City of Needles

WaterSMART Water and Energy Efficiency Program

Opportunity Number: BOR-DO-20-F001

City Council

Jeff Williams, Mayor
Edward Paget, Vice Mayor
Tim Terral, Councilmember
Zachery Longacre, Councilmember
Shawn Gudmundson, Councilmember
Tona Belt, Councilmember
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Executive Summary

October 3, 2019
City of Needles
San Bernardino County, California

The City of Needles wishes to undertake a project to install Automated Metering Infrastructure (AMI) and AMI compatible meters for its water customers. The City already has analog meters for all customers, which require manual reading on a monthly basis. Currently, it takes 30 days for the reader to make a reading at each service. This means there is a full month between each reading making it difficult to detect leaks or utility theft, which creates the potential for long lasting leaks with large water losses. Adding AMI meters will be a cost-effective way to measure water deliveries, detect leaks in real time, discourage the theft of water and encourage individual and business water conservation resulting in significant water savings.

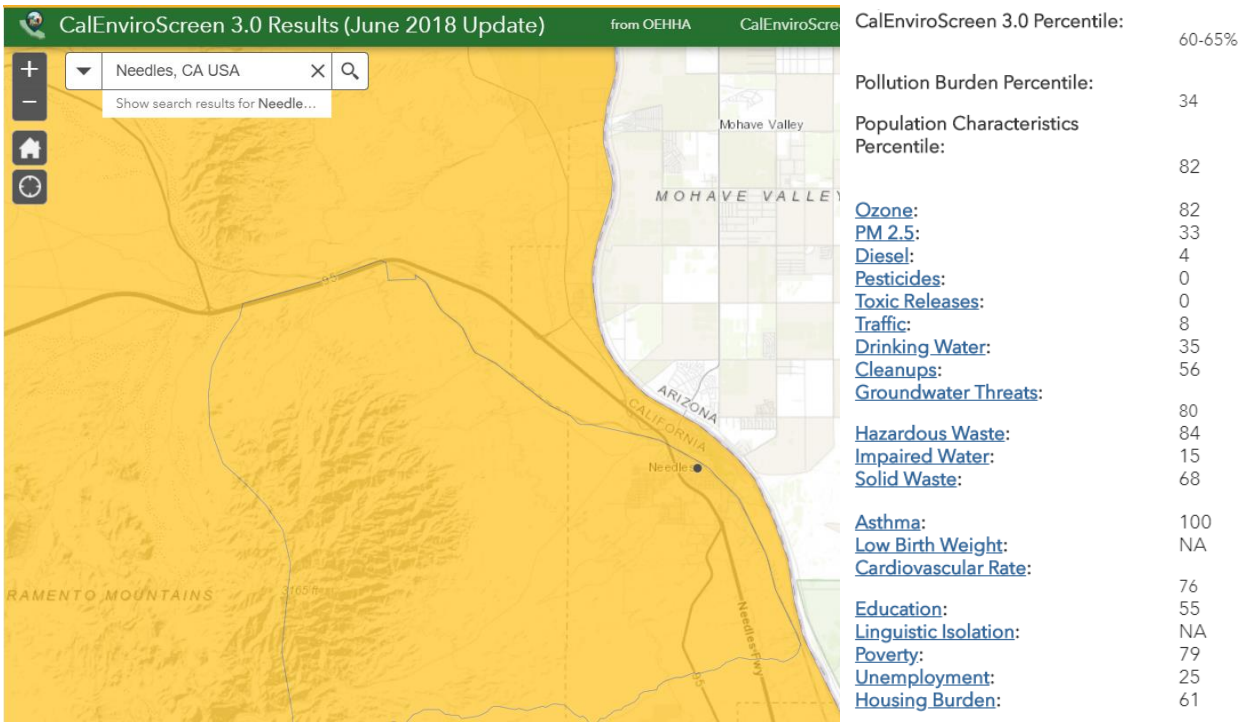
Background Data

The project is located in the City of Needles in San Bernardino County. Needles has a local population of approximately 5,200 with a regional population of 142,000. The City is roughly 110 miles (180 km) from the Las Vegas Strip and is the easternmost city of the San Bernardino-Riverside metropolitan area. Needles is geographically isolated from other cities in the county. Barstow, the nearest city within the county, is separated from Needles by over 140 miles of desert and 2 mountain ranges.

Between 2019 and 2024, the Needles' population is expected to increase by 36% to 7,058. This is a huge amount of growth for the impoverished City especially after nearly two decades of population stagnation. The 36% growth will require significantly more infrastructure and resources than are currently available.

The City's median household income (MHI) is $39,022, which is substantially below California's MHI ($67,169) and the greater United States ($57,652).[1] CalEnviroScreen 3.0 identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution, developed through Office of Environmental Health Hazard Assessment (OEHHA), on behalf of the California Environmental Protection Agency (CalEPA). CalEnviroScreen 3.0 identifies the census tracts within Needles in the 60th to 65th percentile in comparison to other California census tracts. Needles is in the 79th percentile for poverty and the 25th percentile of unemployment.

[1] https://www.census.gov/quickfacts/fact/table/CA,US/PST045218



The City holds miscellaneous present perfected rights ("PPR") with a priority date of 1885 for 1,500 acre-feet annual diversions limited to 950 acre-feet on a consumptive basis. The City acquired from the Atchison, Topeka and Santa Fe Railway Co. certain present perfected water rights that the Santa Fe Railway held with a priority date of 1896 for 1,260 acre-feet annual diversions limited to 273 acre-feet on a consumptive basis. The total available annually on a consumptive basis is 1,223 acre-feet (950 plus 273). An acre-foot represents one foot of water on one acre of land or 325,851 gallons or sufficient water for a family of four for one year. These PPRs are only for use by the City of Needles within the City of Needles for domestic, municipal, and industrial purposes.

In 1986, Congress enacted the Lower Colorado Water Supply Act of 1986 (LCWSA) (Public Law 99-655) as a mechanism to enable water users within California with or without contracts for an insufficient amount of water to collectively obtain by exchange up to 10,000 acre-feet of water per year from the Colorado River for existing and future uses within California. The LCWSA authorized the U.S. Bureau of Reclamation (Reclamation) to construct the Lower Colorado Water Supply Project (Project). The Project consists of well-field facilities in the Sand Hills area along the All-American Canal in Imperial County. The purpose of the Project is to "supply water for domestic, municipal, industrial, and recreational purposes only." Supplying water for agricultural use is not an authorized purpose of the Project. The LCWSA limits the eligible Project beneficiaries "to persons or Federal or non-Federal governmental agencies whose lands or interests in lands are located adjacent to the Colorado River in the State of California, who do not hold rights to Colorado River water or whose rights are insufficient to meet their present or anticipated future needs as determined by the Secretary."

In 2005, the LCWSA was amended to authorize the Secretary of the Interior to enter into an agreement with the City of Needles for the design and construction of Stage 2 of the Project, which will add 5,000 acre-feet of capacity to bring the Project to its full, authorized capacity. The amendment further authorized the Secretary to contract with additional entities who hold Section 5 contracts for municipal and industrial uses within the State of California for the use of any unused Project water (Public Law 109-103, Sec. 203). This project was completed in 2017, the annual pumpage totals are up to 10,000 acre-feet a year.

The City of Needles has a contract with the Department of the Interior to utilize Colorado River water in excess of its present perfected right through an exchange agreement between Reclamation, the Imperial Irrigation District (IID) and the Coachella Valley Water District (CVWD). Through the exchange agreement, IID has agreed to reduce its diversions from the Colorado River in the amount necessary to offset the amount of water needed to fulfill Project contracts, up to a maximum of 10,000 acre-feet per year. In exchange, IID receives an equivalent amount of groundwater pumped from the Project well field located in Imperial County, California. Water is pumped from the well field and discharged into the All-American Canal for delivery to IID and CVWD.

In addition to supplying water for its own municipal and industrial needs, the City of Needles acts as a Project Administrator for the Project to enable other eligible water users to subcontract for the use of Colorado River water subject to Project availability.

Available Project capacity is determined by the City of Needles and Reclamation. Reclamation must approve all subcontracts between the City of Needles and additional water users. In exchange for obtaining the contract right to utilize water, subcontractors provide funding to repay the cost of constructing the Project facilities, plus interest, and the costs associated with Project administration, operation, maintenance and replacement.

The availability of Project water is contingent upon the ability of the Project well field to pump water into the All-American Canal in sufficient quantity and of acceptable quality in accordance with the LCWSA and the Contract Among the United States, Imperial Irrigation District, and Coachella Valley Water District for Exchange of Water From The Lower Colorado Water Supply Project Well Field for Colorado River Water dated May 22, 1992, as amended ("All-American Canal Exchange Contract"). None of the parties to the All-American Canal Exchange Contract assume responsibility with respect to the quantity or quality of the water pumped from Project wells for discharge into the All-American Canal and none are under any obligation to construct or furnish facilities except those expressly authorized under the LCWSA.

By 2005 it became evident to the City the LCWSP would not be sustainable offering its water exclusively to non-federal subcontractors. It needed a strategic partner with the financial strength to purchase all excess LCWSP water the subcontractors could not absorb and contribute to a trust fund that would accumulate sufficient funding to ensure the viability of the Project and reimburse the City for its capital costs in developing the well fields at the All-American Canal.
Such a partner was found in the Metropolitan Water District of Southern California ("MWD"). MWD agreed to purchase all the excess water not taken by the City and the non-federal contractors each year through December 31, 2045 with one additional 50-year term to December 31, 2095.

MWD would pay what the City and the non-federal subcontractors pay - a pro-rata amount based on the number of acre feet of ground water extracted to cover the costs of operations, maintenance, replacement and administration.

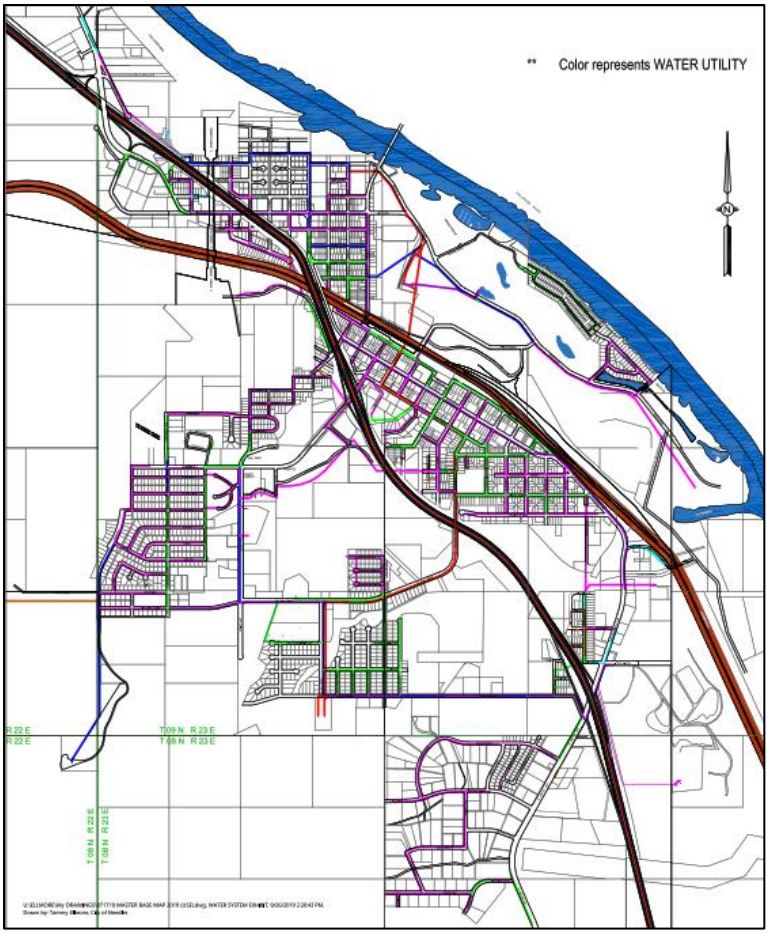
In addition, for every acre foot extracted, MWD would pay into a Water Quality Trust Fund at $112 per acre foot commencing January 2008 and the contribution would increase 2% for each year thereafter. The purpose of the Trust Fund is to:

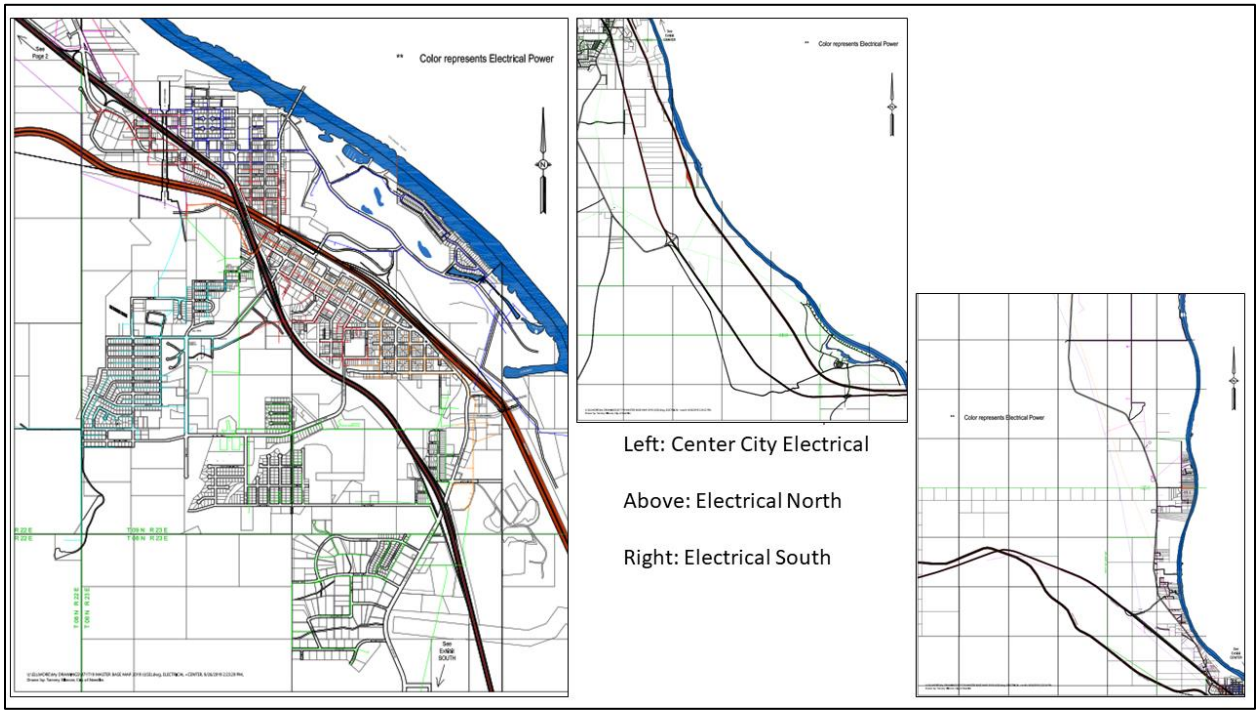
- Reimburse the City for its capital costs plus interest during construction ("IDC").
- Conduct water quality studies to ensure that the dissolved solids (salinity) pumped from the City's well fields into the All American Canal are below the levels required by Imperial Irrigation District and the Coachella Valley Water District for their customers.
- Fund a Stage II well field to bring the additional 5,000 acre feet called for in Lower Colorado Water Supply Act (completed in 2017) online.
- Secure an alternative project (e.g., desalting) in the event of a catastrophic failure of the current project.

Historically, there is nearly 1:1 relationship between the number of acre feet used at the Rivers Edge Golf Course annually and the number of acre feet the City must buy from the LCWSP because its use exceeds its 1,223 acre feet of Present Perfected (water) Rights.
The City purchased 800 acre feet of water with its Stage I capital costs. If the City uses less than 800 feet of LCWSP each year it will not be required to pay into the Trust Fund. The 2014 cost for one acre foot of water into the Trust Fund is $525.00. That cost increases each year by 5.54% (the City's implicit borrowing rate).
The City continues to operate as the managing agency for the All American Canal in exchange for the additional rights indicated above. However, this water system is completely separate from the Needles municipal water distribution system and will have only minimal impact from the proposed project.

In 2014, the City Council/NPUA executed the SCIA agreement, which is a turf removal project for the Golf Course. In the execution of this grant agreement, the 800 acre-feet maximum was reduced by 232 acre-feet for the term of the contract as part of a conservation measure.
The conservation measure has been a challenge to maintain but the City is committed to continuing to meet the goal for the agreed upon project period. However, the water that must be conserved is also not allowed to be used to meet increased demand from population growth and City expansion, leaving the City to find better ways in managing the existing water allocations.

The City currently operates its water distribution system within Needles proper and the electricity system extends both north and south outside the city limits. There are approximately 1,858 water customers with 93.7% residential customers and the remaining 6.3% being split between commercial and industrial uses. Additional connections exist for City use including those for irrigation and fire hydrants. The City also pumps water across the Colorado River for use at the Fort Mojave Indian Tribe's reservation in Arizona.





Left: Center City Electrical

Above: Electrical North

Right: Electrical South

The project does not include a hydropower component, with the exception that electricity used throughout the City is produced through hydropower at the Hoover Dam plant operated by the Western Area Power Administration (WAPA). The electricity obtained through WAPA is used for domestic, municipal, industrial, and recreational purposes only.

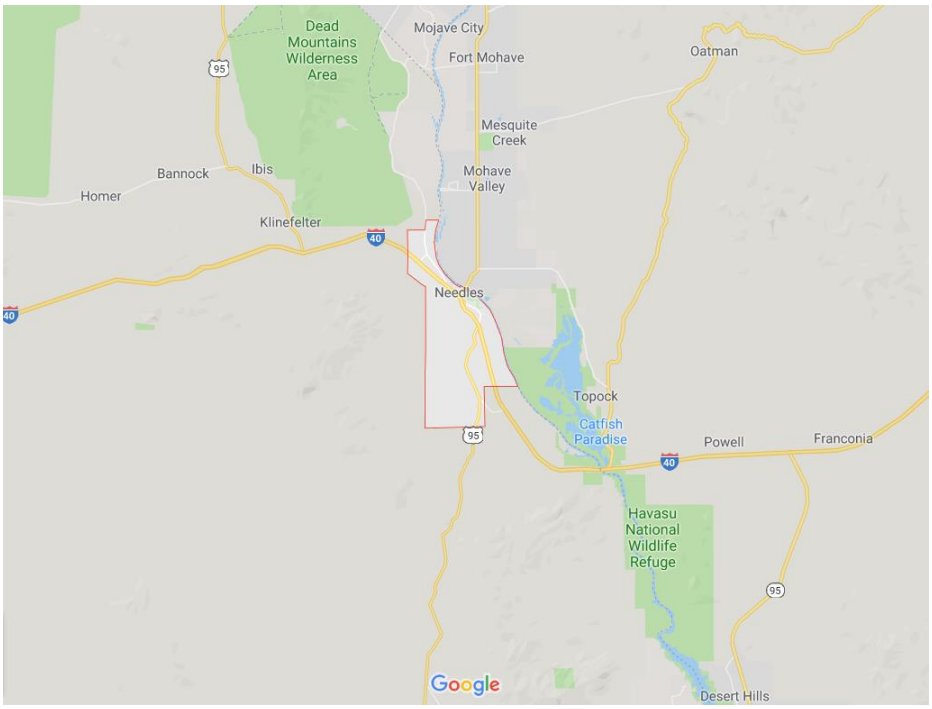
Needles successfully completed the previous WaterSMART project that was awarded in 2014 for turf removal at the municipal golf course for water conservation. This project was completed in 2016 but the reduced water allowance from Lake Mead continues to be held in place. In 2017-2018, the City updated its five-year Water Conservation Plan with funding from the Water Conservation Field Office Program Grant offered through Reclamation. This plan prioritizes the switch to AMI and automatically reads meters as a key water conservation measure to manage the City's resources during population growth.

Needles also has a working relationship with Reclamation in the conservation and management of natural environment areas in the City, specifically the Bureau Bay backwater ecosystem on the Colorado River by Jack Smith Park.

Finally, the City purchases wholesale electricity through WAPA which is under the authority of Reclamation. The City has a close working relationship with Reclamation and its local office that helps maintain the multiple connections between them.

Project Location

The Project is in the City of Needles in San Bernardino County, located in the Mojave Desert and lies on the western banks of the Colorado River along the California/Arizona/Nevada borders. Needles has a local population of approximately 5,200 and a regional population of 142,000. The City is roughly 110 miles (180 km) from the Las Vegas Strip and is the easternmost city of the San Bernardino-Riverside metropolitan area. Needles is geographically isolated from other cities in the county. Barstow, the nearest city within the county, is separated from Needles by over 140 miles of desert and 2 mountain ranges. The city is accessible via major highways, Interstate 40 and U.S. Route 95. The coordinates for the City are 34.8481° N, 114.6141° W.



Technical Project Description

The City has 1,858 customers with analog meters for water services provided by the City within its own boundaries. There are 1,944 water meters, which includes some abandoned or vacant lots. The City does not have Advanced Metering Infrastructure (AMI) and will undertake a competitive procurement process to select the most cost-effective infrastructure elements and meters along with an integration expert in which to consult on the project.

After procurement, City staff and the contracted consultant will install the poles with receivers and the centralized software infrastructure to enable AMI-enabled meter installation. After the supporting infrastructure is in place, all analog meters for water and electricity consumption will be replaced with AMI-enabled meters and Automated Meter Reading (AMR) will commence. The meters will be scheduled to update with their readings every 3 days. This means rather than nearly 30 days before detection, leaks and utility thefts are likely to be identified no more than 3 days after they start saving up to 27 days' worth of lost water from the leak or theft.

Evaluation Criteria

E.1.1. Evaluation Criterion A—Quantifiable Water Savings (30points)

The water conserved by this project is estimated to be 160.9 acre-feet per year.

Current losses are primarily due to leaks and theft of water. When a leak or theft begins, it could potentially continue unnoticed under the current monitoring system for up to 30 days until a new measurement is taken. The AMR system will greatly reduce the losses experienced through leaks or theft because notification of the failure will happen within three (3) days of the change in water delivery. Once notification is received, maintenance personnel can arrive on location to search for and repair the leak within four (4) days, preventing this water from being lost to ground seepage. If water theft is the issue, the case can be referred to the Sheriff's office within three (3) days as soon as the theft is identified, which will save any unauthorized and unbilled domestic use of water.

Losses are beginning to increase in scale. While losses were originally between 4-6% per year in 2015-2016, the losses were more than 10% per year in 2017 and 2018. The City expects these increased losses are related to the age and repair of the water infrastructure and the proximity of the pipes to the surface, making them more susceptible to extreme temperatures, which reach over 120 degrees in the summer. With the pipes in a poor state of repair and so close to the surface, they tend to rupture more frequently spilling water into the ground. Although the pipes are close to the surface, giving the expectation that visual evidence of leaks would be more readily apparent, the extreme heat of Needles works against leak detection by quickly evaporating the water before it becomes noticeable in many instances.

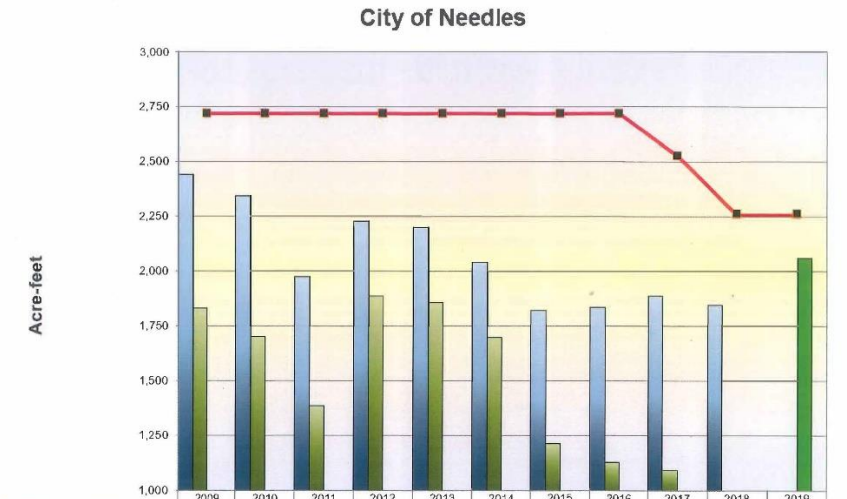
The data used to calculate the water savings for the project came from the past four years of operating efficiencies where the total water pumped from the wells and the total water delivered to customers were compared to find the water use efficiency.

Operating Efficiencies	
2018	
Total Water delievered to customers:	1,615.00
Total Water Pumped:	1,844.00
Water Use Efficiency	**87.58%**
2017	
Total Water delievered to customers:	1,692.00
Total Water Pumped:	1,887.00
Water Use Efficiency	**89.67%**
2016	
Total Water delievered to customers:	1,768.00
Total Water Pumped:	1,836.10
Water Use Efficiency	**96.29%**
2015	
Total Water delievered to customers:	1,727.00
Total Water Pumped:	1,819.00
Water Use Efficiency	**94.94%**

The loss in the most recent year was calculated to be 229 acre-feet, which is 160.9 acre-feet more than the 68.1 acre-feet lost in 2016. Since most of the losses were due to leaks with some instances of theft and no other significant losses, we assume 98% of these losses were from leaks or theft whose detection time ranged from 1 day to roughly 6 months for slow leaks. However, the average leak was detected at most 30 days after rupture because the meters are manually read every 30 days. With the new AMR system, the meters will be read automatically and reported to the central office every 3 days, removing 27 potential days without detection for most leaks. For leaks and thefts, this means a potential reduction of 90% of losses (3 days/30 days). If you consider a 90% reduction in 98% of 2018's losses, it is an estimated loss of only 22.4 acre-feet and a savings of 206.6 acre-feet.

However, in order to account for the continued decline in water infrastructure with each passing year and retain realistic water savings goals, the City has chosen to expect a minimum loss of 68.1 acre-feet per year as experienced in 2016, which leads to the conservative estimate of 160.9 acre-feet in water savings each year.

After multiple evaluations, the City determined the estimated average annual water savings would be most realistically based on a return to the previous historic minimum loss in recent years. This occurred in 2016 when the loss was 68.1 acre-feet. Considering the 2018 loss was 229 acre-feet, we anticipate a water savings of 229-68.1=160.9 acre-feet annually once leaks and thefts of water are rapidly identified and corrected.



	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total Diversion	2,441	2,343	1,975	2,227	2,200	2,041	1,819	1,836	1,887	1,845	
Total Consumptive Use	1,831	1,701	1,387	1,885	1,858	1,699	1,211	1,128	1,090	923	
Forecast Diversion											2060
Forecast Consumptive Use											
Approved Diversion	2,720	2,720	2,720	2,720	2,720	2,720	2,720	2,720	2,528	2,261	2,261

* Approved Diversion amounts are based on initial water order approval and do not reflect subsequent revisions.

Figure 1. Historical record of the City's diversions & consumptive use, 2009-2018. Forecasted 2019 diversion as of July 26, 2019.

The current losses as officially reported to the State by Needles had to be determined by accounting for any unmeasured water use. This included water lost to leaks and water lost to other sources such as theft. The potential water savings were determined by reducing the delays in leak identification, repair and delays in theft detection, and discontinuation of theft.

Further improvements are also expected due to behavioral changes of individual users based on improved information available with AMR. More accurate information will be available more frequently allowing consumers to better understand their use patterns and make individual adjustments to increase conservation. Customers will also be able to access their usage data in real time through an application, which will further adjust their behavior and help them identify leaks on their side of the meter. Because customers already have monthly usage data available, savings from these behavioral changes were not included in the quantified estimates.

The City installed manual meters for all services citywide around 1994. Data from that time period was potentially compromised by inaccurate methods in use at the time so it cannot be used in this analysis. However, a wealth of industry research has shown improvements in water savings by switching from a flat rate to a consumption-based billing system. Furthermore, customer use behavior is shown to be adjusted based on additional use information. The project will produce more accurate data for both production and use, better identifying losses and more accurately informing users of their consumption, which will positively impact water management.

The switch to AMR is a high-ranking priority within the City's Water Conservation Plan, which was recently updated in 2017 and 2018 with funding from Reclamation's Water Conservation Field Services Program Grant. During the Plan update, previous studies were reviewed and recent production and consumption data was evaluated to help identify the project and rank it as a priority.

Meters will be installed on four (4) pumps at three (3) wells to measure total production. The meters will be at the well pumping site to obtain an accurate measurement of the well production with the ability to calculate differences in pumped water and delivered water. The installation location is critical because the City's water infrastructure is very old and near the surface. This makes leak detection very important because of the increased likelihood of leaks, especially large or catastrophic leaks due to the age of the infrastructure. With the system reporting both production and consumption every three days and measurements every 6 hours, leaks on the City-side pipes will be apparent and can be remedied quickly, saving hundreds of gallons of water per leak.

The City intends to use the following products, or their equivalent, as determined through a competitive procurement process:

Manufacturer	Model	Quantity
Landis + Gyr	Gridstream RF Mesh Residential Endpoint	1
Landis + Gyr	Gridstream RF Mesh C+I Endpoints	1
Landis + Gyr	Gridstream RF Interpreter Water Module	1,944

Actual water savings will be measured by comparing annual water losses each year for 5 years to the base year of 2018. The water losses will be calculated by subtracting the actual measured deliveries to customers and at other key delivery points (i.e. mobile fire hydrant meters used for construction or firefighting) from the actual measured production at the wells. The result is the

water loss for that year. Operating efficiency will also be found by dividing that result by the actual measured production and multiplying by 100.

E.1.2. Evaluation Criterion B—Water Supply Reliability (18points)

While the City has been fortunate not to face unreliable water supply directly, the City is within the jurisdiction of the State of California which notoriously struggles with long and repetitive droughts and water shortages. The scale of this problem truly is Statewide with all residents, businesses, counties, municipalities, and special water districts sharing responsibility for water conservation to ensure everyone has access to water. Waste in more water secure areas is still unacceptable because of the unreliability of water and the interconnectedness of supplies throughout the state. As a severely disadvantaged community, Needles has aggressively sought affordable ways to both increase the supply of water available to the community and to conserve water for long term sustainability. However, after two decades of stagnant population, Needles has begun to grow and is projected to experience 36% growth by 2024.

Water is conserved through these measures will be used to meet the increasing demand from the growing population without needing to obtain additional water rights or purchase more water. Therefore, improvements in water management through the minimization of leaks and theft will allow the City to provide water for all its residents and the residents of the Fort Mojave Indian Tribe Reservation using its existing rights and water access.

The project is the highest priority project within the City's Water Conservation Plan, and it will benefit residential, commercial, and industrial customers within the City and in the Fort Mojave Indian Tribe Reservation, who receive their water from the Needles water system. Both communities are both economically disadvantaged and rural and are in neighboring states with significant distance separating their tightly knit tri-state region from the closest communities within their respective states. The water conserved through the project will be used to meet the growing demands of the increasing population without having to increase diversions.

Support for the project spans the region as determined in the City's recently updated five-year Water Conservation Plan, which was a joint effort with some funding from Reclamation. The community and other stakeholders engaged in the update process, helped identify the project as one of the highest priorities because of its effectiveness at reducing water losses, inspiring behavioral changes for users, and moving toward meeting California's approaching standards for water delivery measurements with minimum operating efficiencies.

Representative Paul Cook has indicated his support of the program with a letter that is attached.

The project will extend the life of the existing water main infrastructure by detecting leaks when they are new and small instead of allowing them to grow while they are undetected, which can go undetected for up to a month for most leaks or longer for slow leaks. Damage in a pipe or fitting that starts with a small leak could worsen into a larger and more difficult to repair leak as water flows through it undetected. Depending on water flow and pipe condition, this could even advance to a catastrophic rupture requiring major repairs or replacement. When leaks are detected more

quickly, this deterioration will be less common and less likely meaning the pipes' integrity will improve simply through better leak detection and faster repairs.

E.1.5. Evaluation Criterion E—Department of the Interior Priorities (10 points)

This project meets the objective of the grant by conserving water and using it more efficiently. It also supports each of the Department of the Interior's priorities.

The project creates a conservation stewardship legacy because AMR systems utilize science directly to improve management of water resources. The system employs electronic measuring devices that collect information on water volumes every 6 hours and reports these measurements through radio waves to a centralized control system and database. The AMI system greatly reduces response times to changes in the environment making water deliveries more accurate and minimizing waste.

The AMI system also helps to streamline the environmental and regulatory review process while maintaining environmental standards because of the reporting capabilities. The data collected will be stored in a cloud-based system that will be used to generate reports on, among other things, the size of all diversions in a given year as required by California Senate Bill (SB) 88. SB 88 requires all water rights holders meet final diversion measurement standards by 2020. The project meets these standards, improves the monitoring and reporting capabilities of the City, and greatly reduces the employee hours spent measuring and reporting deliveries through the existing manual meter reading method.

The project also helps to restore trust with local communities because it continues the momentum of mutual assistance between Reclamation, the City, the Tribe and the local community. The funding opportunity and, if funded, the project period will produce further interaction, communication, and trust between the City and Reclamation. In an area with historic water shortages, the involvement of Reclamation in supporting better use of water resources is appreciated by the City and its individual citizens.

If funded, this project reduces the administrative burden on the City because the proposed water conservation and efficiency program has an additional benefit of bringing the City into compliance with a fast-approaching State level regulatory standard from SB 88.

The AMI project preserves our infrastructure through improved and expedited leak repairs preventing further damage. These improvements to the water infrastructure maintenance are necessary to the efficient distribution and use of water while the City works a long-range plan to update its water mains and other infrastructure through slow, incremental development that will be affordable to this severely disadvantaged community.

Finally, the project further supports improvements to infrastructure by creating significant time savings for City staff. The City has a full-time meter reader who works under great pressure to complete the citywide route readings every 30 days. Those work hours will not be eliminated but will be redirected to other water conservation and infrastructure maintenance activities that further extend the life of the existing water system. This allows for better completion of routine

maintenance and for easier completion of deferred maintenance tasks by adding one FTE without having to create a new position.

E.1.6. Evaluation Criterion F—Implementation and Results (6 points)

E.1.6.1. Subcriterion F.1— Project Planning

The Water Conservation Plan, updated in 2018, specifically identifies and prioritizes the transition to AMI and implementation of AMR as one of the most important steps the City needs to take to conserve water consistent with the goals of the City, County, Region, and State.

E.1.6.2. Subcriterion F.2— Performance Measures

This municipal metering project that switches the entire system to AMR including some meters on the pumps at the wells to measure water production and mobile meters for use on hydrants will have a positive impact on leak and theft detection. The system is currently fully metered with analog meters, but the project will convert to the updated technology that allows for further refinement of monitoring with more frequent and more accurate measurements that are less vulnerable to human error and are not impacted by the time restrictions of manual metering. Existing measurements will be used as the baseline evaluation criteria. Actual measurements and trends associated with the new AMI system will be compared to this criteria to quantify the improvements in water management when controlled for number of customers, from City records, and population estimates, from the American Community Survey.

E.1.6.3. Subcriterion F.3— Readiness to Proceed

ACTIVITY	LEAD PARTY	DELIVERABLE	START/END DATE
PHASE 1 START DATE			1/2/2020
Grant Execution	City	Signed Grant Documents	On or before 1/2/2020
Project Kick-Off	City	Meeting Notes	3/1/2020
Quarterly Program Meetings	City	Meeting Notes	Quarterly
Quarterly Progress / Financial Reports	City	Quarterly Report Documents	Quarterly
Bid for Infrastructure Installation and Device Procurement	City	RFP, Contract with Vendor	3/16/2020 – 6/30/2020
Phase 1 Infrastructure Installation	Vendor	Proof of Number of Infrastructure Elements and Software Installed	7/1/2020 – 6/30/2021
PHASE 1 END DATE			6/30/2021
PHASE 2 START DATE			7/1/2021
Phase 2 Meter Installation	City	Proof of Number of Meters Installed	7/1/2021 – 9/30/2023
Final Program / Financial Report	City	Final Report Documents	10/1/2023 – 12/30/2023
PROJECT END			12/30/2023

The Project will not require any permits to be obtained due to the nature of meter installation.

The City has already adopted a detailed method for meter installation and will utilize this method to implement the project. As such, engineering and design is not required for the meter installations. The City has already made plans with an AMI expert on where and how to install infrastructure elements, so no further design or engineering is required for the project.

New policies related to AMR will replace existing policies relating to manual metering.

No Environmental Compliance measures will be required for the project.

E.1.7. Evaluation Criterion G— Nexus to Reclamation Project Activities (4 Points)

The project is located in close proximity to many Reclamation projects, including preserved land that will have some City water irrigation and plumbing for public facilities following a separately proposed recreation project. The City also receives some Reclamation water through its management of the All American Canal; this project's improved water management will reduce the likelihood that the City will need more of these additional waters to meet growing demand related to population expansion. Finally, the City is the source of water for the Fort Mojave Indian Tribe Reservation. They will also benefit from the improved reliability based on better water management from this project.

E.1.8. Evaluation Criterion H— Additional Non-Federal Funding (4 points)

Needles will provide $582,463.73 out of a total project cost of $1,164,927.45 for a Non-Federal Funding ration of 50%.

Project Budget

Funding Plan

The City will provide $253,642.95 of in-kind contributions in the form of staff time, equipment rentals for installation, and for supplies. The value of these contributions is currently available from the general fund. The City will also provide a cash match of $368,637.09 from the Capital Improvement Fund, which will be available no later than July 1, 2020. July 1, 2020 is slated as the completion date for the competitive bid process and aligns with the beginning of the City's new fiscal year. The City Council has already passed a resolution confirming funds will be available which will allow the funds to be released earlier, if needed due to project progression ahead of schedule.

There are no time restraints or other restrictions on the funds, no third-party contributions, and no other complicating factors to the availability of the City's match funds.

Budget Proposal

Table 1.—Total Project Cost Table SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	$213,826.63

Costs to be paid by the applicant	$ 213,826.64
Value of third party contributions	$ 0
TOTAL PROJECT COST	$ 427,653.27

Budget Narrative

City of Needles - **AMR Entire Project** — WATER

Budget Estimate:

BUDGET ITEM DESCRIPTION	COMPUTATION Price	Unit	Quantity	Recipient Share	BOR Share	TOTAL COST
SALARIES AND WAGES						
Chief Water Plant Operator	$40.59	hr	240	$ 9,741.60		$ 9,741.60
Water Foreperson	$32.30	hr	240	$ 7,752.00		$ 7,752.00
Associate Water Operator	$27.02	hr	240	$ 6,484.80		$ 6,484.80
Associate Water Operator	$27.02	hr	240	$ 6,484.80		$ 6,484.80
Water Operator-In-Training	$16.62	hr	240	$ 3,988.80		$ 3,988.80
Meter Reader	$14.31	hr	240	$ 3,434.40		$ 3,434.40
Engineering Tech. II	$23.69	hr	80	$ 1,895.20		$ 1,895.20
Business Office Manager	$25.66	hr	240	$ 6,158.40		$ 6,158.40
Customer Service Rep II	$15.21	hr	240	$ 3,650.40		$ 3,650.40
Senior Accountant	$34.58	hr	80	$ 2,766.40		$ 2,766.40
Finance Director	$51.49	hr	40	$ 2,059.60		$ 2,059.60
City Manager	$104.32	hr	40	$ 4,172.80		$ 4,172.80
			Subtotal	**$ 58,589.20**	**$0.00**	**$ 58,589.20**
FRINGE BENEFITS – From Total Payroll cost						
FICA (Social)	6.200%	%	$ 58,589.20	$ 3,632.53		$ 3,632.53
SUTA	4.200%	%	$ 58,589.20	$ 2,460.75		$ 2,460.75
Workman's Comp	1.991%	%	$ 58,589.20	$ 1,166.51		$ 1,166.51
Health Insurance (Family)	7.000%	%	$ 25,873.60	$ 1,811.15		$ 1,811.15
Health Insurance (Employee/Employee +1)	8.000%	%	$ 32,715.60	$ 2,617.25		$ 2,617.25
Pension (Pepra)	6.985%	%	$ 36,551.20	$ 2,553.10		$ 2,553.10
Pension (Classic)	9.680%	%	$ 22,038.00	$ 2,133.28		$ 2,133.28
			Subtotal	**$ 16,374.57**	**$0.00**	**$ 16,374.57**
TRAVEL						
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
			Subtotal	**$43,200.00**		$ 43,200.00
SUPPLIES, MATERIALS AND EQUIPMENT						
Meter(s)					$304,489.50	$ 304,489.50
Miscellaneous Supplies (pipe fittings, glue, primer, vents, check valves)				5,000.00		$ 5,000.00
						$ -
				$5,000.00	$304,489.50	$ 309,489.50
CONTRACTS						
				$0.00		$0.00
TOTAL DIRECT COSTS:						**$ 427,653.27**
INDIRECT COSTS -						
no indirect charged to subcontr or equip						**$** -
TOTAL PROJECT/ACTIVITY COSTS:				**$123,163.77**	**$304,489.50**	**$ 427,653.27**
					BOR Share	$ 213,826.63
					Needles Share (less in-kind)	**$ 90,662.87**

Water Meter Breakdown by Size, Quantity and Price

			WATER
Meter Size	**Unit Price**	**Quantity**	**Total Cost**
5/8 X 3/4 "	100.00	1719	$ 171,900.00
1 "	225.00	98	$ 22,050.00
1-1/2 "	100.00	41	$ 4,100.00
2 "	225.00	79	$ 17,775.00
3 "	225.00	1	$ 225.00
4 "	225.00	3	$ 675.00
6"	255.00	2	$ 510.00
10 "	255.00	1	$ 255.00
			$ 217,490.00
		Project Management/Intergration	**$ 62,500.00**
		Network Infrastrucutre	**$ 10,000.00**
		Total	**$ 289,990.00**
		5% Contingency	$ 14,499.50
		Estimated Total	**$ 304,489.50**

Environmental and Cultural Resources Compliance

Due to the existing developments in the area and the nature of this project as replacing similar infrastructure with newer technologies that make no new impacts on the environment, this project will be categorically exempt from CEQA and will also be exempt from NEPA. If other information becomes available that requires different environmental compliance, the City will take action to begin that process in coordination with Reclamation.

Required Permits or Approvals

No permits or approvals are needed for the project.

PAUL COOK
8TH DISTRICT, CALIFORNIA

1222 LONGWORTH HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
(202) 225-5861

Congress of the United States
House of Representatives
Washington, DC 20515–0508

September 12, 2019

Bureau of Reclamation
Attn: Mr. Darren Olson
Denver Federal Center
Mail Room Bldg. 56, Rm. 1940 Dock S-6
6th Avenue and Kipling Street
Denver, CO 80225

Re: Needles 2020 WaterSMART Advanced Metering Infrastructure (AMI) Grant Application

Dear Mr. Darren Olson,

I write to you today to offer my strong support for the application of the City of Needles to the Bureau of Reclamation for the 2020 WaterSMART Water and Energy Efficiency competitive grant program for the Needles Advanced Metering Infrastructure (AMI) project.

The proposed project will include the purchase and installation of automated meters that continuously report water usage to the City. The new AMI system will replace a completely analog system where meter readers physically read every meter for both water and electricity on a monthly basis.

The existing system is an outdated, labor-intensive method with both financial and resource conservation deficiencies. This formerly ubiquitous utility billing method has already been replaced by most municipalities but has remained cost prohibitive to Needles. Converting to AMI will save significant time for City staff but, more importantly, it will increase accessibility to water supplies that would otherwise be lost or unaccounted for due to various reasons such as late-identified leaks.

The project proposed by the City of Needed perfectly encapsulates the goals of the WaterSMART grant program, and I thank you for the opportunity to submit a letter of support. Should you have any questions, please contact my office at (760) 247-1815.

Sincerely,

Col. Paul Cook (ret.)
Congressman, 8th District of California

STATE CAPITOL
P.O. BOX 942849
SACRAMENTO, CA 94249-0033
(916) 319-2033
FAX (916) 319-2133

DISTRICT OFFICE
9700 SEVENTH AVENUE, SUITE 201
HESPERIA, CA 92345
(760) 244-5277
FAX (760) 244-5447

Assembly California Legislature

JAY OBERNOLTE
ASSEMBLYMAN, THIRTY-THIRD DISTRICT

COMMITTEES
VICE CHAIR: BUDGET
VICE CHAIR: COMMUNICATIONS AND CONVEYANCE
APPROPRIATIONS
BUSINESS AND PROFESSIONS
PRIVACY AND CONSUMER PROTECTION

JOINT COMMITTEE
JOINT LEGISLATIVE AUDIT

9/12/2019

Bureau of Reclamation
Attn: Mr. Darren Olson
Denver Federal Center
Mail Room Bldg. 56, Rm. 1940 Dock S-6
6th Avenue and Kipling Street
Denver, CO 80225

Re: Needles 2020 WaterSMART Advanced Metering Infrastructure (AMI) Grant Application

Dear Mr. Darren Olson,

As the State Assemblyman for the 33rd District, I am writing this letter in support of the application of the City of Needles to the Bureau of Reclamation for the 2020 WaterSMART Water and Energy Efficiency competitive grant program for the Needles Advanced Metering Infrastructure (AMI) project.

The proposed project will include the purchase and installation of automated meters that continuously report water usage to the City. The new AMI system will replace a completely analog system where meter readers physically read every meter for both water and electricity on a monthly basis.

The existing system is an outdated, labor-intensive method with both financial and resource conservation deficiencies. This formerly ubiquitous utility billing method has already been replaced by most municipalities but has remained cost prohibitive to Needles. Converting to AMI will save significant time for City staff but, more importantly, it will increase accessibility to water supplies that would otherwise be lost or unaccounted for due to various reasons such as late-identified leaks.

Please accept this letter in support of the City of Needles application.

Sincerely,

JAY OBERNOLTE
Assemblyman, 33rd District

RESOLUTION NO. 2019-53

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF NEEDLES, CALIFORNIA, AUTHORIZING THE CITY MANAGER, OR DESIGNEE , TO APPLY FOR, RECEIVE, AND ENTER INTO A COOPERATIVE AGREEMENT, AND ADMINISTER A GRANT FOR THE 2020 BUREAU OF RECLAMATION WATER AND ENERGY EFFICIENCY GRANT

WHEREAS, the City Manager of the *City of Needles, or designee,* may legally bind the City of Needle by his/her signature; and

WHEREAS, the *City of Needles* ("**CITY**") wishes to enter into the Bureau of Reclamation's Challenge Grants Program to fund a water and energy efficiency in the amount not to exceed $1,500,000 project and the City will provide the amount of funding and/or in-kind contributions specified in the funding plan; and

WHEREAS the *Needles City Council* and the *City Manager* have reviewed and support the application submitted, and

WHEREAS, the *CITY* will work with the *Bureau of Reclamation* to meet established guidelines for entering into a cooperative agreement.

NOW, BE IT THEREFORE, BE IT RESOLVED that the City Council of the City of Needles, California, hereby supports the application submitted and authorizes the City Manager to execute any and all documents associated with this grant process.

PASSED, APPROVED AND ADOPTED at a regular meeting of the City Council of the City of Needles, California, held on the 10th day of September, 2019, by the following roll call vote:

AYES: Councilmembers Gudmundson, Terral, Hazlewood, Paget, Belt and Longacre

NOES: None

ABSENT: None

ABSTAIN: None

Mayor

(SEAL)

ATTEST: _____
City Clerk

APPROVED AS TO FORM:

_____
City Attorney

City of Needles - AMR Entire Project WATER

Budget Estimate:

BUDGET ITEM DESCRIPTION	COMPUTATION Price	Unit	Quantity	Recipient Share	BOR Share	TOTAL COST
SALARIES AND WAGES						
Chief Water Plant Operator	$40.59	hr	240	$ 9,741.60		$ 9,741.60
Water Foreperson	$32.30	hr	240	$ 7,752.00		$ 7,752.00
Associate Water Operator	$27.02	hr	240	$ 6,484.80		$ 6,484.80
Associate Water Operator	$27.02	hr	240	$ 6,484.80		$ 6,484.80
Water Operator-In-Training	$16.62	hr	240	$ 3,988.80		$ 3,988.80
Meter Reader	$14.31	hr	240	$ 3,434.40		$ 3,434.40
Engineering Tech. II	$23.69	hr	80	$ 1,895.20		$ 1,895.20
Business Office Manager	$25.66	hr	240	$ 6,158.40		$ 6,158.40
Customer Service Rep II	$15.21	hr	240	$ 3,650.40		$ 3,650.40
Senior Accountant	$34.58	hr	80	$ 2,766.40		$ 2,766.40
Finance Director	$51.49	hr	40	$ 2,059.60		$ 2,059.60
City Manager	$104.32	hr	40	$ 4,172.80		$ 4,172.80
			Subtotal	**$ 58,589.20**	**$0.00**	**$ 58,589.20**
FRINGE BENEFITS – From Total Payroll cost						
FICA (Social)	6.200%	%	$ 58,589.20	$ 3,632.53		$ 3,632.53
SUTA	4.200%	%	$ 58,589.20	$ 2,460.75		$ 2,460.75
Workman's Comp	1.991%	%	$ 58,589.20	$ 1,166.51		$ 1,166.51
Health Insurance (Family)	7.000%	%	$ 25,873.60	$ 1,811.15		$ 1,811.15
Health Insurance (Employee/Employee +1)	8.000%	%	$ 32,715.60	$ 2,617.25		$ 2,617.25
Pension (Pepra)	6.985%	%	$ 36,551.20	$ 2,553.10		$ 2,553.10
Pension (Classic)	9.680%	%	$ 22,038.00	$ 2,133.28		$ 2,133.28
			Subtotal	**$ 16,374.57**	**$0.00**	**$ 16,374.57**
TRAVEL						
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
			Subtotal	**$43,200.00**		$ 43,200.00
SUPPLIES, MATERIALS AND EQUIPMENT						
Meter(s)					$ 304,489.50	$ 304,489.50
Miscellaneous Supplies (pipe fittings, glue, primer, vents, check valves)				5,000.00		$ 5,000.00
						$ -
				$5,000.00	$ 304,489.50	$ 309,489.50
CONTRACTS						
				$0.00		$0.00
TOTAL DIRECT COSTS:						$ 427,653.27
INDIRECT COSTS -						
no indirect charged to subcontr or equip						$ -
TOTAL PROJECT/ACTIVITY COSTS:				**$ 123,163.77**	**$304,489.50**	**$ 427,653.27**

BOR Share	$	213,826.63
Needles Share (less in-kind)	$	**90,662.87**

Authomatic Meter Reading Project (AMR)

WATER

Meter Size	Unit Price	Quantity		Total Cost
5/8 X 3/4 "	100.00	1719	$	171,900.00
1 "	225.00	98	$	22,050.00
1-1/2 "	100.00	41	$	4,100.00
2 "	225.00	79	$	17,775.00
3 "	225.00	1	$	225.00
4 "	225.00	3	$	675.00
6"	255.00	2	$	510.00
10 "	255.00	1	$	255.00
			$	217,490.00
		Project Management/Intergration	$	62,500.00
		Network Infrastrucutre	$	10,000.00
		Total	$	289,990.00
		5% Contingency	$	14,499.50
		Estimated Total	$	304,489.50

City of Needles - AMI Entire Project ELECTRIC

Budget Estimate:

BUDGET ITEM DESCRIPTION	COMPUTATION Price	Unit	Quantity	Recipient Share	BOR Share	TOTAL COST
SALARIES AND WAGES						
Line Crew Supervisor	$42.24	hr	240	$ 10,137.60		$ 10,137.60
Powerline Tech.	$38.58	hr	240	$ 9,259.20		$ 9,259.20
Powerline Tech.	$38.58	hr	240	$ 9,259.20		$ 9,259.20
Powerline Tech. Apprentise	$21.30	hr	240	$ 5,112.00		$ 5,112.00
Powerline Tech. Apprentise	$20.08	hr	240	$ 4,819.20		$ 4,819.20
Materials Coordinator	$21.03	hr	240	$ 5,047.20		$ 5,047.20
Engineering Tech. II	$23.69	hr	80	$ 1,895.20		$ 1,895.20
Business Office Manager	$25.66	hr	240	$ 6,158.40		$ 6,158.40
Customer Service Rep II	$15.21	hr	240	$ 3,650.40		$ 3,650.40
Senior Accountant	$34.58	hr	80	$ 2,766.40		$ 2,766.40
Finance Director	$51.49	hr	40	$ 2,059.60		$ 2,059.60
City Manager	$104.32	hr	40	$ 4,172.80		$ 4,172.80
			Subtotal	**$ 64,337.20**	**$0.00**	**$ 64,337.20**
FRINGE BENEFITS – From Total Payroll cost						
FICA (Social)	6.200%	%	$ 64,337.20	$ 3,988.91		$ 3,988.91
SUTA	4.200%	%	$ 64,337.20	$ 2,702.16		$ 2,702.16
Workman's Comp	1.991%	%	$ 64,337.20	$ 1,280.95		$ 1,280.95
Health Insurance (Family)	7.000%	%	$ 30,551.20	$ 2,138.58		$ 2,138.58
Health Insurance (Employee/Employee +1)	8.000%	%	$ 33,786.00	$ 2,702.88		$ 2,702.88
Pension (Pepra)	6.985%	%	$ 40,792.00	$ 2,849.32		$ 2,849.32
Pension (Classic)	9.680%	%	$ 23,545.20	$ 2,279.18		$ 2,279.18
			Subtotal	**$ 17,941.98**	**$0.00**	**$ 17,941.98**
TRAVEL						
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
Vehicle Use for Install of Meters	$60.00	HR	240	$14,400.00		$ 14,400.00
			Subtotal	**$43,200.00**		$ 43,200.00
SUPPLIES, MATERIALS AND EQUIPMENT						
Meter(s)					$ 606,795.00	$ 606,795.00
Miscellaneous Supplies (pipe fittings, glue, primer, vents, check valves)				5000		$ 5,000.00
						$ -
				$5,000.00	$ 606,795.00	$ 611,795.00
CONTRACTS						
				$0.00		$0.00
TOTAL DIRECT COSTS:						$ 737,274.18
INDIRECT COSTS -						
no indirect charged to subcontr or equip						$ -
TOTAL PROJECT/ACTIVITY COSTS:				**$ 130,479.18**	**$606,795.00**	$ 737,274.18

BOR Share	$	368,637.09
Needles Share (less in-kind)	$	**238,157.91**

Automatic Meter Reading Project (AMR)

ELECTRIC

Meter Size	Unit Price	Quanity		Total Cost
Polyphase	300.00	168	$	50,400.00
Single Phase	150.00	2,500	$	375,000.00
			$	425,400.00
		Project Management/Integration	$	62,500.00
		Network Infrastructure	$	90,000.00
		Total	$	577,900.00
		5% Contingency	$	28,895.00
		Estimated Total	$	**606,795.00**

CITY OF NEEDLES

817 Third Street • Needles, California 92363
(760) 326-2113 • FAX (760) 326-6765

CERTIFICATION

I, Dale Jones, CMC, City Clerk of the City of Needles, California, do hereby certify that the foregoing is a true and correct copy of Resolution Number 2019-53.

Dale Jones

Dale Jones, CMC
City Clerk

(SEAL)

Date: September 12, 2019