

Water Conservation Program Implementation

Lake Havasu City, Arizona

**WaterSMART Grants: Small-Scale Water Efficiency
Projects for Fiscal Year 2019
BOR-DO-19-F005**

**LAKE HAVASU CITY
PUBLIC WORKS DEPARTMENT
900 LONDON BRIDGE ROAD
LAKE HAVASU CITY, AZ 86403**

April 17, 2019

TABLE OF CONTENTS

1.	SF-424 Application Form	1
2.	SF-424A Budget Information – Non-Construction	4
3.	SF-424B Assurances Form – Non-Construction	7
4.	Title Page	9
5.	Table of Contents	10
6.	Executive Summary	11
7.	Project Narrative	12
8.	Project Activity/Schedule	14
9.	Evaluation Criteria	14
10.	Funding Plan	22
11.	Budget Proposal	22
12.	Budget Narrative	23
13.	Budget Summary.....	24
14.	Environmental and Regulatory Compliance	25
15.	Unique Entity Identifier and SAM	26
16.	Attachments:	
	a. Lake Havasu City 2017 Comprehensive Annual Financial Report Cover Page	
	b. Lake Havasu City Official Resolution	

EXECUTIVE SUMMARY

General Project Information

April 17, 2019
 Lake Havasu City Public Works Department
 Lake Havasu City, AZ 86404

Activity/Project Name:

WaterSMART Grants: Small-Scale Water Efficiency Projects

Lake Havasu City seeks to obtain funding to conduct a city-wide leak detection survey via satellite imagery, and to accelerate the City’s meter replacement program which will upgrade customer’s older meters to new meters capable of data acquisition via radio transmission. The proposed project coincides with the Bureau of Reclamation’s goals for this FOA by increasing the water efficiency of Lake Havasu City’s water distribution system, and thus allowing the City to better manage its water supplies and conserve water that is currently being lost through undetected leaks and meters that are under-calculating water use. The activities proposed in this project will not be conducted on a federal facility and will be carried out November 2019 through June 2020 if federal funding is secured.

FY 2019/2020 Funding Request Summary

FUNDING SOURCE AMOUNT	FUNDING
<u>Non-Federal (Lake Havasu City):</u>	
Lake Havasu City Irrigation and Drainage District Fund	\$ 133,958.90
Non-Federal Subtotal	\$ 133,958.90
Reclamation Funding	\$ 75,000.00
TOTAL PROJECT FUNDING	\$ 208,958.90

Is 50% or more non-Federal funding provided? Yes X No If more, than 50%, state the percentage of non-Federal funding provided: 64.1 %.

Contact for Further Information:

Doyle Wilson, Ph.D., P.G., Water Resources Coordinator
 (928) 854-0880 x4930
wilsond@lhcaz.gov

Briana Morgan, Water Conservation Specialist

(928) 854-0880 x4931

morganb@lhcaz.gov

PROJECT NARRATIVE

Organizational Background and Location

Lake Havasu City, located in Mohave County, Arizona, is the water provider of 4th priority Reclamation Colorado River water (contract # 3-07-30-W0039), and two 4th priority Reclamation Colorado River water subcontracts with the Mohave County Water Authority for a total of 28,581.7 acre-feet. Diversion of this water is on Reclamation project lands and is in the Lake Havasu Watershed recognized by the USEPA and Arizona Department of Water Resources. Lake Havasu City has approximately 578 miles of water mains. The City's water treatment plant, which removes manganese, iron and arsenic, is able to produce 26 MGD, but is now running at approximately 14 MGD. The water treatment plant has been online for over 14 years, which has virtually eliminated the significant amounts of water used to flush the distribution lines for manganese. The city also implemented a water service line upgrade program in 2001 to replace existing PVC residential laterals from the water mainlines with wrapped copper lines. The project followed the City's 9-year, \$350 million wastewater expansion program, taking advantage of replacing the laterals as each segment of the City's streets were torn-up for installing sewer pipelines. This program has helped to dramatically reduce reported water leaks and was finished in the fall of 2011. Water leak detection surveys were conducted in 2011 and 2013 on the City's almost 500 miles of pipeline in its water distribution system. However, five plus years have passed and the City has experienced several major leaks in the distribution lines (some believed to be long-term). The City thinks it is prudent to conduct another leak detection survey for its entire system.

Lake Havasu City has had a long standing water meter replacement program as older water meters are worn. These older meters actually let more water through the meter than is recorded, leading water waste and to under-charges of customer water fees. The newer water meters are in essence upgrades as they are capable of being retro-fitted with radio transmitters, a methodology the City is considering. Due to various rates of population growth in the past, water meters may be bunched into large groups within a narrow age range. The City would like to accelerate the water meter upgrades to reduce unmetered water use and ready the city for possible future remote meter reading.

The objective of the proposed project is to continue to reduce Lake Havasu City's annual water consumption for the purpose of extending water availability as the city continues to grow, to make the City more self-sustaining, particularly during federally declared Colorado River shortages, and to maximize water use efficiency. The proposed pro-active water leak detection survey could delay or ameliorate mandatory water use restrictions that will put less stress on the city's citizens during times of scarce water supply. This measure is incorporated in Lake Havasu City's 2015 (and upcoming 2020) Water Conservation Plan Update and will help reduce unaccounted (unmetered) water losses. It will also contribute to the goal of lowering the City's per capita consumption and narrowing the gap between water diverted from the Colorado River Aquifer and billed water consumption, which was 9% in 2017.

Activity/Project Description:

The Lake Havasu City water conservation program, particularly the actions of the Water Conservation Specialist, has been on-going since 2001. The City continues to strive to improve its per capita consumption rate through implementing activities from the City's 2015 Water Conservation Plan, which also fall within the WaterSMART Program objectives. Past WaterSMART funding cycles have provided the City the opportunity to establish and maintain water conservation programs that help the City's residents and businesses understand the importance of real water use reductions. These funding opportunities have also helped Lake Havasu City to decrease its annual consumption of Colorado River water through water efficiency improvement efforts such as offering rebates for citizens who purchase water saving devices, conducting leak detection surveys, installing irrigation system and restroom water fixture improvements, and utilizing an alternative water source. The effective multi-media "SLOW THE FLOW" campaign will continue to help inform the public on water conservation practices, particularly through the City's new water conservation website.

The proposed funding item described below has been requested and approved in past Water Conservation Field Services Program grant cycles. Lake Havasu City has demonstrated that the amount of the funds requested for each annual grant cycle has been fully utilized with Lake Havasu City contributing more than 50% of the project's budgetary funding and in-kind service costs during a fiscal year. The City is projected to have funding in the FY2019/2020 budget to cover its share of the costs (\$), similar to past grant cycles. Lack of federal assistance would greatly impact our water conservation program. The City is relying on Reclamation to help continue these efforts as reduced Federal funding will probably result in postponing the leak detection program until outside funding is secured.

Leak Detection Program

Lake Havasu City is looking to reinitiate its Leak Detection Program. During our previous leak detection program we surveyed approximately all 500 miles of mains within the city's water service area over seven years. Over 120 leaks were found and repaired through 2007. Our leak detection program saved an average of 36,600 GPD (41 ac-ft/yr) in the six-year period. The City renewed the leak detection program in 2011, surveying 153 miles of distribution lines on the east half of the City and discovering/repairing 47 leaks saving an estimated 169 ac-ft of water losses. This water leak detection survey occurred in that part of the city that most recently experienced wastewater collection connections during the Wastewater expansion program. Lake Havasu City then conducted its last leak detection survey in 2013, and found/repared 36 leaks saving an estimated 76.8 acft/yr of water losses.

The essence of the program is to quantifiably detect and pinpoint water system leakage, assess system proneness to non-surface leaks, and to inspect and report damaged or broken appurtenances that may pose potential public liability risks. The process includes a production to demand analysis, conducting sonic tests on water mains to determine sound transmission characteristics and conducting the leak survey. The City obtained a leak diction device through the 2008 grant cycle, but that leak detection listening device is used for identifying leaks in our 3000+ fire hydrants in the city. The leak detection program costs are based on vendor fees, which

the City believes through real water savings, provides a good return for the investment. The Leak Detection Program benefits Lake Havasu City through increased conservation, reduced non-revenue water, extended life of our water delivery system (increased productivity), lower production costs (pumping, treating, etc.), reduced emergency overtime for employees, reduced major road repair costs, established system integrity, minimized infiltration (reducing waste water treatment), reduced likelihood of lawsuits, reduced chances of contamination and improved public relations (fewer rate increases).

With the above in mind, the City would like to take a new approach as technology is now available to remotely search the entire city for leaks via satellite imagery. Imagery from two satellite passes at specific microwave bands capable of detecting chlorine in water surrounding distribution pipelines will be used by a sole source contractor to initially assess general areas of potential leaks. Identified potential leak areas will be prioritized such that a field crew will focus on-site surveys to pin-point leaks. This methodology has been used successfully the past several years in cities of varying sizes that also lie in a variety of climatic environments at a greatly reduced cost compared to traditional on-site surveys. This method is described in more detail under section E.1.5. Evaluation Criterion E, 1. Creating a conservation stewardship legacy second only to Teddy Roosevelt.

Water Meter Upgrades

Lake Havasu City has continued its water meter replacement program, but with a budget that cannot efficiently replace all water meters that need replacement within a fiscal year. Like many cities and towns in the United States, the city grows sporadically in concert with economic conditions. As a result, past growth spurts include larger numbers of water meter installations than during slow growth periods. Lake Havasu City is currently experiencing a situation in which a larger than normal amount of meters are reaching their life expectancy (20-25 years). The city would like to include a request for funding to supplement the water meter replacement and hasten its progress.

2019/2020 PROJECT ACTIVITY/SCHEDULE

Lake Havasu City's water conservation program is on-going throughout the year, yet the requested funded activity is planned to be implemented between November 2019 and the end of June 2020.

<u>Activity</u>	<u>Approximate Implementation Date</u>	<u>Milestone</u>
Hire Contractor/ Acquire/Analyze Satellite Imagery	November 2019 – January 2020	Reception of draft leak area maps
Compare Imagery with GIS distribution system maps	January – February 2020	Final leak area maps
Field Crew Leak Detection	March – April 2020	Draft leak detection report
Leak Location Determination	April - May 2020	Final leak location report
Water Meter Upgrade Program	November 2019 – June 2020	Installation of all water meters

EVALUATION CRITERIA

E.1.1. Evaluation Criterion A – Project Benefits (35 points)

- Describe the expected benefits and outcomes of implementing the proposed project.
- What are the benefits to the applicant's water supply delivery system?

Considering a leak detection survey has not been completed for Lake Havasu City's water distribution system since 2013, conducting one now is likely to find leaks that have gone undetected for an extensive time frame, and thus will allow the City to isolate these areas to be repaired. This will lead to an overall increase in the distribution system's efficiency by reducing unaccounted (unmetered) water losses, and closing the gap observed between water diverted from the Colorado River Aquifer and billed water consumption, which was 9% as of 2017. This will also directly correlate to reducing the City's per capita consumption.

Accelerating the meter replacement program (which is currently limited by budgetary constraints) will also increase the efficiency of the City's water distribution system for the same reason; by replacing older meters which are allowing more water to run through them than is actually recorded, replacing them will reduce unaccounted (unmetered) water losses, and close the gap observed between water diverted from the Colorado River Aquifer and billed water consumption. Consequentially, this will also improve the City's billing system as under-charges will be improved. Lastly, upgrading the City's meters will ready the city to implement remote meter reading increasing the reliability and accuracy of data acquisition. Currently, the meter replacement program is averaging 62 meter exchanges per month. With the additional funding requested in this grant proposal, the meter replacement rate could go up to an average of 125 meter exchanges per month for the duration of the grant cycle.

- If other benefits are expected explain those as well. Consider the following:
- Extent to which the proposed project improves overall water supply reliability

During the City's three previous leak detection surveys, 181 leaks were discovered and repaired leading to the prevention of an estimated 286.8 acft/yr of water losses since 2013. Considering more than five years have past since the City has conducted a leak detection survey, it is likely there are quite a few leaks throughout the distribution system that need to be repaired. Finding and repairing these leaks will likely lead to similar water savings as seen in the past, and will bolster water supply reliability by preventing unaccounted water losses. Such water losses are not just inefficient, but reduce the City's water supply reliability as this water is simply wasted and never reaches its intended destination.

Speeding up the process of upgrading customer's meters within Lake Havasu City will also improve water supply reliability. With meters that aren't properly registering the accurate amount of water going onto customer's properties, customers are able to use more water than what they are being billed for. By replacing these older meters, and thus increasing the accuracy

of accounting how much water is actually being delivered to Lake Havasu City's customers, billing can be appropriately applied and is likely to encourage conservation on the customer's end when their bills reflect their usage more accurately. It may also lead to the discovery of customer-side leaks that may have been neglected due to the customer's older meter registering lower water usage. Upon having a meter exchange, it is possible for customers to be flagged for higher-than-normal consumption that otherwise may have been neglected with their older meters. Thirdly, since the new meters will have remote-meter reading capabilities, the likelihood for meter read errors will decline and under-accounting may be avoided as well (once those remote-read capabilities are enabled for the City to use).

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

Any project that increases a water provider's distribution system efficiency and thus lowering the its per capita consumption, will serve a direct local benefit by enabling the water provider to be more self-sustaining. Specifically, for Lake Havasu City, maximizing water use efficiency will translate to a decreased reliance on its raw water source water and reducing stress on the Colorado River system, particularly during declared Colorado River shortages. However, it also indirectly benefits the Lower Colorado River Basin; with the City having increased water use efficiency and lowering its per capita consumption, less water will need to be drawn from the Colorado River Aquifer for the City's use, and thus, more water is left in the system. This is a small, but important contribution to Colorado River system conservation.

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

Direct action of the leak detection program and water meter upgrades is part of a larger water conservation/efficiency program outlined in the City's Water Conservation Plan. This information has been shared with Bullhead City and with other regional water managers through the Water Resources Committee of the Arizona Water Association. The anticipated "new" satellite technology approach proposed in the leak detection project will be a point of interest to these water managers.

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

The proposed project will directly benefit Lake Havasu City's economy as the gap between the City's water diversion from the Colorado River Aquifer and the water billed to customers will decrease. As of 2017, this unaccounted water loss gap was ~9%. By closing this gap, the City will decrease under-charges occurring for customer water fees and will improve water use efficiency. Lake Havasu City has a largely tourism-based economy and by extending the life-span of its water supply, the city will continue to offer recreation opportunities that would otherwise suffer if strict mandatory water conservation measures were in place during water supply shortages.

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

Lake Havasu City is not within an agricultural area and therefore has no opportunity to work directly with NRCS related to farm irrigation efficiency programs.

E.1.2. Evaluation Criterion B—Planning Efforts Supporting the Project (35 points)

- Describe how your project is supported by an existing planning effort.
- Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

Both aspects of this project (the water distribution leak detection survey and meter replacement program), are outlined in Lake Havasu City's 2015 Water Conservation Plan (sections 7.3 and 9.1.3) as measures scheduled to be implemented within the 5-year plan to reduce water waste and increase water efficiency in the water distribution system.

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

This proposed project was determined to be a priority as a water distribution leak detection has not been conducted in over five years. The length of time between surveys has likely led to a gradual decrease in overall system efficiency as time has passed. Several discovered leaks in the past few years highlight the need to address the distribution system proactively as a whole to minimize water losses. Lake Havasu City lies in an extreme heat environment (averaging 124 days/yr above 100°F) and as such experiences 3-4 major water leaks each year with enough pressure to destroy road surfaces and many tens of thousands of gallons are lost. Secondly, many other conservation measures outlined in Lake Havasu City's 2015 Water Conservation Plan, such as treated wastewater reuse, rainwater harvesting, green infrastructure, and addressing business water conservation have already been researched and addressed. These other projects/programs have been completed or are in progress.

E.1.3. Evaluation Criterion C—Project Implementation (10 points)

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

Leak Detection Project

Lake Havasu City would hire a contractor responsible for the leak detection project who will acquire and analyze satellite imagery (will produce a GIS layer and a set of maps that show priority regions), compare the results with the City's GIS pipe distribution system, identify high

priority areas of potential leaks, send a field crew up to 30 days to those areas to pin-point leak locations, and generate a report showing those locations.

Water Meter Upgrade Program

Water meter upgrades will be performed by City Water Division staff throughout the grant funding period until funds are exhausted. The City will purchase water meters and assign a dedicated field crew to replace old meters.

<u>Activity</u>	<u>Approximate Implementation Date</u>	<u>Milestone</u>
Hire Contractor/ Acquire/Analyze Satellite Imagery	November 2019 – January 2020	Reception of draft leak area maps
Compare Imagery with GIS distribution system maps	January – February 2020	Final leak area maps
Field Crew Leak Detection	March – April 2020	Draft leak detection report
Leak Location Determination	April - May 2020	Final leak location report
Water Meter Upgrade Program	November 2019 – June 2020	Installation of all water meters

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

No permits are required for this project.

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

No engineering or design work will be required for this project.

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

No new policies or administrative actions are required to implement this project.

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

No environmental compliance estimates were developed or needed for this project.

E.1.4. Evaluation Criterion D— Nexus to Reclamation (10 points)

- Is the proposed project connected to a Reclamation project or activity? If so, how?

Please consider the following:

- Does the applicant receive Reclamation project water?

Yes, Lake Havasu City lies within a Reclamation Project Water Supply area and has a contract with Reclamation for diverting water from the Colorado River (# 3-07-30-W0039).

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

The project is not directly on Reclamation project lands or Reclamation facilities.

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

Yes, Lake Havasu City lies within Reclamation's Lower Colorado River Region Project Water Supply Basin.

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

As mentioned above, the proposed work indirectly benefits the Lower Colorado River Basin; with the City having increased water use efficiency and lowering its per capita consumption, less water will need to be drawn from the Colorado River Aquifer for the City's use, and thus, more water is left in the system for other users along the river.

- Will the project benefit any tribe(s)?

This project will not directly benefit any tribes. However, the Chemehuevi Tribe operates a ferry boat from Lake Havasu City to Havasu Landing, CA to transport visitors and residents to and from their casino. Any downturn in the local economy that diminishes visitor levels, including imposed severe water conservation measures, could impact their tourism operations. Maintaining an efficient water distribution system will help ameliorate negative consequences during declared shortages.

E.1.5. Evaluation Criterion E— Department of the Interior Priorities (10 points)**1. Creating a conservation stewardship legacy second only to Teddy Roosevelt**

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

The methodology of choice for the leak detection survey is a great example of utilizing the best, scientifically-backed practices available to manage water resources in an environment that is constantly changing. Traditional, on-the-ground leak detection technologies have not changed much in over 80 years, and tend to be time-intensive. Newer methodologies have recently become available on the market, including the utilization of spectral satellite technology to detect leaks. Specifically, L-band microwave satellite imagery will be analyzed through a propriety

mathematical algorithm. Chlorine in the treated water is the key component for identification. The corrected microwave image is analyzed to visually detect hidden treated water leaks underground. Normalized data is presented graphically as a search area buffer zone around target areas in a GIS web-based application. The buffer zones are prioritized, which helps field crews to focus on the highest potential for pin-pointing leaks.

By utilizing satellite leak detection technologies in comparison to traditional, on-the-ground leak detection technologies, efficiency of leak detection is improved coupled with an extremely high reduction in boots-on-the-ground crew effort. Using traditional technologies requires more than 10 times the crew level of effort to inspect the entirety of a distribution system as compared to utilizing the satellite technology. Also, utilizing satellite technology can increase the efficiency of boots-on-the-ground crews by almost 400 percent; 4 times as many leaks can be found with the same crew resources. Therefore, by opting to use this newer technology as the methodology of choice to complete the leak detection survey for Lake Havasu City, far more resources and time will be saved, and the opportunity to increase system efficiency and isolate leaks is vastly improved.

- b. Examine land use planning processes and land use designations that govern public use and access;
- c. Revise and streamline the environmental and regulatory review process while maintaining environmental standards.
- d. Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;
- e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;
- f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;
- g. Shift the balance towards providing greater public access to public lands over restrictions to access.

2.Utilizing our natural resources

- a. Ensure American Energy is available to meet our security and economic needs;
- b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;
- c. Refocus timber programs to embrace the entire 'healthy forests' lifecycle;
- d. Manage competition for grazing resources.

3.Restoring trust with local communities

- a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;
- b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.

4.Striking a regulatory balance

- a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;
- b. Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.

5. *Modernizing our infrastructure*

- a. Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;

As infrastructure is becoming more outdated, efficiency for both public and private utilities is gradually decreasing, and the costs for maintenance is increasing; by modernizing our infrastructure as a city, Lake Havasu City is supporting the initiative to modernize U.S. infrastructure as a whole. More specifically, by performing a leak detection survey and accelerating the City's meter replacement program, the City is able to update outdated infrastructure and technology to increase system efficiency. By repairing and replacing water lines and mains that are currently leaking, and by replacing older meters which are not accounting water use appropriately, and which will be capable of remote-reading capabilities, the City is demonstrating support in the White House's Initiative to modernize U.S. infrastructure.

- b. Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;
- c. Prioritize DOI infrastructure needs to highlight:
 - Construction of infrastructure;
 - Cyclical maintenance;
 - Deferred maintenance.

FUNDING PLAN/PROJECT FINANCING

Lake Havasu City's FY 2019-2020 operating budget will include a water conservation budget provided through the City's Irrigation and Drainage District revenues. This does not constitute any change in funding style from previous grant cycles. The City's Comprehensive Annual Financial Report for the fiscal year 2017/2018 ending on June 30, 2018, is the most recent available report to the City's financial ability to fund this project (cover page attached). The City will wholly finance the non-federal share of the project's expenses through its annual budgetary process as mentioned below. The Lake Havasu City FY 2019-2020 operating budget will be approved prior to July 1, 2019. There will be no in-kind costs incurred prior to the anticipated project start date of July 1, 2019 that Lake Havasu City seeks to include as project costs. City in-kind costs after July 1, 2019 will include administration expenses for executing the grant reporting process and staff time to work with a company to run the leak detection survey. There are no partners, not including Reclamation and Lake Havasu City. There are no other pending funding requests for the proposed work.

BUDGET PROPOSAL

(Standard Form for Budget – SF-424a attached)

Budget Worksheet:

BUDGET ITEM DESCRIPTION	COMPUTATION		APPLICANT FUNDING	RECLAMATION FUNDING	TOTAL COST
	\$/Unit and Unit	Quantity			
SALARIES AND WAGES					
Lake Havasu City Employees	See below		\$40,100.50		\$40,100.50
FRINGE BENEFITS					
Lake Havasu City Employees	See below		\$18,858.40		\$18,858.40
SUPPLIES/MATERIALS					
Water Meter Upgrade	\$66.02	757 meters	\$25,000.00	\$25,000.00	\$50,000.00
OTHER					
Contractor Water Leak Satellite Analysis	\$55,000	1	\$27,500.00	\$27,500.00	\$55,000.00
Contractor Water Leak Field Crew	\$1,500/day	30 days	\$22,500.00	\$22,500.00	\$45,000.00
TOTAL DIRECT COSTS					
					\$208,958.90
INDIRECT COSTS - <u>0</u> % -			\$0.00	\$0.00	\$0.00
TOTAL ACTIVITY/PROJECT COSTS			\$133,958.90	\$ 75,000.00	\$208,958.90

BUDGET NARRATIVE

Leak Detection Program

Lake Havasu City is requesting funding to conduct a comprehensive leak detection survey of the entire municipal water distribution system, consisting of over 500 miles of pipelines. The methodology selected uses a sole source satellite imagery technology that will identify areas of potential leaks and prioritize the leak potential for each area. A field crew will be able focus on each area to determine actual leaks and flag them for repair. This method can quickly cover the entire infrastructure network and decreases unmetered water losses.

Leak Detection Expenses

\$100,000.00

Water Meter Upgrades

Lake Havasu City is also requesting funding to help to install upgraded water meters to increase water accounting and efficiency by replacing old meters that do not accurately measure the volume of water that goes through the meters. The new meters can also be retro-fitted with a transmitter in order to remotely read water use in real time once the City initiates that program.

Water Meter Upgrade Expenses

\$50,000.00

Salaries and Time On Leak Detection and Water Meter Upgrades

Lake Havasu City staff working on this project will include the Water Conservation Specialist, the City’s Water Division Utility Supervisor, two Utility Worker 2 positions, one Utility Work 1 position, and an Accountant. The Water Conservation Specialist’s role in this project is to administer the grant when executed, organize the leak detection program, organizes work, and submit quarterly reports and budget status to Reclamation. Approximately 120 hours of this position’s time is devoted to this project and 100% to the overall water conservation program.

The City’s Water Division through the Public Works Department will devote about 1540 combined hours of a Utility Supervisor, and Utility Workers 1 & 2 to work along with the leak detection contractor field crew and to install new water meters. An Accountant in the City’s Administration Department will spend about 30 hours of her time to coordinate requests for grant reimbursement and documenting program expenditures. What will not be included in the grant expenditures are costs for repairs to discovered leaks within the distribution system. Repairs will be performed by city staff outside the grant project.

Salary and Wages

<u>Name/Position</u>	<u>Hourly Wage Rate</u>	<u>Est. # of Hours</u>	<u>Cost</u>
B. Morgan, Water Conservation Specialist (WCS)	\$21.17	120	\$ 2,540.40
B. Morris, Utility Supervisor (US)	\$36.89	60	\$ 2,213.40
B. Osgood, Utility Worker 2 (UW2a)	\$25.98	700	\$ 18,186.00
D. Morones, Utility Worker 2 (UW2b)	\$28.95	80	\$ 2,316.00

J. Aguirre, Utility Worker I (UW1)	\$20.02	700	\$ 14,014.00
M. Meyer, Accountant (A)	\$27.69	30	\$ 830.70

Total Wages

\$ 40,100.50

Fringe Benefits:

Calculation of Hourly Rate

Title	ASRS (1)	ASRS LTD (2)	Life Ins (3)	Med/Dental Ins	Medicare	Short Term Disability
WCS	\$5,257.61	\$74.86	\$96.00	\$8,212.92	\$638.49	\$208.80
WFS	\$9,161.77	\$130.44	\$96.00	\$8,212.92	\$1,112.60	\$350.52
UW2a	\$6,452.18	\$91.87	\$96.00	\$13,871.52	\$783.56	\$246.36
UW2b	\$7,189.79	\$102.37	\$96.00	\$18,107.52	\$873.13	\$286.20
UW1	\$4,972.01	\$70.79	\$96.00	\$8,212.92	\$603.80	\$187.56
A	\$6,876.87	\$97.91	\$96.00	\$14,484.60	\$835.13	\$271.08
Basis	11.94% based on state law	0.17% fixed rate	Fixed Rate Premium	Varies on Coverage	1.45% Fixed Rate	Varies w/ Position Risk

Title	Social Security	Workers' Comp	Total Annual Benefits	Benefits per hour (4)	Est. # of Hours	Total Fringe Benefits
WCS	\$2,730.08	\$1,833.26	\$19,052.02	\$9.16	120	\$ 1,099.20
WFS	\$4,757.33	\$3,122.08	\$26,943.61	\$12.95	60	\$ 777.00
UW2a	\$3,350.38	\$2,246.66	\$27,138.53	\$13.05	700	\$ 9,135.00
UW2b	\$3,733.39	\$2,506.66	\$32,895.06	\$15.81	80	\$ 1,264.80
UW1	\$2,581.78	\$1,708.20	\$18,433.06	\$8.86	700	\$ 6,202.00
A	\$2,730.08	\$137.80	\$26,138.53	\$12.68	30	\$ 380.40
Basis	6.2% rate	Variable % based on risk				\$18,858.40

(1) Arizona State Retirement System (2) Long term Disability

(3) Insurance (4) Annual benefits divided by 2080 total annual hours

Total In-Kind Expenses: \$58,958.90

BUDGET SUMMARY

<u>Budget Category</u>	<u>Total Amount</u>
Leak Detection Program	\$ 100,000.00
Water Meter Upgrades	\$ 50,000.00
City Staff In-Kind Labor	\$ 58,958.90
Total Direct Costs	\$ 208,958.90
Indirect Costs	\$ N/A
TOTAL PROJECT COSTS	\$ 208,958.90
Federal Share (35.9%)	\$ 75,000.00
Non-federal Share (64.1%)	\$133,958.90

ENVIRONMENTAL AND CULTURAL RESOURCE COMPLIANCE

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

The project will take place within the water service area of Lake Havasu City, Mohave County, Arizona. The two USGS topographic quadrangles for the water service area are North Lake Havasu and South Lake Havasu. Townships 13 and 14 N Range 20 W. The proposed work will not impact the surrounding environment as the program is a non-construction effort. The leak detection survey will have no environmental impacts as it will be conducted with satellite imagery and followed-up by a field crew to pin-point leaks within the urbanized water distribution system. Replacing meters will also have no impact as all associated work will be done in an urbanized area on already disturbed ground.

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

The southwest willow flycatcher, yellow-billed cuckoo, razorback sucker, and bony-tailed chub are listed as a threatened species along the Lower Colorado River, but none of the proposed work will affect habitat supporting these species.

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

The only wetland inside the project boundary is a small portion of Lake Havasu’s eastern shoreline, most of which is either within the boundaries of Havasu National Wildlife Refuge or Windsor Beach Unit of Lake Havasu State Park. As the project does not contain a construction component and is limited to existing urban infrastructure and residences, no wetland area will be impacted.

- 4) When was the water delivery system constructed?

Lake Havasu City’s water delivery system was originally established between 1965-1970.

- 5) Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed.

Irrigation systems in Lake Havasu City are for landscape watering only. No commercial food crops exist in the area. Residential and non-residential Irrigation system ages vary from ~40 years old to present. No irrigation features as alluded to in the question are present in Lake Havasu City.

- 6) Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

There are no buildings, structures or features eligible for listing on the National Register of Historic Places in the project area.

- 7) Are there any known archeological sites in the proposed project area?

Archeological sites have been documented in the area around Lake Havasu City (in a 1991 Class I Archeological documentation report connected with a change in the City's water allocation, the report is on file with BOR), but none are within the urbanized portion of the City.

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

The project will not have any adverse effect on low income or minority groups, but may help them in an indirect way by having more water available that is not lost and keeping water costs down, thus delaying the need for new construction of water facilities and keeping water rates from rising.

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

There are no Indian sacred sites/tribal lands within the project area. Tribal lands will not experience any impacts from the proposed project.

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

This proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species in the Lake Havasu City area. Again, the proposed work will not have an impact on the surrounding environment as the program is a non-construction effort, and therefore, the spread of non-native invasive species will not occur.

UNIQUE ENTITY IDENTIFIER AND SYSTEM FOR AWARD MANAGEMENT

Lake Havasu City System for Award Management DUNS number: 37613692

Lake Havasu City Official Resolution

A resolution to approve and commit Lake Havasu City to this project has been written, but not yet approved by the City Council. This agenda item will come before the City Council on April 23rd and will be mailed to your office separately as there will be no time to get it there before the April 24th deadline.

LAKE HAVASU CITY, ARIZONA



Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2018



Prepared by the Administrative Services Department

Jill Olsen
Administrative Services Director

Trinna Ware, MBA
Finance Division Manager



LAKE HAVASU CITY

**LAKE HAVASU CITY, ARIZONA
MANAGEMENT'S DISCUSSION AND ANALYSIS
JUNE 30, 2018**

As noted earlier, net position may serve, over time, as a useful indicator of a government's financial position. For the City, assets and deferred outflows of resources exceeded liabilities and deferred inflows of resources by \$255 million at the close of fiscal year 2018 and \$252 million at the close of fiscal year 2017, restated.

The following table is a condensed summary of the City's net position for governmental and business-type activities:

**Condensed Statement of Net Position
June 30, 2018 and 2017
(in thousands of dollars)**

	Governmental Activities		Business-Type Activities		Total		Percent Change
	2018	2017, Restated	2018	2017, Restated	2018	2017, Restated	
Current and Other Assets	\$ 51,333	\$ 49,350	\$ 89,884	\$ 86,815	\$ 141,217	\$ 136,165	3.7 %
Capital Assets							
Non-depreciable	31,229	33,232	15,760	16,778	46,989	50,010	(6.0)
Depreciable	70,256	66,907	366,222	368,122	436,478	435,029	0.3
Total Assets	<u>152,818</u>	<u>149,489</u>	<u>471,866</u>	<u>471,715</u>	<u>624,684</u>	<u>621,204</u>	
Deferred Outflows of Resources	19,295	18,555	1,041	1,117	20,336	19,672	3.4
Other Liabilities	4,763	6,067	9,213	8,084	13,976	14,151	(1.2)
Non-current Liabilities							
Due Within One Year	10,668	5,827	5,328	4,921	15,996	10,748	48.8
Due in More Than One Year	108,527	105,597	246,554	251,707	355,081	357,304	(0.6)
Total Liabilities	<u>123,958</u>	<u>117,491</u>	<u>261,095</u>	<u>264,712</u>	<u>385,053</u>	<u>382,203</u>	
Deferred Inflows of Resources	3,100	4,164	2,057	2,464	5,157	6,628	(22.2)
Net Positions:							
Net Investment in Capital Assets	85,407	88,995	140,976	139,060	226,383	228,055	(0.7)
Restricted	5,990	4,798	21	-	6,011	4,798	25.3
Unrestricted	(46,342)	(47,404)	68,758	66,596	22,416	19,192	16.8
Total Net Positions	<u>\$ 45,055</u>	<u>\$ 46,389</u>	<u>\$ 209,755</u>	<u>\$ 205,656</u>	<u>\$ 254,810</u>	<u>\$ 252,045</u>	