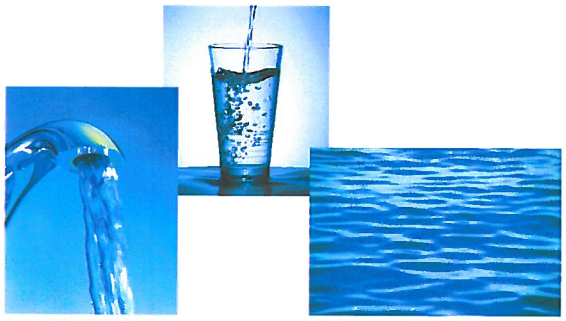
South San Joaquin Irrigation District

Urban Water Management Plan



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California Department of Water Resources

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Prepared by:

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SSJID
SOUTH SAN JOAQUIN IRRIGATION DISTRICT

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List of Abbreviations

AB	Assembly Bill
AF	Acre-Feet
AFY	Acre Feet per Year
BMP	Best Management Practice
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CIMIS	California Irrigation Management Information System
CVP	Central Valley Project
DBCP	Dibromochloropropane
DMM	Demand Management Measure
DWR	Department of Water Resources
EDB	Ethylene Dibromide
GAC	Granular Activated Carbon
IRWMP	Integrated Regional Water Management Plan
MCL	Maximum Contaminant Levels
MG	Million Gallons
MGD	Million Gallons per Day
MW	Montgomery Watson
NMFS	National Marine Fisheries Service
RPA	Reasonable and Prudent Alternative
SB	Senate Bill
SCWSP	South County Water Supply Program
SSJID	South San Joaquin Irrigation District
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
USBR	Unites States Bureau of Reclamation
UWMP	Urban Water Management Plan
VOC	Volatile Organic Compound
WCC	Water Conservation Coordinator
WTP	Water Treatment Plant

1 – INTRODUCTION

This Urban Water Management Plan (UWMP) has been prepared by the South San Joaquin Irrigation District in accordance with the California Urban Water Management Planning Act. The South San Joaquin Irrigation District (SSJID or District) is located in southern San Joaquin County in California's San Joaquin Valley. SSJID is a wholesale water agency and began delivering treated surface water to the cities of Lathrop, Manteca and Tracy in 2005 through the South County Water Supply Program (SCWSP). The cities of Escalon and Ripon plan to construct pipelines to allow delivery of treated water to their service areas in the future. These five cities will be collectively called the 'Cities'.

The South County Water Supply Program (SCWSP) is a cooperative effort between SSJID and the cities of Manteca, Escalon, Lathrop and Tracy to provide supplemental, high-quality drinking water to the Cities. SSJID constructed the Nick C. DeGroot Water Treatment Plant (WTP) and a water delivery pipeline system using funds provided by the cities of Manteca, Lathrop, Escalon and Tracy.

This is the first UWMP prepared by SSJID and exclusively covers treated water delivered by the SCWSP to Cities in San Joaquin County. This is not a regional UWMP covering SSJID and all of the Cities. Some of the Cities have prepared, or are in the process of preparing or updating, their individual UWMPs. To minimize redundancy, water management activities undertaken by the Cities are not discussed in detail in this document.

Urban Water Management Plan Regulations

The Urban Water Management Planning Act (Act) became part of the California Water Code with the passage of Assembly Bill (AB) 797 in 1983. The Act requires that every urban water supplier that provides water for municipal purposes to more than 3,000 customers, or supplies more than 3,000 acre-feet (AF) of municipal water annually, prepare and adopt an UWMP, and update it every five years. An UWMP is required for a water supplier to be eligible for State grants, loans, and special drought assistance administered by the Department of Water Resources (DWR).

Urban Water Management Plan Content

The Urban Water Management Planning Act requires water agencies to evaluate and describe their water supplies and projected needs over a twenty-year planning horizon, and to address a number of related subjects, including: water conservation, water service reliability, water recycling, opportunities for water transfers, and contingency plans for drought events. The UWMP must provide water supply planning for a 20-year planning period in 5-year increments, and identify and quantify adequate water supplies for existing and future demands during normal, dry and drought years. This plan evaluates SSJID's urban water supplies over the 20-year planning horizon from 2011 to 2030.

The purpose, required contents, and process for preparing and adopting Urban Water Management Plans are specified in California Water Code sections 10610 – 10656. The overall goal is to provide water suppliers with a framework for carrying out their long-term planning responsibilities, and for reporting their strategies to meet future water challenges to both the State and the communities they serve.

This UWMP was prepared according to the *Guidebook to Assist Water Suppliers to Prepare a 2010 Urban Water Management Plan*, prepared by the California DWR in March 2011. Since SSJID is a wholesale water supplier, this UWMP does not need to include several sections that are normally required in UWMPs prepared by retail water suppliers. Wholesale suppliers are only required to address a limited number of demand management measures and do not need to develop urban water use goals (targets). However, water use goals developed by the Cities served by the SCWSP are included in this UWMP. **Appendix A** includes a DWR checklist for UWMPs showing which UWMP sections were included in this document.

Benefits of an Urban Water Management Plan

An UWMP has many uses including the following:

1. Long range planning document for water supply;
2. Source document for cities and counties as they prepare their General Plans;
3. Foundation document and source of information for a Water Supply Assessment and a Written Verification of Water Supply; and
4. Key component to an Integrated Regional Water Management Plan (IRWMP).

2 – PLAN PREPARATION

2.1 – Coordination

This Urban Water Management Plan was prepared according to the public participation requirements in the DWR's *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*. Several local agencies were involved in the preparation of this UWMP. **Table 2.1** lists the agencies and their level of involvement.

Table 2.1 - Coordination with Appropriate Agencies

Agency	Participated in developing the plan	Commented on the draft	Attended public meetings	Contacted for assistance	Sent a copy of the draft plan	Sent a notice of intention to adopt	Not involved / No information
City of Escalon	X			X	X		
City of Lathrop	X			X	X		
City of Manteca	X			X	X		
City of Tracy	X	X		X	X		
City of Ripon	X			X	X		
San Joaquin County				X	X		

SSJID encouraged active involvement of diverse social, cultural and economic elements of the population during preparation of the plan. SSJID outreached to farmers, city residents, rural county residents, and people in surrounding areas through letters, newspaper notices, public hearings, and by sending draft copies of the UWMP to nearby cities. Specific public participation efforts included:

Notification of Cities and County. On March 16, 2011, SSJID notified the Cities and San Joaquin County that they were preparing an UWMP. These public agencies were invited to provide comments and input on the UWMP. The Cities were also notified that SSJID would be requesting water supply information from them. Copies of the letters can be found in **Appendix B**.

Hearing for Public Inspection of UWMP. A public hearing was held on September 13, 2011 at the SSJID main office in Manteca, California to allow for public comment of the Draft UWMP. The public hearing was advertised once in each of the two weeks prior to the hearing in a local newspaper (see **Appendix B** for copies of newspaper notices). No comments were provided at the public hearing. Draft copies were made available for public review at the District office and electronic versions were supplied to Tracy, Lathrop, Manteca, Ripon, Escalon and San Joaquin County on August 31st, 2011.

2.2 – Plan Adoption, Submittal, and Implementation.

This UWMP was subsequently adopted by the SSJID Board of Directors on September 13, 2011. A copy of the adoption resolution is included as **Appendix C**.

Within 30 days of adoption, a copy of the final UWMP will be sent to cities that receive or are planning to receive water from the SCWSP. These cities include Escalon, Lathrop, Tracy, Manteca and Ripon. A copy of the final UWMP will also be sent to the California Department of Water Resources and the California State Library within 30 days of adoption. After adoption, a copy of the final UWMP will be available for public review at the SSJID main office in Manteca, CA.

3 – SYSTEM DESCRIPTION

3.1 – Service Area Physical Description

This UWMP addresses surface water supplies that SSJID delivers to several municipalities in southern San Joaquin County. The cities of Lathrop, Manteca and Tracy currently receive treated surface water from the SCWSP. The city of Escalon is under contract to purchase water from the SCWSP but has not yet constructed a pipeline to convey the water to its facilities. Escalon expects to construct the pipeline and begin purchasing water by 2020. Escalon currently sells its water allotment to the city of Tracy. The city of Ripon currently purchases raw untreated water from SSJID. Ripon has expressed interest in purchasing treated water by 2012. Refer to Figure 1 for a location map of SSJID and the Cities.

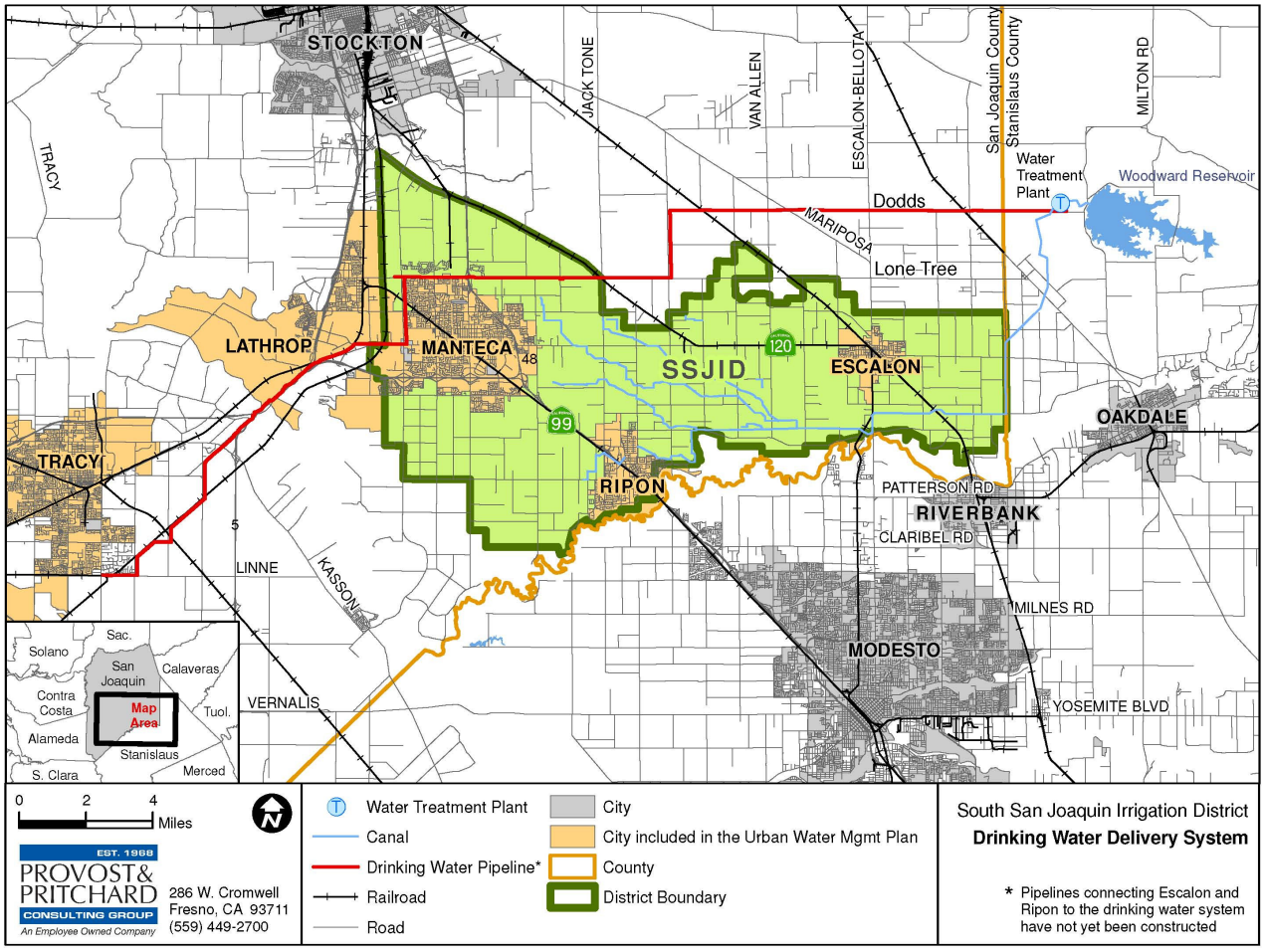

Figure 1 – Drinking Water Delivery System Map

3.1.1 – South County Water Supply Program

The South County Water Supply Program (SCWSP) is a cooperative effort of the SSJID and the cities of Manteca, Escalon, Lathrop and Tracy to provide supplemental, high-quality drinking water to the cities. SSJID constructed the Nick C. DeGroot Water Treatment Plant (WTP) and a water delivery pipeline system using funds provided by the cities of Manteca, Lathrop, Escalon and Tracy. SSJID serves as the wholesale water agency and water treatment plant operator, and the Cities are the retail water agencies. Each city has an agreement with SSJID to receive treated water through December 2029. If the District and Cities do not agree to extend the contract past 2029, then the District agrees to transfer the project to a Joint Powers Authority composed of the four cities, which would run it at their cost. The cities would also need to enter into an agreement with the District to supply the water.

The water supply from the SCWSP comes from SSJID's senior pre-1914 appropriative water rights to the Stanislaus River. Treated water deliveries began in July 2005. SSJID is able to make this water available to the Cities as a result of its existing firm water rights, numerous agricultural water conservation measures, and through the loss of irrigated agriculture to urban development. In constructing the Nick C. DeGroot WTP and conveyances, the District's goals are to:

- Provide a reliable, supplemental potable water supply for south San Joaquin County;
- Put to beneficial use conserved water from SSJID entitlements;
- Keep conserved water within SSJID and San Joaquin County; and
- Reduce the heavy reliance on groundwater for the urban areas of south San Joaquin County.

The SCWSP consists of an intake facility at Woodward Reservoir, a state-of-the-art membrane filtration water-treatment plant, and about 35 miles of pipe ending in the City of Tracy. A map of the project can be seen in **Figure 1**. The Nick C. DeGroot WTP currently has a maximum sustained capacity of 36 MGD (~40,350 AF/year), and a short-term peak capacity up to 41.9 MGD. The WTP includes the following components:

- Pre-chlorination;
- Coagulation and dissolved air flotation pretreatment for removal of solids and dissolved material;
- Chemical stabilization to minimize internal pipe corrosion;
- Membrane filtration; and
- Chlorination for disinfection.

Phase I of the Nick C. DeGroot WTP was completed in 2005 and provided up to 19,700 AF/year of potable water through 2010. Phase II, an expansion of the facilities from 36 MGD to 56.8 MGD (~63,600 AF/year), is planned for a future date.

This UWMP exclusively covers the water supplies treated and delivered by the SCWSP.

3.1.2 – South San Joaquin Irrigation District

The following summary describes the history, geography, water supplies, and facilities in SSJID.

History. Formed in 1909 under the predecessor to the Irrigation District Act, SSJID was established to provide a reliable and economical source of irrigation water for the agricultural areas surrounding Escalon, Ripon, and Manteca. Since then, SSJID has expanded into providing domestic water service to several cities in South San Joaquin County through the SCWSP.

Geography. SSJID is located in the southeastern portion of San Joaquin County, in California's San Joaquin Valley. SSJID covers about 72,000 acres. The cities of Manteca, Ripon and Escalon are located within SSJID boundaries. The cities of Lathrop and Tracy are located west of SSJID. Refer to **Figure 1** for a map of SSJID and surrounding cities. Neighboring districts include Stockton East Water District to the north, Oakdale Irrigation District to the east, and Modesto Irrigation District to the south.

Water Supplies and Demands. SSJID derives its water supply from three sources, including surface water diverted from the Stanislaus River at Goodwin Dam, groundwater pumped by the District and private land owners, and irrigation return flows from a neighboring water district. The District's main source of water is the Stanislaus River, which provides the District's surface water. The District's water rights, which are primarily held jointly with its neighbor, Oakdale Irrigation District, include pre-1914 rights, as well as rights acquired after 1914. SSJID's water deliveries are largely governed by a 1988 Agreement and Stipulation ("1988 Agreement") with the United States Bureau of Reclamation (USBR) and Oakdale irrigation District. The District's water supply has ranged from approximately 64,000 AF in 1977 to more than 300,000 AF. Since the 1988 Agreement has been in effect, the District's lowest water supply was 252,670 AF in 1992. If the hydrology in 1977 were to recur, with the 1988 Agreement in effect, the District would receive 225,000 AF, assuming sufficient water was available from previous years' storage in the conservation account established in the 1988 Agreement. Refer to Section 5.1 for more details on SSJID's surface water rights. SSJID's primary water demand is for irrigated agricultural land. In 2010, SSJID provided irrigation water to about 47,254 acres. The irrigation season typically runs from about March 15 to October 15, depending on the weather. Beginning in 2005, SSJID began delivering about 17,000 to 20,000 AF/year of treated water to Lathrop, Manteca and Tracy.

Facilities. SSJID owns and operates an extensive system of water and stormwater drainage conveyance facilities, pipelines and canals. SSJID's surface water comes from the Stanislaus River watershed. Water is stored in the reservoirs behind the Tulloch, New Melones, Beardsley, Goodwin, and Donnells Dams. SSJID also owns the

off-channel Walter J. Woodward Reservoir, which has storage capacity of 36,000 AF. Water is diverted from the Stanislaus River and stored in Woodward Reservoir before it is treated at the Nick C. DeGroot WTP. Treated water is delivered to the cities of Manteca, Tracy and Lathrop through a 36-mile concrete-lined steel pipeline that varies in diameter from 30 to 54 inches. The location of the Nick C. DeGroot WTP and treated water pipeline are shown on **Figure 1**.

3.1.3 – City of Escalon

The city of Escalon is located in the eastern portion of SSJID about 11 miles north of downtown Modesto. In 2010, the population of Escalon was about 7,100. Escalon currently relies only on groundwater supplies. The city has four active wells. One well has been equipped with two granular activated carbon (GAC) contactors to remove dibromochloropropane (DBCP). All four wells are treated with chlorine. The city plans to construct a new well within the next two to three years. Water is delivered throughout the city using 33 miles of pipe ranging from three to sixteen inches in diameter. The city also has one 500,000 gallon water tank. Escalon plans to construct a pipeline to convey SCWSP treated water to their city limits by 2020. Escalon is currently selling their SCWSP allotment of treated water to the city of Tracy.

3.1.4 – City of Lathrop

The city of Lathrop is located just west of SSJID, west of the city of Manteca and south of the city of Stockton. In 2010, the population of Lathrop was about 18,000. The city of Lathrop's water system serves approximately 4,800 meter service connections within a 22 square mile area. Water sources include groundwater pumped by five wells and treated surface water purchased from the SCWSP. The water system has four booster pump stations located at each of the city's four water storage tanks. The city is currently constructing a centralized water treatment facility to remove arsenic from the city's groundwater. The facility is scheduled for completion in 2012. The new facility will include a 1 MG equalization tank and booster pump station. Salinity is the primary water quality issue in the groundwater. Total Dissolved Solids (TDS) concentration at the city's wells may require treatment within the next ten years by blending with SCWSP water and/or treatment by reverse osmosis. The city does not foresee any immediate water reliability issues. The city produces recycled water from two wastewater treatment facilities which is used to irrigate fodder crops. Lathrop plans to update their existing UWMP to meet new State guidelines by March 2012.

3.1.5 – City of Manteca

The city of Manteca is located in western SSJID, immediately east of Lathrop and south of Stockton. In 2010, the population of Manteca was about 67,100. Manteca's water supply includes groundwater pumped by 17 city-owned wells and treated surface water purchased from SCWSP. The city maintains approximately 252 miles of pipelines that range in size from 4 to 24 inches in diameter. Groundwater quality issues include arsenic, nitrate, EDB and DBCP. Twelve of the city's wells include treatment systems for arsenic. In addition, high quality surface water is blended with lower quality groundwater to help meet MCL compliance for arsenic. Disinfection byproducts are a

periodic concern for SCWSP surface water. The city's water supply has been highly reliable as there have been no mandatory water restrictions due to drought, power outages, or supply disruptions or failures. The city expects to complete an update to their UWMP by September 2011.

3.1.6 – City of Tracy

The city of Tracy is located about 10 miles west of SSJID and is southwest of Lathrop. The city had a population of about 82,900 in 2010 and covers an area of about 22 square miles. The Tracy water system has 23,499 metered connections within a 44-square mile area. Annual water demand is approximately 18,000 AF. Tracy's water supply includes treated surface water from SCWSP, the USBR's Central Valley Project (CVP) water, and groundwater. Tracy uses their surface water to meet most demands, while relying on groundwater for peaking during the summer and for supplemental drought supplies. Tracy has a water treatment plant and nine groundwater wells. The only water quality issue is salinity. The groundwater is very hard and the CVP water supply can be saline at certain times of the year. SCWSP surface water has the best water quality of any of the City's supplies. Overall, Tracy has a diverse portfolio of water supplies that helps to increase reliability. Tracy completed a second connection to the SSJID water line in 2009 which will allow the City to receive additional water. The city of Tracy prepared an UWMP in 2005 and is updating it in 2011 to satisfy new State standards.

3.1.7 – City of Ripon

The city of Ripon is located in south central SSJID, along the southern edge of San Joaquin County. Ripon's population in 2010 was about 14,300. Ripon's water is supplied by eight groundwater wells. System storage consists of two above ground storage tanks with a total capacity of over four million gallons. Some of the connections are metered but many older connections are not. The city has developed a water meter program to install meters at all existing connections within the next fifteen years. Water quality concerns include nitrate, arsenic, TDS, and VOCs. Ripon also has a non-potable water system that provides water for irrigation and industrial users. The primary source of water is groundwater pumped from two City wells along with private industrial suppliers. The city's current allotment of SSJID water is used as part of the city's groundwater recharge program. These water supplies are not treated by SSJID prior to delivery. By the end of 2012, Ripon would like to receive a part of its water allotment from the Nick C. DeGroot Water Treatment Plant and pump it directly into the city's potable water system. This will be contingent on funding, signing a contract with SSJID, constructing new conveyance facilities, CEQA and permitting. In the event the SCWSP could not supply treated water to the city, Ripon would rely on raw untreated water from SSJID and groundwater. Ripon last prepared an UWMP in 2003 and will be updating it in July 2011 to meet new State standards.

3.1.8 – Regional Climate

Climate information for the city of Manteca is available from the California Irrigation Management Information System (CIMIS) Weather Station No. 70. The climate

information is based on data between 1987 and 2011. This climate information is generally representative of the climate throughout SSJID. The climate in SSJID can be described as generally warm to hot in the spring, summer, and fall, with temperatures occasionally climbing over 100° Fahrenheit ("F") on summer days. Winters are usually mild. The mean annual temperature is 60°F degrees, and the mean minimum and maximum temperatures are 47°F and 76°F. Most precipitation occurs during winter. The average annual precipitation is about 12.8 inches. Average wind speed is 4.7 mph.

The water supply for the Stanislaus River system is supplied by rainfall and snowmelt runoff from the watershed above Goodwin Dam. Average annual precipitation in the watershed is 13 inches at the lower elevations and upwards of 65 inches at the higher elevations. Precipitation occurs primarily during the months of November through May.

3.2 – Service Area Population

Table 3.1 includes population projections from 2010 to 2030 for the Cities under contract with SSJID. All population projections were provided directly by the cities.

Table 3.1 – Population Projections

City	2010[3]	2015	2020	2025	2030	Source
Escalon	7,100	8,800	NA	12,000	NA	City of Escalon 2005 General Plan
Lathrop[1]	18,000	44,900	57,100	68,800	71,100	City of Lathrop 2005 UWMP
Manteca	67,100	79,800	94,900	112,200	132,600	City of Manteca
Tracy	82,900	89,500	99,400	109,400	117,700	City of Tracy
Ripon[2]	14,300	18,100	21,200	24,900	29,100	City of Ripon

Notes: Population values are rounded to the nearest 100
1 - Population projections for Lathrop are based on a 2005 study and are no longer considered realistic. An annual population growth of 2.4%/year is considered more reasonable.
2 - Ripon is not currently under contract to receive treated water from SCWSP.
3 – 2010 population data from California Department of Finance, Demographic Research Unit, State Census Data Center

4 – SYSTEM DEMANDS

4.1 – Baselines and Targets

The UWMP guidelines require water users to establish a baseline per capita water usage, and urban water use targets for 2015 and 2020. The motive for this effort is California's 20x2020 Water Conservation Plan, which aims to reduce statewide per-capita urban water-use 20 percent by the year 2020. The Water Conservation Bill of 2009 (SBX7-7) provides the regulatory framework to support this statewide reduction in urban water use.

As a wholesale water agency, SSJID is not required to develop baseline and target water demands, because the District does not directly use the treated water. However, SSJID requested this information from the five Cities, which is presented in Table 4.1.

Table 4.1 – Estimated Per Capita Demands (gal/capita/day)

City	Base Year	2015	2020	2025	2030
Escalon	215	227	NA	226	NA
Lathrop	NA	NA	NA	NA	NA
Manteca	214	192	171	171	171
Tracy	227	204	182	182	182
Ripon[1]	Varies (288-308)	300	300	300	300

Notes:
Data provided directly by the Cities in 2011

Please refer to each city's UWMPs for details on how they plan to achieve these goals.

4.2 – Water Demands

Table 4.2 includes historic deliveries of SCWSP treated water to the Cities. These represent the entire history of SCWSP deliveries, which began in 2005. The city of Ripon receives raw (untreated) water from SSJID, but these quantities are not shown in Table 4.2.

The cities of Lathrop, Tracy and Manteca divert the water into their distribution system and deliver it to all water sectors (i.e., residential, multi-family, commercial, industrial, office, etc.). Tracy also uses some treated water for groundwater recharge. The city of Ripon currently uses untreated SSJID water exclusively for groundwater recharge. Should they begin receiving treated water, Ripon and Escalon will deliver the water to all water use sectors.

Table 4.2 – Historic Treated Water Deliveries (AF)

City	2005	2006	2007	2008	2009	2010
Escalon	0	0	0	0	0	0
Lathrop	777	1,620	2,014	1,412	1,650	1,090
Manteca	2,861	6,666	6,344	6,817	6,970	5,745
Tracy	2,855	8,477	8,781	8,587	11,126	10,595
Total	6,493	16,763	17,139	16,816	19,746	17,430

Notes:
1 - These water deliveries do not represent all water demands in the Cities; each city also has additional sources of water.
2 - Escalon sold 2,015 AF/year to Tracy from 2006 to 2010. These values are shown under Tracy's water deliveries.

4.3 – Water Demand Projections

Demand for SCWSP water is expected to increase over time as the Cities grow, and as they replace some of their groundwater pumping with surface water deliveries. Table 4.3 shows projected water demands for SCWSP treated water under existing contracts. These values were provided to SSJID directly by the Cities in the Spring of 2011, and are expected to be the same in normal, dry, and multiple-dry years.

Table 4.3 – Projected Water Demands (AF) for SCWSP Water under Existing Contracts (provided by Cities)

City	2015	2020	2025	2030
Escalon	0	250	500	1,000
Lathrop[1]	2,820 (8,000)	4,549 (10,780)	6,278 (11,791)	8,007 (11,791)
Manteca	9,155	9,637	11,391	11,500
Tracy	10,000	10,000	10,000	10,000
Total	21,975	24,436	28,169	30,507

1 – Water demands in parentheses are from Lathrop's 2005 UWMP and are not used. Water demands used in analysis assume a gradual increase to their Phase I contract allotment of 8,007 AF/year by 2030.

The water demands shown for Lathrop comes from the Lathrop 2005 UWMP, which assumes very aggressive residential construction and population growth would occur for many years. Lathrop's forecast was prepared before the economic recession. An updated projection is currently not available from Lathrop. Table 4.3 shows SSJID's revised schedule of its projected deliveries of drinking water to Lathrop in light of Lathrop's low demand for District water, and the likelihood that this low demand will change only gradually because of the continued uncertainty in the timing of an economic recovery.

The water demands in Table 4.4 are above existing contract allotments, and were also provided directly by the Cities. These demands could only be met after new agreements are signed with SSJID, or they could be met by purchasing unused SCWSP project water from other Cities. For instance, Tracy is currently purchasing a portion of Escalon's water supply, and may continue to do so in the future.

Table 4.4 – Projected Water Demands (AF) for SCWSP Water above Existing Contracts (provided by Cities)

City	2015	2020	2025	2030
Escalon	0	0	0	0
Lathrop	0	0	0	0
Manteca	0	0	0	1,963
Tracy	3,000	3,000	3,000	3,000
Ripon	4,695	4,695	4,695	4,695
Total	7,695	7,695	7,695	9,658

Ripon is not currently under contract to receive treated water from the SCWSP, but currently received untreated raw water. Ripon's ability to purchase treated water is subject to negotiating an agreement with SSJID, permitting, CEQA, funding, and constructing necessary facilities.

Table 4.5 shows SSJID's projected water deliveries to the four cities. The projected deliveries in Table 4.5 match the demands for contracted water in Table 4.3. SSJID believes they will be able to meet these demands based on a review of historical Stanislaus River hydrology except in certain very dry years in which rationing would be required (see Section 6.1 – Water Supply Reliability).

Table 4.5 – Projected Water Deliveries (AF) (provided by SSJID)

City	2015	2020	2025	2030
Escalon	0	250	500	1,000
Lathrop	2,820	4,549	6,278	8,007
Manteca	9,155	9,637	11,391	11,500
Tracy	10,000	10,000	10,000	10,000
Total	21,975	24,436	28,169	30,507

Figure 2 graphically illustrates the treatment plant capacity and anticipated water demands for each of the five cities from 2015 to 2030.

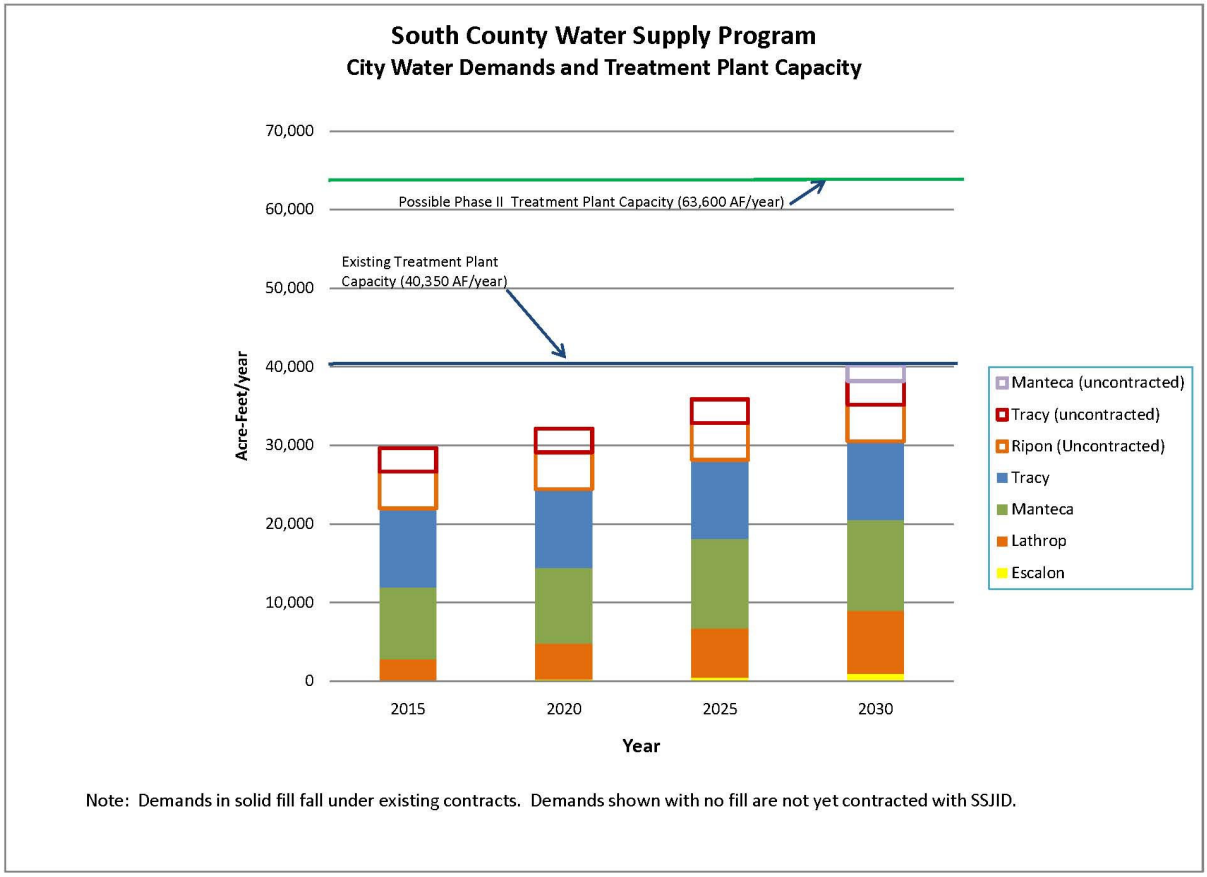

Figure 2 – Future Water Demands and Treatment Plant Capacity

Based on Figure 2, the Nick C. DeGroot WTP will not have to be expanded to meet water demands until after 2030. Options for increasing the treatment plant capacity are discussed in Section 9.

The SCWSP does not have any other water uses besides deliveries to the Cities. The Cities use the water to meet domestic, industrial and commercial demands, and the city of Tracy also performs groundwater recharge with some of their allotment. Some treated surface water is lost due to pipeline leakage. Pipeline leakage is described in Section 7.1 and over the past five years has been minor to negligible.

4.4 – Water Use Reduction Plan

Wholesale water providers are required to provide an assessment of their present and proposed future measures, programs, and policies to help achieve water use reductions. SSJID plays only a limited role in urban water conservation efforts, as these are primarily managed and implemented by each city. (Please refer to the individual UWMPs for each city for details on their water use reduction plans.) However, SSJID does assist with educational programs at local schools on water management and water

conservation (see Section 7.3 – Wholesale Agency Programs). SSJID plans to maintain and expand this school education program in the future.

SSJID has a strong history of agricultural water conservation. In fact, the SCWSP was possible partly because SSJID implemented numerous agricultural water-conservation measures since the mid-1980's, resulting in significant reductions in water use. This, together with conversion of agricultural land to urban uses, freed up water for sale to the Cities. SSJID also has on-going system improvements that should continue to improve system efficiency and reduce irrigation water demands.

SSJID has also encouraged the Cities to develop strong water conservation programs. The SCWSP was created as part of a regional water management effort to: 1) improve water reliability in southern San Joaquin County; and 2) reduce stress on the local groundwater basin. More efficient use of the treated water will help to further these two goals.

5 – SYSTEM SUPPLIES

5.1 – Water Sources

SSJID's water supply for the SCWSP is obtained exclusively from the Stanislaus River. These water supplies originate on the western slope of the Sierra Nevada Mountains in Alpine, Calaveras, Stanislaus and Tuolumne counties. The Stanislaus River watershed above Goodwin Dam encompasses a 980 square mile drainage basin that includes the Stanislaus River, New Melones Reservoir, Tulloch Reservoir as well as several smaller reservoirs, lakes and streams.

SSJID's surface water rights are primarily held jointly with its neighbor, Oakdale Irrigation District (OID; OID and SSJID are collectively called 'the Districts"). These include water rights established prior to enactment of the Water Commission Act of 1914 (i.e. pre-1914 rights), as well as rights acquired after 1914. SSJID separately owns the right to store water in Woodward Reservoir, an off-stream reservoir. SSJID's water deliveries are largely governed by a 1988 Agreement and Stipulation ("1988 Agreement") between the United States Bureau of Reclamation (USBR) and the Districts. The 1988 Agreement is an operational agreement for the New Melones Reservoir system. The 1988 Agreement recognized and protected the District's senior water rights on the Stanislaus River, as those rights might be affected by the USBR's operation of the New Melones Reservoir as part of the Central Valley Project. All of the District's rights are senior to the USBR's right to store Stanislaus River water in New Melones Reservoir.

The 1988 Agreement entitles the Districts to all New Melones inflow, plus an amount derived by the following formula: (600,000 AF less inflow) divided by 3, not to exceed 600,000 AF per year (referred to as "formula water"). All of the water available to the Districts under their water rights is supplied from formula water under the 1988 Agreement. The 1988 Agreement allows SSJID to store conserved water from year to year in a conservation account. If the USBR releases water from New Melones Reservoir for flood control purposes, the conserved water is the first water released. The conserved water can be used to increase the District's water supply to 225,000 acre-feet in any year when formula water would provide less water. SSJID's surface water rights with the 1988 Agreement are expected to provide 225,000 to 300,000 AF/year. Since the 1988 Agreement has been in effect, the lowest supply of water was 252,670 acre-feet in 1992.

SSJID's and OID's pre-1914 rights permit them to divert a combined 1,816.6 cfs from the Stanislaus River during the period of March 1 through October 31. SSJID urban water is diverted at Goodwin Dam, conveyed through the main canal and stored at Woodward Reservoir (36,000 AF capacity) prior to treatment. As described above, the USBR is required to make water available to the Districts by the 1988 Agreement as the construction of New Melones Reservoir prevents the exercise of these rights.

Each city has an agreement with SSJID to receive treated water through December 2029. Table 5.1 lists the current allotments (Phase I) to each City based on contracts signed in the 1990's that allocated a share of the treatment plant capacity. Phase I contracts are currently active. Table 5.1 also shows possible future Phase II allotments that would become active only after future expansion of the Nick C. DeGroot WTP, which is contingent on funding and new agreements with the Cities. Currently, SSJID has no immediate plans to implement Phase II.

Table 5.1 – City Allotments for Treated Water

City	Phase I Allotment	Phase II Allotment
Escalon	2,015	2,799
Lathrop	8,007	11,791
Manteca	11,500	18,500
Tracy	10,000	10,000
Total	**31,552**	**43,090**

Source: Water Supply Development Agreements between the cities and SSJID

The city of Ripon currently has a contract for untreated raw water from SSJID. Ripon receives up to approximately 2,000 AF/year increasing gradually to 6,000 AF/year in 2030. Currently all of this water is used for groundwater recharge. Ripon would like to begin receiving 4,695 AF/year of treated water in 2012, but this still has to be approved by SSJID.

5.2 – Groundwater

Groundwater is an important resource used by the Cities and farmers in SSJID. The Cities use groundwater to meet much of their demands, and some District growers use groundwater as a regular source for irrigation water. Groundwater also provides important reserves that can supplement SCWSP water during droughts. Furthermore, SSJID has leased private wells during droughts to augment water supplies to farmers, which could help to minimize cuts to City water supplies. However, groundwater is not a primary source of District-provided irrigation water or water delivered directly to the Cities from the Nick C. DeGroot WTP, and therefore is not considered in this UWMP.

5.3 – Transfer Opportunities

Water transfers can assist the Cities in meeting their water demands during droughts. According to their contracts with SSJID, each city can transfer up to their full treated water allotment to one of the other participating four Cities, without needing SSJID's permission. Each city also has first right of refusal for any sales of SCWSP treated water by one of the other cities to other entities in San Joaquin County.

5.4 – Desalinated Water Opportunities

The SSJID is about 80 miles from the Pacific Ocean so the use of desalinated sea water is not a practical option. Some local groundwater has high salinity and is blended with untreated surface water to improve its quality. SSJID has not seen a need to directly treat high salinity groundwater to increase water supplies.

5.5 – Recycled Water Opportunities

Recycled water and reclaimed wastewater are available at the Cities within and surrounding SSJID. However, some of the Cities already use recycled water themselves, and/or the recycled water is not centrally located to permit SSJID to treat and deliver the water to any of the Cities. The City's individual UWMPs provide information on their wastewater treatment and collection systems, quantities of treated wastewater, recycled water uses, incentives for using recycled water, and plans for optimizing use of recycled water.

The SCWSP does generate wastewater through treatment processes at the Nick C. DeGroot WTP. This wastewater includes backwash water and decanted water, and is called 'recycled' water below. The majority of recycled water comes from backpulsing (cleaning) the membranes. During a backpulse, permeated water is redirected through the membranes from the inside out to help remove solids that accumulate on the membranes during the treatment process. Additional recycled water comes from water decanted from drying beds, routine chemical maintenance, and quarterly high dose chlorine acid recovery. These recycled waters have been blended with treated water and included in the deliveries to the Cities. Annual recycled water volumes from 2005 to 2010 are shown in Table 5.2.

Table 5.2 - SCWSP Recycled Water

Year	Recycled Water Volume (AF)
2005	570
2006	1,282
2007	1,345
2008	1,316
2009	1,409
2010	1,242

Sources: Nick C. DeGroot WTP records

SSJID plans to continue delivering the recycled water to the Cities through 2030. From 2005 to 2010, recycled water comprised about 7% to 8% of the total urban water supply, but in the future it will comprise a slightly smaller portion. Beginning in 2011, all acid high dose cleans will be trucked from the site to the city of Escalon wastewater treatment plant, or another wastewater treatment plant. This will be done due to

regulatory changes by the California Department of Health, and at the request of Cities receiving the water.

6 – WATER SUPPLY RELIABILITY

This section discusses the reliability of treated water supplies and their vulnerability due to droughts, water quality impacts, and natural and man-made disasters.

6.1 – Water Supply Reliability

The reliability of SCWSP water is determined by many factors including water quality, Stanislaus River hydrology, equipment performance, regulatory actions, and natural and manmade disasters. Following are discussions on these topics as well as The Safety and Emergency Response Plan for the SCWSP, which addresses many of these issues.

Safety and Emergency Response Plan

SSJID has a Safety and Emergency Response Plan for the SCWSP. The plan was last updated in 2010. The primary objectives of the plan are to: 1) Protect the public health and welfare; and 2) Avoid and minimize hazards that may occur during natural and man-made catastrophes. The plan includes emergency response procedures for the following situations:

- Ammonia tank leaks
- Damage-causing earthquakes
- External power failure
- In-plant power failure
- Fire
- Flooding
- Chemical spills
- Major equipment failures
- Intrusion by unauthorized visitors

The plan also includes an Emergency Response Notification Plan and sample consumer alerts for unsafe water and water outages/shortages.

Water Quality

Surface water used at SCWSP is supplied from the Stanislaus River, which generally has high quality and low total dissolved solids (TDS) loads. Reservoir storage on the Stanislaus River also helps reduce suspended solids. However, during flood events and times of elevated flows, TDS and suspended solid levels can increase. The Nick C. DeGroot WTP provides several levels of treatment for the raw water supply. The resulting effluent is considered excellent quality.

In 2011, the Stanislaus/Calaveras River Group completed a sanitary survey update for the upper portion of the Stanislaus River Watershed. The purpose of the sanitary survey was to identify potential sources of contamination and identify remedial measures. Several potential sources of contamination were identified, including

recreational activities at Woodward Reservoir, confined animal facilities, cattle grazing, old septic systems, and wastewater disposal. Source control measures for these problems have been on-going to help preserve good water quality. These programs have been successful, and, with continued implementation, the source control measures should maintain the existing quality of the Stanislaus River. If the quality begins to degrade, the watershed management program will be re-evaluated and/or SSJID will evaluate whether modifications to water treatment processes are necessary.

Climatic/Hydrologic Fluctuations

The reliability of SSJID's urban water supply was evaluated using historical hydrology on the Stanislaus River, water rights agreements with the USBR, and recent data on agricultural water demands and system losses in SSJID. The methodology used in the analysis is described below:

1) Determine representative historical years with Normal, Single-Dry and Multiple-Dry Year conditions using data on Stanislaus River hydrology (Appendix D)

2) Determine long-term water supply reliability based on Stanislaus River hydrology (Appendix D).

Step 1: Determine Representative Historical Years for Normal, Single-Dry and Multiple-Dry Years

Representative years for Normal, Single-dry and Multiple-Dry years were determined using data on Stanislaus River hydrology found in Appendix D. Appendix D shows inflow to New Melones Reservoir and the volume of water available to SSJID from 1894 to 2010. The results in Appendix D are based on a simulation from 1894 to 1987 assuming that the 1988 Agreement was in place, but includes real hydrologic data from 1988 to 2010. The analysis in **Appendix D** also assumes that SSJID has sufficient 'conserved water' (water in surface storage) available to provide a minimum of 225,000 AF/year for delivery in any given year and that sufficient water is actually available in New Melones Reservoir. The representative years and their available water supply are shown in Table 6.1.

Table 6.1 – SSJID Surface Water Supplies in Normal, Single-Dry and Multiple-Dry Years

Hydrologic Year Type	Representative Year(s)	Water Supply (AF/yr)
Single-Dry	1977	225,000
Multiple-Dry	1990-1992	260,200 (3-yr avg.)
Normal	2010	300,000

The results in Table 6.1 for 1977 assume the 1988 Agreement is in effect. The hydrology for the Stanislaus River in 1977 was actually 129,300 acre-feet, the lowest water supply of any of the 115 years of historical data. (See Appendix D). The multiple-dry years, 1990-1992, represent a three year period of drought, but none of the years were, individually, as dry as 1977. The normal year, 2010, had a full water allocation under the 1988 Agreement (300,000 AF).

Step 2: Determine Long-Term Water Supply Reliability

The reliability of Stanislaus River diversions was determined by sorting flows into New Melones Reservoir from 1894-2010 (see **Appendix D**). **Figure 3** graphically illustrates the reliability of Stanislaus River supplies.

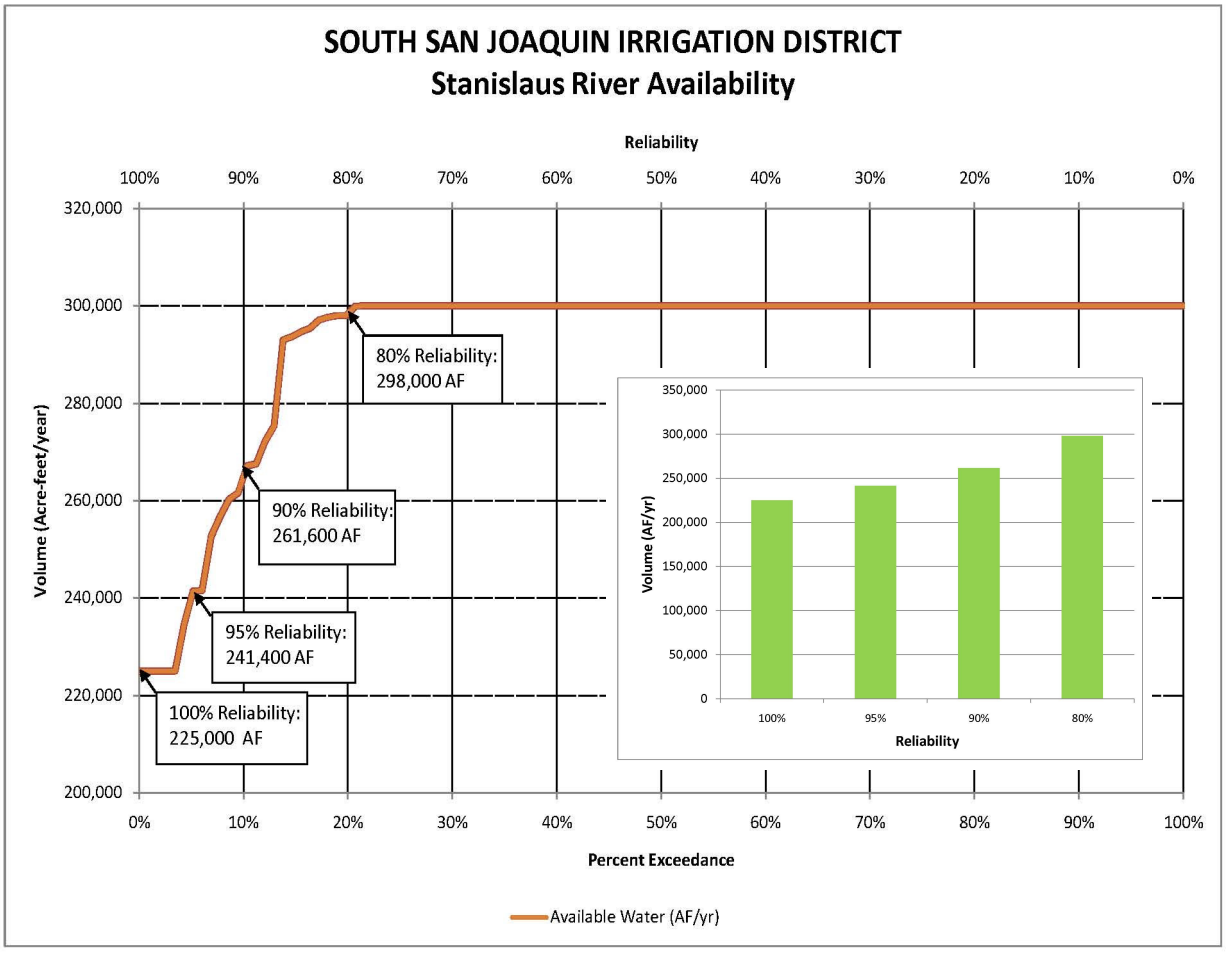

Figure 3 – Water Supply Reliability

Reliabilities were also assigned to each hydrologic year type. The Single-dry Year water supply of 225,000 AF has a 100% reliability. In other words, this water supply is the smallest amount that can be expected, and can be relied on 100% of the time, based on the data in Appendix D. The Multiple-dry Year water supply has a 92% reliability, and the Normal Year water supply has a 79% reliability.

Distribution System Performance

The distribution system performance relies on several facilities including pipelines, pump stations and reservoirs. A new 35-mile long concrete-lined steel pipeline is the primary facility used to convey water to the Cities. The pipeline was constructed in 2005 and has performed as expected. Water entering and exiting the pipeline is monitored with electromagnetic meters to estimate seepage losses. So far, losses have been within the accuracy of the flowmeters (see Section 7.1), so the pipeline is believed to be in good condition. The SCWSP Safety and Emergency Response Plan discusses alternatives in case of a distribution system failure.

Water Treatment Plant Performance

The Nick C. DeGroot Water Treatment Plant was designed with redundant tanks and basins so that a part of a process may be removed from service without seriously impairing overall plant performance. In addition, the essential plant equipment has been provided with at least one redundant unit to provide 100% backup.

Natural and Man-made Disasters

A variety of natural and man-made disasters could impact the SCWSP's ability to store, treat or deliver water to the Cities. These could include flooding, fire, earthquakes, power outages, vandalism and/or acts of terrorism. These are covered in SCWSP's Safety and Emergency Response Plan.

Future Regulatory Reductions

Future water rights and water reliability could be adversely impacted by the actions of regulatory bodies. The State Water Resources Control Board has proposed to implement future water quality control plans by reducing the water that can be diverted by water rights holders. Hearings to implement the Board's latest water quality control plan could begin as early as 2012. Furthermore, action by the Regional Water Quality Control Board to remedy impaired water bodies by imposing Total Maximum Daily Loads (TMDLs) could also affect SSJID.

Lastly, water reliability is complicated by the absence of a long-term operating plan that would provide certainty that the USBR will continue to meet the terms of the 1988 Agreement in its operation of New Melones reservoir. The absence of a plan is best illustrated by consideration of the potential effects of the Endangered Species Act. The National Marine Fisheries Service (NMFS) issued a Biological Opinion in June 2009, which, among other provisions, affects the operation of New Melones reservoir. The Biological Opinion provides flow-related reasonable and prudent alternatives (RPA's) for the Stanislaus River that would be met by releases from New Melones Reservoir.

Among the flow-related RPA's are actions that would require the USBR to release water from New Melones to achieve specified water temperatures, to meet a year-round minimum flow schedule, dependent on hydrologic year type, and to inundate the floodplain on a one to three year schedule.

NMFS' staff ran a computer model to determine the feasibility of the flow-related RPA's in which NMFS staff reduced the deliveries to OID and SSJID. NMFS staff determined that the USBR would reduce deliveries of water to OID and SSJID by an average of 13,000 AF per year, with the average reduction in critically dry years averaging approximately 50,000 acre-feet. However, the Districts' modeling found that the impacts could be much larger in dry years.

The Biological Opinion literally applies only to the USBR, and not to OID and SSJID. The USBR has no authority to deprive the Districts of water to which they are entitled and the USBR has assured the Districts that it will honor the 1988 Agreement. However, without a long-term operating plan, the Districts have no long-term certainty. The Biological Opinion has been challenged by OID and SSJID in U.S. District Court (Fresno division; Case No. 1:09-cv-1053 OWW-DLB).

Other City Water Supplies

All of the Cities have other water supplies in addition to the treated water they receive through SCWSP, to meet local demands. Each city has groundwater wells and some have access to surface water. These supplies also serve as backup and reserve supplies in the case of a reduction in treated water deliveries. Groundwater is especially valuable as a backup supply since it is available year round and is minimally impacted by droughts. Some of the cities either have already begun using or are developing plans to use recycled water, water transfers, groundwater banking, water use restrictions, and other alternatives to diversify their water resources portfolios. Refer to the Cities' individual UWMPs for more information.

6.2 – Water Shortage Contingency Planning

SSJID has developed several contingency plans to provide treated water to the Cities through the SCWSP in the case of a water shortage, including:

1. Voluntary Reductions. If water shortages are likely or eminent, SSJID would first ask the Cities and irrigation customers to make voluntary reductions in water use. This could free up some water for cities that have a more critical need.

2. Inter-City Transfers. According to their Water Supply Development Agreement with SSJID, each city can transfer a portion or all of their water allotment to one of the other cities without SSJID approval. Inter-city transfers have already taken place between Escalon and Tracy, (although they are not driven by water shortages but rather Escalon's lack of infrastructure to accept the treated water). Such transfers can help to redistribute water to Cities with the greatest need.

3. Private Well Leasing. SSJID has leased private wells during droughts to supplement surface water supplies. While intended to meet agricultural water demands, this practice could also help to minimize reductions to urban water users.

4. Agricultural Water Conservation. During a drought, SSJID encourages farmers to expand their water conservation efforts by extending the length of irrigation runs, imposing time restrictions on irrigation, lowering the level of its off-stream storage reservoir and pumping more ground water. In addition, SSJID has recently established a second tier of agricultural land which is the first to be restricted in the event of shortages in water supply. The second tier includes land newly annexed to the District and land that becomes newly eligible to use surface water by agreement with the District after previously having not been irrigated or irrigated solely with groundwater.

5. Additional Groundwater Pumping. Some farmers own private wells, and it is likely that they would increase groundwater pumping during droughts. This could help avert crop losses and may reduce demands for surface water.

All of these mechanisms for reducing water use can be measured or estimated using water budget calculations. If they are implemented during a drought, SSJID will attempt to quantify them to determine their impact and effectiveness.

If treated water demands cannot be met without reducing agricultural demand, SSJID would reduce irrigation deliveries by implementing these contingency plans, and ration water to the Cities using the same reduction percentage as would be applied to its agricultural customers. This policy is included in the Water Supply Development Agreements between SSJID and each city.

In addition, each city has their own contingency plans for dealing with surface water reductions. The Cities have a variety of options including groundwater, water transfers, stored water, water conservation measures, water use prohibitions, and recycled water. Please refer to the Cities' individual UWMPs for more information.

6.3 – Drought Planning

This section presents data on demands for SSJID water versus available supplies. Since the SCWSP began delivering treated water in 2005, it has not experienced an actual supply deficiency. Based on the data presented below, it is expected that the SCWSP will be able to meet urban water demands through 2030 during normal and multiple-dry years, but will experience shortages in single-dry years.

Table 6.2 shows historic data used to evaluate normal, single-dry and multiple-dry years. From a water demand perspective this data is irrelevant because the cities expect to have the same demand for SCWSP water in all hydrologic year types.

However, from a water supply perspective this data is important, since the available water supply will vary during normal, single-dry and multiple-dry years. Refer to Section 6.1 for a discussion on how these hydrologic year types and their water supplies were determined.

Table 6.2 – Supply Reliability – Historic Conditions

	Normal Water Year[2]	Single-Dry Water Year[2]	Multiple-Dry Water Yrs[3]		
			Year 1	Year 2	Year 3
% of Normal Year[1]:	2010	1977	1990	1991	1992
	100%	75%	87%	89%	84%
Allocation	300,000 AF	225,000 AF	260,000 AF	267,500 AF	252,700 AF

1 – Percent of normal year reflects the percent of the District's maximum allocation of 300,000 AF that was available under the 1988 Agreement.
2 – Allocations for Single-Dry Year scenario is hypothetical and based on actual hydrology with the assumption that New Melones Reservoir and 1988 Agreement are in place.
3 – Allocations for the Normal and Multiple-Dry Year scenarios are based on actual water available.

Tables 6.3 through 6.5 compare water supplies and demands during a normal year, multiple-dry year, and single-dry year. The water available for urban demands was determined by subtracting anticipated agricultural demands from total supplies. The urban and agricultural water demands come from the same source and are treated equally during droughts, with each taking equal reductions during a shortage. The urban demands shown are for water supplies already contracted under SCWSP. Un-contracted water demands (see Table 4.4) are not included in Tables 6.3 through 6.5, since SSJID currently has no obligation to meet them.

Table 6.3 – Supply and Demand Comparison – Normal Year (AF)

Description	2015	2020	2025	2030
Supply Total	300,000	300,000	300,000	300,000
Urban Demand	22,000	24,400	28,200	30,500
Urban Demand/ Total supply	7.3%	8.1%	9.4%	10.2%
% of Urban Demand Met	100%	100%	100%	100%

Note: Supply and demand data are taken from Tables 4.3 and 6.1.

Table 6.3 indicates that SSJID will have adequate supplies to meet water demands in Normal years. However, this is dependent on the certainty of the available water supply, which is dependent on each year's hydrology and regulatory uncertainty (see

discussion above).

Table 6.4 – Supply and Demand Comparison – Multiple-Dry Years (AF)

Description	2015	2020	2025	2030
Supply Total	260,200	260,200	260,200	260,200
Urban Demand	22,000	24,400	28,200	30,500
Urban Demand/ Total Supply	8.5%	9.4%	10.8%	11.7%
% of Urban Demand Met	98.9%	98.0%	100%	100%

Note: Supply and demand data are taken from Tables 4.3 and 6.1.

Table 6.4 shows that SSJID can meet anticipated water demands in Multiple-Dry Years with only minor reductions required in 2015 and 2020. Water conservation would be expected to be sufficient to make up the potential shortfall. If necessary, the contingency plans described in Section 6.2 would be expected to reduce demand with minimal rationing. Reduced agricultural demand as projected after 2020 would eliminate projected shortfalls.

Table 6.5 – Supply and Demand Comparison – Single-Dry Year (AF)

Description	2015	2020	2025	2030
Supply Total	225,000	225,000	225,000	225,000
Urban Demand	22,000	24,400	28,200	30,500
Urban Demand / Total Supply	9.8%	10.8%	12.5%	13.6%
% of Urban Demand Met	85.6%	84.8%	87.7%	91.5%
Urban Reduction	3,200	3,700	3,500	2,200

Notes: 1) Supply and demand date are taken from Tables 4.3 and 6.1.

Based on the analysis in Table 6.5, the SCWSP would experience a water shortage in a Single-Dry Year in which water supplies are reduced to the expected minimum of 225,000 AF. The occurrence of such years has been very infrequent over the more than 100 years for which hydrologic records are available (See Appendix D). In such a year, the water shortage contingency plans described in Section 6.2, including rationing, would likely be required. Water would be rationed with equal percentage cutbacks to irrigation and urban demands. Table 6.5 illustrates how the rationing would take place

during a Single-Dry Year. Reduced agricultural demand as projected after 2020 would reduce the shortages and less rationing would be required.

7 – DEMAND MANAGEMENT MEASURES

Demand Management Measures (DMMs) are policies, programs, practices, rules, regulations and ordinances, or the use of devices, equipment or facilities that result in more efficient use or conservation of water. More simply described, DMMs are mechanisms a water supplier implements to conserve water. DWR lists fourteen DMMs in the California Water Code. Thirteen of the fourteen DMMs are relevant to retail water suppliers, but wholesale water suppliers are only required to address five of the DMMs. Table 7.1 lists all of the DMMs and shows which need to be addressed by wholesale water suppliers.

Table 7.1 – Applicability of Demand Management Measures

DMM Label	DMM Name	Applicability	
		Retailers	Wholesalers
A	Water Survey Programs	Yes	No
B	Residential Plumbing Retrofits	Yes	No
C	System Water Audits	Yes	Yes
D	Metering	Yes	Yes
E	Large Landscape Conservation	Yes	No
F	High Efficiency Washing Machine Rebates	Yes	No
G	Public Information Programs	Yes	No
H	School Education Programs	Yes	No
I	Commercial, Industrial and Institutional Conservation Programs	Yes	No
J	Wholesale Agency Programs	No	Yes
K	Conservation Pricing	Yes	Yes
L	Water Conservation Coordinator	Yes	Yes
M	Water Waste Prohibition	Yes	No
N	Low Flow Toilet Replacement	Yes	No

Source: California Department of Water Resources, *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*, March 2011.

Following are discussions on the DMMs required for a wholesale water supplier. This section does not discuss DMMs implemented by the cities. Please refer to the Cities' individual UWMPs for detailed information on their water conservation programs.

7.1 – System Water Audits, Leak Detection, and Repair

The year the DMM was implemented or will be implemented: 2005

Comprehensive description of the DMM: Water system audits include an evaluation of a distribution system for leaks and other losses. The system losses are a good indication of the system integrity.

Steps necessary to implement the DMM: The system pipeline includes about 35 miles of concrete-lined steel pipe with diameters ranging from 36 to 50 inches. Water entering the pipeline is measured with an electromagnetic meter. This volume is compared to readings from electromagnetic meters at delivery points to the cities of Manteca, Tracy, and Lathrop. The difference represents system losses and meter errors. The pipeline system is only five years old, so testing and inspection are not currently performed on a regular basis.

A schedule of implementation: System losses are evaluated monthly by an inspection of WTP effluent flows and each pump station meter.

Method used to evaluate the effectiveness of the DMM: The effectiveness of the water system audits is measured by the losses recorded monthly. Increasing losses indicate leaks and/or inaccurate flowmeters. If losses exceed 2%, the accuracy range of the electromagnetic meters, then additional investigations are made including leak detection, pipeline inspection, meter maintenance, or meter calibration.

Estimate, if available, of existing conservation savings from DMM: It is difficult to estimate the potential water savings from this DMM since it has been in place from the outset. However, on-going monitoring will help to identify and prevent future pipeline leakage and thus help conserve water.

Table 7.2 – Water System Audits (2005-2010)

Actual	2005	2006	2007	2008	2009	2010
% of unaccounted water[1]	NA	0.4%	1.7%	1.8%	1.5%	1.9%
Miles of mains surveyed	0	0	0	0	0	0
Miles of lines repaired	0	0	0	0	0	0
Actual expenditures - $	0	0	0	0	0	0
Actual water savings – AFY	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown

1 - A positive value represents a loss of water from the system

Currently, the system losses are within the accepted accuracy of the electromagnetic meters, which is generally considered to be 0.5% to 2.0%. This indicates that seepage losses are low or negligible.

Table 7.3 – Planned Water System Audits (2010-2015)

Actual	2011	2012	2013	2014	2015
% of unaccounted water (goal)	<2%	<2%	<2%	<2%	<2%
Miles of mains surveyed	0	0	0	0	0
Miles of lines repaired	0	0	0	0	0
Estimated expenditures - $	0	0	0	0	0
Actual water savings - AFY	Unknown	Unknown	Unknown	Unknown	Unknown

7.2 – Metering

The year the DMM was implemented or will be implemented: 2005

Comprehensive description of the DMM: Metering of individual accounts (residential, commercial, etc.) is performed by the Cities. As a result, this DMM is more applicable to the retail water agencies than SSJID. However, SSJID does meter the total water deliveries to the cities of Tracy, Manteca and Lathrop. This metering is performed for billing purposes and to track allotments. All three accounts have their water deliveries metered with high-accuracy electromagnetic meters. The Cities are billed for water on a volumetric basis derived from meter readings.

Steps necessary to implement the DMM: Meters are already installed at the three Cities receiving treated water. Future connections to the cities of Ripon and Escalon will also be metered. Meter readings are recorded by SSJID staff. The meters are fairly new (installed in 2005) and there are no current plans to test or calibrate them, unless there are indications that they are not functioning properly.

A schedule of implementation: Meters readings are evaluated monthly by SSJID staff.

Method used to evaluate the effectiveness of the DMM: Electromagnetic meters have accuracies ranging from 0.5 to 2%. Water deliveries into the pipeline system are compared to the total deliveries to the three cities. The difference between the two values gives an indication of meter accuracy and pipeline leakage. If the difference exceeds 2% then the meters will be inspected and possibly recalibrated or replaced.

Estimate, if available, of existing conservation savings from DMM: Metering certainly creates an incentive to reduce consumption since customers are billed on a volumetric basis. Metering individual household connections has been shown to reduce household water consumption by 20% (Provost & Pritchard, 2007). However, estimating savings from metering gross deliveries to Cities is not practicable. Delivering water to cities without metering would not be practical or economical.

Table 7.4 – Water Meters

Actual	2006	2007	2008	2009	2010
# of unmetered accounts	0	0	0	0	0
# of metered accounts	3	3	3	3	3
# of retrofit meters installed	0	0	0	0	0
# of accounts w/o commodity rates	0	0	0	0	0
Actual expenditures - $[1]	0	0	0	0	0
Actual water savings – AFY	NA	NA	NA	NA	NA

1 - Expenditures for metering are not tracked separately by SSJID. Costs to read and record meters are minimal.

7.3 – Wholesale Agency Programs

Wholesale Agency Programs involve assistance relationships between the wholesale agency and retail agencies. These relationships can include financial assistance, technical support, program management of DMMs, DMM reporting and documentation, and developing water shortage policies.

SSJID implements a Wholesale Agency Program directed at schools in the District. The District provides education on water-sources, multiple uses of water for power generation, recreation, drinking and irrigation, water safety, in particular, canal safety, and general water conservation. The District provides personnel for presentations in schools and arranges field trips to promote these educational messages. In the future, the District will expand these efforts in cooperation with the Cities to prepare educational brochures for the Cities' water customers on the subject of water conservation.

SSJID has not implemented a more comprehensive Wholesale Agency Program for the following reasons:

- SSJID has limited experience with urban DMMs, and only began delivering treated water in 2005;
- The Cities are geographically spread out, and implementing some water management programs from a central location may not be effective;
- Each city operates their water system individually, and has established their own water management and water conservation programs over the past several decades; and
- SSJID's obligation to supply water to the Cities is fixed by contract.

Implementing a larger Wholesale Agency Program would require financial assistance from each city and an interest in a more centralized water management program. Currently, the Cities are successfully operating their own water systems and water

conservation programs. Nevertheless, SSJID recognizes that larger Wholesale Agency Programs have been effective in some areas and may have merit for the SCWSP. As a result, SSJID will discuss the need and merit for more Wholesale Agency Programs with each city in late 2011.

7.4 - Conservation Pricing

The year the DMM was implemented or will be implemented: 2005

Comprehensive description of the DMM: Conservation pricing provides economic incentives to customers to use water efficiently. Conservation pricing can include volumetric billing, seasonal pricing, tiered pricing, and special pricing during droughts. Conservation pricing is more effective at the local level when performed by the retail water agencies. However, SSJID implements conservation pricing through volumetric billing of city water supplies. In addition, during droughts, if revenues are reduced due to lower water sales, SSJID may consider raising unit water rates to remain financially viable and encourage conservation. However, as explained in Section 8, SSJID does not currently anticipate that droughts will impact cash flow for the SCWSP.

Steps necessary to implement the DMM: The conservation pricing structure is already in place and will be maintained for the foreseeable future.

A schedule of implementation: The conservation pricing structure is already in place and will be maintained for the foreseeable future.

Method used to evaluate the effectiveness of the DMM: There is no effective way for SSJID to monitor the effectiveness of the conservation pricing because SSJID does not directly monitor the water use. The effectiveness of any special drought rates would have to be monitored by the Cities. The Cities would need to pass on the higher costs to their customers for the drought rates to be effective.

Estimate, if available, of existing conservation savings from DMM: The impact of special drought rates would depend on the amount of the increase, and if the increase is passed on to customers.

7.5 – Water Conservation Coordinator

The year the DMM was implemented or will be implemented: 2005

Comprehensive description of the DMM: A Water Conservation Coordinator (WCC) is an individual responsible for program management, tracking, planning, and reporting on DMM implementation. Specific responsibilities of the SCWSP Water Conservation Coordinator include reading flowmeters, evaluating system losses, communicating with the retail agencies regarding future programs, assisting with school education programs, and providing tours of SCWSP facilities.

Steps necessary to implement the DMM: SSJID has several full-time staff that devote part of their time to these efforts. These District personnel spend the remainder of their time on water treatment plant operations.

A schedule of implementation: These tasks are performed continuously by SSJID staff.

Method used to evaluate the effectiveness of the DMM: Evaluating the effectiveness of the WCC's efforts is difficult and cannot be accurately equated to specific water savings. These efforts, however, are considered valuable and worthwhile by SSJID.

Estimate, if available, of existing conservation savings from DMM: See above.

Tables 7.5 and **7.6** provide data on past and anticipated future efforts for the WCC.

Table 7.5 – Past Water Conservation Coordinator Efforts

Description	2005	2006	2007	2008	2009
No. of Full-time Positions	0	0	0	0	0
No. of Part-time Staff	3	3	3	3	3
Actual Expenditures - $[1]	NA	NA	NA	NA	NA

1 - Costs are not tracked separately for time spent on WCC efforts. Due to the limited number of DMMs that wholesale agencies must comply with, the amount of time spent by the Conservation Coordinator is typically limited.

Table 7.6 – Future Water Conservation Coordinator Efforts

Description	2010	2011	2012	2013	2014
No. of Full-time Positions	0	0	0	0	0
No. of Part-time Staff	3	3	3	3	3
Actual Expenditures - $	NA	NA	NA	NA	NA

8 – ANALYSIS OF REVENUE IMPACTS DURING SHORTAGES

SSJID bills the Cities for all operating, maintenance, and capital costs of the water treatment and delivery system. For billing purposes, these costs fall into two categories: fixed costs and variable costs. Variable costs vary with the volume of water treated and delivered to the Cities, so variable costs are billed to the Cities on a volumetric basis. Fixed costs do not vary with volume and are fully billed to the Cities regardless of the volume of water treated and delivered. Total fixed costs are allocated among the Cities pro rata on the basis of their annual volume allotments. Because only variable costs are billed volumetrically, and all fixed costs are always fully billed to the Cities without regard to the volume of water treated and delivered, SSJID revenue is always sufficient to recover all costs of the water treatment system. Therefore, net cash flow of the Nick C. DeGroot WTP would not be affected by severe drought conditions.

9 – PLANNED WATER SUPPLY PROJECTS AND PROGRAMS

This section provides a description of planned water supply projects that could directly increase water supplies. A brief discussion is also provided on water supply projects by the five Cities that could significantly impact demand.

SSJID Planned Projects

Phase II Water Treatment Plant Construction. The Nick C. DeGroot WTP was designed and constructed with the intention of expanding it in the future, when necessary, to accommodate 56.8 MGD. Initial plans were to construct the additional phase, called Phase II, in 2015. However, based on reductions in housing construction and population growth in the surrounding cities, there are no immediate plans to construct Phase II. Based on anticipated water demands provided by the Cities (see Figure 2), the treatment plant would not have to be expanded until after 2030. SSJID will reevaluate the need for a water treatment plant expansion when this UWMP is updated in 2015. Planning, design and construction of a major treatment plant expansion would likely require five to ten years.

Zenon Ultrafiber Membrane Treatment. SSJID has been considering the installation of new cassettes of fibers, with minimal retrofitting, to add roughly 5 MGD in production. However, limitations in pre-treatment process capacity may determine whether this alternative is feasible. SSJID will investigate this alternative in more detail in 2011 and 2012.

City Planned Projects

City of Ripon Pipeline. Subject to entering into an agreement with SSJID, compliance with CEQA, and arranging necessary financing, Ripon plans to construct a pipeline to connect to SCWSP's existing treated water pipeline. Ripon hopes to construct the pipeline by the end of 2012 and would have demands of 4,695 AF/year.

City of Escalon Pipeline. Escalon plans to construct a pipeline to connect to SCWSP's existing treated water pipeline. Escalon hopes to construct the pipeline by 2020. Demands would gradually increase from 250 AF/year to 1,000 AF/year between 2020 and 2030.

10 – REFERENCES

1. California Department of Water Resources, *20x2020 Water Conservation Plan*, February 2010.

2. California Department of Water Resources, *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan*, March 2011.

3. California Urban Water Conservation Council, *Memorandum of Understanding Regarding Urban Water Conservation in California*, June 2010.

4. Davids Engineering, Inc., *South San Joaquin Irrigation District Water Balance*, June 2009.

5. Erler & Kalinowski, *City of Tracy Urban Water Management Plan – Public Review Draft*, April 2011.

6. Montgomery Watson, *South County Water Treatment Study, Raw Water Pricing Analysis – Final Report*, 1994.

7. Northeastern San Joaquin County Groundwater Banking Authority, *Eastern San Joaquin Groundwater Basin Groundwater Management Plan*, September 2004.

8. Provost & Pritchard Engineering Group, Inc., *City of Porterville Urban Water Management Plan – 2007 Update*, November 2007.

9. South San Joaquin Irrigation District, *Escalon Amendment to Tracy-SSJID Water Supply Development Agreement*, March 2006.

10. South San Joaquin Irrigation District, *South County Surface Water Supply Project Draft Environmental Impact Report*, July 1999.

11. South San Joaquin Irrigation District, *Water Service Agreement by and between South San Joaquin Irrigation District and City of Ripon*, August 1999.

12. South San Joaquin Irrigation District, *Water Supply Development Agreement by and between South San Joaquin Irrigation District and City of Escalon*, October 1995.

13. South San Joaquin Irrigation District, *Water Supply Development Agreement – City of Manteca*, October 1995.

14. South San Joaquin Irrigation District, *Water Supply Development Agreement by and between South San Joaquin Irrigation District and City of Tracy*, October 1995.

15. South San Joaquin Irrigation District, *Water Supply Development Agreement by and between South San Joaquin Irrigation District and City of Lathrop*, October 1995.

16. Stanislaus/Calaveras River Group and Stockton East Water District, *Stanislaus River Watershed Sanitary Survey*, May 2011.

South San Joaquin Irrigation District

Urban Water Management Plan

Appendix A

Department of Water Resources Checklist

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		2.1
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		2.1
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		2.2, Appendix C
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		2.2
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		2.1
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		2.1, 2.2, Appendix B
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix C
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Entire document

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		2.2
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		2.2
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		3.1.8
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	3.2
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	3.2
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		3.1
SYSTEM DEMANDS				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		4.1
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	4.4

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		Not applicable to wholesaler
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	4.2, 4.3 (wholesalers are not required to provide data by water use sector)
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	4.2, 4.3
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Not applicable to wholesalers
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	5.1
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	5.2
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		Not applicable since groundwater is not used.

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
16	Describe the groundwater basin.	10631(b)(2)		Not applicable since groundwater is not used.
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		Not applicable since groundwater is not used.
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable since groundwater is not used.
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		Not applicable since groundwater is not used.
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		Not applicable since groundwater is not used.
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Not applicable since groundwater is not used.
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		5.3
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		6.2, 9
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		5.4

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		5.5
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		5.5
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		5.5
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		5.5
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		5.5
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		5.5
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		5.5
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		5.5
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b]				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		6.1, 6.2
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		6.2, 6.3

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		6.1, 6.2
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		6.2
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		6.3
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		6.1
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		6.2
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		6.2
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		6.2
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		8
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		6.2

APPENDIX A - Water Management Plan Checklist (organized by subject)
South San Joaquin Irrigation District

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	6.1
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		6.3
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	7.0-7.5
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		7.1-7.5
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		7.1-7.5
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	7.3
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	Not applicable. Agency not member of CUWCC.

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

South San Joaquin Irrigation District

Urban Water Management Plan

Appendix B

Public Outreach

NOTICE OF HEARING ON DRAFT URBAN WATER MANAGEMENT PLAN FOR SOUTH SAN JOAQUIN IRRIGATION DISTRICT

NOTICE IS HEREBY GIVEN that at 9:00 am on September 13th, 2011, at 11011 E. Highway 120, Manteca, CA, a hearing will be held for public comment on a draft of South San Joaquin Irrigation District's Urban Water Management Plan.

South San Joaquin Irrigation District is preparing an Urban Water Management Plan in compliance with California Department of Water Resources standards for wholesale water agencies. The primary purpose of the plan is to serve as a long-range planning document and estimate urban water demands and supplies over a 20-year planning horizon. The plan exclusively covers urban water delivered, or planned to be delivered, to the Cities of Manteca, Tracy, Lathrop, Escalon and Ripon. The plan will also allow SSJID to be eligible for certain State grants, loans, and special drought assistance.

Landowners within the District boundaries and nearby Cities and other interested parties are invited to attend. Opportunity for public questions and input will be provided. Copies of the Draft plan can be provided on request beginning August 30th, 2011.

Jeff Shields
General Manager

#883695 8/31, 9/7/2011

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DISTRICT MANAGEMENT

FRESNO · CLOVIS · VISALIA · BAKERSFIELD · OAKDALE

132 S. 3rd Ave.
Oakdale, CA 95361-3935
209 845-8700
FAX 209 845-8614

March 16, 2011

Dr. Mel Lytle
c/o San Joaquin County Public Works
PO Box 1810
Stockton, CA 95201

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear Mel,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

This will be the first UWMP developed by SSJID since they constructed their water treatment plant and began delivering surface water to urban water agencies. The UWMP will include information on past water deliveries and anticipated future water demands.

As a wholesale water agency, SSJID will need to include water supply data for the agencies that purchase their water. As a result, we will be contacting you in the next few weeks to request some pertinent data and information. If there is someone else at the City that we should work with regarding this project or the data request, please forward their contact information to me.

We anticipate that the UWMP will be available for public review in May 2011 and will notify you accordingly when a draft version is available for comments. In the meantime, if you have any questions, comments, or would like to discuss the content of the UWMP then please feel free to call me at (209) 845-8700.

Yours sincerely,

Rick Hanks
Senior Project Manager

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Oakdale, CA 95361-3935
209 845-8700
FAX 209 845-8614

March 16, 2011

Kevin Werner
c/o City of Ripon
259 N. Wilma Ave.
Ripon, CA 95366

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear Kevin,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

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Yours sincerely,

Rick Hanks
Senior Project Manager

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FAX 209 845-8614

March 16, 2011

Stephen J. Salvatore
c/o City of Lathrop
390 Town Center Dr.
Lathrop, CA 95330

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear Stephen,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

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Yours sincerely,

Rick Hanks
Senior Project Manager

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Oakdale, CA 95361-3935
209 845-8700
FAX 209 845-8614

March 16, 2011

Keith Conarroe
c/o City of Manteca
1001 W. Center St.
Manteca, CA 95337

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear Keith,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

This will be the first UWMP developed by SSJID since they constructed their water treatment plant and began delivering surface water to urban water agencies. The UWMP will include information on past water deliveries and anticipated future water demands.

As a wholesale water agency, SSJID will need to include water supply data for the agencies that purchase their water. As a result, we will be contacting you in the next few weeks to request some pertinent data and information. If there is someone else at the City that we should work with regarding this project or the data request, please forward their contact information to me.

We anticipate that the UWMP will be available for public review in May 2011 and will notify you accordingly when a draft version is available for comments. In the meantime, if you have any questions, comments, or would like to discuss the content of the UWMP then please feel free to call me at (209) 845-8700.

Yours sincerely,

Rick Hanks
Senior Project Manager

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March 16, 2011

John Abrew
c/o City of Escalon
1854 Main St.
Escalon, CA 95320

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear John,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

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Yours sincerely,

Rick Hanks
Senior Project Manager

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FAX 209 845-8614

March 16, 2011

Steve Bayley
c/o City of Tracy
520 Tracy Blvd.
Tracy, CA 95376

Subject: Notice of Intent to Prepare an Urban Water Management Plan
South San Joaquin Irrigation District

Dear Steve,

On behalf of the South San Joaquin Irrigation District (SSJID), we would like to formally notify you that SSJID plans to prepare an Urban Water Management Plan (UWMP) in compliance with the latest guidelines published by the Department of Water Resources.

This will be the first UWMP developed by SSJID since they constructed their water treatment plant and began delivering surface water to urban water agencies. The UWMP will include information on past water deliveries and anticipated future water demands.

As a wholesale water agency, SSJID will need to include water supply data for the agencies that purchase their water. As a result, we will be contacting you in the next few weeks to request some pertinent data and information. If there is someone else at the City that we should work with regarding this project or the data request, please forward their contact information to me.

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Yours sincerely,

Rick Hanks
Senior Project Manager

South San Joaquin Irrigation District

Urban Water Management Plan

Appendix C

UWMP Adoption Resolution

SOUTH SAN JOAQUIN IRRIGATION DISTRICT
RESOLUTION NO. 11-12-W
ADOPTING URBAN WATER MANAGEMENT PLAN

WHEREAS, South San Joaquin Irrigation District ("District") delivers potable water to the cities of Manteca, Lathrop and Tracy and is under contract to deliver potable water to Escalon ("Four Cities"); and

WHEREAS, the District is an Urban Wholesale Water Supplier, as defined in section 10608.12 of the California Water and an Urban Water Supplier, as defined in section 10617 of the California Water Code as its supplies more than 3,000 acre-feet of potable water annually for ultimate resale to municipal customers; and

WHEREAS, the District, as an Urban Water Supplier, is required to prepare an urban water management plan; and

WHEREAS, the District has prepared an Urban Water Management Plan dated August, 2011, which includes the elements required by the provisions of Parts 2.55 and 2.6 of Division 6 of the Water Code, including section 10631, that are applicable to wholesale urban water suppliers ("Plan"); and

WHEREAS, the District published notice in a newspaper of general circulation for two consecutive weeks and notified each of the Four Cities and the County of San Joaquin, of the availability of the Plan and of the time and place for a public hearing to be held on the Plan at the September 13, 2011, meeting of the District's Board of Directors as required by Water Code section 10642; and

WHEREAS, the District's Board of Directors has considered whatever public and agency comments have been received on the Plan; and

WHEREAS, the Board finds that the Plan satisfies the requirements of the California Water Code and accurately describes the District's position as an Urban Water Supplier to the Four Cities; and

WHEREAS, adoption and implementation of the Plan is exempt from the California Environmental Quality Act (Public Resources Code §21000 et seq.) by California Water Code section 10652; and

WHEREAS, the Plan reflects the independent judgment and analysis of the District's Board of Directors; and

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the SOUTH SAN JOAQUIN IRRIGATION DISTRICT hereby takes the following actions:

1. Makes the findings set forth above, each of which is found to be true.

2. Adopts the Urban Water Management Plan dated August, 2011.

3. Instructs staff to provide a copy of the Plan to the Four Cities, the County of San Joaquin, the Department of Water Resources, the State Library and any other persons or entities required by law.

4. Instructs staff to implement the Plan.

5. Instructs staff to make the Plan available for public inspection during regular business hours in accordance with California Water Code section 10645.

The foregoing Resolution was duly adopted at a meeting of the Board of Directors of South San Joaquin Irrigation District held on the 13th day of September, 2011, on the motion of Director Holmes, seconded by Director Kamper on the following roll call vote:

Ayes: Kamper Kuil Holbrook Holmes Roos Noes: None

John Holbrook, President

Attest:

Jeff Shields, Secretary

South San Joaquin Irrigation District

Urban Water Management Plan

Appendix D

Stanislaus River Hydrology

South San Joaquin Irrigation District
New Melones Inflow and Allocation
1894 - 2009

(all units in Acre-feet)

WATER YEAR		NEW MELONES INFLOW	Percent Water Year	AVAILABLE TO DISTRICTS	FORMULA WATER	CONSERVATION ACCOUNT	WATER AVAILABLE TO DISTRICTS	WATER AVAILABLE TO SSJID
1894	1895	1,857,900	162%	600,000	0	0	600,000	300,000
1895	1896	1,236,900	108%	600,000	0	0	600,000	300,000
1896	1897	1,513,300	132%	600,000	0	0	600,000	300,000
1897	1898	484,700	42%	484,700	38,433	0	523,133	261,567
1898	1899	851,400	74%	600,000	0	0	600,000	300,000
1899	1900	1,055,900	92%	600,000	0	0	600,000	300,000
1900	1901	1,639,900	143%	600,000	0	0	600,000	300,000
1901	1902	938,200	82%	600,000	0	0	600,000	300,000
1902	1903	1,096,900	96%	600,000	0	0	600,000	300,000
1903	1904	2,010,000	176%	600,000	0	0	600,000	300,000
1904	1905	844,000	74%	600,000	0	0	600,000	300,000
1905	1906	2,380,000	208%	600,000	0	0	600,000	300,000
1906	1907	2,800,000	245%	600,000	0	0	600,000	300,000
1907	1908	593,000	52%	593,000	2,333	0	595,333	297,667
1908	1909	1,890,000	165%	600,000	0	0	600,000	300,000
1909	1910	1,405,800	123%	600,000	0	0	600,000	300,000
1910	1911	2,356,900	206%	600,000	0	0	600,000	300,000
1911	1912	599,700	52%	599,700	100	0	599,800	299,900
1912	1913	594,000	52%	594,000	2,000	0	596,000	298,000
1913	1914	1,769,400	155%	600,000	0	0	600,000	300,000
1914	1915	1,300,900	114%	600,000	0	0	600,000	300,000
1915	1916	1,668,500	146%	600,000	0	0	600,000	300,000
1916	1917	1,376,900	120%	600,000	0	0	600,000	300,000
1917	1918	827,500	72%	600,000	0	0	600,000	300,000
1918	1919	768,000	67%	600,000	0	0	600,000	300,000
1919	1920	742,600	65%	600,000	0	0	600,000	300,000
1920	1921	1,262,200	110%	600,000	0	0	600,000	300,000
1921	1922	1,430,400	125%	600,000	0	0	600,000	300,000
1922	1923	1,130,200	99%	600,000	0	0	600,000	300,000
1923	1924	261,100	23%	261,100	112,967	75,933	450,000	225,000
1924	1925	1,224,500	107%	600,000	0	0	600,000	300,000
1925	1926	606,500	53%	600,000	0	0	600,000	300,000
1926	1927	1,363,500	119%	600,000	0	0	600,000	300,000
1927	1928	950,000	83%	600,000	0	0	600,000	300,000
1928	1929	516,600	45%	516,600	27,800	0	544,400	272,200
1929	1930	731,700	64%	600,000	0	0	600,000	300,000
1930	1931	315,000	28%	315,000	95,000	40,000	450,000	225,000
1931	1932	1,352,900	118%	600,000	0	0	600,000	300,000
1932	1933	609,400	53%	600,000	0	0	600,000	300,000
1933	1934	424,200	37%	424,200	58,600	0	482,800	241,400
1934	1935	1,213,500	106%	600,000	0	0	600,000	300,000
1935	1936	1,321,900	116%	600,000	0	0	600,000	300,000
1936	1937	1,108,800	97%	600,000	0	0	600,000	300,000
1937	1938	2,044,800	179%	600,000	0	0	600,000	300,000
1938	1939	526,060	46%	526,060	24,647	0	550,707	275,353
1939	1940	1,400,410	122%	600,000	0	0	600,000	300,000
1940	1941	1,338,400	117%	600,000	0	0	600,000	300,000
1941	1942	1,485,400	130%	600,000	0	0	600,000	300,000
1942	1943	1,564,940	137%	600,000	0	0	600,000	300,000
1943	1944	675,810	59%	600,000	0	0	600,000	300,000
1944	1945	1,277,160	112%	600,000	0	0	600,000	300,000
1945	1946	1,178,050	103%	600,000	0	0	600,000	300,000
1946	1947	633,710	55%	600,000	0	0	600,000	300,000
1947	1948	897,710	78%	600,000	0	0	600,000	300,000
1948	1949	745,180	65%	600,000	0	0	600,000	300,000
1949	1950	1,076,120	94%	600,000	0	0	600,000	300,000
1950	1951	1,693,700	148%	600,000	0	0	600,000	300,000
1951	1952	1,919,370	168%	600,000	0	0	600,000	300,000
1952	1953	967,120	85%	600,000	0	0	600,000	300,000
1953	1954	888,390	78%	600,000	0	0	600,000	300,000
1954	1955	680,800	60%	600,000	0	0	600,000	300,000
1955	1956	1,882,700	165%	600,000	0	0	600,000	300,000
1956	1957	894,000	78%	600,000	0	0	600,000	300,000
1957	1958	1,677,510	147%	600,000	0	0	600,000	300,000
1958	1959	584,030	51%	584,030	5,323	0	589,353	294,677

South San Joaquin Irrigation District
New Melones Inflow and Allocation
1894 - 2009

(all units in Acre-feet)

WATER YEAR		NEW MELONES INFLOW	Percent Water Year	AVAILABLE TO DISTRICTS	FORMULA WATER	CONSERVATION ACCOUNT	WATER AVAILABLE TO DISTRICTS	WATER AVAILABLE TO SSJID
1959	1960	593,980	52%	593,980	2,007	0	595,987	297,993
1960	1961	403,760	35%	403,760	65,413	0	469,173	234,587
1961	1962	995,030	87%	600,000	0	0	600,000	300,000
1962	1963	1,267,790	111%	600,000	0	0	600,000	300,000
1963	1964	643,410	56%	600,000	0	0	600,000	300,000
1964	1965	1,701,800	149%	600,000	0	0	600,000	300,000
1965	1966	703,200	61%	600,000	0	0	600,000	300,000
1966	1967	1,925,500	168%	600,000	0	0	600,000	300,000
1967	1968	675,100	59%	600,000	0	0	600,000	300,000
1968	1969	2,117,400	185%	600,000	0	0	600,000	300,000
1969	1970	1,318,100	115%	600,000	0	0	600,000	300,000
1970	1971	1,028,790	90%	600,000	0	0	600,000	300,000
1971	1972	777,100	68%	600,000	0	0	600,000	300,000
1972	1973	1,224,300	107%	600,000	0	0	600,000	300,000
1973	1974	1,455,000	127%	600,000	0	0	600,000	300,000
1974	1975	1,203,500	105%	600,000	0	0	600,000	300,000
1975	1976	470,300	41%	470,300	43,233	0	513,533	256,767
1976	1977	129,300	11%	129,300	156,900	163,800	450,000	225,000
1977	1978	1,361,700	119%	600,000	0	0	600,000	300,000
1978	1979	1,090,800	95%	600,000	0	0	600,000	300,000
1979	1980	1,734,200	152%	600,000	0	0	600,000	300,000
1980	1981	628,600	55%	600,000	0	0	600,000	300,000
1981	1982	2,164,600	189%	600,000	0	0	600,000	300,000
1982	1983	2,747,400	240%	600,000	0	0	600,000	300,000
1983	1984	1,605,300	140%	600,000	0	0	600,000	300,000
1984	1985	714,400	62%	600,000	0	0	600,000	300,000
1985	1986	1,830,400	160%	600,000	0	0	600,000	300,000
1986	1987	424,600	37%	424,600	58,467	0	483,067	241,533
1987	1988	324,326	28%	324,326	91,891	33,783	450,000	225,000
1988	1989	586,303	51%	586,303	4,566	0	590,869	295,434
1989	1990	480,820	42%	480,820	39,727	0	520,547	260,273
1990	1991	502,597	44%	502,597	32,468	0	535,065	267,532
1991	1992	458,010	40%	458,010	47,330	0	505,340	252,670
1992	1993	1,275,510	111%	600,000	0	0	600,000	300,000
1993	1994	501,419	44%	501,419	32,860	0	534,279	267,140
1994	1995	2,160,125	189%	600,000	0	0	600,000	300,000
1995	1996	1,511,885	132%	600,000	0	0	600,000	300,000
1996	1997	1,902,478	166%	600,000	0	0	600,000	300,000
1997	1998	1,875,243	164%	600,000	0	0	600,000	300,000
1998	1999	1,319,496	115%	600,000	0	0	600,000	300,000
1999	2000	1,070,007	94%	600,000	0	0	600,000	300,000
2000	2001	591,273	52%	591,273	2,909	0	594,182	297,091
2001	2002	713,588	62%	600,000	0	0	600,000	300,000
2002	2003	896,986	78%	600,000	0	0	600,000	300,000
2003	2004	668,451	58%	600,000	0	0	600,000	300,000
2004	2005	1,572,588	137%	600,000	0	0	600,000	300,000
2005	2006	2,006,580	175%	600,000	0	0	600,000	300,000
2006	2007	581,049	51%	581,049	6,317	0	587,366	293,683
2007	2008	578,932	51%	578,932	7,023	0	585,955	292,977
2008	2009	746,829	65%	600,000	0	0	600,000	300,000
2009	2010	1,011,301	88%	600,000	0	0	600,000	300,000
	Average	1,144,200						