Project Name:

Olivenhain Advanced Metering Infrastructure Water Use Efficiency Project

Prepared For:

U.S. Department of the Interior - Bureau of Reclamation
WaterSMART Grants:
Water and Energy Efficiency Grants
Funding Opportunity Announcement No. BOR-DO-19-F004

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by:

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TECHNICAL PROPOSAL & EVALUATION CRITERIA

1.1. Executive Summary

Date: March 19, 2019
Applicant Name: Olivenhain Municipal Water District
City, County, State: Encinitas, San Diego, California
Project Name: Olivenhain Advanced Metering Infrastructure Water Use Efficiency Project

Funding Group:	1
Grant Funding Request:	$300,000.00
Non-Federal Matching Funds:	$1,756,251.28
Total Project Cost:	$2,056,251.28
Estimated Duration	July 2018 – September 2021
Estimated Project Completion Date:	September 2021
Federal Facility Denotation:	The Project is not located on a federal facility

Project Summary

Olivenhain Municipal Water District (OMWD) continuously strives to promote water use efficiency and improve water supply reliability. The proposed "Olivenhain Advanced Metering Infrastructure Water Use Efficiency Project" (Project) includes continued implementation of OMWD's Advanced Metering Infrastructure (AMI) and a public outreach initiative intended to educate customers on the functionality of OMWD's new web-based Customer Engagement Portal (CEP) and promote customer awareness that results in strong participation in landscape transformation and irrigation device incentive programs available through the regional SoCalWaterSmart Rebate Program. The Project aligns with USBR's 2019 WaterSMART Water and Energy Efficiency Grant (WEEG) Program in that it will produce significant water savings and improve water consumption management, both central objectives of the WaterSmart WEEG Program. OMWD has already completed the first three of a multi-phase AMI implementation plan. The service area is currently fully equipped with AMI-ready smart meters, requiring only the key addition of Meter Transmitting Units (MXUs) to the smart meters to enable connectivity to the established AMI network. Currently, approximately 10,480 of the total 22,295 MXUs that will ultimately be connected (47% of the total) have already been installed, providing OMWD with near real-time consumption data and giving customers the ability to receive notifications as leaks or abnormal consumption occurs. The scope of the proposed Project includes installation of approximately 6,044 MXUs that will connect an additional 27% of OMWD's smart meters to the AMI network and relocation of two of OMWD's Tower Gateway Base Stations (TGBs). At project completion, 74% of OMWD's meters will be connected to the AMI system. The Project will include outreach efforts that educate customers on functionality of the CEP and promote customer participation in the SoCalWaterSmart Rebate Program (socalwatersmart.com), with a

focus on encouraging participation in new and existing landscape upgrade and irrigation device incentives.

1.2 Background Data

1.2.1 Source of Water Supply, Water Rights, and Potential Water Supply Shortfalls

OMWD is a member agency of the San Diego County Water Authority (SDCWA) and purchases 100% of its potable water supply from this regional water wholesaler. SDCWA in turn is a member agency of the Metropolitan Water District of Southern California (MWD) and purchases nearly half of its water for the region from MWD. MWD imports water from northern California via the State Water Project (SWP) through the California Department of Water Resources, and from the Colorado River via the Colorado River Aqueduct (CRA) through the USBR. In 2003, SDCWA secured new imported water supplies through a long-term (45 to 75 years) water conservation and transfer agreement with the Imperial Irrigation District. The transfer provided 115,000 acre-feet (AF) of Colorado River water in 2018 and will increase to 200,000 AF annually by 2021. SDCWA also has a separate, 110-year agreement to receive Colorado River water conserved by lining parts of the Coachella and All-American canals. These projects provide 80,000 AFY of water to the region. The historic five-year average water supply mix delivered by the SDCWA to its member agencies is approximately 11% from the SWP and 78% from the CRA, with the remaining 17% from local sources, which include surface water, supplies from a desalination plant, recycled water and groundwater. Additional information regarding SDCWA's historical, current, and planned supplies is available in SDCWA's 2015 Urban Water Management Plan (UWMP). Of the SDCWA water supply purchased by OMWD, approximately 2% is treated and 98% is raw (untreated). While no potential shortfalls in water supply are currently projected by SDCWA and OMWD, active conservation measures and water use efficiency initiatives such as the one proposed by the Project have and will continue to moderate water demand.

1.2.2 Current Customers and Water Delivery System

Raw water purchased from SDCWA is treated at OMWD's David C. McCollom Water Treatment Plant, which has a capacity of 34 million gallon per day and average production of 21.4 million gallons per day. Water from the plant is pumped into OMWD's distribution system, which includes over 466 miles of potable water pipelines, six pump stations, 14 closed storage reservoirs and a 450-kilowatt hour (kWh) hydroelectric generation station. OMWD's recycled water distribution system consists of 67 miles of recycled water pipeline and 293 service connections. Multiple projects are currently underway or planned for the near future that will significantly expand OMWD's recycled water distribution system. All of OMWD's service connections are metered. As recently as 1970, agriculture accounted for over 70% of OMWD's total water use, but this percentage has decreased over the years. As total agricultural use has declined, domestic use has increased. Today, residential use accounts for almost 80% of the total water demand in the OMWD service area. OMWD's most recent Comprehensive Water Master Plan estimated that the District is approximately 90% built out from an ultimate 34,400

equivalent dwelling units. A breakdown of OMWD's current customers and corresponding water delivery is provided in Table 1.2.1.

Table 1.2.1 – OMWD Water Use by Sector

Customer Class	Percent of Total Water Delivered
Single Family Residential	75%
Multifamily Residential	4%
Commercial	4%
Agriculture	3%
Irrigation	14%

1.2.3 Current and Projected Water Demand

In Fiscal Year (FY) 2017-18, OMWD supplied 17,456 AF to domestic/commercial users and 583 AF to agricultural users, for a total of 18,039 AF (not including water losses). OMWD's 2017 SB 555 Annual Water Loss Audit Report quantified water loss between January 2017 and December 2017 at approximately 6.7% of all potable water supplied. Table 1.2.2 displays OMWDs projected demand for potable and raw water through 2040.

Table 1.2.2 – OMWD 2015 UWMP - Projected Potable Water Demands

Use Type	Additional Description (as needed)	Projected Water Use (AF)				
		2020	2025	2030	2035	2040
Residential		14,890	15,140	15,230	15,640	15,520
Commercial		780	780	790	790	800
Landscape Irrigation		2,500	2,540	2,560	2,630	2,630
Agricultural Irrigation		720	720	720	720	720
Other	Temporary Construction Meters	20	20	20	20	20
Losses	Non-Revenue Water, including actual water losses	1,490	1,520	1,520	1,570	1,560
Total		20,400	20,720	20,840	21,370	21,250

1.2.4 Past Working Relationships with the Bureau of Reclamation

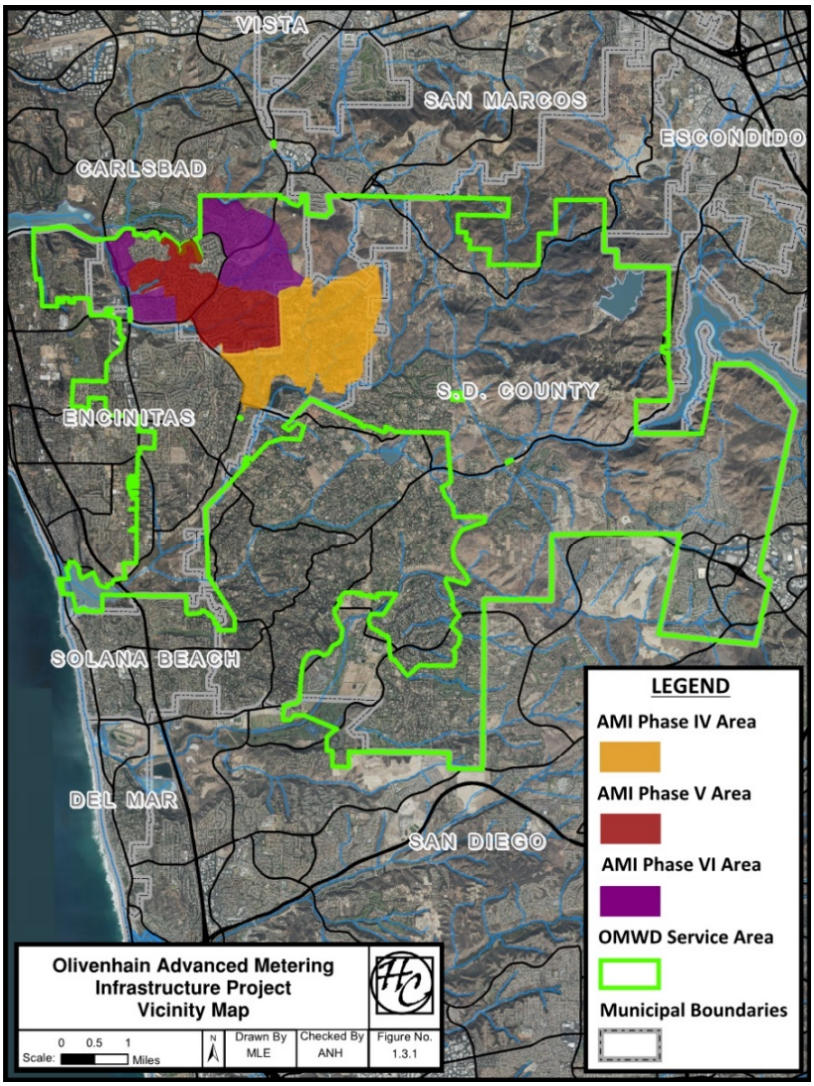
OMWD has received USBR funding for its San Elijo Valley Groundwater Project Feasibility Study (Assistance Agreement #R12AC35348) through USBRs's WaterSMART Development of Feasibility Studies grant opportunity, under the Title XVI Water Reclamation and Reuse Program. The

project, which evaluated the feasibility of developing a groundwater supply to reduce its reliance on imported water sources, began in October 2012 and closed out in March 2014. The San Elijo Valley Groundwater Project Feasibility Study received $150,000 from the USBR and OMWD funded the remaining $508,032.

1.3 Project Location

The OMWD service area spans 48 square miles in northern San Diego County, California. OMWD serves potable water to the cities of Encinitas, Carlsbad, San Diego, San Marcos, Solana Beach, and neighboring communities. OMWD also operates Elfin Forest Recreational Reserve, which is made up of 784 acres of natural habitat and 11 miles of trails for hiking, biking, and equestrian use. The proposed Project is located in the northwestern portion of the OMWD service area. Figure 1.3.1 shows the location of the three phases (Phases IV, V and VI) of the Project in relation to the OMWD service area.

Figure 1.3.1 – Project Vicinity Map



1.4 Technical Project Description

The Project will expand OMWD's efforts to promote water use efficiency by adding smart meter connections to its AMI system that expand the number of customers and OMWD staff that have access to near real-time consumption data by approximately 6,044 services – a significant improvement over the monthly data consumption that is currently collected from AMR (automated meter reading, collected by driving alongside each meter each month) meter reads. The Project will also procure and launch a new CEP to provide customers with the tools to understand, monitor, and adjust their water use patterns and respond to leaks promptly. Additionally, OMWD plans to relocate two of six existing TGBs to complete the build out of the TGB network. One TGB will be relocated to a site owned by OMWD, and the other TGB will be relocated to a site owned by the neighboring Vallecitos Water District, establishing a joint use arrangement. Relocating the two existing TGBs allows OMWD to complete the AMI communication network without having to construct two additional TGBs as originally planned. Finally, as customers gain a greater understanding of their water consumption through access to real-time measurement reporting, it is anticipated they will explore ways to increase water use efficiency on their property. The Project will implement outreach efforts to educate customers on the CEP and to promote customer participation in the ongoing SoCalWaterSmart Rebate Program (socalwatersmart.com), with a focus on encouraging participation in new and existing landscape upgrade and irrigation device incentives. OMWD will complete all required environmental and cultural resources reviews and acquire all applicable permits associated with the Project.

OMWD has already constructed the majority of its Sensus FlexNet communication network, which consists of a network of smart meters and MXUs that communicate via a dedicated radio spectrum to TGBs that collect and transmit hourly water usage data from individual customer meters to the back-end system housed at OMWD for analysis and billing every 4 hours. The system has the capability to send alerts to both OMWD and customers when unusual consumption patterns occur, allowing for faster recognition, investigation and correction of water leaks on the customer side of the meter, resulting in impactful water savings. The Project will implement the scope of work as highlighted in Table 1.4.1.

Table 1.4.1 - Project Scope

Project Scope
❖ Expansion of AMI System: o Purchase and installation of approximately 6,044 MXUs o Relocation of 2 TGBs to complete communication network o Environmental / cultural resources review and permit processing ❖ Water Use Efficiency Initiatives: o Procurement and launch of customer-oriented CEP o Implementation of education and outreach campaign for new CEP and "SoCalWaterSmart Rebate Program"

Include a descriptive list of MXU features here if possible. Table 1.4.2 details the distribution of the MXUs by customer class and quantity.

Table 1.4.2 – Distribution of MXUs by Customer Class

Customer Class	Meter Size (Inches)	Quantity
Commercial	5/8" – 10"	48
Domestic	¾" – 2"	5,853
Agricultural	¾" – 2"	38
Irrigation	¾" – 2"	101
Recycled	5/8" – 2"	4

1.4.1 Project Activities

Project Administration

Project administration for the grant include all activities required to oversee, manage, and report on the project.

Design/Engineering/Environmental/Permitting

It has been determined that installation of MXUs is not considered a project under CEQA/NEPA. A NOE was obtained for the existing TGBs, and OMWD will determine whether an NOE is required for relocation of the second TGB within Vallecitos Water District's service area.

Construction Contracting

This project will procure contracts with vendors for procurement of the MXUs and relocation of two TGBs. Contracting efforts include the following subtasks:

- Negotiate and develop a draft contract for procurement and programming of MXUs.
- Negotiate and develop a draft contract for relocation of two TGBs.
- Board approval of contract.
- Bid and order OMWD-furnished materials, typically lids and covers that allow for the installation of the MXU. Order supporting facilities and services including dumpsters, trash receptacles, storage containers, and portable restrooms.

Construction Implementation

Implementation includes the installation of approximately 6,044 new MXUs, implementation of the CEP, relocation of two TGBs and a public education and outreach campaign. The general work tasks associated with implementation includes the following:

- Identify and set up project staging area for MXU installation.
- Install lids, covers, and inspect existing meter box.
- Install and program MXUs.
- Conduct start-up and testing of MXUs.
- Relocate TGB towers.
- Develop public outreach and education campaign, including creating customer-oriented CEP user materials and training curriculum, content (collateral, presentations, etc.) for customer training workshops, posting materials to OMWD's website and training staff on the CEP. Develop collateral material (flyers, website content, social media content) to promote SoCalWaterSmart Rebate Program and CEP.

1.4.2 Anticipated Project Schedule

Table 1.4.2 outlines the anticipated schedule for the Project. Note that portion of the scope of work will have been completed after July 2018 and the prior to the anticipated contract award date of September 2019. This is consistent with the Funding Opportunity Announcement for this grant.

Table 1.4.2 – Anticipated Project Schedule

Anticipated Contract Approval:	**September 2019**
Project Administration:	September 2019 – September 2021
Environmental/Cultural Resources Review:	November 2019 – June 2020
Construction Contracting & Implementation:	July 2018 – July 2021

1.5 Evaluation Criteria

1.5.1 Evaluation Criterion A – Quantifiable Water Savings

The Project will 1) expand OMWD's AMI system through the installation of MXUs to an additional 27% of OMWD's services, 2) provide customers with CEP web portal access in association with 74% of OMWD's services and 3) include outreach efforts to all customer classes to promote opportunities to receive irrigation device incentives through the MWD's SoCalWaterSmart Rebate Program that result in quantifiable water savings based upon the devices installed at the customer's property. The Project's three-pronged approach to achieving water use efficiency will ultimately reduce OMWD's demand of imported water from the SWP and the Colorado River.

Municipal metering project

OMWD is proposing implementation of a municipal metering project along with supporting water use efficiency initiatives, as mentioned above. Water savings will be achieved by implementing AMI, introducing the CEP to customers that are newly connected to near real-time data consumption and comparative metrics, which in turn motivate customers to install water efficient devices that are incentivized through the SocalWaterSmart Rebate Program.

Determining annual average water savings from the Project

Table 1.5.1 provides a detailed outline of calculations used to quantify water savings that will accrue as the Project is implemented. Water savings associated with the Project are:

1) Estimated water savings generated from avoided loss due to addition of approximately 6,044 additional MXUs to the AMI system: 4,392 AF (219 acre feet per year (AFY) x 20 years)

2) Estimated water savings generated from launch of CEP to customers representing 74% of OMWD's service area: 3,405 AF (681 AFY x 5 years)

3) Estimated water savings generated from customer participation in SoCalWaterSmart Rebate Program FY 19 - FY 21: 456 AF (AFY savings vary depending on life of rebated device: average is 20 AFY)

Total estimated water savings generated from the Project: 8,253 AF (4,392 AF+ 3,405 AF + 456 AF)

Determining current distribution system losses

OMWD performed an audit of water losses in the potable water distribution system between January and December 2017. The audit was performed using AWWA WAS v5.0 Audit Software. The reporting worksheet completed in the analysis is provided in Attachment F. The water loss audit found that OMWD supplied a total of 18,410 AF of water in 2017. Accordingly, water losses accounted for 6.7% of the total water supplied in 2017. This percentage of water losses is used in the estimated water savings calculations included in the table below.

Support/Documentation and assumptions regarding estimated water savings

The Project will produce water savings in three separate but complementary ways: 1) Reductions of water loss through more timely identification and correction of leaks and correction in abnormal consumption and 2) Reduction in water consumption resulting from customers making behavioral changes in response to availability of near-real time data consumption metrics provided through the CEP and 3) Customer installation of water efficient devices as reflected in customer participation in the SoCalWaterSmart Rebate Program.

WaterSMART and Smart Energy Water, two prominent vendors of CEPs have documented water reductions ranging from 4-7%. A 2014 East Bay Municipal Utilities District study (EBMUD, 2014) released results of an independent study, which indicated that providing information to help households compare their water use to neighborhood averages reduces residential water use by 5%. Based on these findings, we assumed that customer access to and utilization of the CEP would result in water savings of 5%, which is applied to 74% of OMWD's customers/services that will be connected to the CEP as a result of the Project. Studies regarding the total number of years over which savings will accrue were not available, therefore a conservative five years is assumed to be the lifetime of accrued savings.

Water savings estimates resulting from reductions in water losses is based on an EPA report on water loss control for public water systems that up to 75% of water loss in systems is recoverable (EPA, 2013). Another case study on the implementation of AMI in the City of Santa Maria, California found that AMI was able to reduce its non-revenue water loss by two-thirds, from 6% down to 2% (Godwin, 2011). In our water savings analysis, we estimated that two-thirds of OMWD's non-revenue water losses were recoverable due to implantation of the AMI system. Therefore, of OMWD's 6.7% of water losses, 4.4% is estimated to be recovered and therefore additional water savings.

Installation of distribution main smart meters

The proposed project does not include installation of distribution main meters.

Table 1.5.1 – Water Savings Calculations and Source Justification

Water Savings Calculation Variable	Value	Calculation	Source
Total potable smart meters in OMWD system - existing	22,295		2015 OMWD UWMP
MXUs installed as part of the Project	6,044		
Percentage of total smart meters connected to AMI through the Project	27%	=6,044/22,295	
Total Water Supplied OMWD in 2017	18,410 AFY		2017 Water Loss Audit (Attachment F)
Estimated Volume of Water Supplied by MXU fitted smart meters within Project	4,991 AFY	=.27 x 18,410	

Percentage of System Water Losses in 2017	6.7%		2017 Water Loss Audit (Attachment F)
Percentage of Recoverable Losses	4.4%	=2/3 x .067	1) Godwin, 2011 2) EPA, 2013
Annual Recoverable Water Loss	219 AFY	=.044 x 4,991	
Water Savings from Reduced Water Loss	4,392 AFL	= 219 x 20	
% Water Savings from CEP (74% of all meters/customers – formula assumes equal % consumption by each meter)	3.7%	=. 05 x .74	EBMUD, 2014
Annual water savings from CEP launch	681 AFY	=.037 x 18,410	
Total water Savings from customer access and utilization of CEP (assumed 5- year life)	3,405 AFL	= 681 x 5	
SoCalWaterSmart Rebate Program Water Savings (FY 19-21)	456 AFL		SoCalWaterSmart Member Agency Dashboard Reports,
Lifetime Water Savings Estimate	8,253 AFL	= 4,392 + 3,405 + 456	

Types and quantities of devices to be installed

The project will install 6,044 Sensus 520M MXUs on smart meters. OMWD will post a request for proposals allowing companies to compete for the provision of the CEP.

Actual water savings verification upon project completion

A snap shot of water savings will be taken for a statistically significant sample (2-5%) of the total smart meter population equipped with MXUs, connected to the AMI system and with access to the CEP, on a before and after basis. Water savings accrued by installation of irrigation devices incentivized through the SoCalWaterSmart Rebate Program will be calculated using the water savings values accepted by MWD and applied to the actual number of devices that received rebates by OMWD customers between FY 19 and 21.

1.5.2 Evaluation Criterion B – Water Supply Reliability

The Project addresses specific reliability concerns

OMWD currently purchases 100% of its potable water supply from the SDCWA. The Project is expected to reduce water usage in OMWD by an estimated 8,253 AF over the course of the Project's 20-year service life. OMWD's dependence on imported potable water will be minimized and its resilience to the impacts of climate change will be improved as a result of the Project.

Offsets in potable water purchased from the SDCWA will in turn offset the amount of imported water supplied by MWD, which benefits the entire Southern California region by reducing the amount of water imported from the Colorado River/CRA as well as the and the Bay-Delta via the SWP. In November 2015, SDCWA began purchasing desalinated seawater from the Claude "Bud" Lewis Carlsbad Desalination Plant, which is operated by Poseidon Water. Through implementation of the Project, OMWD will be able to reduce its purchases of water from the SDCWA, thereby reducing demands from local and imported supplies, including those from the Colorado River and the Bay Delta (benefiting the Central Valley Project (CVP), operated by USBR), by approximately 8,253 AF.

Drought conditions in the State are currently waning, however drought has been a concern and challenge over much of the past ten years in Southern California. Due to the cyclical nature of drought and flood conditions that have historically characterized California, and intensifying concerns regarding the impact of climate change on hydrology, AMI technology will provide tools to empower customers to make better decisions about water consumption. AMI provides real-time information to consumers about their consumption and allows them to see how improving water use efficiency can help control costs, thereby adding a level of sustainability to the region's water supply. Access to this kind of consumption data will promote better water management, allow water use efficiency strategies to be implemented, make it possible to repair leaks and breaks more quickly and empower behavior modification as we compare our consumption patterns to our neighbors and the larger community. This all translates the Project's quantifiable water savings which reduces reliance on imported water from the SWP and CRA provided by SDCWA and MWD and makes those supplies available for other uses or to remain in stream.

The Project makes water available to achieve multiple benefits or to benefit multiple water users

The Lower Colorado River supports several hundred species of wildlife. Water is diverted from the Colorado River primarily at Lake Havasu and transported to Southern California via the CRA. The result of this and other diversions is a decrease in flows to support the Lower Colorado River ecosystem. The 2004 Lower Colorado River Multi-Species Conservation Program covers 17 species that are not federally listed (CA DWR, 2013). The plan estimates that flow reductions could reach 1,574,000 AFY by 2051, resulting in lower water levels and higher concentrations of contaminants from agricultural runoff. Water, in sufficient quantity and quality, is fundamental to the health of the Colorado River and to the local survival of those 17 non-listed species. By decreasing their reliance on imported water supplies, the Project will increase the quality and quantity of water that remains in the Colorado River and Lake Mead, thereby supporting the health of the river and restoring and enhancing habitat for all those species dependent upon it.

The Bay-Delta encompasses 1,600 square miles and provides habitat for more than 500 species of fish and wildlife. The 2013 Bay Delta Conservation Plan identified over 30 non-listed species potentially impacted by withdrawals from that system through the SWP. Impacts from withdrawals occur due to the change of river flow by pumping, capture within pumping equipment, and increased saltwater intrusion due to pumping. A decrease in water imported

through the SWP could help to alleviate these pressures on the Bay-Delta ecosystem and could help restore habitat for non-listed species. Healthy ecosystems and fisheries have economic benefits. For example, the Delta provides a variety of recreational opportunities including fishing, hunting, boating, camping, picnics, and viewing nature, which amount to approximately $809M in income and economic value added per year. Recreational activities on the Colorado River and its tributaries generate $17B in retail sales which stimulate jobs, tax revenues, and other benefits from the state and regional economies, resulting in a total value of around $25.6B.

The Project will not benefit Indian Tribes located within OMWD, however the Project will benefit California, including tribes throughout the State, through water use efficiency and reduced demands. The Project will not provide benefits to economically disadvantaged communities in OMWD and does not serve rural areas.

The Project promotes and encourages collaboration to increase water supply reliability

There is strong support for the Project, as evidenced by the support letter included in this proposal. Please refer to the next section for discussion of how the Project can benefit the agricultural sector served by OMWD. The Project will benefit OMWD's goal to reduce the total residential gallons per capita daily (gpcd) average of 132 to meet State standards set at 55 indoor gallons per capita daily. The Project supports the SDCWA's goal of securing greater water independence and reduced reliance on imported water supplies from MWD (hence the SWP and CRA). OMWD is relying on the collaboration and proactive efforts of all its customers as partners in achieving water savings that can be attained through knowing and understanding water consumption patterns, fixing leaks and breaks more quickly, and installing water efficient devices on their property. The possibility of future water conservation improvements by the agricultural sector may be positively impacted, as described in the section below. By reducing water consumption and demand for imported supplies, a water-related crisis or conflict such as the one experienced in 2015 and 2016 in California that resulted in State-mandated cutbacks of 25% can be deferred and/or avoided.

1.5.3 Evaluation Criterion D – Complementing On-Farm Irrigation Improvements

OMWD provides about 3% of its water deliveries to nearly 140 customers that irrigate at least one acre of agricultural land. Implementation of the AMI system and the availability of the CEP to growers will complement ongoing and future on-farm improvements by giving growers access to near real-time consumption data. Provision of such data meets one of the preliminary requirements to participate in the federal Environmental Quality Incentives Program (EQIP), coordinated through local Natural Resources Conservation Districts (NRCS). Mission Resources Conservation District (MRCD) is the local NRCS for OMWD. In the last five years, MRCD has provided seven irrigation evaluations (technical assistance) to growers in the OMWD service area, covering 68 acres of land. Irrigation evaluations provide information about uniformity distribution and emitter flow rates associated with the existing irrigation system. Evaluations are a precursor to grower participating in EQIP. Growers in OMWD have expressed strong interest in receiving near-real time consumption data through AMI as a means of identifying leaks and line

breaks quickly. Access to real-time data provides growers with the information necessary to determine how much water is being delivered to a crop. This information is fundamental in a grower's ability to adjust the amount of irrigation by comparing actual water consumption against a water budget that utilizes evapotranspiration and plant factor formulas. It also provides the basis for additional on-farm improvements that are part of the irrigation water management best management practices recognized by USBR, which include soil moisture sensors and low application rate irrigation emitters. OMWD does not have statistics on the number of EQIP grants issued in the service area but intends to utilize the AMI infrastructure and CEP to enhance its support of agricultural customers in achieving water savings and acquiring funding for the necessary improvements through programs such as EQIP. A June 2014 Issues Brief prepared by Natural Resources Defense Council and the Pacific Institute titled "Agricultural Water Conservation and Efficiency Potential in California" concluded that based on previous efficiency studies, agricultural water use could be reduced in California by 17-22% (NRDC, 2014). If agricultural irrigation could be reduced by even 5% due to water management strategies enabled by the provision of AMI's real-time consumption data, this would result in water savings of 27 AFY (.05 water savings x .03 water to ag. customers x 18,410 AFY used in 2017) in the OMWD service area.

1.5.4 Evaluation Criterion E – Department of the Interior Priorities

Creating a conservation stewardship legacy second only to Teddy Roosevelt

The Project is the result of long-term, rigorous water resources planning using best available science to identify best practices for managing water resources. OMWD has worked consistently to manage water resources effectively and sustainably to reliably meet the growing demands of their service area. OMWD continuously undertakes methodological planning efforts, including assessments of available and potential future supplies, and demand forecasting. Those planning efforts are highly dependent on best available science, which is developed on a local, regional and statewide level to identify best practices for managing water resources and adapting to changes in the environment. Among the planning efforts of these agencies is the preparation of UWMPs. As required by the Urban Water Management Planning Act, California Water Code (CWC) Division 6, Part 2.6, urban water suppliers are required to prepare and adopt UWMPs at least once every five years in recognition that, among other factors, water resources are a limited resource subject to ever increasing demands, and conservation and efficient use of water is a high priority whose planning can be best accomplished at the local level. The UWMP outlines demand management measures common to the industry and those used or planned for implementation in the agency service areas. Metering programs are among the recognized demand management measures to achieve effective water conservation. Due to the source of water to OMWD, DWR's SWP Delivery Capability Report is one of many highly important resources based on science utilized for OMWD's water resources planning efforts. The Report, prepared by DWR every two years, identifies estimated availability of SWP supplies under a range of hydrologic conditions based on robust modeling. Estimates also take into account all regulations governing SWP and CVP operations. These estimates are the basis of OMWD supply projections. OMWD will continue to

rely highly on science combined with the experience and knowledge of expert water resource managers to identify best practices for effectively managing water resources adapting to changes in the environment.

Utilizing our natural resources

The Project will result in a reduction in water consumption, as described in previous sections, as well as energy consumption. An energy intensity study by the University of California, Santa Barbara approximates that 3,000 kWh per AF is needed to move water from the SWP to Southern California and approximately 2,000 kWh per AF is required to move water from the CRA to Southern California. The project could result in energy savings of 15,598,170 kWh from the reduction in demand for imported water. (11% of 8,253 AF x 3,000 kWh/AF = 2,723,490 kWh saved from SWP; 78% of 8,253 x 2,000 kWh/AF= 12,874,680 kWh saved from CRA). This does not include the energy required to power the distribution of water through OMWD's system, making energy available to meet other security and economic needs.

Restoring trust with local communities

OMWD receives imported water from the Colorado River and the Bay Delta and distributes it for the broader needs of its customers. OMWD encourages water conservation within its service area (mandating it during periods of reduced supply availability) and works regularly with its customers on water use efficiency efforts. The Project will promote these efforts with customers, and the customer education and outreach initiatives included in the scope of the Project will further improve dialogue and relationships as customers become trained on utilizing data provided through the CEP and on opportunities to conserve water through behavior modification, social norming and participation in the SoCalWaterSmart Rebate Program. Interaction and lines of communication will be enhanced with the SDCWA and MWD (both regional water authorities) as lessons learned are shared with colleagues and industry groups about effectiveness of CEPs in achieving water conservation as well as through increased promotion of the SoCalWaterSmart Rebate Program offered through MWD.

Modernizing our infrastructure

Construction of the OMWD water distribution system dates back to the early 1960s. Modernizing the existing water distribution system AMI benefits the improves the existing infrastructure through advanced leak detection, ultimately resulting in better management of the infrastructure.

1.5.5 Evaluation Criterion F – Implementation and Results

Subcriterion F.1 – Project Planning

OMWD submitted a 2015 UWMP to DWR, in compliance with the Urban Water Management Planning Act in California Water Code. Each agency updates its UWMP every five years. The 2015 UWMP guidelines require a specific set of demand management measures (DMMs) to be reported on in the 2015 UWMP, including Water Waste Prevention Ordinances, Metering, Conservation Pricing, Public Education and Outreach, Programs to Assess and Manage

Distribution System Real Loss, and Water Conservation Program Coordination and Staffing Support (OMWD, 2016).

The UWMP section on OMWD's demand management measures describes how each DMM is being implemented. Further, the UWMP lays out agency goals for reducing or maintaining per capita water use to comply with water use targets required by the California Water Conservation Act of 2009, SBx7-7. This project is among the measures needed for optimizing water use efficiency.

Lastly, the Water Plan is the State of California's strategic plan for managing and developing water resources statewide for current and future generations. It provides a collaborative planning framework for elected officials, agencies, tribes, water and resource managers, businesses, academia, stakeholders, and the public to develop findings and recommendations and make informed decisions for California's water future. The plan is updated every five years.

The 2013 State of California Water Plan outlines smart metering as a top Best Management Practice (BMP), see Section 3: Urban Water Use Efficiency. Due to the large size of the Plan, it is not included in this application, but can be found here: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/California-Water-Plan/Water-Plan-Updates/Files/Update-2013/Water-Plan-Update-2013-Volume-3.pdf.

OMWD is a stakeholder in the San Diego Integrated Regional Water Management Plan (SDIRWMP). The SDIRWMP describes the region's physical setting, sources of water supply, water quality, environmental resources, planning objectives and targets, and partnership and multi-benefit opportunities. The Project will help attain objectives of SDRWMP, including to Improve Water Supply and Address Climate Change. The SDIRWMP Objective to Improve Water Supply focuses on optimizing local water resources to reduce the Region's reliance on imported water. The targets include conserving water through water use efficiency and conservation measures. The Project will increase water use efficiency and reduce loss of potable supplies. This reduction in potable water demands will also contribute to lower demands on imported supplies for groundwater replenishment.

The objective to address climate change focuses on adapting to and mitigating against climate change vulnerability with targets of increasing local supplies, implementing "no regret" adaptation strategies, and implementing mitigation strategies that decrease emissions of greenhouse gases. The proposed Project will help improve local supply reliability by reducing demands and will result in reductions in energy use and greenhouse gas emissions. As the project will reduce water demand and consumption within OMWD's service area, it also contributes to the DMMs identified in the UWMP.

Lastly, the reduced water consumption that results from the proposed project aligns with the State's objective for reducing per capita water consumption by 20 percent by the year 2020. The Plan indicates that AMI systems are Best Management Practices that assist in providing water

conservation. The Plan cites the Pacific Institute and Single- Family Water Use Study to show the significance of water loss due to residential leaks (averaging 7 to 10 gallons per capita per day [GPCD]). This study showed that if residential leaks could be identified and repaired earlier, the savings would be 6-7.5 GPCD.

Subcriterion F.2 – Performance Measures

The primary objective of the Project is to increase water use efficiency and improve water management by reducing water waste resulting from leaks, breaks and inefficient water use and encourage customers to install efficient irrigation devices. OMWD will compile data to report on water savings as a direct result of project implementation. Performance measures will consist of the following:

1) Overall Water Savings

With the implementation of AMI, OMWD will be able to monitor real time water use and collect and store data with the AMI data management system. Total water savings resulting from project implementation will be quantified by comparing water meter consumption data from a sample set of newly installed MXU, with historical water meter data for the sample set. Post-implementation water savings will be based on average water use over a one-year period upon implementation. Historic water use data will be appropriately normalized by accounting for water use trends over the past five-year period and accounting for conservation measures implemented in response to ongoing drought conditions and statewide water use reduction mandates of 2015. If possible, water use savings data will also be compared to control groups of customers that did not receive AMI meter upgrades to increase robustness of results.

2) Water Savings from Leak Detection

OMWD will also compile and analyze data related to water savings from early leak detection. One of the important benefits of AMI systems is that they can provide real time data in combination with high accuracy of high and low flows, thereby facilitating early leak detection. Alarms are triggered by unusual water usage that may indicate leaks. OMWD may enlist customers to track a sample set of alarms and report on related actions taken to repair leaks or adjust abnormal consumption. Using the AMI data, OMWD may study a specific area of the distribution system to estimate the portion of water losses resulting from public-side leaks and attempt to quantify the water savings that accrued from detection.

3) Water Savings from Customer-Side Conservation

Another important benefit of the Project is implementation of a user-friendly CEP, to allow customers to more easily view and track water usage. This accessibility to water use data can result in self-leak detection and water use behavioral changes. OMWD will analyze water use reductions to estimate customer-side conservation as a portion of total water savings. OMWD can track this behavior by comparing a 'before and after' average water consumption.

4) Other Statistics

In addition to water savings measurements, OMWD will produce statistics as follows:

- Record of actual number of MXU installations, by account type
- SoCal WaterSmart Rebate program water savings (from weather-based irrigation controllers (WBICs) and nozzles that are rebated) for FY 19-21

Sub-criterion F.3 – Readiness to Proceed

The Project encompasses three phases of an on-going AMI implementation program that started in 2015. A portion of the work scope included in this application began after July 1, 2018. The full project will be implemented within the required time limits for a Group 1 funded project, which is two years. Capital Improvement Project matching funds have been identified for the Project. There are no implementation obstacles or challenges anticipated that would prevent the Project from occurring as scheduled. Project implementation could begin as soon as an agreement has been executed and could be complete within two years (September 2019 – September 2021). Please see prior section for a more in-depth project schedule as well as description of required permits and required design work. No new policies or administrative actions are required to implement the Project.

1.5.6 Evaluation Criterion G – Nexus to Reclamation Project Activities

The Project will help reduce water demands which would result in reduced needs for imported water from the Colorado River and Bay Delta. Multiple USBR projects are located within the Delta watershed and often closely interlinked with the SWP system, such as the Central Valley Project (CVP). By reducing the amount of water imported, this water remains in the Delta watershed, thereby also benefitting Reclamation projects.

Increasing municipal water use efficiency is one of the water management actions identified to address the overarching objective of reducing water demand. In fact, the Basin Study concluded that actions to increase water supplies and improve water use efficiencies, among other things, were particularly effective in addressing anticipated impacts to water deliveries. The proposed Project will reduce water demands and improve water use efficiency, and thereby directly aligns with the identified Basin Study objective of reducing water demand.

The proposed project is connected to USBR activities, because it benefits the same Delta region as the CVP, a federal project, managed by USBR, and the largest surface water storage/delivery in California. OMWD receives some of its water from the SWP, which in turn is closely connected to the CVP. The SWP and CVP each draw water from the Delta, where the Sacramento and San Joaquin Rivers meet, and the two projects share responsibility for in-basin use as well as for sharing surplus flows. By improving local water use efficiency, demands may be reduced on SWP supplies, thereby contributing to improved conditions in the Sacramento-San Joaquin Delta. Improvements to the overall health of the Delta also benefit USBR project activities that depend on the Delta.

1.5.7 Evaluation Criterion H – Additional Non-Federal Funding

The percentage of non-federal funding will be 85.4% ($Non-Fed Funding /Total Project Costs), as shown in Table 2.1.1. This is greater than the required 50% match.

2. PROJECT BUDGET

2.1 Funding Plan and Letters of Commitment

OMWD and rebates issued from MWD to OMWD customers that participate in the SoCalWaterSmart Rebate Program will provide the non-Reclamation share of the Project costs through capital improvement project funds. A breakdown of the proposed cost sharing for the project is provided in Table 2.1.1. No additional funding commitments have been secured at this time.

Table 2.1.1 – Project Funding Breakdown by Source

Funding Sources	Percent of Project Cost	Funding Amount
Non-Federal Entities		
OMWD (Non-Federal)	83.4%	$1,714,726.48
SoCalWaterSmart Rebate Program	2.0%	$41,524.80
Non-Federal Subtotal:	**85.4%**	**$1,756,251.28**
Federal Entities		
Other Federal Entities	0%	$0
Requested USBR Funding	**14.6%**	**$300,000**
Total Project Funding:	**100%**	**$2,056,251.28**

2.2 Budget Proposal

The proposed budget for the Project is provided in Table 2.2.1. A complete budget narrative is included in Section 2.3.

Table 2.2.1 – Proposed Project Budget

Budget Item	Quantity	Unit	$/Unit	Total Cost
Salaries and Wages				**$67,246.69**
General Manager	7	Hours	$122.87	$860.09
Assistant General Manager	10	Hours	$84.81	$848.10
Customer Services Manager	30	Hours	$66.43	$1,992.90

Field Services Supervisor	30	Hours	$40.72	$1,221.60
Field Services Technician	2,200	Hours	$28.08	$61,776.00
Engineering Project Administrator	10	Hours	$54.80	$548.00
Fringe Benefits				**$135,838.31**
General Manager	7	Hours	202% of salary	$1,737.38
Assistant General Manager	10	Hours	202% of salary	$1,713.16
Customer Services Manager	30	Hours	202% of salary	$4,025.66
Field Services Supervisor	30	Hours	202% of salary	$2,467.63
Field Services Technician	2,200	Hours	202% of salary	$124,787.52
Engineering Project Administrator	10	Hours	202% of salary	$1,106.96
Travel				**$0**
Equipment				**$0**
Materials and Supplies				**$0**
Contractual/Construction				**$1,853,116.28**
TGB Relocation	1	LS	$42,000.00	$42,000.00
Single-Port MXUs	5,666	EA	$182.71	$1,035,234.86
Dual-Port MXUs	378	EA	$198.59	$75,067.02
Lids and Covers	6,044	EA	$63.40	$383,189.60
AMI MXU, Covers, and Lids Installation and Labor	1	LS	$173,600.00	$173,600.00
Refuse Container	1	LS	$7,500.00	$7,500.00
Customer Engagement Portal	1	LS	$75,000.00	$75,000.00
SoCalWaterSmart Rebates	410	Rebates	$101.28	$41,524.80
Education and Outreach Initiative	125	Hours	$160	$20,000.00
Environmental and Regulatory Costs				**$50.00**
Notice of Exemption (NOE)	1	LS	$50.00	$50.00
Other				**$0**
Indirect Costs				**$0**
Total Cost				**$2,056,251.28**

Table 2.2.2 – Proposed Project Funding Distribution

Budget Item Description	Non-Fed Funding	Proposed USBR Funding	Total Cost
Salaries and Wages	**$67,246.69**	$0	**$67,246.69**
General Manager	$860.09	$0	$860.09
Assistant General Manager	$848.10	$0	$848.10
Customer Services Manager	$1,992.90	$0	$1,992.90
Field Services Supervisor	$1,221.60	$0	$1,221.60
Field Services Technician	$61,776.00	$0	$61,776.00
Engineering Project Administrator	$548.00	$0	$548.00
Fringe Benefits	**$135,838.31**	$0	**$135,838.31**
General Manager	$1,737.38	$0	$1,737.38
Assistant General Manager	$1,713.16	$0	$1,713.16
Customer Services Manager	$4,025.66	$0	$4,025.66
Field Services Supervisor	$2,467.63	$0	$2,467.63
Field Services Technician	$124,787.52	$0	$124,787.52
Engineering Project Administrator	$1,106.96	$0	$1,106.96
Travel	**$0**	**$0**	**$0**
Equipment	**$0**	**$0**	**$0**
Materials and Supplies	**$0**	**$0**	**$0**
Contractual/Construction	**$1,553,116.28**	**$300,000.00**	**$1,853,116.28**
TGB Relocation	$42,000.00	$0	$42,000.00
Single-Port MXUs	$735,234.86	$300,000.00	$1,035,234.86
Dual-Port MXUs	$75,067.02	$0	$75,067.02
Lids and Covers	$383,189.60	$0	$383,189.60
AMI MXU, Covers, and Lids Installation and Labor	$173,600.00	$0	$173,600.00
Refuse Container	$7,500.00	$0	$7,500.00
Customer Engagement Portal	$75,000.00	$0	$75,000.00
SoCalWaterSmart Rebates	$41,524.80	$0	$41,524.80
Education and Outreach Initiative	$20,000	$0	$20,000
Environmental and Regulatory Costs (NOE)	**$50**	**$0**	**$50**
Other	**$0**	**$0**	**$0**
Indirect Costs	**$0**	**$0**	**$0**
Total Project Costs	**$1,756,251.28**	**$300,000.00**	**$2,056,251.28**

2.3 Budget Narrative

Salaries and Wages

The Project's designated Project Manager, John Carnegie, is the Customer Services Manager and is employed by OMWD. The total cost of salaries and wages anticipated for the project is $67,246.69. Payroll records are included as a part of the supporting information found in Attachment E – Budget Supporting Documentation.

Fringe Benefits

The estimated escalation for fringe benefits is 202% of the salary compensation for the employees, equating to $135,838.31. Fringe benefits include items such as: employee programs, training, and education, employer's share of FICA, all EE insurance, paid leave, employer's share of 457 plan and VEBA, PERS, and uniforms. Fringe benefit rates are for grant application purposes only, as they exclude certain costs per OMB Part 225 guidelines.

Travel

There are no travel expenses anticipated for this project.

Equipment

Since the equipment needed for the Project will be purchased under a construction contract, there are no equipment costs for the Project.

Materials and Supplies

Since the materials and supplies needed for the Project will be purchased under a construction contract, there are no materials and supplies costs for the Project.

Contractual and Construction

Contractual and construction costs make up the majority of the budget for the Project. The MXUs that will be installed as part of the Project are manufactured by Sensus. OMWD will purchase the MXUs from Aqua Metric, the exclusive distributor of Sensus products in California. The total cost for relocating the two existing TGBs is estimated to be $42,000. The single-port MXUs cost $182.71 and there will be 5,666 of these units installed for a Project cost of $1,035,234.86. The dual-port MXUs cost $198.59 and there will be 378 of these units installed for a Project cost of $75,067.02. The lids and covers cost $63.40 and there will be 6,044 of these units installed for a total cost of $383,189.60. The MXUs, covers, and lids will be installed for a lump sum of $173,600. The cost of refuse containers required during construction and installation of the AMI equipment is $7,500. Proposed costs for a consultant to assist with the education and outreach initiative is set at $20,000 (125 hours at $160/hour). Estimated non-Federal match provided by MWD via rebates issued through the SoCalWaterSmart Rebate Program is estimated at $41,524. Contractual cost for the CEP software is estimated at $75,000, which includes startup costs for initiating the CEP and charges for maintaining the system.

All of these items combined lead to a total of $1,853,116.28 for construction and contractual costs for the Project budget.

Third Party In-Kind Contributions

There are no third-party in-kind contributions towards this Project.

Environmental and Regulatory Compliance Costs

OMWD's engineering department previously performed an environmental review of the Project and determined that installation of the MXUs does not meet the definition of a "project" under CEQA/NEPA, therefore, there are no environmental costs associated with the installation of MXUs. A NOE was previously obtained for construction of the TGBs which was completed during earlier phases of the AMI implementation effort and not included in this application. OMWD expects to file an additional NOE for relocation of one existing TGB. Total environmental and regulatory compliance costs are not expected to exceed $50 for the Project.

Other Expenses

There are no expenses categorized as other expenses associated with the Project.

Indirect Costs

There are no indirect costs anticipated for the Project.

Total Costs

The total costs for the project are an estimated $2,056,251.28 with a proposed USBR share of $300,000 (approximately 14.6% of the total cost) an OMWD share of $1,714,726.48 (approximately 83.4% of the total cost) and an MWD share of $41,524.00 (approximately 2.0% of the total cost). The total non-Federal share is $1,756,251.28, or 85.4% of the total cost. Form SF-424C has been completed and is provided in Attachment D. Supporting documentation for the Budget has been included in Attachment E.

3. ENVIRONMENTAL AND CULTURAL RESOURCES COMPLIANCE

The following questions from the FOA are answered herein:

- **Will the project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)?**

  No.

- **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?**

  There are no Federal threatened species, endangered species, or designated critical habitat that will be affected by project activities.

- **Are there wetlands or other surface waters inside the project boundaries that potentially fall under Clean Water Act jurisdiction as waters of the United States?**
  No.

- **When was the water delivery system constructed?**
  Construction of the water delivery system began in 1961.

- **Will the project result in any modification of or effects to, individual features of an irrigation system (e.g., head gates, canals, or flumes)?**
  No.

- **Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?**
  No.

- **Are there any known archeological sites in the proposed project area?**
  No.

- **Will the project have a disproportionately high and adverse effect on low income or minority populations?**
  No.

- **Will the project limit access or ceremonial use of Indian sacred sites or result in other impacts on Tribal lands?**
  No.

- **Will the project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?**
  No.

4. REQUIRED PERMITS OR APPROVALS

OMWD expects to file a CEQA Notice of Exemption for relocation of one existing TGB. No other permits or approvals are required for the Project.

5. LETTERS OF PROJECT SUPPORT

OMWD has received one letter of support for the Project from SDCWA. The letter of project support can be found in Attachment A.

6. OFFICIAL BOARD RESOLUTION

The Olivenhain Municipal Water District Board of Directors has adopted Resolution No. 2019-03, authorizing the application for funding from the US Bureau of Reclamation. The resolution verifies the following:

- The identity of the official with legal authority to enter into agreement.
- The board of directors, governing body, or appropriate official who has reviewed and supports the application submitted.
- The capability of the applicant to provide the amount of funding and/or in-kind contributions specified in the funding plan.
- That the applicant will work with Reclamation to meet established deadlines for entering into a cooperative agreement.

Resolution No. 2019-03 can be found in Attachment B.

7. ASAP REGISTRATION

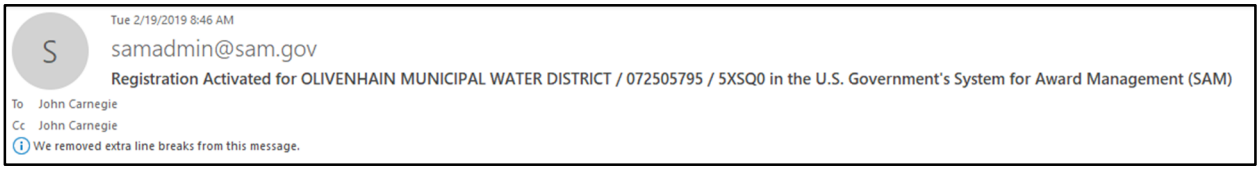
OMWD is registered with and willing to process all payments through the Department of Treasury Automated Standard Application for Payments (ASAP) system. OMWD's ASAP ID is #0650671.

8. SAM REGISTRATION

OMWD renewed registration with the US Government's System for Award Management (SAM) on February 19, 2019. Registration with SAM is valid through February 19, 2020. Proof of active registration is provided in Figure 8.1. OMWD's entity identifier numbers are as follows:

- DUNS: 072505795
- CAGE Code: 5XSQ0

Figure 8.1 – Proof of Active SAM Registration



9. DISCLOSURE OF LOBBYING ACTIVITIES

The District has completed and executed Standard Form LLL (SF-LLL) the "Disclosure of Lobbying Activities" form, which is included in Attachment C.

10. REFERENCES

California Department of Water Resources (CA DWR), 2013. Bay Delta Conservation Plan. Available: http://baydeltaconservationplan.com/Home.aspx.

East Bay Municipal Utilities District (EBMUD), 2014. "New technology reduces home water use by 5 percent". January 14, 2014. https://www.ebmud.com/about-us/news/press-releases/new-technology-reduces-home-water-use-5-percent/.

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Godwin, Angela, 2011. "Advanced Metering Infrastructure: Drivers and Benefits in the Water Industry". Water World, August 1, 2011. https://www.waterworld.com/articles/print/volume-27/issue-8/editorial-features/special-section-advanced-metering-infrastructure/advanced-metering-infrastructure-drivers-and-benefits-in-the-water-industry.html.

Lower Colorado River Multi-Species Conservation Program. Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan. Available: https://www.lcrmscp.gov/.

Natural Resources Defense Council (NRDC), Pacific Institute, 2014. "Agricultural Water Conservation and Efficiency Potential in California". June 2014. https://www.nrdc.org/sites/default/files/ca-water-supply-solutions-ag-efficiency-IB.pdf.

OMWD, 2016, "2015 Urban Water Management Plan", June 2016.

SDCWA, 2016, "2015 Urban Water Management Plan", June 2016.

ATTACHMENT A – LETTERS OF PROJECT SUPPORT

Our Region's Trusted Water Leader
San Diego County Water Authority

March 15, 2019

Olivenhain Municipal Water District
Attn: Kimberly Thorner
1966 Olivenhain Road
Encinitas, CA 92024

Subject: Letter of Support for OMWD Grant Application

Dear Ms. Thorner:

The San Diego County Water Authority supports Olivenhain Municipal Water District's (OMWD) application to the Bureau of Reclamation's WaterSMART: Water and Energy Efficiency Grants program for funding of its Advanced Metering Infrastructure (AMI) Water Use Efficiency Project. By providing access to hourly water use data, AMI technology allows OMWD staff and its customers to find and address leaks faster, resulting in significantly reduced water loss.

Additionally, AMI is the foundation for customer engagement software which will provide customers with access to hourly water usage, consumption trends, and other conservation tools to manage water use and increase water efficiency.

Lastly, AMI conversion will allow for more precise implementation of district metered areas which cut back on water loss from agency level leaks.

In summary, the San Diego County Water Authority supports the efforts of OMWD as they seek funding for their AMI project which will result in increased water efficiency by modifying customers' water use behaviors and facilitating prompt leak detection and repair at both the customer and agency level.

Sincerely,

Sandra L. Kerl
Acting General Manager

4677 Overland Avenue • San Diego, California 92123-1233 • (858) 522-6600 • FAX (858) 522-6568 • www.sdcwa.org

ATTACHMENT B – RESOLUTION NO. 2019-03

RESOLUTION NO. 2019-03

RESOLUTION AUTHORIZING THE APPLICATION FOR FUNDING FROM THE UNITED STATES BUREAU OF RECLAMATION'S "WATERSMART: WATER AND ENERGY EFFICIENCY GRANTS" PROGRAM AND AUTHORIZING THE EXECUTION OF A GRANT AGREEMENT WITH THE UNITED STATES BUREAU OF RECLAMATION

WHEREAS, Olivenhain Municipal Water District has the authority to construct, operate, and maintain its water system; and

WHEREAS, Olivenhain Municipal Water District desires to leverage its money and resources by cost sharing with the United States Bureau of Reclamation on projects that result in quantifiable and sustained water savings and support broader water reliability benefits; and

WHEREAS, Olivenhain Municipal Water District has the legal authority to enter into an agreement with the Bureau of Reclamation; and

WHEREAS, Olivenhain Municipal Water District has the capability to provide the amount of funding and/or in-kind contributions that it specifies in project funding plans submitted to the Bureau of Reclamation; and

WHEREAS, Olivenhain Municipal Water District will work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of Olivenhain Municipal Water District that, pursuant and subject to all of the terms and provisions of the WaterSMART: Water and Energy Efficiency Grants program, that application be made to the Bureau of Reclamation for funding; and

BE IT FURTHER RESOLVED that the General Manager of Olivenhain Municipal Water District is hereby authorized and directed to cause the necessary data to be prepared and application to be signed and filed with the Bureau of Reclamation.

PASSED, ADOPTED AND APPROVED at a regular meeting of the Board of Directors of Olivenhain Municipal Water District held on Wednesday, March 6, 2019.

Edmund K. Sprague, President
Board of Directors
Olivenhain Municipal Water District

ATTEST:

Robert M. Kephart, Secretary
Board of Directors
Olivenhain Municipal Water District

ATTACHMENT C – SF-LLL DISCLOSURE OF LOBBYING ACTIVITIES

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

Approved by OMB
4040-0013

1. * Type of Federal Action:
- [ ] a. contract
- [x] b. grant
- [ ] c. cooperative agreement
- [ ] d. loan
- [ ] e. loan guarantee
- [ ] f. loan insurance

2. * Status of Federal Action:
- [ ] a. bid/offer/application
- [x] b. initial award
- [ ] c. post-award

3. * Report Type:
- [x] a. initial filing
- [ ] b. material change

4. Name and Address of Reporting Entity:

[x] Prime [ ] SubAwardee

*Name: Olivenhain Municipal Water District

*Street 1: 1966 Olivenhain Road Street 2:

*City: Encinitas State: CA: California Zip: 92024

Congressional District, if known: 495052

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency:

Dept of Interior, Bureau of Reclamation

7. * Federal Program Name/Description:

WaterSMART: Water and Energy Efficiency Grants for fiscal year (FY) 2019

CFDA Number, *if applicable:* 15.507

8. Federal Action Number, *if known:*

BOR-DO-19-F004

9. Award Amount, *if known:*

$

10. a. Name and Address of Lobbying Registrant:

Prefix: *First Name: BlueWater Strategies llc Middle Name:

*Last Name: BlueWater Strategies llc Suffix:

*Street 1: 25 Massachusetts Avenue NW Street 2: Suite 820

*City: Washington State: DC: District of Columbia Zip: 20001

b. Individual Performing Services (including address if different from No. 10a)

Prefix: *First Name: McKie Middle Name:

*Last Name: Campbell Suffix:

*Street 1: 25 Massachusetts Avenue NW Street 2: Suite 820

*City: Washington State: DC: District of Columbia Zip: 20001

11. Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

* Signature: Kimberly A Thorner

*Name: Prefix: *First Name: Kimberly Middle Name:

*Last Name: Thorner Suffix:

Title: General Manager Telephone No.: 760-753-6466 Date: 03/15/2019

Federal Use Only:

Authorized for Local Reproduction
Standard Form - LLL (Rev. 7-97)

ATTACHMENT D – SF-424C BUDGET INFORMATION

OMB Number: 4040-0008
Expiration Date: 01/31/2019

BUDGET INFORMATION - Construction Programs

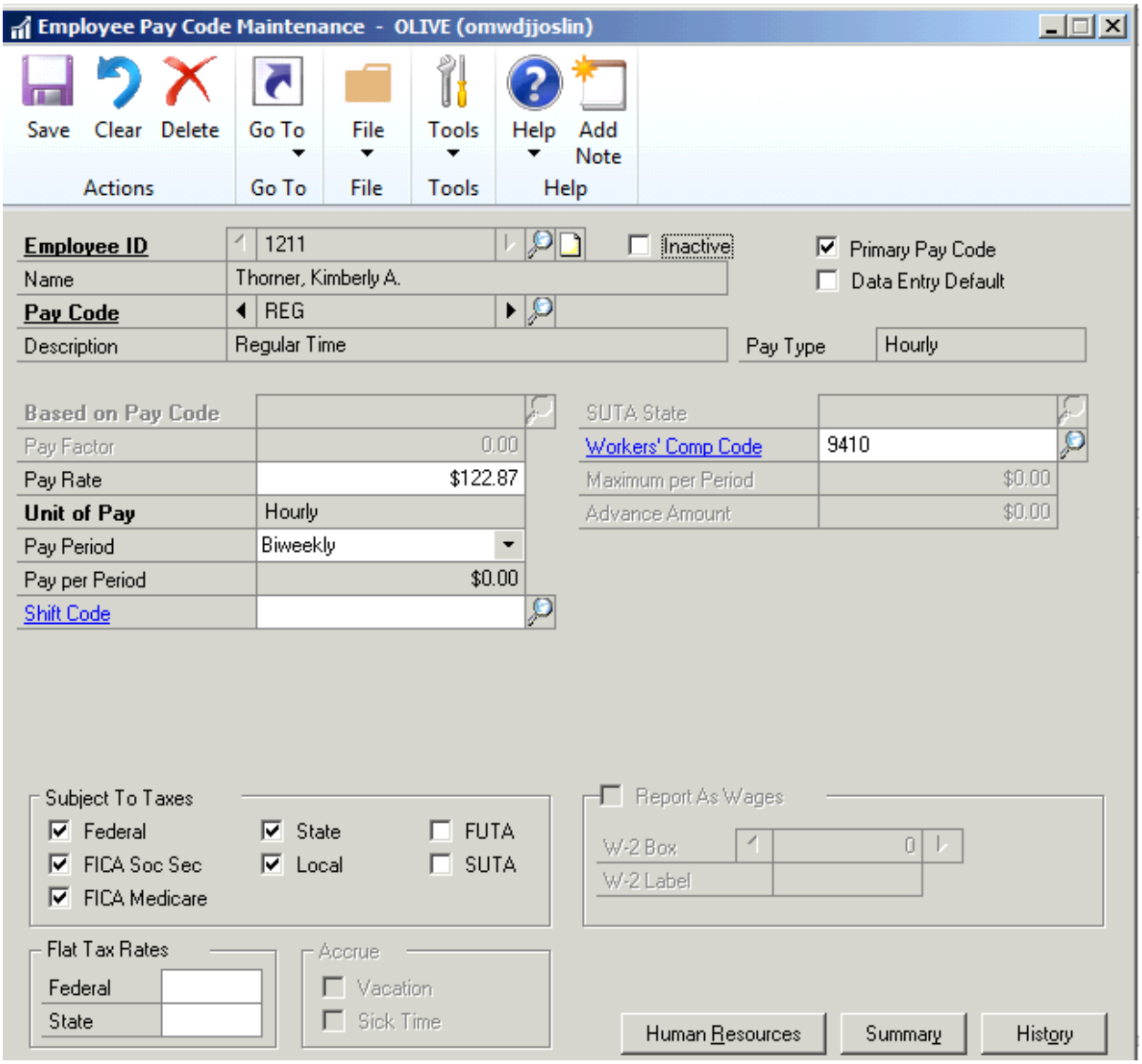
NOTE: Certain Federal assistance programs require additional computations to arrive at the Federal share of project costs eligible for participation. If such is the case, you will be notified.

COST CLASSIFICATION	a. Total Cost	b. Costs Not Allowable for Participation	c. Total Allowable Costs (Columns a-b)
1. Administrative and legal expenses	$ 203,135.00	$ 0.00	$ 203,135.00
2. Land, structures, rights-of-way, appraisals, etc.	$ 0.00	$ 0.00	$ 0.00
3. Relocation expenses and payments	$ 0.00	$ 0.00	$ 0.00
4. Architectural and engineering fees	$ 0.00	$ 0.00	$ 0.00
5. Other architectural and engineering fees	$ 0.00	$ 0.00	$ 0.00
6. Project inspection fees	$ 0.00	$ 0.00	$ 0.00
7. Site work	$ 0.00	$ 0.00	$ 0.00
8. Demolition and removal	$ 0.00	$ 0.00	$ 0.00
9. Construction	$ 1,853,116.28	$ 0.00	$ 1,853,116.28
10. Equipment	$ 0.00	$ 0.00	$ 0.00
11. Miscellaneous	$ 0.00	$ 0.00	$ 0.00
12. SUBTOTAL *(sum of lines 1-11)*	$ 2,056,251.28	$ 0.00	$ 2,056,251.28
13. Contingencies	$ 0.00	$ 0.00	$ 0.00
14. SUBTOTAL	$ 2,056,251.28	$ 0.00	$ 2,056,251.28
15. Project (program) income	$ 0.00	$ 0.00	$ 0.00
16. TOTAL PROJECT COSTS *(subtract #15 from #14)*	$ 2,056,251.28	$ 0.00	$ 2,056,251.28

FEDERAL FUNDING

17. Federal assistance requested, calculate as follows: (Consult Federal agency for Federal percentage share.) Enter the resulting Federal share.	Enter eligible costs from line 16c Multiply X 14.6 %	$ 300,000.00

ATTACHMENT E – BUDGET SUPPORTING DOCUMENTATION


Employee Pay Code Maintenance - OLIVE (omwdjjoslin)
Save
Clear
Delete
Go To
File
Tools
Help
Add Note
Actions
Go To
File
Tools
Help
Employee ID
1211
Inactive
Primary Pay Code
Name
Thorner, Kimberly A.
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$122.87
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
9410
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
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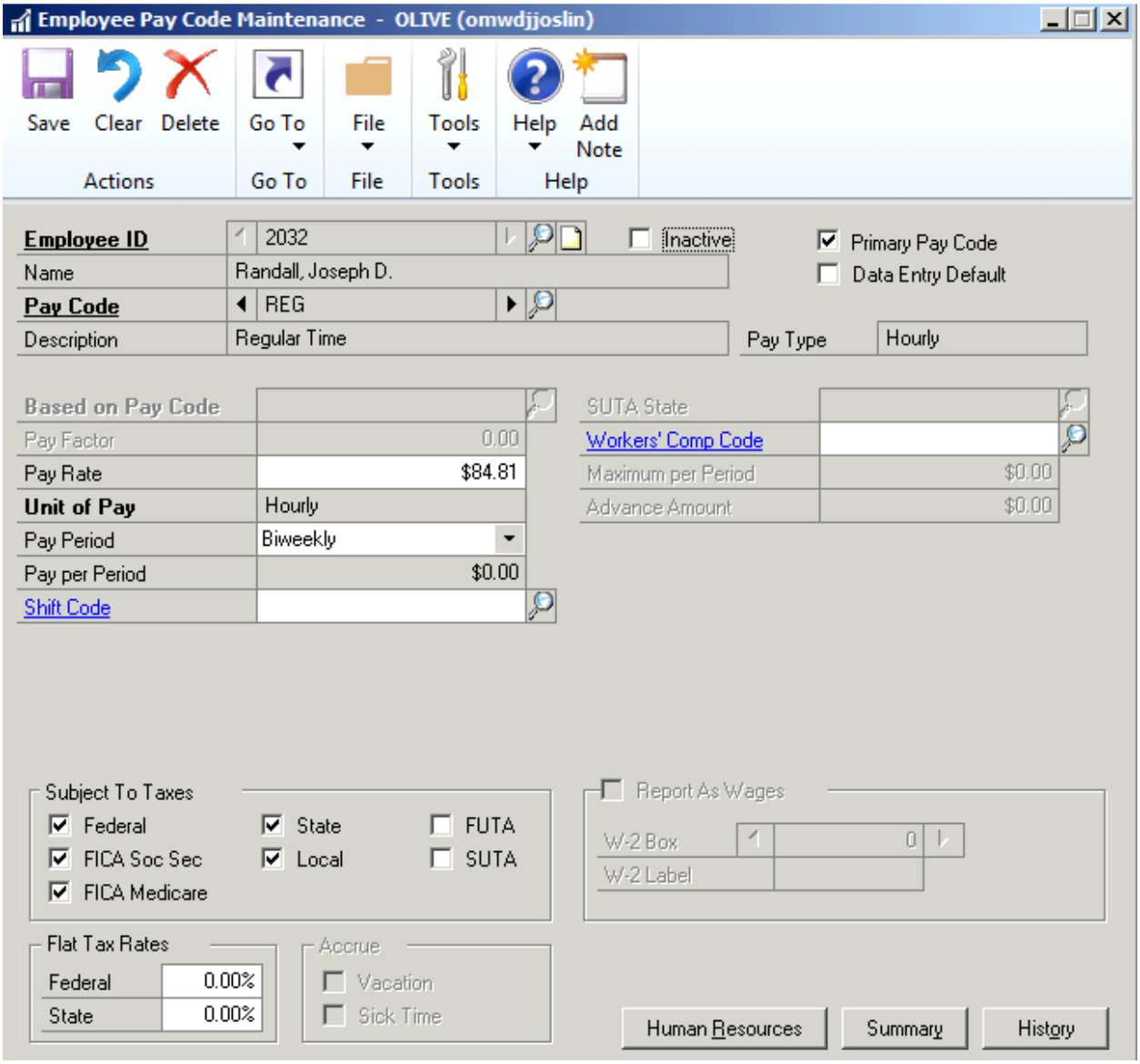
W-2 Label
Flat Tax Rates
Federal
State
Accrue
Vacation
Sick Time
Human Resources
Summary
History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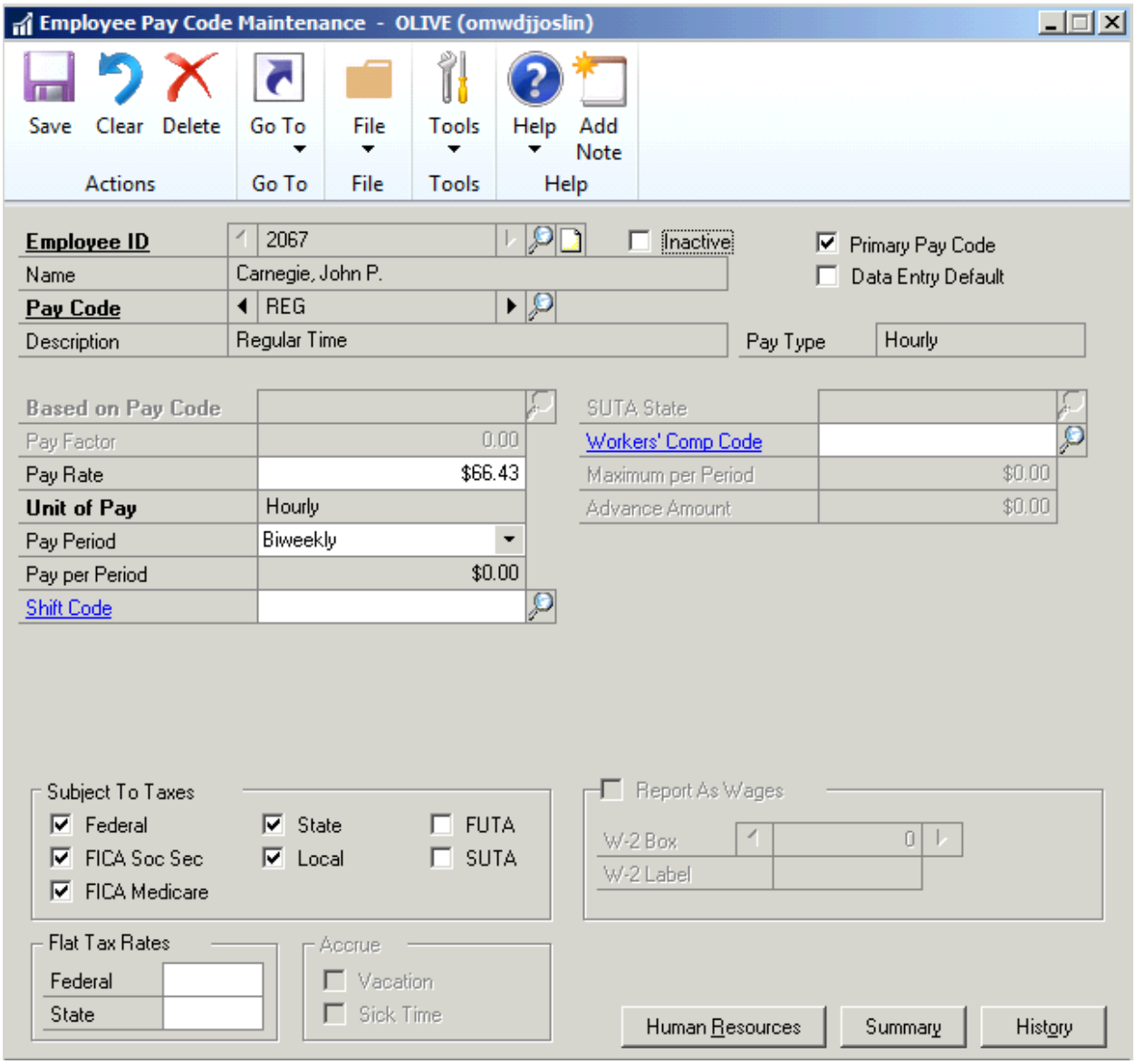
Go To
File
Tools
Help
Add Note
Actions
Go To
File
Tools
Help
Employee ID
2032
Inactive
Primary Pay Code
Name
Randall, Joseph D.
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$84.81
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
0
W-2 Label
Flat Tax Rates
Federal
0.00%
State
0.00%
Accrue
Vacation
Sick Time
Human Resources
Summary
History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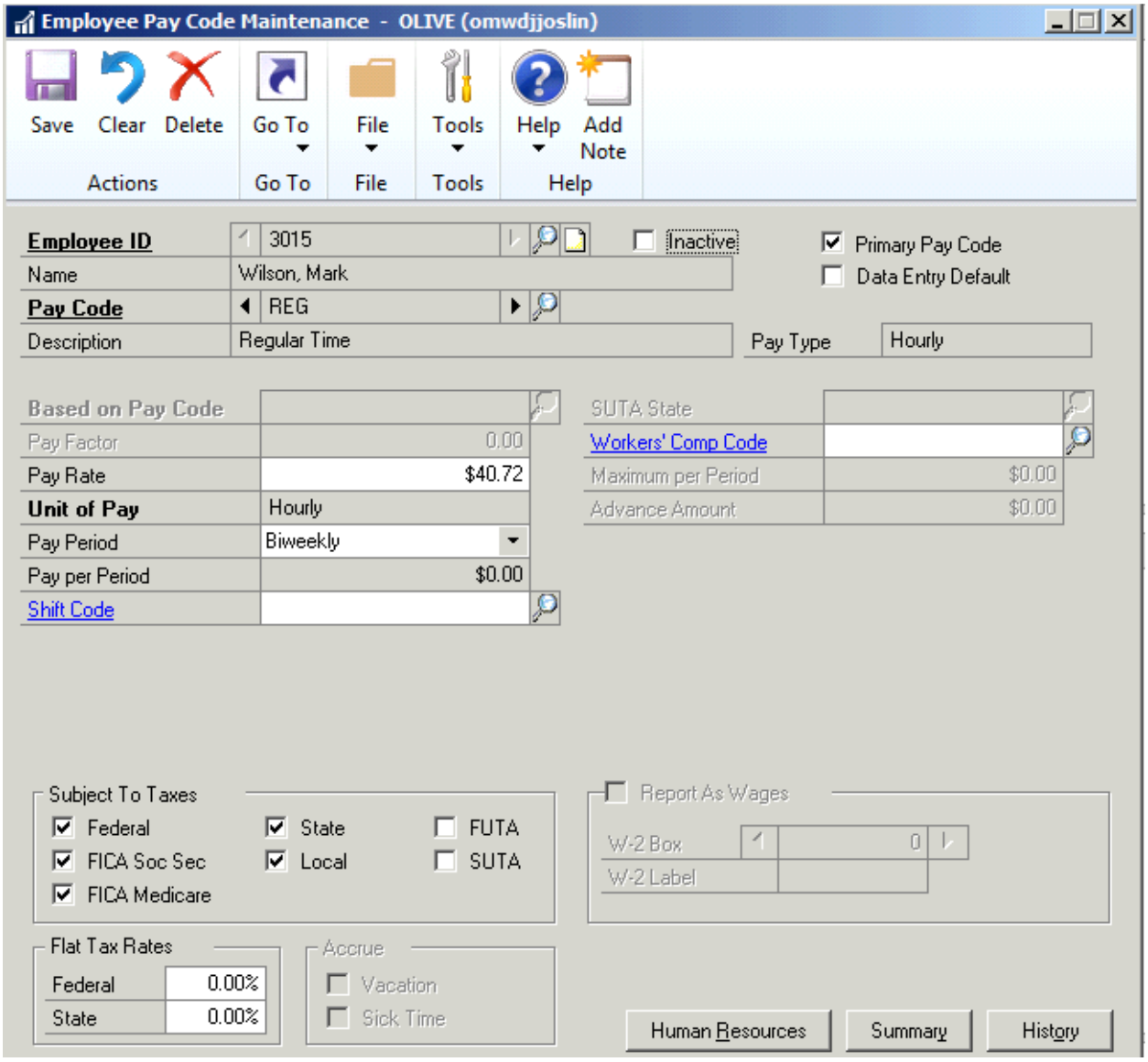
Save
Clear
Delete
Go To
File
Tools
Help
Add Note
Actions
Go To
File
Tools
Help
Employee ID
2067
Inactive
Primary Pay Code
Name
Carnegie, John P.
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$66.43
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
0
W-2 Label
Flat Tax Rates
Federal
State
Accrue
Vacation
Sick Time
Human Resources
Summary
History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Go To
File
Tools
Help
Add Note
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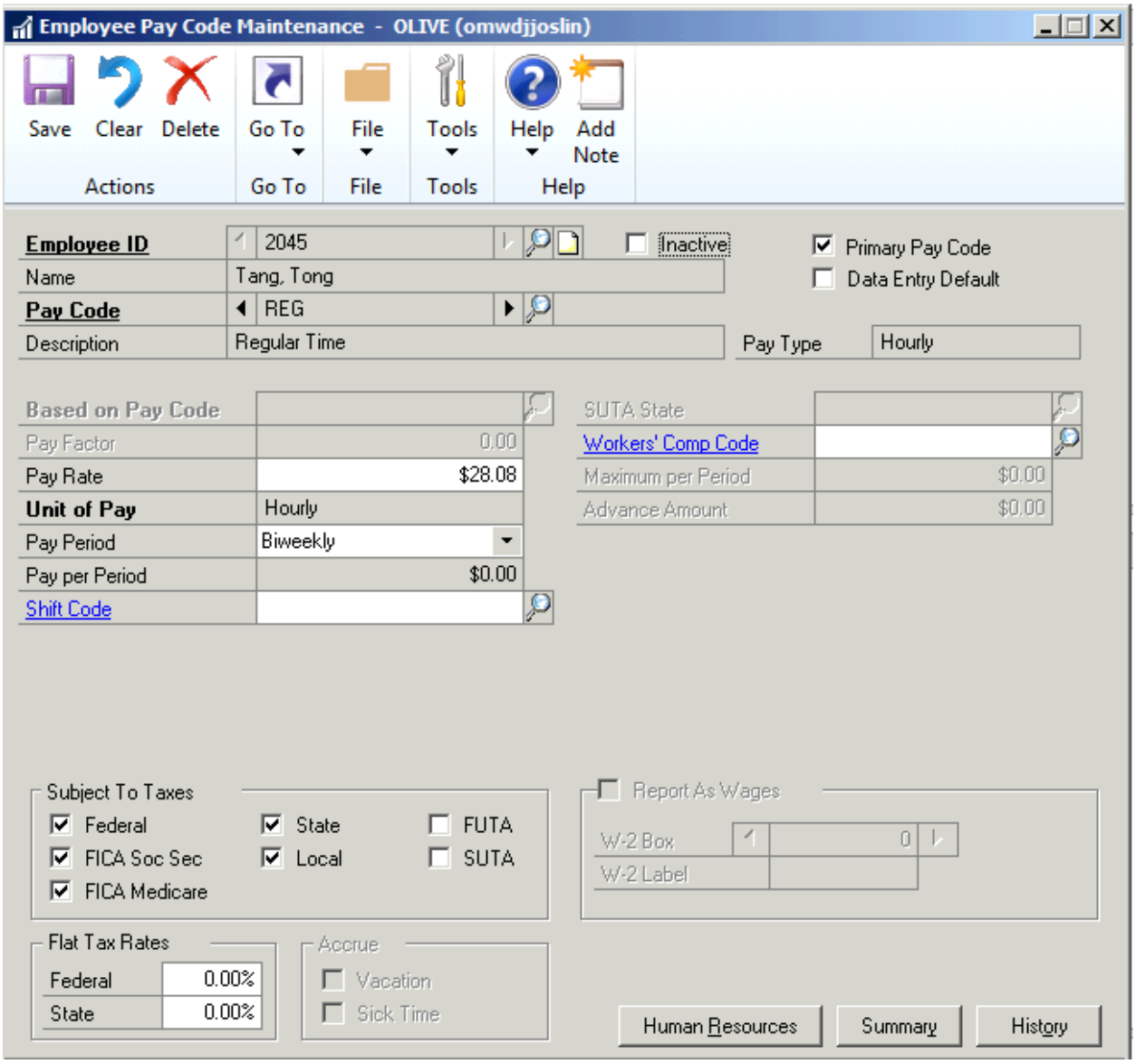
File
Tools
Help
Employee ID
3015
Inactive
Primary Pay Code
Name
Wilson, Mark
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$40.72
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
0
W-2 Label
Flat Tax Rates
Federal
0.00%
State
0.00%
Accrue
Vacation
Sick Time
Human Resources
Summary
History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Clear
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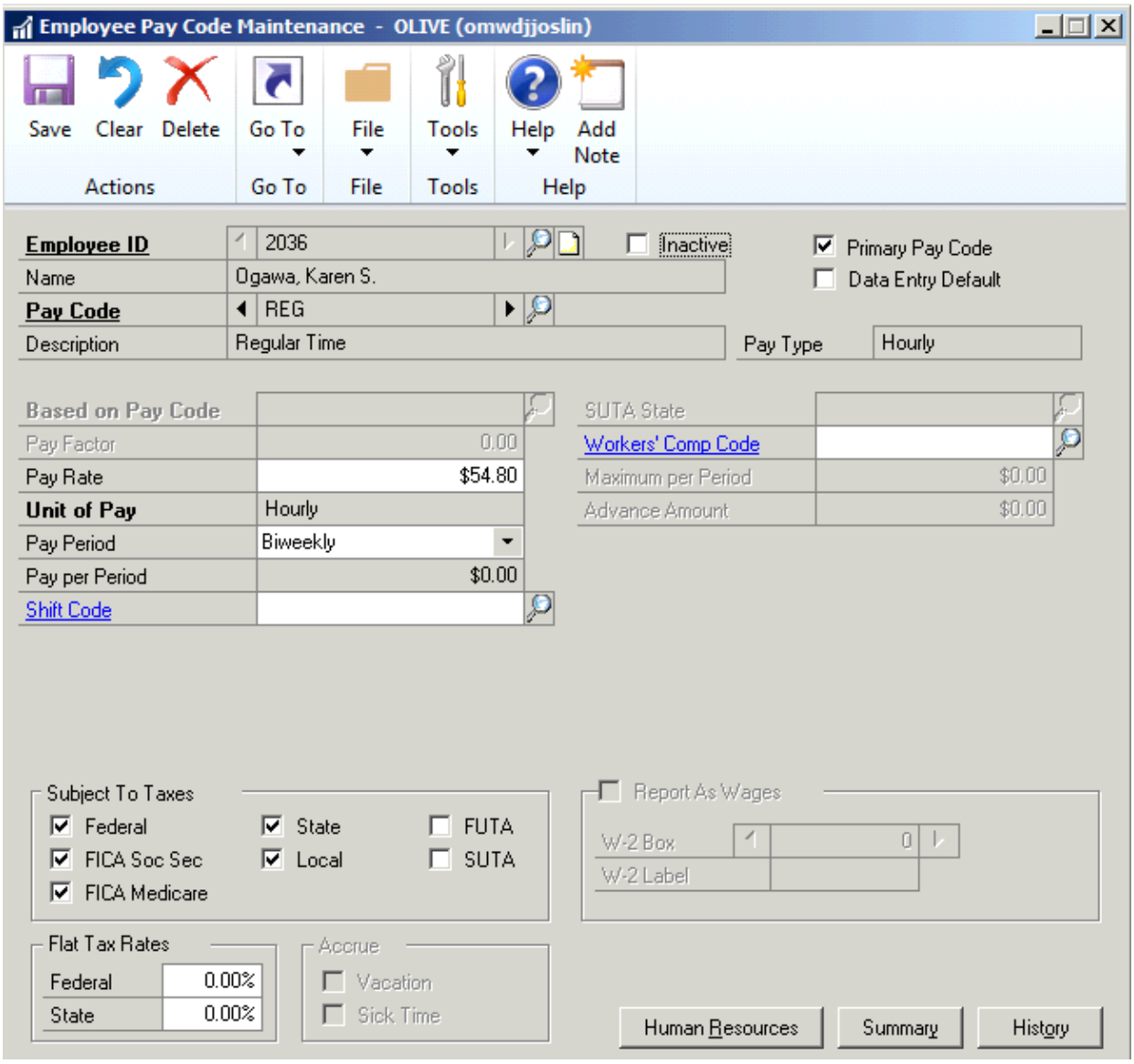
Go To
File
Tools
Help
Add Note
Actions
Go To
File
Tools
Help
Employee ID
2045
Inactive
Primary Pay Code
Name
Tang, Tong
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$28.08
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
0
W-2 Label
Flat Tax Rates
Federal
0.00%
State
0.00%
Accrue
Vacation
Sick Time
Human Resources
Summary
History


Employee Pay Code Maintenance - OLIVE (omwdjjoslin)
Save
Clear
Delete
Go To
File
Tools
Help
Add Note
Actions
Go To
File
Tools
Help
Employee ID
2036
Inactive
Primary Pay Code
Name
Ogawa, Karen S.
Data Entry Default
Pay Code
REG
Description
Regular Time
Pay Type
Hourly
Based on Pay Code
Pay Factor
0.00
Pay Rate
$54.80
Unit of Pay
Hourly
Pay Period
Biweekly
Pay per Period
$0.00
Shift Code
SUTA State
Workers' Comp Code
Maximum per Period
$0.00
Advance Amount
$0.00
Subject To Taxes
Federal
State
FUTA
FICA Soc Sec
Local
SUTA
FICA Medicare
Report As Wages
W-2 Box
0
W-2 Label
Flat Tax Rates
Federal
0.00%
State
0.00%
Accrue
Vacation
Sick Time
Human Resources
Summary
History

Aqua Metric

January 3, 2019

Olivenhain Municipal Water District
1966 Olivenhain Rd.
Encinitas, Ca 92024

Aqua-Metric Sales Company is pleased to offer you the following prices on Sensus AMR/AMI water meter products.

¾” SL iPerl TR/PL	$155.18
¾” Long iPerl TR/PL	$178.89
1” iPerl TR/PL	$227.59
5/8”x3/4” SRII TR/PL CF	$145.04
3/4" SRII TR/PL CF	$198.89
1” SRII TR/PL CF	$274.08
1 ½” Omni T2	$914.80
2” Omni T2	$1,078.39
3” Omni T2	$1,371.00
4” Omni T2	$2,659.22
6” Omni T2	$4,594.84
1 ½” Omni C2	$1,596.31
2” Omni C2	$1,651.62
3” Omni C2	$2,104.63
4” Omni C2	$3,655.40
6” Omni C2	$6313.88
1 ½” Omni R2	$557.18
2” Omni R2	$768.11
1 ½” Omni T2 Measuring Chamber	$633.20
2” Omni T2 Measuring Chamber	$633.20
3” Omni T2 Measuring Chamber	$761.00
4” Omni T2 Measuring Chamber	$761.00
6” Omni T2 Measuring Chamber	$1299.30
1 ½” Omni C2 Measuring Chamber	$1,088.45
2” Omni C2 Measuring Chamber	$1,088.45
3” Omni C2 Measuring Chamber	$1,463.10
4” Omni C2 Measuring Chamber	$1,463.10
6” Omni C2 Measuring Chamber	$2,136.20
1 ½” Omni R2 Measuring Chamber	$337.74
2” Omni R2 Measuring Chamber	$372.35
SRII TR/PL REGISTER 5/8”-1”	$81.48
MXU 520-M DUAL PORT	$198.59
MXU 520-M Single PORT	$182.71

Prices are firm through December 31, 2019. Prices are net Tax not included. Full freight allowed on orders of more than $10,000.00. Terms are Net 30 days. Tax not included

Sincerely,
Ed Funk

Aqua Metric

Olivenhain Municipal Water District
1966 Olivenhain Rd.
Encinitas, Ca 92024

Aqua-Metric Sales Company is pleased to offer you the following prices on Sensus AMR/AMI meter reading products.

Style / Size	Price
Zero Site Sensus M400 TGB Install M400 TGB	 $50,000.00 $14,375.00
Gano Reservoir Site Sensus M400 TGB Install M400 TGB	 $50,000.00 $18,125.00
4G Site Sensus M400 TGB Install M400 TGB	 $50,000.00 $10625.00
Gaty Reservoir Site Sensus M400 TGB Install M400 TGB	 $50,000.00 $24,187.50
Wiegand Reservoir Sensus M400 TGB Install M400 TGB	 $50,000.00 $17,812.50
Dank Reservoir Sensus M400 TGB Install M400 TGB	 $50,000.00 $16,825.00

WASTE MANAGEMENT

INVOICE

Customer ID: 18-20482-23003
Customer Name: OLIVENHAIN WATER DISTRICT
Service Period: 06/01/17-06/30/17
Invoice Date: 06/01/2017
Invoice Number: 4579983-1584-2

How To Contact Us	Your Payment Is Due	Your Total Due
Visit **wm.com** To setup your online profile, sign up for paperless statements, manage your account, view holiday schedules, pay your invoice or schedule a pickup Customer Service: **(619) 596-5100**	**Due Upon Receipt** If full payment of the invoiced amount is not received within your contractual terms, you may be charged a monthly late charge of 2.5% of the unpaid amount, with a minimum monthly charge of $5, or such late charge allowed under applicable law, regulation or contract.	**$136.42** See Reverse for Important Messages

Previous Balance	+ Payments	+ Adjustments	+ Current Charges	= Total Due
279.66	(279.66)	0.00	136.42	**136.42**

Details for Service Location: Olivenhain Water District, 17988 Alva Rd, San Diego CA 92127-7609 — **Customer ID:** 18-20482-23003

Description	Date	Ticket	Quantity	Amount
3 Yard insta bin	05/22/17	809481	1.00	100.00
Ticket Total				**100.00**
Fuel / environmental charge				31.68
Regulatory cost recovery charge				4.74
Total Current Charges				**136.42**

V # 407000 CC 105P Cover
D120029
Mark E Wilson Jr. 6-17

OLIVENHAIN MUNICIPAL WATER DISTRICT RECEIVED MAY 30 2017

Please detach and send the lower portion with payment (no cash or checks)

WASTE MANAGEMENT

INVOICE

OLIVENHAIN MUNICIPAL WATER DISTRICT RECEIVED JUN - 5 2017

Customer ID: 18-20481-03008
Customer Name: OLIVENHAIN WATER DISTRICT
Service Period: JUNE 2017
Invoice Date: 06/01/2017
Invoice Number: 463674 1-1584-3

How To Contact Us	Your Payment Is Due	Your Total Due
Visit **wm.com** To setup your online profile, sign up for paperless statements, manage your account, view holiday schedules, pay your invoice or schedule a pickup Customer Service: **(619) 596-5100**	**Due Upon Receipt** If full payment of the invoiced amount is not received within your contractual terms, you may be charged a monthly late charge of 2.5% of the unpaid amount, with a minimum monthly charge of $5, or such late charge allowed under applicable law, regulation or contract.	**$1,987.02** 407000 See Reverse for Important Messages

Previous Balance	+ Payments	+ Adjustments	+ Current Charges	= Total Due
54.56	(54.56)	0.00	1,987.02	**1,987.02**

Details for Service Location: Olivenhain Water District, 17988 Alva Rd, San Diego CA 92127-7609 — **Customer ID:** 18-20481-03008

Description	Date	Ticket	Quantity	Amount
10 Yd rolloff	05/15/17	853481	1.00	400.00
Ticket Total				**400.00**
10 Yd rolloff	05/22/17	855578	1.00	400.00
Excess of 4 tons			1.60	107.20
Ticket Total				**507.20**
10 Yd rolloff	05/25/17	857474	1.00	400.00
Excess of 4 tons			2.23	149.41
Ticket Total				**549.41**
Fuel/environmental charge				461.37
Regulatory cost recovery chrg				69.04
Total Current Charges				**1,987.02**

D120029 CC 105P Cover

RECEIVED JUN 6 2017 By MW

Please detach and send the lower portion with payment (no cash or checks)

ATTACHMENT F – 2017 OMWD WATER LOSS AUDIT REPORT

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0

? Click to access definition
+ Click to add a comment

Water Audit Report for: Olivenhain Municipal Water District (3710029)
Reporting Year: 2017 1/2017 - 12/2017

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

<---------- Enter grading in column 'E' and 'J' ---------->

Master Meter and Supply Error Adjustments

WATER SUPPLIED

				Pcnt:	Value:	
Volume from own sources:	n/a	0	acre-ft/yr			acre-ft/yr
Water imported:	7	22179.89	acre-ft/yr			acre-ft/yr
Water exported:	7	3769.3	acre-ft/yr	8		acre-ft/yr
WATER SUPPLIED:		**18,410.590**	acre-ft/yr			

Enter negative % or value for under-registration
Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

				Pcnt:	Value:	
Billed metered:	8	17,033.748	acre-ft/yr			
Billed unmetered:	n/a		acre-ft/yr			
Unbilled metered:	10	140.950	acre-ft/yr			
Unbilled unmetered:	2	9.205	acre-ft/yr		9.205	acre-ft/yr
AUTHORIZED CONSUMPTION:		**17,183.904**	acre-ft/yr			

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption) **1,226.686** acre-ft/yr

Apparent Losses

				Pcnt:	Value:	
Unauthorized consumption:		46.026	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	7	43.044	acre-ft/yr	0.25%		acre-ft/yr
Systematic data handling errors:		42.584	acre-ft/yr	0.25%		acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: **131.655** acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: **1,095.031** acre-ft/yr

WATER LOSSES: **1,226.686** acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: **1,376.842** acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	10	466.2	miles
Number of active AND inactive service connections:	10	22,756	
Service connection density:		49	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	7	115.0	psi

COST DATA

Total annual cost of operating water system:	10	$43,571,766	$/Year	
Customer retail unit cost (applied to Apparent Losses):	9	$4.36	$/100 cubic feet (ccf)	
Variable production cost (applied to Real Losses):	10	$1,121.18	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 78 out of 100 *****

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

1: Water imported
2: Unauthorized consumption
3: Systematic data handling errors