

WaterSMART: Small-Scale Water Efficiency - Distribution Metering Enhancement Project by the Yucaipa Valley Water District

**Bureau of Reclamation – WaterSMART Small-Scale Water Efficiency Projects
BOR-DO-20-F006**

Prepared For:

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Technical Proposal

Executive Summary

Date: March 4, 2020

Name: Yucaipa Valley Water District

City, County, State: Calimesa, Riverside County, California

Yucaipa, San Bernardino County, California

Project Summary:

Yucaipa Valley Water District has an aging infrastructure as most water utilities in the United States. The proposed project is called the Distribution Enhancement Project, which focuses on the meters in the distribution system and the water filtration plant; including wells, boosters and reservoirs located throughout the district area. The 3,140 foot elevation change located in the District boundaries has an effect on the pressures in the system and creates high pressures throughout the system thus putting stress on the District's infrastructure. This causes additional leaks and mainline breaks. Leaks in a water distribution system not only cause a revenue loss for the District, but also require more water to be pumped and treated for customer uses.

In conjunction with the District's ongoing Automatic Metering Infrastructure (AMI) project that which is replacing every water meter in the District with a smart meter. The District is ahead of schedule and is over halfway done with converting meters to AMI, it is estimated the completion of the AMI project will be within the next year. The District has also installed radio antennas to transmit the hourly meter read data to the office. This infrastructure is already in place and the completion of the AMI project, in conjunction with the Distribution Metering Enhancement project will detail the water going into a zone and the water being consumed in that zone. The difference will be investigated to determine if the water losses are dues to unbilled activities, meter inaccuracy or real water loss through the distribution system due to leaks.

The metering of the distribution system and determining where the water loss helps District staff hone their resources and focus on an area that has been identified by the metering of the distribution system and the customer usage. Once an area is identified then District staff can use a wide variety of tools to locate unauthorized use or leaks. Identifying leaks prior to a large break causing large amounts of water loss and property damage is important for the District to be proactive and not reactive. This also helps to lessen unexpected water outages to customers and increases the reliability of the system, and also protect public health by eliminating the threat of sanitary defects that may allow microbial or other contaminants to enter the finished water.

As stated by the AWWA, water losses in the distribution system require more water to be treated, which requires additional energy and chemical usage, resulting in wasted resources and lost revenues. This project will be completed in 24 months from the Notice to Proceed if awarded, and will help conserve water and increase reliability.

Background Data

The Yucaipa Valley Water District was formed as part of reorganization, pursuant to the Reorganization Act of 1965, being Division I of Title 6 of the Government Code of the State of California. On September 14, 1971, the Secretary of State of the State of California certified and declared the formation of the Yucaipa Valley County Water District. YVWD operates under the County Water District Law, being Division 12 of the State of California Water Code (the “Act”). Although the immediate function of YVWD was to provide water service, YVWD has been granted the responsibility for providing sewer service and recycled water service to the cities in the Yucaipa Valley. Yucaipa Valley Water District boundaries encompasses the City of Yucaipa located in San Bernardino County and the City of Calimesa located in Riverside County.

Yucaipa Valley Water District is located about 70 miles east of Los Angeles and 20 miles southeast of San Bernardino in the foothills of the San Bernardino Mountains and has an estimated population of approximately 54,288. The YVWD’s sphere of influence is outlined in blue and the service area is shaded in Figure 1 below. The projected buildout for YVWD services is a population over 100,000 people and a service area of 68 sq. miles. The topography within the boundary of the YVWD rises from an elevation of about 2,000 feet above sea level at the western end of the Yucaipa Valley to about 5,000 feet at the eastern end, with average elevation of roughly 2,650 feet. The topography of the area is characterized by rolling hills separated by deeply entrenched stream beds, namely, the Yucaipa and Wilson Creeks.

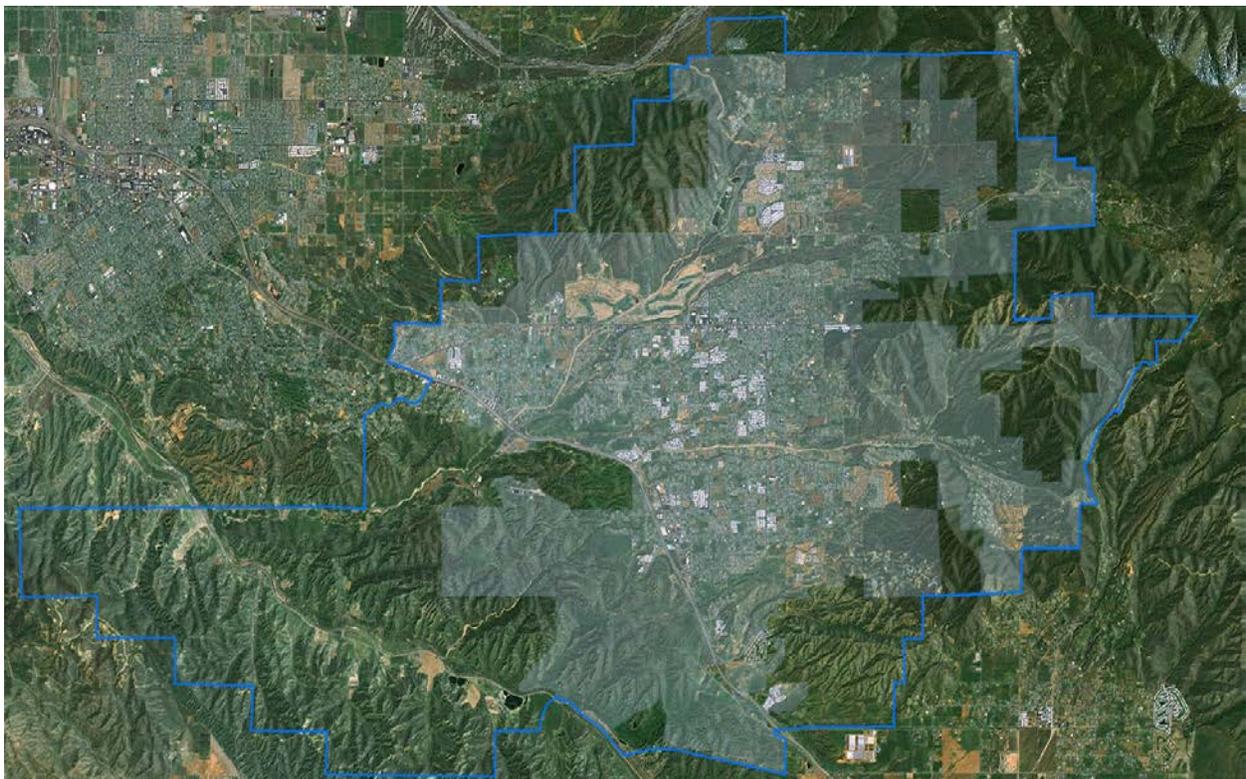


Figure 1: Yucaipa Valley Water District Sphere of Influence and Service Area

Yucaipa Valley Water District owns and operates the Yucaipa Valley Regional Water Filtration Facility (YVRWFF) and the Wochholz Regional Water Recycling Facility (WRWRF). YVRWFF treats State Water Project water and is an 8 mgd water filtration plant with microfiltration and nanofiltration. WRWRF has a permitted flow of 8 mgd, and currently the average daily flow is approximately 4 mgd. This facility produces partial RO treated and fully disinfected tertiary recycled water for reuse in District’s service area. The District has 223 miles of drinking water pipelines, 22 miles of recycled water pipelines, 27 drinking water reservoirs with 34 million gallons of storage capacity, 5 recycled water reservoirs with 12 million gallons of storage, 18 pressure zones, and a 3 billion gallon annual drinking water demand. The District’s Water Resource Management Schematic is detailed below in Figure 2.

The Yucaipa Valley Water District only produces drinking water sufficient to meet the demands of the community. If there is a large demand for water, for example in the summer season, YVWD will activate the necessary sources of supply to meet the demand. The District has taken great strides to ensure the use of recycled water in parks, schools, golf courses and in new residential communities for front and backyard irrigation.

Water Resource Management Schematic for the Yucaipa Valley Water District

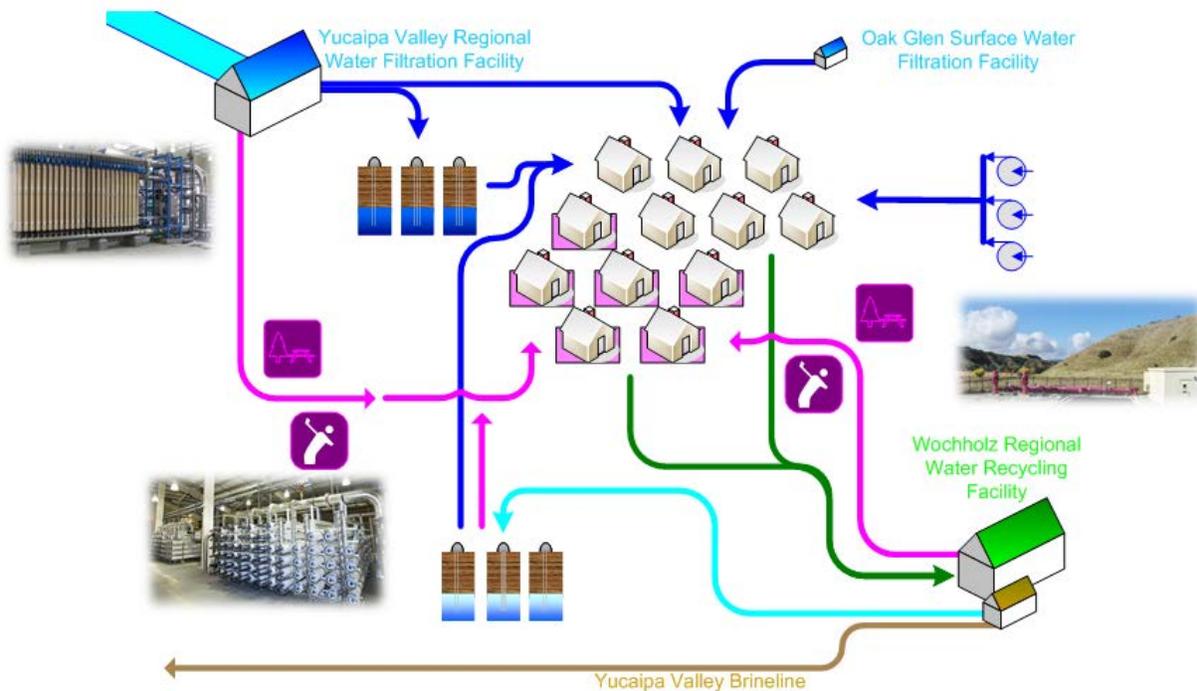


Figure 2: Water Resource Management Schematic

Geology

The Yucaipa plain rests on top of the Yucaipa Management Zone and is surrounded by hills and mountains of bedrock to the north, east and west. To the north lay the San Bernardino Mountains, the Yucaipa Ridge is located to the east and south and the Crafton Hills are to the northwest. This bedrock is largely composed of crystalline igneous and metamorphic rocks. To the south, an area known as the badlands, consists of moderately to poorly consolidated continental deposits that have been uplifted and dissected. The badland deposits contain numerous faults and consists of lenses of gravel, sand, silt and clay.

The Yucaipa plain rests on a depressed block of crystalline rocks bordered by the San Andreas Fault and San Jacinto Fault. This depressed rock was tectonically created and has since filled in with erosion deposits left by flowing water, known as alluvium. The older alluvial deposits consist of boulders, gravel, sand, silt and clay and rest on top of the underlying crystalline rocks. Further erosion of these, moderately to well consolidated, deposits has led to streambeds within the Yucaipa plain, such as Wilson Creek. Along the stream channels more recent and unconsolidated alluvium is present. The Gateway subbasin, where the WCSB are located, conforms to these geological characteristics and consists of both older alluvium and younger alluvium.

Hydrology

Yucaipa Valley Water District service area has a semiarid climate, which affects the quantity and frequency of flowing waters. Streamflow can primarily be found past the upper reaches of the main creeks for only brief periods following precipitation. However, there is perennial flow in the upper reaches of the Oak Glen Creek, as a result of groundwater discharge in the Ford Canyon in the San Bernardino Mountains. A portion of this water contributes to the public supply and another portion infiltrates into the unconsolidated alluvial deposits at the north east corner of the city. In southern Yucaipa, there is also perennial flow in the San Timoteo Creek due to treated wastewater discharge and runoff.

Project Location

The Yucaipa/Calimesa area is located in the upper region of the Santa Ana River drainage basin and contains a large area of the San Timoteo Creek drainage. The area is primarily drained by the Wilson Creek, Oak Glen Creek, flowing from the San Bernardino Mountains and the Yucaipa Creek, flowing from the Yucaipa Hills. The project is throughout the entire District's boundaries as seen in Figure 1. The District encompasses 40 square miles with an elevation ranging from 2,044 to 5,185 feet.

Technical Project Description and Milestones

The District's has an aging infrastructure as most water utilities in the United States. The 3,140 foot elevation change located in the District boundaries has an effect on the pressures in the system and creates high pressures through out the system thus putting stress on the District's infrastructure. This causes additional leaks and mainline breaks. The Distribution Enhancement Project focuses on the meters in the distribution system and

the effluent from YVRWFF, wells, boosters and reservoirs located throughout the district area.

This project would replace or add additional smart distribution meters to these sites to determine exactly the amount of water in District Meters Area (DMA), which will mostly match the District's 18 pressure zones. According to the EPA *Control and Mitigation of Drinking Water Losses in a Distribution Systems*, November 2010. "While it is possible to spot losses through billing data discrepancies or abrupt changes in amounts of water that have been historically used, it is typically necessary to physically pinpoint the leak in the field. The location of a leak is not always obvious unless it is large. Flow monitoring of a District Meter Area (DMA) can be used to determine leakage within an area that can be isolated and may encompass 1,500 to 2,000 service connections. These techniques monitor flow to specific areas and compare water flowing into the area with known or estimated night usage to determine losses in the DMA or along a branch water line". This project would allow the District to analyze this information to determine area that need further investigation through the use of sounding devices to identify leaks.

This project works in conjunction with the District's Automatic Meter Infrastructure (AMI) project which is currently in progress and supporting funds were awarded by the Bureau of Reclamation WaterSMART grant in 2018. The AMI project is converting the district 14,000 plus meters to smart meters that are read by a radio antenna network already installed by the District. This project in conjunction with the Distribution Metering Enhancement project allows the District to determine how much water is entering a DMA and how much is being consumed by the customers. The difference between the two is the water losses in the DMA. These water losses can be due to a variety of reasons. As seen in Figure 3 the losses can be due to unauthorized consumption, apparent losses and/or real losses.

Volume from Own Sources (corrected for known errors)	System Input Volume	Water Exported (corrected for known errors)	Billed Water Exported				Revenue Water
		Water Supplied	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption		Revenue Water
Water Losses	Apparent Losses			Unbilled Authorized Consumption	Billed Unmetered Consumption		Non-revenue Water
		Real Losses	Real Losses	Unbilled Unmetered Consumption	Unbilled Metered Consumption		
Leakage on Transmission and Distribution Mains	Customer Metering Inaccuracies						
	Leakage and Overflows at Utility's Storage Tanks			Unauthorized Consumption			
Water Imported (corrected for known errors)					Systematic Data Handling Errors		
					Leakage on Service Connections up to the point of Customer Metering		

Figure 3: AWWA Water Balance (Source: AWWA M36 Manual, 4th Ed.)

The Distribution Metering Enhancement project identifies what goes into the system and the AMI project determines what is consumed. The District will use the data to identify an

area of loss and then work to identify the type of water loss it is. If it is determined that it is a real loss which consist of a leak from distribution pipelines, leakage and overflows from the districts' storage tanks, and leakage from service connections up to and including the meter. Preventing or repairing real losses is a priority of the District's Sustainability Plan, with water conservation as a forefront to preventing larger leaks and breaks by identifying them while still manageable and in a non-emergency manner. These water leaks are lost from the system, generate no revenue, can severely damage system reliability if not corrected and may result in water quality problems. Storage leaks and overflows from water storage tanks can lead to a large quantity of water lost from the storage facilities within the system. Service connection piping leaks, which consist of the quantity of water lost from leaks from the main to the customer's point of use. Service connection leaks represent real losses from the system and may be easy to detect or very challenging to identify. Apparent losses, also referred to as commercial losses, occur when water that should be included as revenue generating water appears as a loss due to unauthorized actions or calculation error. Apparent losses consist of unauthorized consumption, customer metering inaccuracies, and systematic data handling errors in the meter reading and billing processes.

The objective of this project is to apply the technology of the smart meters to continuously read in the distribution system and in the customer system and help identify losses. Thus, allowing the District to determine appropriate and effective techniques to recover as much leakage and unauthorized usage as economically possible. These can be by sounding the distribution pipeline and located leaks for repair or unauthorized use, and deploy pressure management techniques and technologies to preserves the District's infrastructure.

The American Water Works Association (AWWA) estimated in the Distribution System Inventory, Integrity and Water Quality publication that there are close to 237,600 breaks per year in the US leading to approximately \$2.8 billion lost in yearly revenue. Those are breaks that are identified, that does not take into account leaks and breaks that are unaccounted for and not yet visible. The outcome the District is expecting from this project is to identify DMA with water loss, determine the cause of the water loss and either bill for unauthorized water loss, change out meters due to inaccuracies, and/or identify distribution pipeline leaks and replace or repair those pipelines.

Evaluation Criteria

Evaluation Criterion 1—Water Supply

Evaluation Criterion A—Project Benefits (35 points)

Up to **35 points** may be awarded based upon evaluation of the benefits that are expected to result from implementing the proposed project. This criterion considers a variety of project benefits, including the significance of the anticipated water management benefits and the public benefits of the project. This criterion prioritizes projects that modernize existing infrastructure in order to address water reliability concerns, including making water available for multiple beneficial uses and resolving water related conflict in the region.

1. Describe the expected benefits and outcomes of implementing the proposed project.

What are the benefits to the applicant's water supply delivery system?

Yucaipa Valley Water District has multiple avenues drinking water is brought into the system. The District has multiple wells that provides about 48 percent of the drinking water throughout the District and a water treatment plant that produces the other 52 percent from water from the State Water Project. With the multiple avenues for drinking water to enter the distribution system it is important for the District to track where the water goes from each of its sources. This project helps the District determine in real time where the water came from and how much is in each zone. This also allows the District to take that information and compare it with the real time data from the community AMI meters to determine how much is being consumed by customers. Comparing the data of the drinking water going into the system and the water being consumed by the customers will determine water loss by either distribution leaks or unbilled activities.

Water providers usually become aware of bursts or leaks through customer complaints about low pressures, visually seeing a leak, and/or service interruption. Not all leaks are detected this way, a large number of leaks are not reported because they seep underground. These can lead to significant leaks later on that cause unplanned service outages, large losses in water and property damage. This project helps the District determine where the leaks are in the system and helps make the Districts water supply delivery system beneficial.

If other benefits are expected explain those as well. Consider the following:

Identifying water loss in a distribution system such as in Yucaipa Valley Water District is important for preserving water. The District's area covers two cities and two counties, 40 square miles, and has a 3,140-foot change in elevation. The District has 18 pressure zones and with the multiple changes in pressure come an abundant amount of pressure related pipeline fractures. Identifying the area where there are leaks that could become large breaks allows for the District to be proactive and replace pipelines prior to breaks and reduce emergency service interruptions to customers, while also reducing water loss to undetected leaks.

The District works extensively with other water managers and groups in the region. The District gladly share data and routinely speak at conferences or have publications in magazines about District projects. The District belongs to two Sustainable Groundwater Monitoring Agencies, Yucaipa SGMA and San Timoteo SGMA, Basin Technical Advisory Community with San Bernardino Municipal Water District, the Santa Ana River Watershed One Water One Watershed group, to name of few of the groups the District belongs to.

2. Extent to which the proposed project improves overall water supply reliability

This project greatly improves the overall water supply reliability. It does these two ways, one it identifies leaks and breaks that have not yet cause a disruption in services, and it identifies water loss. This project allows the District to be proactive and replace or repair

pipelines that have non-visible leaks, with the potential for large leaks or breaks that would lead to emergency pipeline repair and loss of service. It also helps identify pipelines that may be susceptible to water quality issue due to leaks. The project also identifies unauthorized water usage that economically effects the District and therefore the customers. Identifying these water losses allows the District to conserve water while reducing economic losses and therefore making it the water reliable for customers.

3. The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)

This project is expected to benefit local basins because it helps identify water loss and conserves water, thus decreasing the amount of water needed by the District wither through pumping the groundwater wells and/or buying water from the State Water Project system.

4. Extent to which the proposed project will increase collaboration and information sharing among water managers in the region.

The District works extensively with other water managers and shares knowledge gained through projects. The District has a history of being on the forefront of technologies, with the highly advanced water and wastewater plants, the recycled water system, the regional brineline for the RO system in the wastewater plant, and dual-plumbed front and backyard irrigation requirement for new home developments. The District works to share all information it gathers to help regionally, nationally or globally.

5. Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

The positive impact or benefit for the local sector and economies is conserving water within the basins and keeping water cost as affordable as possible.

6. Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

This project does not have coordination with NRCS.

Evaluation Criterion B—Planning Efforts Supporting the Project (35 points) Up to **35 points** may be awarded based on the extent to which the proposed on-the-ground project is supported by an applicant's existing water management plan, water conservation plan, System Optimization Review, or identified as part of another planning effort led by the applicant. This criterion prioritizes projects that are identified through local planning efforts and meet local needs.

Describe how your project is supported by an existing planning effort.

The Distribution Metering Enhancement project does align with the District's Water Sustainability Plan. The District is committed to providing a reliable and safe drinking water, and this project facilitates those goals. The project allows the District to identify and decrease the water loss due to leaks or unbilled usages which increases the amount of water available for customers and decreases the amount of water the District needs to purchase from the State Water Project. This project also helps identify pipeline needing to be replaced in a proactive manner versus a reactive to an emergency break. The District can prioritize, plan and replace pipelines reducing water losses, unplanned water service outages and possible unknown sources for contaminants to enter the drinking water system. These project goals align with the District's goals in the Sustainability Plan.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

This project does address needs in the Sustainability Plan. Water conservation is an integral part of water sustainability. This project identifies water losses and either rectifies them economically by billing for them or stopping water loss through pipeline replacement or repair. The increase of water conservation and revenue allows the District to reduce the amount of water pumped from the local groundwater basins and/or decreases the amount of water purchased from the State Water Project thus leaving more water in the Delta.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

This project aligns well with existing planning efforts to reduce water loss. The District was awarded for a grant by the Bureau of Reclamation for Automatic Meter Infrastructure. The District is currently retrofitting or replacing all of our customer meters. The project is a head of schedule and over half of the District's customer meters have been retrofitted or replaced with the AMI capable smart meter. The District has also installed multiple radio antennas to receive automatic hourly reads from over half of our customers. This project works well with existing plans and projects because it would replace all of our existing District meters with smart meters that would be read off of our AMI network already in place. The data received from this project will be used with the data we are receiving from our AMI project for analysis of where water is coming in and where it is going out and identifying where the losses are occurring by zones.

Evaluation Criterion C—Project Implementation (10 points)

Up to **10 points** may be awarded based upon the extent to which the applicant is capable of proceeding with the proposed project upon entering into a financial assistance agreement,

Describe the implementation plan for the proposed project. Please include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.

Tasks	Months from Notice to Proceed											
	2	4	6	8	10	12	14	16	18	20	22	24
Development of a Detailed Work Plan/ CEQA NOE												
Ordering/Delivery of Meters												
Replace YVRWFF Meters												
Replace or Construct Well Meters												
Replace or Construct Booster Meters												
Replace or Construct Reservoir Meters												
Project Management												

This is an estimate of the project timeline. The District believes the project can be completed before the times scheduled above, but for time management purposes the above schedule was created conservatively.

Describe any permits that will be required, along with the process for obtaining such permits.

The project does not require permitting as it is replacing existing meters or adding meters to existing infrastructure. Only a CEQA Notice of Exemption is required, which would be filled at the beginning of the project and the project would not move forward until the Notice of Exemption was accepted.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

As this project is replacing existing meters and adding them to existing pipelines, it does not require any engineering or design work. As you can see from the Table 1 below is a list of the meters that the District will replace in the distribution system for this project.

Site	Size	Brand
W25	4	McCrometer
OGFP Inf	6	McCrometer
OGFP Eff	6	Signet
W14	4	McCrometer
W44	10	McCrometer
W46	10	McCrometer

W55	10	McCrometer
W51	6	McCrometer
W56	10	McCrometer
W53	6	McCrometer
W16	4	McCrometer
W37	4	McCrometer
W9	6	McCrometer
W18	8	McCrometer
W24	8	McCrometer
W2	8	McCrometer
W12	10	McCrometer
W27	6	McCrometer
W61	3	McCrometer
W72	2	Sensus
W75	4	McCrometer
W48	10	McCrometer
B11.21	10	McCrometer
B11.22	10	McCrometer
B11.23	10	McCrometer
B12.11	12	McCrometer
B12.21	10	McCrometer
B12.22	10	McCrometer
B12.23	10	McCrometer
B13.2	12	McCrometer
B13.31	12	McCrometer
B13.33	12	McCrometer
B14.21	8	McCrometer
B14.22	8	McCrometer
B14.23	10	McCrometer
B15.11(PB)	6	McCrometer
B15.22	6	McCrometer
B15.3	12	McCrometer
B15.34	3	McCrometer
B16.21(PB)	4	McCrometer
B16.22	4	McCrometer
B16.6	6	McCrometer
B18.3	8	McCrometer
R15.1	4	McCrometer
R15.2	12	McCrometer
R16.2	12	McCrometer
R17.2	6	McCrometer

Table 1: Current YVWD Distribution Meters Replacement

Describe any new policies or administrative actions required to implement the project.

There are no existing policies that need to be changed or actions needed for this project as this project already aligns with the District' AMI project.

Describe how the environmental compliance estimate was developed. Have the compliance costs been discussed with the local Reclamation office?

The only environmental compliance needed is a CEQA Notice of Exemption. There is no further environmental compliance needed for this project as it is replacing existing meters or adding meters to existing infrastructure.

Evaluation Criterion D— Nexus to Reclamation (10 points)

Up to **10 points** may be awarded based on the extent that the proposal demonstrates a nexus between the proposed project and a Reclamation project or activity. Describe the nexus between the proposed project and a Reclamation project or activity, including:

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:

The Distribution Metering Enhancement project is located in the Upper Santa Ana River Shed which has multiple U.S. Bureau of Reclamation projects are located. The proposed project will benefit the basin where the project is located because it will conserve water in the basins and in the Delta through the reduction of water losses, by reducing the use of State Water Project water, lessening the District dependency on water from the Delta. Therefore, the project is relevant to the Department of the Interior Initiative because it allows for a sustainable water to support the regions, reduces the use of Water from the State Water Project and allows for reuse, as well as rehabbing the most susceptible pipeline infrastructures.

Does the applicant receive Reclamation project water?

Yucaipa Valley water District does receive water from Reclamation projects as the District does receive water from the State Water Project. The are a variety of projects and activities the Bureau of Reclamations is involved in located in the Delta as well as multiple other area that influence the water of the State Water Project.

Is the project on Reclamation project lands or involving Reclamation facilities?

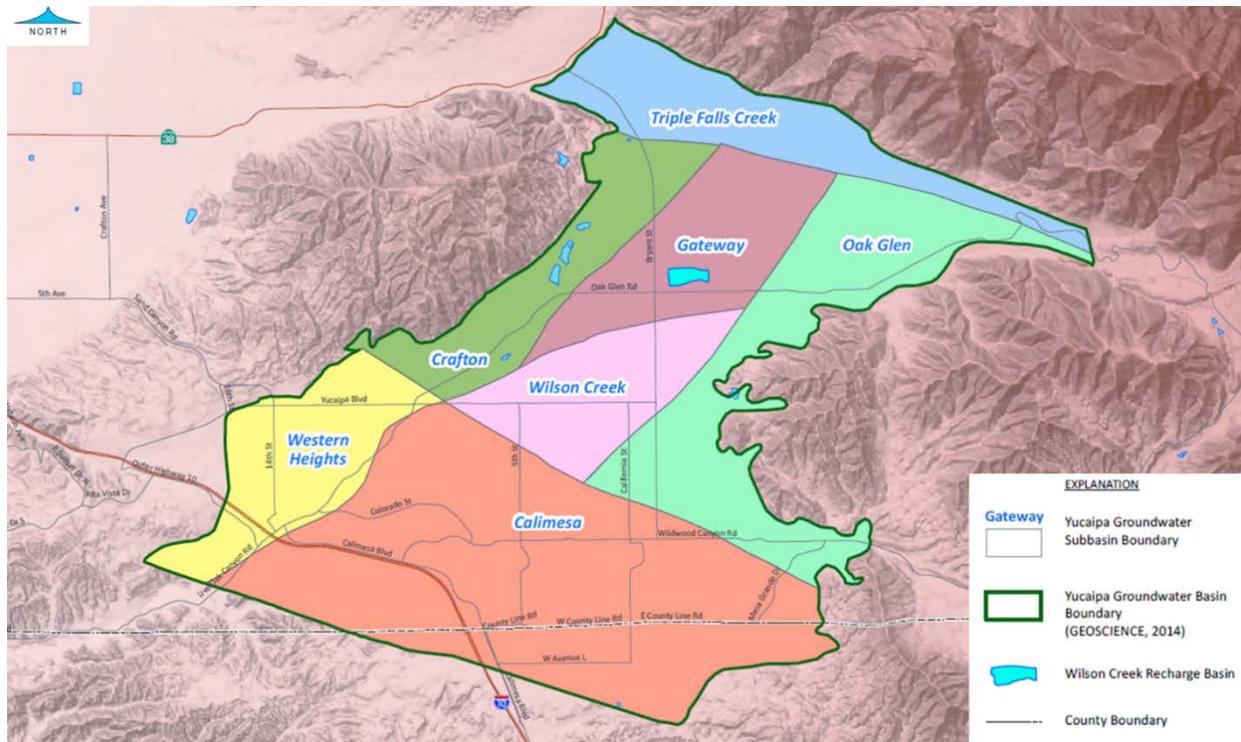
The project is not located on Reclamation project lands and does not involve Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

This project is located in the same basins as the District AMI projects that is currently in progress and supporting funds were awarded by the Bureau of Reclamation WaterSMART grant in 2018. The District is also located in the Santa Ana River Watershed, where multiple Bureau of Reclamation projects and activities occur.

Will the proposed work contribute water to a basin where a Reclamation project is located?

Yes, the project will contribute water to the basin where a Reclamation project is located. This project will reduce the water loss through the District’s distribution system, therefore reducing the need to purchase water from the State Water Project and reduce the amount of water pumped from the multiple basins the District utilizes.



Will the project benefit any tribe(s)

This project will not benefit any tribes.

Evaluation Criterion E— Department of the Interior and Bureau of Reclamation Priorities (10 points)

Up to **10 points** may be awarded based on the extent that the proposal demonstrates that the project supports Department and Reclamation priorities. Please address those priorities that are applicable to your project. It is not necessary to address priorities that are not applicable to your project. A project will not necessarily receive more points simply because multiple priorities are addressed. Points will be allocated based on the degree to which the project supports one or more of the Priorities listed, and whether the connection to the priority(ies) is well supported in the proposal.

Department Priorities

Creating a conservation stewardship legacy second only to Teddy Roosevelt

Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;

This project will entail the use of new technology for water conservation with the use of AMI technology, leak detections technology and unauthorized use of water analysis. These data gathered from the data will be analyzed by the District and used to preserve water and reduce economic losses.

Restoring trust with local communities

Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;

This project allows the public to access data about the distribution system and water loss. The District believes in transparency and shares with the communities our findings on all projects. The project would be presented to the community through public Board Meetings, website articles, social media post and if possible regional and national publications.

Reclamation Priorities

Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities

This project does increase the reliability of water. This project identifies water loss through either unbilled water consumption or the through real losses due to nonvisible leaks and breaks in the District's distribution pipeline system. Through the data collected from the AMI system the District will be able to locate water losses with the help of leak detection technology, identify susceptible pipelines for repair or replacement, replace or repair those pipelines and reduce the loss of water from leaks, while decreasing the probability of emergency water outages, thus increasing water reliability.

Leverage Science and Technology to Improve Water Supply Reliability to Communities

This project will entail the use of new technology for water conservation with the use of AMI technology, leak detections technology and unauthorized use of water analysis. These data gathered from the data will be analyzed by the District and used to preserve water and reduce economic losses.

Address Ongoing Drought

California Drought Conditions

Drought is a consistent vulnerability that California is susceptible to. As seen in Figure 4 below that a map of the drought-stricken areas from June 2018 to September 2018, as noted Southern California was still in a persistent drought. Although Southern California is not currently in a drought, although the area the District receives their water from the State Water Project in Northern California and is highly susceptible to drought. It is only a matter of time before another major drought occurs in California, whether in Northern or Southern California it will affect the District's water supply.

U.S. Seasonal Drought Outlook
 Drought Tendency During the Valid Period

Valid for June 21 - September 30, 2018
 Released June 21, 2018

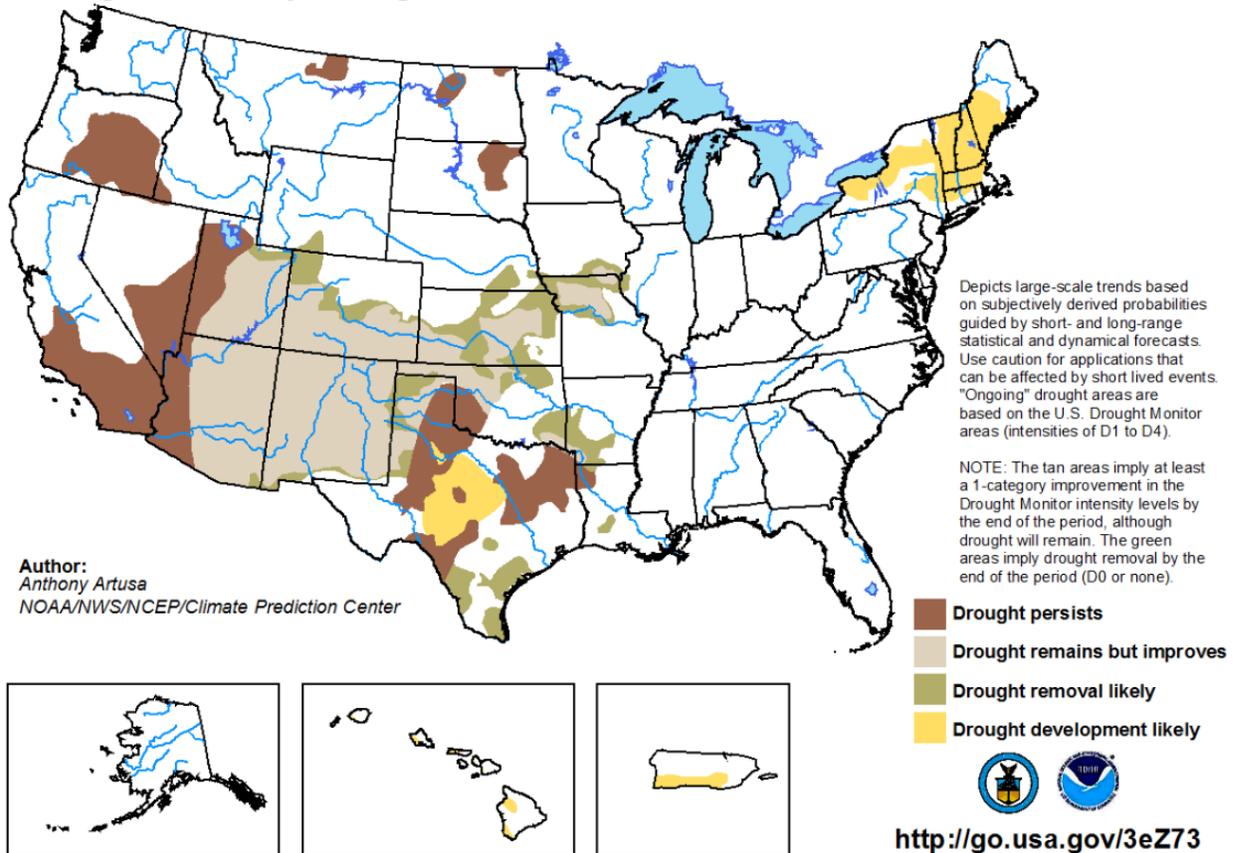
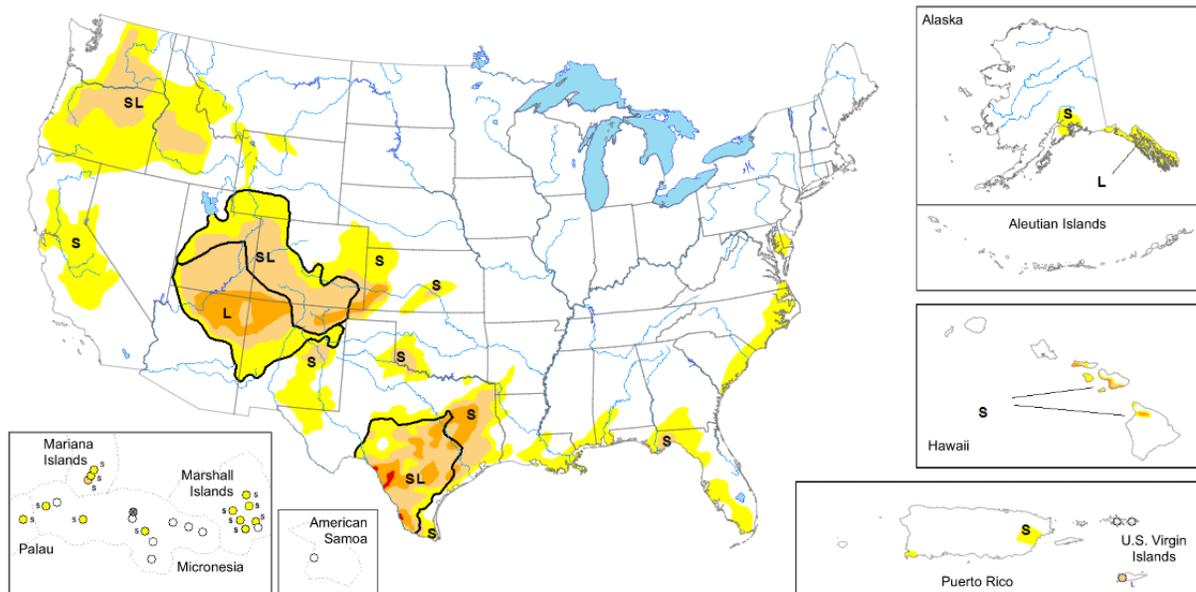


Figure 4: U.S. Seasonal Drought Outlook – June 2018 to September 2018

As seen in Figure 5 the drought has stopped in Southern California, but Northern California where the District received almost half of its drinking water is still considered to susceptible drought. Also, the snowpack for the winter of 2020 is considerable low and could possibly enter California into a new drought.

Map released: January 30, 2020

Data valid: January 28, 2020



United States and Puerto Rico Author(s):
 Richard Heim, NOAA/NCEI

U.S. Affiliated Pacific Islands and Virgin Islands Author(s):
 Ahira Sanchez-Lugo, NOAA/NCEI

Figure 5: Drought Map (droughtmonitor.unl.edu received 01/31/2020)

Environmental and Cultural Resources Compliance

Yucaipa Valley Water District will complete a CEQA Notice of Exemption for the project if awarded the grant to the time of notice.

Project Budget

Budget Proposal

Table 2. – Total Project Cost Table

Source	AMOUNT
Costs to be Reimbursed with Requested Federal Funding	\$75,000
Costs to be Paid by Applicant	\$152,742
Value of Third-Party Contributors	\$0
Total Project Cost	\$227,742

Table 3. - Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Unit	Quantity		
Salaries and Wages				
Employee 1	26.82	100	Hourly	2,682.00
Employee 2	25.38	100	Hourly	2,538.00
Employee 3	25.38	100	Hourly	2,538.00
Fringe Benefits				
Full-Time Employees	18.25	300	Hourly	5,475.00
Supplies and Materials				
2" Smart Meter	975.00	2	Unit	1,950.00
3" Smart Meter	2443.54	2	Unit	4,887.08
4" Smart Meter	2654.36	9	Unit	23,889.24
6" Smart Meter	2988.71	10	Unit	29,837.10
8" Smart Meter	3337.01	6	Unit	20,022.06
10" Smart Meter	4019.34	13	Unit	52,251.42
12" Smart Meter	4699.02	7	Unit	32,893.14
Panel Model Act Pac OutPut	288.50	49	Unit	14,136.50
Other				
Tax				13,939.66
TOTAL DIRECT COSTS				\$
Indirect Costs				
Type of rate	10 Percent			20,703.00
TOTAL ESTIMATED PROJECT COSTS				\$227,742.00

Budget Narrative

The Distribution Metering Enhancement project budget is detailed in the Budget Proposal. Yucaipa Valley Water District employees will be installing the smart meters into the distribution system. There are no in-kind contributions or donations of good and services with the project. The labor estimates are included in the Budget Proposal figures. Compliance with reporting requirements will be completed through contractors and is included in the budget proposal. Fringe benefits, and material and supplies are all included in the Budget Proposal.

Letter of Support

YVWD has letters of support for the Small-Scale Water Efficiency – Distribution Metering Enhancement Project from the following:

City of Calimesa – City Manager Bonnie Johnson

Yucaipa Calimesa Joint Unified School District – Cali Binks Superintendent

CITY OF CALIMESA

908 Park Avenue, Calimesa, California 92320
Telephone 909.795.9801 Facsimile 909.795.4399
www.cityofcalimesa.net



February 27, 2020

Brenda Burman
Commissioner

Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Re: Support of USBR WaterSMART: Small-Scale Water Efficiency Project Grant for Yucaipa Valley Water District's Water Efficiency Project through the Distribution Metering Enhancement Project

Dear Commissioner Burman,

I am writing in support of Yucaipa Valley Water District's (YVWD) Distribution Metering Enhancement project. This project will allow for the retrofit of existing outdated distribution meters, as well as the addition of distribution meters throughout the system with new smart water meters. The information collected from these meters will allow the District to determine the amount of water going into a zone and the amount of water actually being utilized by customers.

This information will help the District identify water loss in the system by analyzing the data from the distribution meters and the customer meters. The data gathered from the meters is done through automatic smart meters which transmit the data in hourly segments to the District for analyzation. This will also help the District identify areas of water loss, such as unbilled water usage or leaks and help the District plan replacement pipelines to reduce water loss in that area.

Addressing California's long-standing water shortages is a high priority for the YVWD, the Distribution Metering Enhancement project allows for the accurate water metering, identifies unbilled water loss and helps identify water distribution pipeline leaks. I support Yucaipa Valley Water District's efforts to implement this project in the pursuit to reduce water loss and help conserve water resources.

Sincerely,


Bonnie Johnson
City Manager

908 Park Avenue • Calimesa, California 92320 • (909) 795-9801

YUCAIPA-CALIMESA JOINT UNIFIED SCHOOL DISTRICT
Making a Difference in the Life of Each Child



**BOARD OF
EDUCATION**

Patricia Ingram
President

Sharon Bannister
Clerk

Chuck Christie, Ph.D.
Member

Rosilicie Ochoa-Bogh
Member

Mike Snellings
Member

**DISTRICT
ADMINISTRATION**

Cali Binks
District Superintendent

Jaime Anderson, Ed.D.
*Assistant Superintendent
Educational Services*

Ernesto M. Calles
*Assistant Superintendent
Human Resources*

Eric Vreeman, Ed.D.
*Assistant Superintendent
Business Services*

12797 Third Street
Yucaipa, CA 92399
(909) 797-0174
(909) 790-6115 Fax

www.yucaipaschools.com

February 27, 2020

Ms. Brenda Burman
Commissioner
Bureau of Reclamation
1849 C Street NW
Washington DC 20240-0001

Re: Support of USBR WaterSMART: Small-Scale Water Efficiency
Project Grant for Yucaipa Valley Water District's Water Efficiency
Project through the Distribution Metering Enhancement Project

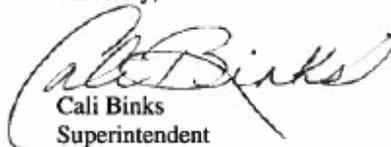
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Sincerely,



Cali Binks
Superintendent

IB • STEM • Athletics • Arts • Virtual Learning • Alternative Ed • AP

Official Resolution

RESOLUTION NO. 2020-09

RESOLUTION OF THE BOARD OF DIRECTORS OF THE YUCAIPA VALLEY WATER DISTRICT SUPPORTING THE APPLICATION FOR A GRANT FOR WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS FROM THE BUREAU OF RECLAMATION AND COMMITTING THE DISTRICT TO THE FINANCIAL AND LEGAL OBLIGATIONS ASSOCIATED WITH THE RECEIPT OF THE WATERSMART GRANT FINANCIAL ASSISTANCE REQUIREMENTS

WHEREAS, the Yucaipa Valley Water District (the "District") is a public agency of the State of California organized and existing pursuant to the provisions of the County Water District Law of this State (Section 30000, et seq. of the Water Code); and

WHEREAS, the mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American people; and

WHEREAS, the Bureau of Reclamation has announced Funding Opportunity Announcement No. BOR-DO-20-F006 seeking projects that focus on improving the use of technology to increase water reliability; and

NOW, THEREFORE, the Board of Directors of the Yucaipa Valley Water District hereby RESOLVE, DETERMINE, and ORDER as follows:

1. That the Board of Directors delegates legal authority to the General Manager to enter into a cooperative agreement with the Department of Interior, Bureau of Reclamation for the WaterSMART: Small-Scale Water Efficiency Projects Grant.
2. That the Board of Directors hereby authorizes and supports the participation and submittal by the Yucaipa Valley Water District of the grant funding application.
3. That the Board of Directors supports, and the Yucaipa Valley Water District maintains the capability to provide funding and/or in-kind contributions as specified in the grant funding application.
4. That the Board of Directors hereby directs the General Manager to work with the Bureau of Reclamation to meet the established deadlines for entering into a cooperative agreement.

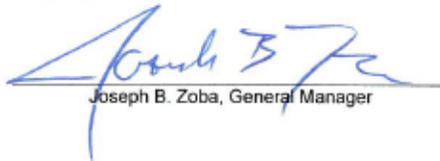
PASSED, APPROVED and ADOPTED this 11th of February 2020.

YUCAIPA VALLEY WATER DISTRICT

ATTEST:



Chris Mann, President Board of Directors



Joseph B. Zoba, General Manager