Las Flores Enhanced Water Reliability Project

Grant Applicant:

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U.S. Department of the Interior, Bureau of Reclamation
WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2019, FOA No. BOR-DO-19-F003

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Mandatory Federal Forms

The following forms were submitted electronically via grants.gov: SF- 424 Application for Federal Assistance, SF-424C Budget Information – Construction Programs, SF-424D Assurances – Construction Programs, SF-LLL Disclosure of Lobbying Activities (not applicable).

Technical Proposal and Evaluation Criteria

Executive Summary

March 27, 2019, Mr. Don Bunts, Deputy General Manager, Santa Margarita Water District, Rancho Santa Margarita, Orange County, California

Work Proposed: The proposed Las Flores Enhanced Water Reliability Project (Project) will expand the Santa Margarita Water District's (SMWD/District's) recycled water system to provide recycled water supply, in place of potable water supply, for existing landscape irrigation uses in the unincorporated community of Las Flores, Orange County, California. The proposed Project includes installing approximately 3,800 linear feet of 16-inch pipe and 5,200 linear feet of 8-inch pipe in residential streets and easements through previously disturbed open space. The Project will upgrade an existing out-of-service District pump station and repurpose an existing force main approximately 3,600 linear feet long. The Project will permanently convert a total of 209 acre-feet per year (AFY) of irrigation water demand from potable to recycled water and serves as the first phase of a larger project that will provide up to an additional 1,000 AFY of recycled water to irrigation users in the adjacent City of Rancho Santa Margarita. Therefore, the total potential Project water savings is 1, 209 AFY. The District is proposing the Project as part of its long-term resilience to drought plan by 1) improving infrastructure for enhanced water reliability and flexibility in times of drought, 2) permanently eliminating 209 AFY immediately, and 1,000 AFY in the future, of imported water demands by converting the services to recycled water, and 3) benefitting fish, wildlife, and the environment by allowing more imported water to stay at its source to support Bay-Delta and Colorado River habitats. 79% of the District's total water supply is purchased surface water imported by the Metropolitan Water District of Southern California (MWD) via the Municipal Water District of Orange County (MWDOC). MWD's imported water sources are the Colorado River Aqueduct (CRA) and the State Water Project (SWP), which draws water from the San Francisco-San Joaquin Bay Delta (Bay-Delta). The District is in the south Orange County region, which has limited local water supplies and relies on imported water sources to meet approximately 90% of potable water demand. Overall, the Project will expand upon the District's efforts to promote water use efficiency by ultimately better managing 1,209 AFY of water. Following the July 2019 funding award announcement, it is anticipated that the funding agreement will be signed by October 1, 2019. The Project will be completed within 3 years by October 1, 2022. The Project is not located on a federal facility.

Background Data

Water Sources, Supplies, and Demands. The District relies on a combination of imported water, urban runoff, purchased groundwater, and recycled water to meet its water needs. The proposed Project will distribute recycled water, which the District anticipates being obtained from Oso Creek, 3A, or Chiquita Water Reclamation Plants, or from urban runoff captured by the District. The District works with two primary agencies, MWD and MWDOC, to ensure a safe and reliable drinking water supply that will continue to serve the community in periods of drought and shortage. The sources of imported water supplies for the District include water from the CRA and the SWP provided by MWD and delivered through MWDOC. MWD provides imported water to 20 million people (approximately half of the state's population). MWDOC provides imported water from MWD to over 3 million people in Orange County. Water from both sources is treated at either the Diemer Filtration Plant in Yorba Linda or the Baker Treatment Plant in Irvine prior to delivery to the District. Over the past 5 years, the District's total water supply included approximately 79% imported water. The District seeks to minimize its imported water usage by developing alternative domestic water supplies such as recycled water. MWD provides a majority of the District's supply in the form of imported potable water at

a total of approximately 23,432 AF in FY 2018, while recycled water supplies total approximately 9,076 AF in FY 2018. Table 1, *Santa Margarita Water District Water Supplies, Actual and Projected (AF)*, lists the actual sources and volume of water for 2018. The demand and supplies shown herein also include recycled water supplies that are available to the District. Currently, five agencies, including the District, have groundwater rights to the San Juan Groundwater Basin (Basin) and use this water for either municipal or irrigation purposes. However, no groundwater was used by the District in 2018.

Table 1. Santa Margarita Water District Water Supplies, Actual and Projected (AF)
Retail: Water Supplies

Water Supply	Additional Detail on Water Supply	Actual	Projected				
		2018	2020	2025	2030	2035	2040
		Reasonably Available Volume					
Purchased/ Imported Water	MWDOC/MET	15,265	11,500	9,700	8,100	6,800	6,800
	Baker	8,551	9,400	9,400	9,400	9,400	9,400
Other	Alternative Sources	0	5,000	5,000	5,000	5,000	5,000
Transfers	Emergency Source	0	2,000	2,000	2,000	2,000	2,000
Groundwater	San Juan Basin / IPR	0	2,000	4,000	5,000	5,000	5,000
Recycled Water	Irrigation Purposes	9,076	10,885	11,411	11,830	11,665	11,515
Total		32,892	40,785	41,511	41,330	39,865	39,715

Notes: SMWD Demand Forecast, M.Cubed, January 2016

The District has entitlements to receive imported water from MWD through MWDOC via connection to MWD's regional distribution system. MWD has a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY (MWD, 2015 Draft UWMP, March 2016). "Table A" water is the maximum entitlement of SWP water for each water contracting agency. The availability of water supplies from the SWP can be highly variable. In 2015, only 20% of the total allocation to MWD was available, while in 2016 only 60% of the total allocation to MWD was available. In 2017, the final SWP Table A Allocation was 85% of the maximum allocation, amounting to 1.62 MAF to MWD. However, even with the rainfall during early 2019, Southern California is still in abnormally dry/drought conditions and is heavily reliant on imported water supplies from CRA and SWP, and in 2018 only 20% of the total allocation was available (MWDOC, email correspondence, 2/12/18).

Current Water Uses. There are currently 56,956 active and inactive customer service connections in the District's potable water distribution system with all existing connections metered. Residential uses and dedicated landscape irrigation accounted for approximately 73% and 21% of the District's potable water demand in 2018 (Table 2, *Santa Margarita Water District Potable Water Demand – Actual and Projected*). Data shown in Table 5 was provided by the District and includes fiscal years as opposed to calendar years. The District's FY 2018 domestic water demand of 23,718 AFY was met

Table 2. District Potable Water Demand – Actual and Projected
Retail: Demands for Potable Water

Use Type	Actual	Projected Water Use				
	2018	2020	2025	2030	2035	2040
Single Family	14,756	15,596	15,710	15,358	14,595	14,595
Multifamily	2,501	2,547	2,566	2,509	2,384	2,384
Commercial	1,081	992	999	977	928	928
Landscape	4,930	5,540	5,581	5,456	5,185	5,185
Other	60	620	625	611	581	581
Losses	390	400	450	500	500	500
TOTAL	23,718	25,695	25,931	25,411	24,173	24,173

NOTES: SMWD Demand Forecast, M.Cubed, January 2016. Data for 2040 extrapolated.

through purchased imported water from MWDOC and non-domestic water sources. Table 2,and Table 3, *Santa Margarita Water District Total Water Demand – Total and Projected*, list actual and projected potable water demand for the next 25 years. Water demand values were developed for the District from historical data and a developed model. The District is actively decreasing its reliance on imported water by pursuing a variety of water conservation strategies and increasing recycled water use. The District plans to expand the use of recycled water in its service area as more recycled water becomes available and plans to construct a reservoir for seasonal storage of recycled water. The District supplies some of the adjacent Districts with the excess water thereby reducing their potable water demands as well.

Water Users Served. The District provides water and wastewater treatment services to approximately 162,454 people. The population has grown moderately and is projected to increase by 2035 due to continued development of Rancho Mission Viejo (RMV) in the southeast portion of the service area (Table 4, *Santa Margarita Water District Service Area Population – Current and Projected*). In 2018, the District served a total of 31,779 AF to 56,956 municipal connections.

Supply Shortfalls. The District will be able to meet its customers' water demand adequately for the next 21 years, based on projected demand (Table 2) versus projected supplies (Table 1). However, 79% of the District's total water supply is imported and is therefore vulnerable to shortfalls caused by statewide drought conditions and unexpected transmission system outages.

Table 3. District Total Water Demand – Actual and Projected
Retail: Total Water Demands

Use Type		Projected Water Use				
	2018	2020	2025	2030	2035	2040
Potable Water	23,327	26,388	26,581	25,986	24,695	24,695
Recycled Water Demand	8,452	10,885	11,411	11,830	11,665	11,665
Total Demand	31,779	37,273	37,992	37,816	36,360	36,360

NOTES: 2015 volumes are pulled from SMWD billing database. Forecast provided from SMWD Demand Forecast, M. Cubed, January 2016.

Table 4. District Service Area Population – Current and Projected
Retail: Population – Current and Projected

Year	2018	2020	2025	2030	2035	2040
Population Served	162,454	169,628	187,826	194,951	199,028	200,026

NOTES: Source: Center for Demographic Research

Water Delivery System. The District's system consists of approximately 1,525 miles of water (potable and recycled) and sewer lines, 32 potable water tank reservoirs, 2 emergency storage potable water reservoirs, 8 recycled water tank reservoirs, and 2 open-air recycled water reservoirs. The District's main source of water supply is imported water purchased from MWD via MWDOC. MWD delivers water to the region from Northern California via the SWP and from the Colorado River via the CRA. Water from both sources is treated at either the Diemer Filtration Plant in Yorba Linda or the Baker Treatment Plant in Irvine prior to delivery to the District. In 2018, the District served a total of 32,892 AF to 56,956 municipal connections. The number of water users served is discussed above. 100% of the District's potable supply is imported water from MWDOC. 79% of the District's total water supply over the last 5 years was imported water (Table 5, *Santa Margarita Water District Water Usage Over the Past 5 Years*). Approximately 21% of the District's imported water supply is moved from the Northern California Bay-Delta through the SWP and 79% is moved from the CRA to meet this area's demand for water based on the average usage over the last 5 years. The District's total average water usage over the last 5 years was 33,016 AFY. MWD blends supplies from its CRA with water allocated

from the SWP before delivery to MWDOC and ultimately, the District. The Baker Treatment Plant supplies 100% CRA water. Any reduction in imported water use has a positive impact on the Bay-Delta and CRA habitats.

Table 5. Santa Margarita Water District Water Usage Over the Past 5 Years

Fiscal Year	Domestic	Estimated SWP (Bay-Delta) Usage	% of Imported Water from Bay-Delta	Estimated CRA Usage	% of Imported Water from CRA	Recycled	Total District Demand	% of total District Supply that is Imported	% of total District supply from Bay-Delta	% of total District supply from CRA
2013-14	28,767	288	1%	28,480	99%	5,123	33,890	85%	1%	84%
2014-15	28,656	287	1%	28,370	99%	5,646	34,303	84%	1%	83%
2015-16	26,658	5,332	20%	21,326	80%	7,495	34,153	78%	16%	62%
2016-17	22,795	7,253	32%	15,542	68%	8,178	30,973	74%	23%	50%
2017-18	23,432	12,185	52%	11,248	48%	8,329	31,761	74%	38%	35%
Average	26,062	5,069	21%	20,993	79%	6,954	33,016	79%	15%	64%

SOURCE: % of Imported Water Demand was provided by MWDOC and other data was obtained from the District.

Past Working Relationships with Reclamation. The District was awarded $750,000 in funding for its 3A Water Recycling Plant Tertiary Expansion to Enhance Water Use Efficiency Project and completed a FY18 Agreement with Reclamation under the Bay Delta Restoration Program: Water Use Efficiency Grant Program. The District previously worked with Reclamation to complete the San Juan Groundwater Basin Recharge, Reclamation, and Reuse Feasibility Study to evaluate the feasibility of implementing the San Juan Basin Desalination and Optimization Program. The District was awarded funding for its study in the amount of $225,000 via a cooperative agreement (Agreement No. R14AC00073) with Reclamation under the WaterSMART: Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program Funding for FY 2014. The study was completed in 2016 and the agreement was closed.

Project Location

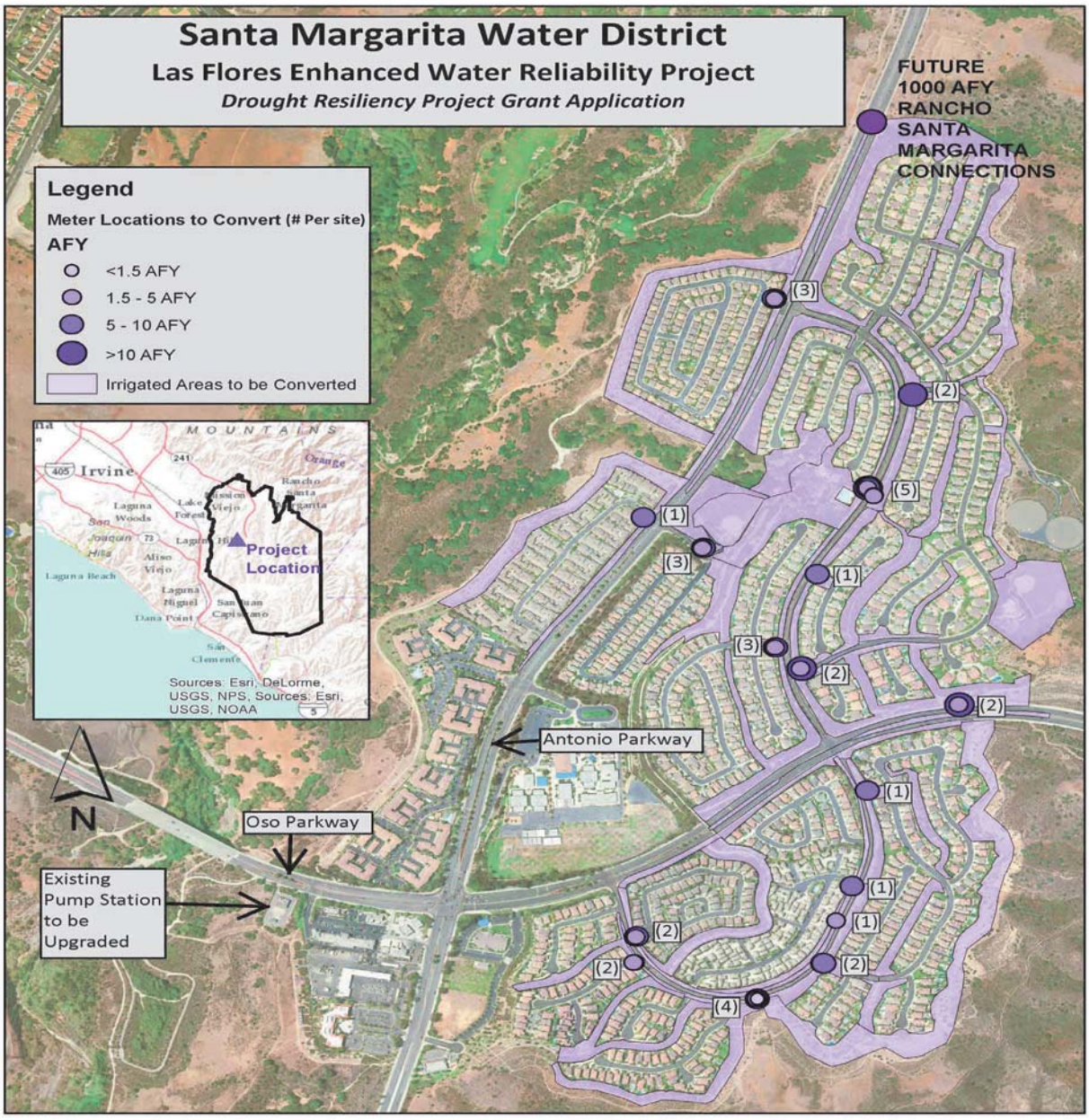
The proposed Project is located in the unincorporated community of Las Flores, Orange County, California (Figure 1, *Las Flores Enhanced Water Reliability Project Location*), approximately 0.5 mile south of the City of Rancho Santa Margarita boundary (1 mile west of State Route 241) in Orange County. The Project center (the intersection of Antonio Parkway and Oso Parkway) latitude is 33° 35' 1.31" and longitude is -117° 37' 50.64". The overall Project area is approximately 0.5 square mile.

Technical Project Description and Milestones

The proposed Project includes expanding the District's recycled water system. The Project will install approximately 3,800 linear feet of 16-inch pipe and 5,200 linear feet of 8-inch pipe in residential streets and easements. The Project will also upgrade an existing out-of-service District pump station and repurpose an existing force main approximately 3,600 linear feet long. A preliminary design was prepared that identified the pipeline alignment required to service each of the initial irrigation customers as well as customers in the future expansion. This design resulted in the proposed new 16-inch and 8-inch pipelines; the diameters determined the approximate lengths (linear feet) for each pipe. The preliminary design also proved it was possible to repurpose an existing force main to avoid the installation of 3,600 feet of new pipe along with the corresponding impacts on a heavily used road intersection. These predesign activities also resulted in developing the configuration of the upgraded pump station to provide both the initial 209 acre-feet per year

(AFY) of recycled water and the ultimate 1,209 AFY flows. This pump station modification is very similar to another pump station project that the District is completing, which was instrumental in verifying the anticipated upgrade costs. The Project will ultimately convert a total of 1,209 AFY of irrigation water demand from potable to recycled water.

Figure 1. Las Flores Enhanced Water Reliability Project Location



The following are the project tasks that were developed based on the completed preliminary design work described above:

Task 1: Project Management. The District will provide the following: 1) Prepare documentation relating to the funding of the project, 2) Manage internal and external forces responsible for the preparation of necessary design reports and contract documents, 3) Manage interface between various stakeholders in the project, including County of Orange and multiple HOAs, 4) Confirm reporting requirements and provide appropriate

notification of Regional Water Quality Control Board (Regional Board) on the expanded use of recycled water within permitted areas, 5) Administer the construction contract for the installation of the pipelines and connections including completed facility testing, 6) Coordinate necessary backflow and cross connection testing, 7) Monitor project progress by confirming disconnection from potable water system.

Task 2: Reporting. Prepare progress reports detailing work completed during reporting period. Reporting will be performed on a semiannual basis, including submittal of Financial Reports and Program Performance reports, as well as Financial Reimbursement Requests using the online ASAP system through the System for Award Management (SAM). Program Performance and Final Reports will be in accordance with requirements included in the cooperative agreement. Performance Reports will include information regarding the status of the Project's Performance Measures.

Task 3: CEQA Documentation. Prepare and circulate a Notice of Preparation. Per Assembly Bill 52, tribal cultural resources will be researched and addressed. Prepare a Negative Declaration (ND) and release of the document for public review. File Notice of Completion with the State Clearinghouse. Prepare a letter stating no legal challenges (or addressing legal challenges). Environmental compliance will be met with the preparation of an Initial Study and the anticipated ND per the California Environmental Quality Act (CEQA).

Task 4: Permitting. It is anticipated that encroachment permits from the County of Orange will be required for work that will take place within the public right-of-way and through the easement on County property. Final approval from the District Board of Directors will be required prior to proceeding with the Project.

Task 5: Design. Prepare a Final Design Report for the conversion of all identified services and alignments of the proposed recycled water delivery system necessary to serve the converted services. Also, prepare a Final Design Report for the pump station improvements necessary to deliver the recycled water to the end users. Complete necessary hydraulic calculations showing the impacts of the new services on the recycled water system. Prepare a set of biddable contract documents for the expansion of the existing recycled water delivery system, as well as the existing pump station and repurposing of the existing force main. This will include the necessary pipeline and pump station plan drawings along with the general and technical specifications providing material and installation requirements. It is anticipated that a consulting engineer will be hired to prepare the final contract documents for bidding the Project. The contract documents will include final plans and specifications for the construction of the improvements.

Task 6: Contract Services. Activities necessary to secure a contractor and award the contract include development of bid documents, preparation of advertisement and contract documents for construction contract bidding, conducting of pre-bid meeting, bid opening and evaluation, selection of the contractor, award of contract, and issuance of notice to proceed.

Task 7: Construction Administration. The District will be responsible for administering the construction contract for the installation of the pipelines and connections including completed facility testing, and coordinate necessary cross connection testing and construction of the pump station upgrade and the force main repurposing. District will provide and coordinate engineering support services and information or clarification as requested by the contractor. Inspection of the construction will be performed by District staff.

Task 8: Construction/Implementation Activities. Construction activities will conform to applicable Standard Plans and Specifications for SMWD, Public Works Construction, County of Orange, and applicable State and federal laws. Construction will meet SMWD Design Criteria and all applicable standards, including those of the American Water Works Association. Construction activities include:

Subtask 8a: Mobilization and Demobilization. This subtask includes the acquisition of necessary bonds and insurance, preparing submittals for review, ordering materials, moving contractor facilities and equipment to predetermined staging areas and other similar miscellaneous activities. Demobilization will include removal of material and equipment, cleanup of the site, restoration of any damaged areas to their original conditions and other similar activities.

Subtask 8b: Project Construction. The Project construction shall begin once the contractor has all site

preparation work completed and at the direction of the District. The work to be performed is the installation of the new recycled water pipelines, new service laterals to the existing irrigation meters, confirmation of no cross connections to the irrigation system, startup of operations, and upgrade to the pump station and repurposing of the existing force main. The length of pipelines that are to be installed include 3,800 feet of 16-inch and 5,200 feet of 8-inch diameter pipelines that has been determined during the preliminary design of the proposed system. The existing pump station was a sewer lift station that has been abandoned that will be converted to a recycled water booster pump station similar to another project the District is currently completing in the southern portion of the District. In that project the District was able to repurpose a gravity sewer to a pressure force main through slip lining of the existing piping.

Subtask 8c: Performance Testing and Demobilization. Periodic testing of installed pipelines will occur throughout the project. As individual reaches pass testing they may be put into service. Demobilization of contractors' facilities will occur once the facilities pass final testing requirements

Subtask 8d: Procure Equipment. This subtask involves the actual purchasing of the major equipment which may be either done directly by the District and provided to the Contractor or purchased through the contractor as a portion of his scope of work. Purchase of the equipment associated to the improvements at the existing pump station includes the pumps, major electrical equipment and instrumentation. The District will follow its Procurement Policy.

Task 9: Environmental and Regulatory Compliance. This task includes environmental and regulatory compliance review by Reclamation or the recipient in complying with environmental regulations (including NEPA, NHPA, and SHPO) applicable to a Reclamation grant, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Reclamation will complete an environmental compliance review of the Project.

Performance Measures

Table 6, *Las Flores Enhanced Water Reliability Project Benefits and Performance Measures*, identifies the Project benefits and performance measures. The estimated life of the Project is 50 years.

Table 6. Las Flores Enhanced Water Reliability Project Benefits and Performance Measures

Benefit	Target	Measurement Tools and Methods
Eliminate Potable Water Demand - Additional Recycled Water Supplies Delivered	Up to 209 AFY *and future 1,000 AFY, totaling 1,209 AFY*	-Confirming all of the identified current potable water irrigation customers are connected to the recycled water system Measuring the amount of recycled water delivered by the reading flow meters at each converted service for the identified user/customer meters (35 total).
Power (Energy Savings) - Reduce the amount of electrical energy required to supply water demands.	From Water Better Managed (209 AFY): 522,500 kWh/year	- Measuring the amount of recycled water supplied through the distribution system via the identified user/customer meters. This total can then be equated to the offset in energy required to transfer an equal quantity of water to the District from other water supply sources. -Water savings will be converted to energy savings using the calculation of 2,500 kWh/AF of water conserved.
Carbon Emissions Savings (Climate Change Impacts)	243,085 lb. of CO_2/year from water savings	-Confirm the water savings resulting from the Project in the "Water Savings" Project Performance Measure and convert to carbon emissions using the calculation of required energy = 2,500 kWh/AF and CO2 emissions= 0.61 lb. of CO2/kWh.

Evaluation Criteria

Evaluation Criterion A - Project Benefits

Building Long-Term Resilience to Drought & Number of Years Benefits Provided. The Project will build

long-term resilience to drought by increasing recycled water supplies by 1,209 AFY in place of less reliable imported water for non-potable uses, saving 522,400 kWh/year in energy, and 243,085 lbs of CO2, annually, year-round, for the 50-year life of the Project. These benefits are quantified in Table 6. The Project will result in the use of approximately 209 AFY of recycled water immediately for 35 users, as shown in Table 7, and 1,000 AFY in the future phase, that would otherwise be lost and unavailable to the District. The major distribution pipe associated to this Project will be used to supply future recycled water conversions of up to 1,000 AFY in the City of Rancho Santa Margarita. Therefore, the improvements will enhance the backbone distribution system to allow maximum recycled water delivery to irrigation users.

Table 7. Estimated Project Potable Water Savings
Total Water Demand by Customer

User Description	District Location ID	Meter Size Inches	2013-2017 AVG Demand AFY
L.F. MAINTENANCE CORP	325565	2 INCH METER	4.29
L.F. MAINTENANCE CORP	325685	2 INCH METER	7.68
L.F. MAINTENANCE CORP	326905	2 INCH METER	3.79
L.F. MAINTENANCE CORP	330275	2 INCH METER	8.01
L.F. MAINTENANCE CORP	380095	2 INCH METER	6.97
L.F. MAINTENANCE CORP	380105	2 INCH METER	8.88
L.F. MAINTENANCE CORP	312745	2 INCH METER	5.56
L.F. MAINTENANCE CORP	312735	2 INCH METER	4.63
L.F. MAINTENANCE CORP	319525	1 1/2 INCH METER	2.11
L.F. MAINTENANCE CORP	328875	1 1/2 INCH METER	1.84
L.F. MAINTENANCE CORP	328885	2 INCH METER	8.25
L.F. MAINTENANCE CORP	328895	1 INCH METER	3.78
L.F. MAINTENANCE CORP	328905	1 1/2 INCH METER	7.62
L.F. MAINTENANCE CORP	326945	2 INCH METER	12.28
L.F. MAINTENANCE CORP	326935	2 INCH METER	3.85
L.F. MAINTENANCE CORP	326955	1 INCH METER	7.85
L.F. MAINTENANCE CORP	328925	1 INCH METER	2.56
L.F. MAINTENANCE CORP	328915	1 INCH METER	2.47
L.F. MAINTENANCE CORP	328585	1 INCH METER	1.99
L.F. MAINTENANCE CORP	328595	2 INCH METER	11.37
L.F. MAINTENANCE CORP	309735	2 INCH METER	16.06
L.F. MAINTENANCE CORP	309745	2 INCH METER	12.73
L.F. MAINTENANCE CORP	329495	1 1/2 INCH METER	4.36
L.F. MAINTENANCE CORP	328545	1 1/2 INCH METER	11.43
L.F. MAINTENANCE CORP	379985	2 INCH METER	8.34
MAGNOLIA LANE HOA	384465	2 INCH METER	1.58
L.F. MAINTENANCE CORP	380085	1 1/2 INCH METER	6.18
L.F. MAINTENANCE CORP	379995	2 INCH METER	5.35
L.F. MAINTENANCE CORP	380005	1 1/2 INCH METER	4.14
L.F. MAINTENANCE CORP	380035	2 INCH METER	5
L.F. MAINTENANCE CORP	380025	1 1/2 INCH METER	1.58
L.F. MAINTENANCE CORP	380045	2 INCH METER	0.01
L.F. MAINTENANCE CORP	380055	2 INCH METER	9.36
L.F. MAINTENANCE CORP	380065	2 INCH METER	4.84
L.F. MAINTENANCE CORP	380075	2 INCH METER	2.38
		TOTAL	209.120

Increasing the amount of local water supply has a significant impact on the District's potable water supply because it is made up of 100% imported water from the SWP and CRA systems. The Project will provide up to 1,209 AFY of recycled water that will offset the demand on imported water and potable supplies. The proposed Project will cost approximately $464 per AF over its assumed 50-year lifetime. This is a very small price to pay, given the increasing costs of imported water and the severe water supply challenges that Southern California constantly faces. Integrating system wide water recycling and water use efficiency measures is critical for meeting water supply demands. The Project will ensure DACs have a reliable, affordable potable water supply within the District's service area, as shown in Figure 2.

Additional Water Supplies Made Available & Estimated Quantity of Additional Supply from Project. The Project will ultimately make 1,209 AFY of recycled water available and therefore make the same amount of imported potable water supply available to CRA and SWP since the recycled water will be used in place of imported water. 209 AFY was calculated based on adding the total average water demand by customer, for the 35 existing irrigation users that will be converted from non-potable (imported) to potable (recycled)

water, as shown in Table 7, *Estimated Project Potable Water Savings – Total Water Demand by Customer.* This is based on the actual average usage over the past 5 years. The additional 1,000 AFY of recycled water was calculated by District data as part of the recycled water projections for the Rancho Santa Margarita Recycled Water Conversion Project, discussed in Section 6.4 Potential Recycled Water Uses in the 2015 UWMP. The conversions involve coordination with two Homeowner's Associations as well as the County of Orange. The overall Project irrigable area is approximately 0.5 square mile.

o Percentage of Total Water Supply Represented by Additional Water Supply. 1,209 AFY is approximately 5% of SMWD's current potable water supply, which is 23,816 AFY for 2018 as shown in Table 1. This was calculated by combining the total water demand for the 35 users that will receive recycled water from the Project, and the total future water demand on Rancho Santa Margarita, which is projected to be 1,000 AFY per the 2015 UWMP, to total 1,209 AFY. The estimate was calculated as follows: 1,209 AFY / 23,816 AFY = .051 or ~5%.

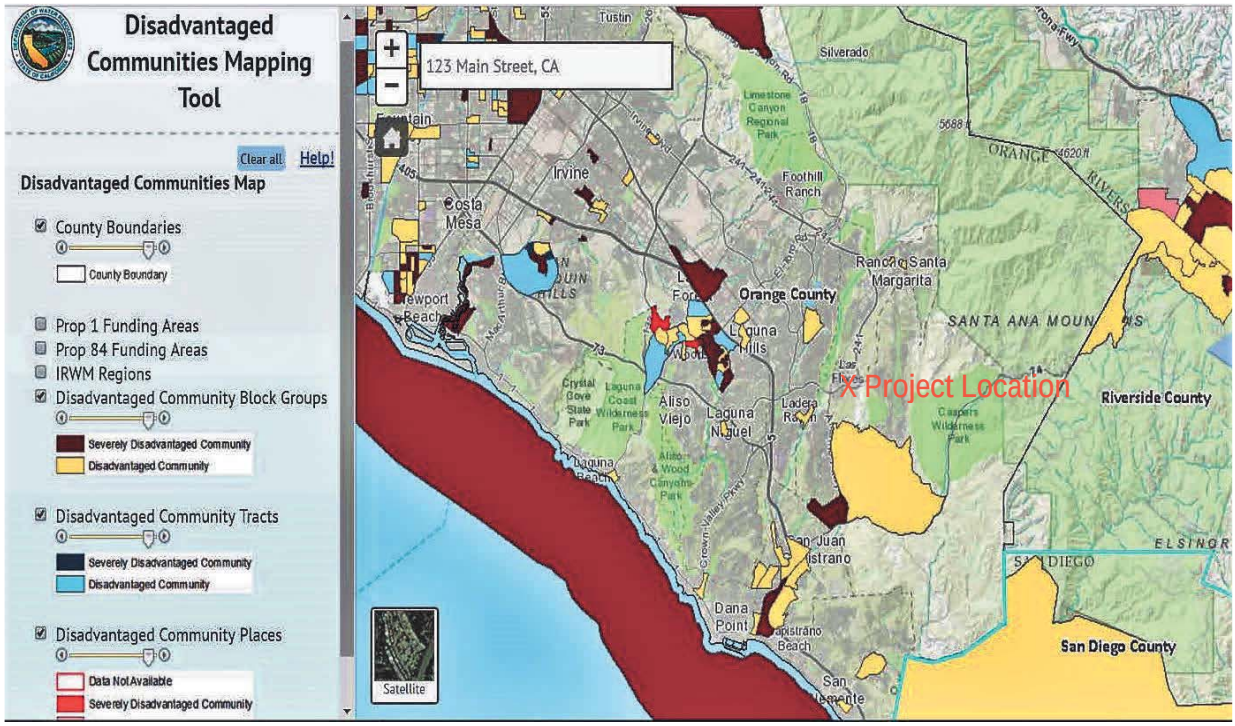
Degree/Significance of the Benefits Associated with the Additional Water Supplies.

Increased Reliability of Water Supplies: The benefits of the Project are greatly significant because 1,209 AFY provides critical local water supply in case the District's imported water supply is cut off. The District is 100% reliant on imported water for potable supplies, while the South Orange County region is 90% dependent on imported water. In the 2018, the District pumped zero groundwater due to recent drought conditions that negatively impacted the groundwater supply and quality. Imported pipelines cross five seismic faults over 200 times, posing a high vulnerability to the region during times of drought, earthquake, or other catastrophic event. The 2004/2013 South Orange County Reliability Studies identified several risks to the imported water delivery system, including emergency shutdowns of outside facilities, prolonged drought, and lack of local project implementation. The Project will increase reliability by increasing the amount of recycled water delivered by up to 1,209 AFY once the future larger project is implemented over the estimated 50-year life of the Project. This represents approximately 5% imported water supply savings for the District out of its current potable water supply. The District's potable water supply consists solely of imported water obtained from MWDOC via MWD. MWD typically blends supplies from its CRA with water allocated from the SWP before delivery to the District. Realizing the increasing vulnerability of imported water supply, the District's water planning documents include a reduction in dependency on imported water supply by 25% by 2030. In addition, California Senate Bill x7-7 requires all water suppliers to reduce their urban per capita water use by 20% by the year 2020. The Project will yield real water supply benefits that will contribute to achieving these goals by producing 1,209 AFY of recycled water, reducing the District's dependency on imported water supply and reducing overall potable water use.

Benefits to DACs: The Project is needed to ensure DACs have a reliable, affordable potable water supply. DACs reside in the District's service area as shown in Figure 2 *Disadvantaged Communities within Santa Margarita Water District Service Area*. The Project will increase water supply reliability by providing new recycled water supply to low income and minority communities at an affordable price, compared to much more expensive imported potable water, for irrigation purposes.

Energy Savings and Greenhouse Gas Reduction: Energy savings benefits will be realized upon full operation of the Project. Imported water is a blend of State Project Water and Colorado River Water at 2,500 kWh/AF based on the publication "California's Water – Energy Relationship" prepared by the California Energy Commission (November 2005, p. 51). Assuming a 50/50 split due to fluctuation and blending of Bay Delta vs. CRA sources, the amount of power per acre-ft required to transfer the water is 2,500 kWh for a total of 522,500 kWh/year. The calculation for the initial project phase the will produce 209 AFY is 209 AFY * 2,500 kWh = 522,500 kWh. The savings are approximately 2,098.09 kWh/AF which can be directly measured using the targeted customers irrigation meters (438,500 kWh/year/209 AF/year = 2,098.09 kwh/AF). The amount of power required to produce the tertiary water from secondary effluent and to pump the water into the recycled

Figure 2. Disadvantaged Communities within Santa Margarita Water District Service Area



water system is approximately 124,000 kWh/year. This value is generated by calculating the power associated with 400 feet of pumping head and the additional in-plant energy required for three 5-hp motors and a minor amount of backwash water being used on the filters. The effective reduction in energy required to supply the 209 AFY is the difference between the 522,500 kWh/year associated to the potable water delivery and the 124,000 kWh/year for the tertiary production and pumping which results in a savings of 398,500 kWh/year. Carbon emission estimates of 0.61 lb. of CO2/kWh based on the United States Environmental Protection Agency's 9th edition of eGrid, "Year 2010 eGRID Subregion Emissions - Greenhouse Gases." Were used to calculate emissions saved as follows: 0.61 lb. of CO2/kWh * 398,500 kWh = 243,085 lb. of CO2.

Improve the Management of Water Supplies.

o Increase efficiency or operational flexibility: The Project will improve water management by increasing operational flexibility to deliver more recycled water in SMWD's service area during drought and improving access to future groundwater supply. The Project will provide flexibility to deliver non-potable water from recycled water sources in place of imported or potable water sources during drought conditions and to ameliorate the draw-down of critical seasonal recycled water storage reservoirs. Operational flexibility will be improved by the Project's new distribution piping, upgraded Las Flores Pump Station (currently out of service), and more energy efficient, variable frequency drives on the pumps that will better match the demands of the pressure zone to efficiently deliver recycled water. The major distribution pipe associated to this Project will enhance the backbone distribution system to allow maximum recycled water delivery to irrigation users throughout the District's service area. Recycled water within the District's service area is primarily used for irrigation and construction purposes. The District's recycled water is delivered to parks, medians, slopes, golf courses, and schools throughout its service area. Compared to imported water, recycled water is a more reliable supply because it is dependent upon wastewater which will continue even during times of drought.

The Project will improve access to groundwater supply by increasing the recycled water supply for future groundwater replenishment. The District's only potential source of local potable water is the San Juan Basin,

which is in overdraft condition with low quality water. As identified in the Reclamation-funded and approved San Juan Watershed Title XVI Feasibility Study, the District plans to use recycled water to replenish the groundwater basin and subsequently pump the groundwater for use as potable water. The additional 1,209 AFY of recycled water made available by the proposed Project would assist in making more recycled water available for groundwater replenishment, as well as future potable supplies from the pumped groundwater.

Estimated quantity of water that will be better managed as a result of this project: Up to 1,209 AFY of water will be better managed. This was calculated by combining the total water demand of 209 AFY for the 35 users (average water demand by customer over the past 5 years, as shown in Table 7) that will receive recycled water from the Project, and the total future water demand on Rancho Santa Margarita, which is projected to be 1,000 AFY per the 2015 UWMP, to total 1,209 AFY. These benefits will be realized annually for the 50-year life of the Project.

o Percentage of Total Water Supply the Water Better Managed Represents. Up to 1,209 AFY of new recycled water supply is equal to approximately 13% of the current total recycled water supply of 9,076 AFY. This is calculated by dividing 1,209 AFY (Project) by 9,076 AFY (current recycled water supply), which equals approximately 13%. As previously described, 1,209 AFY is also approximately 5% of SMWD's current total potable water supply,

o Degree/Significance of Anticipated Water Management Benefits. The Project's improvements to the recycled water delivery system will provide 1,209 AFY of additional recycled water delivery via irrigation service conversions. Expanding recycled water supply is significant in SMWD's service area because it includes a Master Planned Community of Rancho Mission Viejo, which creates a unique opportunity to stretch existing supplies in innovative ways as the community is developed, without having to forfeit outdoor irrigation and aesthetic landscaping during times of drought. The Project will allow for potable water supply for 1,045 more houses (non-irrigation) assuming 5 houses/AF of recycled water. All outdoor irrigation in Rancho Mission Viejo will be supplied by recycled water.

• Benefits to Fish, Wildlife, and the Environment. The District's potable water supply consists solely of imported water obtained from MWD through MWDOC, which is a blend of SWP and CRA. Decreasing water supplies received from the Bay-Delta help reduce negative ecological impacts triggered by water exportation from the area. The proposed Project will reduce imported water demand on the SWP by up to 1,209 AFY in the future phase, making water available for the Delta Smelt and other listed species located in the Delta habitat. Twenty-nine known species of fish once populated the estuary and currently twelve of those species are considered gone or threatened by extinction. More water in the Bay-Delta and CRA may improve the overall quality of the water that remains in the ecosystem. The Project's recycled water supply will offset imported water deliveries to the District, alleviating stress on the Bay-Delta habitat and ecosystem. The Recovery Plan for the Sacramento-San Joaquin Delta Native Fishes (November 26, 1996) includes the Delta Smelt and monitoring endangered species and potential recovery rates (the Plan is available at the following link: https://www.fws.gov/sfbaydelta/species/delta_smelt.cfm). The continued operation of these two water projects was likely to jeopardize the continued existence of the delta smelt and adversely modify its critical habitat. Rationing water supplies received from the Bay-Delta helps limit the ecological impact of importing water. Twenty-nine known species of fish once populated the estuary and currently twelve of those species are considered gone or threatened by extinction. With a reduction in this imported water demand, the impact on the Delta Smelt, Salmon and other species currently impacted by water pumping activities, will be alleviated to the extent of the Project. The Project's immediate delivery of 1,209 AFY of recycled water will result in 254 AFY (recent 5-year average of 21% of imported water supply from Bay-Delta, per Table 5) remaining in the Bay-Delta, although variable. Therefore, reductions in imported water mitigate negative environmental impacts on the Bay-Delta.

Evaluation Criterion B – Drought Planning and Preparedness

• Copy of Applicable Drought Plan, or Sections of the Plan, Appended to Application. SMWD does not have a separate comprehensive drought plan, but rather it is contained within Chapters 2, 3, 5, and 6 of the

District's 2015 Urban Water Management Plan (UWMP) and in Chapters 2, 4 and Appendix F of the Integrated Regional Water Management Plan (IRWMP) for South Orange County (May 2018). These select sections of the UWMP and IRWMP are included in Exhibit A and referenced below.

• Plan Addresses Drought.

UWMP: The District's 2015 UWMP addresses drought on page 5-2 in Chapter 5 Water Shortage Contingency Plan and identifies recycling programs as a condition to achieve permanent reductions in water use. The proposed Project is a recycling project that is supported by the drought plan. The Water Shortage Contingency Plan in Chapter 5 of the UWMP serves as a drought plan because it includes water supply shortage mitigation measures to address water shortage, such as Stage 1 Voluntary Conservation Measures, Stage 2 Drought or Emergency Condition Conservation Measures, Stage 3 Serious Drought Condition Conservation Measures, and Stage 4 Mandatory Conservation Measures. The Drought Plan discussed in Chapter 5 was developed in response to Governor Brown issuing a drought emergency proclamation on January 2014 and signing the 2014 Executive Order that directs urban water suppliers to implement drought response plans.

IRWMP: The South Orange County IRWMP serves as a regional drought plan as demonstration by its objectives and strategies to Increase Water Supply, Reliability, and Efficiency Objectives (Section 4.3.3, page 4-14 of the IRWMP). Per page 4-7 of the IRWMP, "In developing the objectives, the stakeholders considered long-term regional planning conflicts and issues including identification of enhanced local water supplies to offset reduction of imported water to meet demands during times of drought". The IRWMP is a drought plan that supports the proposed water recycling Project because the Project meets the following Water Supply Objective and Strategy: 1) Objective: WS2: Increase the supply and use of non-potable water; 2) Strategy: WS-2-S3-Increase distribution of recycled and non-potable water through pipeline and conversion projects (IRWMP, Page 4-15). This objective and strategy specifically identify recycled water projects as a means to increase water supply reliability during times of drought.

o Stakeholder Collaboration to Develop Drought Plan.

UWMP: The drought plan was developed with input from multiple stakeholders, as described in Chapter 5 of the 2015 UWMP (pages 5-1 – 5-5), and included collaboration with MWD and MWDOC, among other South Orange County stakeholders. Input from MWDOC's 2015 UWMP as included to ensure consistency between the two documents as well as MWD's 2015 Regional UWMP and 2015 IRP (MWD, 2016). The District encouraged community and public interest involvement in the plan update through public hearings, website postings, social media announcements, and review of the draft document. Public hearing notifications were posted on the District's website, www.smwd.com. In addition, the District closely collaborated with adjacent local water suppliers including MNWD, IRWD, TCWD, ETWD, City of San Juan Capistrano, and City of San Clemente on the regional approach to mitigating drought.

IRMWP: The drought plan portion of the IRWMP was developed through an extensive Public Outreach and Involvement Process (IRWMP, Page 2-21), whereby stakeholder involvement occurred through stakeholder workshops, inclusion in the IRWM process via public meetings, communication via email and information sharing via the South OC WMA Data Management System (DMS) website. Page 2-23, Section 2.6.1 describes the regional participation and project coordination during IRWM Plan Development and Updates with regional stakeholders. This process included developing the objectives and strategies that address drought conditions. The IRWMP drought plan portions were developed through a collaborative process of 26 South Orange County IRWM member agencies, including local stakeholders, such as non-profit organizations (Surfrider, Audubon, MiOcean), native American and tribal representatives, disadvantaged community members, and general public.

o Climate Change Impacts to Water Resources or Drought in Drought Plan.

UWMP: The drought plan portion of the District's 2015 UWMP considers climate change impacts to water resources and drought in Section 3.6.2.4 (page 3-15), including a threat of increased variability in floods and

droughts. Climate change is noted as a factor that affects the ability to estimate existing and future water delivery reliability, especially for imported water from the SWP and CRA, and supports implementation of recycled water projects to increase reliability of local supplies. The UWMP outlines the areas of concern for California, which include a reduction in Sierra Nevada Mountain snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of Delta levee failure, seawater intrusion of coastal groundwater basins, and potential cutbacks on the SWP and Central Valley Project (CVP). Recycled water projects, like the proposed Project, are proposed to mitigate impacts.

IRWMP: The drought plan portion of the IRWMP considers climate change impacts to water resources and drought in the IRWMP objectives, specifically in Objective WS4 Improve planning and awareness of water supply with consideration for climate change stresses (IRWMP, page 4-16). Maximizing water recycling is identified in Strategy WS-4-S6 to address climate change impacts to water resources in the region. The proposed recycled water Project implements this strategy to address climate change.

• Proposed Project Supported by an Existing Drought plan.

UWMP: The proposed Project is supported by the UWMP in Chapter 3.5 (page 3-13) because it states that recycled water is one of the major components of the District's water conservation program. Demands for recycled water continue to increase as new and existing potable water irrigation services are continually being connected to the recycled water system. Recycled water supply projections (calculations and planning assumptions) shown in the UWMP include system expansion in the proposed Las Flores project area.

IRWMP: The proposed Las Flores Project is included in Appendix F IRWM Project list in the IRWMP as a project that is supported by and implements the goals, objectives, and strategies of the IRWMP.

o Proposed project identified as a potential mitigation or response action.

UWMP: Page 5-2 of the UWMP identifies recycling programs as a shortage action in the Water Shortage Contingency Plan. The Project supports the Rancho Santa Margarita Recycled Water Conversion Project, discussed on page 6-10 in Section 6.4 Potential Recycled Water Uses in the 2015 UWMP, and entails recycled water conversions in the City of Rancho Santa Margarita to provide approximately 1,000 AFY of recycled water.

IRWMP: Page 4-18 discusses the Project as a drought response action by the following, "The IRWM Plan Project List (Appendix F) includes infrastructure improvements, desalting and recycling projects, and WUE programs that are planned for the South Orange County WMA. These projects generate not only drought year water supply, but "regular year" water supply as well. The proposed Project is included in Appendix F and serves a drought response action.

o Project Implements a Goal identified in the drought plan.

UWMP: The proposed recycled water Project implements the goal of reducing urban water use by 20% by 2020 through providing new recycled water supply to reduce the demand on imported potable water. The Delta Action Plan supports the 20x2020 goal. The Project helps meeting per capita reduction goals discussed on page 2-7 of the UWMP, which states, "The District is actively decreasing its reliance on imported water by pursuing a variety of water conservation strategies and increasing recycled water use" The Project will develop 209 AFY of new local recycled water supply, and is identified as a future supply action.

IRWMP: The Project implements the South Orange County IRWMP goal to Increase Water Supply, Reliability, and Efficiency Objectives. Page 4-15 identifies the following Water Supply Objective and Strategy: 1) Objective: WS2: Increase the supply and use of non-potable water; 2) Strategy: WS-2-S3-Increase distribution of recycled and non-potable water through pipeline and conversion projects. The goal is met through implementing the objective and strategy for recycled water projects as a means to increase water supply reliability during times of drought.

o Describe how the proposed project is prioritized in the referenced drought plan:

UWMP: The Plan identifies recycled water conversion projects as a priority to accomplish water use reduction and decrease the demand on imported water supplies. In Section 6.4, Potential Recycled Water Uses, on

page 6-10 of the 2015 UWMP, the Rancho Santa Margarita Recycled Water Conversion Project is described as including recycled water conversions in the City of Rancho Santa Margarita to provide approximately 1,000 AFY of recycled water. Without the proposed Project, these recycled water conversions would not be possible

IRWMP: The proposed Las Flores project is listed in Appendix F IRWM Project list in the IRWMP as a priority project that is supported by and implements the goals, objectives, and strategies of the IRWMP.

Evaluation Criterion C - Severity of Actual or Potential Drought Impacts Addressed by the Project

SMWD's service area has experienced many drought related adverse impacts, as shown in Table 8. SMWD provides drinking water, recycled water and wastewater services to over 165,000 residents in eight unique communities, including Las Flores. The District is the second largest retail water agency in Orange County, by area, and third largest by customers served. One hundred percent of the District's drinking water supply is imported from hundreds of miles away, enhancing the impact of drought conditions and the reality of limited local water supplies. The District's communities have limited local supplies available to them during drought conditions when imported water supply is limited. This heightened risk factor has served as the catalyst for the District's expansion of the recycled water service. In response to the 2014 Drought, the Association of California Water Agencies (ACWA) released a report, "2014 Drought Impacts and Strategies for Resilience" (June 2014) that identified the South Orange County region as an area vulnerable to drought because it depends so heavily on imported water, even in a typical year.

Table 8. Summary of Drought Impacts and Risks to SMWD

Existing Drinking Water Demands	Agricultural Demands	Ecosystem Water Demands	Groundwater Supplies and Economic Costs	Other Drought-Related Adverse Impacts
- County of Orange, declared in extreme drought in 2014; declared severe drought in 2018 - Region in danger of not receiving imported water supply for potable uses during catastrophic or drought conditions - ~80% reliance on imported water for potable supply	- Reduced reliability on imported water supply for irrigation. - Agricultural demands are ~16% of Southern California's total water demand	- Coastal Sage Scrub does not tolerate repeated fire events - Oak trees show signs of stress	-During drought, Orange County Water District expended $80M on untreated imported water from MWD. Water was recharged into groundwater basin, which helped to partially refill the basin and offset drought impacts. Groundwater levels fell, but were within the normal historical operating range.	- Increased water quality issues in San Juan Basin - Increase in water demands for landscape use due to higher temperatures - Risk of catastrophic wildfires, such as Holy Jim fire. - Limited imported water supply threatens residents, including disadvantaged communities, agriculture, and business (real estate property values), if water is not available for irrigation - Tension over finite supplies

The following summarizes concerns related to drought conditions:

Public Health Concerns or Social Concerns for DACs: The Project will provide more reliable recycled water at a lower cost than imported water to DACs for irrigation uses. From a social equality and environmental justice perspective, affordable water rates are important to provide to members of DACs, which are shown in Figure 2. During droughts, irrigation water is the first to be reduced, creating more dust and allergens, as well as adding to heat islands, thereby negatively impacting public health. The Project provides more recycled water to ensure public health needs are met.

Increased Cleveland National Forest Wildfires: The proposed Project addresses emergency preparedness for times of drought by providing irrigation for defensible space around structures and recreational facilities. The recent Holy Jim wildfire in the neighboring area of Trabuco Canyon, shown in

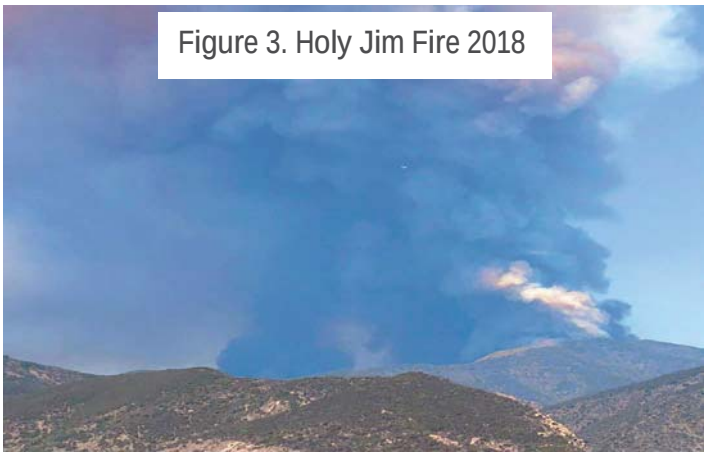


Figure 3. Holy Jim Fire 2018

Figure 3, resulted in approximately 4,000 acres of brush burned in six hours. The fire burned in the Cleveland National Forest toward Riverside County, and the US Forest Service battled the blaze, according to Orange County officials (The Patch Newspaper, August 6, 2019). The frequency and intensity (size) of the wildfires has increased over the past years due to drought conditions creating dry brush.

Imported Drinking Water Impacts: The Project increases water supply reliability by providing 1,209 AFY of recycled water supply in place of drinking water supply. The drought has impacted drinking water supplies in the District by decreasing the reliability of imported water. MWDOC's 2013 South OC Reliability Study highlighted the vulnerability of the District to prolonged interruptions of imported water deliveries and was prompted in part by the December 13, 1999 failure of the Allen-McColloch Pipeline (AMP), which interrupted imported water delivery for eight days. The District only has one point of delivery of treated imported water from MWD, which makes it very vulnerable to seismic events and droughts that could result in no treated imported water for up to 60 days. Providing system reliability benefits is crucial for combatting the ongoing drought conditions.

Rancho Mission Viejo Agricultural Impacts: The Project's recycled water supply helps to reduce the drought's threat to residents, agriculture, and businesses in the local economy. Implementing recycled water will ensure there is adequate supply for irrigation and agricultural uses, including Rancho Mission Viejo (RMV) ranching and agricultural operations and 17,000 acres of natural open space. The percentage of total outdoor water use is roughly 55% of SMWD's total domestic demand. Increasing the recycled water usage for irrigation purposes increases the domestic water reliability, thereby making high quality drinking water available for potable uses rather than non-potable uses.

San Juan Groundwater Basin Impacts: The Project will reduce drought impacts on the San Juan Basin, which is impacted by limited groundwater supply and storage, by providing a new source of recycled water supply for irrigation. The Basin is in overdraft condition due to its limited capacity. As the drought persists, imported water supplies will be limited, and groundwater use will increase. The total calculated storage capacity of the lower San Juan Creek Groundwater Basin is estimated to be 27,000 AF. Recharge of the Basin is from flow in San Juan Creek, Oso Creek, and Arroyo Trabuco, as well as rainfall and irrigation infiltration into the water table. However, the drought along with voluntary and mandatory reduced irrigation with potable water has decreased the recharge to the basin. Some of the storage capacity cannot be used because of potential sea water intrusion, economic considerations, and increasingly poor water quality. As less water recharges the basin due to the drought, the potential for sea water intrusion and poor water quality increase. The Basin is a shallow basin that has been categorized as an underground flowing stream which also limits storage capabilities. The drought conditions will continue to cause decreased groundwater quality and quantity due to reduced stream flow and natural recharge. The Basin's reduced supply and storage capacity limits regional local resources.

Casper's Wilderness Area Environmental Impacts: The Project provides recycled water for irrigation water to ensure that flows make their way to creeks and streams to enhance water quality and support local habitat. There has been a decrease in water quality for habitats throughout the region due to drought. The ability to continue to irrigate landscaping upstream of the natural ecosystems allows for the groundwater levels to stay at a relatively constant level which will support the ground surface habitats and water quality. Audubon Starr Ranch Sanctuary in Casper's Wilderness Area, which monitors water quality and native plant and animal

communities of Bell Creek, one of the last pristine riparian corridors in southern California noted that Raptor breeding has decreased significantly and Coastal Sage Scrub does not tolerate repeated fire (converts to weedy annual grassland). The dry and unusually windy winter and early spring threatens the habitat as the fire potential increases. Coastal sage scrub has been negatively impacted by the extended drought punctuated by intense rainfall (Goldstein, Leah and Suding, Katherine M. "Intra-annual rainfall regime shifts competitive interactions between coastal sage scrub and invasive grasses" (2014) the Ecological Society of America). Oak trees look stressed and the main riparian corridor, Bell Creek is drier than usual. The Audubon Sanctuary is also monitoring plant, bird, and butterfly response to the changing climate and has observed that the ecosystem water demands are not being met as exemplified by the decrease in raptor breeding, fire-threatened coastal sage scrub habitat, stress of oak trees, and cancellation of creek research due to lack of flow in the Bell Creek riparian corridor.

Economic Losses and Impacts: The Project alleviates economic losses by providing recycled water for irrigation in place of imported water; recycled water is available even during times of drought since it is dependent on wastewater which will continue to be produced even in times of drought due to continuous water use for toilet flushing and washing purposes. The District is currently 100% reliant on imported water supplies for its potable water supply and therefore a large portion of the District's water supply is threatened by current drought conditions. MWDOC retained the services of the Orange County Business Council and found that the economic impacts ranged up to $1.7 billion, depending on shortage scenario. Even a relatively short 10-day 20% reduction carries a projected impact of over $60 million. These numbers illustrate the tremendous potential cost from water system outages or short term drought. The District's goal is to help customers achieve compliance through education and assistance at little to no cost. Expanded rebate programs through MWD and the District's free conservation programs are available to all eligible customers. Many of the strategic reliability measures implemented by MWD and local water purveyors have helped to protect the region from rationing or other severe conservation measures thus far.

Tensions over imported water and groundwater supplies: The Project addresses heightened competition for finite water supplies by increasing recycled water supplies to offset limited imported and groundwater water supplies. Drought conditions result in a heightened competition for imported water within MWD's service area and limited groundwater supplies in the San Juan Basin. The District is 100% reliant on imported water from MWD and MWDOC for its potable water supplies. With nearly 19 million people in MWD's service area, Southern California is heavily reliant on imported water supplies to meet demands. It was forecasted by Reclamation that projected demands will exceed available supply in the Colorado River. This can result in competition for limited water supplies through the Delta and the Colorado River Basin Locally, the San Juan Basin's groundwater supply is shared among SMWD, SCWD, and MNWD. As described previously, the drought has decreased the recharge to the basin. Some of the storage capacity cannot be used because of potential sea water intrusion, economic considerations, and increasingly poor water quality; this has caused tension among local agencies over because of the limited local supply available. The Project reduces tension locally because it increases local water supply reliability by reducing the need for potable water from imported and groundwater sources.

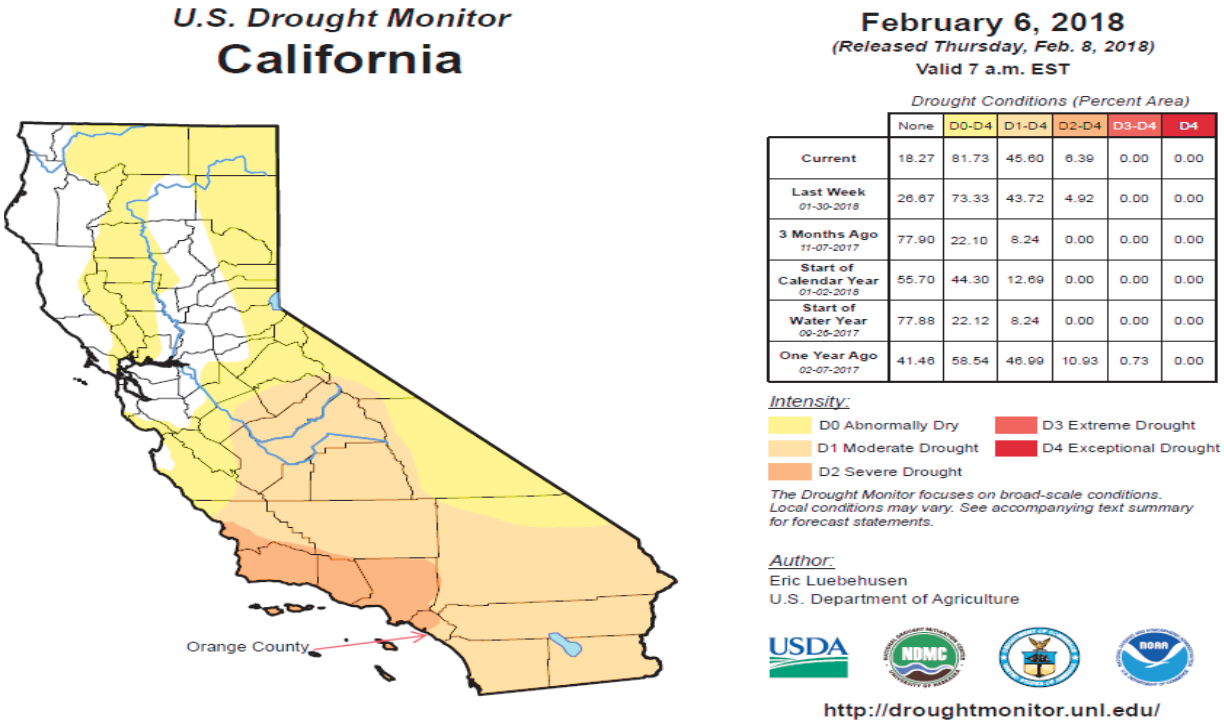
Describe existing or potential drought conditions in the project area: Existing and potential drought conditions in the project area are shown in Table 8.

Is the project in an area that is currently suffering from drought or which has recently suffered from drought? The proposed Project is located in South Orange County, an area that recently suffered from drought. The U.S. Drought Monitor declared the County of Orange, California, as in moderate drought in2018 as shown in Figure 4. Recent rain storms have classified the areas as abnormally dry as of January 2019. The drought's impacts are being felt by communities in the District's service area since 2014 when Governor Brown issued a drought emergency.

Projected Increases in Severity or Duration of Drought from Climate Change: The California Climate

Science and Data for Water Resources Management (DWR, June 2015), which is available online here, identifies how climate change creates vulnerability due to a modified hydrology, including droughts. Droughts are likely to become more frequent and persistent during this century. California faced unmatched drought

Figure 4. U.S. Drought Monitor Map



conditions in 2015 after recording the hottest year on record in 2014 and the driest year ever recorded in 2013. 2015 had some of the warmest and driest months on record, including a record low snowpack in the Sierra Nevada. 2018 storms reduced the severity of the drought and resulted in moderate drought conditions per the U.S. Drought Monitor's Figure 4. Even with the recent storms of 2019, the District is still experiencing abnormally dry conditions.

The California Climate Science and Data for Water Resources Management projects: A) Temperature Projections - Scripps Institution of Oceanography indicates that by 2060-2069 mean temperatures will be 3.4 to 4.9 °F higher across the state than they were in the period 1985-94. B) Precipitation Projections – Most climate model precipitation projections for the state anticipate drier conditions in Southern California, with heavier and warmer winter precipitation in Northern California. C) Snowpack Projections - Based on modeling research at Scripps Institution of Oceanography, by the end of the century, the Sierra snowpack may experience a 48-65% loss from the 1961-1990 average. This has increased the urgency of local resource development in the District's service area. Since the District's potable water supply is 100% imported water from the SWP and CRA systems, recycled water projects like the proposed Project are needed to address future drought conditions.

Evaluation Criterion D – Project Implementation

The Project is ready to begin immediately after execution of the agreement with Reclamation. Table 9, *Las Flores Enhanced Water Reliability Project Schedule with Dates*, shows the Project schedule with a project start date of October 1, 2019, and completion of the Project by the October 31, 2022. Engineering plans are discussed in Task 5: Design. Refer to the Technical Project Description and Project Tasks for detail on how the Project will be implemented and how the quantities and amounts in the Project Tasks were developed. Required permits include: 1) An Encroachment Permit from the County of Orange for the construction

activities within the Public Right-of-way as well as within an easement. And 2) Approval from the SWRCB will be required prior to converting the users and serving them with recycled water. Final approval from the District Board of Directors will be required prior to proceeding with the Project. Engineering or design work performed includes Task 5, Design, which has been 15% completed to confirm the feasibility of expanding the recycled water distribution system and repurposing the existing pump station and force main. In addition, the District is developing a preliminary design report with projected flows. No new policies or administrative actions are required. SMWD adopted a Mandatory Nondomestic and/or Recycled Water Use Resolution No. 01-10-02 that requires customers to use recycled water when available for non-potable uses.

Table 9. Las Flores Enhanced Water Reliability Project Schedule with Dates

Project Task	Start Date	End Date
Task 1: Project Management	10/1/2019	10/1/2022
Task 2: Reporting	10/1/2019	10/31/2022
Task 3: CEQA Documentation	5/6/2019	7/19/2019
Task 4: Permitting	2/18/2020	3/18/2020
Task 5: Design	9/3/2019	3/4/2020
Task 6: Contract Services	3/5/2020	6/6/2020
Task 7: Construction Administration	6/7/2020	2/28/2021
Task 8: Construction/Implementation Activities	6/7/2020	5/1/2021
Subtask 8a: Mobilization and Demobilization	6/10/2020	5/1/2021
Subtask 8b: Project Construction	7/1/2020	2/28/2021
Subtask 8c: Performance Testing and Demobilization	12/2/2020	5/1/2021
Subtask 8d: Procure Equipment	6/7/2020	10/11/2020
Task 9: Environmental and Regulatory Compliance	9/3/2019	5/1/2021

The budget includes Environmental Compliance Costs (under "Other") estimated to be $10,000, which is 0.2% of the total Project Cost of $4,851,968.32 and was developed based on environmental and regulatory requirements for similar District projects and based on email correspondence with Dennis Wolfe, as shown in Appendix D. The compliance cost was discussed with Dennis Wolfe on 2/12/18 in the Temecula Reclamation office. Although a budget of $5,000 was suggested, we have included $10,000 to account for any unforeseen costs, per our follow-up discussion. This estimate assumes an Initial Study and Negative Declaration per CEQA will be prepared as it is anticipated that the Project will not have a significant environmental effect and this assumption is based on experience with similar recycled water projects recently completed within the District.

Evaluation Criterion E – Nexus to Reclamation

The proposed Project will benefit Reclamation's water supply in the Colorado River through its nexus with SMWD's San Juan Basin Title XVI Feasibility Study, the Santa Ana Watershed Basin Study, and the Colorado River Basin Study by making 1,209 AFY of potable water available. The Project contributes to the local San Juan Basin Feasibility Study via SMWD's cooperative agreement with Reclamation's Water SMART Title XVI Water Reclamation and Reuse Program. The Feasibility Study (finalized in 2016) evaluated implementing the Basin Desalination and Optimization Program to reduce dependence on imported water. The proposed Project is connected to this Study because it will increase recycled water use throughout the District's service area, expanding recycled water supplies to potentially replenish the San Juan Basin and reduce demand on imported supplies from the CRA.

The Project, located in Orange County, also directly supports the Santa Ana Watershed Basin Study adaptation strategies, which is a partnership between the Santa Ana Watershed Project Authority (SAWPA)

and Reclamation, by 1) reducing demand on imported water and promoting the state's 20 x 2020 Water Conservation Plan, and 2) increasing water supply by promoting more local recycled water use to reduce dependency on imported water supplies.

Lastly, the Project will increase the availability of Reclamation's overall water supply in the Colorado River Basin Plan, which is a multi-year Basin Study to examine supplies and demands for Colorado River water. The proposed Project is associated with the Colorado River Basin, and the District receives water from MWD via MWDOC, which currently relies on the CRA and the SWP as its primary sources of water. The study also included ideas and projects to resolve the supply and demand imbalance, including recycled water. Reclamation manages the Colorado River system from which MWD imports water. The District purchases approximately 79% of its supply from MWD through MWDOC. Water is imported from the Colorado River and from northern California via the SWP. Imported water savings associated with the Project translate to more water remaining in these two fragile systems. The Project benefits Reclamation because it reduces imported water supplies from the Colorado River and northern California; thereby protecting the Colorado River Basin. By reducing the amount of water imported, this water in effect remains in the basin from which it originates, or is made available to meet demands in other areas of the State.

Evaluation Criterion F – Department of the Interior Priorities

1. Creating a conservation stewardship legacy second only to Teddy Roosevelt

a. Utilize science for best practices to manage land and water resources and adapt to changes in the environment: The proposed Project implements science to manage land and water resources to adapt to changes in the environment by integrating recycled water and augmenting local groundwater supplies to reduce the region's dependence on imported water in compliance with the 2015 UWMP. The Project also supports County of Orange unincorporated areas and considers the Natural Community Conservation Plan / Habitat Conservation Plan (NCCP/HCP) for the Central and Coastal Subregion of Orange County California. The NCCP/HCP coordinates land management activities of public and private landowners within the 37,000-acre reserve system, conducts wildlife and habitat research and monitoring, and restores disturbed habitats.

b. Examine land use planning processes and land use designations that govern public use and access: The Project examines land use planning process and land use designations that govern public use and access by considering UWMP planning principles. Chapter 2.2.3 of the District's 2015 UWMP identifies water supply and use in consideration of land use and population projections as it relates to water supply planning and management. SMWD's service area includes a master planned community and 17,000 acres of natural open space within Rancho Mission Viejo, which is governed by the Ranch Plan. The proposed recycled water Project supports the Ranch Plan and existing irrigation demands within the District.

c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards: It is anticipated that the proposed recycled water Project will require an Initial Study and Negative Declaration per the California Environmental Quality Act (CEQA Guidelines). The environmental and regulatory review process will be streamlined by complying with CEQA and ensuring proper paper work is submitted during the environmental compliance process.

d. Review DOI water systems to identify opportunities to resolve conflicts and expand capacity: The Project will result in new potable water supply and therefore, reduce imported water demand, which is supplied by MWD via MWDOC from the SWP and CRA. The Project will help reduce water-related conflict (over limited water supplies) within the Bay-Delta and the Colorado River by leaving additional supplies in those systems.

e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands: The District has fostered relationships with conservation organizations advocating for balanced stewardship and use of public lands, including Audubon Starr Ranch, Trout Unlimited, and others. Public outreach efforts to educate and inform the public about the benefits of recycled water projects and its

water supply benefits, including the water education, have been performed by the District through its website: http://smwd.com/309/Recycled-Water.

(f.-g.): Not applicable.

2. Utilizing our natural resources

a. Ensure American Energy is available to meet our security and economic needs:

The Project provides energy savings by reducing the need to import up to 209 AFY of water from the Colorado River and the Bay-Delta via SWP. It is estimated that the Project will save 844 kWh/AF in energy. This will make a portion of the existing energy being produced domestically available for other users to meet security and economic needs.

(b.-c.) Not applicable.

1. *Restoring trust with local communities*

(a) Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands: The Project incorporates coordination and partnerships with public agencies, stakeholders and officials in overlapping/neighboring service areas in charge of managing our resources. SMWD regularly meets with SCWD, MNWD, and other adjacent agencies to plan water resources for the South Orange County region. Recycled water projects and supplies are factored into the integrated water planning with bordering agencies.

(b) Expand the lines of communication with governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities:

Project implementation builds upon SMWD's established relationships with state natural offices and Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities. SMWD will expand its lines of communication with the State Water Resources Control Board and Fish and Wildlife Service while completing CEQA and NEPA compliance for the Project. Tribes and local communities will be publicly notified about the Project during the environmental compliance process/

2. *Striking a regulatory balance*

(a) Reduce the administrative and regulatory burden imposed on U.S. industry and the public: The recycled water Project implements the District's streamlined administrative and regulatory process for constructing recycled water projects within the service area. Construction will be performed to minimize inconvenience and burdens to the public.

(b) Ensure that Endangered Species Act decisions are based on strong science and thorough analysis: Science and thorough analysis will be included in the CEQA and NEPA compliance, under the federal Endangered Species Act or the California Endangered Species Act.

3. *Modernizing our infrastructure*

(a) Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure: The Project will implement recycled water infrastructure to deliver non-potable water in place of potable water for irrigation use, thereby modernizing infrastructure.

(b) Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure Projects: The Project will require various private sector equipment and construction services for infrastructure development, as identified in the Technical Project Description.

(c) Prioritize DOI infrastructure needs: The Project will construct recycled water system infrastructure to reduce demands on Reclamation's CRA and SWP imported water supply infrastructure and ensure longer lasting facilities through regular maintenance.

Project Budget

The project budget includes: (1) Funding Plan and Letters of Commitment, (2) Budget Proposal, (3) Budget Narrative.

Funding Plan and Letters of Commitment

Describe how the non-Federal share of project costs will be obtained.

The District will fund the non-Reclamation project costs from allocated budget for the Project in the Capital Reserves. No other non-federal source will fund the Project.

Please identify the sources of the non-Federal cost share contribution for the project:

- *Any monetary contributions monetary by the applicant towards the cost-share requirement and source of funds (e.g., reserve account, tax revenue, and/or assessments):*

The District will provide its total non-federal cost share from the District Capital Reserves in the amount of $4,101,968.33.

- *Any third party in-kind costs (i.e., goods and services provided by a third party).* None
- *Any cash requested or received from other non-Federal entities.* None
- *Any pending funding requests (i.e. grants or loans) that have not yet been approved and explain how the project will be affected if such funding is denied:* There are no pending funding requests.
- There are no funding partners.

Please identify whether the budget proposal includes any project costs that have been or may be incurred prior to award. For each cost, describe:

The project expenditure and amount: $50,000

The date of cost incurrence. May-July 2019

How the expenditure benefits the Project. An expenditure of approximately $50,000 will be made for the completion of the CEQA compliance activities. This work will be a negative declaration due to the bulk of the work being completed within existing street right of way and/or within an existing District facility.

Budget Proposal

The District will fund 84.54% ($4,101,968.33) of the Project costs, and the District is requesting the remaining 15.45% ($749,999.99) of the total Project costs as shown in Table 10, *Las Flores Enhanced Water Reliability Project Total Project Cost Table*. Table 11, *Summary of Federal and Non-Federal Funding Sources for the Project*, provides the Budget Detail by cost categories (Budget Item Description). *No In-Kind funding is proposed or included. Table 12, *Budget Estimate for Las Flores Enhanced Water Reliability Project* provides the budget summary. Subsequent pages present the Budget Narrative.

Table 10. Las Flores Enhanced Water Reliability Project Total Project Cost Table

Source	Amount
Costs to be reimbursed with the requested Federal funding	$ 749,999.99
Costs to be paid by the applicant	$ 4,101,968.33
Value of third-party contributions	$ 0
TOTAL PROJECT COST	$ 4,851,968.32

Table 11. Summary of Federal and Non-Federal Funding Sources for the Project

Funding Source*	Funding Amount
Non-Federal Entities	
SMWD Capital Reserves	$ 4,101,968.33
Non-Federal Subtotal	$ 4,101,968.33
Other Federal Entities	
None	$ 0
Other Federal Subtotal	$ 0
Requested Reclamation Funding:	$ 749,999.99

Table 12. Budget Estimate for Las Flores Enhanced Water Reliability Project

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	$/Unit	Quantity		
SALARIES AND WAGES				
Deputy General Manager - Don Bunts	$121.44	108	Hour	$13,115.52
Chief Engineer - Tricia Butler	$87.22	108	Hour	$9,419.76
Construction Engineer - Jeff McDonnell	$85.12	240	Hour	$20,428.80
Sr Project Engineer - Karla Houlihan	$60.61	524	Hour	$31,759.64
Water Efficiency Administrator - Nate Adams	$58.05	40	Hour	$2,322.00
Sr Inspector - Dia Badir	$48.62	320	Hour	$15,558.40
Engineer Technician - Alex Rivas	$45.56	80	Hour	$3,644.80
Admin Analyst - Cindy Lane	$48.25	152	Hour	$7,334.00
Cross Connection Specialist - Ryan Pape	$30.25	40	Hour	$1,210.00
		Subtotal		$104,792.92
FRINGE BENEFITS				
All Staff are Full Time Employees	$104,792.92	65%	Percent	$68,115.40
		Subtotal		$68,115.40
TRAVEL				
	N/A	N/A	N/A	$0
		Subtotal		$0
EQUIPMENT				
Hydropneumatic Tank	$63,600	1	Ea	$63,600.00
Pumps	$84,000	2	Ea	$168,000.00
MCC	$112,100	1	Ea	$112,100.00
PLC	$102,400	1	Ea	$102,400.00
		Subtotal		$446,100.00
SUPPLIES/MATERIALS				
Materials & Supplies	N/A	N/A	N/A	$4,460.00
		Subtotal		$4,460.00
CONTRACTUAL/ CONSTRUCTION				
Consultant A - Environmental	$55,000.00	1	Lump Sum	$55,000.00
Consultant B - Design Engineer	$192,500.00	1	Lump Sum	$192,500.00
Construction Contractor	$3,971,000.00	1	Lump Sum	$3,971,000.00
		Subtotal		$4,218,500.00
OTHER				
Reporting - Costs included under Salaries & Wages	N/A	N/A	N/A	$0
Environmental Compliance	$10,000.00	1	Lump Sum	$10,000.00
		Subtotal		$10,000.00
TOTAL DIRECT COSTS:				$4,851,968.32
INDIRECT COSTS - Basis				
	N/A	N/A	N/A	$0
TOTAL ESTIMATED PROJECT/ACTIVITY COSTS:				$4,851,968.32

Budget Narrative

Salaries and Wages

Indicate the Project Manager and other key personnel by name and title. The Project Manger must be an employee or board member of the applicant. Other personnel should be indicated by title alone. For all positions, indicate salaries and wages, estimated hours or percent of time, and rate of compensation proposed. (i.e., number of hours, days, weeks, percentage of a year, etc.)

Program manager and other key District personnel are shown by name, title, and Project task in Table 13, *Las Flores Enhanced Water Reliability Project Budget by Task*. Salaries and wages, estimated hours, and rate of compensation proposed for all positions are included in Table 12. Total Salaries and Wages costs are $104,792.92. Estimated hours and rates are shown by name, title, and Project task in Table 13, Las Flores Enhanced Water Reliability Project Budget by Task.

Table 13. Las Flores Enhanced Water Reliability Project Budget by Task

Employee	Task	Activity	Hours
Deputy General Manager (Program Manager) - Don Bunts @ $121.44/hour	Task 1	Project Management	24
	Task 2	Reporting	8
	Task 5	Design	20
	Task 6	Contract Services	40
	Task 8	Construction/Implementation Activities	16
	Subtotal		**108**
Chief Engineer - Tricia Butler @ $87.22/hour	Task 1	Project Management	24
	Task 2	Reporting	8
	Task 5	Design	20
	Task 6	Contract Services	40
	Task 8	Construction/Implementation Activities	16
	Subtotal		**108**
Construction Engineer - Jeff McDonnell @ $85.12/hour	Task 6	Contract Services	80
	Task 7	Construction Administration	80
	Task 8	Construction/Implementation Activities	80
	Subtotal		**240**
Sr Project Engineer - Karla Houlihan @ $60.61/hour	Task 1	Project Management	50
	Task 2	Reporting	98
	Task 4	Permitting	16
	Task 5	Design	240
	Task 6	Contract Services	80
	Task 8	Construction/Implementation Activities	40
	Subtotal		**524**
Sr Inspector - Dia Badir @ $48.62/hour	Task 7	Construction Administration	320
	Subtotal		**320**
Engineer Technician - Alex Rivas @ $45.56/hour	Task 1	Project Management	0
	Task 5	Design	40
	Task 6	Contract Services	40
	Subtotal		**80**
Admin Analyst - Cindy Lane @ $48.25/hour	Task 1	Project Management	32
	Task 5	Design	40
	Task 8	Construction/Implementation Activities	80
	Subtotal		**152**
Water Efficiency Administrator - Nate Adams @ $58.05/hour	Task 8	Construction/Implementation Activities	40
	Subtotal		**40**
Cross Connection Specialist - Ryan Pape @ $30.25/hour	Task 8	Construction/Implementation Activities	40
	Subtotal		**40**
	TOTAL HOURS		1,612

A description of the various tasks and the estimated time to complete the tasks identified in Table 13, based on the 3-year project schedule, follows:

The Deputy General Manager is responsible for the overall success of the project. This includes managing the various staff members, consultants and contractors that are required to complete the project. It has been estimated that approximately two hours per month for the design activities and one hour per week during the construction will be allocated to the project management tasks. Reporting will consist of a review of documentation prepared for Reclamation submittal. Twenty hours during the design period is allocated for review and consultation. Forty hours of time has been identified for developing, reviewing and executing contracts associated to design activities and the construction. Minimal site visit time is identified for the construction period, roughly one hour per week.

The Chief Engineer will perform similar tasks during the construction, but the reviews will be at a more granular level and will be responsible for identifying and allocating those resources necessary to complete the project. The time identified is similar to what was required for a recently completed project within the District.

Construction Engineering services will take place prior to project construction to assist in reducing the potential conflicts that may exist between the design intent and construction practices. The inspection time is based on the amount of time estimated for the District's inhouse inspector to be required at the site during the construction. The project site is within 5 minutes of the District's administration building therefore both the Construction Engineer and the Senior Inspector are available within minutes of being required to be at the jobsite. The time allocated, 240 hours for the Construction Manager and the 320 hours for the Senior Inspector, is similar to a pipeline project that is currently being constructed for the District.

The design efforts identified for Senior Project Engineer, the Engineer Technician and the Admin Analyst are based on the efforts required for the pipeline project currently under construction that is also referenced as the benchmark for the time identified for the Construction Engineering above.

The time for the Water Efficiency Administrator and the Cross Connection Specialist identified in Table 13 is based on previous conversion projects the District has completed within the last 24 months.

The labor rates should identify the direct labor rate separate from the fringe rate or fringe cost for each position. All labor estimates must be allocated to specific tasks as outlined in the applicant's technical project description. Labor rates and proposed hours shall be displayed for each task.
Direct labor rate and fringe rate are separately identified under Salaries and Wages and Fringe Benefits respectively in Table 12. Fringe Benefits are charged at 65%. Labor rates and proposed hours are shown for each task in Table 13 and are estimated based on the approximately 3-year Project timeframe and experience with similar District projects. The District rates are supported by the District Pay Schedule. SMWD employee salary ranges and benefits are negotiated with the employees' association and subject to a memorandum of understanding (MOU) that is approved by District's Board of Directors. The current MOU is in effect July 1, 2017 through June 30, 2021, available at the following link: https://www.smwd.com/DocumentCenter/View/2090/MOU-Final-Executed-Copy-11-1-17.

The Deputy General Manager is Don Bunts. This position's budgeted time includes a direct labor rate of $121.44/hour, which does not include fringe benefits. A total of 108 hours at a total cost of $13,115.52 is

estimated to manage the Project over the 3-year period. As shown in Table 12 and 13, the Deputy General Manager will be involved in the following Tasks:

- Task 1: Project Management: A total of 24 hours at a rate of $121.44/hour are allotted to implement the Project.
- Task 2: Reporting A total of 8 hours at a rate of $121.44/hour are allotted to this task.
- Task 5: Design: A total of 20 hours at a rate of $121.44/hour are allocated to this task.
- Task 6: Contract Services: A total of 40 hours at a rate of $121.44/hour are allotted to this task.
- Task 8: Construction/Implementation Activities: A total of 16 hours at rate of $121.44/hour are allotted to this task.

The Chief Engineer is Tricia Butler. This position's budgeted time includes a direct labor rate of $87.22/hour, which does not include fringe benefits. A total of 108 hours at a total cost of $9,419.76 is estimated for the Chief Engineer for the Project over the 3-year period. As shown in Table 12 and 13, the Chief Engineer will be involved in the following Tasks:

- Task 1: Project Management: A total of 24 hours at a rate of $87.22/hour are allotted to implement the Project.
- Task 2: Reporting A total of 8 hours at a rate of $87.22/hour are allotted to this task.
- Task 5: Design: A total of 20 hours at a rate of $87.22/hour are allocated to this task.
- Task 6: Contract Services: A total of 40 hours at a rate of $87.22/hour are allotted to this task.
- Task 8: Construction/Implementation Activities: A total of 16 hours at rate of $87.22/hour are allotted to this task.

The Construction Engineer is Jeff McDonnell. This position's budgeted time includes a direct labor rate of $85.12/hour, which does not include fringe benefits. A total of 240 hours at a total cost of $20,428.80 is estimated for the Construction Engineer for the Project over the 3-year period. As shown in Table 12 and 13, the Construction Engineer will be involved in the following Tasks:

- Task 6: Contract Services: A total of 80 hours at a rate of $85.12/hour are allotted to this task.
- Task 7: Construction Administration: A total of 80 hours at a rate of $85.12/hour are allotted to this task.
- Task 8: Construction/Implementation Activities: A total of 80 hours at rate of $85.12/hour are allotted to this task.

The Senior Project Engineer is Karla Houlihan. This position's budgeted time includes a direct labor rate of $60.61/hour, which does not include fringe benefits. A total of 524 hours at a total cost of $31,759.64 is estimated for the Senior Project Engineer for the Project over the 3-year period. As shown in Table 12 and 13, the Senior Project Engineer will be involved in the following Tasks:

- Task 1: Project Management: A total of 50 hours at a rate of $60.61/hour are allotted to implement the Project.
- Task 2: Reporting: A total of 98 hours at a rate of $60.61/hour are allotted to this task.
- Task 4: Permitting: A total of 16 hours at a rate of $60.61/hour are allotted to this task.
- Task 5: Design: A total of 240 hours at a rate of $60.61/hour are allocated to this task.
- Task 6: Contract Services: A total of 80 hours at a rate of $60.61/hour are allotted to this task.
- Task 8: Construction/Implementation Activities: A total of 40 hours at rate of $60.61/hour are allotted to this task.

The Water Efficiency Administrator is Nate Adams. This position's budgeted time includes a direct labor rate

of $58.05/hour, which does not include fringe benefits. A total of 40 hours at a total cost of $2,322.00 is estimated for the Water Efficiency Administrator for the Project over the 3-year period. As shown in Table 12 and 13, the Water Efficiency Administrator will be involved in the following Tasks:

- Task 8: Construction/Implementation Activities: A total of 40 hours at rate of $58.05/hour are allotted to this task.

The Senior Inspector is Dia Badir. This position's budgeted time includes a direct labor rate of $48.62/hour, which does not include fringe benefits. A total of 320 hours at a total cost of $15,558.40 is estimated for the Senior Inspector for the Project over the 3-year period. As shown in Table 12 and 13, the Senior Inspector will be involved in the following Tasks:

- Task 7: Construction Administration: A total of 320 hours at rate of $48.62/hour are allotted to this task.

The Engineer Technician's budgeted time includes a direct labor rate of $45.56/hour, which does not include fringe benefits. A total of 80 hours at a total cost of $3,644.80 is estimated for the Engineer Technician for the Project over the 3-year period. As shown in Table 12 and 13, the Engineer Technician will be involved in the following Tasks:

- Task 5: Design: A total of 40 hours at a rate of $45.56/hour are allocated to this task.
- Task 6: Contract Services: A total of 40 hours at a rate of $45.56/hour are allotted to this task.

The Administrative Analyst's budgeted time includes a direct labor rate of $48.25/hour, which does not include fringe benefits. A total of 152 hours at a total cost of $7,334.00 is estimated for the Administrative Analyst for the Project over the 3-year period. As shown in Table 12 and 13, the Administrative Analyst will be involved in the following Tasks:

- Task 1: Project Management: A total of 32 hours at a rate of $48.25/hour are allotted to implement the Project.
- Task 5: Design: A total of 40 hours at a rate of $48.25/hour are allocated to this task.
- Task 8: Construction/Implementation Activities: A total of 80 hours at rate of $48.25/hour are allotted to this task.

The Cross Connection Specialist's budgeted time includes a direct labor rate of $30.25/hour, which does not include fringe benefits. A total of 40 hours at a total cost of $1,210.00 is estimated for the Cross Connection Specialist for the Project over the 3-year period. As shown in Table 12 and 13, the Cross Connection Specialist will be involved in the following Tasks:

- Task 8: Construction/Implementation Activities: A total of 40 hours at rate of $30.25/hour are allotted to this task.

The budget proposal and narrative should include estimated hours for compliance with reporting requirements, including final project and evaluation.

Reporting activities will be completed in Task 2 by various SMWD staff. Estimated hours for reporting are based on the approximately 3 year Project timeframe and level of effort on similar District projects. Reporting hours are shown in Table 11 and Table 12 as Task 2 for each staff member, and include negotiation, execution and management of the financial assistance agreement with Reclamation, semiannual submission of Federal Financial Reports and Project Performance Reports, and final project evaluation.

Generally, salaries of administrative and/or clerical personnel will be included as a portion of the stated indirect costs. If these salaries can be adequately documented as direct costs, they should be included in this section; however, a justification should be included in the budget narrative.
The District rates, including administrative personnel, are included as direct costs and are supported by the District Pay Schedule. SMWD employee salary ranges and benefits are negotiated with the employees' association and subject to a memorandum of understanding (MOU) that is approved by District's Board of Directors. The current MOU is in effect July 1, 2017 through June 30, 2021, available at the following link: https://www.smwd.com/DocumentCenter/View/2090/MOU-Final-Executed-Copy-11-1-17. These salaries are documented as direct costs for the administrative personnel because they will include directly related, Project specific efforts required to accomplish the Project, such as initiating purchase requisitions for contract services (for vendor/consultant/contractor), purchase of equipment, materials, and supplies. Upon approval by the District, Purchase Orders would then be executed for the Project.

Fringe Benefits

Indicate rates/amounts, what costs are included in this category, and the basis of the rate computations.
A Fringe Benefits rate is applied to Total Salaries and Wages for employees of SMWD. A base hourly rate plus additional rates for fringe benefits are included in the budget. Fringe Benefits are charged at 65%. SMWD employee salary ranges and benefits, including annual rate increases which are currently 2.5% for cost of living, are negotiated with the employees' association and subject to a memorandum of understanding (MOU) that is approved by District's Board of Directors. The current MOU is in effect Oct 1, 2017 through June 30, 2021. The MOU is available at the following link: http://www.smwd.com/assets/downloads/MOU%20Final%20Executed%20Copy%2011-1-17.pdf.

Travel

No travel costs are included for the Project.

Equipment

Equipment used as part of the Project is listed below. The unit cost as well as the total cost for each piece of equipment is identified under Equipment in Table 12. The total cost for all equipment is $446,100.

The District proposes to pre-purchase the following equipment:

- Hydropneumatic tanks
- Pumps
- Motor Control Center (MCC)
- Programmable Logic Controller (PLC)

The hydropneumatic tank will be pre-purchased to ensure the size and dimensions will meet project requirements and the site constraints of the existing pump station site. This will also reduce the lead time necessary to acquire the equipment which will shorten the construction contract time period.

The pumps will be pre-purchased to save time and to enable the District to negotiate the price of the equipment with the manufacturer. This also allows for a more precise design around the specific equipment that will be used.

The MCC will be pre-purchased to save time and to enable the District to negotiate the price of the equipment

with the supplier that provides all of the District main electrical equipment to allow for continuity in maintenance.

The PLC will be pre-purchased to enable the District to negotiate the price of the equipment with the manufacturer that provides other District controllers and ensure the controller will be consistent and fully compatible with the rest of the District's SCADA system.

Materials and Supplies

Materials and supplies costs for the Project include reproduction, postage, overnight mail, legal postings, miscellaneous printing for reports and pictures for monthly reports, miscellaneous reprographics, and general office supplies. The total cost for materials and supplies is $4,460 based on District experience implementing similar projects. The cost is broken down as follows:

Table 14. Estimated Costs for Materials and Supplies

Material/Supply	Cost
Reproduction	$2,000.00
Postage	$ 250.00
Overnight Mail	$1,000.00
Legal Postings	$ 750.00
General Office Supplies	$ 460.00
TOTAL COST	$4,460.00

- Task 2 – Reporting – Expenses include reproduction and postage – Budget: $110.
- Task 4 - Permitting – Expenses include reproduction, postage and legal postings. - Budget $1,175.
- Task 6 - Contract Services –Expenses include miscellaneous printing for reports and pictures for monthly reports. – Budget: 2,600
- Task 7 – Construction Administration - The expenses identified include miscellaneous reprographics, overnight mail, and office supplies. - Budget- $575.

Contractual/Construction

Contractual activities by consultants/contractor are shown in Table 12. Contractual activities to be performed by the selected Consultants/Contractor will include: Task 3 CEQA Documentation, Task 5 Design, and Task 8 Construction/Implementation Activities. Please refer to the Technical Project Description section for a description of each task. Qualified consultants/contractor will be selected for the Project implementation through a competitive bid process.

Consultant A – Environmental Consultant will provide Environmental Compliance Services for the Project. Services will be included in Task 3: CEQA Documentation and a total cost of $50,000 is included in the budget. An itemized cost estimate is included in Appendix B. A 10% contingency cost was included in the budget estimate making the total cost for Consultant A $55,000.

Consultant B – Design Engineer's budget is roughly 4% of the total project cost. The estimate is based on the District's experience with similar projects.

Construction Contractor – The District, through a competitive bid process will select a qualified

consultant/contractor from the District's pre-approved construction contractors list based on experience with similar projects. The Construction Contractor's budget is approximately 82% of the total project cost. Cost estimates were developed based on similar projects within the District.

Task budget estimate detail by Consultant/Contractor is shown in Table 15, *Contractual/Construction Costs*. The total contractual/construction cost is estimated at $4,218,500.

Table 15. Contractual/Construction Costs

Consultant	Task	Activity	Hours	Rate	Total Costs
Consultant A - Environmental	Task 3	CEQA Documentation A 10% contingency cost was included in the total costs.			$55,000.00
	Subtotal				$55,000.00
Consultant B – Design Engineer	Task 5	Design			$192,500.00
	Subtotal				$192,500.00
Construction	Task 8	Construction/Implementation Activities			$3,971,000.00
	Subtotal				$3,971,000.00
TOTAL					$4,218,500.00

Total Project Implementation costs were based on preliminary engineering estimates performed by the District. The following table provides an overview of the cost estimates, including the physical equipment that is supplied such as pumps, mcc, plc and hydropnuematic tank. Table 16 below shows the preliminary cost estimate for the initial project and expanded future project.

Table 16. Preliminary Cost Estimate
Las Flores Enhanced Water Reliability Project
Opinion of Probable Project Cost

Item Description	Quantity	Unit	Cost per Unit	Total
16-inch PVC Pipe	3,800	LF	$340	$1,292,000
8-inch PVC Pipe	5,200	LF	$220	$1,144,000
AC Paving	45,000	SF	$13	$585,000
Pump Station Upgrade	1	LS	$531,000	$531,000
Pumps	2	EA	$94,000	$188,000
MCC	1	EA	$125,000	$125,000
PLC	1	EA	$114,000	$114,000
Hydropneumatic Tank	1	EA	$71,000	$71,000
Force Main Rehab	3,560	LF	$90	$320,400
Converted Services	35	EA	$1,600	$56,000
			Subtotal	$4,426,400
			Environmental Compliance	$10,000
			CEQA	$50,000
			Staff Time	$172,908.32
			Consulting Engineering	$192,660
			Total Project Cost	**$4,851,968.32**
			Total Projected Water Savings (AFY)	
Initial Projected Water Savings (AFY)				209
Cost per AF ($/AF) on 50 yr. life				$464
Total Projected Project Cost (future expansion to Rancho Santa Margarita)				$21,851,968.32
Total Projected Water Savings (AFY)				1,209
Cost per AF($/AF on 50 yr. life				$362

Third-Party In-Kind Contributions

Identify all work that will be accomplished by third-party contributors, including a breakdown of all tasks to be completed, and a detailed budget estimate of time, rates, supplies, and materials that will be required for each task.

The Project Budget does not include third-party in-kind contributions.

Environmental and Regulatory Compliance Costs

The budget includes Environmental Compliance Costs (under "Other") in the amount of $10,000 which is approximately .2% of the total Project Cost of $4,851,968.32 and based on anticipated environmental and regulatory requirements. Final approval from the District Board of Directors will be required prior to proceeding with the Project. Environmental compliance costs refer to costs incurred by Reclamation or the recipient in complying with environmental regulations applicable to a grant, including costs associated with any required documentation of environmental compliance, analyses, permits, or approvals. Applicable Federal environmental laws could include NEPA, ESA, NHPA, and the CWA, and other regulations depending on the project.

Such costs will cover the following:

- The cost incurred by Reclamation to determine the level of environmental compliance required for the project
- The cost incurred by Reclamation, the recipient, or a consultant to prepare any necessary environmental compliance documents or reports
- The cost incurred by Reclamation to review any environmental compliance documents prepared by a consultant
- The cost incurred by the recipient in acquiring any required approvals or permits, or in implementing any required mitigation measures

The cost for Environmental and Regulatory Compliance is considered fair and reasonable because it is based on the nature of the proposed Project, which includes the installation of pipe in existing streets and the upgrade to an existing pump station. This cost correlates with Task 9: Environmental and Regulatory Compliance as described in the Technical Project Description section of this proposal. The compliance cost was discussed with Mr. Dennis Wolfe on 2/12/18 in the Temecula Reclamation office. Although a budget of $5,000 was initially suggested, the District has included $10,000 to account for any unforeseen costs, per a follow-up discussion. Appendix D includes documentation of this correspondence with Mr. Dennis Wolfe.

Other Expenses

Environmental Compliance costs are included under "Other" in Table 12 and are described above under Environmental and Regulatory Compliance Costs. No other expenses are included for the Project.

Environmental and Cultural Resources Compliance

To allow Reclamation to assess the probable environmental and cultural resources impacts and costs associated with each application, all applicants must respond to the following list of questions focusing on NEPA, ESA, and NHPA requirements. Please answer the following questions to the best of your knowledge. If any question is not applicable to the project, please explain why.

An Initial Study and Negative Declaration pursuant to CEQA will be prepared as it is anticipated that the Project will not have a significant environmental effect. CEQA and NEPA documentation will be provided, as required.

(1) Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

No, the Project is being constructed within existing paved streets and improved public Right-of-Way located in a residential community. The Project includes installing approximately 3800 linear feet of 16 inch pipe and 5200 linear feet of 8 inch pipe in residential streets and easements through open space. The Project also requires an upgrade to an existing District pump station, currently out of service, as well as the repurposing of an existing force main, approximately 3600 linear feet long.

The proposed Project will be located within existing streets and will not cause any soil erosion or the loss of topsoil. Any soil that is excavated and not used as backfill for the pipe trench will be disposed of off-site in a legal manner.

Because the immediate surrounding area is already developed and has existing water related improvements, the impacts caused by construction of the Project will be mitigated by typical dust control, runoff containment, traffic control, cultural resources protection measures, noise and air emissions controls. Storm water pollution prevention protection plans will be enforced. Animal habitat will not be impacted and the contractor will be required to take special precautions. Construction impacts are expected to be limited in nature and controlled.

The intent of the proposed Project is to improve water supply reliability. Therefore, the proposed Project is considered consistent with the region's Air Quality Management Plan. No air quality impacts would occur and no mitigation is expected to be required.

The Project site will not create an adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulation, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. Due to the location of the site and being within existing paved streets and improved Right-of-Way, no impacts on any wetlands or wildlife will occur. No conflicts with local policies, ordinances or provisions of adopted biological resource plans will occur due to the Project being located within paved streets and improved Right-of-Way.

As the Project is located in the streets there are no riparian or wetland areas that may be directly impacted by this project. Due to its location the Project will not interfere with the movement of any wildlife or impede any native wildlife nursery sites. The Project is in conformance with the local policies instituted to protect the biological resources in the area. The Project does not create any conflicts with the provisions of any local and/or regional habitat conservation plans.

(2) Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

No known species listed or proposed to be listed as a Federal endangered or threatened species, or designated critical habitats are within the Project area.

(3) Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States?" If so, please describe and estimate any impacts the project may have.

No, there are not wetlands or other surface waters inside the Project boundaries that potentially fall under CWA jurisdiction as "Waters of the United States." No associated impacts would occur and no mitigation is required.

(4) When was the water delivery system constructed?

The original water delivery system was built from 1975 to 2000.

(5) Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No, the Project will not result in any modification of or effect to individual features of an irrigation system.

(6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.
There are no buildings, structures, or features listed or eligible for listing on the National Register of Historic Places within the Project site.

(7) Are there any known archeological sites in the proposed project area?
No, known archeological sites have been identified within the project area.

(8) Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?
The Project will not have a disproportionately high and adverse effect on low income or minority populations. The Project has the potential to provide positive benefits to low income and minority populations by increasing supply reliability to their communities.

(9) Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?
It is not anticipated that the Project will limit access to and ceremonial use of Indian sacred sites or results in other impacts on tribal lands; Per Assembly Bill 52, tribal cultural resources will be researched and addressed during CEQA and NEPA compliance. The majority of the project is located within already disturbed areas such as within existing street right of way and within the boundaries of an existing District pump station.

(10) Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?
No, the Project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native species known to occur in the area.

Required Permits or Approvals
As identified in the Technical Project Description section of this application, it is anticipated that encroachment permits from the County of Orange will be required for the work that will take place within the public right-of-way and through the easement on County property. Final approval from the District Board of Directors will be required prior to proceeding with the Project.

Existing Drought Contingency Plan (if applicable)
Portions of the District's 2015 UWMP and the South Orange County IRWMP serve as the drought contingency plan and are attached as Appendix A. Refer to Evaluation Criterion B – Drought Planning and Preparedness for more detail on the specific sections attached from each Plan.

Letters of Project Support
Letters of Project support were provided by the Las Flores Maintenance Corporation, California State Senator Patricia C. Bates, California State Assembly member William P. Brough, and are included in Appendix B.

Official Resolution
A draft official resolution of the SMWD Board of Directors is included in Appendix C. The resolution is scheduled for adoption at the April 3, 2019, SMWD Board of Directors meeting. The final resolution will be provided within 30 days of the submittal deadline. The resolution verifies the District's legal authority to enter

into an agreement, the Board of Directors has reviewed and supports submittal of this application, the capability of the District to provide the amount of funding and in-kind contributions specified in the Funding Plan, and that the District will work cooperatively with Reclamation to meet established deadlines for entering into a cooperative agreement.

Appendices

Appendices are attached in the following pages.

Appendix A – Drought Contingency Plan
Appendix B – Letters of Support
Appendix C – Draft Resolution
Appendix D – Environmental Compliance Discussion

Appendix A – Drought Contingency Plan

Santa Margarita Water District

ARCADIS Design & Consultancy for natural and built assets

2015

URBAN WATER MANAGEMENT PLAN

FINAL

JUNE 2016

DUs and number of service connections to calculate total demand projections per customer class. Adjustments were made to demonstrate impacts from increased efficiency of household appliances from the California Plumbing Code, general conservation programs within the District, and future increased water and sewer rates. Additional detail on the demand projection model can be found in the District's Water Demand Forecast that was developed by M.Cubed in January 2016.

2.4.2 Agency Refinement

Demand projections were developed for the District as part of the Santa Margarita Water District Water Demand Forecast. The future demand projections were reviewed and accepted by the District to be used as the basis for the 2015 UWMP.

2.4.3 25 Year Projections

A key component of the 2015 UWMP is to provide insight into the District's future water demand outlook. The District's FY 2015 domestic water demand was 26,910 AFY, met through purchased imported water from MWDOC and non-domestic water sources. Table 2-5 is a projection of the District's water demand for the next 25 years.

Table 2-5: Demands for Potable Water - Projected (AF)

Retail: Demands for Potable Water - Projected					
Use Type	Projected Water Use *Report To the Extent that Records are Available*				
	2020	2025	2030	2035	2040
Single Family	15,596	15,710	15,358	14,595	14,595
Multi-Family	2,547	2,566	2,509	2,384	2,384
Commercial	992	999	977	928	928
Landscape	5,540	5,581	5,456	5,185	5,185
Other	620	625	611	581	581
Losses	1,092	1,100	1,076	1,022	1,022
TOTAL	26,388	26,581	25,986	24,695	24,695
NOTES: SMWD Demand Forecast, M.Cubed, January 2016. Losses are calculated as 4 percent of imported water volume. Data for 2040 extrapolated.					

The above demand values were developed for the District from historical data and a developed model (Santa Margarita Water District Water Demand Forecast, M.Cubed, January 2016). The District is actively decreasing its reliance on imported water by pursuing a variety of water conservation strategies and increasing recycled water use, per capita water use is developed in Section 2.5 below.

3.5 Recycled Water

One of the major components of the District's water conservation program is its recycled water program. The District provides additional treatment to a portion of its secondary treated wastewater. The recycled water is then used for landscape irrigation services. Demands for recycled water continue to increase as new and existing potable water irrigation services are continually being connected to the recycled water system. The District's recycled water program is more fully described in Section 6.

3.6 Supply Reliability

3.6.1 Overview

Every urban water supplier is required to assess the reliability of their water service to its customers under normal, dry, and multiple dry water years. The District depends on a combination of imported and local supplies to meet its water demands and has taken numerous steps to ensure it has adequate supplies. Development of various local water augmentation projects will increase the reliability of the imported water system. There are various factors that may impact reliability of supplies such as legal, environmental, water quality and climatic which are discussed below. The water supplies are projected to meet full-service demands; Metropolitan's 2015 UWMP finds that Metropolitan is able to meet, full-service demands of its member agencies starting 2020 through 2040 during normal years, single dry year, and multiple dry years.

Metropolitan's 2015 Integrated Water Resource Plan (IRP) update describes the core water resources that will be used to meet full-service demands at the retail level under all foreseeable hydrologic conditions from 2020 through 2040. The foundation of Metropolitan's resource strategy for achieving regional water supply reliability has been to develop and implement water resources programs and activities through its IRP preferred resource mix. This preferred resource mix includes conservation, local resources such as water recycling and groundwater recovery, Colorado River supplies and transfers, SWP supplies and transfers, in-region surface reservoir storage, in-region groundwater storage, out-of-region banking, treatment, conveyance and infrastructure improvements.

In the event of a local source not available at a consistent level of use, it will be supplemented with imported water from Metropolitan through MWDOC.

3.6.2 Factors Impacting Reliability

The following are some of the factors identified by Metropolitan that may have an impact on the reliability of Metropolitan supplies.

3.6.2.1 Environment

Endangered species protection needs in the Delta have resulted in operational constraints to the SWP system, as mentioned previously in the State Water Project Supplies section.

Nitrate within groundwater can be both naturally-occurring and can also be associated with agriculture and other synthetic production. The primary MCL for nitrate in drinking water is 10 mg/L. Most groundwater wells monitored for nitrate exhibited levels below MCL except for two wells.

Manganese is a naturally-occurring inorganic constituent dissolved in water. Manganese is an essential micronutrient at low concentrations, but at higher concentrations in drinking water, manganese may lead to objectionable aesthetic qualities such as bitter taste and staining of clothes. The California secondary MCL for manganese is 0.5 mg/L. Most wells monitored for manganese exceeded the secondary MCL for manganese by as much as 40 times with the exception of two wells in the Oso and Lower Trabuco area.

Iron is a naturally-occurring inorganic constituent dissolved in water. Similar to manganese, iron in low concentrations is an essential micronutrient, but iron in higher concentrations in drinking water leads to the same objectionable aesthetic qualities as those of manganese. The California secondary drinking water MCL for iron is 0.3 mg/L. With the exception of one groundwater well in the Oso area, all wells exceeded the secondary MCL for iron by as much as 60 times (San Juan Basin Authority, San Juan Basin Groundwater and Facilities Management Plan, November 2013).

3.6.2.4 Climate Change

Changing climate patterns are expected to shift precipitation patterns and affect water supply. Unpredictable weather patterns will make water supply planning more challenging. The areas of concern for California include a reduction in Sierra Nevada Mountain snowpack, increased intensity and frequency of extreme weather events, and rising sea levels causing increased risk of Delta levee failure, seawater intrusion of coastal groundwater basins, and potential cutbacks on the SWP and CVP. The major impact in California is that without additional surface storage, the earlier and heavier runoff (rather than snowpack retaining water in storage in the mountains), will result in more water being lost to the oceans. A heavy emphases on storage is needed in the State of California.

In addition, the Colorado River Basin supplies have been inconsistent since about the year 2000, resulting in 13 of the last 16 years of the upper basin runoff being below normal. Climate models are predicting a continuation of this pattern whereby hotter and drier weather conditions will result in continuing lower runoff.

Legal, environmental, and water quality issues may have impacts on Metropolitan supplies. It is felt, however, that climatic factors would have more of an impact than legal, water quality, and environmental factors. Climatic conditions have been projected based on historical patterns but severe pattern changes are still a possibility in the future.

3.6.3 Normal-Year Reliability Comparison

The District has entitlements to receive imported water from Metropolitan through MWDOC via connection to Metropolitan's regional distribution system. Although pipeline and connection capacity rights do not guarantee the availability of water, per se, they do guarantee the ability to convey water when it is available to the Metropolitan distribution system. All imported water supplies are assumed available to the District from existing water transmission facilities. The demand and supplies listed below also include recycled water supplies that are available to the District.

5 WATER SHORTAGE CONTINGENCY PLAN

5.1 Overview

Due to current and potential future water supply shortages, Governor Brown issued a drought emergency proclamation on January 2014 and signed the 2014 Executive Order that directs urban water suppliers to implement drought response plans to limit outdoor irrigation and wasteful water practices if they are not already in place. Pursuant to California Water Code Section 106, potable water use is the highest beneficial use of water with the next highest use as irrigation. This section describes the water supply shortage policies Metropolitan and the District have in place to respond to events including catastrophic interruption and reduction in water supply.

5.2 Shortage Actions

5.2.1 Metropolitan Water Surplus and Drought Management Plan

Metropolitan evaluates the level of supplies available and existing levels of water in storage to determine the appropriate management stage annually. Each stage is associated with specific resource management actions to avoid extreme shortages to the extent possible and minimize adverse impacts to retail customers should an extreme shortage occur. The sequencing outlined in the Water Surplus and Drought Management (WSDM) Plan reflects anticipated responses towards Metropolitan's existing and expected resource mix.

Surplus stages occur when net annual deliveries can be made to water storage programs. Under the WSDM Plan, there are four surplus management stages that provides a framework for actions to take for surplus supplies. Deliveries in Diamond Valley Lake (DVL) and in SWP terminal reservoirs continue through each surplus stage provided there is available storage capacity. Withdrawals from DVL for regulatory purposes or to meet seasonal demands may occur in any stage.

The WSDM Plan distinguishes between shortages, severe shortages, and extreme shortages. The differences between each term is listed below.

- Shortage: Metropolitan can meet full-service demands and partially meet or fully meet interruptible demands using stored water or water transfers as necessary.
- Severe Shortage: Metropolitan can meet full-service demands only by using stored water, transfers, and possibly calling for extraordinary conservation.
- Extreme Shortage: Metropolitan must allocate available supply to full-service customers.

There are six shortage management stages to guide resource management activities. These stages are defined by shortfalls in imported supply and water balances in Metropolitan's storage programs. When Metropolitan must make net withdrawals from storage to meet demands, it is considered to be in a shortage condition. Figure 5-1 gives a summary of actions under each surplus and shortage stages when an allocation plan is necessary to enforce mandatory cutbacks. The goal of the WSDM Plan is to avoid Stage 6, an extreme shortage.

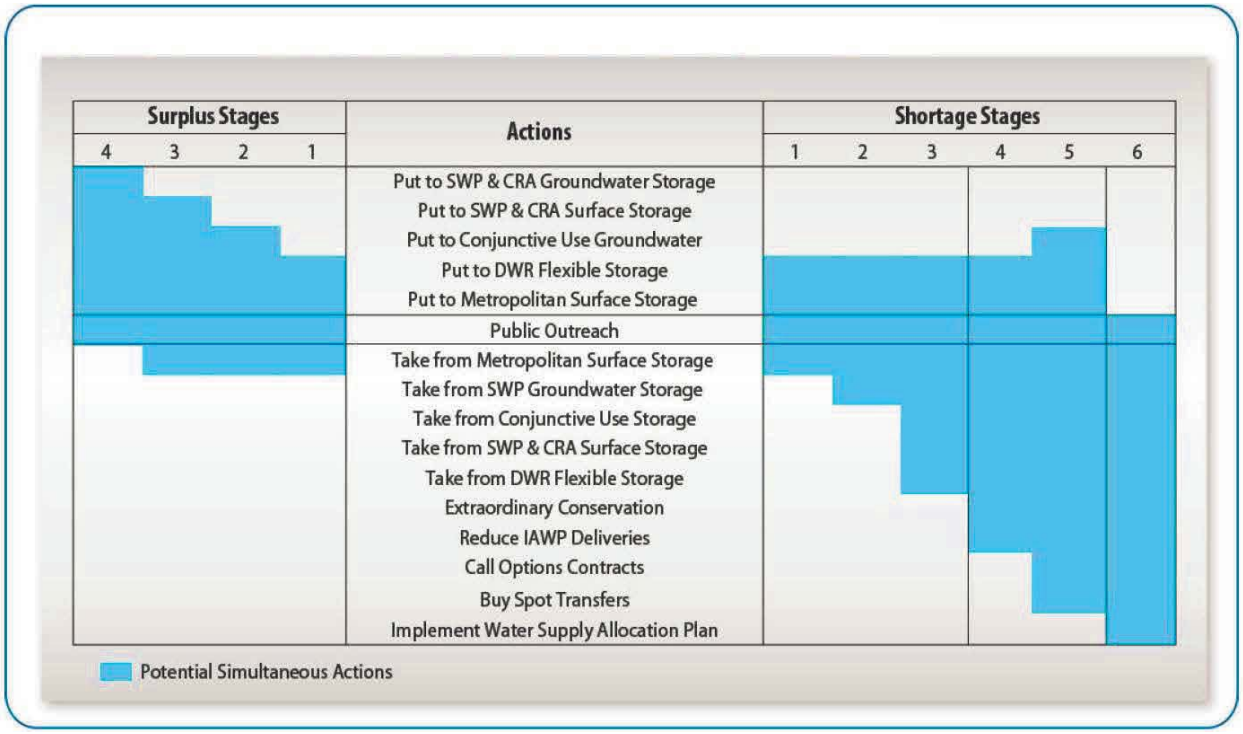


Figure 5-1: Resource Stages, Anticipated Actions, and Supply Declarations

Metropolitan's Board of Directors adopted a Water Supply Condition Framework in June 2008 in order to communicate the urgency of the region's water supply situation and the need for further water conservation practices. The framework has four conditions, each calling increasing levels of conservation. Descriptions for each of the four conditions are listed below:

- Baseline Water Use Efficiency: Ongoing conservation, outreach, and recycling programs to achieve permanent reductions in water use and build storage reserves.
- Condition 1 Water Supply Watch: Local agency voluntary dry-year conservation measures and use of regional storage reserves.
- Condition 2 Water Supply Alert: Regional call for cities, counties, member agencies, and retail water agencies to implement extraordinary conservation through drought ordinances and other measures to mitigate use of storage reserves.
- Condition 3 Water Supply Allocation: Implement Metropolitan's WSAP

As noted in Condition 3, should supplies become limited to the point where imported water demands cannot be met, Metropolitan will allocate water through the WSAP (Metropolitan, 2015 UWMP, May 2016).

5.2.2 Metropolitan Water Supply Allocation Plan

Metropolitan's imported supplies have been impacted by a number of water supply challenges as noted earlier. In case of extreme water shortage within the Metropolitan service area is the implementation of its WSAP.

Metropolitan's Board of Directors adopted the WSAP in February 2008 to fairly distribute a limited amount of water supply and applies it through a detailed methodology to reflect a range of local conditions and needs of the region's retail water consumers.

The WSAP includes the specific formula for calculating member agency supply allocations and the key implementation elements needed for administering an allocation. Metropolitan's WSAP is the foundation for the urban water shortage contingency analysis required under Water Code Section 10632 and is part of Metropolitan's 2015 UWMP.

Metropolitan's WSAP was developed in consideration of the principles and guidelines in Metropolitan's 1999 WSDM Plan with the core objective of creating an equitable "needs-based allocation". The WSAP's formula seeks to balance the impacts of a shortage at the retail level while maintaining equity on the wholesale level for shortages of Metropolitan supplies of up to 50 percent. The formula takes into account a number of factors, such as the impact on retail customers, growth in population, changes in supply conditions, investments in local resources, demand hardening aspects of water conservation savings, recycled water, extraordinary storage and transfer actions, and groundwater imported water needs.

The formula is calculated in three steps: 1) based period calculations, 2) allocation year calculations, and 3) supply allocation calculations. The first two steps involve standard computations, while the third step contains specific methodology developed for the WSAP.

Step 1: Base Period Calculations – The first step in calculating a member agency's water supply allocation is to estimate their water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of supply and demand is calculated using data from the two most recent non-shortage fiscal years ending 2013 and 2014.

Step 2: Allocation Year Calculations – The next step in calculating the member agency's water supply allocation is estimating water needs in the allocation year. This is done by adjusting the base period estimates of retail demand for population growth and changes in local supplies.

Step 3: Supply Allocation Calculations – The final step is calculating the water supply allocation for each member agency based on the allocation year water needs identified in Step 2.

In order to implement the WSAP, Metropolitan's Board of Directors makes a determination on the level of the regional shortage, based on specific criteria, typically in April. The criteria used by Metropolitan includes, current levels of storage, estimated water supplies conditions, and projected imported water demands. The allocations, if deemed necessary, go into effect in July of the same year and remain in effect for a 12-month period. The schedule is made at the discretion of the Board of Directors.

Although Metropolitan's 2015 UWMP forecasts that Metropolitan will be able to meet projected imported demands throughout the projected period from 2020 to 2040, uncertainty in supply conditions can result

in Metropolitan needing to implement its WSAP to preserve dry-year storage and curtail demands (Metropolitan, 2015 UWMP, May 2016).

5.2.3 MWDOC Water Supply Allocation Plan

To prepare for the potential allocation of imported water supplies from Metropolitan, MWDOC worked collaboratively with its 28 retail agencies to develop its own WSAP that was adopted in January 2009 and amended in 2015. The MWDOC WSAP outlines how MWDOC will determine and implement each of its retail agency's allocation during a time of shortage.

The MWDOC WSAP uses a similar method and approach, when reasonable, as that of the Metropolitan's WSAP. However, MWDOC's plan remains flexible to use an alternative approach when Metropolitan's method produces a significant unintended result for the member agencies. The MWDOC WSAP model follows five basic steps to determine a retail agency's imported supply allocation.

Step 1: Determine Baseline Information – The first step in calculating a water supply allocation is to estimate water supply and demand using a historical based period with established water supply and delivery data. The base period for each of the different categories of demand and supply is calculated using data from the last two non-shortage fiscal years ending 2013 and 2014.

Step 2: Establish Allocation Year Information – In this step, the model adjusts for each retail agency's water need in the allocation year. This is done by adjusting the base period estimates for increased retail water demand based on population growth and changes in local supplies.

Step 3: Calculate Initial Minimum Allocation Based on Metropolitan's Declared Shortage Level – This step sets the initial water supply allocation for each retail agency. After a regional shortage level is established, MWDOC will calculate the initial allocation as a percentage of adjusted Base Period Imported water needs within the model for each retail agency.

Step 4: Apply Allocation Adjustments and Credits in the Areas of Retail Impacts and Conservation– In this step, the model assigns additional water to address disparate impacts at the retail level caused by an across-the-board cut of imported supplies. It also applies a conservation credit given to those agencies that have achieved additional water savings at the retail level as a result of successful implementation of water conservation devices, programs and rate structures.

Step 5: Sum Total Allocations and Determine Retail Reliability – This is the final step in calculating a retail agency's total allocation for imported supplies. The model sums an agency's total imported allocation with all of the adjustments and credits and then calculates each agency's retail reliability compared to its Allocation Year Retail Demand.

The MWDOC WSAP includes additional measures for plan implementation, including the following:

- Appeal Process – An appeals process to provide retail agencies the opportunity to request a change to their allocation based on new or corrected information. MWDOC anticipates that under most circumstances, a retail agency's appeal will be the basis for an appeal to Metropolitan by MWDOC.
- Melded Allocation Surcharge Structure – At the end of the allocation year, MWDOC would only charge an allocation surcharge to each retail agency that exceeded their allocation if MWDOC exceeds its total allocation and is required to pay a surcharge to Metropolitan. Metropolitan enforces

allocations to retail agencies through an allocation surcharge to a retail agency that exceeds its total annual allocation at the end of the 12-month allocation period. MWDOC's surcharge would be assessed according to the retail agency's prorated share (acre-feet over usage) of MWDOC amount with Metropolitan. Surcharge funds collected by Metropolitan will be invested in its Water Management Fund, which is used to in part to fund expenditures in dry-year conservation and local resource development.

- Tracking and Reporting Water Usage – MWDOC will provide each retail agency with water use monthly reports that will compare each retail agency's current cumulative retail usage to their allocation baseline. MWDOC will also provide quarterly reports on it cumulative retail usage versus its allocation baseline.
- Timeline and Option to Revisit the Plan – The allocation period will cover 12 consecutive months and the Regional Shortage Level will be set for the entire allocation period. MWDOC only anticipates calling for allocation when Metropolitan declares a shortage; and no later than 30 days from Metropolitan's declaration will MWDOC announce allocation to its retail agencies.

5.2.4 Santa Margarita Water District

The District Board of Directors adopted its Comprehensive Water Conservation Program Ordinance No. 2014-10-03 in October 2014, which established a staged water conservation program that will encourage reduced water consumption within the District through conservation, enable effective water supply planning, assure reasonable and beneficial use of water, prevent waste of water, and maximize the efficient use of water within the District. Along with permanent water conservation requirements, the District's Water Conservation and Water Supply Shortage program consists of the following four stages found in Table 5-1 to respond to a reduction in potable water available to the District for distribution to its customers. Stage 1 water use measures are in effect at all times unless a mandatory conservation stage (stages 2, 3, and 4) is issued by the District's Board of Directors (Santa Margarita Water District, Ordinance No. 2014-10-03, October 2014).

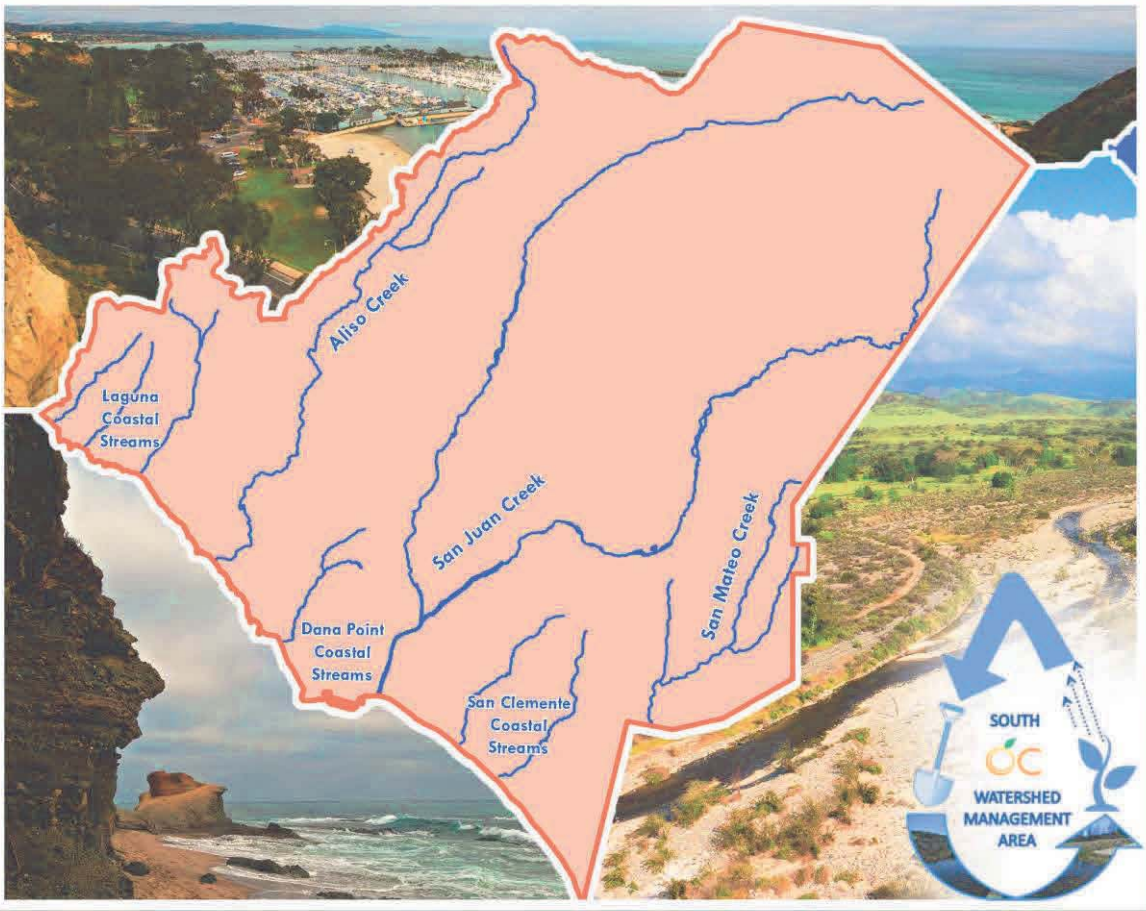
Figure 6-1: Proposed Califia Recycled Water System

Rancho Santa Margarita Recycle Conversion – The District is planning recycled water conversions in the City of Rancho Santa Margarita with an estimated budget of $13 million to provide approximately 1,000 AFY of recycled water. All of these conversions will provide recycled water for landscape irrigation (Santa Margarita Water District, Comprehensive Annual Financial Report Fiscal Year Ended June 30, 2015).

Trampas Canyon - The Trampas reservoir, located south of Ortega Highway, is an existing reservoir constructed between 1973 and 1975 that is currently being used as a tailing retention facility for a quarry. The District is preparing plans to rebuild the dam and increase the reservoir capacity to 5,000 AF (Santa Margarita Water District, Final Initial Study and Mitigated Negative Declaration for Califia Recycled Water Project, June 2015). The reservoir will be used to store recycled water from the CWRP approximately 1.5 miles north of the reservoir site and will allow for expansion of the District's recycled water system.

INTEGRATED REGIONAL WATER MANAGEMENT PLAN

FOR SOUTH ORANGE COUNTY



Entity	*IRWM Plan Authority or IRWM Plan Support*
IRWM Group Jurisdictions	**IRWM Plan Authority**
Pacific Marine Mammal Center	Organizational support for programs related to ocean stewardship through research, education and collaboration
Surfrider Foundation- South Orange County Chapter	Funding, volunteers, and organizational support for programs related to coastal water quality, water conservation, and water recycling
San Juan Basin Authority	Groundwater management, water conservation, water quality
San Diego Regional Water Board	Provide critical water quality decisions including: setting standards, issuance of permits for discharges, and enforcement actions.
USACE, Southern California offices	Project planning and implementation related to waters of the United States and natural resources
USDA, Forest Service, Cleveland National Forest	Project planning and implementation related to forest and watershed management in partnership with the County of Orange

2.5 Public Outreach and Involvement Process

2.5.1 Summary of Outreach and Communication

As discussed in **Section 11**, the South Orange County IRWM Group uses a variety of methods to engage the general public. The IRWM Group provides balanced access and opportunity for participation in the IRWM process. They include participating in stakeholder workshops, inclusion in the IRWM process via public EC meetings, communication via email and information sharing via the South OC WMA Data Management System (DMS) website[10]. The DMS represents both the mechanism for the South OC WMA to make available project data and the IRWM Plan and public engagement in the IRWM Plan update and project list development processes.

Since 2004, the South Orange County IRWM Group has provided informational presentations on the status and progress of the South Orange County IRWM efforts. As part of the process, in 2004 and 2005 the South Orange County IRWM Group developed goals and objectives as well

[10] The South OC WMA DMS provides project mapping, data, and resource planning tools in addition to providing general information about the WMA and IRWM Plan. The DMS provides links to other resources and contacts, where necessary.

as a prioritized list of projects. In 2010, the County started an update of the Plan and in 2011 formed an Ad Hoc Committee to lead the effort. The MC and Ad Hoc Committee updated the Plan to meet requirements in the Proposition 84 Guidelines. As a part of this effort the group defined new goals, objectives and strategies for the Region. A workshop was held to rank the goals and objectives for the Plan, which were then used for ranking projects in the Plan and grant applications.

For the 2018 IRWM Plan update, the same stakeholder-based process was utilized, whereby the MC and an Ad Hoc Committee of the MC updated the plan, a stakeholder workshop was held to solicit public and agency input and the plan was approved by the EC at the May 2018 meeting. An additional technical assistance workshop was held in February 2018 to familiarize stakeholders and IRWM Group representatives with the DMS and the online project submittal process conducted as part of this update. The 2018 IRWM Plan update meets the requirements of Proposition 1 Plan Standards and Guidelines.

2.5.2 Letters of Support from Non-Agency Stakeholders

The following list highlights the letters of support received from non-agency stakeholders in support of the IRWM Plan, as included in **Appendix E**. Please note that letters received after early June 2018 in support of the 2018 IRWM Plan will be added to **Appendix E** but may not be listed here. Letters of support include (but are not limited to):

- Pacific Marine Mammal Center. May 3, 2018, Keith Matassa, Executive Director; Jennifer Nevius, PE, Project Manager. Supports IRWM Plan Update and recognizes alignment between the IRWM Plan goals and Pacific Marine Mammal Center mission.
- Penny Elia. July 8, 2013. Environmental Advocate, Laguna Beach. Supports the opportunity to be part of the IRWM Group along with other important stakeholders that understand the importance of working together towards solutions.
- FluvialTech Inc. June 28, 2013. Hasan Nouri, P.E., Hoover Medalist, President. Supports development of the IRWM Plan.
- Miocean. June 28, 2013. Patrick R. Fuscoe, Chairman. Supports coastal area projects for improved coordination among local agencies with shared responsibilities for watershed management, clean water programs, water supplies, development of local resources, and protection of our natural resources.
- South Laguna Civic Association. June 26, 2013, Michael Beanan, Vice President. Supports the management of the Aliso Creek Watershed and watershed management throughout the Region.
- Surfrider Foundation. June 24, 2013, Rick Wilson, Coastal Management Coordinator. Supports watershed management, clean water programs, water supplies, development of local resources, and protection of our natural resources.
- Audubon California, Starr Ranch Sanctuary. February 5, 2013, Sandy DeSimone, Ph. D., Director – Research and Education. Supports progressive and inclusive approach to water conservation in the Region.

- Orange County Business Council. January 13, 2005, Terry Hartman, Chair, Infrastructure Committee; Julie Puentes, Executive VP Public Affairs. Supports collaborative effort for water reliability in the WMA.
- MIOCEAN. March 4, 2005, Patrick R. Fusco, P.E., Chairman. Supports organization of the South Orange County IRWM Group to prioritize and implement projects in the WMA.
- Surfrider, Laguna Beach Chapter. June 13, 2006, Rick Wilson, Chairman. Supports IRWM Plan's holistic, region-wide approach to water management and open dialogue it has facilitated in South Orange County.

2.6 Working Relationship of South Orange County IRWM Group

2.6.1 Regional Participation and Project Coordination

As discussed earlier, participants in the South Orange County IRWM Group have worked individually and collaboratively over 30 years to develop and integrate regional strategies that address water resource issues, raise awareness for watershed management practices, and to coordinate numerous and varied water management projects.

IRWM Plan Development & Updates

The first meeting of the South Orange County IRWM Group was held in 2004 and was attended by multiple stakeholders in South Orange County, including County staff, local cities, and several water and wastewater agencies. The South Orange County IRWM Group identified preliminary goals, objectives, and priorities for meeting the water resource needs of the region, and set a schedule for future meetings.

Meetings were held at least twice a month through the development of the 2005 IRWM Plan. The South Orange County IRWM Group continues to inform and invite additional stakeholders to the South Orange County IRWM Group meetings, and the South Orange County IRWM Group has grown to represent 21 member agencies and several other stakeholder groups, agencies and non-profits. Stakeholders supporting the IRWM Plan represent agencies and organizations that have developed an integrated approach to addressing the objectives and water management strategies of the IRWM Plan. Refer to Section 4 for discussion on the collaborative process used to establish plan objectives. Significant progress has been made to identify the myriad of projects that are to be included in existing plans and incorporating those projects into the IRWM Plan. A comprehensive list of South Orange County IRWM Group meetings and workshops is included below.

As the 2005 South Orange County IRWM Plan was being developed, numerous iterations of the Draft South Orange County IRWM Plan were made available to the South Orange County IRWM Group and public stakeholders for review and comment. Comments were received, reviewed, and discussed by multiple participants of the South Orange County IRWM Group prior to incorporation into the Final South Orange County IRWM Plan.

In September 2009, the South Orange County WMA was recognized as a Region during the RAP. With the funding of the South Orange County IRWM Group's seven projects underway and the release of the new Proposition 84 IRWM Plan Standards, the South Orange County IRWM Group identified areas of the existing South Orange County IRWM Plan (adopted in 2005) that

4.2 Development of WMA Objectives

The IRWM Plan considers long-term regional planning for flood management, water quality, water supply and reliability, WUE and natural resources facing the WMA over the next 20 to 50 years. These approaches to watershed planning reflect the regional goals of the South Orange County WMA, as described above, and set the foundation for developing regional objectives. This section of the IRWM Plan provides further discussion of IRWM Group efforts to meet the diverse set of watershed-scale goals, balance water needs and resolve potential water issues through development of objectives; this process considered collaboration, coordination and implementation of projects through IRWM Group planning. In addition to WMA priorities, he South Orange County IRWM Group considers the IRWM Planning Standards in developing objectives, including new requirements for climate change in the 2016 approved standards.

Through EC meetings (at least three times per year) and MC meetings (quarterly at a minimum), and stakeholders workshops the participants developed IRWM Plan objectives. In developing the objectives, the South Orange County IRWM Group considered Regional Conflicts, Basin Plan Objectives, California's 20x2020 Water Conservation Plan, climate change impacts, and WMA priorities. Measurable goals were identified for each strategy category and subsequently used to prioritize projects. The objectives are measurable milestones that will enable the community to track progress toward maintaining a natural balance in watershed resources. Additional work was performed by the IRWM Group since 2013 to further refine the strategies and objectives to develop overarching measurable goals for the objectives that can be directly associated with projects to allow for a clearer assessment of progress made and to meet new 2016 guidelines on climate change. Objectives provide the foundation for assessment of projects in the IRWM Plan; as such, the overarching metrics for the four primary goals and associated objectives (which provide detail) consider local planning priorities associated with the categories in **Figure 4-2**. The objectives and measurable goals are included in **Appendix K**.

4.2.1 Regional Issues/Challenges

In developing the objectives, the stakeholders considered long-term regional planning conflicts and issues including identification of enhanced local water supplies to offset reduction of imported water to meet demands during times of drought. Though many projects are planned over the next 10 to 20 years to help achieve this goal, much more long-term planning, as well as implementation of integrated projects in all categories included in this IRWM Plan, is necessary to reach that goal. **Section 3.7** provides greater detail of the considerations IRWM Group members make related to water-related issues/conflicts related to water supply, water system reliability, water conservation, recycled water, groundwater management, water quality management, flood management, wastewater management, and climate change.

The IRWM Plan focuses on the South Orange County WMA vision of total watershed efficiency. The Plan primarily builds upon the projects and plans of the member agencies, with an emphasis on water supply, water reliability, and WUE. The key challenges facing South Orange County are reflected in each of the individual member agencies' responsibilities. Similar to other regions, the South OC IRWM Group continues to collectively collaborate on the areas identified in **Section 3.7** and reiterated in **Table 4-2** below:

Table 4-2: Areas of IRWM Group Collaboration

Areas of IRWM Group Collaboration for Establishment of Objectives		
Water Supply	Recycled Water	Flood Management
Water System Reliability	Groundwater Management	Wastewater System
Water Conservation	Water Quality Management	Environmental Stewardship

As described in **Section 3.7.3**, the South Orange County IRWM Group considers water challenges and opportunities for collaboration on projects and other efforts to address and balance issues within the region. Of note in **Section 3.7.3** is the balance of groundwater recharge of the SJVGB with surface water quality, natural resource protection/enhancement and previous land use.

4.2.2 Tri-County FACC Issues/Conflicts

The Tri-County FACC is a formal partnership established in April 2009 through joint adoption of an MOU outlining measures for inter-regional coordination. **Section 2.8** describes the working relationships of the Tri-County FACC and **Section 2.9** provides greater detail on Tri-FACC governance structure. The efforts of the Tri-County FACC are intended to enhance the quality of water resource planning and to improve the quality and reliability of water in the San Diego Funding Area. This partnership is a unique opportunity to collaborate with neighboring planning regions to address common objectives, issues, and conflicts. Of particular significance, the Santa Margarita River watershed has been subject to over 80 years of water rights litigation, studies, and hearings. In 1990, the "Four Party Agreement" between RCWD, Fallbrook Public Utility District, Eastern MWD, and Camp Pendleton attempted to address the conflict through discharge of recycled water to the Santa Margarita River for groundwater recharge. However, the ongoing conflict now involves uncertainty about meeting Regional Board effluent standards, which dictates the ability of RCWD to discharge into the watershed. The new partnership between San Diego and Riverside county agencies via the Tri-County FACC is helping to address those conflicts.

4.2.3 Basin Plan Objectives & WMA Water Quality Concerns

The Basin Plan is the Regional Board's plan for achieving the balance between competing uses of surface and groundwaters in the San Diego Region. The Basin Plan establishes or designates beneficial uses and water quality objectives for all the ground and surface waters of the Region. This South Orange County IRWM Plan incorporates the Basin Plan in its objectives to Improve Water Quality (WQ): WQ-1 - Comply with CWA and Porter-Cologne and WQ-2 - Protect beneficial uses of receiving waters. The South Orange County WMA includes the area that encompasses the SJHU in South Orange County, California, as defined in the Basin Plan.

4.2.4 Water Efficiency Goals

California's 20x2020 *Water Conservation Plan* sets forth a statewide road map to maximize the state's urban water efficiency and conservation opportunities between 2009 and 2020, and beyond. It aims to set in motion a range of activities designed to achieve the 20 percent per

capita reduction in urban water demand by 2020. These activities include improving an understanding of the variation in water use across California, promoting legislative initiatives that incentivize water agencies to promote water conservation, and creating evaluation and enforcement mechanisms to assure regional and statewide goals are met.

The South Orange County IRWM Group considered California's 20x2020 Water Conservation Plan in identifying the long-term water supply and water quality issues facing the WMA over the next 20 to 50 years. All project categories within this plan are essential to maximizing limited water resources, including enhancing water efficiency and conservation. The water supply and water conservation objectives reflect the WMA's effort to meet the 20x2020 water efficiency goals.

As discussed in MWDOC's 2015 Regional Urban Water Management Plan (UWMP), MWDOC in collaboration with all of its retail agencies as well as the cities of Anaheim, Fullerton, and Santa Ana, created the Orange County 20x2020 Regional Alliance in an effort to create flexibility in meeting the per capita water use reduction targets required under SBx7-7 in 2009. This Regional Alliance allows all of Orange County to benefit from regional investments such as the GWRS, recycled water, and WUE. The members of the Orange County 20x2020 Regional Alliance are shown below:

Members of Orange County 20x2020 Regional Alliance	
Anaheim	Moulton Niguel Water District
Brea	Newport Beach
Buena Park	Orange
East Orange County Water District	San Clemente
El Toro Water District	San Juan Capistrano
Fountain Valley	Santa Ana
Fullerton	Santa Margarita Water District
Garden Grove	Seal Beach
Golden State Water Company	Serrano WD
Huntington Beach	South Coast Water District
Irvine Ranch Water District	Trabuco Canyon Water District
La Habra	Tustin
La Palma	Westminster
Laguna Beach County Water District	Yorba Linda Water District
Mesa Water District	

Within a Regional Alliance, each retail water supplier has an additional opportunity to achieve compliance under both an individual target and a regional water use target.

If the Regional Alliance meets its water use target on a regional basis, all agencies in the alliance are deemed compliant. If the Regional Alliance fails to meet its water use target, each individual supplier will have an opportunity to meet their water use targets individually. Individual water suppliers in the Orange County 20x2020 Regional Alliance will state their participation in the alliance, and include the regional 2015 and 2020 Urban Water Use Targets in their individual UWMPs. The Orange County 20x2020 Regional Alliance Regional Water Use target for 2015 was

176 Gallons per Capita Daily (GPCD) and for 2020 it is 158 GPCD; these targets are based on 2010 consensus data. Refer to MWDOC's 2015 Regional UWMP (Section 2.5) for individual supplier targets.

As the reporting agency for the Orange County 20x2020 Regional Alliance, MWDOC has documented the calculations for the regional urban water use reduction targets. MWDOC will also provide annual monitoring and reporting for the region on progress toward the regional per capita water use reduction targets.

4.2.5 Water Priorities for the WMA

As noted above, the WMA has established four primary goals for the region, balancing water priorities to holistically benefit watershed health and provide for water needs. The objectives discussed in **Section 4.3** considered water quality (**Section 3.3.4**), flood risk management (**Section 3.3.8**), water supply and wastewater management (**Section 3.3.7**) and habitat preservation/enhancement issues and priorities for the WMA. These align with State Resource Management Strategies (**Section 5**) and Statewide Priorities (**Section 4.1.1**).

4.3 WMA Objectives

The Objectives Standard requires that objectives must be measurable. A measurable objective means there must be some metric the WMA can use to determine if the objective is being met as the IRWM Plan is implemented. IRWM Plans are implemented through project implementation, which are associated with relevant measurable objectives. Metrics must apply to projects which in turn relate back to Plan objectives. Objectives are measured quantitatively or qualitatively, as appropriate. The South Orange County 2018 IRWM Plan objectives were reviewed by the IRWM Group for relevance to the WMA. Input from the Cities, water and wastewater districts, and the County was instrumental in updating the objectives to reflect current watershed, land use, and natural resources management plans for the WMA. Based on feedback, appropriate refinements to the objectives were made by the MC to reflect local planning such as the WQIP and OC Water Reliability Study. Climate change context was incorporated into the existing objectives for the 2018 IRWM Plan update and approved by the MC. **Appendix K** shows the goals and approved objectives that help meet each goal. The objectives were presented to stakeholders through review of the IRWM Plan.

For each objective a series of strategies were developed to identify examples of appropriate ways that objective could be met. The following sections identify example strategies identified for each objective. An example unit of measure was associated with each strategy (as shown on tables in the following sections). For project prioritization purposes, a score is associated with the relative benefit attained by the strategy; if a project can quantify benefits supportive of the objective strategy, the project receives a higher score. **Section 6.1.2** and **Appendix K** further define the objective measures and explain the scoring process. The following sections describe the objectives and strategies for each goal. Objectives and associated measures are reviewed and iteratively revised to best reflect developments in watershed health, water quality, water supply and flood management. These refined metrics are detailed in **Appendix K** and may be updated more frequently than the full IRWM Plan; **Appendix K** will be updated, as needed.

4.3.1 Integrate Flood Management Objectives and Strategies

To address flood management, OC Flood implements an integrated process under which they conduct feasibility, hydraulic, deficiency, floodplain and value-engineering studies, collect and analyze data on an on-going basis, and design and construct projects. The essential purpose of the Orange County Flood Control program is to protect Orange County life and property from the threat and damage of floods.[78] Specific strategic goals include: planning, designing, constructing, operating, and maintaining flood management infrastructure; and eliminating the need for residents to pay costly flood insurance by improving flood control systems and removing properties from FEMA floodplains. With the Orange County Flood Control Division's current budget to implement its regional infrastructure to provide the current protection threshold (100-year storm event), it will take over 90 years and cost more than $2.5 billion (2010 value) to achieve this goal. Historically the budget was expended entirely on capital improvement projects; however, rising costs associated with maintenance and mitigation have shifted more budget toward those activities. Additionally, OCPW responds to citizen concerns and flood emergencies

The following objectives and supportive strategies were developed for the WMA to provide adequate flood control throughout Orange County. Units are suggested and may be applicable to multiple strategies:

FM1: Improve conveyance and/or reliability of channelized flood control systems and related facilities and remove properties from the FEMA 100-year floodplain with consideration for climate change on flow regimes.

Strategy	Unit
Strategy: FM-1-S1 - Construct channel improvement projects (banks or within the channel) to convey the 100-year storm event	Conveyance Improvement Percent
Strategy: FM-1-S2 - Implement Local watershed improvements (e.g. raising land above base flood elevation, removing structures in floodplain)	Critical Infrastructure Protected, People per Acre, Repetitive Loss Properties Removed
Strategy: F-1-S3 - Remove impediments (e.g. sediment or invasive vegetation) to convey the 100-year storm event	Conveyance Maintained

FM2: Reduce scour and erosion to river, stream, and the channel banks:

Strategy	Unit
Strategy: FM-2-S1-Incorporate hydromodification retrofits to existing development	Acres Impacted
Strategy: FM-2-S2-Incorporate grade control structures or other improvements to reduce or eliminate scour and erosion to channel	Conveyance Maintained
Strategy: FM-2-S3- Minimize the potential impact of stormwater on canyon and channel stability, water quality, and habitat.	Peak Volume Detained

[78] County of Orange, 2013: OC Public Works Business Plan: http://www.ocpublicworks.com/about/busplan

FM3: Improve sub-regional facilities and local storm drain systems where historical flooding exists where the regional system has the capacity to accept the additional flows

Strategy	Unit
Strategy: FM-3-S1-Implement infrastructure improvements (e.g. storm drains, reservoirs)	Cost per Acre Protected
Strategy: FM-3-S2-Implement local improvements (e.g. rain gardens, cisterns, disconnect impervious areas)	Acres Impacted

FM4: Preserve or return floodplains as open space

Strategy	Unit
Strategy: FM-4-S1-Purchase land and dedicate as open space	Acres Purchased or Dedicated
Strategy: FM-4-S2-Implement stream channel naturalization efforts to promote riparian habitat and natural water quality treatment in concert with stable sediment transport.	Acres Restored or Protected

FM5: Planning, studies, research to acquire Best Data with consideration for climate change impacts

Strategy	Unit
Strategy: FM-5-S1-Update FEMA or other floodplain studies	Miles of Stream, or Square Miles Studied
Strategy: FM-5-S2-Improve OC Flood Deficiency Studies	Miles of Stream, or Square Miles Studied
Strategy: FM-5-S3-Obtain LiDAR within South Orange County WMA	Square Miles of Lidar Acquired
Strategy: FM-5-S4-Obtain new or updated discharges	Miles of Streams Updated
Strategy: FM-5-S5-Plan watershed improvements (e.g. raising land above flood elevation, removing structures in floodplain)	Acres Impacted
Strategy: FM-5-S6-Update ordinances and local plans to improve floodplain management approaches (e.g. adopt creek buffer ordinances)	YES/NO
Strategy: FM-5-S7-Research sea level rise coastal/estuary flooding impacts and potential mitigation efforts	Coastal or Estuary Acres protected

4.3.2 Objectives and Strategies to Improve Water Quality

Under Section 303(d) of the 1972 CWA, states, territories, and authorized tribes are required to develop a list of water quality limited segments. These waters do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The law requires that these jurisdictions establish priority rankings for water quality impairment on the list and develop action plans, referred to as TMDLs, to improve water quality. In South Orange County, the SWRCB and the Regional Board staff have evaluated each addition, deletion, and change to Section 303(d) based on all the data and

information available for each water body and pollutant.[79] **Section 3.4** provides greater detail on water quality priorities, regulations and current 303(d) listings that were considered in developing the objectives.

The following Water Quality Objectives and supportive regional strategies build upon the WMA's established goal of enhancing water quality:

WQ1: Control anthropogenic pollutants over the developed area of the South Orange County WMA

Strategy	Unit
Strategy: WQ-1-S1 - Implement pollution prevention measures, including non-structural BMPs, not including educational activities	Acres Affected
Strategy: WQ-1-S2: Implement structural controls	Acres Affected
Strategy: WQ-1-S3: Implement LID strategies targeting anthropogenic pollutants	YES/NO
Strategy: WQ-1-S4: Retrofit soil erosion and sedimentation controls (includes hydromodification)	Cubic Yards of Erosion Prevented
Strategy: WQ-1-S5: Improve or protect the quality of water that may reach a receiving water	Pollution Concentration Reduction
Strategy: WQ-1-S6: Improve or protect the quality of recycled water	Acre Feet
Strategy: WQ-1-S7: Implement measures to reduce health risk/rate of illness in recreational waters, where risk has been identified	Pollution Concentration Reduction

WQ2: Control anthropogenic dry weather flows from the developed area within the South Orange County WMA

Strategy	Unit
Strategy: WQ-2-S1-Implement dry weather flow prevention measures, including non-structural BMPs (i.e. onsite / source controls)	Acres Improved
Strategy: WQ-2-S2-Implement dry weather flow volume reduction measures (e.g. diversions)	Acres Impacted

WQ3: Control wet weather flows to meet NPDES MS4 permit criteria from developed acres within the South Orange County WMA with consideration for climate change to flow regimes

Strategy	Unit
Strategy: WQ-3-S1-Implement storm water prevention measures, including non-structural BMPs (i.e. onsite / source controls)	Acres Improved
Strategy: WQ-3-S2-Implement storm water structural controls	Acres Improved
Strategy: WQ-3-S3-Implement hydromodification management measures	Peak Volume Reduced

[79] County of Orange, 2003, *Drainage Area Management Plan*

WQ4: Improve water quality regulatory framework and/or awareness and/or knowledge of water quality issues within the South Orange County WMA

Strategy	Unit
Strategy: WQ-4S1-Conduct studies, planning, research, evaluations, or monitoring projects	YES/NO
Strategy: WQ-4-S2-Pursue site specific objectives (SSOs), Use Attainability Analysis (UAA), Qualitative Microbial Risk Assessment (QMRAs), development of subcategories of Beneficial Use Designations, etc.	YES/NO
Strategy: WQ-4-S3-Implement programs to comply with TMDLs	YES/NO
Strategy: WQ-4-S4-Develop and/or implement programs to educate and/or increase awareness and knowledge	YES/NO
Strategy: WQ-4-S5-Address pollution issues in a holistic, integrated manner.	YES/NO

Water Quality Solutions Align with Objectives

Improvement projects proposed by local agencies in the IRWM Plan suggest both direct and indirect solutions to water quality problems. The IRWM Group agencies conduct extensive water quality monitoring and plan projects to address water quality concerns within the WMA. The objectives above are reflective of these efforts. Examples of source and structural control techniques the IRWM Group employs to meet objectives for water quality are detailed in the ROWDs, WQIP, and Model WQMP/TGD for land development. Numerous projects are planned for the WMA to address the commitments of the WQIP and associated with beneficial use of stormwater and dry weather flows. Indeed, projects that accomplish multiple benefits, such as water quality improvement and potable water supply offset assist meeting multiple objectives of the WMA. In addition to the IRWM Plan Project List, projects included in the OC SWRP (**Appendix L**) provide examples of multi-benefit stormwater planning. **Section 6** and **Appendix F** provide greater detail about projects and the IRWM Plan Project List, respectively.

The objectives also consider progress made in South Orange County toward meeting the existing and proposed TMDL's, restrictions regarding ASBS's and NPDES water quality mandates. For more information about water quality improvements achieved by the County and Permittees, please reference the 2014 ROWD[80]. The ROWD analyses were referenced heavily in the development of the WQIP and will continue to inform water quality project prioritization.

4.3.3 Increase Water Supply, Reliability, and Efficiency Objectives and Strategies

As population and development increases in the WMA, the IRWM Group recognizes that additional investments in water supply are needed to continue providing adequate quantities of high quality water to meet demand. Water planning and development is required on a state, regional, and local level as competition for water from the Colorado River and State Water

[80] 2014 San Diego Region ROWD (http://prg.ocpublicworks.com/DocmgmtInternet/Search.aspx)

Project increases with increasing demand and climate change. WMA efforts will continue to focus efforts on increasing efficiency, conserving existing resources and increasing supply, where possible. It is noted that although the South Orange County WMA objectives do not directly impact the San Joaquin Delta and associated State Priorities or the Colorado River basin, it is vital that the WMA increase local reliability to relieve pressure on these limited resources. The 2016 OC Water Reliability Study[81] proposes planning actions to be undertaken in South Orange County to increase system reliability and meet water demands; the study considers both supply projects and efficiency-based efforts see **Section 3.7.2.2**. The following objectives and supportive regional strategies reflect the WMA's water supply, reliability, and efficiency planning. Units are suggested and may be applicable to multiple strategies:

WS1: Increase the supply of potable water

Strategy	Unit
Strategy: WS-1-S1-Develop groundwater supplies through groundwater investigations, well development, treatment plant improvements, basin infiltration/retention projects, basin enhancement and protection projects	Acre Feet Developed
Strategy: WS-1-S2-Develop ocean desalination supplies	Acre Feet Developed
Strategy: WS-1-S3-Indirect Potable Reuse / Direct Potable Reuse of wastewater resources	Acre Feet Conserved
Strategy: WS-1-S4-Capture and reuse and/or infiltration of Urban Runoff (dry weather and storm flow)	Acre Feet Captured
Strategy: WS-1-S5-Mitigate the impacts of projects that increase the supply of water	YES/NO

WS2: Increase the supply and use of non-potable water:

Strategy	Unit
Strategy: WS-2-S1-Develop Urban Runoff (dry and wet weather) supplies for irrigation use	Acre-Feet Captured
Strategy: WS-2-S2-Utilize regional and local projects to get greater distribution and use of recycled and other non-potable water (e.g., rain water capture systems)	Acre-Feet
Strategy: WS-2-S3-Increase distribution of recycled and non-potable water through pipeline and conversion projects	Acre-Feet

WS3: Improve reliability of all water supplies with consideration for climate change on local and external sources

[81] Orange County Water Reliability Study Executive Report (2016)

Strategy	Unit
Strategy: WS-3-S1-Increase groundwater storage and use (e.g. recharge, basin management, etc.)	Acre-Feet
Strategy: WS-3-S2-Increase surface water storage and use	Acre-Feet Improved
Strategy: WS-3-S3-Improve and increase water treatment systems	Acre-Feet Expanded
Strategy: WS-3-S4-Develop interconnections and delivery systems (backup systems) to enhance the reliability of delivery of imported water	60 Days without MET. 7 Days without power grid
Strategy: WS-3-S5-Develop storage in areas out of South Orange County that can be accessed to supply water under drought and emergency conditions, including water transfer facilities and agreements	Days of Emergency Supply
Strategy: WS-3-S6-Develop water delivery pipelines and system interconnections	YES/NO
Strategy: WS-3-S7-Protect aquifers from saltwater intrusion and contamination from natural or man-made sources	YES/NO
Strategy: WS-3-S8-Eliminate negative impacts to water resources, including removal of non-native plants (Arundo), improving water courses, runoff, storm flow systems to infiltrate, retain and reuse water	Acres Impacted
Strategy: WS-3-S9-Examine storage and major pipeline systems for earthquake vulnerability	YES/NO
Strategy: WS-3-S10-Develop an institutional operational and financial framework for sharing water in emergencies	YES/NO

WS4: Improve planning and awareness of water supply with consideration for climate change stresses

Strategy	Unit
Strategy: WS-4-S1-Complete a plan that evaluates Ocean Desalination	YES/NO
Strategy: WS-4-S2-Participate in Met Integrated Resources Planning and on-going evaluation /quantification of import supply and delivery vulnerability	YES/NO
Strategy: WS-4-S3-Complete a plan that optimizes groundwater and ocean desalination in conjunction with SJBA	YES/NO
Strategy: WS-4-S4-Complete a plan that assesses opportunities that maximizes local groundwater basin storage/annual yield and enhances efficiency of the groundwater basin.	YES/NO
Strategy: WS-4-S5-Evaluate water banking opportunities to transfer water into Orange County on a permanent and/or emergency basis	YES/NO
Strategy: WS-4-S6- Evaluate opportunities to develop regional recycled water seasonal storage and interagency connections to maximize the use of recycled water across individual agency service area boundaries	YES/NO
Strategy: WS-4-S7-Seek technical and funding assistance to support and encourage voluntary and/or mandated on-site customer recycled water conversions	YES/NO

Strategy: WS-4-S8-Advocate for local and regional (MWDOC/Met) support for participant supply and system reliability projects that translate into overall improved South Orange County reliability	YES/NO
Strategy: WS-4-S9- Develop a public education campaign or support local and regional collaboration to advance the value of water message and the economic benefits associated with dependable water supplies.	YES/NO
Strategy: WS-4-S10- Complete a study to explore the feasibility of developing institutional and financial arrangements that could be regionally employed to share water resources during an emergency.	YES
Strategy: WS-4-S11- Complete a study to assess the costs, benefits and issues associated with the use of rain water capture systems.	Cost Effectiveness ($/MG)
Strategy: WS-4-S12- Complete a study to develop a methodology to measure and quantify system/supply reliability improvements that increase the ability of individual agencies to increase days off the import system.	Days without MET
Strategy: WS-4-S13-Complete a study to understand potential impacts of sea level rise on water supply infrastructure near the coast.	YES/NO

WS5: Reduce consumption from outdoor residential, commercial, industrial, and institutional landscapes

Strategy	Unit
Strategy: WS-5-S1-Promote use/retrofitting of irrigation system distribution uniformity improvements	Acres or System Miles Upgraded
Strategy: WS-5-S2-Promote the use/retrofitting of low-volume irrigation technologies in urban landscapes	Acres Retrofitted
Strategy: WS-5-S3-Promote use of native and non-native California Friendly plants in urban landscapes	Acres Planted
Strategy: WS-5-S4-Promote the replacement of non-functional turf grass with California Friendly plantings	Acres or Square Feet Replaced
Strategy: WS-5-S5-Promote the use/retrofitting of smart timers in urban landscapes	Acres Retrofitted

WS6: Reduce consumption through enhanced water utility operations

Strategy	Unit
Strategy: WS-6-S1-Implement Distribution System Audit, Leak Detection and Repair programs following AWWA Standards	YES/NO
Strategy: WS-6-S2-Implement efficiency based rate structures	YES/NO
Strategy: WS-6-S3-Install Smart water metering infrastructure	YES/NO
Strategy: WS-6-S4-Implement meter repair and replacement programs following AWWA Standards	YES/NO

WS7: Reduce consumption from indoor residential, commercial, industrial, and institutional uses

Strategy	Unit
Strategy: WS-7-S1-Provide technical assistance and financial incentives to single- and multi-family residential consumers	YES/NO
Strategy: WS-7-S2-Promote use/retrofitting of water efficient plumbing fixtures in businesses and institutions	YES/NO
Strategy: WS-7-S3-Provide technical assistance and financial incentives for water efficiency to industrial manufacturers	YES/NO
Strategy: WS-7-S4-Promote use/retrofitting of water efficient plumbing fixtures in single- and multi-family homes	YES/NO

WS8: Research, evaluation, planning and education with consideration for climate change

Strategy	Unit
Strategy: WS-8-S1-Update water waste prevention regulations every five years	YES/NO
Strategy: WS-8-S2-Promote leak detection and repair	YES/NO
Strategy: WS-8-S3-Implement school education and public information programs to consumers	YES/NO
Strategy: WS-8-S4-Promote use of alternative landscape designs, including Low Impact Development, that maximize stormwater capture	YES/NO
Strategy: WS-8-S5-Provide technical assistance to single- and multi-family residential consumers	YES/NO
Strategy: WS-8-S6-Provide landscape water efficiency education to landscape owners and managers	YES/NO
Strategy: WS-8-S7-Update Orange County's WUE Master Plan every five years	YES/NO
Strategy: WS-8-S8-Other: research into efficiency factors of the technology	YES/NO

Water Reliability Solutions Align with Objectives

The IRWM Plan Project List (**Appendix F**) includes infrastructure improvements, desalting and recycling projects, and WUE programs that are planned for the South Orange County WMA. These projects generate not only drought year water supply, but “regular year” water supply as well. While these new water supplies may not contribute directly to long-term storage, they help reduce reliance on imported water and result in MET retaining higher levels of water in storage. Other planned projects, such as stormwater capture and treatment facilities, contribute directly to both short-term and long-term storage, but can be quite expensive. Diversion of floodwaters to recharge basins or to storage for reuse can mitigate some of the dangerous characteristics of flooding as well as augment available water supplies when cost effective. Watershed planning, including invasive species removal and other habitat restoration projects will enhance water quality and ecosystem vigor.

Project Title	Project Status	Project Description	Agency	Completion Date	Preliminary Project Ranking	Project Total Cost	Primary Project Goal	Potential Regional Project
AV Ranch Landscape Improvement Project	Planning	Retrofitting and improvement of existing landscape area. This includs the installation of smart and weather controled irrigation systems and planting drought resistant species	Aliso Viejo	TBD	TBD	TBD	TBD	TBD
AV Urban Runoff Capture and Reuse	TBD	TBD	Aliso Viejo	TBD	TBD	TBD	TBD	TBD
Bluebird Canyon and Diversion Structure Rehab	In Design	The City of Laguna Beach will demolish and rebuild the Bluebird Canyon Outfall and Diversion Structure, allowing increased storm water capture and recycling and providing increased regional water self-reliance.	City of Laguna Beach	2020	189.4	$ 750,000	Improve Water Quality	Yes
Alicia Parkway Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 3,800 lf of median island.	City of Laguna Hills	2020	73.3	$ 825,000	Increase Water Supply, Reliability and Efficiency	No
La Paz Road Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 1,800 lf of median island.	City of Laguna Hills	2020	73.3	$ 470,000	Increase Water Supply, Reliability and Efficiency	No
Laguna Hills Drive Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 3,800 lf of median island.	City of Laguna Hills	2020	73.3	$ 1,230,000	Increase Water Supply, Reliability and Efficiency	No
Moulton Parkway Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 1.0 mile of median island.	City of Laguna Hills	2020	73.3	$ 1,750,000	Increase Water Supply, Reliability and Efficiency	No
Oso Parkway Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 1.2 miles of median island.	City of Laguna Hills	2020	73.3	$ 2,125,000	Increase Water Supply, Reliability and Efficiency	No
Paseo de Valencia Median Island Rehabilitation	Planning	Replacement of turf with low water use/drought tolerant landscaping to reduce water consumption and urban runoff along 1.5 mile of median island.	City of Laguna Hills	2020	73.3	$ 2,590,000	Increase Water Supply, Reliability and Efficiency	No
Mission Viejo Trash and Runoff Abatement Project (TRAP): Phase 2: Los Alisos Blvd from Santa Margarita Parkway to Madero	In Design	Catch basin retrofit, irrigation efficiency/irrigation runoff prevention	City of Mission Viejo	06/30/2020	137.3	$ 1,520,000	Improve Water Quality	No
City-wide Equestrian Facility LID Improvement Project	In Design	City led public-private partnership to gain a dedicated source of groundwater basin recharge from LID improvements at equestrian facilities.	City of San Juan Capistrano	2020	196.2	$ 5,000,000	Improve Water Quality	Yes
L01 San Juan Creek Channel, Invert Stabilization	Planning	This project will accommodate the sheet pile walls that were inserted in 8 phases for protection against the 100-year storm event. The FEMA Special Flood Hazard Area, or 100-year floodplain will be removed and a Letter Of Map Revision (LOMR) will indicate	County of Orange, Orange County Flood Control District	June 30, 2022	58.7	$ 30,000,000	Integrate Flood Management	Yes
L01 San Juan Creek Channel, Pacific Ocean to Stonehill Drive	Planning	This project is downstream of the last 8 phases that were constructed with sheet pile walls and the invert stabilization will have been completed. This project is in the planning stage and may include sheet pile walls for protection against the 100-year	County of Orange, Orange County Flood Control District	June 30, 2027	58.7	$ 21,500,000	Integrate Flood Management	Yes
L02 Trabuco Creek Channel, Phase 8	In Design	This project is the last phase of 8 and will implement installation of sheet pile walls for protection against the 100-year storm event. The FEMA Special Flood Hazard Area, or 100-year floodplain will be removed and a Letter Of Map Revision (LOMR) will in	County of Orange, Orange County Flood Control District	June 30, 2023	59.1	$ 12,300,000	Integrate Flood Management	Yes
San Juan Creek L01S02 Subwatershed Storm Drain BMPs	Planning	High priority major storm drain (11' BY 20' double box culvert) storm water BMPs (harvest, treatment and redirect and/or infiltrate), including trash removal unit in the San Juan Creek subwatershed, L01S02. Includes Arrundo removal component.	Dana Point	max. 1 year after funding acquired	116	$ 800,000	Improve Water Quality	Yes
KelpPod Laguna	In Design	Research and develop offshore kelp forests to mitigate anthropogenic contaminates from urban runoff and secondary sewage discharges to regulated coastal receiving waters	Laguna Bluebelt Coalition	January 1, 2020	TBD	$ 500,000	Protect and Enhance Natural Resources	Yes
Aliso Creek Urban Runoff (ACWRF)	Previous Project	Remove excess urban runoff, increase recycled water , control flood management for Aliso Estuary Restoration Project	Laguna Bluebelt Coalition w/SCWD and SOCWA	January 1, 2020	TBD	$ 2,300,000	Protect and Enhance Natural Resources	Yes
South Orange County Irrigation Efficiency, Runoff Reduction, and Pollution Prevention Program	Planning	The Municipal Water District of Orange County (MWDOC) proposes the implementation of a comprehensive and holistic regional water use efficiency improvement program targeting public agency, residential, commercial, industrial, and institutional properties	Municipal Water District of Orange County (MWDOC)	9/2024	250.9	$ 5,737,034	Increase Water Supply, Reliability and Efficiency	Yes
PMMC Water Treatment/Recycling System	In Design	PMMC is designing a water treatment/recycling system that will reduce its water usage by 85-90% (4 to 5 million gallons/year), provide ongoing public educational opportunities regarding water conservation, and improve facility operations and patient care.	Pacific Marine Mammal Center	12/2019	207.4	$ 2,400,000	Increase Water Supply, Reliability and Efficiency	No
Joint Recycled Water Conveyance Project	Planning	The proposed Project is a regional recycled water line shared with MNWD and possibly El Toro Water District.	Santa Margarita Water District	August 2020	233.5	$ 24,000,000	Increase Water Supply, Reliability and Efficiency	Yes
Recycled Water Conversions - Las Flores Improvement District No. 4B	In Design	The Project includes expanding the recycled water distribution system to allow for conversion of the dedicated irrigation systems from domestic water.	Santa Margarita Water District	June 2019	233.3	$ 4,900,000	Increase Water Supply, Reliability and Efficiency	Yes
Recycled Water Conversions - Melinda Improvement District No. 3A	Planning	The Project includes expanding the recycled water distribution system to allow for conversion of dedicated irrigation systems from domestic water.	Santa Margarita Water District	June 2020	233.3	$ 2,370,000	Increase Water Supply, Reliability and Efficiency	Yes
Recycled Water Conversions– Rancho Santa Margarita (RSM) Improvement District No. 4A	Planning	The Project includes expanding the recycled water distribution system to allow for conversion of the RSM dedicated irrigation systems from domestic water.	Santa Margarita Water District	June 2021	233	$ 13,000,000	Increase Water Supply, Reliability and Efficiency	Yes
Recycled Water Upgrades in San Clemente	Planning	The Project includes A) Upgrade City of San Clemente Recycled Water Pumps and B) Install Recycled water pumps at Pico Lift Station Site.	Santa Margarita Water District	February 2020	233.3	$ 1,200,000	Increase Water Supply, Reliability and Efficiency	Yes
San Juan Watershed Phase 1 Project	In Design	The Project includes enhancing groundwater recharge in the San Juan Basin aquifer for potable water sources.	Santa Margarita Water District	December 2019	259.7	$ 23,000,000	Increase Water Supply, Reliability and Efficiency	Yes
Advanced Metering Infrastructure (AMI) Project Phase 2	Planning	The AMI Project includes the upgrade existing Automatic Meter Reading (AMR) water meters (currently read via vehicle drive-by) with an AMI cellular base technology system that will automatically collect and store hourly consumption data.	South Coast Water District	January 2022	234.3	$ 6,000,000	Increase Water Supply, Reliability and Efficiency	Yes
Doheny Ocean Desalination Plant Project including alternative energy (i.e. solar, fuel cell, battery storage, etc.)	In Design	Project includes Design, Permit & installation of Solar Energy Panels (or natural gas fuel cells, battery storage, etc.) on District property to provide alternative energy power source. Power will be utilized at the Doheny Ocean Desalination Plant.	South Coast Water District	March 2021	251.6	$ 107,000,000	Increase Water Supply, Reliability and Efficiency	Yes
Golden Lantern/Stonehill Recycled Water Distribution Improvements Project (Project) (Bottleneck No. 2)	In Design	Project consists of correcting existing pressure deficiencies in the recycled water distribution system and extending the recycled water distribution system to serve targeted Tier A Conversion customers.	South Coast Water District	September 2019	234.2	$ 5,500,000	Increase Water Supply, Reliability and Efficiency	Yes
Recycled Water Distribution System Expansion (Construction)	Planning	Conversion of existing Potable Water irrigation customers to Recycled Water, expansion of existing Recycled Water Infrastructure to serve additional customers, and conduct ongoing public education programs. (Construction)	South Coast Water District	June 2021	233.7	$ 3,000,000	Increase Water Supply, Reliability and Efficiency	Yes

Appendix B – Letters of Support

CAPITOL OFFICE
STATE CAPITOL, ROOM 305
SACRAMENTO, CA 95814
TEL (916) 651-4036
FAX (916) 651-4936

DISTRICT OFFICES
24031 EL TORO ROAD
SUITE 201A
LAGUNA HILLS, CA 92653
TEL (949) 598-5850
FAX (949) 598-5855

169 SAXONY ROAD
SUITE 103
ENCINITAS, CA 92024
TEL (760) 642-0809
FAX (760) 642-0814

SENATOR.BATES@SENATE.CA.GOV
WWW.SENATE.CA.GOV/BATES

California State Senate

SENATOR
PATRICIA C. BATES
THIRTY-SIXTH SENATE DISTRICT

COMMITTEES
APPROPRIATIONS
VICE CHAIR
JOINT RULES COMMITTEE
JOINT LEGISLATIVE BUDGET COMMITTEE
JOINT LEGISLATIVE COMMITTEE ON EMERGENCY MANAGEMENT

March 18, 2019

Mr. Daniel R. Ferons
General Manager
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, California 92688

Dear Mr. Ferons,

It is a pleasure to support Santa Margarita Water District's (SMWD) application for grant funding from the U.S. Bureau of Reclamation's WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2019. I understand the grant would help fund SMWD's Las Flores Enhanced Water Reliability Project.

The project will consist of recycled water distribution system enhancements in the community of Las Flores. It will result in converting 35 existing irrigation users from potable to recycled water and will allow additional recycled water to be supplied in place of potable (imported) water currently being used. The project will also allow for the expansion of the recycled water distribution system to potentially serve portions of Rancho Santa Margarita in the future.

I believe this project will help make South Orange County less dependent on imported water supplies. Additionally, the use of recycled water in place of imported water will result in energy savings, as it will reduce the need to pump and distribute imported potable water from either Northern California or the Colorado River to Southern California.

If you have any questions about this letter, please do not hesitate to contact my Laguna Hills office at 949.598.5850.

Sincerely,

PATRICIA C. BATES
Senator, 36th District

STATE CAPITOL, ROOM 3141
P.O. BOX 942849
SACRAMENTO, CA 94249-0073
(916) 319-2073
FAX (916) 319 2173

DISTRICT OFFICE
29122 RANCHO VIEJO ROAD, SUITE 111
SAN JUAN CAPISTRANO, CA 92675
(949) 347-7301
FAX (949) 347-7302

Assembly
California Legislature

WILLIAM P. BROUGH
ASSEMBLYMEMBER, SEVENTY-THIRD DISTRICT

COMMITTEES
VICE CHAIR: BUSINESS AND PROFESSIONS
VICE CHAIR: REVENUE AND TAXATION
APPROPRIATIONS
BUDGET
COMMUNICATIONS AND CONVEYANCE
GOVERNMENTAL ORGANIZATION
VETERANS AFFAIRS

SELECT COMMITTEE
PORTS AND GOODS MOVEMENT

March 5, 2019

Dan Ferons, P
General Manager
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688
Danf@smwd.com

Subject: Letter of Support: Santa Margarita Water District's (SMWD) Las Flores Enhanced Water Reliability Project Grant Application to the U.S. Department of the Interior, Bureau of Reclamation's (Reclamation) WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2019

Dear Mr. Ferons:

I am writing in strong support of the application by SMWD for funding from Reclamation's WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2019. This grant would help fund the SMWD **Las Flores Enhanced Water Reliability (Project)**.

The Project will consist of recycled water distribution system enhancements in the community of Las Flores by converting 35 existing irrigation users from potable to recycled water and allow additional recycled water to be supplied in place of potable (imported) water. The Project will also allow for the expansion of the recycled water distribution system to potentially serve areas of Rancho Santa Margarita in the future.

South Orange County has been a leader in efforts to promote water use efficiency by increasing the local recycled water supply and reducing dependency on imported supplies and the Las Flores Enhanced Water Reliability Project will argument these efforts. Additionally, the use of recycled water in place of imported water will result in energy savings, as it will reduce the need to pump and distribute imported potable water from either northern California or the Colorado River to southern California.

I believe the Project supports the greater South Orange County region's long-term goal of water supply reliability. The proposed Project is consistent with our goal to enhance water use efficiency and energy efficiency in the region through increased recycled water supply, and for those reasons I am in full support of the Project and SMWD's WaterSMART grant application.

If you have any questions or need additional information regarding support of this project, please do not hesitate to contact me t my Capitol office t 916-319-2073.

Sincerely,

William P. Brough
Assembly 73rd District

las FLORES

L.F. MAINTENANCE CORPORATION
FirstService Residential

February 2018

The Hon. Justin McCusker
President, Board of Directors
Santa Margarita Water District
26111 Antonio Parkway
Rancho Santa Margarita, CA 92688

Subject: Letter of Support for Santa Margarita Water District's (SMWD) Las Flores Enhanced Water Reliability Project Grant Application to the U.S. Department of the Interior, Bureau of Reclamation's (Reclamation) WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2018

Dear Director McCusker:

This letter is in response to your request for support of the SMWD application for grant funding from Reclamation's WaterSMART Drought Response Program: Drought Resiliency Projects for FY 2018. This grant would help fund the SMWD **Las Flores Enhanced Water Reliability ("Project")**. The Project will consist of recycled water distribution system enhancements, including the installation of approximately 3800 linear feet of 16-inch pipe and 5200 linear feet of 8 -inch pipe in residential streets as well as existing, dedicated District easements through open space in the community of Las Flores. Necessary for the Project is an upgrade to an existing District pump station, currently out of service, as well as the repurposing and rehabilitation of an existing force main, approximately 3600 linear feet long. The Project will result in converting 35 existing irrigation users from potable to recycled water and will allow an additional 200 acre-feet per year (AFY) of recycled water to be supplied in place of potable (imported) water currently being used. The Project will also allow for the expansion of the recycled water distribution system to potentially serve the community of Rancho Santa Margarita in the future.

The Project will augment the South Orange County region's efforts to promote water use efficiency by increasing the local recycled water supply and reducing dependency on imported supplies. Additionally, the use of recycled water in place of imported water will result in energy savings, as it will reduce the need to pump and distribute imported potable water from either northern California or the Colorado River to southern California. The Project supports the greater south Orange County region's long-term goal of water supply reliability.

The proposed Project is consistent with our goal to enhance both water use and energy efficiency in the region through increased recycled water supply, and we fully support that goal and the Project.

las FLORES

L.F. MAINTENANCE CORPORATION
FirstService Residential

If you have any questions or need additional information regarding the support of this project, then please do not hesitate to contact Dee Wells, the community manager for L.F. Maintenance by phone (949) 448-6054 or by email at Dee.Wells@fsresidential.com

Sincerely,

Dee Wells
On Behalf of the Board of Directors for
L.F. Maintenance Corporation

cc: Mr. Dan Ferons
General Manager
Santa Margarita Water District
Work 949-459-6590
Danf@smwd.com

Appendix C – Draft Resolution

RESOLUTION NO. 2019-xx-xx

RESOLUTION OF THE BOARD OF DIRECTORS OF SANTA MARGARITA WATER DISTRICT, ORANGE COUNTY, CALIFORNIA, AUTHORIZING WATERSMART DROUGHT RESPONSE PROGRAM GRANT APPLICATION AND GRANT AGREEMENT EXECUTION WITH THE UNITED STATES BUREAU OF RECLAMATION

WHEREAS, the United States Bureau of Reclamation is requesting applications to receive grant funding pursuant to the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019.

WHEREAS, Santa Margarita Water District (District) is proposing to apply for the Las Flores Enhanced Water Reliability Project, which will provide recycled water system improvements to deliver an additional approximately 209 AFY of recycled water, in place of potable water, for irrigation uses in the Las Flores community. The Project will allow future additional delivery of approximately 1,000 AFY of recycled water to Rancho Santa Margarita.

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Santa Margarita Water District that application be made to the U.S. Department of the Interior, Bureau of Reclamation to obtain a grant from the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019 and to enter into an agreement to receive a grant for the Las Flores Enhanced Water Reliability Project.

BE IT FURTHER RESOLVED that (1) the president of the District's Board of Directors and the District's general manager each has legal authority to act on behalf of the District in entering into an agreement with the United States Bureau of Reclamation; (2) the Board of Directors has reviewed and supports the grant application; (3) the District is able to provide $4,101,968.33 in funding as specified in the funding plan; and (4) the District will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

APPROVED AND ADOPTED this 3rd day of April, 2019.

_____
Saundra F. Jacobs
President, Board of Directors
Santa Margarita Water District

ATTEST:

_____
Kelly Radvansky
Secretary, Board of Directors
Santa Margarita Water District

Appendix D – Environmental Compliance Discussion

From: joey@sotoresources.com
To: "Wolfe, Dennis"
Cc: "Bunts, Don"; Houlihan, Karla
Subject: RE: Environmental Compliance for Drought Resiliency Project Grant - Las Flores Water Reliability Project, Santa Margarita Water District.
Date: Monday, February 12, 2018 3:32:00 PM

Hi Dennis,
This email is to document our follow-up conversation where we agreed that budgeting $10,000 for Environmental Compliance Costs is acceptable as an estimate.

Thank you,

Ms. Joey Soto, M.S
(949) 370-6079
Funding Specialist

Soto Resources

Begin forwarded message:

> **From:** Joey Soto <joey@sotoresources.com>
> **Date:** February 12, 2018 at 9:43:47 AM PST
> **To:** "Wolfe, Dennis" <dwolfe@usbr.gov>
> **Cc:** "Bunts, Don" <donb@smwd.com>, "Houlihan, Karla" <karlah@smwd.com>, Douglas McPherson <dmcpherson@usbr.gov>
> **Subject: Re: Environmental Compliance for Drought Resiliency Project Grant - Las Flores Water Reliability Project, Santa Margarita Water District.**
>
> Hi Dennis,
> Thank you for your prompt response. $5k sounds reasonable. Would it be acceptable to include more, just in case it's needed? The budget currently includes Environmental Compliance Costs in the amount of $10,000 which is less than 1% of the total Project Cost of $4,911,468.32 and based on anticipated environmental and regulatory requirements. Or we can revise if you think $5k would be a better amount to include?
>
> Thank you!
>
> Ms. Joey Soto, M.S
> (949) 370-6079
> Funding Specialist
>
> Soto Resources
>
> On Feb 12, 2018, at 8:42 AM, Wolfe, Dennis <dwolfe@usbr.gov> wrote:

Joey--

Normally, I would have you discuss this with Doug McPherson, our environmental specialist, but he is out of the office today. This sounds like a typical project in our area, with most construction occurring in existing streets. If the District completes an Initial Study and Negative Declaration, our NEPA compliance should be relatively easy, unless there is a cultural resource issue. Doug usually provides a rough guess as to our costs to complete NEPA for the project (I think you need to include it in your proposed budget, and for this project, I think $5,000 should be enough to cover our costs.

You can use this email as documentation that the environmental compliance for this has been discussed with us. Or, you can call me anytime this afternoon between 1 and 4 pm. 951-695-5310.

Dennis

On Sun, Feb 11, 2018 at 10:52 PM, <joey@sotoresources.com> wrote:

> Hi Dennis,
> We hope all is well. We are preparing a proposal for Reclamation's WaterSMART Drought Response Program Drought Resiliency Projects FY 2018 for Santa Margarita Water District's Las Flores Enhanced Water Reliability Project (Project). In the FOA under Environmental and Cultural Resources Compliance, it asks if the Project's environmental compliance has been discussed with the local Reclamation office. Below is what we anticipate for the CEQA/NEPA compliance and we would like to discuss it with you. We plan to submit the grant Monday, 2/12/18.
>
> *The Project includes installing approximately 3800 linear feet of 16 inch pipe and 5200 linear feet of 8 inch pipe in residential streets and easements through previously disturbed open space. The Project also requires an upgrade to an existing District pump station, currently out of service, as well as the repurposing of an existing force main, approximately 3600 linear feet long. Upon completion, the Project will permanently convert a total of 209 acre-feet per year (AFY) of irrigation demand from potable to recycled water. The Project includes the upgrade of 35 existing water meters (currently manually read) with an Automatic Meter Infrastructure (AMI) system that will automatically collect and store hourly consumption data, aiding in water use efficiency, improved water management, energy savings, and reduced carbon emissions. An additional 16 AFY of water savings will be realized through AMI implementation*

The Project is being constructed within existing paved streets and improved public Right-of-Way located in a residential community. The AMI portion of the Project is anticipated to be exempt from CEQA because it involves simply changing out existing meters with AMI meters. An Initial Study and Negative Declaration per the California Environmental Quality Act (CEQA) will be prepared as it is anticipated that the Project will not have a significant environmental effect. CEQA and NEPA documentation will be provided, as required.

Are you available for a quick call on Monday, 2/12/18 to discuss?

Thank you!

Ms. Joey Soto, M.S.
Funding Consultant
Soto Resources
joey@sotoresources.com
(949) 370-6079
www.sotoresources.com

RESOLUTION NO. 2019-04-02

RESOLUTION OF THE BOARD OF DIRECTORS OF SANTA MARGARITA WATER DISTRICT, ORANGE COUNTY, CALIFORNIA, AUTHORIZING WATERSMART DROUGHT RESPONSE PROGRAM GRANT APPLICATION AND GRANT AGREEMENT EXECUTION WITH THE UNITED STATES BUREAU OF RECLAMATION

WHEREAS, the United States Bureau of Reclamation is requesting applications to receive grant funding pursuant to the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019.

WHEREAS, Santa Margarita Water District (District) is proposing to apply for the Las Flores Enhanced Water Reliability Project, which will provide recycled water system improvements to deliver an additional approximately 209 AFY of recycled water, in place of potable water, for irrigation uses in the Las Flores community.

NOW, THEREFORE BE IT RESOLVED by the Board of Directors of the Santa Margarita Water District that application be made to the U.S. Department of the Interior, Bureau of Reclamation to obtain a grant from the WaterSMART Drought Response Program: Drought Resiliency Projects for Fiscal Year 2019 and to enter into an agreement to receive a grant for the Las Flores Enhanced Water Reliability Project.

BE IT FURTHER RESOLVED that (1) the President of the District's Board of Directors and the District's General Manager each has legal authority to act on behalf of the District in entering into an agreement with the United States Bureau of Reclamation; (2) the Board of Directors has reviewed and supports the grant application; (3) the District is able to provide $4,101,968.33 in funding as specified in the funding plan; and (4) the District will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

APPROVED AND ADOPTED this 3rd day of April 2019.

Saundra Jacobs
President, Board of Directors
Santa Margarita Water District

ATTEST:

Kelly Radvansky
Secretary to the Board of Directors
Santa Margarita Water District

STATE OF CALIFORNIA)

COUNTY OF ORANGE)

ss

I, Kelly Radvansky, Secretary to the Board of Directors of the Santa Margarita Water District, do hereby certify that the foregoing Resolution was duly adopted by the Board of Directors said District at a regular meeting held on the 3rd day of April 2019.

AYES: 5	DIRECTORS: Jacobs, Olson, Wilson, Gibson, McCusker
NOES:	DIRECTORS:
ABSENT:	DIRECTORS:
ABSTAIN:	DIRECTORS:

Kelly Radvansky
Secretary to the Board of Directors
Santa Margarita Water District

I, Kelly Radvansky, Secretary of the Board of Directors of the Santa Margarita Water District, do hereby certify that the above and forgoing is a full, true, and correct copy of Resolution No. 2019-04-02 of said Board, and that the same has not been amended or repealed.

DATED: April 3, 2019

Kelly Radvansky
Secretary to the Board of Directors
Santa Margarita Water District

(Seal)

14. Areas Affected by Project

Santa Margarita Water District serves as the second largest retail water agency in Orange County. The Project will impact the District's entire service area. The District provides safe, affordable, reliable water and wastewater services to over 155,000 customers. The unincorporated area of Las Flores would be affected by the Project.

County: Orange

State: California

Santa Margarita Water District

Santa Margarita Water District's Las Flores Enhanced Water Reliability Project Grant Application

Additional Congressional Districts

CA-049