

# City of McAlester Automatic Metering Infrastructure



WaterSMART Grants: Water and Energy Efficiency Grants for Fiscal Year 2023  
Submitted July 2022

City of McAlester  
28 East Washington Avenue  
McAlester, Oklahoma 74501

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City of McAlester, 28 East Washington Avenue, McAlester, Pittsburg County, Oklahoma.  
July 19, 2022

## **Executive Summary**

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The City of McAlester Automatic Metering Infrastructure project proposes to install 1,797 Automatic Metering Infrastructure (AMI) meters on residential and commercial service lines under the WaterSMART Water and Energy Efficiency Grants. The project continues to replace older mechanical meters to improve water conservation and delivery and is expected to be completed by June 2024. The project is estimated to save as much as 143.42 acre-feet per year. McAlester is located in rural southeastern Oklahoma within the boundaries of the Choctaw Nation. The City is a Category A applicant and project activities are located in the public ways, properties, and existing easements of the City of McAlester. The project is not located in a federal facility.

## **Technical Project Description**

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The City of McAlester Automatic Metering Infrastructure project will increase the efficiency of the water delivery system through the replacement of mechanical water service meters over one year. The current system is plagued by water loss and component failure due to outdated water meters that fail to accurately measure customer water usage.

The City's distribution system consists of approximately 187 miles of pipe in a variety of sizes, materials, ages, and conditions. The McAlester water treatment plant is owned by the City of McAlester and operated through a contract with Inframark Water and Infrastructure Services. The city's Utility Maintenance Department is responsible for the maintenance and repair of sewer, water lines, and corresponding components. Workers respond to more than 1,000 water line breaks each year and regularly investigate instances of low water pressure. Five rural water districts purchase water from the City.

There are 7,550 residential and commercial service meters in the community. In 2017, 3,400 AMI meters were installed on the south side of the city for \$975,000. Due to limited borrowing capacity and the time required to pay off debt, the project was separated into phases for completion. As older, mechanical meters fail, city staff replaces them with AMI meters. Since the completion of phase one, 1,044 mechanical meters have been replaced with AMI meters through attrition, bringing the total number of AMI meters to 4,444. AMI meters currently constitute 59% of water meters in the city. Following the completion of this proposal, AMI meters will represent 83%.

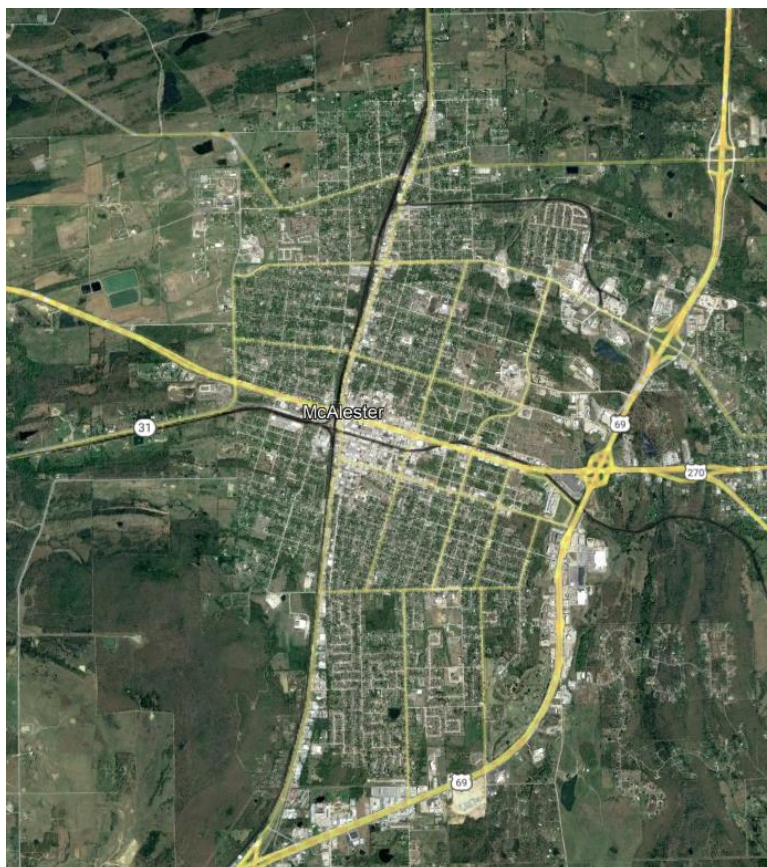
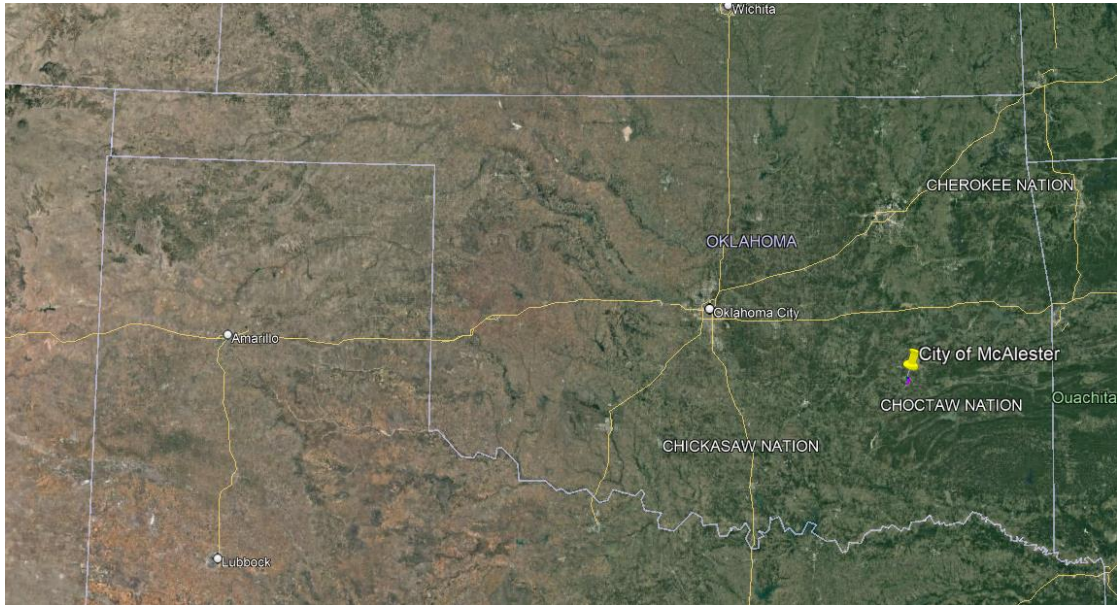
The City proposes to replace 1,797 meters with AMI meters in one stage. This includes 1,718 five-eighths-inch (5/8") and three-quarters-inch (3/4") AMI meters, seventy one-inch (1") AMI meters, seven two-inch (2") AMI meters, and two six-inch (6") AMI meters. The procurement and installation will be bid as one project to be completed by a contractor. All meters, components, and installation is specified following industry standards. Due to the number of damaged meter boxes in the community, the project anticipates furnishing and installing 800 meter boxes.

McAlester's AMI meters are Sensus iPERL Smart Water Meters with an electromagnetic flow measurement system. The hermetically sealed electronic register is designed to protect the meter from dirt, water, and moisture present in meter cans. The meters are equipped with smart alarms for empty pipe, tampering, customer leak, low battery, and reverse flow. The meter housing is made of thermal plastic with a composite alloy flow tube. The units work on a fixed-base antennae system. Data from the meters is collected by the water utility office where it is analyzed and communicated to customers.

## Project Location

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The City of McAlester Automatic Metering Infrastructure project is located throughout McAlester city limits in Pittsburg County, Oklahoma. The project latitude is 34°56'06.30" N and the longitude is 95°45'52.67" W.





## Evaluation Criteria

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### E.1.1. Evaluation Criterion A – Quantifiable Water Savings

#### Estimated Water Savings

The City of McAlester estimated water savings using data from a sample of households that received AMI meters in 2017. In the years after AMI meters were installed at the sample residences, customers fixed leaks and changed behaviors based on actual usage, resulting in an average of 25% reduction in water consumption.

#### How has the estimated average annual water savings that will result from the project been determined?

Comparing usage from 2016 to 2022, the city calculated the monthly average usage as compared to the same month of the previous year. Including all six years of usage, the average monthly usage was annualized to calculate the 25% reduction in consumption described above.

In 2020, the US Census Bureau reported McAlester's population was 18,244 residents residing in 7,097 housing units.<sup>1</sup> This means that each water meter in McAlester serves 2.57 people. By dividing the total gallons of water billed in 2020-2021 by the city's population, each citizen uses 111 gallons on average each day. Multiplying 2.57 people by an average of 111 gallons per day means each household uses approximately 285 gallons per day. Using this method, each meter would average 104,025 gallons per year. A 25% reduction would save more than 26,006 gallons annually at each meter, a total savings of 143.42 acre-feet (46,732,782 gallons) per year for the entire proposed project.

#### Estimated Water Savings Calculations

2.57 people per meter X 111 gallons per day = 285 gallons per day X 365 days = 104,025 gallons per year

25% water conservation X 104,025 gallons per meter, per year = 26,006 gallons annually at each meter

1,797 meters X 26,006 gallons per meter = 46,732,782 gallons saved annually = **143.42 acre-feet per year.**

#### How have current system losses and/or the potential for reductions in water use by individual users been determined?

Since McAlester installed the first phase of Sensus iPERL AMI meters in 2017, calculated water loss for the system has dropped significantly. In the fiscal year 2015-2016, the community experienced a 59% water loss annually. In the 2017-2018 fiscal year following the initial deployment of AMI meters the annual water loss dropped by 31%. Since that time, a variety of system deficiencies have increased water loss and the city is undergoing \$35 million in transmission line replacement projects over the next four years. Another 30% reduction in water loss is expected from this proposed AMI project.

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<sup>1</sup> United States Census Bureau. *QuickFacts: McAlester city, Oklahoma; Oklahoma. U.S.* 2020. Accessed July 19, 2022.

**Water Loss in the City of McAlester Since 2015**

<b>Fiscal Year</b>	<b>Water Loss %</b>	<b>Water Produced (in gallons)</b>	<b>Water Billed (in gallons)</b>	<b>Difference (in gallons)</b>
2015-2016	59.02%	1,582,929,000	648,638,855	934,290,145
2016-2017	53.11%	1,470,339,000	689,425,425	780,913,575
2017-2018	28%	1,312,404,000	944,987,000	367,417,000
2018-2019	32.05%	1,398,900,000	950,558,000	448,342,000
2019-2020	31.51%	1,372,780,000	940,197,789	432,582,211
2020-2021	45%	1,341,850,000	737,432,825	604,417,175

**For installing end-user water service meters, refer to studies in the region or in the applicant’s service area that are relevant to water use patterns and the potential for reducing such use. In the absence of such studies, please explain in detail how expected water use reductions have been estimated and the basis for the estimations.**

The *Moving McAlester Forward Comprehensive Plan 2040* identifies the city’s need to replace and upgrade water infrastructure. The plan specifically mentions the replacement of water meters with electronic meters as a positive project for the city and recommends the installation of new water meters.<sup>2</sup> No existing plan specifically measures or estimates water use reduction as a result of AMI systems. As a standard, AMI systems result in significant water conservation in one of two ways.<sup>3</sup> The first is through customer leak notifications from the water utility office by utilizing the real-time data and smart alarms provided by the AMI systems. In the fiscal year 2020-2021, 3,583 high flow and continuous use alarms allowed utility office employees to notify customers of leaks that may have otherwise gone unnoticed for weeks or even months. The second form of water savings comes from conservation methods employed by customers as a result of having accurate billing information rather than estimates. These behavior changes save water and result in cost savings for citizens.

**What types of devices will be installed and what quantity of each?**

The City of McAlester will install 1,797 Sensus iPERL Smart Water Meters. This includes 1,718 five-eighths-inch (5/8”) and three-quarters-inch (3/4”) AMI meters, seventy one-inch (1”) AMI meters, seven two-inch (2”) AMI meters, two six-inch (6”) AMI meters, and 800 water meter boxes.

**How will actual water savings be verified upon completion of the project?**

Water savings will be verified through an analysis of actual usage compared with old meter readings after six months of usage. The conservation will be verified with a comparison of similar seasonal demands from previous years.

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<sup>2</sup> *Moving McAlester Forward Comprehensive Plan for 2040*, September 25, 2019, pg. 50.  
<https://cms8.revize.com/revize/mcalesterok/community%20development/FINAL%20McAlester%20Comprehensive%20Plan.pdf>

<sup>3</sup> Berger, Michael A., et al. *Exploring the Energy Benefits of Advanced Water Metering*. Ernest Orlando Lawrence Berkeley National Laboratory. August 2016. Page 16.

## E.1.2. Evaluation Criterion B – Renewable Energy

### E.1.2.1. Subcriterion No. B.1: Implementing Renewable Energy Projects Related to Water Management and Delivery

The project does not include the construction or installation of renewable energy components.

### E.1.2.2. Subcriterion No. B.2: Increasing Energy Efficiency in Water Management

Reducing water loss within the McAlester water delivery system also increases energy efficiency as six to thirteen percent of all electricity used by water agencies annually is associated with non-revenue water. Scholars suggest a substantial portion of wasted electricity is minimized through leak detection.<sup>4</sup> The City of McAlester currently uses 319,721 kilowatt hours (kWh) of electricity per month at three places to move water through the city. These include the raw water service pump, the water treatment plant pumps, and an additional pump station. Even a 10% reduction in water consumption would save as much as 31,972 kWh each month, or 383,664 kWh annually. More efficient water management reduces energy spent in extraction, treatment, and distribution.<sup>5</sup>

#### **Will the project result in reduced vehicle miles driven, in turn reducing greenhouse gas emissions?**

The City of McAlester Automatic Metering Infrastructure project increases energy efficiency in water management by reducing vehicle miles driven. The current meter readers consume an average of 16.6 miles per gallon (MPG) across three vehicles traveling approximately 21,436.72 miles per year. The vehicles idle for a total of 359 hours per year. After the deployment of additional meters, miles traveled by meter readers are expected to reduce as much as 55% as workers move away from manually reading meters to system maintenance, data analysis, leak monitoring, and customer service orders. The current estimated annual carbon emission from the three vehicles is 17,514.68 pounds of Carbon Dioxide according to data collected through the city’s Samsara GPS Fleet Tracking Software. The project is expected to reduce Carbon Dioxide emissions by up to 9,633 pounds annually.

Vehicle	Efficiency (MPG)	Distance (Miles)	Estimated Carbon Emissions (lbs)	Idle Time (Minutes)
Utility Office 1	10.03	5,537.8	10,820.36	6,474.87
Utility Office 2	25.87	8,840.25	6,694.28	7,789.70
Utility Office 3	13.85	7,058.67	9,984.86	7,232.89

<sup>4</sup> Berger, Michael A., et al. *Exploring the Energy Benefits of Advanced Water Metering*. Ernest Orlando Lawrence Berkeley National Laboratory. August 2016. Page 19.

<sup>5</sup> Koo, Dan, et al. “Towards Sustainable Water Supply: Schematic Development of Big Data Collection Using Internet of Things (IOT),” *Science Direct*. 2015. Page 494.



### **E.1.3. Evaluation Criterion C – Sustainability Benefits**

#### **Does the project seek to improve resiliency to climate change?**

Oklahoma experiences climate change in a variety of ways. Resiliency is always on the minds of Oklahomans who have suffered through 46 extreme weather events with up to \$20 billion in damages since 2010.<sup>6</sup> Due to dramatic temperature fluctuations and annual rainfall variations, McAlester's organizations, businesses, and residents have experienced one major water outage a year, on average, for the last seven years. While major upgrades and line replacements are being implemented, the mechanical water meters remain a major point of failure when maintaining or recovering the system during these events. New AMI meters help crews quickly and efficiently identify and isolate water outages using empty pipe alarms. Replacing mechanical meters with AMI meters also helps ensure customers receive water quickly once service is restored since they are resistant to temperature extremes and less impacted by heavy rainfall or ice.

#### **Will water remain in the system for longer periods of time?**

The water conserved as a result of the City of McAlester Automatic Metering Infrastructure project will remain in McAlester Lake. Surface water sources continue to be strained throughout the Western United States and increasing populations result in a further reduction of these systems as they provide public water supplies.<sup>7</sup>

#### **Will the project benefit species? Please describe the relationship of the species to the water supply, and whether the species is adversely affected by a Reclamation project or is subject to a recovery plan or conservation plan under the Endangered Species Act (ESA).**

Lake McAlester is home to many of the species typical of Southeastern Oklahoma including fish, snakes, turtles, frogs, mammals, and birds that rely on the body of water for survival. Reducing the amount of water drawn from the lake for consumption purposes improves the water quality and availability for fish and wildlife. There are no known endangered species associated with the lake and none will be adversely affected under this project.

#### **Will the project directly result in more efficient management of the water supply?**

Yes, it is difficult to improve what is not measured. The data provided through automatic metering infrastructure provides critical information on how, when, and where water is used. This allows water managers to make decisions based on time, duration, and frequency of actual water usage. These metrics are essential to efficiently operating the water treatment plant, conducting repairs, and planning long-term capital upgrades.

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<sup>6</sup> The White House, *American Jobs Plan: The Need for Action in Oklahoma*. Accessed June 21, 2021. <<https://www.whitehouse.gov/wp-content/uploads/2021/04/AJP-State-Fact-Sheet-OK.pdf>>

<sup>7</sup> U.S. Department of the Interior, U.S. Geological Survey, *Public Supply and Domestic Water Use in the United States*. 2015. Page 6.

**Explain and provide detail of the specific issue in the area that is impacting water sustainability, such as shortages due to drought and/or climate change, increased demand, or reduced deliveries.**

McAlester’s water experiences many impacts that can be contributed to drought, climate change, increased demand, and reduced deliveries. According to the US Drought Monitor, all of Pittsburg County reached severe to extreme levels of drought several times since 2000. During these periods, lake levels were critically low, water lines experienced breaks, water restrictions were implemented and water quality was affected.<sup>8</sup>

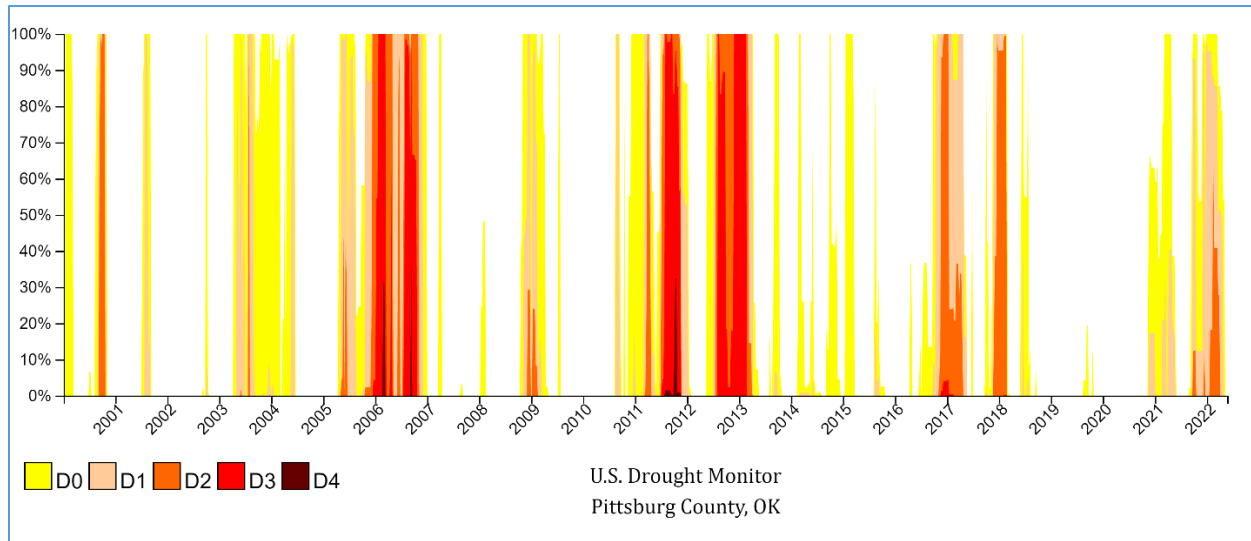


Figure 1: Instances of Drought in Pittsburg County Since 2000.

Surface water quality declines as water temperatures rise and rainfalls drop. The City of McAlester has experienced heavy turbidity in the past that has led to difficult conditions for the McAlester Water Treatment Plant and the issuance of Voluntary Precautionary Boil Advisories.<sup>9</sup> Other times, high levels of manganese have led to discolored water for residents in the city and county.<sup>10</sup>

**Explain and provide detail of the specific issue in the area that is impacting energy sustainability such as reliance on fossil fuels, pollution, or interruptions in service.**

McAlester, like so many rural areas, is reliant on vehicles and the fossil fuels that run them. Reducing the number of miles traveled allows for alternative transportation methods to be considered for the employees previously using fuel to read meters. Additionally, extreme weather is common in the area. Summer days regularly have heat over 100 degrees causing the electrical service provider to call for periods of customer usage reduction. In the winter, ice storms and severe cold have caused problems with the electrical service grid again resulting in calls for usage reduction. The anticipated decrease in energy savings is found in Section E.1.2.2 above.

<sup>8</sup> US Drought Monitor Data Tables for Pittsburg County, Oklahoma. Accessed May 31, 2022.

<https://droughtmonitor.unl.edu/DmData/DataTables.aspx?state,ok>

<sup>9</sup> Puit, Glenn. “McAlester Turns Corner on Water Problem,” *McAlester News-Capital*. May 5, 2017.

<sup>10</sup> Flanagan & Associates, LLC. *McAlester Multi-Jurisdictional Multi-Hazard Plan 2010*, October 2010. Pg. 176.

**Please describe how the project will directly address the concerns stated above. For example, if experiencing shortages due to drought or climate change, how will the project directly address and confront the shortages?**

The widespread implementation of automatic meters across the nation has been driven by leak detection and water preservation.<sup>11</sup> These meters more accurately and quickly identify leaks that waste treated water, allowing more water to stay in the system during times of drought or other conditions, lessening the chances of poor water quality.

**Please address where any conserved water as a result of the project will go and how it will be used, including whether the conserved water will be used to offset groundwater pumping, used to reduce diversions, used to address shortages that impact diversions or reduce deliveries, made available for transfer, left in the river system, or used to meet another intended use.**

The water conserved through the City of McAlester Automatic Metering Infrastructure project will remain in McAlester Lake for the benefit of customers, local wildlife, and recreation.

**Indicate the quantity of conserved water that will be used for the intended purpose.**

As indicated in Section E.1.1 above, this project will conserve an estimated 143.42 acre-feet of water annually.

**Please provide specific details and examples on how the project will address the impacts of climate change and help combat the climate crisis.**

The best water is water that is not being used. Compiling, storing, mapping, and analyzing data helps small systems such as McAlester's identify the local impacts climate change has on the water supply, water treatment processes, and water usage. This information and the autonomous features will ensure that McAlester and the reliant rural water districts have the tools necessary to be climate-ready. Armed with this information, the system can prepare for and adapt to the impacts of climate change.

**Does this proposed project strengthen water supply sustainability to increase resilience to climate change?**

In addition to drought, Oklahoma is known for thunderstorms and tornadoes and many of the effects of climate change on severe weather are not yet known. More runoff and flash flooding will occur because of climate change, greatly affecting the quality of water in Lake McAlester.<sup>12</sup> Having more source water helps mitigate potential problems caused by lower lake levels from drought or pollution caused by flooding.

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<sup>11</sup> Open Access Government. *How automated meter readers are transforming the water utilities industry*. August 18, 2021. < <https://www.openaccessgovernment.org/how-automated-meter-readers-are-transforming-the-water-utilities-industry/117799/> >

<sup>12</sup> Oklahoma Climatological Survey, *Statement on Climate Change and its Implications for Oklahoma*, 1-2.

**Will the proposed project establish and utilize a renewable energy source?**

The project does not establish and utilize a renewable energy source.

**Will the project result in lower greenhouse gas emissions?**

Yes, the project results in lower greenhouse gas emissions as a result of fewer vehicle miles driven and reduced pumping operations, as described in Section E.1.2.2 above.

**Disadvantaged or Underserved Communities:**

McAlester is a rural community of only 18,244 residents and meets the definitions of both a disadvantaged and underserved community as defined by the Bureau of Reclamation. The community is adversely affected by persistent poverty and denied full opportunity to participate in many aspects of federal funding. The Choctaw Nation of Oklahoma was among the first five Promise Zones assigned by President Obama in 2014. The presidential designation of persistent poverty highlighted the importance of investing in infrastructure within the Choctaw Nation of Oklahoma recognizing that the current state of systems creates “impediments to investment in an area with otherwise strong growth potential.”

**Does the proposed project directly serve and/or benefit a disadvantaged or historically underserved community?**

The Automatic Metering Infrastructure project will directly benefit households in McAlester, Oklahoma. Through this project, the citizens will have improved service, billing, knowledge, and customer service. The city’s water supply also serves two state prisons, the Oklahoma State Penitentiary and Jackie Brannon Correctional Center.

**If the proposed project is providing benefits to a disadvantaged community, provide sufficient information to demonstrate that the community meets the disadvantaged community definition in Section 1015 of the Cooperative Watershed Act, which is defined as a community with an annual median household income that is less than 100 percent of the statewide median household income for the State, or the applicable state criteria for determining disadvantaged status.**

The State of Oklahoma’s annual median household income is \$53,840 according to the US Census Bureau. The same source reports McAlester’s annual median household income is only \$43,174, nearly 20% lower than Oklahoma’s.<sup>13</sup>

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<sup>13</sup> United States Census Bureau. *QuickFacts: McAlester city, Oklahoma; Oklahoma*. U.S. 2020. Accessed July 19, 2022.

**If the proposed project is providing benefits to an underserved community, provide sufficient information to demonstrate that the community meets the underserved definition in E.O. 13985, which includes populations sharing a particular characteristic, as well as geographic communities, that have been systematically denied a full opportunity to participate in aspects of economic, social, and civic life.**

McAlester meets the standards of an underserved community as defined in Executive Order 13985 issued on January 20, 2021. It is located within the Choctaw Nation of Oklahoma Reservation, is a rural community, and supports numerous veterans such as those employed at the McAlester Army Ammunition Plant. Approximately 20.3% of McAlester residents live below the poverty level according to data from the US Census Bureau.<sup>14</sup>

**Does the proposed project directly serve and/or benefit a Tribe?**

McAlester is located within the boundaries of the Choctaw Nation of Oklahoma Reservation and provides water to tribal community members, businesses, and institutions. US Census Data shows that 4,303 residents are American Indian or Alaska Native, making up 23.7% of the city’s population.

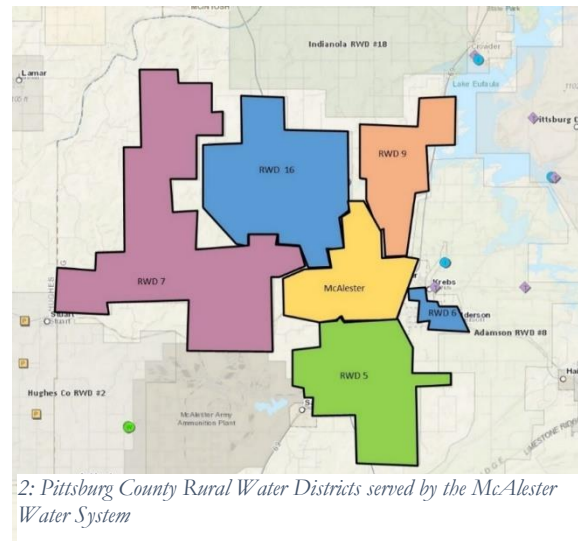
**Does the proposed project directly support tribal resiliency to climate change and drought impacts or provide other Tribal benefits such as improved public health and safety through water quality improvements, new water supplies, or economic growth opportunities?**

The City of McAlester struggles to maintain the reliability of an expanded and aged infrastructure for industrial, commercial, institutional, tribal, and residential water users. As highlighted in the *National Climate Assessment*, “For rural and tribal communities, their remote locations, sparse development, limited local service... present greater challenges in responding to climate extremes.”<sup>15</sup>

**E.1.4. Evaluation Criterion D – Complementing On-Farm Irrigation Improvements**

**Describe any planned or ongoing projects by farmers/ranchers that receive water from the applicant to improve on-farm efficiencies.**

The largest farming operation within the City of McAlester is the Agri-Services department of the Oklahoma Department of Corrections. The farm facilities at Jackie Brannon Correctional Center include beef, dairy, eggs, transportation, feed mill, grass hay, and meat processing. Analyzing the water consumption of Jackie Brannon Correctional Facility shows a water use reduction of 38% from an average of 135,205 gallons per month in 2020 to 83,943 per



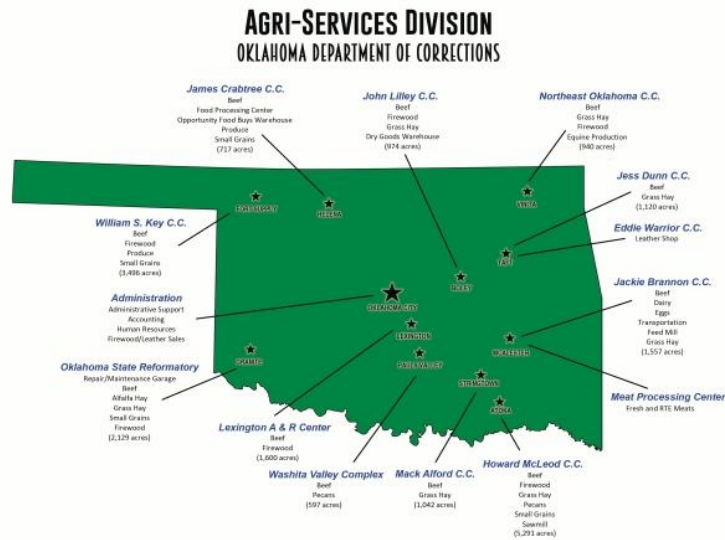
<sup>14</sup> Ibid.

<sup>15</sup> U.S. Global Change Research Program, *Climate Change Impacts in the United States*. Accessed June 4, 2021. <<https://nca2014.globalchange.gov/report/regions/great-plains>>



month in 2022, indicating dramatic improvements in water efficiency. Further, discussions with the facility revealed that the Department of Corrections is in the process of installing isolation valves and leak detectors on the grounds to assist in operations and repairs. Installing automatic metering infrastructure on the six-inch water meters at Jackie Brannon Correctional Facility and providing usage reports to the facility will complement their efforts.

In addition to providing water within city limits, the City of McAlester services five rural water districts providing water to numerous farms, ranches, and other agricultural services. Improving the water efficiency of the McAlester water system will benefit each of these rural water districts.



**Describe how the proposed WaterSMART project would complement any ongoing or planned on-farm improvement.**

The City of McAlester Automatic Metering Infrastructure project will allow the city to provide real-time data for further process analysis, monitor continuous consumption alerts, and assist in immediately analyzing the effects of new equipment or processes for the farm operations at Jackie Brannon Correctional Center as needed.

## E.1.5. Evaluation Criterion E – Planning and Implementation

### E.1.5.1. Subcriterion E.1 – Project Planning

**Identify any district-wide, or system-wide, planning that provides support for the proposed project. This could include a Water Conservation Plan, SOR, Drought Contingency Plan or other planning efforts done to determine the priority of this project in relation to other potential projects.**

The Oklahoma Water Resources Board published their Watershed Planning Region Report in 2012 and Lake McAlester falls within the Eufaula Watershed Region Report. The water demand in the area is expected to increase 36% by 2060, with the most significant growth expected to take place in the municipal and industrial demand sectors. The long-term need to make infrastructure improvements for the City of McAlester is identified.<sup>16</sup>

<sup>16</sup> Oklahoma Water Resources Board. *Oklahoma Comprehensive Water Plan: Eufaula Watershed Planning Region Report*. Version 1.1. < [https://owrb.ok.gov/OCWP/pdf/2012Update/OCWP\\_Eufaula\\_Region\\_Report.pdf](https://owrb.ok.gov/OCWP/pdf/2012Update/OCWP_Eufaula_Region_Report.pdf) >

**E.1.5.2. Subcriterion E.2 – Readiness to Proceed**

**Identify and provide a summary description of the major tasks necessary to complete the project.**

To complete the City of McAlester Automatic Metering Infrastructure project, the City will work with consulting engineers to finalize the specifications, bid for the construction work, obtain approval from the City Council, and oversee construction. The engineering firm will conduct the pre-construction conference and serve as the Resident Project Representative.

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

No permits are required to complete this project.

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

The City of McAlester’s Utility Office is working with consulting engineers from Infrastructure Solutions Group, LLC, who have already completed the scope of work as seen in the Opinion of Probable Construction Cost in the Project Budget section below.

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

The administrative actions required to implement the project will be taken by the McAlester City Council. These include approving the agreement with the Bureau of Reclamation, providing matching funds, and awarding contracts to complete the work described in the proposal. A resolution passed by the McAlester City Council supporting these actions is attached to this proposal.

**Please also include an estimated project schedule that shows the stages and duration of the proposed work, including major tasks, milestones, and dates.**

Project implementation occurs in five stages beginning in June 2023 and ending in June 2024. The City will prepare documents and advertise for bids from contractors within sixty days of notice of award. The bidding process under open bidding laws will take thirty days for city council approval. Another thirty days are needed to award the bid and secure bonds and insurance from the contractor. Construction will occur over 180 days followed by thirty days of final inspection and project closeout. Since the project is completed exclusively in existing meter boxes, a categorical exclusion is anticipated for environmental and cultural compliance.



### **E.1.6. Evaluation Criterion F – Collaboration**

**Please describe how the project promotes and encourages collaboration.**

The City of McAlester’s Automatic Metering Infrastructure project will benefit numerous entities, industries, businesses, and citizens through accurate water monitoring and quick notification of leaks. Important sectors in the project area include tribal services, correctional facilities, healthcare providers, manufacturers, educational institutions, childcare centers, senior citizen programs, and more.

**Is there widespread support for the project? Please provide specific details regarding any support and/or partners involved in the project. What is the extent of their involvement in the process?**

The project has widespread support and several encouraging letters are included in this application.

### **E.1.7. Evaluation Criterion G –Additional Non-Federal Funding**

The City of McAlester plans to incur a \$500,000 loan to match the federal assistance provided through Funding Group I of the WaterSMART Water and Energy Efficiency Grants.

\$500,000 Non-Federal  
\$1,000,000 Total Project = 50%

### **E.1.8. Evaluation Criterion H – Nexus to Reclamation**

This project does not have a connection to a Reclamation project or Reclamation activity.

## **Performance Measures**

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To determine the effectiveness of the City of McAlester Automatic Metering Infrastructure project, the Utilities Office will measure water efficiency using comparative data before and after AMI meter installation. Administrators will select a random sample of 75 accounts from the 1,797 meters replaced. They will compare water consumption after installation with prior years from the same months. This will give a representative sample to quantify water savings, efficiency, and other program benefits.

## **Project Budget**

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### **Funding Plan**

The City of McAlester will contribute \$500,000 or approximately 50% of project costs. The city plans to provide the match from a loan paid for with infrastructure tax and other allowable revenues. The city requests \$500,000 from Funding Group I of the WaterSMART program to complete the project.

# Budget Proposal

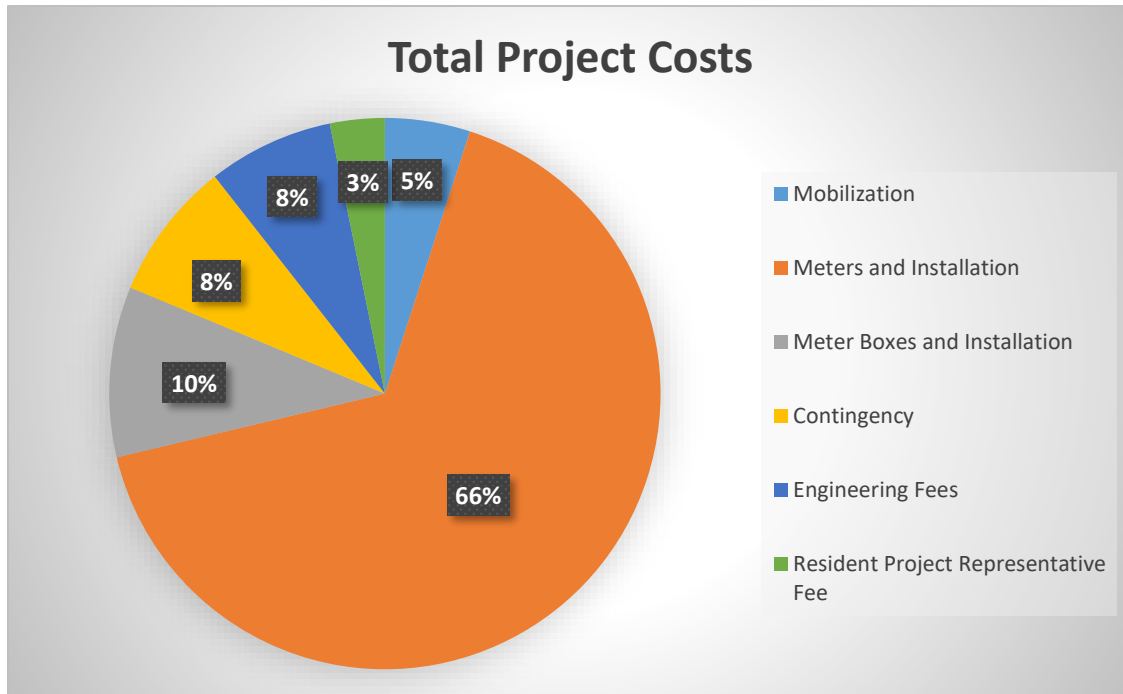
## Total Project Cost Table

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal Funding	\$500,000
Costs to be paid by the applicant	\$500,000
Value of third-party contributions	\$0.00
<b>TOTAL PROJECT COST</b>	<b>\$1,000,000</b>

Budget Item Description	Computation		Quantity Type	Total Cost
	\$/Unit	Quantity		
<b>Salaries and Wages</b>				
				<b>\$0.00</b>
<b>Fringe Benefits</b>				
				<b>\$0.00</b>
<b>Travel</b>				
				<b>\$0.00</b>
<b>Equipment</b>				
				<b>\$0.00</b>
<b>Supplies and Materials</b>				
				<b>\$0.00</b>
<b>Contractual / Construction</b>				
Mobilization, Bonds, Insurance	Lump Sum	1	Fee	\$50,000.00
5/8" & 3/4" AMI Meters, Installed	\$350/Each	1,718	Total	\$601,300.00
1" AMI Meters, Installed	\$500/Each	70	Total	\$35,000.00
2" AMI Meters, Installed	\$1,500/Each	7	Total	\$10,500.00
6" AMI Meters for Prison	\$8,000 / each	2	Total	\$16,000.00
Meter Boxes	\$125 / each	800	Total	\$100,000.00
Engineering	Fee Curve	1	Fee	\$73,700.00
Resident Project Representative Fee	Fee Curve	1	Fee	\$32,100.00
<b>Third-Party Contributions</b>				
				<b>\$0.00</b>
<b>Other</b>				
Contingency	\$81,400.00	10%	Percentage of Construction Fee	\$81,400.00
<b>TOTAL DIRECT COSTS</b>				<b>\$1,000,000.00</b>
<b>Indirect Costs</b>				
				<b>\$0.00</b>
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$1,000,000.00</b>

## Budget Narrative

The City of McAlester Automatic Metering Infrastructure project will be completed in partnership with consultants and contractors at a total cost of \$1,000,000. There are no costs in the Salaries and Wages, Fringe Benefits, Travel, Equipment, Materials and Supplies, or Indirect Cost categories.



Engineering fees, based on a fee curve, are expected to cost \$73,700. No costs are included for environmental since a categorical exemption is anticipated. Mobilization for the project will cost a lump sum of \$50,000, including bonds and insurance. The purchase and installation of 1,718 five-eighths-inch and three-fourths-inch AMI Meters cost \$350 each for a total of \$601,300. Seventy one-inch AMI Meters cost \$500 each for a total of \$35,000. Seven two-inch AMI Meters cost \$1,500 each for a total of \$10,500. Due to age and condition, 800 meter boxes are expected to be furnished and installed for \$125 each, totaling \$100,000. Two six-inch meters to service Department of Corrections facilities will cost \$8,000 each, totaling \$16,000. Resident project representative fees, based on a fee curve, are \$32,100. A ten percent contingency is \$81,400. The budget is based on an *Opinion of Probable Construction Cost* prepared by consulting engineers at Infrastructure Solutions Group, LLC.

The project parts will be bid together following the purchasing ordinances established by the City Council. These rules abide by all state laws and follow competitive bidding procurement practices based on full and open competition. The request for proposals will include a deadline for the receipt of bids, the bid opening date, the required bidder's qualifications, and non-collusion affidavits. Additionally, all guidelines concerning the use of federal funds will be enforced, including the restriction on contracts with any entity or individual that is suspended or debarred from contracts under federal awards. To ensure such compliance, the city will verify any recommended vendor is not included on the "Excluded Parties List" on SAM.gov. Once the proposals are reviewed for the lowest, qualified bidder, a recommendation will be made to the McAlester City Council for contract award.





**Opinion of Probable Construction Cost**

**City of McAlester**

**July 20, 2022**

**Page 1 of 1**

**Meter Replacement Improvements**

Item	Description	Unit	Qty	Unit Price	Total Price
1	Mobilization, Bonds, Insurance	Lump Sum	1	\$ 50,000.00	\$ 50,000.00
2	5/8" and 3/4" AMI Meters, Installed	Each	1718	\$ 350.00	\$ 601,300.00
3	1" AMI Meters, Installed	Each	70	\$ 500.00	\$ 35,000.00
3	2" AMI Meters, Installed	Each	7	\$ 1,500.00	\$ 10,500.00
4	6" AMI Meters, Installed for OSP	Each	2	\$ 8,000.00	\$ 16,000.00
4	Furnish and Install Meter Box	Each	800	\$ 125.00	\$ 100,000.00
<b>Subtotal AMI:</b>					<b>\$ 812,800.00</b>
Contingency 10%					\$ 81,400.00
<b>Construction Total</b>					<b>\$ 894,200.00</b>
Engineering Fees (Fee Curve)					\$ 73,700.00
Resident Project Representative Fee (Fee Curve)					\$ 32,100.00
Environmental					Cat Ex
<b>Total Project Cost</b>					<b>\$ 1,000,000.00</b>



*The costs shown are estimated costs and represent our best judgment; however these estimated costs are not guarantees that the actual costs will not vary from these estimated costs.*

## **Environmental and Cultural Compliance**

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**Will the proposed project impact the surrounding environment? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.**

The proposed meter replacements all occur in areas of existing meters and no new land disturbances are proposed. No activities are expected to negatively affect air, water, or animal habitat.

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

There are no species listed or proposed to be listed as an endangered species or critical habitat in the project area.

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

There are no wetlands or surface waters impacted by the proposed project.

**When was the water delivery system constructed?**

The components of the water delivery system in this project were installed during the second half of the twentieth century.

**Will the proposed project result in any modification of or effects to, individual features of an irrigation system? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.**

No irrigation systems are modified in this project.

**Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?**

There are buildings, structures, or features listed on the National Register of Historic Places in the project area. No part of this project will change or alter the historic character or use of the resources.

**Are there any known archeological sites in the proposed project area?**

There are no known archaeological sites in the project area.

**Will the proposed project have a disproportionately high and adverse effect on low-income or minority populations?**

No low-income or minority populations will be adversely affected by this project.

**Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?**

All proposed work will be conducted on existing easements and right-of-ways and will not limit the use of tribal land.

**Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?**

No work will introduce, perpetuate, or spread noxious weeds or invasive species.

## **Required Permits and Approvals**

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The City of McAlester Automatic Metering Infrastructure project does not require any permits or approvals from other agencies.

## **Overlap or Duplication of Effort Statement**

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At the time of this application, there is no overlap between the City of McAlester Automatic Metering Infrastructure project and any other active or anticipated proposals or projects in terms of activities, costs, or commitment of any key personnel. The City of McAlester Automatic Metering Infrastructure project is not duplicative of any proposal or project that has been or will be submitted to funding consideration to any other potential funding source.

## **Conflict of Interest Disclosure Statement**

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At the time of this application, there are no known actual or potential conflicts of interest with the City of McAlester Automatic Metering Infrastructure project. The City of McAlester has established internal controls and ethics policies designed to identify and eliminate conflicts of interest.

## **Letters of Support**

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Letters of support are included on the following pages from these organizations:

Keep McAlester Beautiful  
McAlester Public Schools  
Former Mayor Steve Harrison





July 19, 2022

To Whom It May Concern;

Keep McAlester Beautiful works closely with The City of McAlester to make our community a cleaner, safer, and more beautiful place to live and work. Improving the city with AMI water meters is a project we support.

Automatic Metering Infrastructure water meters for residential and commercial services has proven to help with water efficiency through leak detection and real-time data for customers make for better water usage decisions. Less water wasted from leak detection alone is enough to get the support of Keep McAlester Beautiful.

We believe that all citizens deserve safe, clean and efficient water meters to make for better quality of life. More efficient use of water is good for the environment, and good for McAlester. In fact, Keep McAlester Beautiful finds the importance of efficiently managed water high on our list with the uncertain future caused by climate change now more than ever.

If we can be of further assistance, please contact me,

Megan Waters

Executive Director, Keep McAlester Beautiful

119 E. Choctaw Ave, Suite 102

McAlester, OK 74501

(18-426-4444

[kmb@keepmcalesterbeautiful.com](mailto:kmb@keepmcalesterbeautiful.com)



**“Engaging Minds, Inspiring Hearts, Pursuing Excellence”**

October 25, 2021

City of McAlester  
28 E Washington  
McAlester, OK 74502

*Re: Letter of Support*

McAlester Public Schools would like to offer our letter of support for the City of McAlester in regards to automatic metering infrastructure (AMI) water meters for residential and commercial services in McAlester.

McAlester Public Schools relies heavily on the efficiency and resilience of the water system in our community. Not only is a reliable and long-lasting water supply important to the health of students, but it is also critical to help our institution and others face an uncertain future. Having automatic metering infrastructure allows the schools to be notified immediately when a leak occurs at a facility and allows our administrators to evaluate actual usage in real-time to make decisions about how and when water is used by our schools. This technology can also be used by students participating in STEAM activities to measure water usage and think critically about water consumption.

Thank you.

Randy Hughes  
Superintendent

July 22, 2022

To Whom It May Concern:

I write this letter in enthusiastic support of the City of McAlester's application for a grant to help fund the remaining automatic metering infrastructure (AMI) water meters for residential and commercial services in McAlester. Having recently served as mayor of McAlester, I am well aware of the significant positive impact this project will have on our community.

Upon completion, this project will provide more accurate and timely water usage data. Our customers will benefit in several ways. Antiquated mechanical meters are often inaccurate. On occasion, the manual meter-reading process can fall behind schedule, resulting in billings based upon estimates. Accurate electronic readings will mean that customers only pay for the actual water they use.

In addition, AMI systems can detect water leaks quickly and accurately. Customers can avoid receiving abnormally large water bills by being timely made aware of and addressing water leaks before large amounts of water are wasted.

Lastly, our customers will become smarter users of a finite resource.

All of these benefits will also accrue to the City of McAlester as the provider of potable water for our community. Our city has experienced several major water outages in recent years that were aggravated in some instances by the inability to quickly determine where breakages had occurred. Completing our AMI system, along with other water infrastructure investments we are making, will greatly improve our ability to quickly identify and resolve major water leaks.

Compared to many areas of our country, McAlester is very fortunate to have an ample supply of water. I believe we have a fiduciary responsibility to use this natural resource in an environmentally sound way. Implementing our AMI system will help us achieve this goal.

I hope that McAlester's grant application receives favorable consideration and I would be happy to provide further input should you desire.

Best regards,



Steve Harrison  
Former mayor, City of McAlester

## **Official Resolution**

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The McAlester City Council passed the following resolution during the June 14, 2022, regular meeting.

**RESOLUTION NO. 22-14**

**Resolution of the City of McAlester Authorizing Submittal of an Application to the WaterSMART Water and Energy Efficiency Grants for Fiscal Year 2023**

.....  
**WHEREAS**, the United States Bureau of Reclamation is currently offering grant opportunities through the WaterSMART: Water and Energy Efficiency Grants for Fiscal Year 2023; and

**WHEREAS**, said WaterSMART: Water and Energy Efficiency Grants for FY 2023 is a cost-shared program emphasizing water and energy efficiency; and

**WHEREAS**, the City Council of the City of McAlester supports the submission by the City of McAlester (“City”) of a grant application, prepared and approved by the City, to the WaterSMART: Water and Energy Efficiency Grants for FY 2023; and

**WHEREAS**, under the WaterSMART: Water and Energy Efficiency Grants for FY 2023 program, the United States Bureau of Reclamation may award up to Five Hundred Thousand Dollars and 00/100 (\$500,000.00) towards the maximum 50/50 cost sharing to pay for the Project costs and the City is capable of providing a minimum of Five Hundred Thousand Dollars and 00/100 (\$500,000.00) in cash and/ or in-kind contributions to pay for all remaining Project costs; and

**WHEREAS**, if selected for a WaterSMART: Water and Energy Efficiency Grant for FY 2023, the City will work with the United States Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement regarding funding for the Project.

**NOW THEREFORE BE IT RESOLVED:**

**Section 1:** The City Council does hereby approve the submission of an application for the WaterSMART: Water and Energy Efficiency Grants for FY 2023 for the City of McAlester Advanced Metering Infrastructure Project.

**Section 2:** In the event grant funding is provided by the United States Bureau of Reclamation, the City Council authorizes the City Manager to accept the grant and sign any contract for administration of the grant funds and delegate the City’s Chief Financial Officer to act as a fiscal agent for any grant funding received.

**PASSED AND APPROVED** by the Council of the City of McAlester, Oklahoma on this 14th day of June, 2022.



Cora Middleton, City Clerk

CITY OF MCALESTER, OKLAHOMA  
A Municipal Corporation

By: John Browne  
John Browne, Mayor