Appendix UT-1

Water Supply Assessment

Final Draft

Water Supply Assessment

Sacramento County WattEV Innovative Freight Terminal (SWIFT)

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January 2024

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Introduction

This Water Supply Assessment (WSA) analyzes the sufficiency of the City of Sacramento's (City) water supplies for the proposed Sacramento County WattEV Innovative Freight Terminal (the Project) consisting of a publicly accessible Electric Vehicle (EV) charging facility. The Project is located on a 118-acre property owned by the Sacramento International Airport (SMF) along Bayou Way near Interstate 5 and Powerline Road in Sacramento, California. The development will include an electric vehicle charging facility to provide electric charging for light duty passenger vehicles, transit buses, and heavy-duty freight trucks. The elements of the proposed site include a 94-acre solar field, a 7.8-acre charging pad area for trucks, a 2.8-acre parking stall area, and buildings. The proposed buildings include a 3,000 square foot site and vehicle maintenance workshop, a 14,000 square foot convenience store, food outlet, restroom and resting lounge, and a 3,000 square foot office building.

The Project applicants proposes to obtain water for the Project from the City of Sacramento via the Agreement Between The City of Sacramento, The County of Sacramento and The Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park (2004 agreement).

Regulatory Background

Senate Bill (SB) 610, also known as the California Water Code, establishes the primary legal standards for assessing the sufficiency of water supplies for new development projects. In accordance with the SB Section 10912, the Project meets the regulations as a mixed-use project that includes one or more of the projects specified, thus is subject to the California Environmental Quality Act (CEQA). As part of the environmental review process pursuant to the CEQA, these statutes require the applicant to prepare a WSA of the reliability of water supplies for the project, considering normal, single dry, and multiple dry years over a 20-year horizon. The basic requirement is that a WSA must "include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the water system's existing and planned future uses, including agricultural and manufacturing uses."

References used in preparing this document include the following:

- City of Sacramento 2020 Urban Water Management Plan (UWMP)
- City of Sacramento 2023 Water Master Plan
- City of Sacramento Water Study Design Manual, January 2018
- Sacramento County Water Agency 2020 Urban Water Management Plan
- SCWA Zone 50 Water Supply Master Plan
- Agreement Between The City of Sacramento, The County of Sacramento and The Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park

Project Location

The 104.6-acre Project site (APN 225-0010-003, 225-0010-035, 225-0010-036, 2250010-006) is located along Bayou Way, south of the Sacramento International Airport and west of Power Line Rd in the unincorporated of Sacramento, CA **(Figure 1)**. The Project is bounded by undeveloped agricultural land to the north, south, east and west and Sacramento International Airport to the north of West Side Fwy.

Figure 1 Regional Location Map

Existing Conditions

The Project site is currently undeveloped agricultural land zoned. Currently, there is no potable water supply to the Project site.

Proposed Project

The Project will include an electric vehicle charging facility to provide electric charging for light duty passenger vehicles, transit buses and heavy-duty freight trucks. The elements of the proposed site include a 94-acre solar field, a 7.8-acre charging pad area for trucks, a 2.8-acre parking stall area, and buildings. **Figure 2** includes the conceptual site plan.

With the completion of this WSA, the project applicant plans to secure potable water service from the City of Sacramento (PWS ID: CA3410020) via wholesale to SCWA (PWS ID: CA3400473) in accordance with the 2004 Agreement, attached as **Appendix A**. The Project proposes to source water through a downstream service connection on the existing water main from the water storage tanks located at the Airport Booster Station, 5036 Bayou Way, Sacramento, CA. These tanks currently serve the Sacramento International Airport. The Project does not propose to obtain water from the Natomas Central Mutual Water Company.

The future land use includes a mixture of commercial (office building, truck stop and maintenance building) and solar field. Land use was categorized based on the SCWA Zone 50 Water Supply Master Plan.

2004 Wholesale and/or Wheeling Supply Agreement

According to the 2004 Agreement, the City of Sacramento, County of Sacramento and the Sacramento County Water Agency entered an agreement to provide a reliable, long-term supply of potable water from the City's water system to Metro Air Park and the Sacramento International Airport. In the agreement, it is stated that the City can provide potable water and is willing to provide potable water through Wholesale Water Service or Wheeling Water Service to the County and that the County desires to obtain a long-term potable water supply to meet the build-out water demand for the lands adjacent to the Airport (Metro Air Park).

It is understood that a resolution will be required to incorporate the proposed project area into the agreement and coordination with the City of Sacramento will be required. The current areas included in the Agreement are located in Exhibit A of the Agreement, attached to this WSA as **Appendix A**.

The agreement includes a cumulative maximum rate of potable water of 11.7 million gallons per day (MGD) that the City will deliver to the County. The estimated water demand is discussed below, and a comparison of the existing water demand currently used under the agreement and the expected demand is discussed in following sections.

Estimated Water Demand for the Project

The Project's estimated water demand was determined in conjunction with the expected future land use and the Unit Water Demand Factors obtained from the SCWA's Zone 50 Water Supply Master Plan. The project site is not a part of SCWA's Zone 50, however land uses are similar. **Appendix B** contains

excerpts from the SCWA Zone 50 Water Supply Master Plan. **Table 1** details the Projected Unit Water Demand Factors based on land use.

Table 1 *Water Demand Factors*

Land Use	Projected Unit Water Demand Factors		
	Avg. Day Demand Factors (AF/ac/yr)	*Avg. Day Demand Factors (gpd/ac)*	*Max. Day Demand Factors (gpd/ac)*
Commercial – Offices Retail/Services, Automotive & Related Hotels	3	2,680	5,360
Solar Field*	*	*	*

*The Solar Field land use category is not included in the SCWA Zone 50 Water Supply Master Plan, therefore additional calculations, included in **Table 4**, were performed to estimate the water usage of the Solar Field.

The preliminary site plan was used to determine the estimated acreage of land categorized in each land use category. **Table 2** below outlines the estimated acreage for each land use on the proposed Project site. **Exhibit 1** outlines the expected land use on the proposed site plan. The total acreage for the commercial land use includes the parking lots for the associated buildings.

Table 2 *Project Estimated Land Use Acreage*

Land Use	Estimated Acreage
Commercial – Offices Retail/Services, Automotive & Related Hotels	5.12
Solar Field	99.48

The expected water demand at the Project site was estimated by taking the product of the water demand factors obtained from the SCWA Zone 50 Water Supply Master Plan (**Table 1**) and the estimated land use acreage (**Table 2**). The average day demand in acre-feet per year and gallons per day, and maximum day demand in gallons per day were calculated and presented below in **Table 3**.

Table 3 *Land Use Estimated Water Demand*

Land Use	Estimated Acreage	Projected Water Demand		
		Avg. Day Demand (AF/yr)	*Avg. Day Demand (gpd)*	*Max. Day Demand (gpd/ac)*
Commercial – Offices Retail/Services, Automotive & Related Hotels	5.12	15.36	13,721.60	27,443.20
Solar Field*	99.48	*	*	*

*The Solar Field land use category is not included in the SCWA Zone 50 Water Supply Master Plan, therefore additional calculations, included in **Table 4**, were performed to estimate the water usage of the Solar Field.

Occasionally, the solar panels will be cleaned with an estimated 400 gallons of water per day. This value was obtained from the expected SolarCleano F1 cleaning system. This will occur approximately 4 to 5 times a year. No additional water demand is expected in the Solar Field land. **Table 4** details the Solar Field demand calculations.

Table 4 *Solar Field Cleaning Water Demand*

	Solar Field Projected Water Demand		
	Avg. Day Demand (AF/yr)	*Avg. Day Demand (gpd)*	*Max. Day Demand (gpd/ac)*
Solar Field Cleaning	0.45	400	800

To account for this additional flow, it was added to the land use average demand to calculate the total Project water demand. The total Project water demand is summarized below and is a summation of the Land Use Projected Water Demand and Solar Field Cleaning Water Demand in **Table 5**.

Table 5 *Total Project Water Demand*

Total Project Water Demand	
Total Demand	**9.81 Average Gallons per Minute (GPM)**
	14,121.60 Gallons per Day (GPD)
	0.0141 Million Gallons per Day (MGD)
	5,154,384 Gallons per Year (GPY)
	15.81 Acre-Feet per Year (AFY)

2004 Wholesale and/or Wheeling Supply Agreement Demand Analysis

In order to determine the feasibility of amending the proposed project area into the existing areas of the 2004 agreement, the water use data of the Airport and MAP from the years 2022 and 2023 were quantified and compared to the projected water demand with the additional project demand. This data is included in **Table 6** and **Table 7**. **Appendix C** contains the raw demand data for the Airport and MAP used to create these tables.

Table 6 *2022 Airport and MAP Demand Data*

2022 Airport and MAP Demand Data				
Month	**Airport (Gallons)**	**Metro Air Park (Gallons)**	**Total Gallons per Month**	**Total Gallons per Day**
January	5,024,846	8,866,922	13,891,768	448,122
February	6,061,647	6,099,328	12,160,975	434,321
March	8,859,879	8,693,118	17,552,997	566,226
April	8,671,402	7,115,458	15,786,860	526,229
May	14,132,209	8,895,976	23,028,185	742,845
June	16,295,875	10,601,688	26,897,563	896,585

2022 Airport and MAP Demand Data				
July	13,151,231	16,715,641	29,866,872	963,447
August	15,493,353	16,232,759	31,726,112	1,023,423
September	10,289,127	12,862,366	23,151,493	771,716
October	9,299,250	14,286,922	23,586,172	760,844
November	5,376,764	8,445,311	13,822,075	460,736
December	5,358,764	3,313,754	8,672,518	279,759
			Total Average Gallons per Day	**656,188**
			Total Average in MGD	**0.6562**

Table 7 *2023 Airport and MAP Demand Data*

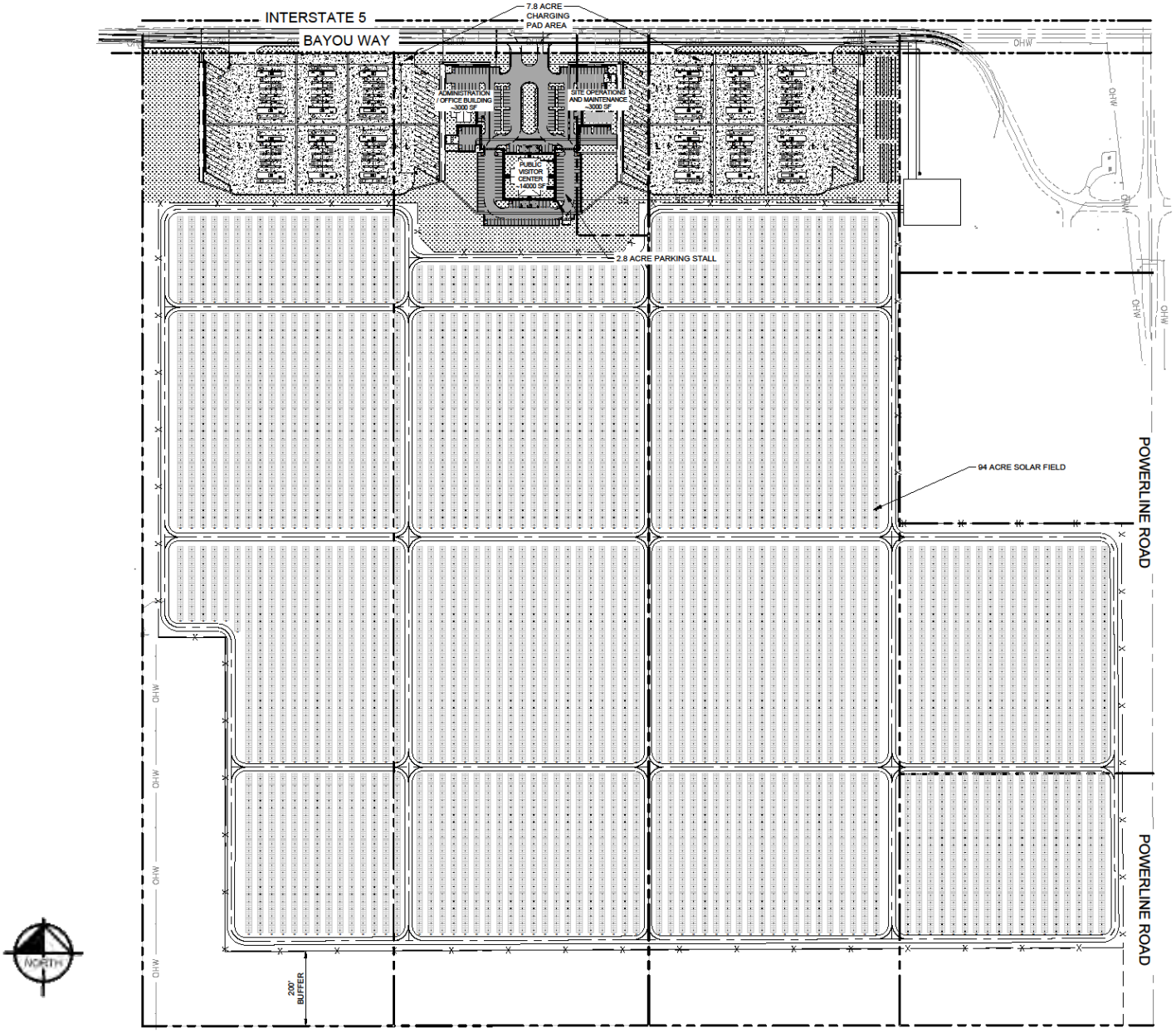
2023 Airport and MAP Demand Data				
Month	**Airport (Gallons)**	**Metro Air Park (Gallons)**	**Total Gallons per Month**	**Total Gallons per Day**
January	5,181,848	3,402,955	8,584,803	276,929
February	4,586,448	2,787,173	7,373,621	263,344
March	5,214,678	4,075,266	9,289,944	299,676
April	6,192,360	9,822,499	16,014,859	533,829
May	9,579,293	13,543,563	23,122,856	745,899
June	9,514,213	12,854,440	22,368,653	745,622
July	14,962,461	14,525,075	29,487,536	951,211
August	19,060,804	18,897,889	37,958,693	1,224,474
			Total Average Gallons per Day	**630,123**
			Total Average in MGD	**0.6301**

The existing demand data for the Airport and MAP areas was averaged and added to the proposed project demand to quantify the total projected demand. This is summarized in **Table 8**. The total projected demand of 0.6573 MGD, inclusive of demands from the Airport, MAP and the proposed project, is less than the 2004 Agreement Cumulative Maximum Rate of 11.7 MGD.

Table 8 *Summary of Existing and Proposed Demands*

Summary of Demands	
Existing Average Demand Gallons per Day	643,155.22
Proposed Project Gallons per Day	14,121.60
Existing Average Demand in MGD	0.6432
Proposed Project in MGD	0.0141
Total Projected Demand in Gallons per Day	657,276.82
Total Projected Demand in MGD	0.6573
2004 Agreement Cumulative Maximum Rate in MGD	11.7

Figure 2 Conceptual Site Plan (Not to Scale)



Urban Water Management Plan Review

Because the Project proposes to obtain water through the 2004 Agreement for Wholesaling and/or Wheeling Water, the City of Sacramento's Urban Water Management Plan was used as a basis for this WSA and UWMP review section. Excerpts from the City of Sacramento's Urban Water Management Plan can be found in **Appendix D** of this WSA.

Water Supply

The City sources its water from surface water diverted from the Sacramento River, which is treated at the Sacramento Water Treatment Plant; surface water diverted from the American River, which is treated at the E.A. Fairbairn Water Treatment Plant; and groundwater pumped from City-owned and operated wells from the underlying North American and South American subbasins. (City of Sacramento; West Yost, 2021) **Table 9** summarizes the Past and Future Water Supply of the City of Sacramento.

Table 9 *Past and Future City Water Supply*

Water Supply	Past Water Supply (AFY)	Projected Water Supply (AFY)				
	2020	2025	2030	2035	2040	2045
Groundwater[(a)]	21,141	28,800	28,800	28,800	28,800	28,800
Surface Water	70,916	331,806	373,535	395,498	417,460	417,460
Purchased or Imported Water	8,427	0	0	0	0	0
Recycled Water	29	1,000	1,000	1,000	1,000	1,000
Total	**100,513**	361,606	403,335	425,298	447,260	447,260

Notes:
1.Units are in acre-feet (AF).
(a) Based on a reasonably available volume

Surface Water Supply

The City treats surface water diverted from the Sacramento and American Rivers with two water treatment facilities: the Sacramento River Water Treatment Plant (SRWTP) and the E.A. Fairbairn Water Treatment Plant (EAFWTP). (City of Sacramento; West Yost, 2021)

Table 10 summarizes the 2020 surface water supply and **Table 9** summarizes the projected surface water supply under normal year conditions.

Table 10 *Surface Water Supplies - Actual*

Surface Water	Existing (2020) Water Supply Volume
Sacramento River	39,578
American River	31,338

Total (AFY)	**70,916**

Sacramento River Water Treatment Plant

The City is permitted to operate the plant at 160 MGD in the summer months and 120 MGD in the shoulder months. However, summer operations can be impacted by unusually low river levels which potentially reduce capacity of the plant to 135 MGD in the summer months. The City is currently evaluating further expansion of the SRWTP to increase the diversion and treatment capacity to 310 MGD.

E.A. Fairbairn Water Treatment Plant

The EAFWTP is currently rated at a diversion capacity of 200 MGD, with a permitted treatment capacity of 160 MGD (80 MGD for Basins 1 and 2, and 80 MGD for Basins 3 and 4). However, the EAFWTP is unable to operate reliably at capacity due to the poor condition of some of the plant facilities, and due to environmental agreements that frequently limit diversions during summer months, and other reduced rates during different parts of the year due to water rights agreements, as discussed in further detail in Chapter 6. Therefore, the current reliable capacity of the EAFWTP during peak demand periods is 80 MGD, with the ability to operate at up to 100 MGD, but only for short periods of time.

Groundwater

The City currently has 26 permitted wells in the North American Subbasin, and 2 permitted wells in the South American Subbasin; however, only 23 of these wells are currently operated on a regular basis to supply municipal water. The City has recently constructed three additional water supply wells. One well was drilled at the EAFWTP but the facilities necessary to pump, treat, and deliver the water are pending design and installation. The other two supply wells were constructed at Shasta Park with a 4-million-gallon reservoir. These wells are expected to be permitted and on-line in 2021. The City also owns and operates 22 irrigation/park supply wells. These irrigation wells are not recognized for potable supply and as such are not identified in the City's annual Division of Drinking Water (DDW) Compliance Reports. (City of Sacramento; West Yost, 2021)

The City currently draws groundwater from two subbasins of the Sacramento Valley Groundwater Basin. The retail groundwater historically pumped is detailed in **Table 11**.

Table 11 *Past Groundwater Volume Pumped (Retail)*

Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	North American Subbasin	16,723	23,301	22,842	19,443	19,022
Alluvial Basin	South American Subbasin	863	2,619	2,467	1,542	1,407
	Total (AFY)	**17,586**	**25,920**	**25,309**	**20,967**	**20,429**

The City's wholesale agreements primarily rely on surface water. However, SCWA's Airport and Metro Air Park receive groundwater from the City. The groundwater supply is pumped from the North American Subbasin. The groundwater historically supplied to SCWA is summarized in **Table 12**.

Table 12 *Past Groundwater Volume Pumped (Wholesale)*

Type	Location or Basin Name	2016	2017	2018	2019	2020
Alluvial Basin	North American Subbasin	428	427	655	903	712
	Total (AFY)	**428**	**427**	**655**	**903**	**712**

Purchased/Imported Water

The City has historically not purchased or imported water from a wholesale water supplier except under rare circumstances. However, in 2018 and 2020, the City purchased approximately 4,000 AF and 8,500 AF, respectively, of groundwater from SCWA and SSWD as part of a temporary groundwater substitution transfer.

Recycled Water

The City collaborated with Regional San and the SPA, a significant City water customer, on recycled water planning for a January 2015 Recycled Water Feasibility Study (RWFS). Following completion of this study, the City and Regional San executed a Principles of Agreement for a Water Recycling Program in April 2016 which serves as an interim document that describes the proposed institutional structure for the Regional San and City Water Recycling Program. Regional San and the SPA, in coordination with the City, cooperated in the development of a Phase 1 water recycling project that will initially deliver recycled water via a new transmission pipeline from the Sacramento Regional Wastewater Treatment Plant (SRWWTP) to the Cogen Facility. This transmission pipeline, in concurrence with the City, was upsized to provide additional capacity to serve potential future recycled water users within the City. (City of Sacramento; West Yost, 2021)

Tertiary treatment is currently provided to a portion of the secondary treated wastewater for recycled water use. The SRWWTP currently houses Regional San's Water Reclamation Facility (WRF) which consists of a tertiary treatment plant, pump station, and storage reservoir. The WRF was originally designed to produce up to 5 MGD of tertiary effluent, and is permitted to produce up to 10 MGD.

The recycled water currently produced at SRWWTP's WRF meets Title 22 California Code of Regulations recycled water requirements. Regional San generates wholesale recycled water and SCWA retails the recycled water to recycled water customers in Elk Grove.

As of 2020, Regional San started delivering recycled water to the SPA Cogen Facility from the SRWWTP. It delivered approximately 29 AF in 2020 and plans to provide approximately 1,000 AF of recycled water to the SPA Cogen Facility in the future. Current recycled water use is summarized in **Table 13**. Projected recycled water use is summarized in **Table 9**.

Table 13 *Recycled Water Current Use (Retail)*

Recycled Water (Tertiary)	2020 Uses
Industrial	29
Total (AFY)	**29**

Other Potential Sources of Water Supply

Water Transfers and Exchanges

The City utilizes mostly surface water and some groundwater to serve its customers. In 2018 and 2020, the City participated in a Temporary Groundwater Substitution Water Transfer. Under the transfer, the City temporarily increased the use of groundwater which allowed some surface water to be made available for sale to other water users in the State for up to a five-month period. This was accomplished by: 1) utilizing existing City groundwater wells; and 2) taking groundwater produced by SSWD and SCWA. Under the water transfer, surface water that is normally diverted by the City after being released from Folsom Reservoir by the USBR from July 1, 2020 to November 30, 2020 was allowed to flow through the rest of the Lower American River, and through the Delta, where it was pumped out of the South Delta by DWR and conveyed to members of the State Water Contractors. Several water agencies within the region have participated in past transfers. (City of Sacramento; West Yost, 2021)

Water Storage and Distribution System

The City currently has seventeen storage facilities: twelve storage reservoirs are located throughout the City, and five finished water clearwells that are located at the water treatment plants (two at EAFWTP and three at SRWTP). The cumulative distribution storage reservoir capacity is 49 million gallons (MG). The clearwell reservoirs located at EAFWTP and SRWTP have a combined capacity of approximately 45 MG. (City of Sacramento; West Yost, 2021)

The City currently operates eighteen (18) high lift service pumps at the SRWTP and EAFWTP and has capacity to add an additional six (6) high lift service pumps at the EAFWTP. All of the storage reservoirs have pump stations to deliver water to the residents and businesses as water demands vary. The City maintains one additional booster pump station to serve water in a small separated pressure zone in the northeast part of the City.

The City maintains approximately 1,800 miles of transmission and distribution system mains ranging in size from 2 to 72 inches in diameter; only 415 miles are of pipeline sizes 12 inches in diameter or larger. Approximately 70 percent of the City's system consists of 6-inch and 8-inch diameter pipelines. The City has one dedicated recycled water pipeline that delivers recycled water from the Sacramento Regional Wastewater Treatment Plant to the Sacramento Power Authority Cogeneration Facility.

Water Demand

This section summarizes the future water demands for the City. The descriptions below for the City's water demand have been taken from the City's 2020 UWMP, which provides a comprehensive assessment of past and future water demand separated by use-types for water. Future projections are provided in 5-year increments from 2025-2045.

The following water demand projection is the summation of the City's residential water demand, commercial demands, industrial demands, institutional demands, large landscape recycled water demands, and water losses between 2025-2045.

Potable Water Demand

The City's on-going Water Master Plan Update projected water demands through 2050 and is the basis for the projected water demands summarized in **Table 14** and **Table 15**. The City's on-going Water Master Plan Update incorporated the most recent and accurate future development estimates and unit water use factors to develop the water demand projections. Unit water use factors were refined based on recent, post-drought water use trends and reflect current and on-going water use efficiencies and water conservation by the City's water customers. In addition, the water demand projections take into account a future drought rebound factor since the 2012 to 2016 historical drought in California to provide conservative demand projections. (City of Sacramento; West Yost, 2021)

Table 14 *Past and Projected Potable Water Use (Retail)*

Potable Water Use Type	Past Water Demand (AFY)	Projected Water Demand (AFY)				
	2020	2025	2030	2035	2040	2045
Single Family	44,419	46,913	47,491	48,069	48,647	51,098
Multi-Family	13,979	15,334	16,085	16,837	17,588	18,474
Commercial (Includes Industrial)	15,984	17,871	19,068	20,266	21,464	22,545
Institutional/Governmental	5,740	6,094	6,200	6,306	6,412	6,736
Landscape	2,905	5,087	7,144	9,200	11,257	11,824
Other Potable	650	2,366	4,054	5,724	7,430	7,804
Losses	3,607	13,767	13,767	13,766	13,766	14,460
Total	**100,483**	**107,432**	**113,809**	**120,187**	**126,564**	**132,942**

Table 15 *Past and Projected Potable Water Use (Wholesale)*

Potable Water Use Type	Past Water Demand (AFY)	Projected Water Demand (AFY)				
	2020	2025	2030	2035	2040	2045
SCWA – Airport	712	1,056	1,400	1,400	1,400	1,400
SCWA – Zone 50 Metro Air Park	90	2,545	5,000	5,000	5,000	5,000
SSWD – Arden	390	1,945	3,500	14,782	26,064	26,064
SSWD - Northridge	0	0	0	2,130	4,260	4,260
Cal Am Arden	0	457	913	1,384	1,855	1,855
Cal Am Fruitridge	267	4,479	8,692	8,692	8,692	8,692
Cal Am Parkway	1,127	2,803	4,480	6,258	8,036	8,036
Cal Am Rosemont	1,022	3,591	6,160	8,163	10,166	10,166
Golden State Water Company	0	0	0	518	1,037	1,037
Del Paso Manor Water District	0	0	0	672	1,344	1,344
SCWA – Arden Park	0	0	0	2,106	4,211	4,211
SCWA – Zone 41 CSA Wholesale	0	4,800	9,600	10,122	10,644	10,644
SCWA – Zone 41 NSA, CSA and SSA	0	6,661	13,321	12,836	12,350	12,350
Tokay Park	0	0	0	47	95	95
Florin County Water District	0	0	0	919	1,837	1,837
Natomas Unified School District	0	69	69	69	69	69
Total	**3,607**	**28,406**	**53,135**	**75,098**	**97,060**	**97,060**

Recycled Water Demand

Table 16 displays the City's projected recycled water demand. As of 2020, Regional San started delivering recycled water to the SPA Cogen Facility from the SRWWTP. It delivered approximately 29 AF in 2020 and plans to provide approximately 1,000 AF of recycled water to the SPA Cogen Facility in the future. The City does not currently distribute or provide supplemental treatment to wholesale recycled water and does not plan to do so in the future. (City of Sacramento; West Yost, 2021)

Table 16 *Past and Projected Recycled Water Demand*

	2020	2025	2030	2035	2040	2045
Recycled Water Demand (AFY)	29	1,000	1,000	1,000	1,000	1,000

Water Loss

System losses are the difference between the actual volume of water treated and delivered into the distribution system and the actual metered consumption. Such apparent losses are always present in a water system due to pipe leaks, unauthorized connections or use, faulty meters, unmetered services such as fire protection and training, and system and street flushing.

The City uses the American Water Works Association (AWWA) method to annually evaluate its distribution system losses on a fiscal year basis. For the 2020 fiscal year, the City's water losses were estimated to be approximately 10,097 AF. (City of Sacramento; West Yost, 2021)

The expected losses are depicted in **Table 14**.

Dry Year Water Demand

In this section, the City's normal, single dry, and five consecutive dry years projected supplies and demands are integrated and compared. Under the various water year types, the total annual water supply sources available are compared to the total annual projected water use for the City's water service area from 2025 to 2045 in five-year increments.

The City's primary water sources during base years are surface water from the Sacramento River and American River and groundwater. In 2020, the City started delivering recycled water to the SPA Cogen Facility. The City uses these sources to meet the demands of its retail and wholesale customers. (City of Sacramento; West Yost, 2021)

Normal Year Reliability

The City's base Normal Year includes Hodge Flow Conditions on the American River. During Hodge Flow Conditions, diversion from the American River is limited at the EAFWTP. The limitations are dependent on the time of year. However, remaining American River entitlements may be diverted downstream at the SRWTP. The City's water supply in Normal Years is assumed to be:

- The Maximum Combined Diversion specified for the year of surface water,
- 22,400 AF of groundwater, and
- 1,000 AF of recycled water.

As shown in **Table 17** and **Table 18**, the City's Normal Year supplies are adequate to meet projected demands for both retail and wholesale customers.

Table 17 *Normal Year Supply and Demand (Retail)*

	2025	2030	2035	2040	2045
Supply Total (Acre-Feet)	333,200	350,200	350,200	350,200	350,200
Demand Total (Acre-Feet)	108,432	114,809	121,187	127,564	133,942
Difference (Acre-Feet)	224,769	253,391	229,014	222,636	216,258

Table 18 *Normal Year Supply and Demand (Wholesale)*

	2025	2030	2035	2040	2045
Supply Total (Acre-Feet)	28,406	53,135	75,098	97,060	97,060
Demand Total (Acre-Feet)	28,406	53,135	75,098	97,060	97,060
Difference (Acre-Feet)	0	0	0	0	0

Single Dry Year Reliability

In the City's base Single Dry Year (1977), runoff in the Sacramento Valley decreased by 28 percent. The City's Single Dry Year is assumed to be the equivalent to a Conference Year, as defined in the WFA. During a Conference Year, diversion from the American River is limited at the EAFWTP to 155 CFS and 50,000 AFY. (City of Sacramento; West Yost, 2021)

However, remaining American River entitlements may be diverted downstream at the SRWTP. The Single Dry Year availability is assumed to be:

- The Maximum Combined Diversion specified for the year of surface water,
- 22,400 AF of groundwater, and
- 1,000 AF of recycled water.

No demand reductions were assumed for retail Single Dry Year conditions. As shown in **Table 19** and

Table 20, the City's Single Dry Year supplies are adequate to meet projected demands for both retail and wholesale customers. Aside from the comparison of supply vs demand below, the City has elected in the past, and may in the future, to engage in more aggressive demand management measures or reoperation of the water system to benefit broader statewide condition during drier periods.

Table 19 *Single Dry Year Supply and Demand (Retail)*

	2025	2030	2035	2040	2045
Supply Total (Acre-Feet)	333,200	350,200	350,200	350,200	350,200
Demand Total (Acre-Feet)	108,432	114,809	121,187	127,564	133,942
Difference (Acre-Feet)	224,769	235,391	229,014	222,636	216,258

Table 20 *Single Dry Year Supply and Demand (Wholesale)*

	2025	2030	2035	2040	2045
Supply Total	28,406	53,135	75,098	97,060	97,060
Demand Total (Acre-Feet)	28,406	53,135	53,135	97,060	97,060
Difference (Acre-Feet)	0	0	0	0	0

Multiple Dry Year Reliability

The 2015 UWMP required water purveyors to evaluate hydrologic conditions under a three-year drought period. The 2020 UWMP requires evaluation of five consecutive dry years. This plan uses 1929 to 1933 as the basis for the five consecutive dry year period to meet the new requirements for the 2020 UMWPs. (City of Sacramento; West Yost, 2021)

The five consecutive dry year availability is assumed to be:

- First Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Second Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Third Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Fourth Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Fifth Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.

As shown in Tables 7-11 and 7-12 in the UWMP, the City's Multiple Dry Year supplies are adequate to meet projected demands.

Table 21 *Projected Water Supply and Demand without Project*

Source	2025			2030			2035			2040			2045		
	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]
Total Supply (AFY)	361,606	361,606	381,389	403,335	403,335	420,905	425,298	425,298	442,868	447,260	447,260	447,260	447,260	447,260	447,260
Total Demand (AFY)	136,838	136,838	161,723	167,944	167,944	190,616	196,285	174,322	218,957	224,624	224,624	229,726	231,002	231,002	248,824
Difference (AFY)	**224,768**	**224,768**	**219,666**	**235,391**	**235,391**	**230,289**	**229,013**	**250,976**	**223,911**	**222,636**	**222,636**	**217,534**	**216,258**	**216,258**	**198,436**

[1] *Multiple Dry Years scenario values in this table are the Fifth Year Values from the UWMP.*

Water Demand with Proposed Project

This section analyzes the City's future water demands including the proposed Project's water demands. Future demands are provided in 5-year increments from 2025-2045. See the *Introduction – Estimated Water Demand for the Project* for the methodology used to determine the projected water demand for the Project.

Water Demand with Project

Water demand from the previous section was used in conjunction with the Project's water demand to determine the City's adjusted potable water demand with the inclusion of the Project. The anticipated increase of the City's annual potable water demand as a result of the Project is approximately 14,122 gpd, or 16 AFY. It is assumed that the City has the supply capacity to satisfy the increased demand in water as result of the Project.

Recycled Water Demand with Project

The Project does not propose a supply of recycled water. The City currently only uses recycled water for large, landscaped areas such as parks and golf courses and is not applicable to the Project. Any on-site irrigation demand, which is anticipated to be minimal, will be met with grey water collected from the buildings on-site.

Dry Year Water Demand with Project

Dry year analyses were also performed with projected Project water demands to determine the City's water supply reliability with the increase in demand. This section discusses the reliability of the City's water supply sources under 'normal year', 'single dry year', and 'multiple dry year' scenarios in 5-year increments through 2045. **Table 22** summarizes the City's available water supply under 'normal year', 'single dry year', and 'multiple dry years' scenarios with the Project water demands included. For a description of the different scenarios, see *Water Demand – Dry Year Water Demand*.

Table 22 *Projected Water Supply and Demand with Project*

Source	2025			2030			2035			2040			2045		
	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]	Normal Year	Single Dry Year	Multiple Dry Years[1]
Total Supply (AFY)	361,606	361,606	381,389	403,335	403,335	420,905	425,298	425,298	442,868	447,260	447,260	447,260	447,260	447,260	447,260
Total Demand (AFY)	136,854	136,854	161,739	167,960	167,960	190,632	196,301	174,338	218,973	224,640	224,640	229,742	231,018	231,018	248,840
Difference (AFY)	**224,752**	**224,752**	**219,650**	**235,375**	**235,375**	**230,273**	**228,997**	**250,960**	**223,895**	**222,620**	**222,620**	**217,518**	**216,242**	**216,242**	**198,420**

[1] *Multiple Dry Years scenario values in this table are the Fifth Year Values from the UWMP.*

Meeting Dry Year Potable Demands

This section expands on the available options that may need to be implemented by the City in order to reconcile any short falls in supply that may occur during any of the dry year scenarios described in the previous section of this report.

Water Shortage Contingency Plan

A water shortage means that the water supply available is insufficient to meet the normally expected customer water use at a given point in time. A WSCP presents how an urban water supplier plans to act in response to an actual water shortage condition. (City of Sacramento; West Yost, 2021)

It is critical that during dry years, especially extreme drought conditions, the City implements continued preventive actions and demand-reducing measures to its customers. While water efficiency measures and voluntary conservation should be maintained at all times, the City has the right to implement strict demand-reducing measures with potential penalties during extreme dry conditions to ensure water security for essential needs within its service area. This section summarizes Chapter 8 of the 2020 UWMP, titled Water Shortage Contingency Planning. For more detailed information on the City's approach to mitigating supply deficits and water shortages, please refer to the UWMP and the City's 2020 Water Shortage Contingency Plan (WSCP) for further detail.

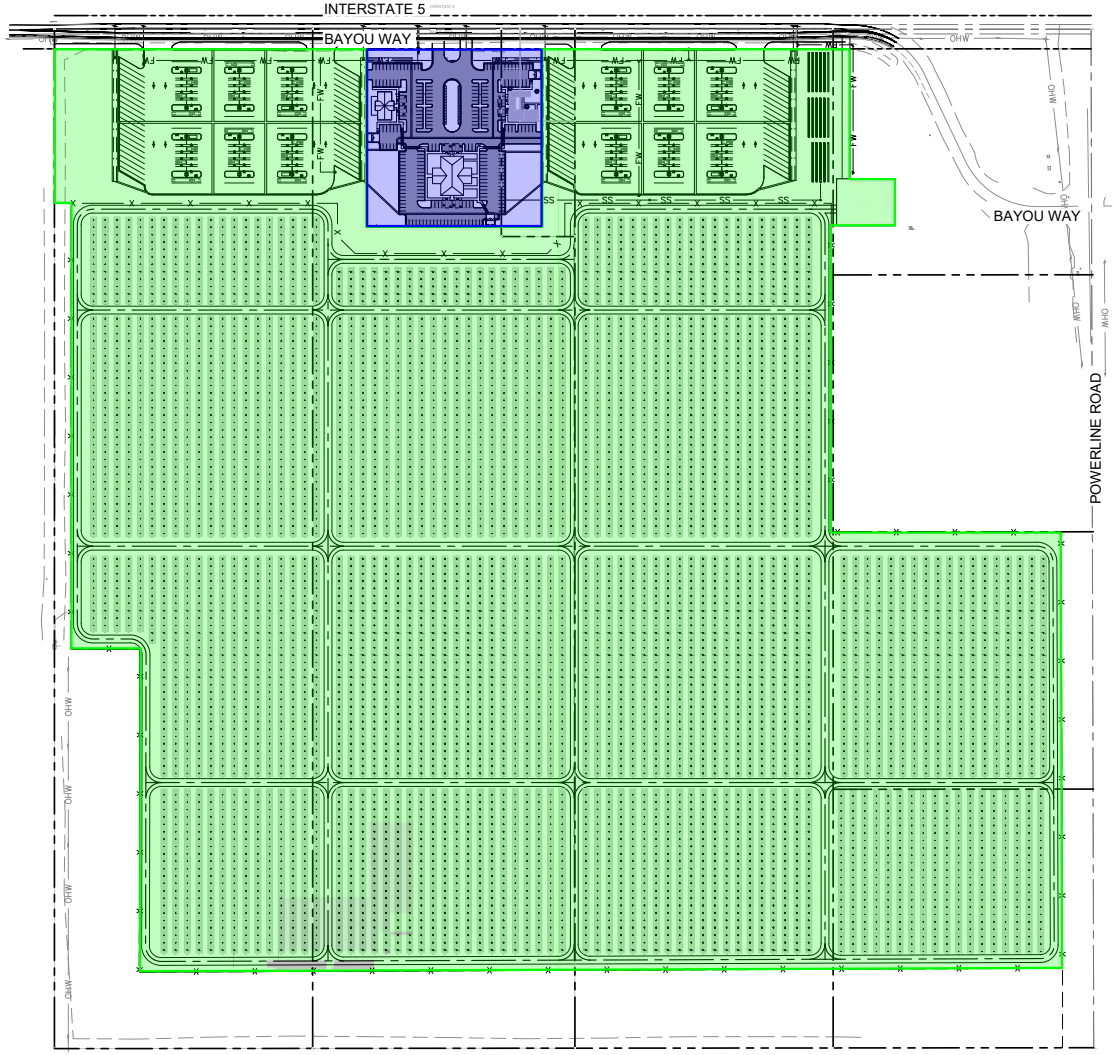
Water shortages may occur due to several reasons such as population growth, climate change, drought, and natural disasters. The WSCP addresses the necessary steps for the City to take in the event of a water shortage. The WSCP outlines six measures that the City will take for water shortage percentages ranging from 10%-50%. The six shortage levels are summarized in **Table 23.**

Table 23 *Water Shortage Levels*

Shortage Level	Percent Shortage Range	Shortage Response Actions
1	Up to 10%	Implement City internal shortage response actions per UWMP, Appendix K, WSCP Table 2
2	11% to 20%	Declare water shortage emergency (mandatory restrictions)
3	21% to 30%	Stage 2 actions, increased public outreach, and expand mandatory restrictions
4	31% to 40%	Stage 3 actions, increased compliance and enforcement efforts, and expanded mandatory restrictions
5	41% to 50%	Stage 4 actions and increased mandatory restrictions
6	Over 50%	Stage 5 actions and require water use only for health and safety purposes

Findings

In summary, this WSA determines that there is sufficient supply to meet projected demands for all scenarios up to 2045. The Project demands will impact the City's future wholesale demand, however, based on the review of the City's UWMP, there is ample total supply to account for the additional Project demand.



LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE / LEASE LINE
- EASEMENT / SETBACK LINE
- APPROXIMATE COMMERCIAL AREA
- APPROXIMATE SOLAR FIELD AREA

NORTH

GRAPHIC SCALE IN FEET
0 75 150 300

EXHIBIT 1 - LAND USE FOR WATER DEMAND DETERMINATION

Kimley»Horn

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Appendix A – Agreement Between The City of Sacramento, The County of Sacramento and The Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park

COUNTY OF SACRAMENTO
MUNICIPAL SERVICES AGENCY – CHERYL CRESON, ADMINISTRATOR

Department of Water Resources

Including service to the Cities of Citrus Heights, Elk Grove and Rancho Cordova

Keith DeVore, Director

APPROVED
BY RESOLUTION # 2004-1270
BOARD OF SUPERVISORS
OCT 12 2004
By Cindy L. Turner
Clerk of the Board

APPROVED
BOARD OF DIRECTORS
WA-2565
OCT 12 2004
By Cindy L. Turner
Clerk of the Board

October 12, 2004

TO: Board of Supervisors

Board of Directors
Sacramento County Water Agency

FROM: Department of Water Resources

SUBJECT: **Agreement With The City Of Sacramento For Wholesaling And/Or Wheeling Water Service For Sacramento International Airport And Metro Air Park - Determine Negative Declaration (Control No. 03-DAE-PWE-0573) Is Adequate, Complete, And Appropriate**

CONTACT: Darrell Eck, Senior Civil Engineer, 874-5039

Overview
In order to meet conjunctive use objectives the City of Sacramento, County of Sacramento, and the Sacramento County Water Agency plan to enter into an agreement to provide a reliable long-term supply of potable water from the City's water system to Metro Air Park (MAP) and the Sacramento International Airport (Airports).

Recommendations
1. Determine that the Negative Declaration (Control No. 03-DAE-PWE-0573) is adequate, complete, and appropriate.
2. Approve the attached Resolutions authorizing each respective Chair to execute the water agreement with the City of Sacramento.

Measures/Evaluation
Measures/Evaluation are not applicable to this agenda item.

Fiscal Impact
Connection Fee costs of $1,595,905/MGD (2004-2005) will be paid by the MAP developers and by Airports based on system demands.

BACKGROUND:

On August 19, 1998, the Board of Supervisors of Sacramento County adopted Ordinance SZC 98-0020 which amended the Zoning Code of Sacramento County and established the MAP Special Planning Area. Section 505-39 of this ordinance requires that a zone of the Sacramento County Water Agency be created for MAP prior to any development.

The Sacramento County Water Agency Act provides for the creation of zones for the construction of water projects and for the collection of fees and charges to fund projects. On June 1, 2004 the Board of Directors adopted Resolution WA 2542 forming Zone 50 and Resolution WA-2537 annexing MAP to Zone 41. Zone 50 was created to provide funding for a water system for MAP. Zone 41 will operate, maintain, repair, and provide any necessary improvements to this water system.

Potable water for Airports is provided by an on-site groundwater supply system that is owned and operated by the Sacramento County Airport System. Water supplied from this system contains concentrations of arsenic that exceed state and federal drinking water standards scheduled to go in to effect on January 23, 2006. Groundwater treatment facilities necessary to treat the groundwater to meet these revised standards would significantly increase capital and operating costs for the Sacramento County Airport System.

DISCUSSION:

The MAP Water Supply Alternatives Report (Spink, 1998) identified a number of alternatives that used a combination of surface and groundwater to meet water supply needs for the project. Previous evaluations of water supply availability favored an on-site groundwater system in conjunction with surface water from an off-site source. Recent discussions with the City of Sacramento (City) indicated that the City has sufficient capacity within their system to meet the build-out needs of the project. Connecting to the City's water system results in substantial cost savings over the previously preferred alternative. Connection to the City's water system is consistent with the Alternatives Report.

The Airport's groundwater system has less than two years to come into compliance with state and federal drinking water standards for arsenic. Arsenic treatment facilities can be extremely costly and challenging to operate. Arsenic removal requires an investigation to select an appropriate treatment technology, and must address waste disposal requirements. Connection to the City's water system would eliminate the need to investigate, design, construct, and operate arsenic removal facilities.

The City has sufficient capacity within their water system to fully replace the Airport's current on-site groundwater supply and meet the long-term water supply demands for the MAP project.

Execution of the Wholesale/Wheeling Agreement by your Boards will ensure a long-term reliable supply of water to both the Airport and MAP.

Your Board's determination that the Negative Declaration is adequate, complete and appropriate is necessary to initiate work on the pipeline that will connect the Airport and MAP to the City's water system.

Respectfully submitted,

Keith DeVore, Director
Department of Water Resources

APPROVED:

Terry Schutten
County Executive

By: _____
Cheryl Creson, Administrator
Municipal Services Agency

Attachments (4)

1. SCWA Resolution
2. Sacramento County Resolution
3. Wholesale and/or Wheeling Agreement
4. Negative Declaration

cc:

Keith DeVore, DWR
Darrell Eck, DWR
John Whisenhunt, County Counsel
Gary Reents, City of Sacramento
Dan Sherry, City of Sacramento
Joe Robinson, City of Sacramento

Sacramento County Agenda and Record Processing Application
Approval List

Approval List for Agenda Item 103615

Cheryl Creson	10/05/2004	Approved

RESOLUTION NO. WA-2565

SACRAMENTO COUNTY WATER AGENCY

RESOLUTION AUTHORIZING THE EXECUTION OF AN AGREEMENT WITH THE CITY OF SACRAMENTO FOR WHOLESALING AND/OR WHEELING WATER SERVICE FOR SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK

WHEREAS, Section 1.1 of the Sacramento County Water Agency Act (hereinafter referred to as the "Agency Act") authorizes the Board of Directors (hereinafter referred to as the "Board") of the Sacramento County Water Agency (hereinafter referred to as "Agency") to establish zones and to institute projects for the specific benefit of such zones; and

WHEREAS, on June 1, 2004, the Board adopted Resolution WA-2542 forming Zone 50; and

WHEREAS, the purpose of Zone 50 is to provide a water system to Metro Air Park Special Planning Area (hereinafter referred to as MAP) including but not limited to the fees necessary to fund such a system; and

WHEREAS, on June 1, 2004, the Board adopted Resolution WA-2537 annexing MAP to Zone 41; and

WHEREAS, Zone 41 was established to operate, maintain, repair, or otherwise improve any and all water supply facilities; and

WHEREAS, the Agency desires to obtain a long-term potable water supply to meet the build-out demands of MAP; and

WHEREAS, the City of Sacramento can provide potable water to meet MAP build-out demands; and

WHEREAS, the Sacramento International Airport desires to obtain a long-term replacement water supply for their on-site groundwater supply system; and

WHEREAS, the City of Sacramento is willing to provide potable water to meet the long-term build-out water demands of MAP and the Airport either through wholesale water service or through wheeling water service;

NOW, THEREFORE, the Board of Directors of the Sacramento County Water Agency resolves and determines as follows:

Section 1. The foregoing recitals are true and correct and this Board so finds and determines.

Section 2. Authorize the Chair of the Board of Directors to execute an agreement with the City of Sacramento in the form hereto attached entitled AGREEMENT BETWEEN THE CITY OF SACRAMENTO, THE COUNTY OF SACRAMENTO AND THE SACRAMENTO COUNTY WATER AGENCY FOR WHOLESALE AND/OR WHEELING WATER SERVICE FOR SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK and to do and perform everything necessary to carry out the purposes of this Resolution on behalf of the Sacramento County Water Agency, a political subdivision of the State of California.

On a motion by Director Dickinson, and seconded by Director Niello, the foregoing resolution was passed and adopted by the Board of Directors of the Sacramento County Water Agency, State of California, this 12th day of October, 2004, by the following vote, to wit:

AYES: Directors, Dickinson, Niello, Johnson

NOES: Directors, None

ABSENT: Directors, Collin, Nottoli

ABSTAIN: Directors, None

Muriel P. Johnson

Chair of the Board of Directors of the
Sacramento County Water Agency,
a district organized under the laws of the
State of California

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman on OCT 12 2004

By: Doreen Lawson
Deputy Clerk, Board of Directors

(SEAL)

ATTEST: Sandra Leahy
Deputy Clerk of the Board of Supervisors of Sacramento County, California, and ex officio Secretary of the Board of Directors of Sacramento County Water Agency

FILED

OCT 12 2004

BOARD OF DIRECTORS

By Cindy L. Turner
Clerk of the Board

RESOLUTION NO. 2004-1270

COUNTY OF SACRAMENTO

RESOLUTION AUTHORIZING THE EXECUTION OF AN AGREEMENT WITH THE CITY OF SACRAMENTO FOR WHOLESALING AND/OR WHEELING WATER SERVICE FOR SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK

WHEREAS, Sacramento County owns and operates the Sacramento International Airport (hereinafter referred to as "Airport') as part of the Sacramento County Airport System; and

WHEREAS, potable water for the Airport is provided from an on-site groundwater supply system owned and operated by the Sacramento County Airport System. Water from said groundwater supply system contains concentrations of arsenic that exceed revised state and federal drinking water standards that take effect on January 23, 2006; and

WHEREAS, groundwater treatment facilities needed to meet the revised regulatory standards for arsenic would significantly increase capital and operating costs for the Sacramento County Airport System; and

WHEREAS, the City of Sacramento (hereinafter referred to as "City") can provide potable water to fully replace the Airport's current on-site groundwater supply at significantly less cost than upgrading the current system; and

WHEREAS, the Sacramento County Water Agency desires to obtain a long-term potable water supply to meet the build-out demands of the lands adjacent to the Airport that are currently being developed as the Metro Air Park; and

WHEREAS, the City is willing to provide potable water to meet the long-term build-out water demands of the Airport and Metro Air Park either through wholesale water service or through wheeling water service;

NOW, THEREFORE, the Board of Supervisors of the County of Sacramento resolves and determines as follows:

Section 1. The foregoing recitals are true and correct and this Board so finds and determines.

Section 2. Authorize the Chair of the Board of Supervisors to execute an agreement with the City of Sacramento in the form hereto attached entitled AGREEMENT BETWEEN THE CITY OF SACRAMENTO, THE COUNTY OF SACRAMENTO AND THE SACRAMENTO

COUNTY WATER AGENCY FOR WHOLESALE AND/OR WHEELING WATER SERVICE FOR SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK and to do and perform everything necessary to carry out the purposes of this Resolution on behalf of the County of Sacramento, a political subdivision of the State of California.

On a motion by Supervisor Dickinson, and seconded by Supervisor Niello, the foregoing resolution was passed and adopted by the Board of Supervisors of the County of Sacramento, State of California, this 12th day of October, 2004, by the following vote, to wit:

AYES: Supervisors, Dickinson, Niello, Johnson

NOES: Supervisors, None

ABSENT: Supervisors, Collin, Nottoli

ABSTAIN: Supervisors, None

Muriel P. Johnson
Chair of the Board of Supervisors
of Sacramento County, California

In accordance with Section 25103 of the Government Code of the State of California a copy of the document has been delivered to the Chairman of the Board of Supervisors, County of Sacramento on OCT 12 2004

By Janeen Lawson
Deputy Clerk, Board of Supervisors

(SEAL)

ATTEST: Sandra Leahy
Clerk, Board of Supervisors

FILED

OCT 12 2004

BOARD OF SUPERVISORS
By
CLERK OF THE BOARD

AGREEMENT BETWEEN THE CITY OF SACRAMENTO, THE COUNTY OF SACRAMENTO AND THE SACRAMENTO COUNTY WATER AGENCY FOR WHOLESALE AND/OR WHEELING WATER SERVICE FOR SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK

THIS AGREEMENT is made and entered into this 12th day of October, 2004, by and between the CITY OF SACRAMENTO, a charter municipal corporation (hereafter referred to as "City"), and the COUNTY OF SACRAMENTO (hereafter referred to as "Sacramento County") and the SACRAMENTO COUNTY WATER AGENCY, (hereafter referred to as "Agency") (County and Agency are hereafter collectively referred to as "County").

RECITALS

A. Agency owns and operates public water systems and provides municipal and industrial ("M&I") water service to its service area customers in Sacramento County, California.

B. Sacramento County owns and operates the Sacramento International Airport (hereafter referred to as the "Airport") as part of the Sacramento County Airport System.

C. City owns and operates public water systems and provides M&I water service to its customers in and adjacent to the City.

D. Potable water for the Airport is provided from an on-site groundwater supply system owned and operated by the Sacramento County Airport System. Water from said groundwater supply system contains concentrations of arsenic that exceed revised state and federal drinking water standards that take effect on January 23, 2006.

E. Groundwater treatment facilities needed to meet the revised regulatory standards for arsenic would significantly increase capital and operating costs for the Sacramento County Airport System.

G. The City can provide potable water to the County to fully replace County's current on-site groundwater supply for the Airport at significantly less cost than would be incurred by the Sacramento County Airport System to upgrade its current groundwater system in order to comply with pending regulatory requirements.

H. The County also desires to obtain a long-term potable water supply to meet the build-out water demand for the lands adjacent to the Airport that currently are being developed as the *Metro Air Park* (hereafter referred to as the

"MAP").

I. City is willing to provide potable water to County to meet the long-term build-out water demand of the Airport and MAP either through Wholesale Water Service or through Wheeling Water Service, as defined hereafter, in accordance with the terms and conditions set forth below.

J.. In order to guarantee a reliable supply of potable water to the County pursuant to this Agreement and in recognition of the critical nature of this water supply, the City will use City facilities to provide potable water to the County under this Agreement in the same manner as these facilities are used to serve the City's retail water customers.

K. On October 20, 2003, Sacramento County certified the Final Environmental Impact Report for the MAP development project.

L. The land use entitlements for MAP recognize the Agency as the retail M&I water purveyor for MAP.

M. The Agency has annexed the area within the boundaries of MAP to Zone 41, which will provide M&I retail water service.

N. The Agency has formed Zone 50 that includes the area within the boundaries of MAP and which will provide the mechanism for establishing and collecting appropriate development fees to fund the construction of certain water supply infrastructure for the development of MAP.

NOW, THEREFORE, in consideration of the foregoing and of the mutual covenants herein contained, the parties hereto agree as follows:

1. Recitals Incorporated:

The foregoing recitals are incorporated by reference.

2. Purpose:

The purpose of this Agreement is to establish the conditions under which the City will provide Wholesale Water Service and/or Wheeling Water Service to the County to meet the build-out water demands of the Airport and MAP.

3. Definitions:

The following terms, when used in this Agreement, shall have the definitions given in this Section 3.

a. *Airport Service Area:* Those lands within the Airport where the County Airport System will provide potable water that is delivered by the City using Wholesale Water Service and/or Wheeling Water Service under this Agreement, as shown on **Exhibit A** to this Agreement.

b. *Capital Costs:* Costs incurred by the City to design and construct pumping, diversion, treatment, storage and transmission facilities used to provide potable water to the County under this Agreement and that exist or for which debt financing has been issued at the time the County's obligation to pay a Connection Fee for such Capital Costs commences in accordance with Section 10.b.2., below, including reasonable administrative costs.

c. *City Diversion Facilities:* Facilities that are or will be owned and operated by the City that will be used to divert surface water from the Sacramento River to provide water to County under this Agreement, including the Sacramento River Water Treatment Plant diversion intake, as they exist today and as they may be constructed, modified or expanded in the future.

d. *City surface water rights and entitlements*: The City's pre-1914 rights to divert from the Sacramento River, five water right permits issued by the State Water Resources Control Board, and a 1957 water rights settlement contract with the United States Bureau of Reclamation (hereafter referred to as the "USBR").

e. *City Transmission Facilities:* Facilities, including transmission mains, storage facilities and all appurtenances that are or will be owned and operated by the City to deliver potable water to the County under this Agreement, as they exist today and as they may be constructed, modified or expanded in the future.

f. *City Treatment Facilities:* Facilities that are or will be owned and operated by the City to provide potable water that meets the requirements established for drinking water by the California Department of Health Services and the United States Environmental Protection Agency, including groundwater facilities, and the Sacramento River Water Treatment Plant, as they exist today and as they may be constructed, modified or expanded in the future.

g. *City Water:* Potable water that the City conveys to its retail and wholesale customers from the City's municipal water supply, including groundwater pumped by the City from municipal wells and surface water diverted by City pursuant to any of the City's surface water rights and entitlements.

h. *Connection Fee:* The fee(s) paid by the County for its share of the Capital Costs associated with the Firm Capacity that will be available to provide Wholesale Water Service and/or Wheeling Water Service to the County

under this Agreement, as provided in Section 10.b., below.

i. *County Water:* Surface water made available to the City pursuant to any of the County's surface water contracts and/or entitlements that is not City Water in order to provide Wheeling Water Service to the Airport and MAP Service Areas.

j. *County Water Facilities:* All facilities, including transmission mains, storage facilities and all appurtenances as they exist today and as they may be modified and expanded in the future, which are or will be owned and operated by the County to supply water to its customers that is delivered under this Agreement to the Airport and MAP Service Areas.

k. *County Water Requirements:* The maximum-day volume of potable water that the City will deliver to the County as specified in Section 5.a., below, utilizing Firm Capacity in accordance with the provisions of this Agreement.

l. *Delivery Criteria:* The operating guidelines and criteria governing the delivery of potable water under this Agreement, as set forth in Section 4 of this Agreement.

m. *Firm Capacity:* Capacity in the City Treatment and Transmission Facilities that is available to supply water to the County with an equal priority to the use of such capacity to meet the demands of the City's other water supply customers, except as may be provided otherwise in this Agreement.

n. *MAP Service Area*: Those lands within the Metro Air Park development where the County will retail potable water that is delivered by the City using Wholesale Water Service and/or Wheeling Water Service under this Agreement, as shown on Exhibit A to this Agreement.

o. *Potable water*: Potable water is water that meets the drinking water standards established by the California Department of Health Services and the United States Environmental Protection Agency.

p. *Service Charge:* A monthly fee for City's fixed administrative costs billed to the County as part of the Wholesale Water Charge and Wheeling Water Charge, as provided in Section 10.a., below.

q *Service Connection:* The point of connection for delivery of potable water from the City Transmission Facilities to the County Water Facilities pursuant to this Agreement, as shown on **Exhibit B** to this Agreement, and any other connection point the parties may agree upon in the future.

r. *Transmission Improvements*: Planned improvements to the City

Transmission Facilities and County Water Facilities that will enable City to provide Wholesale Water Service and/or Wheeling Water Service to the Airport and MAP Service Areas under this Agreement, as shown on **Exhibit B** to this Agreement.

s. *Wheeling Unit Rate:* The cost per unit quantity of potable water delivered by City to County using Wheeling Water Service as provided in Section 10.a., below.

t. Wheeling Use Charge: The cost billed by the City to the County at the Wheeling Unit Rate for a measured volume of water delivered to County using Wheeling Water Service as provided in Section 10.a., below.

t. *Wheeling Water Charge:* The sum of the Wheeling Use Charge and Service Charge, billed by the City to the County, as provided in Section 10.a., below.

u. *Wheeling Water Service:* The City's delivery of potable County Water in accordance with the provisions of this Agreement.

v. *Wholesale Unit Rate*: The cost per unit quantity of potable water delivered by City to County using Wholesale Water Service as provided in Section 10.a., below.

w. *Wholesale Use Charge*: The cost billed by the City to the County at the Wholesale Unit Rate for a measured volume of water delivered to County using Wholesale Water Service as provided in Section 10.a, below.

x. *Wholesale Water Charge*: The sum of the Wholesale Use Charge and Service Charge, billed by the City to the County, as provided in Section 10.a., below.

y. *Wholesale Water Service*: The City's delivery of potable City Water in accordance with the provisions of this Agreement.

4. Delivery Criteria:

The delivery of potable water under this Agreement will be governed by the operating guidelines and criteria set forth in the Delivery Criteria attached hereto as **Exhibit C.** The Delivery Criteria may be modified from time to time by the mutual written agreement of the City's Director of Utilities and the County's Director of Water Resources, provided that such modifications are consistent with the provisions of this Agreement.

5. Maximum Treated Water Diversions and Deliveries:

a. The amount of potable water that the City delivers to County under this

Agreement, whether provided using Wholesale Water Service and/or Wheeling Water Service, shall not exceed a cumulative maximum rate of 11.7 million gallons per day (mgd); provided, further, that such cumulative maximum rate shall not exceed 5 mgd unless and until the County provides written notice to the City of the date when the County anticipates demand under this Agreement will exceed 5 mgd, which notice shall be provided not less than eighteen (18) months prior to such date.

b. The City shall pump, divert, treat and deliver water to the County in accordance with the terms of this Agreement, except when the occurrence of an emergency condition requires shutting down any City facility(ies) necessary to do so, provided that such shutdown also prevents the use of such facilities for the City's retail water customers served by such facilities and the City does not have facilities remaining in operation during the shutdown with capacity available to supply potable water to County under this Agreement.

c. Potable water delivered to the County under this Agreement shall be used by the County to provide M&I water service within the Airport and MAP Service Areas, and will not be used by the County for any other purpose.

6. Services Performed by the City:

The City will utilize Firm Capacity to deliver potable water to the County in accordance with the terms of this Agreement. The City will provide Wholesale Water Service or Wheeling Water Service, depending on whether City Water or County Water is being provided. Wholesale Water Service will be provided in accordance with the provisions of Section 7, below. Wheeling Water Service will be provided in accordance with the provisions of Section 8, below. Potable water delivered to the County under this Agreement will be provided from the City Transmission Facilities to the County Water Facilities at the Service Connection shown on **Exhibit B**. The City will provide County with the City's water quality testing data on an annual basis or on such other schedule as may be agreed to by the parties or required by regulatory agencies.

7. Wholesale Water Service:

a. Condition Precedent: County shall design and construct the Transmission Improvements as specified in Section 11, below. County's performance of this obligation is a condition precedent to the City's obligation to provide wholesale water as specified in this Agreement.

b. Wholesale Water Procedure:

(1) County shall notify City annually by March 01 of each year, or at such other time as may be mutually agreed to by City and County staff, and in such form as may be specified by City, that County desires City to

wholesale City Water pursuant to this Agreement. Such notification shall include the County's desired monthly delivery schedule and estimated amounts of water to be wholesaled during the succeeding 12 month period commencing on July 1.

(2) Subject to satisfaction of the County's obligations under this Agreement, including the condition precedent set forth in subsection a, above, City Water shall be wholesaled to the County in accordance with the terms of this Agreement and the *Delivery Criteria.*

(3) All City Water delivered to the Service Connection shall meet the drinking water standards established by DHS and the USEPA. County shall have sole responsibility for the quality and delivery of City Water wholesaled pursuant to this Agreement after the water is delivered to the Service Connection.

c. Water Wholesaling Requirements:

(1) County shall be solely responsible for:

(i) obtaining all permits or other approvals required for the use of the City Water in the Airport and MAP Service Areas, including compliance with all applicable laws and regulations such as the Porter-Cologne Water Quality Control Act and the Federal Clean Water Act; and

(ii) compliance with any conditions which apply to the use of such water, including any measures which are imposed to mitigate potential impacts to the environment through CEQA, Federal Reclamation Laws, NEPA and the Federal and State Endangered Species Acts. The City shall not be responsible for any costs associated with obtaining such permits or other approvals and complying with any conditions required for the use of such water in the Airport and MAP Service Area.

(2) Any City Water wholesaled pursuant to this Agreement shall be used only within the Airport and MAP Service Areas.

(3) Wholesale Water Service shall be provided in accordance with all operating, engineering and water supply requirements set forth in this Agreement and the *Delivery Criteria*. If the City determines in the exercise of reasonable discretion that a suspension of Wholesale Water Service is necessary due to a condition that poses an immediate threat to public health or safety, such service may be suspended by City without notice for the duration of such condition.

The City shall notify County as soon as is practicable of any suspension of service, the reason for such suspension, and an estimate of when such service will be restored.

(4) County shall be solely responsible for any and all costs incurred by City in order to comply with:

(i) any law or regulation to the extent applicable to the use of any City Water in the Airport and MAP Service Areas;

(ii) any mitigation measures to the extent applicable to the use of any City Water in the Airport and MAP Service Areas; and

(iii) any requirements that are imposed on the City specifically for the use of any City Water in the Airport and MAP Service Areas by any federal, state or local agency, including but not limited to the USBR, DWR, the State Water Resources Control Board, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game or the DHS.

8. **Wheeling Water Service:**

a. Conditions Precedent:

(1) Approval by the Agency's Board of Directors of the environmental documentation required under the California Environmental Quality Act, if any, for the Agency's acquisition and use of the County Water to be wheeled under this Agreement.

(2) As between the City and County, County shall be responsible for obtaining any and all state and federal regulatory approvals or authorizations that may be required for the City's diversion of any County Water at any City Diversion Facilities, and for the ultimate use of this water in the Airport and MAP Service Areas, including but not limited to any required approvals or authorizations by the State Water Resources Control Board or the USBR.

(3) County shall make available for diversion by City at the City Diversion Facilities the quantity of County Water that is to be delivered to County using Wheeling Water Service, up to the maximum annual quantity and maximum rate specified in Section 5.a., above, so that City can wheel such water to the County pursuant to the terms of this Agreement and the *Delivery Criteria*.

(4) County shall design and construct the Transmission Improvements,

as specified in Section 11, below.

(5) County's performance of obligations listed in this subsection is a condition precedent to the City's obligation to wheel water as specified in this Agreement.

b. Water Wheeling Procedure:

(1) County shall notify City annually by March 01 of each year, or at such other time as may be mutually agreed to by City and County staff and in such form as may be specified by City, that County desires City to wheel County Water pursuant to this Agreement. Such notification shall include the County's desired monthly delivery schedule and estimated amounts of water to be wheeled during the succeeding 12 month period commencing on July 1.

(2) Subject to satisfaction of the County's obligations under this Agreement, including the Conditions Precedent set forth in subsection a., above, County Water made available for diversion at the City Diversion Facilities shall be wheeled to the County in accordance with the terms of this Agreement and the *Delivery Criteria*.

(3) All County Water delivered to the Service Connectionshall meet the drinking water standards established by DHS and the USEPA. County shall assume sole responsibility for the quality and delivery of County Water wheeled pursuant to this Agreement after the water is delivered to the Service Connection.

c. Water Wheeling Requirements:

(1) As between the City and County, County shall be solely responsible for:

(i) obtaining all permits or other approvals required for the use of the County Water within the Airport and MAP Service Areas, including compliance with all applicable laws and regulations such as the Porter-Cologne Water Quality Control Act and the Federal Clean Water Act; and

(ii) compliance with any conditions which apply to the diversion or use of such water, including any measures which are imposed to mitigate potential impacts to the environment through CEQA, Federal Reclamation Laws, NEPA and the Federal and State Endangered Species Acts, including, but not limited to, diversion limitations, if any, included in any Biological Opinion or Incidental Take Permit. The City

shall not be responsible for any costs associated with (a) delivering the County Water to the City Diversion Facilities, or (b) obtaining all permits or other approvals and complying with any conditions required for the diversion or use of such water.

(2) Any County Water wheeled pursuant to this Agreement shall be used only within the Airport and MAP Service Areas.

(3) City shall not be required pursuant to this Agreement to wheel any quantity of water that exceeds the total aggregate amount of any County Water made available by County for diversion at the City Diversion Facilities.

(4) The wheeling of any County Water shall be conducted in accordance with all operating, engineering and water supply requirements set forth in this Agreement and the *Delivery Criteria*, and with any other conditions applicable to wheeling of the County Water. If the City determines in the exercise of reasonable discretion that a suspension of wheeling is necessary due to a condition that poses an immediate threat to public health or safety, wheeling may be suspended by City without notice for the duration of such condition. The City shall notify County as soon as is practicable of any suspension of service, the reason for such suspension, and an estimate of when such service will be restored.

(5) County shall be solely responsible for any and all costs incurred by City in order to comply with:

(i) any law or regulation that applies to the wheeling or use of any County Water;

(ii) any mitigation measures applicable to the wheeling or use of any County Water; and

(iii) any requirements that are imposed on the City in connection with the wheeling or use of any County Water by any federal, state or local agency, including but not limited to the USBR, DWR, the State Water Resources Control Board, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, the California Department of Fish and Game or the DHS.

(6) The County acknowledges that the City will not have any responsibility for reporting the annual quantity of County Water wheeled under this Agreement in its annual reports of water use to the State Water Resources Control Board.

9. **Obligations of the County:**

a. The County will take delivery of the potable water made available by the City pursuant to the Delivery Criteria.

b. The County will pay any and all costs associated with providing potable water to the County pursuant to this Agreement, as set forth in Sections 10 and 11 of this Agreement. In addition, the County will be responsible for its pro rata share (comparing the quantities of water that the City delivers to the County and to other City retail, wholesale and wheeling customers) of any and all costs reasonably incurred by the City in order to comply with all laws and regulations that may apply to the pumping, diversion, treatment and/or delivery of water to the County hereunder, including but not limited to, the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Federal and State Endangered Species Acts, the Federal Reclamation Laws, the Clean Water Act and the Porter-Cologne Water Quality Control Act. Further, the County will be responsible for its pro rata share (comparing the quantities of water that the City delivers to the County and to other City retail, wholesale and wheeling customers) of any and all costs associated with any other requirements and/or conditions that are or may be imposed on the pumping, diversion, treatment and/or delivery of water to the County by any federal, state or local agency, including but not limited to the U.S. Bureau of Reclamation, the California Department of Water Resources, the State Water Resources Control Board, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service or the California Department of Fish and Game.

c. Any deliveries of City Water to the County will be subject to any and all applicable requirements and/or conditions contained in or in the future imposed on any of the City Water Rights and Entitlements.

d. Notwithstanding any provisions in this Agreement to the contrary, County shall have no liability or obligation to pay for any costs incurred by the City in, or otherwise associated with, retrofitting City retail customers with water meters.

e. County shall be the lead agency for purposes of any CEQA, NEPA or Endangered Species Act (federal and state) compliance required in connection with the wheeling of any County Water and/or the ultimate use of any water delivered under this Agreement.

10. **Cost Allocation and Payment:**

The cost allocations and payment for any water delivered pursuant to this Agreement will be governed by the following paragraphs.

a. Wholesale and Wheeling Water Charges

(1) The County will be charged a Wholesale Water Charge for City Water delivered by the City using Wholesale Water Service. The Wholesale Water Charge shall consist of a Wholesale Use Charge calculated on the Wholesale Unit Rate basis (the cost-per-unit quantity) for water actually delivered, plus a monthly Service Charge for fixed administrative costs incurred irrespective of the quantity of water delivered. The Wholesale Water Charge will be determined by the City in an equitable manner such that the County neither subsidizes nor is subsidized by any other City customer or contractor. The Wholesale Unit Rate shall include the City's annual operating, maintenance, repair and applicable capital improvement costs (excluding Capital Costs included in the Connection Fees described in Section 10.b., below) and an equitable proration of appropriate overhead distribution, but in no event will the Wholesale Unit Rate exceed such costs for water pumping, diversion, treatment and conveyance divided by the number of gallons produced. Operating, maintenance, repair and capital improvement costs included in the Wholesale Unit Rate will also include any costs attributable to any applicable limitation, requirement, modification or other condition that applies, or that may in the future be applied, to any of the City Water Rights and Entitlements, but will exclude those costs that have no relationship to wholesaling City Water to the County, such as unrelated distribution system expenses or unrelated capital improvement costs. The estimated Wholesale Unit Rate and the monthly Service Charge for the Fiscal Year (FY) 2004-2005 is shown on **Exhibit D** to this Agreement.

(2) The County will be charged a Wheeling Water Charge for County Water delivered by the City using Wheeling Water Service. The Wheeling Water Charge shall consist of a Wheeling Use Charge calculated on the Wheeling Unit Rate basis (the cost-per-unit quantity) for water actually delivered, plus a monthly Service Charge for fixed administrative costs incurred irrespective of the quantity of water delivered. The Wheeling Water Charge will be determined by the City in an equitable manner such that the County neither subsidizes nor is subsidized by any other City customer or contractor. The Wheeling Unit Rate shall include the City's annual operating, maintenance, repair and applicable capital improvement costs (excluding Capital Costs included in the Connection Fees described in Section 10.b., below) and an equitable proration of appropriate overhead distribution, but in no event will the Wheeling Unit Rate exceed such costs for water diversion, treatment and conveyance divided by the

number of gallons produced. Operating, maintenance, repair and capital improvement costs included in the Wheeling Unit Rate will exclude those costs that have no relationship to wheeling County Water to the County, such as unrelated distribution system expenses or unrelated capital improvement costs. The estimated Wheeling Unit Rate and the monthly Service Charge for the FY 2004-2005 is shown on **Exhibit E** to this Agreement.

(3) The City will adjust the Service Charge, Wholesale Unit Rate and/or Wheeling Unit Rate in January of each year to reflect actual or anticipated cost increases or decreases.

(4) The quantity of water actually delivered pursuant to this Agreement shall be measured by the City at the Service Connection meter located as shown on Exhibit B to this Agreement. Billing procedures and payment for water will be in accordance with the City's standard practice. The Wholesale Water Charge and the Wheeling Water Charge will be in addition to the Connection Fees described in subsection b., below.

b. **Connection Fees**

(1) The County will pay Connection Fees for its share of Capital Costs for Firm Capacity in the City's pumping, diversion, treatment, storage and transmission facilities that will be used to provide Wholesale Water Service and/or Wheeling Water Service under this Agreement, which fees will include reasonable administrative costs. The Connection Fees shall be paid in increments of one (1) mgd, or pro-rata portions thereof, up to the maximum rate specified in Section 5.a., above. The Connection Fee for each one (1) mgd increment and/or portion thereof of Firm Capacity shall become due on the date (hereafter the "Due Date") that the County first requests Wholesale Water Service and/or Wheeling Water Service for such 1 mgd increment or portion thereof, and shall be paid in accordance with the provisions of subsection b.(2), below. The City will adjust the Connection Fee annually prior to the commencement of each Fiscal Year based on the Capital Costs for that Fiscal Year, and such adjusted Connection Fee shall apply to any one (1) mgd increment and/or portion thereof of Firm Capacity for which Connection Fee(s) become due during that Fiscal Year. The estimated Connection Fee for FY 2004-2005 for the use of one (1) mgd of Firm Capacity is shown on **Exhibit F** to this Agreement.

(2) The County shall have the option of paying the Connection Fee for each one (1) mgd increment and/or portion thereof of Firm Capacity

either:

(i) In one payment not later than thirty (30) days after the Due Date for such increment and/or portion thereof; or

(ii) In annual payments over a financing period of thirty (30) years, commencing on the Due Date for such increment and/or portion thereof. If the County elects to pay such Connection Fee over time in accordance with this subsection (2)(ii), the County also shall pay a fixed annual interest rate equal to the rate the City receives on its Pool A funds on the Due Date for such increment and/or portion thereof, and the County's first annual payment shall be due not later than thirty (30) days after such Due Date.

11. Transmission Improvements:

a. The County will be wholly responsible for designing, bidding and constructing the Transmission Improvements, as well as preparing all environmental documents and obtaining all permits, property rights or other approvals required for construction of the Transmission Improvements. Subject to the City's reimbursement obligation specified in subsection b., below, such activities will be paid for by the County, and will be subject to the following requirements:

(1) Prior to the public bidding for construction of the Transmission Improvements by the County, both the preliminary design and the final design must be approved in writing by the City Director of Utilities, which approval will not be unreasonably withheld. The design plans shall:

(i) distinguish between the facilities included in the Transmission Improvements that will be constructed and located within the City (hereafter the "City Portion"), the facilities included in the Transmission Improvements that will be constructed and located within the unincorporated area of Sacramento County (hereafter the "County Portion"), and the Service Connection that will connect the City Portion to the County Portion;

(ii) for the City Portion, comply with all standard City specifications and requirements for the design of City water lines; and
(iii) comply with such other requirements as may reasonably be specified by the City Director of Utilities. If either or both the preliminary design or final design is not approved by the City Director of Utilities, the City will notify the County in writing of the reason or

reasons why such design is not acceptable, and the County will perform such revisions as may be necessary to obtain the approval of the City. Preliminary cost estimates for the various portions of the Transmission Improvements are attached hereto as **Exhibit G**.

(2) After the final design is approved by the City, the County shall competitively bid construction of the Transmission Improvements in accordance with the County's standard procedures and requirements for public works construction. The County's bid specifications shall require that the amount bid for construction of the City Portion be separately specified in the bid. With respect to construction of the City Portion and Service Connection, the County's construction contract shall require compliance with the standard City specifications and requirements for the construction of City water lines, in addition to any additional requirements reasonably specified by the City, and shall require the County's contractor to:

(i) indemnify, hold harmless and defend City, its officers and employees against any and all liabilities, damages, claims or costs (including reasonable attorney fees) arising from any action or failure to act by the contractor or any subcontractor in connection with construction of the City Portion and Service Connection; and

(ii) provide the City, its officers and employees with the same insurance coverage provided to the County, by naming the City as an additional insured on the contractor's general liability and automobile liability insurance policies.

(3) After bids are opened, copies of the bids and the County's proposed award shall be provided to the City's Director of Utilities for review. A City representative will attend the bid opening. The County shall not take any action to award the contract until the Director of Utilities or his/her authorized representative provides written approval of the proposed award and the portion of the successful bid for construction of the City Portion, which approval shall not be unreasonably withheld.

(4) All work on the City Portion and Service Connection shall be performed in accordance with the plans and specifications approved by the City, and any City-approved changes thereto, and in full compliance with the City's standard specifications and requirements for water main construction, unless exceptions are approved by the City. Such plans and specifications, upon approval by the City Utilities Director or his or her designee, shall be deemed incorporated herein and made a part of this Agreement. Any increase in the amount of the construction contract for work performed or any cost incurred on

the City Portion shall require written approval by the City, which approval shall not be unreasonably withheld.

(5) City shall be allowed to enter the construction site to perform construction inspection whenever deemed necessary by City. Upon completion and testing of the Transmission Improvements, City shall inspect the City Portion and the Service Connection and either (i) accept the work as complete, or (ii) identify any deficiencies to be corrected before the City will accept the work as complete. The City Portion and the Service Connection shall become the sole and exclusive property of the City upon completion of construction, final inspection and testing, and final acceptance by City, after the correction by County of any deficiencies identified by City. As a precondition to final acceptance by City: (i) County shall take any and all actions necessary to insure that the work is free and clear of all liens, stop notices and encumbrances of any kind, and that the City is in possession of all rights and approvals necessary to operate, maintain and repair the City Portion and the Service Connection upon final acceptance by City; and (ii) County shall provide City a set of as-built plans.

(6) The County guarantees and agrees, at no cost to the City, to remedy any defects in the City Portion or the Service Connection arising from faulty or defective construction occurring at any time within one (1) year after final acceptance thereof by the City. In the event that County fails to remedy any and all such defects within ten (10) days after being notified of the defects in writing by City, or such longer period as may be reasonably necessary to remedy such defects so long as County is acting in good-faith to diligently remedy the defects, City shall have the right, but shall not be obligated, to repair or cause to be repaired such defects, and County shall pay to City on demand all costs and expenses reasonably incurred by City to repair or cause to be repaired such defects. Notwithstanding anything herein to the contrary, if any defects in the improvements result in a condition that, in the City's sole and exclusive judgment, constitutes an imminent hazard to public health or safety, or to any person or property, City shall have the right to immediately repair or cause to be repaired such defects, with or without prior notice to County, and County shall pay to City on demand all costs and expenses reasonably incurred by City to repair or cause to be repaired such defects. Any costs incurred by the City under this subsection (6), but not paid by County, may be deducted from any reimbursement otherwise due Owner pursuant to the provisions of subsection b, below.

b. The City shall reimburse County for costs associated with design and

construction of the City Portion as follows:

(1) Not later than sixty (60) days after the City's final acceptance of the City Portion and the Service Connection as specified above, the City shall reimburse the County for:

(i) The portion of the County's payment to its design engineer attributable to services performed to design the City Portion of the Transmission Improvements, as mutually agreed by the City's Director of Utilities and the County's Director of Water Resources; and

(ii) The portion of the County's payment to its contractor for work performed to construct the City Portion of the Transmission Improvements, provided that such reimbursement shall not exceed the amount bid for such work or any City-approved changes thereto.

(2) The City shall have no responsibility for any reimbursement of costs incurred by the County to design and construct the Service Connection and the County Portion of the Transmission Improvements.

c. The City will own, operate, maintain and repair all facilities associated with the Service Connection, including flowmeter, flow transmitter, pressure transmitter, valve, S.C.A.D.A. and electrical pedestal. As part of such operation, maintenance and repair, the City will calibrate instrumentation at reasonable scheduled intervals, at least annually, and will report such calibration as requested by the County. All operation, maintenance and repair costs incurred by the City will be reimbursed by the County by including such costs in the Wholesale and Wheeling Unit Rates paid by the County under Section 10, above. For metering errors in excess of 2 percent, Wholesale and Wheeling Water Charges may be adjusted upward or downward, as appropriate.

d. The County will own, operate and maintain all facilities downstream of the Service Connection, including surge control facilities to mitigate the effects of flow stoppage. The County will submit plans for surge control facilities for review and approval of the City prior to construction, which approval will not be unreasonably withheld.

e. Unless required by the City's Director of Utilities or otherwise required by law or regulation, backflow prevention devices will not be required at the Service Connection provided that (i) the County has a backflow prevention program meeting State regulations, and (ii) all facilities within the County Service Area

meet the standards of the California Department of Health Services and U.S. EPA.

f. Although delivery pressure cannot be guaranteed under all circumstances, delivery pressure at the Service Connection will be maintained above a minimum of 30 pounds per square inch ("psi"), and below a maximum of 80 psi under normal operating conditions. The City will not be obligated to supply water to any or all Service Connection points at an aggregate rate exceeding the maximums set forth in Section 5.a., above.

12. Term of Agreement:

This Agreement will become effective as of the date it is signed by the last signatory and is approved by the Board of Supervisors of Sacramento County, the Board of Directors of the Agency and the City Council, and will continue in full force and effect unless terminated by mutual written agreement of the parties hereto or by operation of law.

13. Failure to Deliver Water:

It is understood and agreed that, while the City will make every reasonable effort to deliver potable water pursuant to the terms of this Agreement, the City is not warranting or guaranteeing that it will be able to pump, divert, treat, store and/or deliver water when prevented from doing so due to an emergency or other circumstances beyond the City's direct control, nor will the City be liable for any failure to deliver water to the County hereunder, provided such failure is caused in whole or in part by an emergency condition or other factors beyond the direct control of the City.

14. The City Water Rights and Entitlements:

This Agreement will not affect or limit in any way the City Water Rights and Entitlements. Notwithstanding anything herein to the contrary, it is understood and agreed that the County's rights hereunder will at all times be subject to, and exercised in accordance with, any applicable limitation, requirement, modification or other condition that applies, or that may in the future be applied, to any of the City Water Rights and Entitlements.

15. Fluoridation:

The County acknowledges that potable water delivered to the County will contain fluoride, and agrees that the County will be solely responsible for: (1) any public notification to all or any portion of the Airport/MAP Service Area that the water provided hereunder has been treated with fluoride; and (2) for all costs associated with or resulting from the introduction of fluoridated water into the County Water Facilities, including monitoring and testing costs. The County will comply, at no cost to the City, with any

requirements pertaining to such fluoridation imposed by any governmental agencies with jurisdiction, including without limitation, the Department of Health Services. If the County receives notice of any such requirements applicable to the use of water delivered hereunder and subsequently fails to comply with such requirements within a reasonable period of time, the City will be relieved of any responsibility to deliver water pursuant to this Agreement until such requirements are fulfilled.

16. Notices:

Unless indicated otherwise herein, all notices, invoices, payments, statements or other writing authorized or required by this Agreement may be delivered personally, or sent in the United States mail, postage prepaid, or sent by electronic mail if the recipient confirms receipt, and addressed to the respective parties as follows:

To City:
Director, Department of Utilities
City of Sacramento
1395 35th Avenue
Sacramento, CA 95822
Electronic mail:greents@cityofsacramento.org

To Agency and Sacramento County:
Director, Department of Water Resources
County of Sacramento
827 7th Street, Room 301
Sacramento, CA 95814

All notices, invoices, payments or other writings will be deemed served on the day that they are personally served, deposited, postage prepaid, in the United States mail, or if served electronically, on the day that the recipient acknowledges receipt. A party may change the above designations by providing notice thereof to the other party.

17. Indemnification and Defense:

a. By The County: The County will fully indemnify, hold harmless and defend the City, its officers and employees, from any claims, actions or liability for any damages, any injury to persons or property, or any violation of any law or regulation, occurring by reason of anything done or omitted to be done by the County, its officers, employees, contractors or agents under this Agreement. Except as specified in subsection b., below, the County will fully indemnify, hold harmless and defend the City, its officers and employees from any claims, actions or liability for any damages, any injury to persons or property, or any violation of any law or regulation, occurring by reason of any action taken by the City, its officers or employees, if such action is required or authorized under this Agreement, unless such damages, injury, or violation

result solely from the willful or intentional acts of the City.

b. By The City: Notwithstanding anything to the contrary herein, the City will fully indemnify, hold harmless and defend the County, its officers and employees, from any claims, actions or liability for any damages, any injury to persons or property, or any violation of any law or regulation, occurring by reason of anything done or omitted to be done by the City, its officers, employees, contractors or agents in connection with the processing, treating or conveyance of water by the City Treatment and Transmission Facilities. Such duty to indemnify, hold harmless and defend will include all claims, actions or liability occurring by reason of anything done or omitted to be done by the City in connection with any delivery by the City of water that fails to comply with the definition of potable water contained herein.

18. Dispute Resolution:

a. Disputes: If a dispute arises concerning any controversy or claim arising out of or relating to this Agreement or the breach thereof, or relating to its application or interpretation, the aggrieved party will notify the other party(ies) of the dispute in writing within twenty days after such dispute arises. If the parties fail to resolve the dispute within thirty days after delivery of such notice, each party will promptly nominate a senior officer of its organization to meet at any mutually-agreed time and location to resolve the dispute. The parties agree to use their best efforts to reach a just and equitable solution satisfactory to all parties. Should the parties be unable to resolve the dispute to their mutual satisfaction within thirty days thereafter, the dispute will be subject to arbitration, pursuant to subsection b., below. The time periods set forth in this section are subject to extension as agreed to by the parties.

b. Arbitration: A dispute that is not resolved in accordance with subsection a., above, will be subject to arbitration by an arbitrator in Sacramento, California, provided, however, that each party reserves the right to file with a court of competent jurisdiction an application for temporary or preliminary injunctive relief on the grounds that the arbitration award to which the applicant may be entitled may be rendered ineffectual in the absence of such relief. Except as otherwise provided herein, the arbitration will be conducted under and will be subject to the provisions of the California Arbitration Act (Code of Civil Procedure sections 1280 through 1294.2). The parties in the arbitration will select a single, qualified, neutral arbitrator. If they cannot agree on an arbitrator, or an alternative selection process, the parties will request that the Presiding Judge of the Sacramento County Superior Court select an arbitrator in accordance with the provisions of section 1281.6 of the Code of Civil Procedure.

A hearing on the matter to be arbitrated will take place before the arbitrator in

the County of Sacramento at a time and place selected by the arbitrator. However, the hearing will take place not later than sixty days after selection of the arbitrator. The arbitrator will select the time and place for the hearing, and will give the parties written notice of the time and place at least twenty days before the date of the hearing. At the hearing, any relevant evidence may be presented by the parties, and the formal rules of evidence applicable to judicial proceedings will not apply. The arbitrator will hear and determine the matter. The arbitration award may include an award of damages and/or an award or decree of specific performance or declaratory or injunctive relief, will be in writing and will specify the factual and legal bases for the award. An award rendered pursuant hereto may be confirmed, corrected or vacated by a court of competent jurisdiction in accordance with the provisions of the California Arbitration Act. The arbitrator will have no authority, power or right to award punitive or other damages not measured by the prevailing party=s actual damages, and will not make any ruling, finding or award that is inconsistent with or which alters, changes, amend, modifies, waives, adds to or deletes from any of the provisions of this Agreement.

The ongoing cost of the arbitration, including the arbitrator=s fees, will be borne equally by the parties. Each party will also pay the costs of its own counsel, experts, witnesses and preparation and presentation of proofs. Additional incidental costs of arbitration may be allocated by the arbitration award.

c. Defense to Suit: The parties agree that the failure to comply with the provisions of this Section will be a complete defense to any suit, action or proceeding instituted in any federal or state court, or before any administrative body, with respect to any dispute that is subject to arbitration hereunder, provided, however, that this subsection c. will not apply to any application for temporary or preliminary injunctive relief authorized under this Section.

19. Records Inspection:

Each party will be entitled to inspect and photocopy the records of the other party(ies) that pertain to this Agreement, upon providing reasonable notice to such other party(ies) of its intent to do so. Each party may also appoint an auditor or auditors to examine the financial records of the other party(ies) to determine the adequacy of cost accumulation and billing information maintained by each party. After reasonable notice, each party will make available to the other party's(ies') auditor or auditors all requested records, and will assist and cooperate with such auditors. Each party will keep its accounting and financial records in accordance with generally-accepted accounting principles and any applicable laws or regulations.

20. Amendments:

No amendment or modification to this Agreement will be valid unless executed in writing and approved by the governing bodies of the parties, provided, however, that the Delivery Criteria may be modified by mutual written agreement of the City's Director of Utilities and the County's Director of Water Resources without obtaining approvals from the governing bodies of the parties hereto, as specified in Section 4, above.

21. No Third-Party Beneficiary:

This Agreement is not intended to, and will not be interpreted as conferring, any benefit or right whatsoever upon any person or entity that is not a party hereto.

22. Exhibits Incorporated:

All Exhibits referred to herein and attached hereto are fully incorporated into this Agreement as if such Exhibits were set forth in their entirety at this place.

23. General Provisions:

a. This Agreement will be construed in accordance with, and governed by, the laws of the State of California. The place where this Agreement is to be performed and its situs or forum will at all times be in the County of Sacramento.

b. The headings of the sections and paragraphs in this Agreement are inserted for convenience only. They do not constitute part of this Agreement and will not be used in its construction.

c. This Agreement is the result of the joint efforts and negotiations of the parties, and the parties agree that this Agreement will be interpreted as though each of the parties participated equally in the drafting and composition of this Agreement and each and every part hereof.

d. This Agreement may not be assigned by any party without the written consent of the non-assigning parties, and any purported assignment without such consent will be void.

e. The provisions of this Agreement shall bind the parties= successor entities and authorized assigns.

f. Neither City nor County, nor their respective agents, consultants or contractors, are or shall be considered to be agents of the other party in connection with the performance of this Agreement. Nothing in this Agreement shall be construed to create a joint venture, partnership or other relationship between the City and County, other than the City acting in its

municipal capacity with respect to the provision of wholesale and wheeling water service to the County.

g. The waiver by a party to this Agreement of a breach of any provision of this Agreement shall not be deemed a continuing waiver or a waiver of any subsequent breach of that or any other provision of the Agreement.

Date: _____, 2004

CITY OF SACRAMENTO

Attest:

By: _____

By: _____
City Clerk

Ken Nishimoto, Deputy City Manager
For: Robert P. Thomas, City Manager

Approved as to Form:

By: _____
City Attorney

Date: 10-21, 2004

SACRAMENTO COUNTY

By: _____

Attest:

By: _____
Secretary

Approved as to Form:

By: _____

Date: 10/14, 2004

SACRAMENTO COUNTY WATER AGENCY

CITY
AGREEMENT NO. 2004-0159

CITY
AGREEMENT NO. 2004-0159

Attest:

By: _____
Secretary

By: _____

Approved as to Form:

By: _____
Assistant County Counsel

List of Exhibits:

Exhibit A: Map showing Airport/MAP Service Area

Exhibit B: Map showing Transmission Improvements, with detail of Service Connection

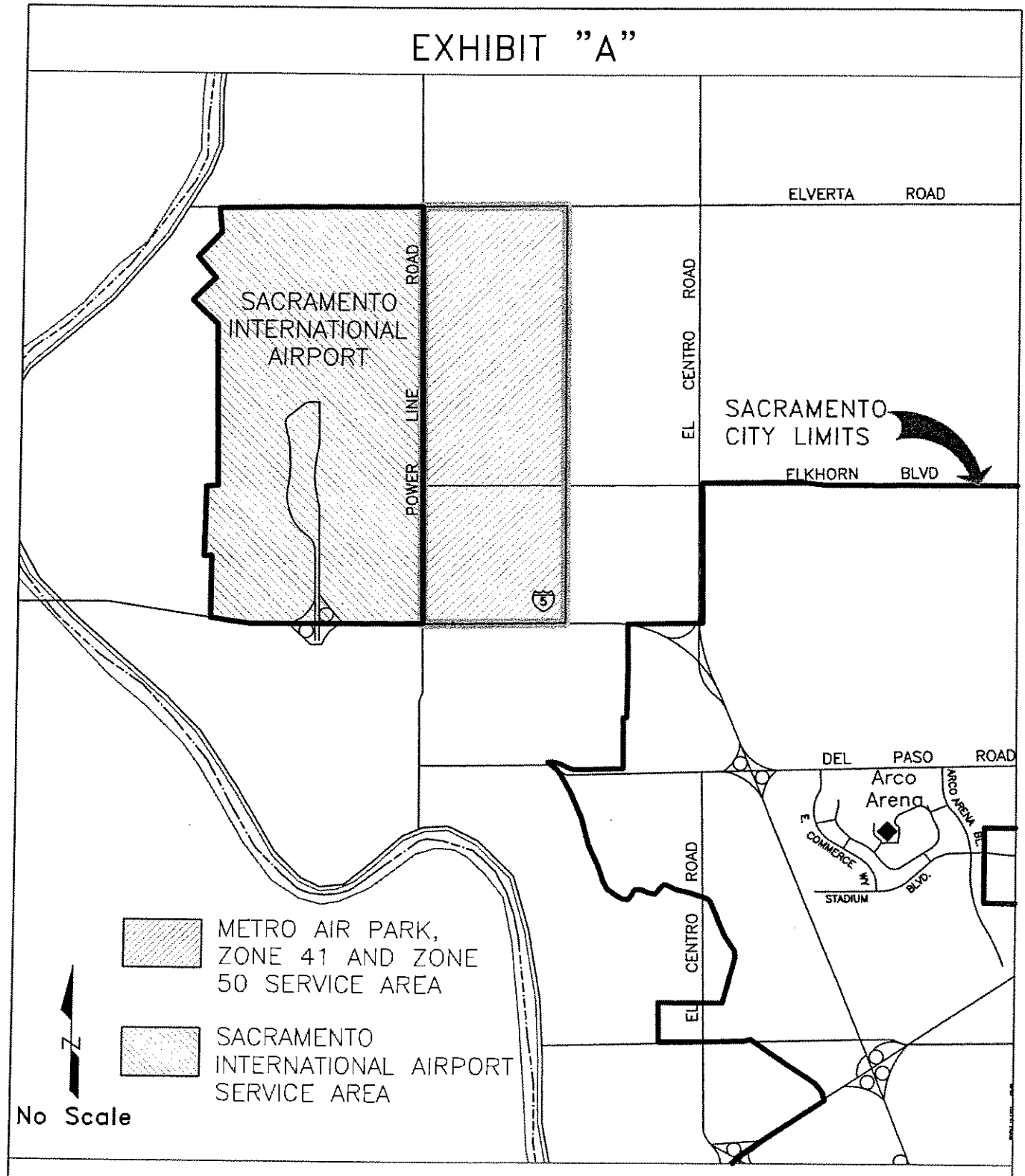
Exhibit C: Delivery Criteria

Exhibit D: Estimated Fiscal Year 2004-05 Wholesale Unit Rate and Service Charge

Exhibit E: Estimated FY 2004-05 Wheeling Unit Rate and Service Charge

Exhibit F: Estimated FY 2004-05 Connection Fee (per mgd)

EXHIBIT "A"



SERVICE AREA OF SACRAMENTO INTERNATIONAL AIRPORT AND METRO AIR PARK (SCWA ZONE 41 & ZONE 50)

AUGUST, 2004
Drawn by: BB

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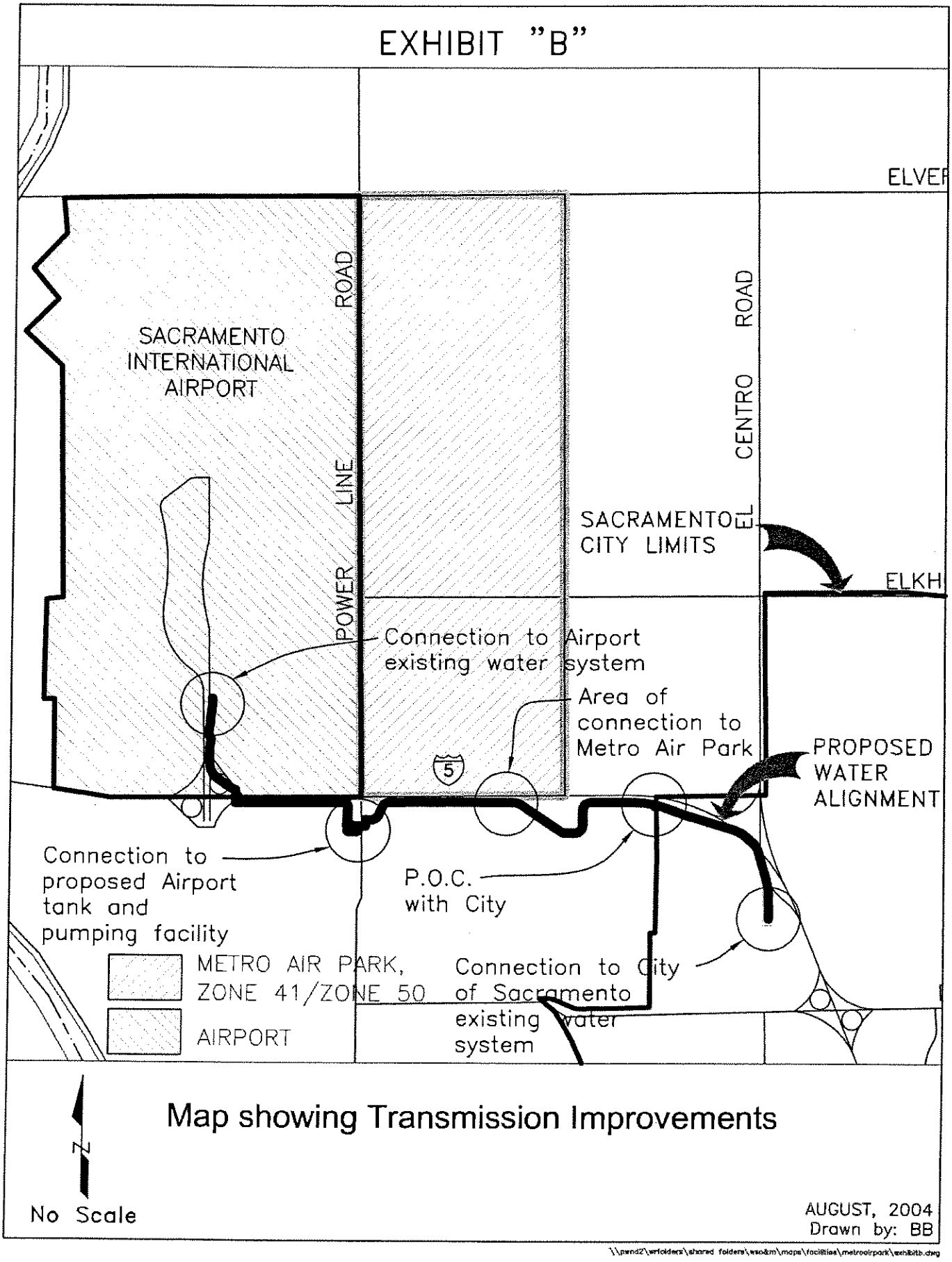
EXHIBIT "B"
ELVER
ROAD
SACRAMENTO
INTERNATIONAL
AIRPORT
CENTRO ROAD
LINE
SACRAMENTO
CITY LIMITS
EL
ELKH
POWER
Connection to Airport
existing water system
Area of
connection to
Metro Air Park
PROPOSED
WATER
ALIGNMENT
5
Connection to
proposed Airport
tank and
pumping facility
P.O.C.
with City
METRO AIR PARK,
ZONE 41/ZONE 50
AIRPORT
Connection to City
of Sacramento
existing water
system
N
No Scale
Map showing Transmission Improvements
AUGUST, 2004
Drawn by: BB

EXHIBIT C

CITY OF SACRAMENTO / SACRAMENTO COUNTY WATER AGENCY
ZONE 50 SERVICE CONNECTION

DELIVERY CRITERIA

This document outlines the general delivery guidelines and criteria for the operation of service connections between the City of Sacramento (City) and the Sacramento County Water Agency (County). The initial wholesale water service connection is located on Bayou Road, at the City Limit.

LIST OF CONTACTS:

The following listing of City and County contact names and phone numbers is provided in order of contact priority.

County:	WORK
Water Dispatch/After hours: County Dispatch	875-7246
Tom Pasterski, Mechanical Manager	876-6430; 591-0468
Mike Adams, Mechanical Supervisor	875-6882; 261-1767
Dave Underwood, Senior Engineer	875-6947
Keith Hall, Associate Engineer	875-6869

City of Sacramento:	WORK
E.A. Fairbairn WTP Control Room	808-3106
E.A. Fairbairn WTP Hotline	808-1516
Mary Krizanowski, Plant Operator Supervisor	808-3111
Steve Willey, Plant Operator Supervisor	808-7407
Mike Yee, Plant Services Division Manager	808-5583
Kathy Mullen, Water Superintendent	808-3105
Roland Pang, Water Superintendent	808-3119

OPERATIONAL PROCEDURES AND PARAMETERS:

1. For initial start-up, and for subsequently significant shut-down periods, County will call the E.A. Fairbairn Water Treatment Plant (FWTP) Control Room to communicate delivery status.

2. The City shall be responsible for reading and recording the time and flow quantities.

3. The County can take an initial maximum instantaneous flow rate of up to 5.0 mgd (3,472 gpm) as measured by the City maintained service connection flow meter. Maximum daily volume of 5.0 mgd, with 10% tolerance due to operational variations.

4. The County can incrementally increase the maximum instantaneous flow rate of up to 11.7 mgd (8,124 gpm) as measured by the City maintained service connection flow meter subject to the requirements of the wholesale and/or wheeling agreement

   The minimum pressure at the service connection between the City and the County will be 30 psig. The County will strive to use the station control logic to maintain service connection pressures at or above 30 psig.

   When County first starts the take of water, they will coordinate with the City so as to not cause a major pressure drop or surge in the City or County systems.

   The City's and County's Operations staff will work cooperatively to assist each other to assure the pressure at the City/County point of connection does not fall below a pressure of 30 psig.

5. Changes in aforementioned delivery criteria can be modified if mutually agreed to in writing by the Director of Utilities of the City of Sacramento and the Director of Sacramento County Water resources.

End of Exhibit C

EXHIBIT D

Initial Wholesale Water Rate

WHOLESALE WATER - UNIT COST CALCULATION
FISCAL YEAR 2004-2005

1	FY 2005 Operating/CIP Budget: (a)	$60,949,963	FY 2004 Water Production (AF): (b)	148,784	
		BUDGET	**UNIT COST ELEMENTS**		
	OPERATING				
	LABOR				
2	Employee Services	16,188,928		$112.59	
3	Cost Reimb-Credit	(1,835,954)		($12.77)	
4	Cost Reimb-Charge	1,930,132		$13.42	
5	CIP Reimbursement	(257,500)		($1.79)	
6		$16,025,606		$111.46	
	OPERATIONS				
7	Utilities	2,797,513		$19.46	
8	Operations Equipment	1,274,525		$8.86	
9	Direct Operations Supplies	3,070,320		$21.35	
10	Chem & Gases	790,717		$5.50	
11		$7,933,075		$55.17	
	ADMINISTRATION/OVERHEAD				
12	Office/Admin	1,565,247		$10.89	
13	Interdepartmental Allocation/Taxes	7,068,647		$49.16	
14	Comp Liability Exp	774,964		$5.39	
15	Water Rights/Supply	359,500		$2.50	
16	Professional Services	483,818		$3.36	
17		$10,252,176		$71.30	
18	**TOTAL OPERATING**	**$34,210,857**		**$237.93**	
	CAPITAL IMPROVEMENT PROGRAM				
19	CIP	$13,600,000		$94.59	
20	Debt Service	$13,139,106		$91.38	
21	**TOTAL CIP**	**$26,739,106**		**$185.97**	
22	**TOTAL OPERATING/CIP COSTS**	**$60,949,963**		**$423.90**	
	EXCLUDED COSTS (SSWD only)				
23	Unrelated Energy Costs	$0		$0.00	
24	Unrelated Distribution Costs	($7,658,986)		($53.27)	
25	Unrelated Dist Overhead	($3,282,389)		($22.83)	
26	Unrelated Water Rights Costs	$0		$0.00	
27	Unrelated CIPs	($5,435,000)		($37.80)	
28	Unrelated Debt Svc	($13,139,106)		($91.38)	
29	Non-operating Revenues	($3,905,000)		($27.16)	
30	**TOTAL EXCLUDED COSTS**	**($33,420,481)**		($232.44)	
31	**TOTAL COST**	**$27,529,502**	**UNIT RATE**	**$191.46**	**per AF**
32b				**$0.4395**	**per CCF**
33b			**SERVICE CHARGE**	**$150.00**	**per month**

Note: Unit Rate is adjusted annually to reflect current costs.
Unit Cost may not match exactly due to rounding.

EXHIBIT E

Initial Wheeling Water Rate

WHEELING WATER - UNIT COST CALCULATION
FISCAL YEAR 2004-2005

1	FY 2005 Operating/CIP Budget: (a)	$60,949,963	FY 2004 Water Production (AF): (b)	143,784	
		BUDGET	**UNIT COST ELEMENTS**		
	OPERATING				
	LABOR				
2	Employee Services	16,188,928		$112.59	
3	Cost Reimb-Credit	(1,835,954)		($12.77)	
4	Cost Reimb-Charge	1,930,132		$13.42	
5	CIP Reimbursement	(257,500)		($1.79)	
6		$16,025,606		$111.46	
	OPERATIONS				
7	Utilities	2,797,513		$19.46	
8	Operations Equipment	1,274,525		$8.86	
9	Direct Operations Supplies	3,070,320		$21.35	
10	Chem & Gases	790,717		$5.50	
11		$7,933,075		$55.17	
	ADMINISTRATION/OVERHEAD				
12	Office/Admin	1,565,247		$10.89	
13	Interdepartmental Allocation/Taxes	7,068,647		$49.16	
14	Comp Liability Exp	774,964		$5.39	
15	Water Rights/Supply	359,500		$2.50	
16	Professional Services	483,818		$3.36	
17		$10,252,176		$71.30	
18	**TOTAL OPERATING**	**$34,210,857**		**$237.93**	
	CAPITAL IMPROVEMENT PROGRAM				
19	CIP	$13,600,000		$94.59	
20	Debt Service	$13,139,106		$91.38	
21	**TOTAL CIP**	**$26,739,106**		**$185.97**	
22	**TOTAL OPERATING/CIP COSTS**	**$60,949,963**		**$423.90**	
	EXCLUDED COSTS (SSWD only)				
23	Unrelated Energy Costs	$0		$0.00	
24	Unrelated Distribution Costs	($7,658,986)		($53.27)	
25	Unrelated Dist Overhead	($3,282,369)		($22.83)	
26	Unrelated Water Rights Costs	($359,500)		($2.50)	
27	Unrelated CIPs	($5,435,000)		($37.80)	
28	Unrelated Debt Svc	($13,139,106)		($91.38)	
29	Non-operating Revenues	($3,905,000)		($27.16)	
30	**TOTAL EXCLUDED COSTS**	**($33,779,961)**		($234.94)	
31	**TOTAL COST**	**$27,170,002**	**UNIT RATE**	**$188.96**	**per AF**
32b				**$0.4338**	**per CCF**
33b			**SERVICE CHARGE**	**$150.00**	**per month**

Note: Unit Rate is adjusted annually to reflect current costs.
Unit Cost may not match exactly due to rounding.

EXHIBIT F

SACRAMENTO COUNTY WATER AGENCY (MAP AND AIRPORT)
WHOLESALE / WHEELING CONNECTION FEE
ESTIMATE
FISCAL YEAR 2004-2005

DESCRIPTION	NET REPL COST 6/30/2005	CAPACITY mgd	UNIT COST PER MGD FY/ 04/05
Distribution	27,623,164	360	n/a
Transmission	115,901,104	360	321,948
Hydrants	978,581	360	n/a
Storage	26,095,497	360	n/a
Wells	6,989,071	25	279,563
Treatment	282,961,030	360	786,003
Intakes	60,043,151	360	166,787
General	14,976,788	360	41,602
TOTAL	**535,568,386**		**1,595,902**

NOTE: Connection Fee Unit Cost based on assumption that water is taken in FY05.

Revised 8/27/20044:52 PM

EXHIBIT G

Job No. 07019-9898-141					Calc. No.	
Computation						HDR
Project: Sacramento County Airport Systems					***Computed:***	MB
Subject: Domestic Water Supply and Distribution System					***Date:***	6/21/2004
Task: 65% Opinion of Probable Construction Costs (Alt-1, 30" DIP)					***Reviewed:***	RDA & RCW
File Name: P:\07019\9898\Estimates\WIP\[65% Opinion_Construction_Cost.xls]65% OPCC					***Date:***	7/7/2004
DESCRIPTION	**QUANTITY**	**UNITS**	**UNIT COST**	**TOTAL COST**	**CITY COST %**	**CITY COST**
DIVISION 1 - GENERAL REQUIREMENTS						
1 Mobilization	1	LS	2.50%	$224,250	9.34%	$20,945
2 Demobilization	1	LS	0.50%	$43,948	9.34%	$4,105
3 Bonds, Insurance, etc	1	LS	2.50%	$224,250	9.34%	$20,945
4 CPM Schedule and Updates (assume 12 mo. Const.)	1	LS	$20,000	$20,000	9.34%	$1,868
5 Temporary Facilities/Fencing/Offices	1	LS	$19,000	$19,000	9.34%	$1,775
6 As-Built Documents	1	LS	$20,000	$20,000	9.34%	$1,868
7 Facilities Start-up & Testing	1	LS	$30,000	$30,000	9.34%	$2,802
8 Permitting (incl SWPPP)	1	LS	$15,000	$15,000	9.34%	$1,401
SUBTOTAL				$596,448		$55,708
DIVISION 2 - SITE WORK						
Pipeline - General						
9 Tie-in to Existing Systems	1	LS	$50,000	$50,000	9.34%	$4,670
10 Pot-Holing	1	LS	$7,500	$7,500	9.34%	$701
11 Hydrostatic testing	19,234	LF	$2.00	$38,468	9.34%	$3,593
12 Dewatering	1	LS	$75,000	$75,000	9.34%	$7,005
13 Traffic Control	1	LS	$25,000	$25,000	9.34%	$2,335
Alignment "L1"						
14 30" DIP	12,385	LF	$108	$1,337,580	38.35%	$513,000
15 AC Removal (6-in Depth)	7,110	SY	$7.00	$49,770	38.35%	$19,089
16 AC Replacement (6-in Depth) L1	63,990	SF	$2.00	$127,980	38.35%	$49,084
17 3/4" AB Replacement (18-in Depth) L1	2,638	CY	$35	$92,316	38.37%	$35,420
18 Backfill (Sand, 18-in Depth) L1	3,316	CY	$23	$76,266	38.36%	$29,256
19 Bedding (AB, 6-in Depth) L1	879	CY	$35	$30,771	38.44%	$11,830
20 Trench Excavation L1	12,298	CY	$8.00	$98,383	38.36%	$37,736
21 30" 45 degree Fitting	4	EA	$4,500	$18,000	50.00%	$9,000
22 30" Tee	2	EA	$6,000	$12,000	50.00%	$6,000
23 30" x 12" Reducer	1	EA	$2,700	$2,700	100.00%	$2,700
24 12" Gate Valve	1	EA	$1,600	$1,600	100.00%	$1,600
26 30" FCA	1	EA	$1,000	$1,000	100.00%	$1,000
27 30" Butterfly Valve	1	EA	$10,000	$10,000	100.00%	$10,000
Alignment "L2"						
28 24" DIP	6,524	LF	$84	$548,016	0.00%	$0
29 AC Removal (6-in Depth)	1,706	SY	$7.00	$11,942	0.00%	$0
30 AC Replacement (6-in Depth) L2	15,354	SF	$2.00	$30,708	0.00%	$0
31 3/4" AB Replacement (18-in Depth) L2	1,059	CY	$35	$37,057	0.00%	$0
32 Backfill (Sand, 18-in Depth) L2	1,389	CY	$23	$31,940	0.00%	$0
33 Bedding (AB, 6-in Depth) L2	403	CY	$35	$14,096	0.00%	$0
34 Trench Excavation L2	5,304	CY	$8.00	$42,436	0.00%	$0
35 24" 45 degree Fitting	4	EA	$3,250	$13,000	0.00%	$0
36 24" Tee	1	EA	$4,850	$4,850	0.00%	$0
37 24" 15 degree Fitting	6	EA	$3,250	$19,500	0.00%	$0
38 24" 90 degree Fitting	1	EA	$3,800	$3,800	0.00%	$0
39 12" Gate Valve	2	EA	$1,600	$3,200	0.00%	$0
40 24" x 12" Reducer	3	EA	$2,200	$6,600	0.00%	$0
41 12" Restrained Mechanical Coupling	2	EA	$310	$620	0.00%	$0
42 12" Butterfly Valve	1	EA	$1,975	$1,975	0.00%	$0
Alignment "L1" - Airport Pipeline						
43 16" DIP	325	LF	$70	$22,750	0.00%	$0
44 AC Removal (6-in Depth)	244	SY	$7.00	$1,711	0.00%	$0
45 AC Replacement (6-in Depth)	2200	SF	$2.00	$4,400	0.00%	$0
46 3/4" AB Replacement (18-in Depth)	93	CY	$35	$3,241	0.00%	$0
47 Backfill (Sand, 18-in Depth)	85	CY	$23	$1,959	0.00%	$0
48 Bedding (AB, 6-in Depth)	30	CY	$35	$1,037	0.00%	$0
49 Trench Excavation	474	CY	$8.00	$3,793	0.00%	$0
50 16" 90 degree fitting	1	EA	$1,150	$1,150	0.00%	$0
51 16" Gate Valve	1	EA	$2,775	$2,775	0.00%	$0
52 30" x 16" Reducer	1	EA	$2,200	$2,200	0.00%	$0

EXHIBIT G

Job No. 07019-9898-141					Calc. No.

Computation

Project:	Sacramento County Airport Systems	*Computed:*	MB
Subject:	Domestic Water Supply and Distribution System	*Date:*	6/21/2004
Task:	65% Opinion of Probable Construction Costs (Alt-1, 30" DIP)	*Reviewed:*	RDA & RCW
File Name:	P:\07019\9898\Estimates\WIP\[65% Opinion_Construction_Cost.xls]65% OPCC	*Date:*	7/7/2004

DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST	CITY COST %	CITY COST
Blow-offs						
53 6" 90 degree Fitting	30	EA	$320	$9,600	38.35%	$3,682
54 8" x 6" Tee	30	EA	$300	$9,000	38.35%	$3,452
55 6" Gate Valve	30	EA	$1,425	$42,750	38.35%	$16,395
56 8" DIP	210	LF	$35	$7,350	38.35%	$2,819
57 6" DIP	600	LF	$30	$18,000	38.35%	$6,903
58 4" DIP	210	LF	$25	$5,250	38.35%	$2,013
CAVs						
59 2" Combination Air and Vacuum Valve	15	EA	$530	$7,950	38.35%	$3,049
60 4" 90 degree Fitting	30	EA	$58	$1,740	38.35%	$667
61 4" Tee	15	EA	$90	$1,350	38.35%	$518
62 4" Gate Valve	15	EA	$860	$12,900	38.35%	$4,947
63 4" DIP	600	LF	$25	$15,000	38.35%	$5,753
City/County Metering Vault						
64 Vault Excavation	40	CY	$8	$320	0.00%	$0
65 8'x7'x14' Precast Concrete Meter Vault	1	EA	$6,700	$6,700	0.00%	$0
66 3/4" AB	6	CY	$35	$207	0.00%	$0
66 24" Magnetic Flow Meter	1	EA	$25,000	$25,000	0.00%	$0
67 Meter Vault Access Hatch	2	EA	$1,200	$2,400	0.00%	$0
68 Modulating BFV	1	EA	$12,000	$12,000	0.00%	$0
69 24" Plain End Coupling	2	EA	$800	$1,600	0.00%	$0
70 24" FCA	1	EA	$1,000	$1,000	0.00%	$0
71 Link Seals	2	EA	$1,000	$2,000	0.00%	$0
72 Ladder w/ Ratractable Safety Post	1	EA	$1,000	$1,000	0.00%	$0
73 Pipe Supports	2	EA	$500	$1,000	0.00%	$0
74 Sump Pump	1	EA	$500	$500	0.00%	$0
75 Triple Biased Door Position Switch	1	EA	$1,000	$1,000	0.00%	$0
Telemetry Conduit						
76 Conduit Excavation	579	CY	$8.00	$4,634	0.00%	$0
77 Conduit Concrete Encasing	140	CY	$150	$21,039	0.00%	$0
78 Fiber Optic Cable Excavation	836	CY	$8.00	$6,689	0.00%	$0
79 Fiber Optic Cable Concrete Encasing	251	CY	$150	$37,628	0.00%	$0
Storage Tanks Site						
80 Excavation	2308	CY	$7	$16,157	0.00%	$0
81 Grading over entire site (incl. pump sta.)	7,330	SY	$0.83	$6,084	0.00%	$0
82 Site Clearing and Grubbing (incl. pump sta.)	66,000	SF	$0.12	$7,920	0.00%	$0
83 Class II AB (11-in Depth)	2,240	CY	$35	$78,400	0.00%	$0
84 Site fencing	1,000	LF	$37	$37,000	0.00%	$0
85 Rolling Gate	20	LF	$200	$4,000	0.00%	$0
86 AC overlay over entire site (2.5-in AC, incl pump sta.)	7,330	SY	$6.40	$46,912	0.00%	$0
87 AC paved access roads (with Subbase)	630	SY	$20	$12,600	0.00%	$0
SUBTOTAL				$3,333,770		$794,215
DIVISION 3 - CONCRETE						
Storage Tanks Site						
88 4'x7'x6' Precast Concrete Meter Vault	2	EA	$4,000	$8,000	0.00%	$0
89 6'x13'x6' Precast Concrete Altitude Valve Vault	2	EA	$6,000	$12,000	0.00%	$0
90 12'x10'x8' Precast Concrete Vault	1	EA	$7,000	$7,000	0.00%	$0
Pump Station Building						
91 Pump Station Building Pad	90	CY	$400	$36,000	0.00%	$0
SUBTOTAL				$63,000		$0
DIVISION 4 - MASONRY						
Pump Station Building						
92 Masonry Walls (bldg)	1	LS	$166,200	$166,200	0.00%	$0
SUBTOTAL				$166,200		$0
DIVISION 5 - MISCELLANEOUS METALS						
Pumping Station						
93 Aluminum Grating	180	SF	$50	$9,000	0.00%	$0
94 Traffic Rated Lid	400	SF	$50.00	$20,000	0.00%	$0
SUBTOTAL				$29,000		$0
DIVISION 7 - THERMAL AND MOISTURE PROTECTION						
95 Roofing	1	LS	$15,300	$15,300	0.00%	$0
96 Building Insulation	1	LS	$6,000	$6,000	0.00%	$0
			SUBTOTAL	$21,300		$0
DIVISION 8 - DOORS AND WINDOWS						
Storage Tanks Site						

EXHIBIT G

	Job No. 07019-9898-141				Calc. No.
Computation					HDR
Project:	Sacramento County Airport Systems			***Computed:***	MB
Subject:	Domestic Water Supply and Distribution System			***Date:***	6/21/2004
Task:	65% Opinion of Probable Construction Costs (Alt-1, 30" DIP)			***Reviewed:***	RDA & RCW
File Name:	*P:\07019\9898\Estimates\WIP\[65% Opinion_Construction_Cost.xls]65% OPCC*			***Date:***	7/7/2004

DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST	CITY COST %	CITY COST
97 Meter Vault Access Hatch	9	EA	$1,200	$10,800	0.00%	$0
Pumping Station						
98 Single Steel Door	2	EA	$900	$1,800	0.00%	$0
99 Double Steel Door	2	EA	$900	$1,800	0.00%	$0
100 Vent	2	EA	$500	$1,000	0.00%	$0
101 Pump Access Hatch	6	EA	$800	$4,800	0.00%	$0
SUBTOTAL				**$20,200**		$0
DIVISION 9 - FINISHES						
102 Painting and Protective Coatings (piping and equipment)	1	LS	$10,000	$10,000	9.34%	$934
SUBTOTAL				**$10,000**		$934
DIVISION 10 - SPECIALITIES						
103 Identification, Stenciling, and Tagging System	1	LS	$2,000	$2,000	9.34%	$187
SUBTOTAL				**$2,000**		$187
DIVISION 11 - EQUIPMENT						
Pumping Station						
104 Vertical Turbine Pumps (30 hp)	3	EA	$17,500	$52,500	0.00%	$0
105 Vertical Turbine Pumps (100 hp)	3	EA	$25,750	$77,250	0.00%	$0
106 VFD (for 30 hp pumps)	2	EA	$5,700	$11,400	0.00%	$0
107 VFD (for 100 hp pumps)	2	EA	$15,300	$30,600	0.00%	$0
108 350 KW Standby Generator	1	LS	$110,000	$110,000	0.00%	$0
109 Sodium Hypochlorite Pump	4	EA	$1,955	$7,820	0.00%	$0
110 Sodium Hypochlorite Storage Tank	1	EA	$1,500	$1,500	0.00%	$0
SUBTOTAL				**$291,070**		$0
DIVISION 13 - SPECIAL CONSTRUCTION						
Pipeline						
111 Jacking Pit	3	EA	$15,000	$45,000	0.00%	$0
112 Receiving Pit	3	EA	$10,000	$30,000	0.00%	$0
113 Bore and Jack Casing - 36"	550	LF	$450	$247,500	0.00%	$0
Storage Tanks						
114 Steel Piles	20,000	VLF	$15.00	$300,000	0.00%	$0
115 1.4 MG Prestressed Conc Tank (Dia 110 ft)	2	EA	$1,500,000	$3,000,000	0.00%	$0
SUBTOTAL				**$3,622,500**		$0
DIVISION 15 - MECHANICAL						
Storage Tanks Site						
116 Hydropnuematic Tank (20,000 gal)	1	EA	$75,000	$75,000	0.00%	$0
117 30" DIP	5	LF	$190	$950	0.00%	$0
118 30" 90 degree Fitting	1	EA	$5,000	$5,000	0.00%	$0
119 24" x 30" Expansion	1	EA	$2,200	$2,200	0.00%	$0
120 24" DIP	115	LF	$118	$13,570	0.00%	$0
121 24" FCA	1	EA	$700	$700	0.00%	$0
122 24" Butterfly Valve	1	EA	$7,000	$7,000	0.00%	$0
123 24" Gate Valve	1	EA	$5,475	$5,475	0.00%	$0
124 24" Tee	1	EA	$4,850	$4,850	0.00%	$0
125 24" Wye	1	EA	$4,850	$4,850	0.00%	$0
126 18" DIP	155	LF	$80	$12,400	0.00%	$0
127 18" x 24" Expansion	2	EA	$1,800	$3,600	0.00%	$0
128 18" Gate Valve	2	EA	$3,475	$6,950	0.00%	$0
129 18" 45 degree Fitting	2	EA	$1,600	$3,200	0.00%	$0
130 16" DIP	560	LF	$70	$39,200	0.00%	$0
131 16" x 24" Expansion	1	EA	$2,200	$2,200	0.00%	$0
132 16" Gate Valve	6	EA	$2,775	$16,650	0.00%	$0
133 16" Fitting	2	EA	$865	$1,730	0.00%	$0
134 16" 45 degree Fitting	5	EA	$865	$4,325	0.00%	$0
135 16" 90 degree Fitting	4	EA	$1,150	$4,600	0.00%	$0
136 16" Tee	2	EA	$1,925	$3,850	0.00%	$0
137 16" Wye, lateral	1	EA	$1,925	$1,925	0.00%	$0
138 16" FCA	4	EA	$500	$2,000	0.00%	$0
139 Altitude Valve	2	EA	$20,000	$40,000	0.00%	$0
140 12" DIP	90	LF	$49	$4,365	0.00%	$0
141 12" 45 Degree Fitting	2	EA	$635	$1,270	0.00%	$0
142 6" DIP	250	LF	$30	$7,500	0.00%	$0
143 6" 90 degree Fitting	3	EA	$320	$960	0.00%	$0
144 6" 45 degree Fitting	4	EA	$297	$1,188	0.00%	$0
Pumping Station						
145 24" DIP	105	LF	$118	$12,390	0.00%	$0
146 24" Tee	1	EA	$4,850	$4,850	0.00%	$0
147 24" Pressure Relief Valve	1	EA	$20,000	$20,000	0.00%	$0

EXHIBIT G

Job No. 07019-9898-141					Calc. No.	

Computation

HDR

Project:	Sacramento County Airport Systems	*Computed:*	MB
Subject:	Domestic Water Supply and Distribution System	*Date:*	6/21/2004
Task:	65% Opinion of Probable Construction Costs (Alt-1, 30" DIP)	*Reviewed:*	RDA & RCW
File Name:	P:\07019\9898\Estimates\WIP\[65% Opinion_Construction_Cost.xls]65% OPCC	*Date:*	7/7/2004

DESCRIPTION	QUANTITY	UNITS	UNIT COST	TOTAL COST	CITY COST %	CITY COST
148 24" 90 degree fitting	2	EA	$2,050	$4,100	0.00%	$0
149 24" Gate Valve	1	EA	$5,475	$5,475	0.00%	$0
150 24" FCA	1	EA	$700	$700	0.00%	$0
151 16" DIP	40	LF	$70	$2,800	0.00%	$0
152 16" Gate Valve	3	EA	$2,775	$8,325	0.00%	$0
153 16" FCA	3	EA	$500	$1,500	0.00%	$0
154 10" DIP	20	LF	$42.50	$850	0.00%	$0
155 10" Expansion Joint	3	EA	$700	$2,100	0.00%	$0
156 10" FCA	3	EA	$240	$720	0.00%	$0
157 10" Check Valve	3	EA	$3,475	$10,425	0.00%	$0
158 10" Gate Valve	3	EA	$1,250	$3,750	0.00%	$0
159 10" 90 degree Fitting	3	EA	$745	$2,235	0.00%	$0
160 8" DIP	60	LF	$35	$2,070	0.00%	$0
161 8" Gate Valve	6	EA	$925	$5,550	0.00%	$0
162 8" FCA	6	EA	$191	$1,146	0.00%	$0
163 8" 90 degree Fitting	3	EA	$430	$1,290	0.00%	$0
164 8" Expansion Joint	3	EA	$650	$1,950	0.00%	$0
165 8" Check Valve	3	EA	$2,275	$6,825	0.00%	$0
SUBTOTAL				$376,559		$0
DIVISION 16 - ELECTRICAL						
166 Primary Elements and Transmistters	1	LS	$10,000	$10,000	0.00%	$0
167 Electric Service (at tank site)	1	LS	$25,000	$25,000	0.00%	$0
168 Site Lighting	1	LS	$5,000	$5,000	0.00%	$0
169 Cathodic Protection	1	LS	$210,000	$210,000	9.34%	$19,614
170 Electrical Wiring	1	LS	$20,000	$20,000	9.34%	$1,868
171 3" Conduit (x2)	9,750	LF	$30	$292,500	0.00%	$0
172 4" Fiber Optic Cable	65	CLF	$300	$19,350	0.00%	$0
173 2" Fiber Optic Cable (x2)	129	CLF	$200	$25,800	0.00%	$0
174 Microwave Motion Detector	1	EA	$15,000	$15,000	0.00%	$0
175 Infared Illuminator Lighting	1	LS	$4,000	$4,000	0.00%	$0
176 Color Video Camera with PTZ	5	EA	$4,600	$23,000	0.00%	$0
177 Digital Video Recorder	5	EA	$3,500	$17,500	0.00%	$0
178 Video Switcher/Controller	1	EA	$6,000	$6,000	0.00%	$0
179 18" Color LCD Monitor	5	EA	$800	$4,000	0.00%	$0
180 Access Control Workstation	1	EA	$5,000	$5,000	0.00%	$0
181 Remote Access Control Panel	1	EA	$2,500	$2,500	0.00%	$0
SUBTOTAL				$684,650		$21,482
DIVISION 17 - INSTRUMENTATION						
Storage Tanks						
182 24" Magnetic Flow Meter	1	EA	$25,000	$25,000	0.00%	$0
183 16" Flow Meter	1	EA	$4,000	$4,000	0.00%	$0
184 Triple Biased Door Position Switch	1	EA	$1,000	$1,000	0.00%	$0
Pumping Station						
185 Triple Biased Door Position Switch	1	EA	$1,000	$1,000	0.00%	$0
Miscellaneous						
186 P.S. Instrumentation	1	LS	$7,500	$7,500	0.00%	$0
187 Storage Instrumentation	1	LS	$7,000	$7,000	0.00%	$0
188 RTU and Operator Interface	1	LS	$20,000	$20,000	0.00%	$0
189 PLC and Programming	1	LS	$50,000	$50,000	0.00%	$0
190 Misc. Control Panels	1	LS	$10,000	$10,000	0.00%	$0
SUBTOTAL				$125,500		$0
ONSITE CONSTRUCTION (LESS DIV 1) SUBTOTAL				$8,745,749		$816,818
(ADDITIVE FOR) DIVISION 1 (ABOVE)				$596,448		$55,708
CONTINGENCY (20%)				$1,869,000		$175,000
TOTAL				$11,211,198		$1,047,526
TOTAL (ROUNDED)				$11,220,000		$1,050,000

Notes:

1. This cost opinion does not include any City connection fees, environmental remediation, and etc.
2. This cost opinion does not include costs for engineering, administration, and/or construction management
3. Bid Contingency - Under certain conditions Bids come in higher than expected due to market variables such as busy contractors, higher field or material costs, etc.

DATE: 9/27/2004
TIME: 11:57 AM

RESOLUTION NO. 2004-809

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF OCT 19 2004

CERTIFIED AS TRUE COPY OF Resolution 2004-809 DATE CERTIFIED November 2, 2004 CITY CLERK, CITY OF SACRAMENTO

A RESOLUTION AUTHORIZING EXECUTION OF AN AGREEMENT FOR WHOLESALE AND/OR WHEELING WATER SERVICE WITH SACRAMENTO COUNTY AND THE SACRAMENTO COUNTY WATER AGENCY

BE IT RESOLVED BY THE SACRAMENTO CITY COUNCIL THAT:

1. The City Council has reviewed and considered the information contained in the Mitigated Negative Declaration prepared and adopted by Sacramento County and the Sacramento County Water Agency for the project titled "Sacramento International Airport Domestic Water System," which will construct water supply facilities to deliver treated water from the City of Sacramento for the Sacramento International Airport and Metro Air Park, in accordance with the provisions of the Agreement identified in item 2, below.

2. The City Manager is hereby authorized to execute the "Agreement Between the City of Sacramento, the County of Sacramento and the Sacramento County Water Agency for Wholesale and/or Wheeling Water Service for Sacramento International Airport and Metro Air Park," in the form attached hereto.

HEATHER FARGO

MAYOR

ATTEST:

SHIRLEY CONCOLINO

CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-809

DATE ADOPTED: OCT 19 2004

OFFICE OF THE
CITY CLERK

CITY OF SACRAMENTO
CALIFORNIA

INTERIM CITY HALL
ROOM 211
730 I STREET
SACRAMENTO, CA
95814-2671

PH 916-808-5427
FAX 916-808-7672

www.cityofsacramento.org

November 3, 2004

County of Sacramento
Board of Supervisors
Attn: Resolution Desk
700 H Street, Suite 2450
Sacramento CA 95814

Ref: City Agreement 2004-0159
Wholesale and/or Wheeling Water Service
For Sacramento International Airport and Metro Air Park

Dear Board of Supervisors:

Enclosed for your records please find one fully executed copy of the above-listed agreement, with Resolution 2004-809 attached, as adopted by the Sacramento City Council on October 19, 2004. If you have any questions, or I may be of any further service, please contact me at (916) 808-7605, Monday - Friday, 8:00 a.m. to 5:00 p.m.

Sincerely,

Carolyn E. Hoover

Carolyn E. Hoover, Deputy City Clerk
Office of the City Clerk
730 "I" Street, Suite 211
Sacramento, CA 95814

#21
10/12/04

Enclosure (1)

Appendix B – Excerpts from the SCWA Zone 50 Water Supply Master Plan

Major improvements will be staged to meet demands at each level of growth, please refer to **Section 7** for specifics. Elements of the distribution system that have not been assigned a phase, such as distribution mains, will be constructed along with individual developments, by the landowners.

3.4 WATER DEMAND PROJECTION

Water demand projections for Zone 50 are based on approved land uses, **Figure 3-1** and unit demands based on average water use rates for typical commercial, industrial and research, and other similar types of development within the County tailored to reflect airport related usage. The total project build-out water demand is estimated by extending unit demands by land use acreages.

Average unit water demands for commercial and industrial land use categories may vary from county-wide or other zone demand averages due to disparities in the nature of development, type of manufacturing, number of employees per acre, and varying ratios of high to low water users. Should a large number of high water use or employee intensive manufacturing facilities be constructed, or a greater percentage of multiple-story buildings be constructed, actual unit water use may exceed that projected in this WSMP. If a significant amount of industrial warehouse or storage facilities are constructed with low occupancy rates, actual demands will be significantly lower than the estimates provided herein.

As a signatory to the WFA, SCWA is committed to implement 16 Water Conservation Best Management Practices (BMP) as defined in the County of Sacramento Water Forum Water Conservation Plan, pages 119-128 of Appendix J of the WFA (included in this document as Appendix C).

The unit water demand factors used in this study are listed in **Table 3-2**. Average annual demand projections determine the required entitlements and supplies to meet future demands (Average Day Demand (ADD) is the average annual demand divided by 365 days). Maximum Day Demand (MDD, = 2 x ADD) projections are used for sizing source production facilities and large conveyance pipelines. Peak Hour Demand (PHD, =2 x MDD) projections are used for sizing local water pipelines, storage reservoirs, and pump stations.

Table 3-2
Water Demand Factors

Item	Land Use	Projected Unit Water Demand Factors		
		Avg. Day Demand Factors[1] (AF/ac/yr)	Avg. Day Demand Factors (gpd/ac)	Max. Day Demand Factors (gpd/ac)
1	Light Manufacturing and Distribution	3.81	3,400	6,800
2	Airport Related Industrial	3.24	2,895	5,790
3	Commercial-High-tech R&D Offices	3.24	2,895	5,790
4	Commercial-Professional Offices-Corporate Headquarters	3	2,680	5,360
5	Commercial-Offices Retail/Services, Automotive & Related Hotels	3	2,680	5,360
6	Open Space	0	0	0
7	Major Roadways[2]	0.19	166	332

1. Unit water demand factor includes a 7.5% increase for unaccounted losses in the system.
2. Includes landscaped regions along major roadway corridors

An ADD to MDD peaking factor of 2.0 and an MDD to PHD peaking factor of 2.0 were used in this study. Thus, the projected increase from ADD to PHD is 4 fold.

The projected water demands at buildout are based on the current proposed land uses identified in the Land Use Map, 1999 and *Metro Air Park Developable and Total Acreage by Zoning District, Table 2,* Spink are listed in Table 3-3. *Metro Air Park Developable and Total Acreage by Zoning District, Table 2* supersedes *Table A-1* in the *Metro Air Park Public Facilities Master Plan,* Spink, September 1998.

Golf course irrigation demands are not part of this WSMP. Due to the availability and reduced processing cost of agricultural water the golf course is assumed to be irrigated with non-potable water, which may be supplied by either groundwater or by surface water delivered by NCMWC.

Appendix C – Airport and MAP Demand Data

SMF-MAP City Water Bill Cost Distribution Calculation

2022													
Month	G-47 AIRPORT STATION INFLOW (gallons)	G-47 AIRPORT STATION INFLOW (CCF)	METRO AIR PARK STATION INFLOW (gallons)	METRO AIR PARK STATION INFLOW (CCF)	SIA-MAP City Invoice (CCF)	Combined Totals of SMF and MAP (CCF)	Difference between City and SMF/MAP (CCF)	Difference between City and SMF/MAP (%)	Cost (CCF)	Service Charge (monthly)	**SMF Invoice Share**	**MAP Invoice Share**	Total Invoice
January	5,024,846	6,718	8,866,922	11,854	19,138	18,572	567	2.96%	$1.7022	$500.68	**$11,964.79**	**$21,113.27**	$33,078.06
February	6,061,647	8,104	6,099,328	8,154	16,883	16,258	625	3.70%	$1.7022	$500.68	**$14,574.16**	**$14,664.76**	$29,238.92
March	8,859,879	11,845	8,693,118	11,622	24,190	23,467	723	2.99%	$1.7022	$500.68	**$21,035.99**	**$20,640.05**	$41,676.05
April	8,671,402	11,593	7,115,458	9,513	21,809	21,105	703	3.23%	$1.7022	$500.68	**$20,665.98**	**$16,957.81**	$37,623.79
May	14,132,209	18,893	8,895,976	11,893	31,750	30,786	964	3.04%	$1.7022	$500.68	**$33,474.25**	**$21,071.45**	$54,545.70
June	16,295,875	21,786	10,601,688	14,173	36,741	35,959	781	2.13%	$1.7022	$500.68	**$38,193.07**	**$24,847.46**	$63,040.53
July	13,151,231	17,582	16,715,641	22,347	40,778	39,929	849	2.08%	$1.7022	$500.68	**$30,784.97**	**$39,128.70**	$69,913.67
August	15,493,353	20,713	16,232,759	21,702	43,255	42,415	841	1.94%	$1.7022	$500.68	**$36,201.09**	**$37,928.76**	$74,129.85
September	10,289,127	13,756	12,862,366	17,196	31,608	30,951	656	2.08%	$1.8203	$500.68	**$25,792.63**	**$32,243.18**	$58,035.81
October	9,299,250	12,432	14,286,922	19,100	32,457	31,532	924	2.85%	$1.8203	$500.68	**$23,491.06**	**$36,090.55**	$59,581.61
November	5,376,764	7,188	8,445,311	11,291	19,313	18,479	834	4.32%	$1.8203	$500.68	**$13,870.10**	**$21,785.85**	$35,655.95
December	5,358,764	7,164	3,313,754	4,430	12,555	11,594	960	7.65%	$1.8203	$500.68	**$14,430.25**	**$8,923.38**	$23,353.64

SMF-MAP City Water Bill Cost Distribution Calculation

2023													
Month	G-47 AIRPORT STATION INFLOW (gallons)	G-47 AIRPORT STATION INFLOW (CCF)	METRO AIR PARK STATION INFLOW (gallons)	METRO AIR PARK STATION INFLOW (CCF)	SIA-MAP City Invoice (CCF)	Combined Totals of SMF and MAP (CCF)	Difference between City and SMF/MAP (CCF)	Difference between City and SMF/MAP (%)	Cost (CCF)	Service Charge (monthly)	**SMF Invoice Share**	**MAP Invoice Share**	Total Invoice
January	5,181,848	6,928	3,402,955	4,549	12,123	11,477	646	5.33%	$1.8203	$500.68	**$13,622.31**	**$8,945.86**	$22,568.18
February	4,586,448	6,132	2,787,173	3,726	10,512	9,858	655	6.23%	$1.8203	$500.68	**$12,213.88**	**$7,422.34**	$19,636.22
March	5,214,678	6,971	4,075,266	5,448	13,088	12,420	669	5.11%	$1.8203	$500.68	**$13,654.51**	**$10,670.99**	$24,325.49
April	6,192,360	8,279	9,822,499	13,132	22,132	21,410	721	3.26%	$1.8203	$500.68	**$15,770.84**	**$25,016.17**	$40,787.01
May	9,579,293	12,807	13,543,563	18,106	31,812	30,913	899	2.83%	$1.8203	$500.68	**$24,197.48**	**$34,211.31**	$58,408.79
June	9,514,213	12,720	12,854,440	17,185	30,704	29,905	799	2.60%	$1.8203	$500.68	**$23,985.32**	**$32,406.03**	$56,391.35
July	14,962,461	20,003	14,525,075	19,419	40,396	39,422	974	2.41%	$1.8203	$500.68	**$37,565.73**	**$36,467.60**	$74,033.34
August	19,060,804	25,482	18,897,889	25,265	51,795	50,747	1,048	2.02%	$1.8203	$500.68	**$47,595.23**	**$47,188.43**	$94,783.66
September									$1.8203	$500.68			
October									$1.8203	$500.68			
November									$1.8203	$500.68			
December									$1.8203	$500.68			

Appendix D – Excerpts from the 2020 City of Sacramento Urban Water Management Plan

FINAL REPORT | JUNE 2021

City of Sacramento
2020 Urban Water Management Plan

JOINTLY PREPARED BY

City of SACRAMENTO

WEST YOST
Water. Engineered.

2020 Urban Water Management Plan

Prepared for

City of Sacramento

Project No. 038-60-19-53

Project Manager: Elizabeth Drayer, PE	06-30-21 Date
QA/QC Review: Brenda Estrada, PE	06-30-21 Date

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
µg/L	Micrograms per Liter
2016 LHMP	2016 Sacramento Countywide Local Hazard Mitigation Plan Update
AB	Assembly Bill
Act	Urban Water Management Planning Act
ADWF	Average Dry Weather Flow
AF	Acre-feet
AFB	Air Force Base
AFY	Acre-feet of Water per Year
AMI	Advanced Metering Infrastructure
ARBS	American River Basin Study
AWIA	America's Water Infrastructure Act
AWSDA	Annual Water Supply and Demand Assessment
AWWA	American Water Works Association
Basin	American River Basin
Cal Am	California American Water Company
CalWEP	California Water Efficiency Partnership
CAP	Climate Action Plan
CCR	Consumer Confidence Report
CDoF	California Department of Finance
cfs	Cubic Feet per Second
CIMIS	California Irrigation Management Information System
City	City of Sacramento
Cogen	Cogeneration Facility
County	Sacramento County
Cr 6	Hexavalent Chromium
CSS	Combined Sewer System
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
CWTP	Combined Wastewater Treatment Plant
DBP	Disinfection By-Product
DCE	Cis-1,2-Dichloroethene
DDW	Division of Drinking Water
DMM	Demand Management Measures
DOF	California Department of Finance
DOU	Department of Utilities
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
DWR Guidebook	Department of Water Resources' 2020 Urban Water Management Plan Guidebook
DWR Methodologies	DWR Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (2016)
EAFWTP	E.A. Fairbairn Water Treatment Plant

ETo	Evapotranspiration
FVWC	Fruitridge Vista Water Company
GHG	Greenhouse Gas Emissions
GMP	Groundwater Management Plan
GPCD	Gallons per Capita per Day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
kWh	kilowatt hour
Legislature	California State Legislature
MAF	Million Acre-Feet
MCL	Maximum Contaminant Level
MGD	Million Gallons per Day
MTBE	Methyl Tert-Butyl Ether
NAICS	North American Industry Classification System
NDMA	N-Nitrosodimethylamine
PCE	Tetrachloroethene
POU	Place of Use
PSA	Purveyor Specific Agreement
psi	Pounds per Square Inch
RHNP	Regional Housing Needs Plan
RRA	Risk and Resilience Assessment
RUWMP	Regional Urban Water Management Plan
RWA	Regional Water Authority
RWFS	January 2015 Recycled Water Feasibility Study
SACOG	Sacramento Area Council of Governments
SASD	Sacramento Area Sewer District
SB	Senate Bill
SB X7-7	Senate's Seventh Extraordinary Session of 2009
SCC	Sacramento City Code
SCGA	Sacramento Central Groundwater Authority
SCWA	Sacramento County Water Agency
Settlement Contract	Water Rights Settlement Contract
SGA	Sacramento Groundwater Authority
SGMA	Sustainable Groundwater Management Act of 2014
SMWA	Sacramento Metropolitan Water Authority
SOI	Sphere of Influence
SPA	Sacramento Power Authority
SRWTP	Sacramento River Water Treatment Plant
SRWWTP	Sacramento Regional Wastewater Treatment Plant
SSA	South Service Area
SSS	Separated Sewer System
SSWD	Sacramento Suburban Water District

SWRCB	State Water Resources Control Board
TAF	Thousand Acre-feet
Target	2020 Urban Water Use Target
TCE	Trichloroethene
UARP	SMUD Upper American River Project
UCERF III	Uniform California Earthquake Rupture Forecast
URWS	Urban Retail Water Suppliers
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WEP	Water Efficiency Program
WFA	January 2000 Water Forum Agreement
WRCC	Western Regional Climate Center
WRF	Water Reclamation Facility
WSCP	Water Shortage Contingency Plan
WTP	Water Treatment Plant

CHAPTER 7
Water Service Reliability and Drought Risk Assessment

This chapter discusses the City's water supply reliability under varying conditions through 2045. Factors impacting long-term reliability of water supplies are discussed. In assessing the City's water supply reliability, a comparison of projected water supplies and projected water demand in normal, single dry, and five consecutive dry years is provided for the City's water service area. This chapter also includes the City's DRA for the next five years. Findings show that the City's water supplies are adequate to meet the existing and projected water demands during normal and dry conditions.

7.1 WATER SERVICE RELIABILITY ASSESSMENT

The City's water supply reliability reflects its ability to meet the needs of its water customers with its various water supplies under varying conditions. Details from Chapter 4, which describes the City's water use, and Chapter 6, which describes the City's water supply, are incorporated in this chapter to conduct the assessment. Findings from this assessment influence the City's water management decisions.

7.1.1 Constraints on Water Sources

There are a variety of constraints that can impact water supply reliability. This section includes a description of potential physical, legal, environmental, water quality, and climatic constraints on the reliability of water supply sources as identified by the City. Descriptions of the City's water supply sources are included in Chapter 6.

7.1.1.1 Physical

A fundamental factor that affects water supply reliability is the hydraulic capacity of supply and distribution system facilities. The current supply and distribution system is sufficient to meet existing demands. The City is in the process of updating its Water Master Plan. The on-going Water Master Plan Update uses a hydraulic model of the distribution system to evaluate potential physical constraints and identify needed improvements to meet existing and future customer demands.

The EAFWTP is currently rated at a diversion capacity of 200 MGD, with a permitted treatment capacity of 160 MGD (80 MGD for Basins 1 and 2, and 80 MGD for Basins 3 and 4). However, the EAFWTP is unable to operate reliably at capacity due to the condition of some of the plant facilities (Basins 1 and 2, which are in the older part of the plant, are in poor condition) and due to environmental agreements that frequently limit diversions during summer months, and other reduced rates during different parts of the year. Therefore, the current reliable capacity of the EAFWTP is 80 MGD, with the ability to operate at up to 100 MGD, but only for short periods of time. The City has a planned project to rehabilitate the older side of the plant, demolishing Basins 1 and 2, and rebuilding facilities to provide a reliable plant capacity of 120 MGD.

The SRWTP has a diversion and treatment capacity of 160 MGD. The City is permitted to operate the plant at 160 MGD between May 15th and September 30th of each year, and 120 MGD for the remainder of the year. However, summer operations can be impacted by unusually low river levels which potentially reduce the capacity of the plant to as low as 135 MGD in the summer months. When minimum water elevations in the river drop below 4 to 6 feet, pumping capacity is less than 160 MGD. At the lowest historically observed water elevation of -0.5 feet, the capacity is estimated at 135 MGD. The City is currently evaluating further expansion of the SRWTP to increase the diversion and treatment capacity to 310 MGD.

The City currently has 26 permitted wells in the North American Subbasin and 2 permitted wells in the South American Subbasin; however, only 23 of these wells are typically operated to supply municipal water. As of 2020, the average age of the City's active potable wells is about 60 years old with the oldest well (Well 112) at 76 years old. However, it should be noted that the City has rehabilitated or made improvements at several of the wells. The City completed a Groundwater Master Plan in 2017. Considering both the need for new groundwater wells long-term and the need to replace existing aged wells, the Groundwater Master Plan identified potential replacement locations for up to 38 new wells. The Groundwater Master Plan recommends the City replace 24 wells at a rate of one to two wells per year for the next 17 years (through 2035) to maintain current groundwater production capacity. Under an expanded production capacity plan, the Groundwater Master Plan recommends the City replace 24 wells and construct 14 new wells at a rate of two wells per year for the next 17 years.

7.1.1.2 Legal

As discussed in Chapter 6 (Section 6.3), the City has multiple surface water entitlements including five appropriative water rights permits, pre-1914 rights, and a Settlement Contract with USBR. Legal constraints on surface water supplies are addressed below and in Chapter 6.

In the Settlement Contract, the City agreed to limit its rate and amount of diversion under its water rights permits in exchange for the USBR's agreement to operate its facilities to assure the City a reliable supply of surface water under the City's permits. This agreement results in a highly reliable surface water supply to the City. For more information about the Settlement Contract, refer to Chapter 6 (Section 6.2.3.1.3).

Existing regulations do not directly limit the use or expansion of groundwater pumping activities by the City.

7.1.1.3 Environmental

The City's Water Forum Agreement Purveyor Specific Agreement (WFA PSA) limits the quantity of water diverted from the American River at the EAFWTP during two conditions: extremely dry years (i.e., "Conference Years") and periods when river flows are below the Hodge Flow Criteria issued by Judge Richard Hodge in the *Environmental Defense Fund v. East Bay Municipal Utility District* litigation. For more information about the WFA and PSA, refer to Chapter 6 (Section 6.2.3.2).

The WFA does not impact the amount of water available to the City under its American River entitlements. However, it requires a reduction of American River diversions at the EAFWTP for environmental purposes during the Conference Years and Hodge Flow Criteria. When diversions are limited at the EAFWTP, the City may divert its American River water right south of the confluence through the City's existing Sacramento River diversion point.

The City's Sacramento River surface water and groundwater supplies have not been impacted by environmental factors like the EAFWTP facility supplies have, and the City does not anticipate future disruption of supplies as a result of environmental factors. In addition, the City does not anticipate environmental constraints on a future recycled water system. The City's planned recycled water system is discussed in Chapter 6 (Section 6.5).

7.1.1.4 Water Quality

Water quality for groundwater and surface water supplies are published annually in the City's Consumer Confidence Report (CCR). The most recent CCR is available on the City's website. As shown in the CCR, the City's water supply meets or exceeds all federal and state drinking water standards. In addition, the City

takes a proactive approach to water quality and the potential constraints to its water supply sources. The City's Water Quality Laboratory and Research and Development Section conducts water quality evaluations and studies to proactively address water quality conditions, including effects due to drought and climate change. The City conducts source water protection programs to protect the quality of the City's American and Sacramento River water supplies, including regional efforts. Water quality in both rivers can be influenced by a combination of factors including storm events, reservoir releases, irrigated agriculture, livestock, urban runoff, recreation, and various point sources. These influencing factors can impact water quality parameters (e.g., turbidity, coliforms, Giardia and *Cryptosporidium*, organic carbon, and volatile and semi-volatile organic compounds, aluminum, iron, and manganese). Raw and treated water quality is routinely monitored by the City, and the water treatment plants are designed to produce drinking water that meets all applicable drinking water quality regulations. The Sacramento and American River Watershed Sanitary Survey Updates, conducted every five years, also show that City's water treatment facilities are able to treat the source water to meet all regulatory requirements. As a result, water quality is not expected to impact supply reliability.

Groundwater underlying the City's service area generally meets primary and secondary drinking water standards for municipal water use, and is described as being a calcium-magnesium-bicarbonate type water, with minor fractions of sodium-magnesium-bicarbonate (DWR Groundwater Bulletin 118).

Many areas of good quality groundwater exist in the subbasins, but the quality of groundwater varies throughout the City with both location and depth. Due to high concentrations of iron and manganese in the lower aquifer system, the upper aquifer system is usually the preferred source of municipal groundwater supply[10].

There are several groundwater contaminant sites in the vicinity of the City's groundwater wells. The sources of the larger plumes include the former Southern Pacific and Union Pacific Railyards, the former McClellan Air Force Base (AFB), the former Mather AFB, and the Aerojet Superfund Site in Rancho Cordova. The combined primary contaminants of concern from these sites include: benzene; methyl tert-butyl ether (MTBE); trichloroethene (TCE); tetrachloroethene (PCE); cis-1,2-dichloroethene (DCE); 1,4-dioxane; 1,2-dichloroethane; carbon tetrachloride; perchlorate; and n-nitrosodimethylamine (NDMA)[11]. Other localized areas of contamination exist throughout the basin and are generally smaller in scope and extent of contamination. The City also performs regular monitoring of existing and new wells to determine hexavalent chromium (Cr 6) concentrations compared to the new California maximum contaminant level (MCL) of 10 micrograms per liter (µg/L). As the City has rehabilitated and brought wells into service, some areas have shown elevated levels of Cr 6.

In addition to ambient water quality or potential contaminants, the City's groundwater supply is subject to future regulation. Future regulations regarding arsenic, radon, or other chemicals of concern could potentially limit the City's groundwater supply in the future. As discussed in Chapter 6, the City is participating in several groups to help develop mechanisms to manage and protect the Sacramento area's groundwater resources.

[10] City of Sacramento, *General Plan Technical Background Report*. June 2005.

[11] EIP Associates, Mintier & Associates, Fehr & Peers, Economic and Planning Systems, Nolte Associates, Wallace Roberts & Todd, City of Sacramento, *General Plan Update – Technical Background Report*. June 2005.

The City will continue to regularly monitor groundwater quality and proactively address future regulations to minimize future water quality impacts to its groundwater supply reliability.

The City is in the early stages of developing its recycled water supply but does not anticipate any water quality constraints in the recycled water system. The City's planned recycled water system is discussed in Chapter 6 (Section 6.5).

7.1.1.5 Climate

Climatic factors affecting the reliability of a given water supply system generally are a function of seasonal precipitation and runoff characteristics.

The 2012 to 2016 drought, particularly 2015, resulted in a reduction in flow on the Sacramento River, and the City experienced potential constraints on the function of the SRWTP intake structure. Vortex protector cages, used to increase the reliability of intake structures during low flow conditions, were installed at both the SRWTP and the EAFWTP in 2015 as insurance against low river levels.

The surface water temperatures of the American and Sacramento Rivers are also impacted by drought-related low flow conditions. The City of Sacramento conducted additional water quality evaluations in 2015 regarding unusual water quality conditions in the source water related to drought conditions and climate change. This included evaluation of phenomena that can be related to increased water temperature, lower river flows, and higher mean residence time, including treated water disinfection by-product (DBP) formation, presence of blue-green algae (also known as cyanobacteria), and presence of cyanotoxins (which can be released by cyanobacteria). Increased DBP formation has seen locational running annual averages increase above historic levels and complicate water treatment. While the City did not identify the presence of algal toxins in 2015, algal concentrations were higher than historic levels and present at levels sufficient to complicate water treatment. Though an increase algae growth was observed, the City's river source water did not test positive for algal toxins. The City will continue to track river conditions, conduct evaluations as necessary, and proactively address any impacts that may arise.

The City's groundwater supply has not been impacted by climatic factors and the City does not anticipate constraints on the recycled water system due to climatic factors.

7.1.2 Reliability by Year Type

The quantity of supply available from different water supply sources can vary from one year to the next depending on hydrologic conditions. Historical data, where available, were therefore used to develop a projected yield for each water supply source under three conditions: 1) normal water year, 2) single dry year, and 3) five consecutive dry years. The basis of hydrologic years used data from the DWR's WSIHIST which provides the water year classification indices for the Sacramento Valley from 1906 through 2019. In accordance with the DWR Guidebook, each condition is defined as follows:

- **Normal Water Year**: This condition represents the water supplies the City considers available during normal conditions. This could be a single year or averaged over a range of years in the historical sequence that most closely represents the median or average water supply available. The year 2005 represents a normal year for the City. This year represents the City's typical year where all its combined water supply sources are available to meet demands.

- **Single Dry Year**: This condition represents the year with the lowest water supply availability to the City. The year 1977 represents the Single Dry Year condition for the Sacramento Valley.
- **Five Consecutive Dry Years**: This condition represents a five-consecutive-year drought period such as the lowest average water supply available to the Supplier for five years in a row since 1903. The Years 1929 through 1933 represent the Five-Consecutive-Year Drought years for the Sacramento Valley.

Years that the City identifies as the historical average, single driest year, and driest multi-year period are shown in Table 7-1.

Table 7-1. Basis of Water Year Data

Water Year Type	Base Year(s)
Normal Water Year	2005
Single Dry Water Year	1977
Five Consecutive Dry Years	1929 – 1933[a]

(a) 1929 to 1933 was the driest five consecutive period for the Sacramento Valley from 1906 to 2019 with a total runoff of approximately 50 million acre-feet (MAF). During the recent 2012 to 2016 drought, Sacramento Valley had a total runoff of approximately 58 MAF.

The available supplies for each supply source are discussed below. The supply column specifies the percentage of the water supply expected if there were to be a repeat of the hydrology from that type of year.

7.1.2.1 Sacramento River Supply

The City's pre-1914 and post-1914 Sacramento River entitlements are discussed in Chapter 6 (Section 6.2.3). In accordance with the USBR Settlement Contract, the City may divert up to 81,800 AFY of Sacramento River water in any year provided the combined diversion from Sacramento and American Rivers does not exceed the total allowable diversion specified in the USBR Settlement Contract. The availability of Sacramento River water during base years is summarized in Table 7-2.

Table 7-2. Retail Basis of Water Year Data for the Sacramento River (DWR Table 7-1 Retail)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Normal Year	2005	81,800	100%
Single-Dry Year	1977	81,800	100%
Consecutive Dry Years 1st Year	1929	81,800	100%
Consecutive Dry Years 2nd Year	1930	81,800	100%
Consecutive Dry Years 3rd Year	1931	81,800	100%
Consecutive Dry Years 4th Year	1932	81,800	100%
Consecutive Dry Years 5th Year	1933	81,800	100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Units are in acre-feet (AF). Volume available based on USBR Settlement Contract.			

7.1.2.2 American River Supply

The American River entitlements are discussed in Chapter 6 (Section 6.2.3). Though the water available for diversion at the EAFWTP is subject to restrictions based on the Hodge Flow Criteria, this does not restrict the City's water right; the City may divert any remaining American River water right at the SRWTP. The availability of American River water during base years is summarized in Table 7-3.

Table 7-3. Retail Basis of Water Year Data for the American River (DWR Table 7-1 Retail)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Normal Year	2005	208,500	100%
Single-Dry Year	1977	208,500	100%
Consecutive Dry Years 1st Year	1929	212,500	102%
Consecutive Dry Years 2nd Year	1930	216,500	104%
Consecutive Dry Years 3rd Year	1931	220,000	106%
Consecutive Dry Years 4th Year	1932	224,000	107%
Consecutive Dry Years 5th Year	1933	228,000	109%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Units are in acre-feet (AF). Source: Lower American River Flow Management System (CALSIMII) Hodge Criteria from 1922 through 1994. Diversion from the EAFWTP is limited to not greater than 155 cfs and not greater than 50,000 AFY for single-dry year. The remainder of American River entitlements may be diverted at the SRWTP for all year types up to the combined maximum diversion specified in the USBR Settlement Contract. The volumes specified above are based on the USBR Settlement Contract's year 2020 through 2025 amounts.			

7.1.2.3 Groundwater Supply

The City's groundwater supply is not expected to be impacted by drought conditions. The availability of groundwater during base years is assumed to be equal to the existing sustainable groundwater capacity, 20 MGD, or about 22,400 AFY, as estimated in the City's on-going Water Master Plan Update. The availability of groundwater during base years is summarized in Table 7-4.

Table 7-4. Retail Basis of Water Year Data for Groundwater Supply (DWR Table 7-1 Retail)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats	
		☐	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		☑	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available *	% of Average Supply
Normal Year	2005	22,400	100%
Single-Dry Year	1977	22,400	100%
Consecutive Dry Years 1st Year	1929	22,400	100%
Consecutive Dry Years 2nd Year	1930	22,400	100%
Consecutive Dry Years 3rd Year	1931	22,400	100%
Consecutive Dry Years 4th Year	1932	22,400	100%
Consecutive Dry Years 5th Year	1933	22,400	100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			
***Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Table 2-3.*			
NOTES: Units are in acre-feet (AF). The City's groundwater supply is not anticipated to be impacted by drought conditions. Volumes shown are the City's existing sustainable groundwater capacity, 20 MGD or 22,400 AF, as estimated in the City's on-going Water Master Plan Update.			

7.1.2.4 Recycled Water Supply

The City's recycled water supply is discussed in Chapter 6 (Section 6.2.5). As of 2020, Regional San started delivering recycled water to the SPA Cogen Facility from the Sacramento Regional Wastewater Treatment Plant. It delivered approximately 29 AF in 2020 and plans to provide approximately 1,000 AFY of recycled water to the SPA Cogen Facility in the future. The City and Regional San have evaluated a Recycled Water program that could potentially increase to as much as 2,723 AFY, but institutional agreements and funding commitments have not been established. Therefore, Table 7-5 is intentionally left blank. The future recycled water supply not expected to be impacted by drought conditions.

Table 7-5. Retail Basis of Water Year Data for Recycled Water Supply (DWR Table 7-1 Retail)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2019-2020, use 2020	Available Supplies if Year Type Repeats		
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location Section 7.1.2.4	
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *		% of Average Supply
Normal Year				100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.				
***Units of measure (AF, CCF, MG**) must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: Table intentionally left blank.				

7.1.2.5 Wholesale Water Supply

The City's wholesale surface water and groundwater supply is provided through the City's existing water entitlements which are described above and shown in Tables 7-2, 7-3, and 7-4. Each of the City's wholesale agreements uniquely addresses the various water year types. Therefore, Table 7-6 for wholesale does not include volumes. Likely average year wholesale demands are described in Chapter 4.

Table 7-6. Wholesale Basis of Water Year Data (DWR Table 7-1 Wholesale)

Year Type	Base Year If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000	Available Supplies if Year Type Repeats		
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location Section 7.1.2.5	
		☐	Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available *		% of Average Supply
Normal Year				100%
Supplier may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a supplier uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table. Suppliers may create an additional worksheet for the additional tables.				
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*				
NOTES: Table left intentionally blank.				

7.1.3 Water Service Reliability

In this section, the City's normal, single dry, and five consecutive dry years projected supplies and demands are integrated and compared. Projected water demands are detailed in Chapter 4 and projected water supplies are detailed in Chapter 6. Under the various water year types, the total annual water supply sources available are compared to the total annual projected water use for the City's water service area from 2025 to 2045 in five-year increments.

The City's primary water sources during base years are surface water from the Sacramento River and American River and groundwater. In 2020, the City started delivering recycled water to the SPA Cogen Facility. The City uses these sources to meet the demands of its retail and wholesale customers.

7.1.3.1 Water Service Reliability – Normal Year

The City's base Normal Year includes Hodge Flow Conditions on the American River. During Hodge Flow Conditions, diversion from the American River is limited at the EAFWTP. The limitations are dependent on the time of year, as explained in Chapter 6. However, remaining American River entitlements may be diverted downstream at the SRWTP.

The City's water supply in Normal Years is assumed to be:

- The Maximum Combined Diversion specified for the year of surface water,
- 22,400 AF of groundwater, and
- 1,000 AF of recycled water.

As shown in Tables 7-7 and 7-8, the City's Normal Year supplies (shown in Table 7-7) are adequate to meet projected demands for both retail and wholesale customers.

Table 7-7. Retail Normal Year Supply and Demand Comparison (DWR Table 7-2 Retail)

	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	333,200	350,200	350,200	350,200	350,200
Demand totals *(autofill from Table 4-3)*	108,432	114,809	121,187	127,564	133,942
Difference	224,769	235,391	229,014	222,636	216,258
NOTES: Units are in acre-feet (AF). Table references refer to DWR table numbers.					

Table 7-8. Wholesale Normal Year Supply and Demand Comparison (DWR Table 7-2 Wholesale)

	2025	2030	2035	2040	2045 *(Opt)*
Supply totals *(autofill from Table 6-9)*	28,406	53,135	75,098	97,060	97,060
Demand totals *(autofill from Table 4-3)*	28,406	53,135	75,098	97,060	97,060
Difference	0	0	0	0	0
NOTES: Units are in acre-feet (AF). Table references refer to DWR table numbers.					

7.1.3.2 Water Service Reliability – Single Dry Year

In the City's base Single Dry Year (1977), runoff in the Sacramento Valley decreased by 28 percent. The City's Single Dry Year is assumed to be the equivalent to a Conference Year, as defined in the WFA. During a Conference Year, diversion from the American River is limited at the EAFWTP to 155 cfs and 50,000 AFY. However, remaining American River entitlements may be diverted downstream at the SRWTP.

The Single Dry Year availability is assumed to be:

- The Maximum Combined Diversion specified for the year of surface water,
- 22,400 AF of groundwater, and
- 1,000 AF of recycled water.

No demand reductions were assumed for retail Single Dry Year conditions. As shown in Tables 7-9 and 7-10, the City's Single Dry Year supplies (shown in Table 7-9) are adequate to meet projected demands for both retail and wholesale customers. Aside from the comparison of supply vs demand below, the City has elected in the past, and may in the future, to engage in more aggressive demand management measures or reoperation of the water system to benefit broader statewide condition during drier periods.

Table 7-9. Retail Single Dry Year Supply and Demand Comparison (DWR Table 7-3 Retail)

	2025	2030	2035	2040	2045 (Opt)
Supply totals*	333,200	350,200	350,200	350,200	350,200
Demand totals*	108,432	114,809	121,187	127,564	133,942
Difference	224,769	235,391	229,014	222,636	216,258
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: Units are in acre-feet (AF).					

Table 7-10. Wholesale Single Dry Year Supply and Demand Comparison (DWR Table 7-3 Wholesale)

	2025	2030	2035	2040	2045 (Opt)
Supply totals*	28,406	53,135	75,098	97,060	97,060
Demand totals*	28,406	53,135	75,098	97,060	97,060
Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*					
NOTES: Units are in acre-feet (AF).					

7.1.3.3 Water Service Reliability – Five Consecutive Dry Years

The 2015 UWMP required water purveyors to evaluate hydrologic conditions under a three-year drought period. The 2020 UWMP requires evaluation of five consecutive dry years. This plan uses 1929 to 1933 as the basis for the five consecutive dry year period to meet the new requirements for the 2020 UMWPs.

The five consecutive dry year availability is assumed to be:

- First Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Second Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Third Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.
- Fourth Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.

- Fifth Year
  - The Maximum Combined Diversion specified for the year of surface water,
  - 22,400 AF of groundwater, and
  - 1,000 AF of recycled water.

As shown in Tables 7-11 and 7-12, the City's Multiple Dry Year supplies are adequate to meet projected demands. As articulated in Section 7.1.3.2, the City has elected in the past, and may in the future, to engage in more aggressive demand management measures or reoperation of the water system to benefit broader statewide conditions during drier periods irrespective of legal entitlements to supply.

The table below also does not account for Statewide actions that may require demand reduction during drier periods that were unrelated to supply availability, such as the 2012-2016 drought. As part of the response, the SWRCB mandated tiered water use reductions by urban water suppliers, based on each supplier's average residential gallons-per-capita-per-day (R-GPCD) usage during the July-September 2014 time period. The water use reduction mandated for the City of Sacramento was a 28 percent total reduction for the time period from June 2015 through February 2016, relative to the City's usage during the same months in 2013. The City exceeded this reduction mandate, achieving a 28.4 percent reduction in water use from June 2015 through February 2016. This action did not affect the supply totals articulated below.

Table 7-11. Retail Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4 Retail)

		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	333,200	350,200	350,200	350,200	350,200
	Demand totals	108,432	114,809	121,187	127,564	133,942
	Difference	224,769	235,391	229,014	222,636	216,258
Second year	Supply totals	333,200	350,200	350,200	350,200	350,200
	Demand totals	109,707	116,085	122,462	128,840	138,397
	Difference	223,493	234,116	227,738	221,360	211,803
Third year	Supply totals	333,200	350,200	350,200	350,200	350,200
	Demand totals	110,983	117,360	123,738	130,115	142,853
	Difference	222,218	232,840	226,463	220,085	207,347
Fourth year	Supply totals	333,200	350,200	350,200	350,200	350,200
	Demand totals	112,258	118,636	125,013	131,391	147,308
	Difference	220,942	231,565	225,187	218,809	202,892
Fifth year	Supply totals	333,200	350,200	350,200	350,200	350,200
	Demand totals	113,534	119,911	126,289	132,666	151,764
	Difference	219,667	230,289	223,912	217,534	198,436
***Units of measure (AF, CCF, MG)** must remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Units are in acre-feet (AF).						

Table 7-12. Wholesale Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4 Wholesale)

		2025*	2030*	2035*	2040*	2045* (Opt)
First year	Supply totals	28,406	53,135	75,098	97,060	97,060
	Demand totals	28,406	53,135	75,098	97,060	97,060
	Difference	0	0	0	0	0
Second year	Supply totals	33,351	57,528	79,490	97,060	97,060
	Demand totals	33,351	57,528	79,490	97,060	97,060
	Difference	0	0	0	0	0
Third year	Supply totals	38,297	61,920	83,883	97,060	97,060
	Demand totals	38,297	61,920	83,883	97,060	97,060
	Difference	0	0	0	0	0
Fourth year	Supply totals	43,243	66,313	88,275	97,060	97,060
	Demand totals	43,243	66,313	88,275	97,060	97,060
	Difference	0	0	0	0	0
Fifth year	Supply totals	48,189	70,705	92,668	97,060	97,060
	Demand totals	48,189	70,705	92,668	97,060	97,060
	Difference	0	0	0	0	0
***Units of measure (AF, CCF, MG) m** ust remain consistent throughout the UWMP as reported in Table 2-3.*						
NOTES: Units are in acre-feet (AF).						

7.2 DESCRIPTION OF MANAGEMENT TOOLS AND OPTIONS

As described in Chapter 6, the City continues to evaluate and plan projects to improve the delivery and reliability of its existing water supplies. Future surface water projects under consideration by the City include the expansion of the SRWTP or participation in the RiverArc project to increase the City's long-term water treatment capacity for its surface water supply. The City's on-going Water Master Plan Update recommends for the City to continue to plan for rehabilitation of the EAFWTP and the retrofit of the existing intake at the SRWTP. The City's groundwater wells are also an important component of its water supply portfolio. The City's 2017 Groundwater Master Plan recommended for the City to continue to budget for well replacement and to also consider expanding its groundwater program. The expansion of the City's groundwater program will maximize the City's water supply flexibility and allow it to partner in regional conjunctive use programs being contemplated.

The City will continue to monitor its existing water supply sources and coordinate with its retail and wholesale customers to manage the local water resources.

7.3 DROUGHT RISK ASSESSMENT

CWC §10635(b) requires that the City prepare a Drought Risk Assessment (DRA) based on the supply condition associated with the five driest consecutive years on record. This supply condition is to be assumed to occur over the next five years, from 2021 through 2025.

This section reviews the data and methods used to define the DRA water shortage condition and evaluates each water source's reliability under the proposed drought condition. Total water supplies during the five-year drought is compared to projected demands, accounting for any applicable supply augmentation or demand reduction measures available to the City.

This DRA would allow the City to prepare for a potential water shortage and for implementation of its Water Shortage Contingency Plan, if necessary. Findings show that, should the region experience a five-consecutive dry years period starting in 2021, adequate water supplies are available to meet projected retail demands.

7.3.1 Data, Methods, and Basis for Water Shortage Condition

The DRA was performed for 2021 through 2025 using the same five-consecutive-dry period conditions presented in Section 7.1.3.3. The characteristic five-year water use during the DRA for retail and wholesale water demands is summarized in Chapter 4, in Section 4.2.3.2 and Section 4.3.3.1, respectively. For the retail demands, the 2025 projected water demand is based on water demand projections developed for the City's on-going Water Master Plan Update and is estimated based on the most recent and accurate future development estimates and unit water use factors. Future retail water demands for 2021 through 2024 were linearly interpolated between the 2020 actual retail water demand and the 2025 projected retail water demand.

Projected wholesale demands are summarized in Table 4-8 and are based on two future supply scenarios: 1) probable estimate of future wholesale demands; and 2) maximum estimate that assumes all water agencies within the American River Place of Use Boundary receive wholesale water. The probable estimate is based on other agencies' master plans, communications that other agencies have had with the City, or by judgment of the City staff. It is assumed that the existing and future wholesale customers will take the likely average water delivery by 2030 as shown in Table 4-8. Interim years, 2021 through 2025, for the DRA were linearly interpolated between the 2020 actual wholesale customer use and the projected 2030 wholesale customer use.

The DRA does not assume drought conditions for both retail and wholesale customer demands. Water supplies for the DRA, summarized in Section 7.3.2, were compared to the projected demands to determine potential water shortages from 2021 through 2025.

7.3.2 DRA Water Source Reliability

The City's projected available water supply for each year of the DRA is presented in Table 7-13. Chapter 6 provides an in-depth discussion on the reliability of each water supply source. Key assumptions for each supply source are summarized as follows:

- The Maximum Combined Diversion specified for the year of surface water,
- 22,400 AF of groundwater, and
- 1,000 AF of recycled water.

Table 7-13. Projected Water Supplies Available for Drought Risk Assessment, AF

Supply Source	2021	2022	2023	2024	2025
Sacramento River	81,800	81,800	81,800	81,800	81,800
American River	212,500	216,500	220,000	224,000	228,000
Groundwater	22,400	22,400	22,400	22,400	22,400
Recycled Water	1,000	1,000	1,000	1,000	1,000
Total	**317,700**	**321,700**	**325,200**	**329,200**	**333,200**

7.3.3 Total Water Supply and Use Comparison

As shown in Table 7-14, during a five-year drought beginning in 2021, the City's supplies are projected to be adequate to meet projected retail demands through 2025, even without water conservation.

Table 7-14. Five-Year Drought Risk Assessment Tables to Address Water Code Section 10635(b) (DWR Table 7-5)

2021	Total
Total Water Use	108,609
Total Supplies	317,700
Surplus/Shortfall w/o WSCP Action	209,091
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	209,091
Resulting % Use Reduction from WSCP action	0%

2022	Total
Total Water Use	115,666
Total Supplies	321,700
Surplus/Shortfall w/o WSCP Action	206,034
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	206,034
Resulting % Use Reduction from WSCP action	0%

2023	Total
Total Water Use	122,723
Total Supplies	325,200
Surplus/Shortfall w/o WSCP Action	202,477
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	202,477
Resulting % Use Reduction from WSCP action	0%

2024	Total
Total Water Use	129,780
Total Supplies	329,200
Surplus/Shortfall w/o WSCP Action	199,420
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	199,420
Resulting % Use Reduction from WSCP action	0%

2025	Total
Total Water Use	136,837
Total Supplies	333,200
Surplus/Shortfall w/o WSCP Action	196,363
Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	196,363
Resulting % Use Reduction from WSCP action	0%

CHAPTER 8
Water Shortage Contingency Plan

A water shortage may occur due to a number of reasons, such as population growth, climate change, drought, and catastrophic events. Drought, regulatory action constraints, and natural and manmade disasters may occur at any time. A water shortage means that the water supply available is insufficient to meet the normally expected customer water use at a given point in time. A WSCP presents how an urban water supplier plans to act in response to an actual water shortage condition.

In 2018, the Legislature enacted two policy bills, SB 606 (Hertzberg) and AB 1668 (Friedman), (2018 Water Conservation Legislation), which set new requirements for water shortage contingency planning. The City has updated its WSCP to meet the new requirements. The City's updated WSCP is provided in Appendix J and is summarized in this chapter.

8.1 WATER SUPPLY RELIABILITY ANALYSIS

Chapters 6 and 7 of the City's 2020 UWMP present the City's water supply sources and reliability, respectively. Findings show that the City will have enough supply with its current water supply sources to meet increased retail and wholesale demands for both a near-term (within the next 5 years) and long-term (within the next 20 years) timeframe.

Statewide water supply conditions, changes in groundwater levels, subsidence, and actions by surrounding agencies may impact the City's available water supply. For the City, a water shortage condition occurs when the supply of potable water available cannot meet ordinary water demands for human consumption, sanitation, fire protection, and other beneficial uses. The City may be able to foresee its water shortage condition in some cases; however, in other cases, the water shortage may be caused by an unforeseen sudden or emergency event. In general, the City's water supply conditions may be affected by the following issues:

- Intake structure issues on the Sacramento or American Rivers
- Diversion limitations from Sacramento or American Rivers
- Operational and/or water quality issues at the City's SRWTP or EAFWTP
- Well production reduction and/or water quality issues

Annually, the City determines the expected purchased water and surface water supplies availability for foreseeable water shortages. In other cases, the City may experience unforeseen water shortage when catastrophic interruption of water supplies occurs due to regional power outage, an earthquake, or other potential emergency events.

In future years, the City will conduct an annual water supply and demand assessment in accordance with its WSCP. The analysis associated with this WSCP was developed in the context of the City's water supply sources and reliability.

8.2 CITY WATER SHORTAGE CONTINGENCY PLAN

The City's WSCP is included in this UWMP as Appendix J. The City's WSCP is focused on its direct retail customers. The City does not have a separate WSCP specific to its wholesale customers. Each of the City's wholesale customers maintain their own WSCPs which will be reported in their respective UWMPs. The City's Wholesale agreements address the individual availability of wholesale water to each customer based on restrictions to the City's American River water rights.

The City's WSCP describes the its strategic plan in preparation for and responses to water shortages. The WSCP includes:

1. A description of the City's teams responsible for internal decision making and implementation of its water shortage stages and associated response actions in the event of a water supply shortage;
2. Procedure for Annual Water Supply and Demand Assessment (AWSDA);
3. Water use reduction plans and stages of implementation;
4. Response actions for emergency conditions;
5. Mandatory water use prohibitions and restrictions;
6. Enforcement and penalties; and,
7. Water use monitoring, enforcement, and compliance.

Below, the City's legal authorities, communication protocols, compliance and enforcement, and monitoring and reporting are presented. Sacramento City Code (SCC) Title 13 Public Services, Chapter 13.04 Water Service System supports the City's WSCP actions.

The City's WSCP has been updated so that it is consistent with the 2018 Water Conservation Legislation requirements.

The City intends for its WSCP to be an adaptive management plan so that it may assess response action effectiveness and adapt to foreseeable and unforeseeable events. It may also be updated to conform to State legislative and regulatory requirements. The City's WSCP is included as Appendix J so that it may be updated outside of the UWMP preparation process.

When an update to the WSCP is proposed, the revised WSCP will undergo the process described in Section 8.9 for adoption by the City Council and distribution to Sacramento County, its customers, and the general public.

8.3 SIX STANDARD WATER SHORTAGE STAGES

To provide a consistent regional and statewide approach to conveying the relative severity of water supply shortage conditions, the 2018 Water Conservation Legislation mandates that water suppliers plan for six standard water shortage levels that correspond to progressive ranges of up to 10, 20, 30, 40, 50 percent, and greater than 50 percent shortages from the normal reliability condition. Each shortage condition should correspond to additional actions water suppliers would implement to meet the severity of the impending shortages.

In Table 8-1, the City's water shortage stages and corresponding water shortage level conditions are identified. The City's water shortage stages apply to both foreseeable and unforeseeable water supply shortage conditions. Water shortage is the gap between available supply and planned demands.

As described in Appendix J, the City will conduct an AWSDA to determine its water supply condition for the current year and the subsequent year, assuming it is a dry year. The preparation of AWSDA helps the City ascertain the need to declare a water shortage emergency and water shortage stage. In other cases, the City may need to declare a water shortage emergency due to unforeseen water supply interruptions. When the City anticipates or identifies that water supplies may not be adequate to meet the normal water

supply needs of its customers, the City Council may determine that a water shortage exists and consider a resolution to declare a water shortage emergency and associated stage. The shortage stage provides direction on shortage response actions.

Table 8-1. Water Shortage Contingency Plan Levels (DWR Table 8-1)

Shortage Level	Percent Shortage Range	Shortage Response Actions (*Narrative description*)
1	Up to 10%	Implement City internal shortage response actions per Appendix K, WSCP Table 2
2	Up to 20%	Declare water shortage emergency (mandatory restrictions)
3	Up to 30%	Stage 2 actions, increased public outreach, and expand mandatory restrictions
4	Up to 40%	Stage 3 actions, increased compliance and enforcement efforts, and expanded mandatory restrictions
5	Up to 50%	Stage 4 actions and increased mandatory restrictions
6	>50%	Stage 5 actions and require water use only for health and safety purposes
NOTES: Refer to the City's WSCP in Appendix J for more detail on the actions taken at each declared water shortage level.		

8.4 SHORTAGE RESPONSE ACTIONS

CWC §10632 (a)(4) requires shortage response actions that align with the defined shortage levels. The City's shortage response actions consist of a combination of demand reduction, supply augmentation, and operational changes. The City's suites of response actions are dependent on the event that precipitates a water shortage stage, the time of the year the event occurs, the water supply sources available, and the condition of its water system infrastructure.

The shortage response actions discussed below may be considered as tools that allow the City to respond to water shortage conditions. Because the City may continuously monitor and adjust its response actions to reasonably equate demands with available supply, the extent to which the gap between water supplies and water demand will be reduced by implementation of each action is difficult to quantify and is provided as an estimate. Certain response actions, such as public outreach and enforcement, support the effectiveness of other response actions and do not have a quantifiable effect on their own.

8.4.1 Demand Reduction

During water shortage conditions, the City plans to close the gap between water supply and water demand by implementing demand reduction action categories shown in Table 8-2. The shortage stage level for which each demand reduction action will commence implementation is also provided, along with the estimate of extent that the action will reduce the shortage gap. The table also indicates if the City plans to use compliance actions such as penalties, charges, or other enforcement actions for each demand reduction action.

Demand reduction actions are further detailed in Appendix J, Table 2.

Table 8-2. Water Shortage Contingency Plan Demand Reduction Actions (DWR Table 8-2)

Shortage Level	Demand Reduction Actions ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? ***For Retail Suppliers Only*** *Drop Down List*
Add additional rows as needed				
1	Landscape - Other landscape restriction or prohibition	2 - 10%	Parks and Streetscapes asked to reduce their irrigation levels to help meet the required reduction rate.	No
1	Other	0 - 1%	Preventative Maintenance Restrictions - ask that non-essential flushing and street sweeping be reduced.	No
1	Other	0 - 1%	Cease any non-essential water usage - City Programs	No
1	Other	0 - 1%	Increase focus on reducing water system loss by accelerating leak repair	No
2	Expand Public Information Campaign	10 - 20%	Per the City's WSCP, a public information campaign will be initiated at Shortage Level 2.	Yes
2	Landscape - Limit landscape irrigation to specific days	5 - 10%	Reduce watering of parks & cemeteries: designate watering to specific days of the week	Yes
2	Landscape - Limit landscape irrigation to specific days	0 - 1%	Restrict residential car washing to watering day	Yes
2	Increase Water Waste Patrols	0 - 1%		Yes
2	Other	0 - 1%	Ask that non-essential flushing and street sweeping be reduced	No
2	Water Features - Restrict water use for decorative water features, such as fountains	0 - 1%	Ask that all ornamental or other decorative water features be turned off, except to the extent that the water feature intentionally provides habitat for aquatic species	No
2	Reduce System Water Loss	0 - 1%	Enforce hydrant use regulations	Yes
2	Reduce System Water Loss	0 - 1%	Intensify leak detection and repair program with focus on high water leaks	Yes
2	Reduce System Water Loss	0 - 5%	Intensify AMI Customer Leak Reports with Detection and Repair Assistance	Yes
3	Expand Public Information Campaign	10%	Per the City's WSCP, the Cit will intensify its public information campaign at Shortage Level 3.	Yes
3	Implement or Modify Drought Rate Structure or Surcharge	5 - 30%	Consider a Drought Surcharge under Urban Water Management Plan (implement if shortage is drought related)	Yes
3	Landscape - Limit landscape irrigation to specific times	8 - 10%	Further limit Watering of parks, cemeteries, etc., to specific hours, one day a week	Yes
3	Landscape - Limit landscape irrigation to specific times	0 - 2%	Customer watering restricted to specific hours on specified watering day	Yes
3	Landscape - Limit landscape irrigation to specific times	0 - 1%	Rescind any 3 day watering variances offered	Yes
3	Decrease Line Flushing	0 - 1%	Main flushing allowed only for emergency purposes.	Yes
3	Water Features - Restrict water use for decorative water features, such as fountains	0 - 1%	All ornamental or decorative water features be turned off, except to the extent that the water feature intentionally provides habitat for aquatic species	Yes
3	Reduce System Water Loss	1 - 4%	Increase the leak notification process and assistance offered to fix the leaks. Increase leak detection where additional staffing is made available .	Yes
3	Other	0 - 1%	Cars washed with buckets only, on specified watering day	Yes
3	Other	0 - 1%	Encourage use of pool covers	Yes
4	Reduce System Water Loss	Not specified.	Intensify leak detection program and water loss prevention efforts.	Yes
4	Increase Water Waste Patrols	Not specified.	Increase staffing or a consultant to help with water waste patrols during nights, weekends and after hours	Yes
4	Landscape - Limit landscape irrigation to specific times	5 - 20%	Customer watering restricted to 1 Day per week and for specific hours on specified watering day	Yes
4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	0 - 1%	Known leaks must be repaired within 5 days.	Yes
4	Other water feature or swimming pool restriction	0 - 1%	All maintenance of recreational water features, including pools and spas, ceased	Yes
4	Other	2 - 5%	Limit public water use for health and safety purposes only	Yes
4	Other	0 - 1%	No car washing	Yes
5	Landscape - Prohibit certain types of landscape irrigation	0 - 50%	Landscape types include the following: - No turf watering - No median strip watering - Further reduce irrigation to parks, cemetaries, etc	Yes
5	Other	5 - 10%	Suggested to limit public water use to health and safety purposes.	Yes
6	Other	Not quantifiable.	Required to limit public water use to health and safety purposes.	Yes
NOTES: Refer to the City's WSCP in Appendix J for more detail on the actions taken at each declared water shortage level. It should be noted that the actions at each stage are cumulative. For example, if Shortage Level 3 is declared, then the actions at Shortage Level 1 and 2 shall still be implemented.				

8.4.2 Additional Mandatory Restrictions

When the City declares a water shortage emergency, it also adopts mandatory water use restrictions by resolution. In addition to the above-presented demand reduction response actions, the City may implement mandatory water restrictions set forth in Appendix J, Section 7. Further, in accordance with SCC §13.04.910, the City will suspend the requirement in its Planning and Development Code to plant or irrigate trees, shrubs, or other groundcover during a declaration of water shortage.

These restrictions are in addition to State-mandated prohibitions.

8.4.3 Supply Augmentation and Other Actions

The City's water supply portfolio consists of surface water from the Sacramento and American Rivers and groundwater from the North American Subbasin and South American Subbasin, as described in Chapter 6 of the City's 2020 UWMP. At any water shortage stage and depending on the water shortage event, the City's water supplies will be used to complement each other.

When surface water is significantly reduced, the City plans to use its wells to pump groundwater to meet water demands to meet the health and safety needs of its customers. The City has made significant investments in the installation of groundwater wells, as discussed in Section 6.2.2. The City's 2020 on-going Water Master Plan Update estimated an existing sustainable groundwater capacity of 20 MGD (22,404 AF).

The City may also opt to implement emergency exchanges with other agencies. The City has multiple interties with its wholesale customers. In addition to the wholesale agreements with these agencies, the City has entered into mutual aid agreements with SSWD and SCWA. These mutual aid agreements allow the City to purchase non-firm water supplies during emergency periods. The City may purchase up to 20 MGD of emergency non-firm supply from SSWD, and up to 8 MGD of emergency non-firm supply from SCWA. The City also has approximately 17 additional unmetered physical connections to SCWA, Cal Am Water, and Florin County Water Agency. These consist of closed valves on 6- to 12-inch diameter water mains. There is not a current estimate for the capacity of these mutual aid connections.

Should the City's water supply portfolio be insufficient to meet the reduced demands of its customers, the City may augment its water supply through its emergency interties with other agencies and take other actions as summarized in Table 8-3. The shortage stage level for which each action will commence implementation is provided, along with the estimated extent that the action will reduce the shortage gap. Details regarding operational changes in response to water shortage are provided in Appendix J, Section 4.2.2.

Table 8-3. Supply Augmentation and Other Actions (DWR Table 8-3)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	How much is this going to reduce the shortage gap? *Include units used (volume type or percentage)*	Additional Explanation or Reference *(optional)*
Add additional rows as needed			
5	Exchanges	20 mgd	SSWD - emergency non-firm supply
5	Exchanges	8 mgd	SCWA - emergency non-firm supply
6	Transfers	Up to shortage gap	Coordinate with other agencies
NOTES: Refer to the City's WSCP in Appendix J for more detail on the actions taken at each declared water shortage level. It should be noted that the actions at each stage are cumulative. For example, if Shortage Level 3 is declared, then the actions at Shortage Level 1 and 2 shall still be implemented.			

8.5 SEISMIC RISK ASSESSMENT AND MITIGATION PLAN

CWC §10632.5(a) requires that the UWMP include a seismic risk assessment and mitigation plan to assess the vulnerability of the City's water system vulnerabilities and mitigate those vulnerabilities. The City participated in the development of a regional LHMP led by Sacramento County. The 2016 Sacramento Countywide Local Hazard Mitigation Plan Update (2016 LHMP) addressed seismic risk, and is incorporated into this UWMP by reference. The 2016 LHMP was adopted by the County on July 11, 2017 and submitted to the Federal Emergency Management Agency, which found it in conformance with Title 44 Code of Federal Regulations Part 201.6 Local Mitigation Plans. The County's LHMP is updated periodically and reports are provided through the Sacramento County website.

The 2016 LHMP considered the risk of the region to earthquakes. The 2016 LHMP indicated that no major active faults transect the County and identified historically active faults in the vicinity of Sacramento County up to 90 miles from West Sacramento.[12] Section 4.2.12 of the 2016 LHMP provides a discussion of the hazard to the County. No major earthquakes have been recorded within the County, although ground shaking from earthquakes with epicenters elsewhere have been felt. The Uniform California Earthquake Rupture Forecast (UCERF III) model indicates that Sacramento County has a low to moderate risk of earthquake occurrence, which coincides with the likelihood of future occurrence rating of occasional.

In accordance with America's Water Infrastructure Act (AWIA), the City completed a Risk and Resilience Assessment (RRA) of its water system in September 2020. The RRA systematically evaluated the City's assets, threats, and risks, and evaluated countermeasures that might be implemented to minimize overall risk to the system. Vulnerability to natural hazards, including earthquakes, was assessed based on its level of preparation/resilience, active response capability, and ability to recover. Table 8-4 summarizes the earthquake risk estimation based on earthquake magnitude from the City's RRA.

[12] Sacramento County, *2016 Sacramento Countywide Local Hazard Mitigation Plan Update*, Section 4.2.19.

Table 8-4. Earthquake Risk Estimation – Supporting Likelihood and Vulnerability Values[a,b]

Earthquake Magnitude	Probability of Exceeding[c]	Recurrence Interval Based on 50 Years	Probability of Occurrence (incidents/year)	Vulnerability[d]	Net Threat Likelihood
6	0.4	125	0.008	30%	0.005
6.5	0.15	333	0.003	60%	0.001
7	0.1	500	0.002	80%	0.0018
7.5	0.01	5000	0.0002	100%	0.0002

(a) City of Sacramento Risk and Resilience Assessment (September 2020).
(b) Former Seismic Zone 3: Use earthquakes between 6.0 (where significant damage potentially starts) and >7.5 (highest reasonable) magnitude.
(c) On-line USGS earthquake probability data for Sacramento prior to discontinuation of Seismic Zone system; consistent with 2014 Vulnerability Assessment.
(d) J100-10 Table G-2 (page 86)

To ensure the security of the City water system, the RRA is retained by the City as a confidential document. Currently, the City is addressing comments from the RRA and evaluating the RRA recommendations.

8.6 LEGAL AUTHORITIES

CWC Chapter 3 Division 1, Section 350 requires the following:

> *…The governing body of a distributor of a public water supply…shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.*

When a water shortage is determined, the City will coordinate interdepartmentally and with the County for the possible proclamation of a local emergency in accordance with under California Government Code, California Emergency Services Act (Article 2, Section 8558).

In accordance with SCC §13.04.910, the City Council may, by resolution, declare the existence of a water shortage emergency and impose regulations and restrictions to be enforced in response to the shortage.

SCC Chapter 13.04, Article XI (Appendix K) presents the City's legal authorities to enforce shortage actions. Article XI prohibits water waste and provides water use restrictions. It also includes SCC §13.04.890, which outlines enforcement actions for violations to the City's water use restrictions.

8.7 WSCP REFINEMENT PROCEDURES

The City's WSCP is an adaptive management plan. It is subject to refinements as needed to ensure that the City's shortage response actions and mitigation strategies are effective and produce the desired results. Based on monitoring described in Appendix J, Section 12, and the frequency of compliance and enforcement actions described in Appendix J, Section 10, the City may adjust its response actions and may modify its WSCP. When a revised WSCP is proposed, the revised WSCP will undergo the process described

in Section 8.9 for adoption by the City Council and distribution to the County, its customers, and the general public.

8.7.1 Systematic Monitoring

The City will monitor meters at its water source to evaluate the overall effectiveness of its response actions in meeting the declared water shortage stage. Should overall demands not meet or exceed the goals of the declared water shortage stage, the intensity of public outreach for water conservation and the extent of enforcement of water use restrictions may be increased. Conversely, should overall demands continue to be substantially less than the goals of the declared water shortage stage, the intensity of public outreach for water conservation and the extent of enforcement of water use restrictions may be decreased.

8.7.2 Feedback from City Staff and Customers

Feedback from City staff and the public is important in refining or incorporating new actions. The City seeks input from staff who interface with customers to gauge the effectiveness of its response actions and for response action ideas.

Customer water meter data may be evaluated for each customer sector or each individual customer. The City tracks water use violations and may evaluate their frequency to determine restrictions that customers may not be able to meet. This evaluation may also show water demand reduction actions that customers may effectively implement.

The City seeks input from its customers and the general public through its website, through public hearings, and through regularly scheduled City Council meetings.

8.8 SPECIAL WATER FEATURE DISTINCTION

The City distinguishes special water features, such as decorative fountains and ponds, differently from pools and spas. Special water features are regulated separately. Regulations under SCC §13.04.870 prohibit the use of non-recirculated water in fountains or other decorative fountains.

8.9 PLAN ADOPTION, SUBMITTAL, AND AVAILABILITY

This WSCP is adopted concurrently with the City's 2020 UWMP, by separate resolution. Prior to adoption, a duly noticed public hearing was conducted. A hard copy of the WSCP will be submitted to DWR within 30 days of adoption, along with an electronic copy.

No later than 30 days after submittal to DWR, copies of the WSCP will be available at the City's offices. A copy will also be provided to the County. An electronic copy of this 2020 UWMP, including the WSCP, will also be available for the public on the City's website.

CHAPTER 9
Demand Management Measures

The City implements Demand Management Measures (DMMs) to sustainably manage its water resources. If not mitigated, an increase in water demand and/or changes in water supplies due to climate change and other factors reduce water reliability. The implementation of demand management measures can help improve water service reliability and help meet City and State water conservation goals. This chapter describes the City's historical and existing water conservation program, status of implementation of DMMs, and projected future implementation of water conservation measures.

In previous UWMPs, a substantial amount of data was required to document a water supplier's progress in implementing fourteen specific DMMs. In 2014, AB 2067 simplified, clarified, and updated reporting requirements for DMMs. Focus turned away from detailed descriptions of each of the fourteen DMMs, also known as Best Management Practices, and turned to key water conservation measures that are being implemented to achieve SB X7-7 water use targets. For retail agencies, the number of DMMs was reduced from fourteen to six (plus an "other" category). For wholesale agencies, the number of DMMs was reduced to three specific measures (plus an "other" category), as well as a requirement for a narrative description of asset management and wholesale supplier assistance programs. A narrative description of the status of the DMMs and how the DMMs help the water supplier achieve its water efficiency goals are required. Detailed data are not required.

9.1 WATER CONSERVATION PROGRAM OVERVIEW

The City has an ongoing water conservation program and has long been committed to implementing water conservation measures for all of its customer sectors. One of the goals in the Department of Utilities Strategic Plan 2020-2025 is to plan for current and future generations by protecting, preserving, and enhancing water resources, the environment, and the community. The City's commitment is also demonstrated through its membership and active participation with the California Urban Water Conservation Council (CUWCC) between 1995 and early 2018. The organization was replaced by the California Water Efficiency Partnership (CalWEP) with a mission to maximize urban water efficiency and conversation in California, and the City has continued to maintain its membership.

Primarily as an effort to outline how the City would need to expand its water conservation efforts to meet the requirements outlined in SBX7-7, the City developed a Water Conservation Plan. The Water Conservation Plan was approved by City Council on October 29, 2013. The Water Conservation Plan is a guidance document that communicates the City's approach to expanding water conservation implementation to meet its 2020 water use reduction targets (outlined in Chapter 5). Furthermore, the objectives of the Water Conservation Plan include protecting the natural ecosystem rivers, preparing for potential climate change impacts, and supporting economically feasible and sustainable water use practices. Appendix L provides a copy of the City's 2019 Water Efficiency Report which documents the City's water conservation programs and achievements.

The City's SB X7-7 per capita water use target for 2020 was confirmed to be 225 GPCD in its 2015 UWMP. The DMMs that the City has implemented have allowed it to meet its target. In 2020, the City's overall per capita water use was 169 GPCD as shown in Chapter 5.

Customers continue to be responsive to the City's water conservation program efforts. In this chapter, narrative descriptions addressing the nature and extent of each DMM implemented over the past five years, from 2016 through 2020, are provided. Planned or continued implementation of each of the DMMs are also discussed.

9.2 DEMAND MANAGEMENT MEASURES FOR RETAIL AGENCIES

Retail water agencies are required to provide a description of the DMMs associated with the following:

- Water waste prevention ordinances
- Metering
- Conservation pricing
- Public education and outreach
- Programs to assess and manage distribution system real loss
- Water conservation program coordination and staffing support

The City is also required to describe any other DMMs that it has implemented that have had significant impact on water use.

This section provides a description of the water conservation programs that are currently implemented and those planned to be implemented in the future. For each DMM, the current program is described, followed by a description of how the DMM was implemented over the previous five years and future implementation plans.

The City anticipates continuing and expanding its water conservation program to meet new legislative and upcoming regulatory requirements that may require water efficiency objectives less than the SB X7-7 target.

9.2.1 Water Waste Prevention Ordinances

9.2.1.1 DMM Description

The City prohibits water waste within its service area. The City adopted a WSCP in 1992 to minimize non-essential uses of water and conserve remaining supplies for the greatest public benefit. In addition, the City Code (Title 13 Public Services, Chapter 13.04 Water Service System, and Water Conservation) defines water waste runoff and associated penalties for violations. The City Code can be amended when the City Council adopts an ordinance. A water conservation ordinance was adopted in December 2009. Over time, the City has amended its water conservation ordinance to meet its water use objectives. In 2017, City amended Chapter 13.04 to include water use efficiency requirements for outdoor water use under Ord. 2017-0062 and Ord. 2017-0045. A current copy of the pertinent sections of the City Code is included in Appendix K and summarized in Section 8.2.

The City Council, by resolution, can declare the existence of a water shortage and adopt revised or additional water use prohibitions and consumption reduction methods above and beyond the existing City Code while the water shortage remains in effect. In 2014, the City declared Stage 2 water shortage conditions with the passing of Resolution No. 2014-018, "*Declaring Continuing Water Shortage and Implementing Additional Water Conservation Restrictions."* In June 2015, the City declared ongoing Stage 2 water shortage conditions and additional restrictions with the passing of Resolution No. 2015-0162 "*Declaring Continuing Water Shortage and Implementing Additional Water Conservation Measures and Use Restrictions*" (Appendix K). When City Council declares any water shortage stage, the penalties for violating its outdoor use prohibitions are doubled. In August of 2017, Resolution No. 2017-0322 was taken to City Council and adopted. This resolution changed the twice annual watering

schedule shift away from Daylight Savings to either March 1 or November 1. In addition, it made two days a week watering permanent between March 1 and November 1 but added more flexibility with regard to how to handle second violations and allowed for hand watering at any time. Additionally, during heat waves occurring outside of a declared water shortage, the watering restrictions were temporarily waived. For more details, please see Resolution No. 2017-0322.

9.2.1.2 Implementation over the Past Five Years to Achieve Water Use Targets

The City implemented this DMM over the past five years. The City regularly encourages reporting of water misuse. Instructions for reporting are provided on the City's website. Customers may call the City's conservation hotline (916-264-5011 or 311 from within the City), use the free 311 app for Android and iPhone, or send an email to 311@cityofsacramento.org. The number of water misuse reports received by the City from 2016 through 2020 is shown on Figure 9-1. A dramatic decrease in the number of received reports occurred after the water shortage was declared over by Governor Brown in early April 2017 and then later by the Sacramento City Council. After the drought, the City shifted focus on to education and awareness of the new watering schedule and ordinance. A new campaign called "Keep Sacramento Water Wise" was launched in 2018 to communicate the watering schedule changes in March and November; and the different ways customers can water wisely by following the ordinance. As of 2019, the campaign had 27,223,503 impressions and 312,575 Spanish digital impressions.

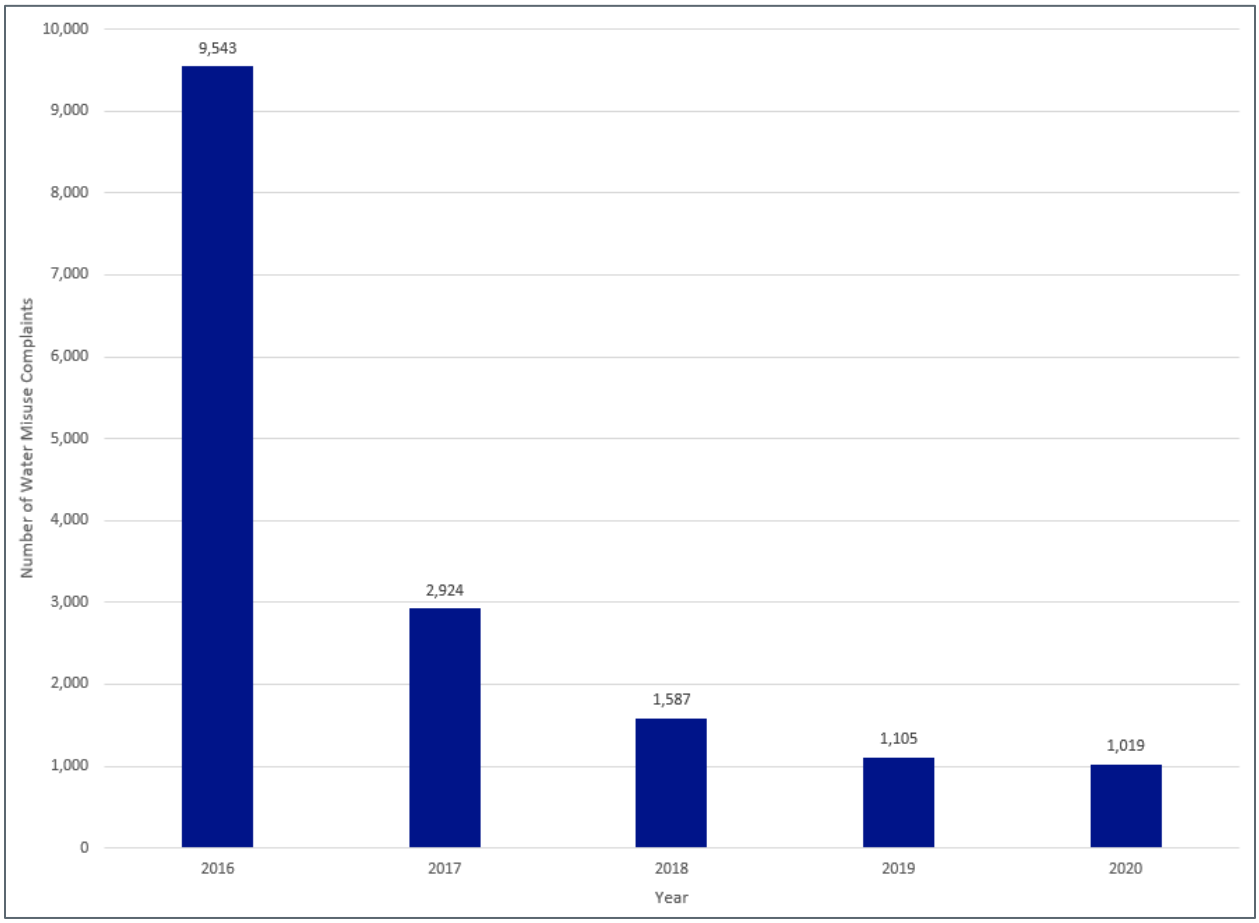

Figure 9-1. Water Misuse Complaints, 2016 - 2020

9.2.1.3 Plans for Continued Implementation

The City will continue to implement this DMM. Although water savings from this program cannot be directly quantified, this DMM is expected to help the City achieve its future water use objectives by minimizing the nonessential uses of water so that water is available to be used for human consumption, sanitation, and fire protection.

9.2.2 Metering

9.2.2.1 DMM Description

The City's water system is not fully metered. CWC §527 requires the City to install water meters on all service connections on or before January 1, 2025. The City is committed to meeting the metering requirements and has implemented a meter installation program. During the last declared water shortage, from 2014-2017, the City committed to accelerating its meter installation program. As of December 2020, about 99 percent of the City's CII customers were metered and approximately 96 to 99 percent of residential customers were metered. The range is a function of the number of meters which were physically installed in December 2020 (99 percent) versus additional time needed to validate readings and code them into the billing system (96 percent metered and within the billing system). The City expects to be fully metered by the end of 2021, well ahead of the CWC deadline.

Further, the City has included advanced metering infrastructure (AMI) in its Meter Installation Program. AMI provides real-time water use information to both the City and customers. This information can help customers make informed decisions about their water use. It also helps the City in assisting customers with improving their water use efficiency. The City sends out thousands of letters a year to many of its customers alerting them to probable ongoing leaks (5 or more days) and encourages customers to call for a free leak investigation if they cannot find the leak themselves.

Metered customers are billed for the amount of water that the customer uses through a volumetric rate. The City has a volumetric rate structure for metered users. Transitioning customers from flat rates to volumetric rates provides a financial incentive for water conservation, as discussed in Section 9.2.3 below.

9.2.2.2 Implementation over the Past Five Years to Achieve Water Use Targets

The City's goal is to be fully metered by the end of the calendar year 2021, and with recent progress in installing meters, the City expects to be fully metered by the end of 2021. When the City was preparing its 2015 UWMP, only 52 percent of the customers were metered and coded into the City billing system. The City steadily made progress on meter implementation program by installing over 68,634 meters in the past 5 years. The total number of installed meters from 2016 through 2020 and the number of new meters installed per year are shown on Table 9-1. Additional information on the City's metering program can be found on the City's website.

Table 9-1. Meter Installations between 2016 and 2020		
Year	Total Meters	New Meters Installed[(a)]
2016	82,012	12,550
2017	100,922	18,910
2018	120,807	19,885
2019	134,467	13,660
2020	138,096	3,629

(a) Represent meters installed and coded into the City's billing system.

Using its AMI technology to identify potential leaks, the City issued notices to customers. As shown on Figure 9-2, over 21,000 leak letters were mailed in 2020 and over 66,000 letters were mailed between 2016 and 2020. Over the past five years, the City completed over 11,300 leak investigations.

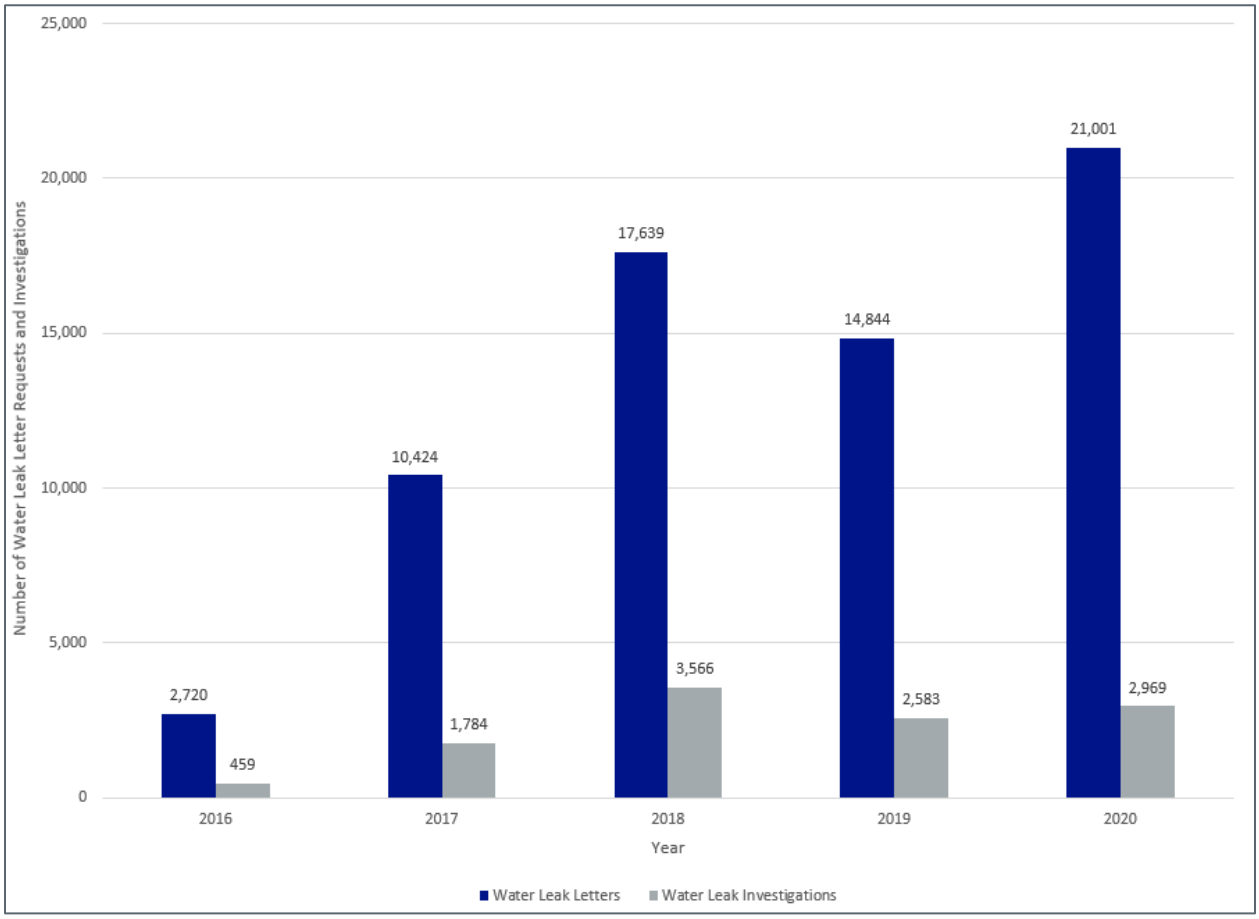

Figure 9-2. Water Leak Letter Requests and Investigations, 2016 – 2020

9.2.2.3 Plans for Continued Implementation

Implementation of this DMM is expected to help the City achieve its water use objectives by providing accurate water use information to the customers and the City. The implementation of automatic leak notification process and the resulting leak investigations are expected to help the City achieve its water use objectives by reducing the water lost through leaks on customer side. Even though the water savings from this measure is difficult to quantify, it presents considerable amount of water savings for the City and its customers.

The City expects to complete installation of water meters for all of its customers by December 2021. The City will continue to install and read meters on all new services. All water connections will be metered and billed based on the volume of water used, as discussed in further detail under Section 9.2.3. The City will monitor water usage characteristics of its customers to ensure any new water rate structure is fair to customers and adequately recovers costs.

9.2.3 Conservation Pricing

9.2.3.1 DMM Description

Historically, the City charged flat rates for its customers' water use. One year after the meter is installed, the City implements volumetric charges for customer water use, although the customer can opt to transition over to volumetric rates more quickly. As discussed above, the City now has approximately 99 percent of its customers metered and expect to have all of its customers metered by the end of 2021.

The City currently has volumetric water rates in effect for metered customers since 2016, as shown on its website. The rates were set such that the City can recover up to 70 percent of the City's operating cost through volume sold. With more complete water meter information, the percentage of the City's operating costs attributable to volumetric production will be reconsidered moving forward.

9.2.3.2 Implementation over the Past Five Years to Achieve Water Use Targets

Transitioning customers from flat rates to metered rates provides a financial incentive for water conservation. In the past five years, 68,634 water meters were installed for customers. Within one year from installation of the water meter, customers are transitioned from a flat rate to their metered rate.

9.2.3.3 Plans for Continued Implementation

Implementation of this DMM is expected to help the City achieve its water use objectives by providing customers the financial incentive to use water efficiently.

9.2.4 Public Education and Outreach

9.2.4.1 DMM Description

The City promotes water conservation both independently and in coordination with the RWA. The RWA is a joint powers authority formed in 2001 to promote collaboration on water management and water supply reliability programs in the greater Sacramento, Placer, El Dorado, Yolo and Sutter Counties. In collaboration with 19 water provider members and other wastewater, stormwater, and energy partners, RWA formed the Water Efficiency Program (WEP), described in Section 9.4.2.1.1, in 2001 to bring cost effectiveness through economies of scale to public education and outreach activities. The City is a long-time member of the RWA.

The RWA member agencies share the common goal of collaborating on water management and water supply reliability programs. The City fully participates in the RWA Public Information Campaign, which is coordinated with support from the Public Outreach and School Education Committee comprised of RWA member agencies' conservation coordinators and Public Information Officers.

The City's outreach efforts related to water use efficiency and water conservation have received awards from the EPA Water Sense Program in 2019 and 2020, including a Water Sense Partner of the Year award in 2020. The City has come up with a monthly theme and outreach campaign efforts to educate and encourage residents to save water. The outreach activities include:

- Monthly themed editorial calendar
- 5 different campaigns:
  - Break Up With Your Lawn
  - Made Possible By
  - 1 Day per Week
  - 2 Day per Week
  - Keep Sac Water Wise
- Monthly electronic newsletter with an audience of 40,000 residents
- Annual distribution events:
  - Mulch Mayhem
  - Rain barrel distribution
- Workshops and Events
  - Waterwise Garden showcase (launched in 2019)
  - Webinars and in-person workshops on various services and rebates offered
  - Tree care workshop in partnership with Sacramento Tree Foundation
- Maintain current program information on website
- Distribute information on water-wise tools, information, and rebate to residents and businesses
- Provide landscape ideas
- Organize and coordinate outreach events with local community partners at farmer's markets and other community events
- Develop of promotional and give-away materials
- Develop outreach messaging for utility bill inserts, website, and water conservation blog
- Create public service announcements
- Respond to customer messages/requests for information
- Maintain Water Education website

Information on the City's water conservation programs and services is provided in Appendix M.

9.2.4.1.1 RWA's Water Efficiency Program

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

The main function of the WEP is to develop and distribute public outreach messages to customers in the region by collaborating with its water provider members. The WEP distributes these messages on a regional scale through regional media and advertising buys and was honored with the United States EPA WaterSense Excellence in Education and Outreach Award in 2016.

9.2.4.2 Implementation over the Past Five Years to Achieve Water Use Targets

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

The City's Water Conservation Office dramatically expanded its outreach related to its watering schedule as well as its available rebates in early 2014 and further expanded its efforts beginning in late 2016. In addition, the City coordinated its efforts so the RWA's regional messaging and EPA's WaterSense campaigns enhance the City's efforts. Outreach over the past five years has focused on helping customers use less water outdoors. A recent RWA regional public opinion survey uncovered gaps in knowledge about where and how much water is used at home. With the Sacramento region's hot, dry climate and long summer season, more than 65 percent of a household's yearly water consumption typically goes toward landscape irrigation. Of that, it is estimated that 30 percent is lost due to overwatering or evaporation. The target of the campaign messaging includes a call for customer behavioral changes in watering practices.

9.2.4.2.1 City Efforts

The City maintains its own outreach efforts. The City's Water Conservation page is available on the City's website. This website provides public information on current conservation issues including:

- **Calendar** with information on several workshops which provide tips on irrigation and the City's water conservation program
- **Frequently Asked Questions** which answers questions about drought and water conservation
- **Rebate** programs offered by the City for both residential and commercial customers, which is discussed more in Section 9.3

- **Water Conservation Codes** which provides the latest information on what water shortage stage the City is currently in and the information on the various resolutions and ordinances in place
- **Water Conservation Services** which lists the City's several programs to help residential and commercial business save water
- **Water Meters** which provides information on the City's accelerated water meter program

In addition to the information on its website, the City also utilizes social media, including Facebook, Twitter, and Nextdoor, to advertise conservation messaging. The City also maintains a blog, the City Express, which also provides public education and outreach on water conservation.

9.2.4.2.2 RWA Efforts

From 2016 to 2020, the WEP created a series of public outreach campaigns. Below is a summary of each campaign and highlighted achievements.

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

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

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

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

- Radio Advertising (2016-2020): 3,443 radio advertisements ran; 17.2 million impressions
- Digital Advertising (Facebook, Google Display Network and Spotify) (2016-2020): 24.3 million impressions; 262,900 clicks
- Additional advertising (billboards in 2016): 1.8 million digital advertisements ran; 51.6 million impressions

- Public Service Announcements (Television and Radio) (2016-2020): 20 million impressions; $570,000 in value had they been purchased as advertising

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

The WEP continues to utilize the public outreach website to reach customers throughout the region. The website contains regional and local water provider information on rebates and services, top ways to save, an interactive watering and water waste information map, a water-wise gardening database, recent press releases, the Sacramento Smart Irrigation Scheduler tool, and more. Educational information and customer services were modified to address the COVID-19 pandemic in 2020 including online water efficiency lessons for kids, a list of nurseries that offered curbside pickup, virtual water wise house calls and numerous virtual educational customer workshops. Between 2016 and 2020, the website averaged 96,000 unique visitors per year.

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

Every year the WEP selects 3 public events to attend for the public to interact with local water efficiency staff. This provides an opportunity for the region to communicate its messages in person. Events have included the Sacramento Home & Landscape Show at Cal Expo, Creek Week, Harvest Day, Farm-to-Fork Festival and several Earth Day events. Additionally, RWA, in coordination with participating local water providers, hosts an annual Mulch Mayhem event in which customers can pick up a truck load of free mulch from selected locations throughout the region. All in-person regional events were canceled in 2020 due to the COVID-19 pandemic.

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

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

RWA also continued to implement its school education activities. WEP hosted the Water Spots Video Contest for high school and middle school students to prepare 30 second public service announcements.

Between 2016 and 2019, 450 videos were submitted (average of 90 videos a year). The 2020 Water Spots Video Contest was canceled due to the COVID-19 pandemic.

9.2.4.3 Plans for Continued Implementation

Implementation of this DMM is expected to help the City continue to achieve its water use objectives by educating water users about the importance of water use efficiency and avoiding water waste.

9.2.5 Programs to Assess and Manage Distribution System Real Loss

9.2.5.1 DMM Description

A system water audit is a process of accounting for water use throughout a water system in order to quantify the unaccounted-for water. Unaccounted-for water is the difference between metered production and metered consumption on a system-wide basis. As the City becomes more fully metered, it is more able to quantify unaccounted-for water. A leak detection program typically consists of both visual inspection as well as audible inspection. Visual inspection includes the inspection of distribution system appurtenances (e.g., fire hydrants, valves, meters, etc.) to identify obvious signs of leakage. To perform audible leak detection, specialized electronic listening equipment is used to detect the sounds associated with distribution system leakage. This process allows the agency to pinpoint the location of suspected leaks.

The City performs an annual water audit that conforms to the AWWA Method 36. The City's Fiscal Years 2016 to 2020 AWWA Water Loss Audits are included in Appendix E and summarized in Chapter 4.

9.2.5.2 Implementation over the Past Five Years to Achieve Water Use Targets

As part of its meter installation project discussed in Section 9.2.2, the City rehabilitated and replaced older, leaking water infrastructure. The City has made significant progress in reducing its gallons lost per service connection per day.

9.2.5.3 Plans for Continued Implementation

Implementation of this DMM is ongoing and is a vital element of the City's Water Conservation Plan and Sustainability practices. This effort will help the City achieve its water use objectives by identifying sources of water loss quickly so repairs can be conducted, and losses minimized. The State of California is currently developing water loss targets for Urban Retail Water Suppliers (URWS) and the City will be evaluating the impact of those targets as they develop.

9.2.6 Water Conservation Program Coordination and Staffing Support

9.2.6.1 DMM Description

The City has designated staff to actively develop, promote, enforce, and maintain water conservation programs. In 2001, the City established a Water Conservation Coordinator. Currently, the Water Conservation Coordinator leads a team of staff members, including three water conservation specialists, one customer service representative, three water conservation representatives, one office administrator, and typically up to two interns. Their contact information is available on the City's water conservation website. The public can reach any of the team members via email at waterconservation@cityofsacramento.org or by phone at 916-808-1337.

9.2.6.2 Implementation over the Past Five Years to Achieve Water Use Targets

Over the past five years, the City maintained and expanded the water conservation program team from eight to nine full time staff members. The Water Conservation Office has an annual budget of approximately $2.6 million per year.

9.2.6.3 Plans for Continued Implementation

Implementation of this DMM is ongoing and is a vital element of the success of the City's Water Conservation Plan. The water conservation team implements the City's water conservation program so that the City may meet its water use objectives.

With the new AB 1668 and SB 606 setting new water conservation targets for each urban water agency, the Water Conservation Plan update will be reviewing the program growth and resources needed.

9.3 OTHER DEMAND MEASURES

In addition to the six DMMs described above, the City also implements the following programs:

- Residential Water Wise Rebates
- Residential Water Wise Services
- Business Water Wise Rebates
- Business Water Wise Services
- Water Wise Tools

9.3.1 Residential Conservation Programs

The City provides Water Wise rebates and services for residential customers and promotes them on its water conservation website. Implementation of these programs is expected to help the City achieve its water use objectives by reducing the amount of water consumed by its residential customers.

9.3.1.1 Rebate Programs

The City's rebate programs implementation are briefly described and summarized in Table 9-2 for 2016 through 2020. The rebate programs are available to property owners, their tenants, commercial, industrial, institutional, and multi-family customers. The rebates are subject to water conservation staff inspections and the terms and conditions provided on the City's water conservation website. Some rebates may be combined with rebates from the Sacramento Municipal Utility District, the residents' electric service provider.

Overall, these programs allowed thousands of its residential customers to improve their water use efficiency. The City's average total annual budget for the residential rebate programs between 2016 and 2020 is $1.2 million.

Table 9-2. City Residential and CII (Business) Rebate Programs Implementation (2016-2020)

Program	Description	Rebate Amount, dollars	Number of Rebates Issued
Outdoor Rebates			
Turf Conversion	Replace lawns (all customer types) with low water use River Friendly landscape	$1.50 per square foot; up to $3,000, may include up to $500 in labor if completed by a licensed landscape contractor and can include an additional $150 for landscape design assistance	Over 553,700 square feet of turfgrass converted
Irrigation Upgrade	Convert sprinkler nozzles and heads to high efficiency sprinkler nozzles (using 0.85 inches per hour or less), or to drip irrigation	Up to $400 for materials; Up to $150 for contractor cost	Over 430 water efficient irrigation upgrades completed
Smart Irrigation Controller	Install weather-based smart irrigation controllers	Up to $400; may include up to $150 in labor if installed by a licensed landscape contractor (C27). Instant rebates offered on the SMUD Smart Energy store website, beginning in 2018	Over 4,490 smart controllers rebated, 1960 (44%) through the SMUD Smart Energy store
Rain Barrel	Rebates for the installation of rain barrels to store rainfall runoff for landscape use and distribution events	Up to $150 Annual rain barrel distribution event started in 2018.	Over 700 rain barrels distributed and rebated
Laundry-to-Landscape	Install grey water system to capture water from washing machines for landscape use	Up to $100	
Indoor Rebates			
High-Efficiency Toilets	Replace older PRE-1992 toilet with a new high-efficiency toilet (1.28 gallons per flush or less)	Up to $125; rebate provided in partnership with the Regional Water Authority and the Regional San	Over 5,000 rebates and 4,900 HETs and HE urinals installed as part of a grant administered by the Regional Water Authority in 2017 and 2018 that targeted multi-family and commercial properties located within the City's Disadvantaged Communities
High-Efficiency Washing Machine	Purchase a Tier III High-Efficiency Clothes Washer	Up to $125. Administered by SMUD until December 31, 2020.	Over 1,460 rebates
Multi-Family Residential Rebate			
Re-Do the Loo	Replace older, pre 1992 toilets located within Disadvantaged Communities	$250 per toilet, includes labor if installed by a licensed plumber	180 in 2020 (start of program)

Source: http://www.cityofsacramento.org/Utilities/Water/Conservation/Residents/Residential-Rebates

9.3.1.2 Residential Water Wise Services

The City provides a free home water use inspection service known as the Water Wise House Call Program and, during the COVID-19 pandemic, began to offer this service virtually for most of 2020. Inspections are conducted by trained water conservation specialists and help identify potential water savings for the customer. To schedule, customers can call the City's conservation hotline (916-264-5011 or 311 from within the City). Between 2016 and 2020, the City scheduled 2,960 house calls.

The City also offers a no-cost direct install leak repair assistance to eligible single family homes through its Leak Free Sacramento Program. Under this program, a City-approved contractor comes to the customer's home to evaluate leaks and make repairs at no cost to the customer. Repairs apply to both indoor and outdoor leaks. This program originally started as a grant in late 2016 and the grant funds were fully expended in late 2017. In 2018, the program was relaunched as a pilot program with a small budget. This program helped the City bring water efficiency programs to the disadvantaged and low-income residents of the City that typically are not able to take advantage of other City conservation programs. Over the years, the program has scaled up to be funded at $150,000 on an annual basis and is in the process of hiring additional plumbers and irrigation technicians. Through the launch of this program, the City was able to start addressing the gap in participation in the water efficiency rebate programs from the disadvantaged and low-income residents, for whom the upfront cost and reimbursement model of the rebate programs were an impediment. Between 2016 and 2020, 348 leak free repairs were completed in addition to installation of water efficient plumbing fixtures.

9.3.2 Commercial Water Wise Business Calls

Similar to Water Wise House Calls for residential customers, the City offers Water Wise Business Calls for commercial customers. Site visits are conducted by trained water conservation specialists at no cost to the business. The water conservation specialists help identify potential water-savings for the business and identify rebates for which the business may be eligible. Businesses can call the City's conservation hotline (916-264-5011 or 311 from within the City) to schedule their site visit.

9.4 DEMAND MEASURES FOR WHOLESALE AGENCIES

Wholesale water suppliers are required to provide a description of the DMMs implemented associated with the following:

- Metering;
- Public education and outreach; and
- Water conservation program coordination and staffing support.

In addition, a narrative of asset management and wholesale supplier assistance programs is required.

For each DMM, the City's current program is described, followed by a description of how the DMM was implemented over the previous five years.

9.4.1 Metering

The City's wholesale water deliveries are fully metered, and calibration is verified on an annual basis. All facilities are fully equipped with SCADA and security alarms, and are maintained by City mechanical, electrical, and instrumentation staff. Maintenance is performed per contract with the receiving wholesale customer.

9.4.2 Public Education and Outreach

As discussed in Section 9.2.4, the City fully participates in the RWA Public Information Campaign. The RWA members include three of the City's wholesale customers. The City's public education and outreach materials are available to its wholesale customers through the City's website.

9.4.3 Water Conservation Program Coordination and Staff Support

The City utilizes the same Water Conservation Program staff for wholesale conservation as it does for retail conservation. Retail Water Conservation Program Coordination and Staff Support is described in Section 9.2.6.

9.4.4 Asset Management

As infrastructure assets continue to age and deteriorate, the need to restore parts of the water system is becoming of higher importance. Significant portions of the water infrastructure including critical pipelines, reservoirs, wells, and treatment plants are approaching, or already passed, their designed life span. As a result, the City is utilizing an asset management process for its capital improvement program to systematically prioritize and rank its rehabilitation and replacement needs, ensuring long-term infrastructure sustainability and its ability to maintain a reliable and high-quality water supply. Much of DOU's asset management strategy focuses on core framework areas such as long-range planning, life-cycle costing, proactive operations and maintenance, long-term funding strategies, and capital replacement plans that provide the foundation for many asset management best practices.

9.4.5 Wholesale Supplier Assistance Programs

The City provides conservation assistance to its wholesale customers via participation in the RWA Water Efficiency Program Advisory Committee. The Committee meets monthly and the City actively participates. Through this meeting, the Committee members provide water conservation program updates and coordinate on activities.

9.5 WATER USE OBJECTIVES (FUTURE REQUIREMENTS)

In 2018, the State Legislature enacted two policy bills, (SB 606 (Hertzberg) and AB 1668 (Friedman)), to establish long-term water conservation and drought planning to adapt to climate change and the associated longer and more intense droughts in California. These two policy bills build on SB X7-7 and set authorities and requirements for urban water use efficiency. The legislation sets standards for indoor residential use and requires the State Water Board, in coordination with DWR, to adopt efficiency standards for outdoor residential use, water losses, and CII outdoor landscape areas with dedicated irrigation meters. At the time of preparation of this UWMP, DWR and the State Water Board are in the process of developing new standards for water loss and indoor and outdoor residential water use. These

standards will require urban water retailers to develop agency-wide water use objectives, provide annual reports, and update their UWMP.

The Legislature established indoor residential water use standards as 55 GPCD until January 2025, 52.5 GPCD from 2025 to 2029, and 50 GPCD in January 2030, or a greater standard recommended by DWR and the State Water Board. By June 30, 2022, the State Water Board is anticipated to adopt an outdoor residential use standard, a standard for CII outdoor landscape area with dedicated irrigation meters, and performance measures for CII water uses. At that time, the State Water Board will adopt guidelines and methodologies for calculating the water use objectives. In accordance with CWC §10609.20(c), the water use objective for urban water retailers will be based on the estimated efficient indoor and outdoor residential water use, efficient outdoor irrigation of CII landscaped areas, estimated water losses, and estimated water use for variances approved by the State Water Board aggregated across the population in its water service area.

By November 1, 2023, and November 1 of every year thereafter, the City will calculate its urban water use objective and actual water use and provide an annual report to the State. By January 1, 2024, the City will prepare a UWMP supplement incorporating DMMs and other water efficiency standards that it plans to implement to achieve its water use objective by January 1, 2027.

9.6 MEMBERS OF CALIFORNIA WATER EFFICIENCY PARTNERSHIP

In 2018, the California Water Efficiency Partnership (CalWEP) was established to combine expertise on California water issues, challenges, and opportunities to advance water efficiency both on the agency wide and statewide level. CalWEP follows on from the CUWCC, which administered an agreement between DWR, water utilities, environmental organizations, and other interested groups to implement best water management practices to reduce the consumption of California's water resources. The City was a participating member from 1995 to 2018, when CUWCC evolved to become CalWEP, and is an active member of CalWEP. CalWEP provides opportunities for networking and partnerships to improve water efficiency and conservation. Members are voluntarily organized into two main committees. The Research and Evaluation Committee collaboratively identify and pursue research projects to benefit its members. The Program Committee shares needs, successes, and challenges, and identifies actionable step for addressing water conservation program needs.