this Plan. Those Member Agencies who will be receiving the benefit of groundwater production facilities of other Member Agencies will make annual payments as provided in this Plan and will be entitled to receive supplemental surface water supplies during years of shortage.

## **BASIC PRINCIPLES**

This Plan is based on the following principles:

1. San Juan and the Member Agencies are committed to the coequal objectives of the Water Forum Agreement to: (a) provide a reliable and safe water supply for the Sacramento region's economic health and planned development through the year 2030; and (b) preserve the fishery, wildlife, recreational and aesthetic values of the Lower American River. San Juan's purveyor-specific Water Forum Agreement includes specified reductions in the amount of surface water that San Juan will divert from Folsom Reservoir during specified dry-year conditions. Water supply shortage solutions under this Plan will be consistent with the terms of the Water Forum Agreement.

2. This Plan utilizes a combination of demand management measures and the conjunctive use of surface water and groundwater supplies to meet the water needs of San Juan and the Member Agencies during conditions of water shortage.

3. Measures to address reductions in surface water diversions by using groundwater will be for the mutual benefit and interest of all Member Agencies.

4. Member Agencies that receive groundwater supplies from other Member Agencies under this Plan will pay the costs incurred to provide these groundwater supplies.

5. Water supply shortage provisions will be implemented in a manner that protects the water supplies and financial interests of affected ratepayers, including their investment in existing facilities.

6. Member Agencies that provide groundwater supplies under this Plan will retain ownership of their own groundwater production facilities.

7. San Juan will administer this Plan, including entering into agreements with Member Agencies to provide, distribute and account for groundwater supplies, monitor the sustainability of the yield of the affected groundwater aquifer and take other actions necessary to implement this Plan. San Juan will consult with the Member Agencies as necessary regarding the implementation of this Plan, and keep the Member Agencies informed as to the status of water supply conditions and water shortage management actions.

## DEFINED TERMS

When used in this Plan, the following terms are defined as set forth in this section:

8. **“Annual Facility Capital Costs”** means annual costs paid by the Benefiting Agencies to compensate Groundwater Suppliers for capital costs for the book value of existing groundwater facilities, and the costs for new or replacement production facilities. The costs include the costs for issuing and satisfying debt .

9. **“Benefiting Agencies”** means those Member Agencies that (i) desire to receive additional allotments of surface water during a Period of Shortage by virtue of other Member Agencies’ using alternative supplies under this Plan, and (ii) commit to make the payments provided for under this Plan.

10. **“Citrus Heights”** means Citrus Height Water District.
11. **“Commodity Costs”** means costs directly associated with the production of groundwater or other alternative water supplies during a Period of Shortage that are not included in Operation and Maintenance Costs, to the extent these costs exceed the cost of delivery of surface water to the Member Agency under the wholesale water supply agreement.
12. **“CVP”** means Reclamation's Central Valley Project.
13. **“Emergency Shortage”** means a reduction in surface water deliveries to San Juan below 54,200 acre-feet annually. Conditions of Emergency Shortage are not subject to this Plan.
14. **“Fair Oaks”** means Fair Oaks Water District.
15. **“Folsom”** means of the City of Folsom.
16. **“Groundwater Production Facilities”** means wells, pumps, piping, electrical controls and other physical components that are necessary for the production and distribution of groundwater by Groundwater Suppliers as defined in Appendix A, which may be revised as part of the annual review of this Plan.
17. **“Groundwater Suppliers”** means those Member Agencies that have available groundwater in excess of their own needs under all but Emergency Shortage conditions.
18. **“Level of Service”** means the amount of water to be made available to Member Agencies during a Period of Shortage and is determined in relation to historical demands during normal water years.
19. **“Member Agencies”** means the following retail water service providers that receive wholesale water service from San Juan: (1) Citrus Heights; (2) Fair Oaks; (3) Orange Vale; (4) San Juan in its capacity as a retail water service provider; and (5) Folsom relative to that portion of its service area north of the American River.
20. **“Operation and Maintenance Costs”** mean costs (e.g., labor, parts, supplies, etc.) for routine operation and maintenance of the Groundwater Production Facilities necessary to ensure that groundwater production capacity will be available when groundwater is needed under this Plan.
21. **“Orange Vale”** means Orange Vale Water Company.

22. **“Period of Shortage”** means the periods of time when surface water availability to the Member Agencies is reduced under the terms of the wholesale water supply agreements between San Juan and the Member Agencies.

23. **“Reclamation”** means the United States Bureau of Reclamation.

24. **“San Juan”** means the San Juan Water District.

25. **“San Juan’s Water Treatment and Conveyance Facilities”** means the water diversion, pumping, treatment and conveyance facilities that are used by San Juan to make surface water available to the Member Agencies.

26. **“Water Forum Agreement”** means the Memorandum of Understanding dated January 2000 among the various signatories that contains seven elements, which include “Actions to Meet Customers Needs While Reducing Diversion Impacts in Drier Years,” “Support for Improved Pattern of Fishery Flow Releases from Folsom Reservoir,” and the “Groundwater Management Element.” The Water Forum Agreement includes a purveyor-specific agreement for San Juan’s service area. San Juan would implement provisions relating to reductions in surface water diversions in certain dry years pursuant to a separate agreement between San Juan and the United States Bureau of Reclamation.

## **SURFACE WATER SUPPLY SHORTAGE**

### **Surface Water Supplies Available To San Juan**

27. San Juan makes water available to the Member Agencies under the wholesale water supply agreements from surface water supplies that are available to San Juan from time to time. San Juan will use its best efforts to preserve and protect these water rights and entitlements, which currently include the following: (1) a pre-1914 appropriative water right to divert at the rate of 60 cubic feet per second (“cfs”) from the American River with a priority date of 1853, which is delivered from Folsom Reservoir by Reclamation without charge to San Juan under a 1954 agreement between San Juan and Reclamation (and confirmed in San Juan's long-term CVP water service Agreement), for use anywhere within San Juan’s service area; (2) an appropriative water right under permit no. 4009 (application 5830, filed on February 11, 1928) to divert at the rate of 15 cfs from the American River, which is delivered from Folsom Reservoir by Reclamation without charge under the 1954 agreement between San Juan and Reclamation (and confirmed in San Juan's long-term CVP water service contract), for use anywhere within San Juan’s service area; (3) San Juan’s long-term CVP water service agreement for 24,200 acre feet per year, for use anywhere within San Juan’s service area; (4) a water supply agreement dated

December 7, 2000 between San Juan and Placer County Water Agency for 25,000 acre feet per year (for use in San Juan's Placer County service area); and (5) temporary supplies of surplus water from Reclamation under Section 215 of Public Law 97-293, which may be available from time to time, for use anywhere within San Juan's service area. The total amount of water delivered to San Juan under its pre-1914 water right and its appropriative water right permit is 33,000 acre-feet per year.

28. The amount of water available annually under San Juan's long-term CVP water service contract and San Juan's water supply agreement with Placer County Water Agency are subject to reduction during times of shortage in accordance with the terms of these agreements. Reclamation allocates during times of shortage water based on historic use. San Juan is within Reclamation's American River Division of the CVP. San Juan will request that Reclamation consider groundwater pumped by Member Agencies in lieu of taking delivery of CVP water to be equivalent to use of CVP water by San Juan for purposes of determining historic use. In addition, San Juan's Water Forum Agreement provides for reduced surface water diversions as specified during certain dry years. San Juan will be responsible for monitoring the potential for reductions in surface water supplies under the CVP and PCWA agreements, as well as in accordance with the terms of San Juan's Water Forum Agreement. San Juan will keep the Member Agencies informed of the projected surface water availability for the water year, and the likelihood of a declaration of water shortage.

29. San Juan's ability to deliver water supplies to meet demand to the Member Agencies is also subject to interruption due to damage to and/or maintenance of the water storage and conveyance facilities used by Reclamation to deliver San Juan's CVP water supplies, or due to damage to and/or maintenance of San Juan's Water Treatment and Conveyance Facilities. San Juan and the Member Agencies are developing a separate plan for dealing with these types of Emergency Conditions.

### **Declaration of Water Shortage**

30. San Juan will utilize all available water supplies, including other sources of supply that San Juan may obtain from time to time, to avoid a Period of Shortage to the Member Agencies. In the event of a Period of Shortage, San Juan will provide prompt notification of the extent of such shortage to the Member Agencies.

31. San Juan will estimate how much groundwater will be needed to meet the desired Level of Service during the Period of Shortage, after a shortage is declared. The desired Level of Service may be tied to the declared conservation stage.

## **Availability of Groundwater Production Facilities**

32. Citrus Heights, Fair Oaks and Orange Vale Water Company will independently determine how much groundwater they have available for delivery to the other Members Agencies during the Period of Shortage that would be surplus to the quantities needed to satisfy water demands within their respective service areas. San Juan will determine the quantities of groundwater to obtain under agreements with the Groundwater Suppliers as necessary to provide the Levels of Service of other Member Agencies under this Plan. San Juan will coordinate the operation of Groundwater Production Facilities and the surface water system to provide the Level of Service. San Juan will be responsible for notifying the Groundwater Suppliers of their obligations under this Plan for the water year, and the Groundwater Suppliers will use their best efforts to meet their groundwater pumping obligations. San Juan may reduce surface water deliveries to a Groundwater Supplier during a Period of Shortage equivalent to the amount of groundwater pumping obligation of the Groundwater Supplier to the extent of the ability of the Groundwater Supplier to pump groundwater from Groundwater Production Facilities. This Plan recognizes, however, that the ability to pump groundwater from Groundwater Production Facilities cannot be guaranteed despite the best efforts of the Groundwater Suppliers, and that in a given Period of Shortage, one Groundwater Supplier could require a supplemental water supply from another Groundwater Supplier, in which case an equitable adjustment in credits and charges for the water-short Groundwater Supplier will be made by San Juan in consultation with the other Member Agencies. Groundwater Production Facilities are and will remain the property of the individual Member Agencies and will only be operated by that Member Agency. Member Agencies that do not have access to groundwater will receive surface water in an amount necessary to meet the Level of Service subject to making the payments provided for in this Plan.

## **Termination of Plan**

33. This Plan will remain in effect during the term of the wholesale water supply agreements and during any period of renewal, though any Member Agency may withdraw from the Plan upon five years' notice to the other Member Agencies. At its option, a Member Agency may withdraw from the Plan prior to the expiration of the five-year notice period, but only upon payment of the member's proportionate share of the Annual Facility Capital Costs for existing Groundwater Production Facilities, new or replacement Groundwater Production Facilities, Operation and Maintenance Costs, and Commodity Costs for the entirety of the five years.

## **Operation and Maintenance of Groundwater Facilities**

34. Each Groundwater Supplier will maintain its Groundwater Production Facilities to ensure water is available to meet its obligations under this Plan. Groundwater Suppliers will provide a list of anticipated capital improvement projects and costs to San Juan for Groundwater Production Facilities for each five-year period coinciding with the San Juan's five-year financial plan, which will include proposals for construction of new or replacement Groundwater Production Facilities.

## **Rates and Charges for Groundwater**

35. Rates and charges to cover the costs of production and delivery of groundwater under this Plan will include the following: (1) Annual Facility Capital Costs for existing Groundwater Production Facilities; (2) Annual Facility Capital Costs for new or replacement Groundwater Production Facilities; (3) Operation and Maintenance Costs; and (4) Commodity Costs.

36. Annual Facility Capital Costs will be determined using the existing value of each Groundwater Production Facility divided by the years of remaining life of the facility (assuming an initial 40-year useful life for wells, piping, and buildings, and 25-year life for pumps, motors and other equipment), which will be added together to determine the total Annual Facility Capital Cost. The Annual Facility Capital Cost will be divided by the total groundwater capacity of the Groundwater Production Facility to calculate the Annual Facility Capital Cost per unit of groundwater. The Annual Facility Capital Cost will be reimbursed based on total groundwater capacity an individual Groundwater Supplier has committed to the Benefiting Agencies (based on the five-year running average of water demands and groundwater needs) under the Plan. An example of this calculation is attached to this Plan as Appendix B.

37. The amount of the Annual Facility Capital Cost and rates and charges for groundwater produced under this Plan to Benefiting Agencies will be recalculated annually. Operation and Maintenance Cost allocations will be based on the percent of each Groundwater Supplier's total groundwater capacity committed to the Benefiting Agency. Commodity Costs will be allocated based on actual per-acre-foot cost basis. An example of this calculation is attached to this Plan as Appendix B.

38. Each Groundwater Supplier will submit to San Juan an invoice documenting Operation and Maintenance Costs and Commodity Costs on a quarterly basis. Credits due to Groundwater Suppliers and payments due by Benefiting Agencies will be determined by San Juan consistent with this Plan, and will be reflected on the billing invoices that San Juan sends to the Member

Agencies for charges under the wholesale water supply agreements. Payment of the rates and charges will be a condition to a Benefiting Agency receiving supplemental water supplies under the Plan.

### **Priority for Use of Groundwater from Groundwater Production Facilities**

39. Groundwater produced by the Member Agencies during a Period of Shortage will be used in the following priority: (1) to satisfy water demands within their respective service areas; (2) to provide the Level of Service of other Member Agencies under this Plan; (3) to assist in meeting water demands by other American River Division CVP water supply contractors during years of surface water reductions under the Water Forum Agreement; and (4) to facilitate water transfers for use outside of the American River Division of the CVP. The terms and conditions of this Plan, including but not limited to rates, are not intended to apply to water transferred for use outside the San Juan service area.

## **GENERAL PROVISIONS**

### **Technical Committee**

40. San Juan and each Member Agency will appoint a representative to a technical committee to provide assistance as necessary in implementing this Plan, provided that, San Juan retains authority to administer and implement this Plan.

### **Periodic Review; Amendment.**

41. San Juan and the Member Agencies will meet not less than once every year to review all aspects of the administration and implementation of this Plan, and recommend procedures and amendments as appropriate. The review will be conducted on or around September 1 of each year, and any revisions will go into effect on January 1 of the following year. No amendment to this Plan will take effect before it has been approved by San Juan and each of the Member Agencies. The annual review will include a consensus based determination of wells to be included in the shortage plan and costs.

SAN JUAN WATER DISTRICT SURFACE WATER SUPPLY  
AND  
WATER SHORTAGE MANAGEMENT PLAN

APPENDIX A

GROUNDWATER PRODUCTION FACILITIES AVAILABLE FOR WATER SHORTAGE MANAGEMENT

Draft: February 27, 2008

Groundwater Production Facility	Groundwater Supplier	Year Completed	Groundwater Production Rate GPM	MGD
Palm Avenue Well No. 1A	Citrus Heights Water District	1991	1,210	1.7
Sylvan Road Wall No. 8	Citrus Heights Water District	1991	1,550	2.2
Sunrise School Well No. 10	Citrus Heights Water District	1992	895	1.3
Mitchell Farms Well No. 11	Citrus Heights Water District	2008	750	1.1
New York Well No.	Fair Oaks Water District		830	1.2
Northridge Well No.	Fair Oaks Water District		960	1.4
Town Well No.	Fair Oaks Water District	2007	2,075	3.0
Heather Well No.	Fair Oaks Water District	2007	2,035	2.9
Well No. 2	Orange Vale Water Company		995	1.4
TOTAL			11,730	16.9

**Appendix F**  
**Citrus Heights Water District Water Shortage Contingency Plan**



## CITRUS HEIGHTS WATER DISTRICT

### MANDATORY REQUIREMENTS – WATER CONSERVATION STAGES 1 – 5:

#### **WATER CONSERVATION STAGE DECLARATION**

Upon declaration or amendment by the Board of Directors of a specific Stage in effect, the following mandatory water conservation requirements shall be in effect.

The declaration of Short-Term Stage 4 or Stage 5 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

#### **STAGE 1 – NORMAL WATER SUPPLY**

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



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 2 – WATER ALERT**

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired within five (5) working days or less if warranted by the severity of the problem.
5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce landscape and pasture irrigation by 5 – 10%. Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve 90 to 95% of the evapotranspiration (ET) rate. Drip irrigation systems are excluded from this requirement.
9. Reduce indoor water use by 5 – 10%. Contact your water provider for tips and techniques to reduce indoor water use.
10. Users of construction meters and fire hydrant meters will be monitored for efficient water use.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 3 – WATER WARNING**

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired within two (2) working days or less if warranted by the severity of the problem.
5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce landscape and pasture irrigation by 11 – 25%. Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve 75 to 89% of the evapotranspiration (ET) rate. Drip irrigation systems are excluded from this requirement.
9. Reduce indoor water use by 11 – 25%. Contact your water provider for tips and techniques to reduce indoor water use.
10. Restaurants shall serve water only upon request.
11. Users of construction meters and fire hydrant meters will be monitored for efficient water use.



## CITRUS HEIGHTS WATER DISTRICT Mandatory Requirements – Water Conservation Stages 1 - 5

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### STAGE 4 – WATER CRISIS: SHORT-TERM

The declaration of Short-Term Stage 4 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem.
5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. 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.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce landscape and pasture irrigation by 26 – 50%. Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve 50 to 74% of the evapotranspiration (ET) rate. Drip irrigation systems are NOT excluded from this requirement.
9. Reduce indoor water use by 26 - 50%. Contact your water provider for tips and techniques to reduce indoor water use.
10. Restaurants shall serve water only upon request.
11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 4 – WATER CRISIS: SHORT-TERM continued**

12. Users of construction meters and fire hydrant meters will be monitored for efficient water use. Use of reclaimed water for construction purposes is encouraged.
13. Installation of new turf or landscaping is prohibited.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 4 – WATER CRISIS: LONG-TERM**

The declaration of Long-Term Stage 4 water conservation requirements will be by the agency's Board of Directors in a regular or special session. A long-term declaration is for water shortage conditions expected for a duration of more than 45 days.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired within 24 hours or less if warranted by the severity of the problem.
5. All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof. 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.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce landscape and pasture irrigation by 26 – 50%. Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve 50 to 74% of the evapotranspiration (ET) rate. Drip irrigation systems are NOT excluded from this requirement.
9. Reduce indoor water use by 26 - 50%. Contact your water provider for tips and techniques to reduce indoor water use.
10. Restaurants shall serve water only upon request.
11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 4 – WATER CRISIS: LONG-TERM continued**

12. Water for flow testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. Use of reclaimed water for construction purposes is encouraged.
13. Installation of new turf or landscaping is prohibited.
14. Water Crisis/Emergency tiered pricing will be implemented.
15. No commitments will be made to provide service for new water service connections.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 5 – WATER EMERGENCY: SHORT-TERM**

The declaration of Short-Term Stage 5 water conservation requirements may be declared by the agency's General Manager or his/her designee and subject to ratification by the agency's Board of Directors in a regular or special session. A short-term declaration is for water shortage conditions expected for a duration of 45 days or less.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Landscape and pasture irrigation is prohibited.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes or faulty sprinklers shall be repaired immediately. Water service will be suspended until repairs are made.
5. 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.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce indoor water use by more than 50%. Contact your water provider for tips and techniques to reduce indoor water use.
9. Restaurants shall serve water only upon request.
10. Water for flow testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. 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. Use of reclaimed water for construction purposes is encouraged.
11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.
12. Installation of new turf or landscaping is prohibited.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 5 – WATER EMERGENCY: SHORT-TERM continued**

13. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.



## CITRUS HEIGHTS WATER DISTRICT Mandatory Requirements – Water Conservation Stages 1 - 5

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### **STAGE 5 – WATER EMERGENCY: LONG-TERM**

The declaration of Long-Term Stage 5 water conservation requirements will be by the agency's Board of Directors in a regular or special session. A long-term declaration is for water shortage conditions expected for a duration of more than 45 days.

1. Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.
2. Landscape and pasture irrigation is prohibited.
3. Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.
4. Leaking customer pipes shall be repaired immediately. Water service will be suspended until repairs are made.
5. 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 commercial and multi-family residential ornamental ponds and fountains is prohibited.
6. Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.
7. Customers are encouraged to take advantage of the water agency's conservation programs and rebates.
8. Reduce indoor water use by more than 50%.
9. Restaurants shall serve water only upon request.
10. Water for flow testing and construction purposes from water agency fire hydrants and blow-offs is prohibited. 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. Use of reclaimed water for construction purposes is encouraged.
11. Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.
12. Installation of new turf or landscaping is prohibited.



**CITRUS HEIGHTS WATER DISTRICT**  
**Mandatory Requirements – Water Conservation Stages 1 - 5**

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**STAGE 5 – WATER EMERGENCY: LONG-TERM continued**

13. Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.
14. New connections to the District water distribution system will not be allowed.
15. Water Crisis/Emergency tiered pricing will be implemented.
16. No commitments will be made to provide service for new water service connections.

**J. CROWLEY GROUP**  
WATER RESOURCES PLANNING AND POLICY

