WaterSMART Grants: Water and Energy Efficiency

Project Name:

Water Efficient Landscape Transformation Program

Project Location:

Orange County, California

Applicant Name:

Municipal Water District of Orange County

Applicant Address:

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Date:

May 8, 2018

Table of Contents

Technical Proposal

Executive Summary

Date: May 8, 2018

Applicant Name: Municipal Water District of Orange County (MWDOC)

City, County, State: Fountain Valley, Orange County, California

Project Name: Water Efficient Landscape Transformation Program

Project Summary: MWDOC proposes the implementation of the Water Efficient Landscape Transformation Program (Program) which, over the two-year term of the Program, will facilitate a comprehensive and holistic landscape improvement program targeting residential and commercial properties throughout Orange County, California. Via a rebate format, this Program will promote water conservation through the transformation from high-water-use landscaping and irrigation to California Native/Friendly landscapes, high efficiency irrigation, and alternatives to potable irrigation supply. This Program will result in the conversion of up to 370,000 square feet of turfgrass to CA Friendly landscapes incorporated with a Watershed Approach Design; the upgrade of approximately 1,850 antiquated irrigation timers to smart irrigation controllers; the conversion of up to 37,500 high-volume conventional spray irrigation heads to high-efficiency rotating nozzles; the conversion of up to 78,000 square feet of inefficiently irrigated landscape to drip irrigation; and the conversion of approximately 12 sites, or 24 dedicated irrigation meters, from utilizing a potable source to an alternative sustainable source (rainwater capture, stormwater runoff, recycled water). These measures will result in reductions of potable water use, increased irrigation efficiency and uniformity, reductions of dry-weather and stormwater runoff and its associated non-point source pollution, reductions of landscape maintenance costs, and are expected to save more than 1,057acre-feet per year (AFY) of potable water and 10,076 acre-feet (AF) over the life of the improvements. Additionally, this Program will reduce energy consumption, reduce carbon dioxide emissions, and increase carbon sequestration and biomass. Participants in the Program will serve as examples for others to follow, thereby fostering a California Friendly landscape transformation and promoting water conservation and environmental stewardship and responsibility for landscape practices throughout Orange County.

Program Term: The length of time to complete the proposed Program is two years, with an expected start date of October 2018 and completion date of September 2020.

Program Location: The Program will be implemented within Orange County, California on existing residential and commercial landscapes. These sites are not located on Federal facilities.

Background Data

Water Supply: MWDOC provides water supply for 2.3 million Orange County Residents. Local water supplies (groundwater, etc.) meet more than half of Orange County's total water demand. To meet the remaining demand, MWDOC purchases imported water from the Colorado River and the State Water Project through the Metropolitan Water District of Southern California, and distributes it to its 28 member agencies. As the service area is located in semi-arid southern California, potential shortfalls in water supply may occur during periods of extreme and extended drought. Municipal and industrial water use in Orange County is comprised of single and multi-family residential, commercial, industrial, and institutional users. Approximately 99% of Orange County's demand is for municipal and industrial purposes, and 1% is for agricultural purposes. The average annual demand in MWDOC's project area (Orange County) is 507,771 AFY, of which approximately 43% is met through imported supply.

Water Delivery System: Currently, there are approximately 557,000 single family connections, 78,000 multi-family connections, and 72,000 irrigation, commercial, industrial, and institutional connections. There are also 8,000 recycled water connections, primarily for irrigation, and over 100 agriculture connections. These agriculture connections produce high value crops such as strawberries, avocados, and ornamental nursery stock. Across all sectors, there are approximately 715,100 connections in MWDOC's service territory. Collectively, retail water agency potable water systems in Orange County contain more than 7,300 miles of 8" or larger distribution pipes, 223 groundwater wells, 296 potable water tanks and reservoirs, and 265 booster pump stations. In addition, recycled water systems contain more than 589 miles of 8" or larger distribution pipes and 44 storage tanks.

Hydropower or Energy Efficiency Elements: Due to the incredibly close connection between water and energy savings, the proposed program will stimulate reductions in both water and energy consumption. This program will reduce water consumption from imported sources, as currently 43% of Orange County's supply (previous 5 year average), which must be pumped from the Bay-Delta and Colorado River Aqueduct, and will also reduce energy costs associated with local pumping and treatment. Energy savings associated with water conservation are 3,300 kWh per AF of potable water conserved.

Past working relationships with Reclamation: MWDOC has had a long-standing and positive relationship with Reclamation. We have been awarded grants for a variety of water use efficiency, supply reliability, and water recycling projects, all of which have either been completed successfully or are in the process of being completed (existing programs due to term out September 2018), see Table 1. We have worked very closely with the Lower Colorado River Region on Colorado River issues, the Mid Pacific Region on Bay Delta issues, and with the Southern California Area Office on local issues.

Table 1. Grants Awarded to MWDOC by the Bureau of Reclamation

Program Name	Grant Amount Awarded	Year Awarded	Agreement No.	Grant Source
Water Audit Demonstration Project	$65,000	2007	07FG350224	Fld. Svcs.
Residential and Commercial Landscape Survey Program	$91,775	2007	07FG350230	CALFED
Industrial Program-Phase I	$115,000	2008	R08AP35242	Fld. Svcs.
SmarTimer Rebate Program	$299,919	2008	08FG350249	CALFED
Industrial Program--Phase II	$371,650	2009	RO9AP35267	CALFED
Hotel Program	$415,925	2009	RO9AP35266	CALFED
So Orange Coastal Ocean Desalination	$499,000	2010	R10AP35290	WaterSMART
Water Use Efficiency Master Plan	$75,000	2011	R11AP35311	Fld. Svcs.
HOA Training, Certification, and Retrofit Program	$100,000	2011	R11AP35313	Fld. Svcs.
O.C. Smart Irrigation Timer Rebate Program	$299,961	2011	R11AP35297	WaterSMART
Water Use Efficiency Certification and Rebate Program	$299,850	2012	R12AP35354	WaterSMART.
Spray to Drip Conversion Pilot Project	$67,017	2012	R12AP35344	Fld. Svcs.
California Sprinkler Adjustment Subscription System	$34,800	2012	R12AP35341	Fld. Svcs.
CII Performance-Based WUE Program	$97,889	2013	R13AP35362	Fld. Svcs.
Online Base Schedule Calculator	$35,497	2014	R14AP00058	Fld. Svcs.
California Friendly Technical Design Assistance	$98,965	2014	R15AP00066	Fld. Svcs.
Comprehensive Landscape Water Efficiency Program	$281,815	2015	R15AP00129	WaterSMART
Comprehensive Landscape WUE Program Phase II	$299,934	2016	R16AP00111	WaterSMART

Project Location

A map showing the geographic location where the proposed Program will be implemented is provided as Figure 1, below. The MWDOC service area serves approximately 2.3 million people and is comprised of the 28 retail water agencies (districts and cities) of Orange County. Comprehensive Orange County has a population of 3.2 million with a 948 square-mile area and is located on the California coast between Los Angeles and San Diego Counties. The Pacific Ocean is immediately south-west, and San Bernardino and Riverside Counties are immediately north-east. This Program will be implemented within all of Orange County (including Anaheim, Santa Ana, and Fullerton). MWDOC, as the county's wholesale water agency, will act as lead agency for Program implementation.

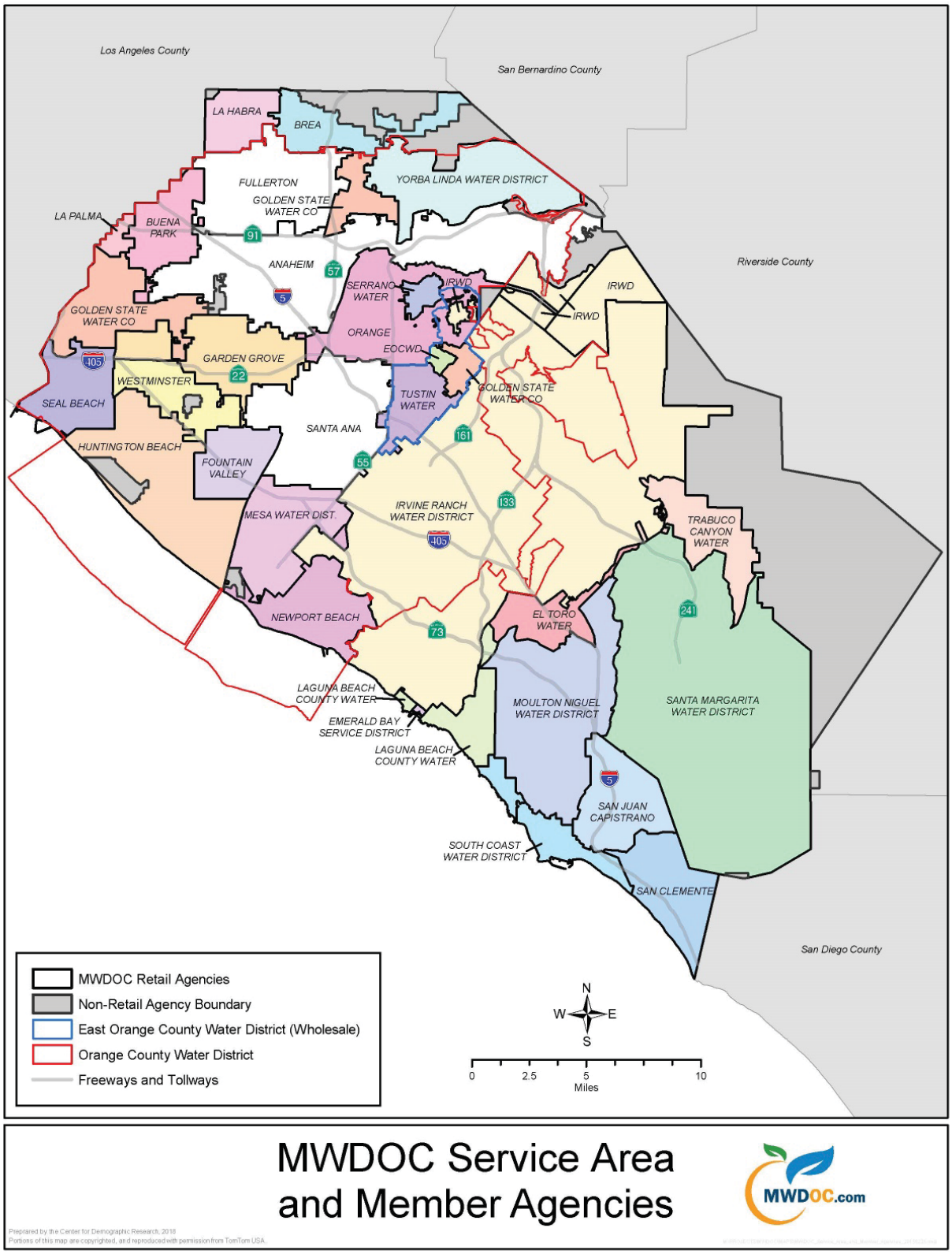

Figure 1. Project Location.

Technical Project Description

The objective of the Program is to emphasize MWDOC's suite of existing rebate programs to develop a Water Efficient Landscape Transformation Program that includes implementation of recycled water use for dedicated irrigation meters, irrigation device improvements, and turf landscape conversions. The proposed Program will foster a resilient comprehensive landscape transformation water conservation program designed to continue the paradigm shift from turf intensive landscapes utilizing potable water supplies and antiquated equipment to California Native or Friendly landscapes incorporated with Watershed Approach designs. These emphasize native plantings and runoff retention and utilize natural resources such as stormwater and the benefits of living soils. To do so, the project will encourage the conversion of approximately 24 dedicated irrigation meters, covering about 12 landscaped sites, from utilizing a potable source to an alternative sustainable source (rainwater capture, stormwater runoff, municipally supplied recycled water); the replacement of approximately 370,000 square feet of turfgrass; the upgrade of up to 1,850 antiquated irrigation timers to smart irrigation controllers (weather-based irrigation timers and soil moisture sensors); the conversion of up to 37,500 high-volume conventional spray irrigation heads to high efficiency rotating nozzles; and the conversion of approximately 78,000 square feet of inefficiency irrigated landscape to drip irrigation. These Low-Impact Development (LID) techniques will result in water and energy savings, a reduction of dry-weather and stormwater runoff, pollution prevention, stormwater management, reduced maintenance costs, and reductions of CO_2 emissions.

The expected total water savings for this Program is 1,057 acre-feet per year (AFY) acre-feet per year and 10,076 acre-feet over the life of the improvements. The installation of smart timers and rotating nozzles are estimated to reduce dry-weather runoff and associated non-point source pollution by 50%, as was documented in MWDOC's Residential Runoff Reduction (R3) Study, which found that a reduction in total pollutant migration could be achieved by reducing total dry season urban runoff[1]. Landscapes converted to drip irrigation will nearly eliminate dry weather runoff and associated non-point source pollution from the project site (up to 100% reduction). Sites converted from turfgrass to a CA Friendly Landscapes will incorporate a Watershed Approach design to utilize and retain rainfall onsite as a natural resource and to encourage healthy, living soils. Increasing stormwater retention and infiltration will reduce runoff and its associated non-point source pollution in local fresh and marine environments, increase urban groundwater recharge, and reduce local flooding risks. These LIDs will serve as examples for the community to follow, thereby fostering a California Friendly landscape transformation and promoting water conservation and environmental stewardship and efficient landscape practices throughout Orange County.

[1] MWDOC & Irvine Ranch Water District. (2004). The Residential Runoff Reduction Study. Fountain Valley: Municipal Water District of Orange County.

Sustainable Water Source Conversion: Selecting a sustainable water source is a component of responsible irrigation management and, in many cases, a source alternative to municipally supplied potable water can be utilized for irrigation purposes. These sources may include on-site collection, rainwater capture, treated stormwater runoff, or municipally supplied recycled water. Converting a dedicated meter point of connection to a source alternative to potable water will result in long-term 100% potable water savings, will help diversify the region's water supply, and increase sustainability and reliability especially in times of drought. As part of this program, sites will convert dedicated irrigation meters to a sustainable water source. Eligible properties will be large landscape commercial and public space sites (e.g. homeowner association public areas, street medians, business parks).

Turfgrass Conversion: Turfgrass which, on average, requires more than four feet of supplementary irrigation water each year, will be removed and replaced by low-water-using Native or California Friendly plantings, which require less than half the water needed by turfgrass. Additionally, the new landscape will incorporate a Watershed Approach design which focuses on utilizing natural resources such as rainwater and living soils to promote landscape health and the reduction of stormwater runoff through LID techniques, which promote rainwater retention and infiltration. These include, but are not limited to, infiltration strips, bioswales, rain gardens, and rain barrels. Additionally, the entire project site must be 100% permeable to air and water, and irrigation must also be converted to a low-flow system or be capped off to utilize hand watering. This will result in a reduction in non-point source pollution sourced from dry weather and stormwater runoff. Project sites will be required to install a minimum 50% plant density coverage, which will increase urban biomass, increase carbon sequestration, and help to mitigate urban heat island effects. To assist customers with designing a new landscape, MWDOC offers a Landscape Design Assistance Program, which provides landscape design templates and/or a personalized design free of charge for qualifying participants.

Smart Timers: This Program will promote the installation of EPA WaterSense labeled smart irrigation controllers (weather or soil based sensors). Smart timers are irrigation controller devices that regulate irrigation water use automatically by adjusting to site conditions via either real time weather data or soil moisture conditions and determine how much irrigation to apply based on factors such as temperature and humidity, with weather data supplied as either signal-based or sensor-based. Soil moisture irrigation controllers offer the opportunity to optimize irrigation based on measured plant demand in the irrigated system. The sensor system can result in the bypass of scheduled irrigation events based on soil moisture content. Smart timers are an effective tool to automate efficient irrigation scheduling management, and are a significant water conservation tool. MWDOC is a leader in smart timer programs, having implemented a rebate program since 2004. MWDOC has also worked closely with the United States Environmental Protection Agency to promote WaterSense labeled devices to end-users, installers, and distribution venues, encouraging market transformation. Much of the success of

MWDOC's smart timer installation rate can be attributed to enhanced rebates for such devices, which has been made available through grant funding.

High-Efficiency Rotating Nozzles: Stationary or fixed spray irrigation nozzles are the most common irrigation heads installed for ornamental beds and small turfgrass areas. They apply more irrigation than any other typical domestic irrigation nozzle or head, with an average precipitation rate of 1.5 inches per hour (in/hr) or 60 to 180 gallons per hour (GPH), and they also apply water at a rate faster than the infiltration rate of local soils, resulting in runoff. In addition to the high application rate, stationary spray heads have poor uniformity rates, with an average distribution uniformity of 0.41. As a result, irrigation with these types of heads is often over-designed (i.e., too many heads are installed per area) and/or over-scheduled (i.e., the irrigation system is set to run too long/beyond the plant water needs), resulting in excessive irrigation water use and runoff. High efficiency rotating nozzles can yield an increase in distribution uniformity by 45 percent compared to traditional spray heads, leading to an increase in water use efficiency and a reduction in runoff. Furthermore, the precipitation rate of rotating nozzles ranges from 0.4 to 0.6 in/hr.

Drip Irrigation: Drip irrigation in bedded areas results in more efficient water application because it targets the root zone of the plants and irrigates 50 percent or less of the area, yet still results in a significant increase in system efficiency. Typically, drip irrigation does not wet the entire root zone; therefore, the application rate concept does not apply. These emitters have various emission rates ranging from 0.3 to 2 GPH, but most commonly flow at 1 GPH or less. Drip irrigation conserves water while generally increasing the health of the landscape, and essentially eliminates irrigation runoff. In a customer satisfaction survey completed by customers who participated in MWDOC's drip conversion program, approximately 80% of participants noted that they noticed a positive change to their landscape (healthier looking plants) and a decrease in consumption on their water bill (water savings).

The Program will utilize a rebate program platform to incentivize the implementation of the previously mentioned landscape measures. Program participation begins with the submission of an on-line application (paper application available by request) by a residential property owner, commercial property owner/manager, or designated contractor (Participant). For databasing and measure verification purposes, the Participant will be required to include the following information, as applicable: conversion area measurement; existing irrigation equipment; new irrigation equipment; site plan; meter/account information; water source (including modification, if applicable); landscape material (including modification, if applicable); and site photographs depicting conversion area and existing irrigation equipment. Additionally, upon implementation of the measure, MWDOC may perform an onsite installation confirmation inspection.

As part of the holistic nature of the Program, Participants will be provided additional resources to ensure optimal water savings. Example resources beyond those included as part of this grant include:

- California Sprinkler Adjustment Notification System
- Landscape Design Assistance
- Irrigation Base Schedule Calculator
- Home Water Use Calculator
- Low Impact Development techniques
- Native plant resources
- Instructions on natural turf killing techniques (herbicide-free)

Substantiation of project benefits will be measured through a statistical water savings evaluation. This evaluation will include a robust, regression-based, statistical evaluation of water use before and after the landscape improvements. Working with local water districts, MWDOC will obtain water use information for participating sites for inclusion in the evaluation. One of the primary goals of this analysis will be to quantify water savings at sites which incorporate the measures described above.

This Program will include six tasks, as described below:

Task 1 - Program Administration

Program Administration, Task 1, is the total staff hours needed for the day to day operation of the Program and constitutes the salaries/wages and fringe benefits associated with the comprehensive Program administration. As part of the Program Reporting (Task 5), MWDOC will supply a data table with the actual hours per reporting period and related salary and fringe benefit rates for each staff personnel.

Task 2 - Marketing and Promotion

MWDOC will design and produce marketing and promotional material that will be distributed to property owners and posted on social media. Promotional pieces will encourage property owners to participate in the Program by logging onto the MWDOC Water Use Efficiency site. The Program webpages contain information regarding Program rules and regulations, access to the Program application, information about rebate levels through the Program, and contains resources to assist customers with their water conservation project.

Marketing will primarily consist of bill inserts, social media campaigns, water bill messages, newsletter articles, and posts on water agency websites. Over the 20+ years MWDOC has marketed water use efficiency programs, marketing surveys conducted by MWDOC have rated bill inserts, and more recently social media, as the most effective forms of marketing to encourage participation. MWDOC has increased its social media presence and can reach up to

345,000 people per month with Facebook posts, and the MWDOC website receives over 10,000 views per month. All Program promotional materials will acknowledge Reclamation's funding.

Stakeholders will be actively involved in the Project to further educate and promote participation. Stakeholders include retail water agencies, county and city municipal storm water permit holders, landscape maintenance contractors, facilities/property managers, homeowner association board members, and business owners

Task 3 – Site Inspections

All turf removal landscape and drip irrigation conversion sites (100%) will be provided with installation verifications to determine eligibility for Program rebate funds. At a minimum, the pre-installation verification process will include databasing of the following: site contact information, measure, sector, device cost, rebates paid, installation date, make/model information (if applicable), conversion square footage (if applicable), and run-off retention method (if applicable). Additional collected information may include the following, as applicable: existing irrigation equipment, new irrigation equipment, site plan, water source (including modification, if applicable), conversion area measurement, landscape material (including modification, if applicable), and site photographs depicting conversion area and existing irrigation equipment. Additionally, MWDOC will perform comprehensive on-site post-inspections following the completion of a measure or device installation/conversion. The on-site post-inspections will serve as a quality control check to verify the reliability of the installation verification process. If the on-site post-inspections identify flaws in the standard installation verification process, the comprehensive onsite post-inspections will be performed at all sites.

MWDOC currently has Mission Resource Conservation District (Mission) under contract for the next three (3) years to provide landscape survey services for MWDOC's various landscape Programs. Mission, as a Non-Profit Special District and an arm of the Natural Resource Conservation Service, is uniquely qualified to perform irrigation surveys. They have many years of experience in both the urban and agricultural setting and provide MWDOC with highly competitive rates.

During on-site post inspections executed by MWDOC, Mission, or the retail water agency the following will be performed, as applicable:

- Walk the site with the property owner or person designated by the property owner
- Verify specific aspects of conversion meet Program terms (e.g. mulch applied, irrigation converted, 100% permeable, runoff retention element installed)
- Measure the conversion area
- Turn on each valve/station to evaluate the condition of the irrigation system
- Perform a catch-can test to measure actual distribution uniformity for the Conversion area (as applicable)

- Place irrigation system repair flags to bring needed repairs to the attention of the property owner
- Verify installation of water efficient drip/micro-irrigation
- Promote California Friendly landscape irrigation educational classes

Task 4 – Rebate Incentive

Over the 24-month period of the potential grant award, MWDOC proposes to facilitate the implementation of over 2,000 landscape and irrigation improvements. To achieve this, the Program anticipates the conversion of approximately 370,000 ft^2 of turfgrass to CA Friendly landscapes; the upgrade of up to 1,850 antiquated irrigation timers to smart irrigation controllers (weather-based irrigation timers); the conversion of 37,000 high-volume conventional spray irrigation heads to low-precipitation-rate rotating nozzles; the conversion of approximately 78,000 ft^2 of inefficiently irrigated landscape to drip irrigation; and conversion of up to 12 landscaped sites, or approximately 24 dedicated irrigation meters, from utilizing a potable source to an alternative sustainable source (rainwater capture, stormwater runoff, recycled water). MWDOC proposes to provide incentives through a rebate-style format to residential property owners and commercial property owners/managers for qualifying conversions. The following proposed rebate amounts will be available for each participant site; these rebate levels may vary due to market transformation during the implementation-phase:

- **Sustainable Water Source Conversion**
  Up to $1,300 per AF of potable water saved
- **Turfgrass conversion**
  $1.00 or more per square foot
- **Smart Timers**
  $35 or more per station (commercial)
  $80 or more per timer (residential)
- **High-Efficiency Sprinklers**
  $2.00 or more per rotating nozzle
- **Drip Irrigation**
  $0.20 to $0.70 per square foot (commercial)
  Up to $175 per kit (residential)

Rebate incentives shall be based on the square footage, device/material costs, or actual water savings. No participant will be rebated an amount higher than what is totaled as an eligible project cost. To receive the Program rebate funds, the Participant's completed site conversion and irrigation system are required to be consistent with the intent of the Program and ensure efficient landscape water use by implementing LID measures. Additionally, the Turf and Drip Conversion areas must remain in compliance with the conversion requirements for a period of

five years. If this requirement is violated, the Participant may be required to refund all or a portion of rebate funds. This requirement is void upon transfer of ownership.

Turf Conversion area qualification criteria include:

- Site must utilize at least one Watershed Approach design measure to retain runoff (e.g. bioswales, infiltration strip, rain garden, rain barrel).
- Bare soil must be covered by mulch and/or groundcover.
- Site may not include any California invasive species.
- Conversion area must include the entirety of the irrigation zone(s), and must be converted to a low-flow irrigation system (e.g. drip, high efficiency nozzles, etc.) or be capped off. Deviations will be considered on a case by case basis.
- Conversions that have been started or are already completed are not eligible as per the Program terms and conditions. Site is required to be inspected before turf is removed.
- Conversions must comply with all applicable laws, codes, policies, covenants, conditions, and restrictions.

Drip Irrigation conversion area qualification criteria include:

- Site must be utilizing spray irrigation at the time of program application. This will be verified for 100% of participants.
- Site must install products on the eligible products list to ensure quality and high efficiency, and must meet equipment requirements such as installing a pressure regulator, filter, and specified tubing.

Task 5 – Program Reporting

Following the reporting schedule set forth in the Program agreement, MWDOC will submit semi-annual and final reports that will include all required SF forms, a written Program progress narrative, tabular data tables, and all required back up to support the requested reimbursement.

Task 6 – Program Evaluation

MWDOC staff, starting in the sixth (6) quarter of the agreement term, will initiate a Program process and statistical water savings impact evaluation to quantify Program benefits. The Program process evaluation will assess the Program's goals, format, and effectiveness including how the Program was developed, how success was measured, who the target audience was and how they were reached, and the Program successes and challenges.

The impact evaluation will use robust statistical methods, including regression analysis, to measure the change in water use of Program sites before and after Program conversion. This will give the water industry another opportunity to quantify actual water savings associated with comprehensive landscape/irrigation improvements occurring at sites. This analysis will include a statistically significant population of Program participants and will maintain 95% confidence. A written report describing the statistical methods and evaluation results will be

submitted as the final report for the Program. Results from this Program will be shared with Reclamation, Metropolitan, other Program Stakeholders, and MWDOC retail water agencies.

MWDOC will conduct the analysis by qualified staff, process the Program's data, liaise with the involved retail water agencies to obtain water consumption data, and develop the draft and final report. If a consultant is hired to aid in the any component of the evaluation, MWDOC will develop and release a request for proposals to several qualified water use evaluation consulting firms, review submitted proposals, and select the most qualified submission per the terms of MWDOC's Administration Code.

Evaluation Criteria

Evaluation Criterion A: Quantifiable Water Savings

The following provides the methodology and technical justification associated with the 1,057 AFY water savings associated with the implementation of this Program.

Turf Removal

The average annual water saving was initially calculated utilizing the theoretical irrigation requirement (TIR) water need taking local evapotranspiration (ETo) and rainfall (Pe) into consideration. As part of this analysis, the crop coefficients (Kc) varies from turfgrass (0.8) versus a California Friendly landscape comprised of low water need plants (0.3).

$$TIR = (ETo \times Kc - Pe) / IE$$

$$WS = (TIR\ final - TIR\ initial) / TIR\ final$$

where,

WS = Water Savings (%)

IE = Irrigation Efficiency (%)

Figure 2 depicts the general relationship between the theoretical irrigation requirement and potential reduction of water for various Kc values[2].

The daily evapotranspiration and precipitation measurements were collected from the California Irrigation Management Information System (CIMIS) weather station number 75 located in Irvine. Spatially interpolated or "Spatial ETo" values were collected for additional areas on the basis of zip code. The weather normalization technique used the actual weather corresponding to the date of interest rather than a historic average. For the Orange County area, the results are listed in Table 2.

[2] Baum-Haley, M. (2013). Evaluation of Potential Best Management Practices- Turf Removal. Prepared for The California Urban Water Conservation Council.

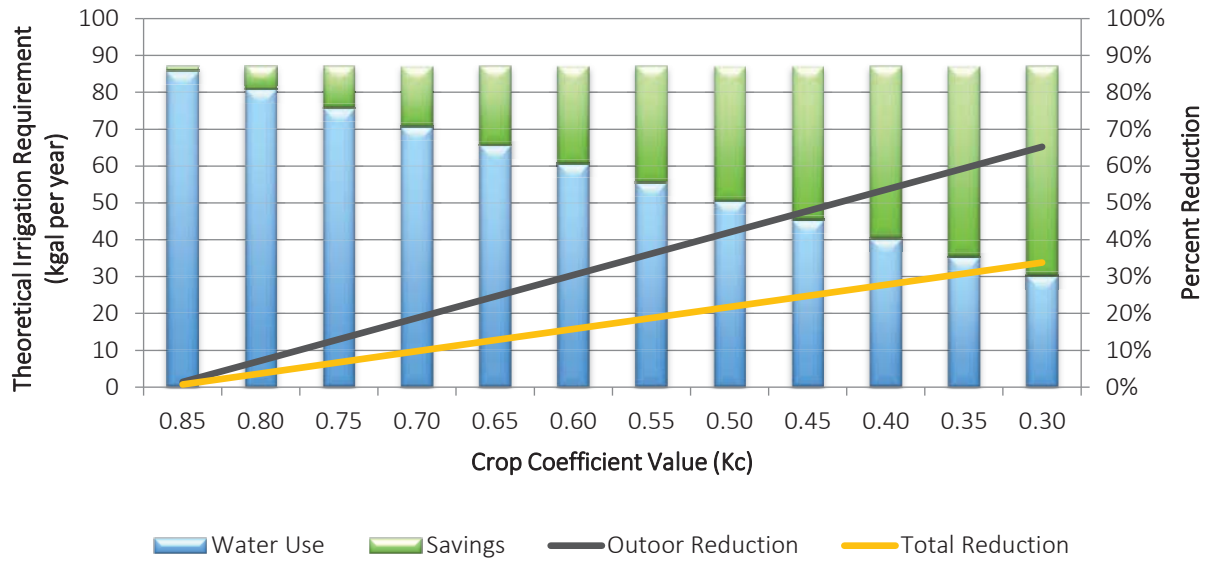

Figure 2. Theoretical depiction of how water savings may increase as turfgrass is replaced.

Table 2. Orange County Potential Savings

Annual Average		Assumptions		Theoretical Irrigation Requirement TIR (gallons per ft² per year)		Potential Savings based on TIR	
P (in/yr)	ETo (in/yr)	Pe (in/yr)	IE (%)	Turfgrass Landscape Kc = 0.8	CA Friendly Plantings Kc = 0.3	Gallons per ft² per year	Percent
12	47	3.8	60-70	56	14	42	75%

From the data previously collected from onsite inspections at Turf Removal sites within Orange County, the average removal area is 2,000 square feet (residential and commercial sectors combined). This would result in a reduction in annual use from 112,000 gallons per year prior to the conversion to 28,000 gallons per year post conversion, a savings of 84,000 gallons per year. On a per square foot basis, this is a savings of approximately 42 gallons per year per ft^2 or 0.121 gallons per day (gpd) per ft^2. This analysis also concurs with the water savings observed using actual meter data.

Following the theoretical analysis, actual water use at sites was evaluated utilizing historic water use data, as well as the water use data following the turf removal landscape conversion. Metropolitan Water District of Southern California looked at their regional turf removal program and found water savings of approximately 44 to 49 gpd per ft^2, or 0.121 gpd per ft^2.

The proposed Program anticipates 370,000 square feet (approximately 8.5 acres) of turfgrass conversions. This would in turn result in over 13,196,983 gpd or approximately 50 acre-feet per year. Turfgrass removal is given a ten year lifetime for water savings purposes, therefore contributing to approximately 500 lifetime acre-feet of water conserved.

One hundred percent of Turf Conversion sites will receive a pre-project and post-project inspection. The pre-project inspection will verify there is currently turf on the proposed site and the square footage of turf eligible for the project. The post-project inspection verifies that the total project area was converted to meet program rule and requirements such as being 100% permeable and installing low-flow irrigation.

Smart Timers

MWDOC consistently conducts evaluations at the completion of program terms. As a means to continuously track the long-term success of this type of rebate program, these results are compared. Table 3 summarizes the previous irrigation timer evaluation results.

The primary objective of the impact evaluations such as these was to measure the amount of water saved throughout the course program. A statistical analysis of the collected data was performed in order to provide insight into the characteristics of sites that participated in the program and determine if a reduction of water use was due to device installation.

Table 3. Smart Timer Efficiency Research

Study Title	Author	Sector	GPD Savings	Percent of Total Water Use	Percent of Outdoor Water Use
Residential Runoff Reduction Study, 2004	A&N Technical Services, T. Chesnutt, Ph.D.	Res.	41	10%	-
		Comm.	545		21%
Commercial ET-Based Irrigation Controller Water Savings Study, 2006	A&N Technical Services, T. Chesnutt, Ph.D.	Comm.	601	-	22%
MWDOC SmarTimer Rebate Program Evaluation, 2011	A&N Technical Services, T. Chesnutt, Ph.D.	Res.	49	9%	-
		Comm.	727		28%
OC Smart Irrigation Timer Rebate Program, 2014	M. Baum-Haley, Ph.D.	Res.	59	11%	18%
		Comm.	320	-	10%

Monthly meter read data was requested for each site from the retail water agency. Historical water use was requested for a least three years prior to the intervention point and one year following. The intervention point is designated as the point in time when the device was purchased/installed. Water savings was determined by comparing the gpd water use prior to and following the intervention point. This methodology allowed for direct comparison of water use based on comparable irrigation need and system consistency when utilizing weather normalization (see Table 3). This specifically allows for the ability to compare not just the net water savings for the sample as a whole but, additionally, to pairwise the analysis for each site, resulting in the categorical water use. Additionally, the water use at intervention sites was compared to a control group, exposing all samples to the same confounding factors such as weather, conservation campaigns, etc.

Via a rebate program format, the proposed Program will facilitate the installation of approximately 850 residential timers and up to 45,000 commercial timer stations which, at a historic average of 45 stations per commercial timer is 1,000 commercial timers, for a combined total of up to 1,850 timers. Only those models with EPA WaterSense labeling will be eligible under the Program guidelines, which will be checked through receipt verification. Physical inspections will also take place to verify installation. Based on a water savings of 36.9 gpd per residential timer, this will conserve approximately 31,416 gpd or 35 AFY. Commercial timers, based on a water savings rate of 15.998 gpd per station, will save up to 719,105 gpd, or 805.5 AFY savings. Combined, residential and commercial timers are anticipated to save approximately 840.5 AFY. Smart timers are given a ten year lifetime for water savings purposes, therefore contributing to 8,405 lifetime acre-feet of water savings.

High Efficiency Nozzles

The proposed Program will achieve quantifiable and sustained water savings through the installation of low precipitation/application rate rotating nozzles in urban landscapes, specifically in single-family homes and commercial landscapes throughout Orange County, California. Program eligible products will be limited to the latest production high quality products from the competing irrigation management companies.

The spray head is a common sprinkler typically utilized in landscape irrigation for smaller or bedded areas. Conventional fixed spray heads have shorter throws than conventional rotary sprinklers (rotors). Conventional spray heads also have application rates higher than other sprinkler types, meaning greater amounts of water are applied in a shorter period of time. According to the Metropolitan Water District of Southern California, retrofitting a fixed spray head with a rotating nozzle will result in 2.357 gpd per nozzle.

Multi-stream, multi-trajectory (MSMT) rotating nozzles distribute water via a number of individual streams of varying trajectories that turn slowly, as compared to a fixed spray nozzle or a single stream rotor utilized for irrigating larger areas. An MSMT rotating nozzle is a high(er) uniformity spray nozzle and, therefore, is often referred to as a high-efficiency sprinkler. It is an

alternative nozzle that can fit on a conventional spray body because these nozzles are threaded for easy retrofit.

The most touted benefit resulting from the use of MSMT rotating nozzles is an increase in distribution uniformity. For landscape plants with a uniform water requirement and equidistant spacing/density, uniform water application is desirable. The majority of studies have been focused on the low-quarter distribution uniformity (DU_{lq}) improvements, where the potential for water savings is derived from the percent of water reduction attributed to improving uniformity of application.

Via a rebate program format, the proposed Program anticipates the retrofit of up to 37,500 conventional fixed spray heads with rotating nozzles. Based on 2.357 gpd per nozzle, this will save 88,382 gpd or 99 AFY. Receipts for each application will be verified, including the make and model of the nozzle to confirm a qualifying product was purchased. On site verifications will be performed on a case by case basis. Rotating nozzles are given a five year lifetime for water savings purposes, therefore contributing to 495 lifetime AF of water savings.

Drip Irrigation

Most of the water savings research for drip irrigation is focused on water savings without causing stress or reduced quality to the turfgrass and landscape. A notable study was conducted at residential sites with more than 30-months of post installation single-family water use monitoring[3]. The conclusions showed that the homes with drip irrigated areas required less water than if those areas were sprinkler irrigated. The treatment homes with both the adjusted controller run time settings and the incorporation of drip irrigation in the bedding areas used 41% less irrigation water than the control group. This yielded a weekly water savings of 200 to 250 gpd.

Irrigation system efficiency varies based on irrigation method, equipment, and design. Applied water can be lost primarily from evaporation, runoff, or drainage. Evaporation can result from water droplets irrigated into the air, from wet leaves, or from the soil surface. A major source of lost water results in runoff from the surface of the landscape. Additionally, water can be lost by deep percolation through the soil profile. Basic system efficiencies are listed below in Table 4.

[3] Baum, M. C., Dukes, M. D., and Miller, G. L. (2005). "Analysis of residential irrigation distribution uniformity." J. Irr. Drain. Eng., 131(4), 336-341.; Haley, M., Dukes, M., and Miller, G. (2007). “Residential Irrigation Water Use in Central Florida.” J. Irrig. Drain Eng., 133(5), 427–434.

Table 4. Irrigation Efficiency Percent

Irrigation System Type	Efficiency[a]
Drip/Micro-Irrigation	80 to 95
Landscape Spray Systems	40 to 65
Landscape Rotor Systems	50 to 75
Brass Rotor Systems	60 to 85

Source: Irrigation Association (2007)

Micro-irrigation has less opportunity for losses through transmission. It is applied directly to the root zone and has small wetted soil surface areas, reducing evaporative losses. Applying water at a slower rate will reduce ponding and the subsequent flow from the landscape area, thereby minimizing runoff and eliminating overspray. Deep percolation (water loss) can be minimized through proper scheduling.

Increasing system efficiency will result in water savings by reducing the excess water needed to achieve adequate water within the root zone. The common practice to compensate for system inefficiencies is to apply more water. As system efficiency decreases, the amount of water need for irrigation use increases. Water savings due to an increase in irrigation efficiency can then be calculated. As the efficiency decreases, the volume of water applied increases, resulting in a negative exponential curve.

The percentage of water lost, or superfluous application, as a result of inefficiency can be calculated for any Irrigation Efficiency with the resulting equation:

$$WL = -1.854 \ln (IE) - 0.2168$$

where,

WL = Water Lost (%)
IE = Irrigation Efficiency (%)

Here, the givens (area, etc.) will not affect the water savings. Therefore, this can be universal within the truncated 35% to 85% irrigation efficiency range. Below 35% efficiency, it is recommended to fix major issues requiring potential redesign/installation. Beyond the 85% efficiency, the impact potential savings are not significant (Dukes et al., 2006). For example, assume an irrigation zone with stationary spray heads has an initial irrigation efficiency of 40%. If the irrigation efficiency can be increased to 85% by replacing the spray heads with more efficient irrigation equipment, such as drip-irrigation, this would result in a 53% water savings.

In 2017, MWDOC conducted an evaluation of its Spray-to-Drip Pilot conversion program, and results showed residential savings occurred at 0.121 gpd/ ft^2 and commercial savings at 0.066 gpd/ ft^2. Additional water savings information is as follows:

Table 5. MWDOC Spray-to-Drip Evaluation Results

Sector	GPD/ ft^2	GPD/site	% Reduction
Residential Drip Conversion	0.121	85	24%
Commercial Drip Conversion	0.066	473	19%

The proposed Program anticipates the retrofit of up to 78,000 square feet of spray to drip conversion, which is roughly the retrofit of 6,476 conventional fixed spray heads. Receipts will be collected to ensure equipment meeting program requirements is purchased. Additionally, 100% of project sites will be physically inspected upon completion to ensure the site meets program guidelines. Based on approximately 0.121 gpd/ ft^2 for residential, and 0.066 gpd/ ft^2 for commercial, this would yield 6,688 gpd or 7.5 acre-feet per year. Drip is currently given a ten year lifetime for water savings purposes, therefore contributing to 75 lifetime acre-feet of water savings.

Sustainable Water Source Conversion

Sustainable Water Source Conversions switch potable dedicated irrigation meters to a sustainable alternative source, such as municipally supplied recycled water, rainwater, or stormwater capture, creating 100% potable water savings. Sites are required to adhere to local, state, and federal requirements regarding alternative water sources, such as municipally supplied recycled water, and will be inspected to ensure completion and quality. Based on historic data in Orange County, the average irrigated project size is 95,000 ft^2, with an average savings of 5 AFY or 4,464 gpd per site. Water savings for each project are established through each converted meter's historic water usage. This Program anticipates 12 different project sites converting approximately 24 dedicated irrigation meters to a sustainable source. This will save 53,565 gpd, or 60 AFY. Over the 10 year project life, these conversions will save 600 AF.

Comprehensive Program

Overall, the installation and conversion of the previously mentioned measures translates to 1,057 AFY saved or 10,076 AF over the project life. This conserved water would otherwise be consumed for inefficient irrigation use. Because of the Program, the conserved water will be left in storage to be used at a later time such as in periods of drought, or left in its natural state such as local groundwater aquifers, the Colorado River, or in the Bay-Delta. Quality control measures are in place to ensure participants correctly convert their landscape or irrigation according to the terms and conditions of the Program. At the close of the Program, a statistical evaluation based on participant consumption history will be conducted. The Program will be in a rebate incentive format, and will be built on a variety of existing water use efficiency programs that MWDOC currently implements, such as the Turf Removal Program, SmarTimer Rebate Program, Spray-to-Drip Conversion Program, SoCal Water$mart Program, and other various landscape programs. These programs are complementary and work collaboratively to achieve maximum water conservation results.

Table 6. Water Savings per Device

Measure	GPD Savings	Qty	Unit	Total GPD Savings	AFY Savings	AF Life Savings
Turf Conversion (Res and CII)	0.121/ft^2	370,000	ft^2	44,593	50	500
Smart Timers (Res)	36.96/ timer	852	timers	31,416	35	350
Smart Timers (CII)	15.98/ station	45,000	stations	719,105	805.5	8,055
Rotating Nozzles (Res and CII)	2.357/ nozzle	37,500	nozzles	88,382	99	495
Drip Irrigation (Res)	42.35/ kit	80	kits	3,388	3.8	38
Drip Irrigation (CII)	0.066/ft^2	50,000	ft^2	3,300	3.7	37
Sustainable Meter Conversions (CII)	4,464/site	12	sites	53,565	60	600
Totals				**943,747**	**1,057**	**10,076**

Evaluation Criterion B: Water Supply Reliability

The Program will help to provide reliable water supply, reduce dependency on imported water, meet water demands during all hydrologic conditions (drought resiliency), and maximize potable/recycled water use efficiency. As a result, less water will be pumped from the groundwater basin, aiding in refiling the basin more rapidly, and less imported water will be used, allowing unused water to be retained in regional water storage reservoirs for use at a future date. Additionally, water will also remain in-stream for environmental benefit. Statewide benefits include off-sets to Bay-Delta and Colorado River Aqueduct (CRA) pumping, and local benefits include off-sets to local sources such as groundwater and surface water. These water conservation efforts will preserve local flexibility and implement water use management improvements at local and regional levels to maximize beneficial use of existing water supplies.

The Program will result in 1,057 AFY water savings, which means 1,057 AF of water will avoid diversions each year from the Delta and CRA, or be kept in local storage (groundwater, surface water) for use at a future date. Due to the arid climate and hot summers in southern California, the greatest savings will be achieved in the summer months through irrigation efficiency. Since supplies from the CRA and State Water Project are considered an important MWDOC supply source, we assume that saved water could stay in-stream, resulting in increased in-stream flows. The Program's largest and most important impact on the Bay-Delta and CRA will be reducing dependency and the amount of water received by Orange County from the Bay-Delta through the State Water Project and the CRA.

The proposed Program promotes and encourages collaboration among all water agencies in Orange County. While MWDOC serves approximately 70% of the county, the proposed Program will be implemented throughout the county in partnership with all retail water agencies.

Widespread support for this Program is demonstrated by the 13 letters of support from Orange County retailers starting on page 43. This partnership is significant as water agencies in the county will have a united message of promoting efficient landscape water use to water users. Because of this county wide approach, all consumers will have accesses to one standardized program. Additionally, local environmental organizations such as Surfrider Foundation and Orange County Coast Keeper, provided key stakeholder contribution in the development of the MWDOC Water Use Efficiency Master Plan from which this Program is derived. The Program will significantly increase the awareness of water conservation in Orange County. The Program will be promoted through water bill stuffers (bill inserts), water bill messages, newsletters, websites, and social media channels.

The Program will serve as an example of efficiency that can be replicated, not only from user to user, but also by water agency to water agency, thereby increasing the capability of future water conservation and efficiency efforts beyond Orange County. By promoting the conversion of dedicated irrigation meters to a sustainable source, such has municipally supplied recycled water, the recycled water grid will expand, providing more opportunities for future conversions, which help diversify Orange County's water supply portfolio. A significant portion of customers who participate in MWDOC's water savings rebate programs will participate in other in the programs in the future. Metropolitan Water District of Southern California has demonstrated that turf conversions sites induce a multiplier effect, meaning people not participating in the rebate program will convert their lawns themselves, enhancing the opportunities for future water efficiency and conservation. The measures and devices installed/converted in this Program create long term water efficient practices, which will save water during and between times of drought, and also provide infrastructure for Orange County residents to further *conserve* water during times of drought. The Program also provides specific tools to help sites reduce their water use, eliminate runoff, and utilize stormwater.

Benefits to Indian Tribes: This Program has no direct benefit to Indian Tribes as no federally recognized Tribal Land exists in Orange County.

Benefits to economically disadvantaged communities: This Program will benefit economically disadvantaged communities by providing monetary assistance, in the form of a rebate, for water savings projects to help increase the financial feasibility of implementing such measures. This program, as well as MWDOC's other programs, is marketed through our outreach efforts to disadvantage communities. Many of these projects, such as MWDOC's turf conversions and free landscape design assistance programs, can beautify landscapes and help mitigate the urban heat island effect by increasing biomass while simultaneously using less water, requiring less maintenance and reducing the cost of a monthly water bill.

Benefits to endangered/threatened species: This proposed Program will benefit several federally-listed threatened and endangered species in the San Francisco Bay and San Joaquin Delta ecosystem. These species include the Delta Smelt, Steelhead Trout, and Spring and

Winter-Run Chinook Salmon. The relationship of these species to a Reclamation Program centers on the federal Central Valley Program in California and the impacts the Central Valley Program and State Water Program have on the San Francisco Bay and San Joaquin Delta ecosystem. Due to the listing of these species and recent court rulings, southern California's ability to access imported water from the Bay/Delta has already been restricted. This court action is designed to retain water in the ecosystem for the benefit of and to accelerate the recovery of these listed species. The proposed Program is designed to aid Orange County in reducing its dependence on imported water from the Bay/Delta watershed.

Locally, the proposed Program will benefit the recovery of listed Steelhead Trout in the Aliso and San Juan Creeks and the Santa Ana River by reducing urban runoff and non-point source pollution through better irrigation management. This linkage has been confirmed through MWDOC's Residential Runoff Reduction Study.

Evaluation Criterion C: Implementing Hydropower

This project will not implement Hydropower.

Evaluation Criterion D: Complementing On-Farm Irrigation Improvements

This Program will not be completing On-Farm Irrigation Improvements.

Evaluation Criterion E: Department of the Interior Priorities

Creating a conservation stewardship legacy second only to Teddy Roosevelt: MWDOC is a leader in California water conservation. Efforts in Orange County have been key in stabilizing water demand, evaluating planning needs, keeping up with a growing population, and providing public water saving programs. MWDOC sees water conservation as a way of life, and provides programs and education to help spread this vision to Orange County residents. This Program provides feasible opportunities to assist residents in saving water, along with resources and information to simultaneously increase landscape aesthetics and decrease water consumption. Along with providing financial incentives and assistance for customers to transform and upgrade their homes or businesses to water efficient, runoff retentive landscapes, MWDOC provides and shares all water conservation data, research, and resources with the public and other water agencies at the local, regional, state and federal levels. MWDOC has worked with the Department of Interior, specifically the Bureau of Reclamation, in numerous prior water conservation projects which have saved thousands of acre feet of water. Together, MWDOC and the Bureau of Reclamation will continue to create a water conservation legacy of which Teddy Roosevelt would be proud.

Utilizing our natural resources: This program promotes the sustainable utilization of natural resources. Through water conservation, energy is also conserved by reducing the amount of water pumped to southern California through the State Water Project and the Colorado River Aqueduct. For each acre foot of water saved, an energy cost of 3,000 kWh of energy is avoided. This Program will save 1,057 AFY of water, 43% representing imported water, which will reduce energy consumption by 1,500,071.61 KWh per year. Additionally, landscape conversion projects

will be incorporated with a Watershed Approach design, which means elements to retain and utilize rainwater are mandatory on the project site. Watershed Approach elements will utilize rainwater as a natural resource through retention and infiltration and include, but are not limited to, rain gardens, bioswales, and infiltration strips. This approach also promotes healthy, living soil which promotes bioactivity, a natural benefit to soil and landscape health.

Restoring trust with local communities: By providing Reclamation funds to the public through rebate incentive programs, MWDOC communicates the importance of conserving water while showing that Reclamation and MWDOC are providing the resources to help residents achieve the water savings goals that have been requested of them. The act of engaging the public in water efficiency programs and providing monetary assistance can help solidify trust between the community and the local and federal government.

Striking a regulatory balance: This Program will assist residents in Orange County in achieving their water savings goals requested of them by their local and state governments. This allows MWDOC and the Family of Orange County Water Agencies to provide monetary incentives for performing water savings actions, instead of fining residents for water waste or increasing water rates based on consumption. With this approach, the goal of saving water is met through means other than issuing fines and citations, and the public gains benefits in addition to water savings, such as new fixtures, aesthetically pleasing landscapes, and an increase in urban biomass, which helps to mitigate urban heat island effects.

Evaluation Criterion F: Implementation and Results

Subcriterion F.1: Project Planning

This Program was identified in MWDOC's 2013 Water Use Efficiency Master Plan as a high priority implementation program. Program design work is complete and includes a standard consumer rebate implementation framework. All aspects of program implementation are operational with the rebate process, device identification, and marketing ready to implement. The proposed Program is included in the 5-year portfolio of programs identified for implementation in the Master Plan.

Countywide planning has been done to support the proposed Program. Water use efficiency programs, such as the Program described in this proposal, are included in local Integrated Regional Watershed Management Plans (IRWMP) as a multi-benefit program. Benefits include water conservation, stormwater and dry-weather runoff reduction, and non-point source pollution prevention. Comprehensive landscape irrigation water use efficiency programs and smart irrigation timer programs have been consistently ranked in the top five (5) programs against dozens of other water supply, water reliability, and watershed management programs in these IRWMP efforts.

The Program is consistent with the water use efficiency and watershed management goals contained in the California Water Plan, TMDLs, CALFED Bay-Delta objectives, AB 32, local land use planning, and conforms to California's SBx 7-7, the 2009 Water Conservation Act that calls for a 20% reduction in urban water demand by 2020. Additionally, this Program is consistent with MWDOC's 2015 Urban Water Management Plan and our commitment to implement the BMPs as a signatory to the Memorandum of Understanding for urban water conservation. Lastly, the Program is consistent with Metropolitan's Integrated Resources Plan, which contains a water use efficiency goal of 1.9 million acre-feet reduction by 2020. Overall, this Program represents a key strategy, landscape water use efficiency, which will assist Orange County water agencies to meet and maintain their reduction goals.

Subcriterion F.2: Performance Measures

At the Program's conclusion, MWDOC plans to conduct a robust statistical water savings analysis using regression analysis. This will give the water industry another opportunity to quantify actual water savings associated with this Program. This analysis will include a statistically significant population of Program Participants and will maintain 95% confidence. Participant water use data before and after participating in the Program will be used to determine changes in water use associated with the landscape improvements and device installation. The estimated historical average water use will be determined through site past meter data and will be utilized to quantify water application savings. The monthly meter data will be provided by the retail water agency. Historical water use will be requested for at least three (3) years and up to five (5) years prior to the intervention point. Implementation-phase water use will be requested following the intervention point, which is the point in time when the measure was implemented. Water savings will be determined by comparing the gallons per day water use prior to and following the intervention point.

A written report describing the statistical methods used and evaluation results will be submitted with the final report for the Program. The evaluation will quantify the total estimated irrigated area that has been converted and/or the improved irrigation devices (confirmed through installation verification and site inspections) with associated water savings. Where applicable, using established water savings metrics, the assumed water savings will be quantified by using the metric and number of devices/ft^2 and compared to savings numbers achieved through statistical analysis.

Evaluation Criterion G: Nexus to Reclamation Project Activities

The proposed Program is connected to Reclamation Project activities through its water supplies. MWDOC obtains it imported water supplies from the Metropolitan Water District of Southern California via the Colorado River Aqueduct (CRA) and State Water Project (SWP). Metropolitan accesses Colorado River water via an entitlement, and obtains State Water Project water from Northern California. This state system is operated in parallel with Reclamation's Central Valley Program. Through water conservation, MWDOC reduces the amount of water imported to Orange County through the SWP and CRA, reducing stress on the

Bay Delta and Colorado River. Additionally, the Program will be implemented throughout Orange County, including the Irvine Ranch and Orange County Water District service areas. These agencies have Title 16 contracts with Reclamation.

The proposed Program will not be implemented on Reclamation lands or facilities to our knowledge. However, the Program will be implemented within the Lower Colorado Region and, more specifically, within the Southern California Area Office activity area.

This Program will not directly benefit any Indigenous Tribes as there is no federally recognized tribal land in the MWDOC service area.

Evaluation Criterion H: Additional Non-Federal Funding

The total project cost is $2,539,770.73. Of this the non-federal funding will total $2,240,428.03, 88% of total costs. This exceeds 50% of the project costs. See Table 8. Funding Sources for detailed information.

$$\frac{\$2{,}240{,}428.03}{\$2{,}539{,}770.73} \text{ x } 100 = 88\%$$

Project Budget

Funding Plan and Letters of Commitment

The non-Reclamation funding amount assigned to this Program is $2,240,428.03. MWDOC will contribute all necessary non-Reclamation funding for the Program. No other source of funding is required. A letter of funding commitment signed by the MWDOC General Manager is attached, see page 27.

Non-Federal Entity: Municipal Water District of Orange County (MWDOC)

The funding amount MWDOC will provide is $2,240,428.03, or 88% of the overall Program's cost. This amount is made up of both in-kind contributions in the form of salaries and benefits ($75,828.03), program marketing ($2,500.00), and direct payments to Program participants as incentive funding ($2,162,100.00) provided during the course of the Program, see Table 7.

The in-kind contribution MWDOC will provide, totaling $75,828.03, is a combination of both salaries and fringe benefits. It is proposed MWDOC will commit 1,898 hours over the two-year term of the Program. This averages to approximately 36.5 hours per week and will be spread across seven (7) of MWDOC's water use efficiency and public affairs staff. Table 9 details the breakdown by staff member and their corresponding salary/benefit unit rate, the total two-year term hours, and the associated cost.

To promote the Program, MWDOC will spend $2,500.00 on marketing efforts, which will include bill inserts, social media campaigns, and other advertising strategies.

MWDOC will contribute $2,162,100.00 in direct payments to Program Participants, in the form of rebate incentives. Program rebate incentives paid to Participants will total $2,427,500.00.

Table 7. Summary of Non-Federal and Federal Funding Sources

FUNDING SOURCES	AMOUNT
Non Federal Entities	
1. Municipal Water District of Orange County Direct Contribution	$2,164,600.00
2. Municipal Water District of Orange County In-kind Staff Time*	$75,828.03
Non-Federal Subtotal	**$2,240,428.03**
Other Federal Entities	
1. None	$0.00
Other Federal Subtotal	$0.00
REQUESTED RECLAMATION FUNDING	**$299,342.70**

The federal funding requested by Reclamation for staff time, rebate incentives, and quality control inspections totals $299,342.70. Of the Program total staff time costs, $84,525.73, MWDOC is requesting $8,697.70 to be funded by Reclamation; for quality control inspections MWDOC is requesting $25,245.00; of the total rebate incentives ($2,427,500.00), MWDOC is requesting $265,400.00 from Reclamation.

Table 8, below, lists the total Program costs broken down by source and percent of total cost.

Table 8. Funding Sources

Funding Sources	Percent of Total Program Cost	Total Cost by Source
Recipient Funding	88%	$2,240,428.03
Reclamation Funding:	12%	$299,342.70
Other Funding	0%	$0.00
Totals	**100%**	**$2,539,770.73**

Additional information: No other funding source will be required; there is no needed external funding; Letters of Commitment are included.

MWDOC does not expect any in-kind costs incurred before the Program start date.

No other Federal partners will be providing funding to this Program.

MWDOC has submitted a proposal under FOA No. BOR-MP-18-F002, which is still pending at this time. Denial of this pending proposal will not affect the Program proposed under this FOA. In the case that both Programs are approved, under no circumstance will MWDOC co-mingle federal funds.

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May 02, 2018

Bureau of Reclamation
Financial Assistance Support Section
Attn: Darren Colson
P.O. Box 25007, MS 84-27814
Denver, CO 80225

Re: Municipal Water District of Orange County's 2018 CALFED Water Use Efficiency Grant Application

Dear Mr. Olson:

The Municipal Water District of Orange County (MWDOC) has submitted a grant proposal for the Bureau of Reclamation's 2018 WaterSMART Water and Energy Efficiency Grant Funding Opportunity, FOA No. BOR-DO-18-F006. MWDOC's proposed project is titled the "Water Efficient Landscape Transformation Program," and will result in water savings and runoff reduction, yielding improved water supply reliability and a reduction on the reliance of imported water in the project area. The project will provide incentive funding to promote irrigation retrofits and landscape transformations for residential and commercial customers throughout Orange County.

The purpose of this letter is to provide assurances that MWDOC has the ability to and will provide the proposed cost share $2,240,428.03 for implementation of the program. An official Board Resolution will be submitted no later than ten (10) calendar days after the application deadline.

Should you need additional information, please contact Joe Berg at (714) 593-5008.

Sincerely,

Robert J. Hunter
General Manager

Budget Proposal

Table 9 outlines the budget proposal and breaks down budget items by MWDOC's assigned tasks and their corresponding federal category.

Table 9. Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
1. Salaries and Wages (Task 1)				
Program Administrator (Joe Berg)	$76.87/hr	13	hours	$999.31
Program Manager (Steve Hedges)	$58.43//hr	312	hours	$18,230.16
Marketing (Bryce Roberto)	$30.14/hr	13	hours	$391.82
Program Support (Rachel Waite)	$32.38/hr	312	hours	$10,102.56
Program Support (Beth Fahl)	$41.23/hr	364	hours	$15,007.72
Program Support (Matthew Conway)	$37.78/hr	364	hours	$13,751.92
Program Support (Intern)	$15.18/hr	520	hours	$7,893.60
2. Fringe Benefits (Task 1)				
Program Administrator (Joe Berg)	$22.67/hr	13	hours	$294.70
Program Manager (Steve Hedges)	$13.98/hr	312	hours	$4,361.76
Marketing (Bryce Roberto)	$7.22/hr	13	hours	$93.86
Program Support (Rachel Waite)	$8.40/hr	312	hours	$2,620.80
Program Support (Beth Fahl)	$12.96/hr	364	hours	$4,717.44
Program Support (Matthew Conway)	$14.22/hr	364	hours	$5,176.08
Program Support (Intern)	$1.70/hr	520	hours	$884.00
3. Travel				
Does not apply to this program				$0.00
4. Equipment				
Does not apply to this program				$0.00
5. Supplies and Materials				
Marketing and Promotional materials (Task 2)	$0.025/ insert	100,000	inserts	$2,500.00
6. Contractual/Construction				
Quality Control Inspections (Task 3)	$110/insp.	230	inspections	$25,245.00
Rebate – Turf Removal (Task 4)	$1.50/ ft^2	370,000	ft^2	$555,000.00
Rebate – Smart Timers CII (Task 4)	$35/station	45,000	stations	$1,575,000.00
Rebate – Smart Timers Residential (Task 4)	$130/timer	850	timers	$110,500.00
Rebate – Nozzles (Task 4)	$2/nozzle	37,500	nozzles	$75,000.00
Rebate – Drip Irrigation CII (Task 4)	$0.40/ ft^2	35,000	ft^2	$20,000.00
Rebate – Drip Irrigation Residential (Task 4)	$175/kit	80	kits	$14,000.00
Rebate – Sustainable Water Source Conversion (Task 4)	$1,300/AFY saved	60 AFY (12 sites; 5 AFY/site)	AFY	$78,000.00
7. Environmental and Regulatory Compliance Costs				
Does not apply to this Program.				$0.00
8. Other				
Program Reporting (Task 5)	Costs included in Task 1 (Admin)			$0.00
Program Evaluation (Task 6)	Costs included in Task 1 (Admin)			$0.00
TOTAL DIRECT COSTS				$2,539,770.73
Indirect Costs				
Does not apply to this Program				$0.00
TOTAL ESTIMATED PROJECT COSTS				**$2,539,770.73**

Budget Narrative

The Project will be funded through a combination of federal and non-federal funds, including In-Kind services and Direct Funding provided by the Municipal Water District of Orange County (MWDOC). The tasks below are listed as they are detailed in the Budget Proposal Worksheet. The items that pertain to this Project are listed below by task number.

- Task 1 – Project Administration is in the Salaries/Wages and Fringe Benefits category.
- Task 2 – Marketing/Promotions is considered as Supplies.
- Task 3 – Inspections is considered as Contractual.
- Task 4 – Rebate Incentive is considered as Contractual.
- Task 5 – Project Reporting considered as Other.
- Task 6 – Project Evaluation considered as Other.

Those items requested to be commented on, but not applicable to this Project, are Travel, Equipment, Environmental and Regulatory Compliance, and Indirect Costs.

Table 10, below, distinguishes the Reclamation and applicant contributions detailed in Table 9.

Table 10. Budget by task and funding source

Task No.	Task Name	MWDOC Project Funds	Reclamation Project Funds	Total Project Budget
1	Admin	$75,828.03	$8,697.70	$84,525.73
2	Marketing*	$2,500.00	$0.00	$2,500.00
3	Inspections*	$0.00	$25,245.00	$25,245.00
4	Device Rebates*	$2,162,100.00	$265,400.00	$2,427,500.00
5	Project Reporting*	$0.00	$0.00	$0.00
6	Project Evaluation*	$0.00	$0.00	$0.00
Total		**$2,240,428.03**	**$299,342.70**	**$2,539,770.73**

*Staffing costs will be incurred, cost included in Program Admin (Task 1)

(1 & 2) Salaries/Wages and Fringe Benefits

Task 1 – Project Administration

Staff Funding - Reclamation $8,697.70; Recipient $75,828.03; Total $84,525.73

Task 1 constitutes the salaries/wages and fringe benefits associated with the comprehensive Project administration. In order to properly manage the proposed Project, MWDOC will provide, in total, approximately 36.5 hours per week across seven (7) MWDOC Staff from the direct cost category, with an average (weighted) rate of $44.53/hr for salaries/wages and fringe benefits combined. Across the two-year term of the Project, this equates to 1,898 hours, or a total of $84,525.73 for both salaries/wages and fringe benefits (S&B).

Based on an average hourly salary/wage rate across all Staff members of $34.97 for salaries across 1,898 total Project hours, the total calculates out to $66,377.09 (salaries/wages). For fringe benefits, the average hourly rate is $9.56 and totals $18,148.64 (fringe benefits). Together the salaries and benefits total $84,525.73, of which MWDOC will provide $75,828.03, with a request of $8,697.70 from Reclamation. Table 11 lists each proposed MWDOC staff member, their salaries and, separately, their benefits, the 24-month proposed hours, and the salary and benefit totals.

Table 11. Staff Title, Salary, and Benefits

MWDOC Staff Personnel	Hours (hr/24-mth)	Salary Rate[1] ($/hr)	Benefit Rate [2] ($/hr)	Salary ($/24-mth)	Benefit ($/24-mth)	Salary & Benefits ($/24-mth)
Project Administrator (Joe Berg)	13	$76.87	$22.67	$999.31	$294.70	$1,294.01
Project Manager (Steve Hedges)	312	$58.43	$13.98	$18,230.16	$4,361.76	$22,591.92
Marketing (Bryce Roberto)	13	$30.14	$7.22	$391.82	$93.86	$485.68
Project Evaluation (Rachel Waite)	312	$32.38	$8.40	$10,102.56	$2,620.80	$12,723.36
Project Support (Beth Fahl)	364	$41.23	$12.96	$15,007.72	$4,717.44	$19,725.16
Project Support (Matthew Conway	364	$37.78	$14.22	$13,751.92	$5,176.08	$18,928.00
Project Staff (Intern)	520	$15.18	$1.70	$7,893.60	$884.00	$8,777.60
Total	**1,898**	**$34.97 (Wavg)**	**$9.56 (Wavg)**	**$66,377.09**	**$18,148.64**	**$84,525.73**

[1] As of January 2018.

[2] Fringe Benefits are comprised of State Unemployment Tax (5.25%), CA State Disability Insurance (1.15%), Dental Coverage (variable), District Paid Life Insurance (.52%), Medicare (1.43%), Pers EE (7%), Pers ER (8.98%), Survivor ER Total (.03%), Vision Coverage (variable), Medicare Total (variable), Disability Total (.52%). Fringe benefit rates are for billing purposes.

While each staff member will bring their own experience to the Project, collectively the MWDOC team has over 57 years of experience managing similar water use efficiency projects. Mr. Berg, as the MWDOC Director of Water Use Efficiency (WUE), will be responsible for reviewing quarterly reports and purchase requisitions prior to submittal and providing the overall guidance for the Project, designating an estimated 13 hours to this Project.

Mr. Hedges will act as Project Supervisor, overseeing the management operations of the Project, handling all financial aspects for the Project; and reviewing all written reports. Mr. Hedges, the MWDOC WUE Programs Supervisor, will contribute an estimated 312 hours over 24-months to oversee implementation of the Project.

Ms. Waite, WUE Analyst, will provide technical assistance and, due to her experience with program process and impact evaluations, will also oversee the Project evaluation, the statistical analysis for program benefits and water savings, and provide support with Project administration, contributing 312 hours.

Ms. Fahl, WUE Program Specialist, will provide comprehensive program support by overseeing program operations under Mr. Hedges, facilitating interaction among MWDOC and Program stakeholders, and assuring day-to-day responsibilities are run smoothly. Ms. Fahl will contribute an estimated 364 hours to this Project over 24-moths.

Mr. Conway, WUE Program Coordinator, will work closely with a department intern in carrying out Project day-to-day responsibilities. To administer this Project, they will jointly spend an additional 364 hours over the same 24-month period. Under the supervision of Mr. Hedges, they will facilitate the daily operations of the Project, along with preparation of the written reports and management of the Project database.

Mr. Roberto, Public Affairs Coordinator, as the department marketing expert, will lend his support in designing and implementing the marketing and promotional plan, designating 13 hours to the Project.

Salary increases for the Project staff would occur at the beginning of each fiscal year (July to June) and have averaged 3.6% over the last five years for merit. It is anticipated over the term of this Project agreement this average will remain. As part of the Project reporting, MWDOC will supply a data table with the actual hours per reporting period and related salary and fringe benefit rates for each staff personnel as certified accurate by MWDOC's Accounting Manager, Hilary Chumpitazi.

Please see the following pages for certified MWDOC staff salary and benefits.

Street Address:
18700 Ward Street
Fountain Valley, California 92708

Mailing Address:
P.O. Box 20895
Fountain Valley, CA 92728-0895

(714) 963-3058
Fax: (714) 964-9389
www.mwdoc.com

May 02, 2018

Bureau of Reclamation
Financial Assistance Support Section
Attn: Darren Olson
P.O. Box 25007, MS 84-27814
Denver, CO 80225

Re: Municipal Water District of Orange County's 2018 WaterSMART Water and Energy Efficiency Grant Application

Dear Mr. Olson:

As the Accounting Manager/Treasurer for the Municipal Water District of Orange County (MWDOC), I certify that the rates provided on the attached Salary and Benefits Rates sheet are actual salaries currently paid to the listed employees.

Should you need additional information, please contact Joe Berg at (714) 593-5008.

Sincerely,

Hilary Chumpitazi

Hilary Chumpitazi
Accounting Manager/Treasurer

Municipal Water District of Orange County

Salary and Benefits Rates

Weekly Staffing for Comprehensive Indoor and Outdoor Water Use Efficiency Program

2 year program (weeks) 52

Name		Hours		Amount	Hourly Rate S & B		Salary + Benefits
Project Administrator (Joe Berg)							
	Salary	0.25	$	19.22	$76.87		$ 999.31
	Benefits		$	5.67	$22.67	Hrs	$ 294.70
	Total Salary & Benefits	0.25	$	24.88	$99.54	13	$ 1,294.01
Project Manager (Steve Hedges)							
	Salary	6.00	$	350.58	$58.43		$ 18,230.16
	Benefits		$	83.88	$13.98		$ 4,361.76
	Total Salary & Benefits	6.00	$	434.46	$72.41	312	$ 22,591.92
Marketing (Bryce Roberto)							
	Salary	0.25	$	7.54	$30.14		$ 391.82
	Benefits		$	1.81	$7.22		$ 93.86
	Total Salary & Benefits	0.25	$	9.34	$37.36	13	$ 485.68
Project Evaluation (Rachel Waite)							
	Salary	6.00	$	194.28	$32.38		$ 10,102.56
	Benefits		$	50.40	$8.40		$ 2,620.80
	Total Salary & Benefits	6.00	$	244.68	$40.78	312	$ 12,723.36
Project Support (Beth Fahl)							
	Salary	7.00	$	288.61	$41.23		$ 15,007.72
	Benefits		$	90.72	$12.96		$ 4,717.44
	Total Salary & Benefits	7.00	$	379.33	$54.19	364	$ 19,725.16
Project Support (Matthew Conway)							
	Salary	7.00	$	264.46	$37.78		$ 13,751.92
	Benefits		$	99.54	$14.22		$ 5,176.08
	Total Salary & Benefits	7.00	$	364.00	$52.00	364	$ 18,928.00
Project Staff (Intern)							
	Salary	10.00	$	151.80	$15.18		$ 7,893.60
	Benefits		$	17.00	$1.70		$ 884.00
	Total Salary & Benefits	10.00	$	168.80	$16.88	520	$ 8,777.60
Totals							
	Salary	36.50	$	1,276.48	$34.97		$ 66,377.09
	Benefits		$	349.01	$9.56		$ 18,148.64
	Total Salary & Benefits	**36.50**	$	1,625.49	$44.53	1898	$ 84,525.73

		Totals			
hours		1,898.00	over 24 months	Average Salary	$34.97
payroll	$	84,525.73	over 24 months	Average Benefit	$9.56
					$44.53

I have reviewed this document and certify the salary and fringe benefit rates to be true.

Hilary Chumpitazi

Hilary Chumpitazi
Accounting Manager, Municipal Water District of Orange County

5/2/18

Date

(3) Travel

There are no travel costs, such as mileage, airfare, per diem, lodging, or other miscellaneous travel expenses, associated with this Project.

(4) Equipment

There are no equipment costs over $500 associated with this Project.

(5) Materials and Supplies

Task 2 – Marketing and Promotion

Task Funding - Reclamation $0.00; Recipient $2,500.00; Total $2,500.00

To promote the Program, MWDOC will, using its own funds ($2,500.00), develop, print, and distribute at least 100,000 marketing materials and other supplies necessary to meet project goals. MWDOC has found, though a customer satisfaction survey, that the most effective means for potential participants to find out about water related rebate programs is through the extra promotional collateral they find in their water bills. To entice these participants to participate in this Program and replace inefficient equipment with advanced technology, Program information will be disseminated through their water bill inserts and promoted on social media using advertising campaigns through Facebook. Additionally, in 2017 MWDOC launched a new website that promotes available rebate programs in a user-friendly format, visit www.mwdoc.com.

Currently, the established pricing for bill inserts is at $0.025 each or a total for the Program of $2,500 (100,000 inserts x $0.025); however this rate is subject to change per market fluctuation. Once produced, MWDOC will use Orange County's retail water agencies to distribute the promotional material.

The staff time and associated funding for Task 2 is already accounted for in Task 1. Of the direct costs for this task, MWDOC is funding the full $2,500.00 and requesting $0.00 from Reclamation.

(6) Contractual and Construction

Task 3 – Inspections

Task Funding - Reclamation $25,245.00; Recipient $0.00; Total $25,245.00

Turf Removal and Drip Conversion sites will be provided with a pre and post installation verification inspection to determine eligibility for Program rebate funds. For Smart Timer and Rotating Nozzles, a minimum of 25% of the devices will be verified as installed. This work will be performed by Mission Resource Conservation District (Mission), who is under contract with MWDOC until December 31, 2022. Mission, as a Non-Profit Special District and an arm of the Natural Resource Conservation Service, is uniquely qualified to perform irrigation audits. They have many years' experience in both the urban and agricultural settings and provide MWDOC with highly competitive rates. A copy of a recent invoice submitted to MWDOC is included on

page 36. Over the term of the agreement, it is estimated MWDOC will direct Mission to perform over 500 installation verification inspections, and is requesting funding for approximately 230 inspections. At a minimum, the installation verification will include databasing of the following: site contact information, intervention type, sector, device cost, rebate amount, installation date, make/model information (if applicable to device type), conversion square footage (if applicable to device type). Additional collected information may include the following, as applicable to device type: existing irrigation equipment, new irrigation equipment, site plan, water source (including modification if applicable to device type), conversion area measurement, landscape material (including modification if applicable), and site photographs depicting conversion area and existing irrigation equipment.

The total direct cost for the inspections requested from Reclamation for these commercial and residential installation verification inspections is $25,245.00. Per the invoice below, Mission charges an average of $110 per residential turf/timer/nozzles site visit types. For commercial installation verifications, Mission charges on a time and materials basis at a rate of $59/hour, plus $28/hour administration. MWDOC is requesting $25,245.00 from Reclamation for this effort. The staff time associated with Task 3 is already accounted for in Task 1.

RECEIVED
MAR 05 2018
MWD OF OC

Feb '18

Mission RCD

130 E. Alvarado St.
Fallbrook, CA 92028
760.728.1332 fax 760.728.1331

Invoice No. 2431

INVOICE

Customer

Name	Municipal Water District of Orange County			Date	3/1/2018
Address	P.O. Box 20895			Order No.	
City	Fountain Valley	State CA	ZIP 92728	Rep	
Phone				FOB	

Hours	Description	Unit Price	TOTAL
	From: 2/1/18 to 2/28/18		
	COMMERCIAL		
	Lance Andersen	$59.00	
11.00	Dustin Farrelly	$59.00	$649.00
14.00	Tom Norton	$59.00	$826.00
93.80	Mary, Osmana - appointment and data entry	$28.00	$2,626.40
	RESIDENTIAL		
Timers			
48.00	Verifications B	$95.00	$4,560.00
	Double work orders	$143.00	
5.00	Double controllers	$190.00	$950.00
	Double controllers + RN	$238.00	
	Triple Controller	$267.00	
12.00	Turf Removal	$95.00	$1,140.00
1.00	"No Show"	$65.00	$65.00
	MATERIALS		
Miles			
512.2	Mileage for HOA's	$0.550	$281.71
		SubTotal	$11,098.11

Payment Details

- ○ Cash
- ○ Check

TOTAL **$11,098.11**

Turf Removal

Agency									
Orange	$111.00	7040	5235	34	1225	614	3418	114	4
FV TR	$0.00	7040	5235	34	1225	614	3418	105	4
FV Drip	$0.00	7040	5236	34	1225	614	3423	105	4
Newport	$111.00	7040	5235	34	1225	614	3418	112	4
SC	**$1,253.46**	**7040**	**9111**	**34**	**1225**	**614**	**3418**	**325**	**4**
ETWD	**$0.00**	**7040**	**9111**	**34**	**1225**	**614**	**3418**	**321**	**4**
La Habra	$0.00	7040	5235	34	1225	614	3418	109	4
West	$111.00	7040	5235	34	1225	614	3418	118	4
TTI	**$1,586.46**								

MET LL Surplus 5025	7040	5025	34	1225	614	3417	434	4	$2,449.19	No Show+ North County Re
ST/RN Cii & RES 8117 USBR CLUWE I	7040	8117	34	1225	614	3427	434	4	$4,085.00	
ST/RN Res South CLUWE 9109	7040	9109	34	1225	614	3427	300	4	$1,425.00	
Turf South CII/RES DWR Strategic 9111	7040	9111	34	1225	614	3418	300	4	$1,253.46	NEW-turf only s. cnty ager
ST/RN South CII DWR CLUWE 9109	7040	9109	34	1225	614	3427	300	4	$1,552.46	
ST/RN North CII DWR OWOW 9108	7040	9108	34	1225	614	3426	100	4		Grant has ended
									$10,765.11	
								+	$333.00	turf Removal funding from a
									$0.00	Drip Funding from agencies
								-		Adjustments
									$11,098.11	
									$11,098.11	
									$0.00	

Save What We Have - Restore what

Task 4- Rebate Incentives

Task Funding - Reclamation $265,400.00; Recipient $2,162,100.00; Total $2,427,500.00

Over the 24-month period of the potential grant award, MWDOC proposes to facilitate the implementation of approximately 370,000 square feet (8.5 acres) of landscape conversion, and irrigation upgrades and/or conversions covering approximately 1,042 acres of landscape. To achieve this, the Program anticipates to rebate the conversion of up to 370,000 square feet of turfgrass to a CA Friendly landscape; the upgrade of approximately 850 residential and 1,000 commercial (45,000 stations) antiquated irrigation timers to smart-water-application irrigation controllers (weather-based irrigation timers); the conversion of approximately 37,000 high-volume conventional spray irrigation heads to low-precipitation-rate rotating nozzles; the conversion of up to 78,000 square feet of inefficiently irrigated landscape to drip irrigation; and the conversion of approximately 12 commercial sites (24 dedicated irrigation meters) from utilizing a potable source to an alternative sustainable source (rainwater capture, stormwater runoff, recycled water). MWDOC proposes to provide incentives through a rebate-style format to residential property owners or commercial property owners/managers for qualifying conversions. Table 12 lists rebate amounts that will be available for each participant; these rebate levels may vary due to market transformation during the implementation-phase.

Table 12. Detailed Rebate Incentives by Funding Sources

Rebate Incentive	Incentive Rate	MWDOC	USBR	Quantity	MWDOC Funding	USBR Funding	Total Incentive
Turf Removal (Res and CII)	$1.50/ft^2	$1.00	$0.50	300,000 ft^2	$370,000	$185,000	$555,000
Smart Timers (CII)	$35/ station	$35.00	$0.00	45,000 stations	$1,575,000	$0.00	$1,575,000
Smart Timers (Res)	$130/ timer	$80.00	$30	850 timers	$68,000	$42,500	$110,500
Nozzles (Res and CII)	$2/nozzles	$2.00	$0.00	37,500 nozzles	$75,000	$0.00	$75,000
Drip (CII)	$0.40/ft^2	$0.20	$0.20	50,000 ft^2	$10,000	$10,000	$20,000
Drip (Res)	$175/kit	$70.00	$105	80 kits	$5,600	$8,400	$14,000
Sustainable Source (CII)	$1,300/ AFY	$975.00	$325	12 Sites (5 AFY/site)	$58,500	$19,500	$78,000
TOALS					$2,162,100	$265,400	$2,427,500

Rebate incentives shall be based on the square footage, device/material costs, or actual water savings. Rebates will never exceed the Participant's cost of the device/installation. To receive the rebate funds, the Participant's completed site conversion and irrigation system is required to be consistent with the intent of the Program. Additionally, the conversion area must remain in compliance with the conversion requirements for a period of five years. If this requirement is violated, the Participant may be required to refund all or a portion of MWDOC/Grant funds.

MWDOC will provide $2,162,100.00, and the remaining $265,400.00 is requested from Reclamation. The staff time and associated funding for Task 4 is already accounted for in Task 1.

(7) Environmental and Regulatory Compliance Costs

There are no anticipated environmental compliance costs associated with this Project.

(8) Other

Task 5 – Project Reporting

Task Funding - Reclamation $0; Recipient $0; Total $0

Following the reporting schedule set forth in the agreement, MWDOC will submit semiannual reports and a comprehensive final report that will include all required SF forms, a written Project progress narrative, tabular data tables, and all required back-up to support the requested reimbursement. The funding for Task 5, semi-annual Project Reporting, is captured within Task 1 Program Administration.

Task 6 – Project Evaluation

Task Funding - Reclamation $0.00; Recipient $0.00; Total $0.00

Evaluation of the Project is critical to maintaining the integrity and longevity of sustained use and the associated water savings to be achieved. To ensure that the Project is operating with the maximum integrity, 100% of the turf removal and drip participants will receive pre- and post-installation inspections, with a minimum of 25% of the smart timer/rotating nozzle receiving post installation verification inspections. At the Project's conclusion, a robust statistical examination using regression analysis will be performed to evaluate associated water savings, giving the water industry an opportunity to quantify water savings associated with this Project. This analysis will include a statistically significant population of participants and maintain 95% confidence. Staff time associated with this task is included in Task 1, Program Administration.

Indirect Costs

There are no indirect costs associated with this Project proposal.

Total Costs

The total project costs are $2,539,770.73. MWDOC will provide funding in the amount of $2,240,428.03 and with $299,342.70 requested from Reclamation. Table 13 summarizes the proposed contribution by Program Budget Category.

Table 13. Budget by Source

Budget Category	Task No.	Task Description	Recipient Funds	Reclamation Funds	Total
Salaries and Benefits					
Task 1		Program Administration	$75,828.03	$8,697.70	$84,525.73
Material and Supplies					
Task 2		Marketing Promotions	$2,500.00	$0.00	$2,500.00
Contractual/Construction					
Task 3		Inspections	$0.00	$25,245.00	$25,245.00
Task 4		Rebate Incentive	$2,162,100.00	$265,400.00	$2,427,500.00
Other					
Task 5		Project Reporting	$0.00	$0.00	$0.00
Task 6		Project Evaluation	$0.00	$0.00	$0.00
Task 7		Database Enhancement	$0.00	$0.00	$0.00
Total			**$2,240,428.03**	**$299,342.70**	**$2,539,770.73**

Environmental and Cultural Resources Compliance

Impacts to surrounding environment: The proposed Program will not negatively impact the surrounding environment. Under NEPA, this Program should qualify for a categorical exemption. The Program focuses on landscape and irrigation system improvements to existing urban landscape. It is anticipated that these improvements will result in water conservation and reduced dry-weather runoff and non-point source pollution leaving the Program area and entering the natural environment, including local streams and creeks leading to the Pacific Ocean.

Threatened or endangered species and habitat. There are no known endangered or threatened species or wetlands that will be negatively impacted by the Program or directly impacted within the area. This Program looks to increase watershed health through reductions in runoff and non-point source pollution, benefiting both terrestrial and aquatic threatened and/or endangered species and habitat.

Clean Water Act: Orange County has several water bodies that fall and/or potentially fall under CWA jurisdiction, such as the Santa Ana River, San Diego Creek, and their tributaries; the Bolsa Chica, Los Cerritos, and Huntington Beach Wetlands; and Newport Back Bay. This Program will have no negative impacts on these water bodies. The Program will have a positive impact by reducing urban runoff, specifically increasing onsite stormwater retention, while reducing stormwater runoff and non-point source pollution.

Water delivery system: The major regional components of the water delivery system in Orange County were constructed between the 1940s and 1960s. These facilities include the Diemer Filtration Plant, the Orange County Feeder, the East OC Feeder, and the West OC Feeder. The most recent major facilities added include the Allen-McColloch and South County Pipelines, which were constructed in the 1980s. Retail water agency delivery systems were built during this same timeframe, with the majority of expansion starting in the 1950s when there was a population more than 200,000. Today's population totals more than 3 million.

Modification of irrigation system: The Program will not result in modifications of or changes to individual features of an irrigation system such as headgates, canals, or flumes.

National Register of Historic Places: Orange County has 122 sites listed under the National Register of Historic Places. Any site requesting to participate in a MWDOC program must receive necessary permits and permissions before submitting an application, including City, County and/or NRHP approvals, and agree to this condition by signing the terms and conditions of the Program to be eligible for participation.

Archeological sites: There are no known archeological sites will be impacted by the proposed Program.

Low income or minority populations: The proposed Program will not have a disproportionately high or adverse effect on low income or minority populations. The Program will be offered equally to all residents in Orange County and, for residential customers, can cover up to the full cost of participation, therefore maximizing the opportunity for low income or minority participation.

Indian sacred sites and tribal lands: The proposed Program will not limit access to or ceremonial use of Indian sacred sites or result in other impacts to tribal lands.

Invasive species: The proposed Program will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known in Orange County. Within the landscape conversion (turf removal) component of the Program, evidence of invasive species at the site post implementation will deem the project ineligible for rebate. Information regarding invasive species and how to identify them is provided to customers participating in the landscape conversion component.

Required Permits or Approvals

The Municipal Water District of Orange County is not aware of any required permits or approvals to implement the proposed Program. Program Participants, however, may be required to obtain a plumbing permit from their local city if modifications to the irrigation system point of connection are made as a result of participation. Because the Program will primarily focus on irrigation control components downstream of the point of connection, the need for a plumbing permit will be rare. Customers may also be or may be required to obtain City, Homeowner Association, or other approvals and are required to obtain any required permits or approvals before applying for a MWDOC program and are required to conform to any City ordinance. The rebate program participant agreement that is required to participate contains language placing the permit requirements on the Participant, should a permit be required.

Letters of Support

Attached are 13 letters of support for the Water Efficient Landscape Transformation Program from Orange County agencies.

City of Brea

May 2, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

City of Brea supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

City of Brea strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Brian M. Ingallinera
Environmental Services
City of Brea

City of BUENA PARK

April 27, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of Buena Park supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of Buena Park strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

David Jacobs, P.E., LS
Director of Public Works

EAST ORANGE COUNTY WATER DISTRICT

185 N. McPherson Rd.
Orange, Ca 92869
P: 714-538-5815
F: 714-538-0334
eocwd.com

May 4, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

East Orange County Water District supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of storm water and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

East Orange County Water District strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Lisa Ohlund
General Manager

CITY OF FOUNTAIN VALLEY
www.fountainvalley.org
10200 SLATER AVENUE • FOUNTAIN VALLEY, CA 92708-4736 • (714) 593-4400, FAX: (714) 593-4498

May 1, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of Fountain Valley supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of Fountain strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Mark Lewis
Director of Public Works

GARDEN GROVE

CITY OF GARDEN GROVE

May 2, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of Garden Grove supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of Garden Grove strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Samuel Kim, P.E.
Water Services Manager

City of Huntington Beach

2000 Main Street ♦ PO Box 190 ♦ CA 92648

Travis K. Hopkins, PE
Director

Department of Public Works
(714) 536-5431

May 1, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of Huntington Beach supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of Huntington Beach strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Brian A Ragland

Brian A. Ragland
Utilities Manager

City of La Habra

"A Caring Community"

ADMINISTRATION

110 E. La Habra Boulevard
Post Office Box 337
La Habra, CA 90633-0785
Office: (562) 383-4030
Fax: (562) 383-4474

May 2, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of La Habra supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of La Habra strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Jim Sadro
City Manager

May 2, 2018

Bureau of Reclamation, Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The Laguna Beach County Water District supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program encourages the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

Our District strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Renae M. Hinchey

Renae M. Hinchey
General Manager

306 THIRD STREET, P.O. BOX 987, LAGUNA BEACH, CA 92652 • TEL: 949.494.1041 • FAX: 949.497.1021 • WEB: www.lagunabeachwater.com

MesaWater DISTRICT®

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Legal Counsel

1965 Placentia Avenue
Costa Mesa, CA 92627
tel 949.631.1200
fax 949.574.1036
info@MesaWater.org
MesaWater.org

April 30, 2018
Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

Mesa Water District (Mesa Water) supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program).

The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and recycled water for irrigation use. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from a potable water source to a municipally-supplied recycled water or other sources of non-potable water. These measures will result in potable water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution and vector-borne disease, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

Mesa Water will support this regional effort by advertising the availability of the Program to its customers. Therefore, Mesa Water encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Justin Finch, MPP
Water Use Efficiency Analyst

CITY OF NEWPORT BEACH
100 Civic Center Drive
Newport Beach, California 92660
949 644-3311 | 949 644-3308 FAX
newportbeachca.gov/publicworks

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

May 2, 2018

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The City of Newport Beach supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

The City of Newport Beach strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Shane Burckle
Watershed / Conservation Specialist
City of Newport Beach

Santa Ana Watershed Project Authority

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One Water One Watershed

AWRA INTEGRATED WATER RESOURCES MANAGEMENT AWARD

HARVARD KENNEDY SCHOOL'S TOP 25 INNOVATIONS IN AMERICAN GOVERNMENT

May 1, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

The Santa Ana Watershed Project Authority (SAWPA) supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water.

SAWPA is a joint powers authority that focuses on a broad range of water resource issues including water supply reliability, water quality improvement, recycled water, wastewater treatment, groundwater management, brine disposal, and integrated regional planning. SAWPA spans the Santa Ana River Watershed, which covers northern Orange County and the Inland Empire region. We have always recognized the important investments in water use efficiency that MWDOC has provided to the Orange County portion of the Santa Ana River Watershed.

The Program will encourage the conversion of turf grass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water.

These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

SAWPA strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

If you have any questions, please contact Ian Achimore, SAWPA Senior Watershed Manager at (951) 354-4233, or iachimore@sawpa.org.

Sincerely,

Richard E. Haller, P.E.
General Manager

SOUTH COAST  **WATER DISTRICT**

May 4, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

South Coast Water District supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

South Coast Water District strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Rick Shintaku/jo

Rick Shintaku
Acting General Manager

Mailing Address: *P.O. Box 30205, Laguna Niguel, CA 92607-0205*
Street Address: *31592 West Street, Laguna Beach, CA 92651*
Fax: *(949) 499-4256* ***Phone:*** *(949) 499-4555*

Yorba Linda Water District

Independent, Reliable and Trusted Service for More Than 100 Years

April 30, 2018

Bureau of Reclamation
Financial Assistance Management Branch
Attn: Mr. Darren Olson
Mail Code: 84-27814
P.O. Box 25007
Denver, CO 80225

Subject: Support for Municipal Water District of Orange County's 2018 WaterSMART: Water and Energy Efficiency Grant Application

Dear Mr. Olson:

Yorba Linda Water District (YLWD) supports the Municipal Water District of Orange County's (MWDOC) grant application for a Water Efficient Landscape Transformation Program (Program). The objective of the Program is to utilize MWDOC's suite of existing rebate programs to develop a holistic landscape conversion program that includes design assistance, irrigation device improvements, turf replacement, and sustainable sources of irrigation water. The Program will encourage the conversion of turfgrass to a California Friendly landscape incorporated with Watershed Approach designs; the upgrade of antiquated irrigation timers to WaterSense labeled weather-based irrigation controllers or soil moisture sensors; the conversion of high-volume conventional spray irrigation heads to low-precipitation-rate irrigation equipment such as rotating nozzles and drip irrigation; and the conversion of dedicated irrigation meters from potable water to a sustainable source, such as municipally-supplied recycled water or other sources of non-potable water. These measures will result in water savings, reductions of stormwater and dry-weather runoff and associated non-point source pollution, reductions in energy consumption and carbon dioxide outputs, and reduced maintenance costs. A rebate style format will be used to build upon successful existing landscape water use efficiency programs implemented in Orange County.

YLWD strongly encourages the United States Bureau of Reclamation to award the requested funding to this Program as it will provide local and regional benefits, can be a model to replicate similar programs throughout California and the nation, and is encouraging a comprehensive approach for landscape water use efficiency.

Sincerely,

Marc Marcantonio

Marc Marcantonio, General Manager
Yorba Linda Water District

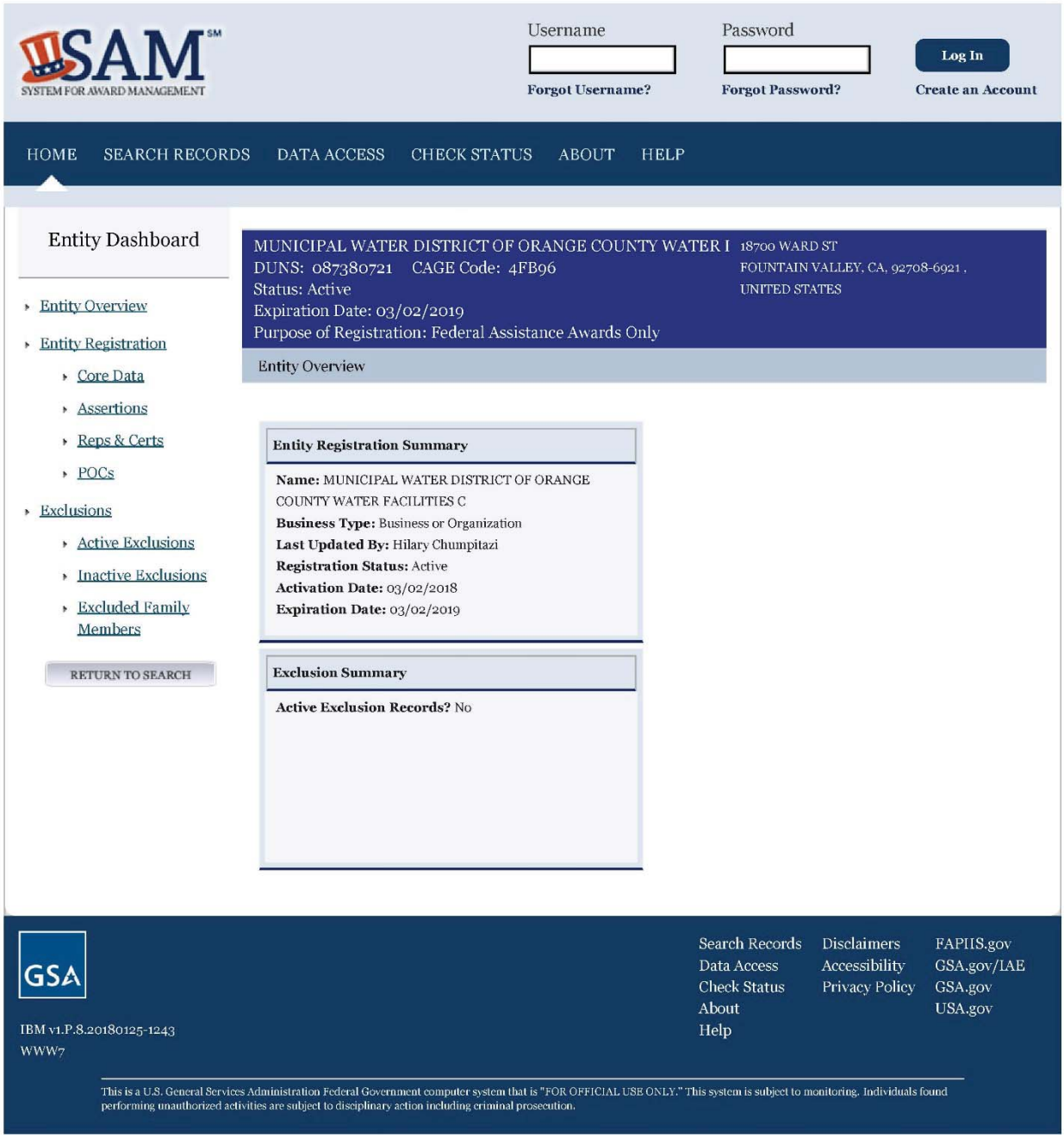
1717 E. Miraloma Avenue Placentia, CA 92870 714-701-3000 714-701-3058 Fax

Official Resolution

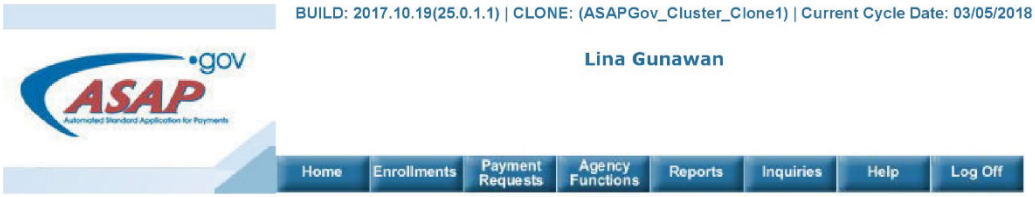
Obtaining an official board resolution is in progress and has not yet been attained due to the timing of board meetings and the submission deadline of this FOA. Please see the attached Funding Commitment Letter on page 27.

SAM Verification

View Details - Entity Overview | System for Award Management



ASAP Verification



Modify My Information

Step 1 of 2
Modify My Information

Below is your personal user information. You may not change your first name, middle initial, last name, or email address. If your first name, middle initial, last name, or email address has changed, you must be re-enrolled as a new user by your organization's Authorizing Official. If you are not the individual named below, you must call the ASAP.gov help desk at (804) 697-8384.

* First Name :	Lina
Middle Initial :	
* Last Name :	Gunawan Generation : (e.g., Jr, III)
Title :	Sr. Accountant
* Organization Name :	Municipal Water District of Or
* Email :	lgunawan@mwdoc.com
* Mailing Address 1 :	PO Box 20895
Mailing Address 2 :	

(•) U.S. Address

* U.S. City :	Fountain Valley
* U.S. State :	CA - CALIFORNIA
* U.S. Zip :	92728 -
* U.S. Phone :	714 - 593 - 5018 Ext :

OR

( ) International Address

* International Postal Code :	
* International City :	
International Province :	
* International Country :	-Select-
* International Telephone :	011- Ext :

You are assigned the following roles for the following Recipient Organization (s):

Organization Name	Role(s)
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	Payment Requestor
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	Book Entry Adjuster
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	Recipient Report Viewer
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	Requestor Report Viewer
MUNICIPAL WATER DISTRICT OF ORANGE COUNTY	Notification Reviewer

Submit Help for this Step

Application for Federal Assistance SF-424: Section 16.

List of Additional Program/Project Congressional Districts:

CA-038

CA-039

CA-045

CA-046

CA-047

CA-048

CA-049