



ATTACHMENT 6 PROGRAM PREFERENCES

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Attachment 6 – Program Preferences

The *West Basin Water Reuse Project* and *SSJID On-Farm Conservation Program* address the following **Program Preferences**:

INCLUDE REGIONAL PROGRAMS and **EFFECTIVELY INTEGRATE WATER MANAGEMENT IN THE REGION.**

These projects integrate water use efficiency projects without third party impacts, and provide regional water management benefits. The two projects together reduce agricultural water demands by 12,700 acre-feet per year.

EFFECTIVELY RESOLVE WATER-RELATED CONFLICTS WITHIN THE REGION. The historically overdrafted Eastern San Joaquin Subbasin is a source of conflict within the Region and leads to competition for additional surface water supplies. The Proposal will make more efficient use of existing local supplies, lessening these conflicts by reducing demands by over 12,700 acre-feet per year, as well as providing a source of recharge to the aquifer.

CONTRIBUTE TO OBTAINING OBJECTIVES OF THE CALFED BAY-DELTA PROGRAM. More efficient use allows changes in the timing and magnitude of withdrawals from streams tributary to the Delta, and will increase water supply reliability. The projects reduce water demand through agricultural water use efficiency. Improving water use efficiency has direct impact on reducing the Region's impact on the Sacramento-San Joaquin Delta.

EFFECTIVELY INTEGRATES WATER MANAGEMENT WITH LAND USE PLANNING. As more agriculture acreage is converted to urban use in Manteca, Ripon, Escalon and Riverbank, SSJID is estimating total future water demands and their associated source of supply. These demands help determine continued of the existing gravity system and the timing of conversion to pressurized service. Provision of water-efficient pressurized service will induce a larger number of farmers to adopt pressurized service rather than pump groundwater.

The two projects address the following **Statewide Priorities**:

DROUGHT PREPAREDNESS: There is high certainty the migrating more farmers from flood to sprinkler and drip irrigation will reduce water consumption by 30% and ***achieve reduction of water use saving of 500,000 acre feet*** over the life of the West Basin Re-Use project. The West Basin Project will ***serve 7,500 additional acres*** with pressurized irrigation service, will reduce groundwater pumping and contribute to more efficient groundwater basin management. Restarting the SSJID On-Farm Conservation Program will promote agricultural irrigation efficiencies and long term reduction of water use to improve resilience to persistent drought conditions. More than half of SSJID's 2,000+ irrigation customers do not have enough water to grow a full crop this year. It is highly certain that state-of-the-art irrigation water conservation infrastructure will improve sustainable water supply and reliability.

USE AND REUSE WATER MORE EFFICIENTLY: The West Basin Project will capture spill water, stormwater, and tail water flows for reuse. The system will eliminate water waste by providing water service at the precise flow rate, duration, frequency and pressure needed for optimal water management and allow the reduction of diversions from the Stanislaus River and improve water supply to the Delta. This reduction of ***10,000 acre-feet per year will allow unused surface supplies to meet the full M&I needs of Tracy, Manteca, and Lathrop*** – communities that have a 20% 2015 delivery reduction due to the limited water supply available in the New Melones Reservoir. The SSJID On-Farm Conservation Project ***increases agricultural water use efficiency*** measures by providing matching funds for physical improvements and best management practices including: flow meters for delivery measurement, conversion from flood to sprinkler or drip/micro irrigation, tailwater recovery, and scientific irrigation scheduling and soil moisture

monitoring. The irrigation system significantly reduces water waste by using state-of-the-art technology for optimizing water conservation and crop performance. Farmers will access a web interface to display real-time field moisture conditions so growers have the ability to order water when the crops need it. The project will save an estimated 2,700 acre-feet of water per year. Adoption of sprinkler or drip/micro irrigation is expected to **conserve water by 30%, reduce energy use by 30%, reduce groundwater pumping, reduce farm runoff**, and improve air quality. Conversion of flood irrigated property to drip and sprinkler irrigation system in the existing SSJID Division 9 Pilot Project has shown increased groundwater levels. Because groundwater comprises 38% of all water used in the San Joaquin River hydrologic region, the On-Farm Conservation Program is an **effective program for demonstrating best water management practices** in the region.

CLIMATE CHANGE RESPONSE ACTIONS: The West Basin Project responds to climate change needs by reducing energy consumption by consolidating farm diesel pumps to a centralized electric pump station at the West Basin. Loading on the electric grid is reduced by operating variable frequency drive pumps at optimal efficiency and scheduling irrigation deliveries to off-peak times. Greenhouse gases will be reduced with the automation of customer turnouts completely powered by solar. This will eliminate ditchtender truck trips to each turnout to manually open and close valves. The On-Farm Conservation Program will improve water management and will reduce greenhouse gas emissions by decreasing groundwater pumping and the correlating energy used for water production and distribution. Total energy savings from the water no longer pumped from groundwater equals 947,700 kWh/yr. Greenhouse gases will also be reduced with the automation of customer turnouts completely powered by solar. This will eliminate ditchtender truck trips to each turnout to manually open and close valves.

PROTECT SURFACE WATER & GROUNDWATER QUALITY: Current nitrogen application methods for flood irrigation results in only about 44% nitrogen uptake efficiency. With the conversion from flood irrigation to drip or sprinkler application, uniformity of application improves, **nitrogen use efficiency increase to 75-85%**, and **growers use less fertilizer**. Improved nitrogen uptake also reduces groundwater leaching. The West Basin project protects surface water quality by capturing stormwater and spillage runoff so it can't flow into the Sacramento-San Joaquin Delta.

ENSURE EQUITABLE DISTRIBUTION OF BENEFITS: Due to the conservation success of the existing SSJID Division 9 Irrigation Enhancement Pilot Project, SSJID was able to transfer 2,400 acre-feet at 50% of regular market price to Tuolumne County in 2015 in response to their immediate water shortage crisis. Their reservoir was expected to be dry in 80 days or less, leaving hospitals, local schools, and public facilities such as local fire protection without any water. SSJID fully supports the San Joaquin IRWM Region in **meeting the goals of the Human Right to Water Policy** by making clean, affordable and reliable drinking water available to all people, and continuing to make humanitarian water transfers as more water is conserved.

EXPAND ENVIRONMENTAL STEWARDSHIP: An evaluation of the On-Farm Conservation Program through a participant survey and focused interviews showed that there was **an increased awareness of the importance of efficient management of available surface and groundwater supplies** to maintain long term supply reliability and to protect and restore water quality with will expand environmental stewardship to protect the Sacramento-San Joaquin Delta and San Joaquin Basin.

PROTECT SURFACE WATER AND GROUNDWATER QUALITY: Of all the On-Farm conservation measures implemented in the initial three years of the program, soil moisture monitoring was implemented by the most growers. This information helps growers only order water when needed, helping reduce nonpoint source pollution runoff to surface waters. In addition, the project will spur more growers to convert from flood irrigation to sprinkle irrigation; improving nitrogen application efficiency and thereby reducing nitrogen leaching into the groundwater and surface water bodies.