City of Henderson

Irrigation Cell-Based Registers Installation

Opportunity Number: R21AS00300

Applicant:
City of Henderson

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Contents

Executive Summary

Submission Date
March 18, 2021

Applicant
City of Henderson, Department of Utility Services, Henderson, Clark County, Nevada

Applicant Category
A

Project Summary
The program will install updated technology on 128 irrigation meters for watering group E, in the City of Henderson, Nevada. The project funds will be used to purchase and install 128 new cell-based registers. The new registers will be managed on a web-based portal to easily obtain and analyze data. All work will be conducted by Henderson staff, and no additional partners are involved. A recent pilot program has demonstrated that a decrease in up to 28% of customer water consumption can be expected.

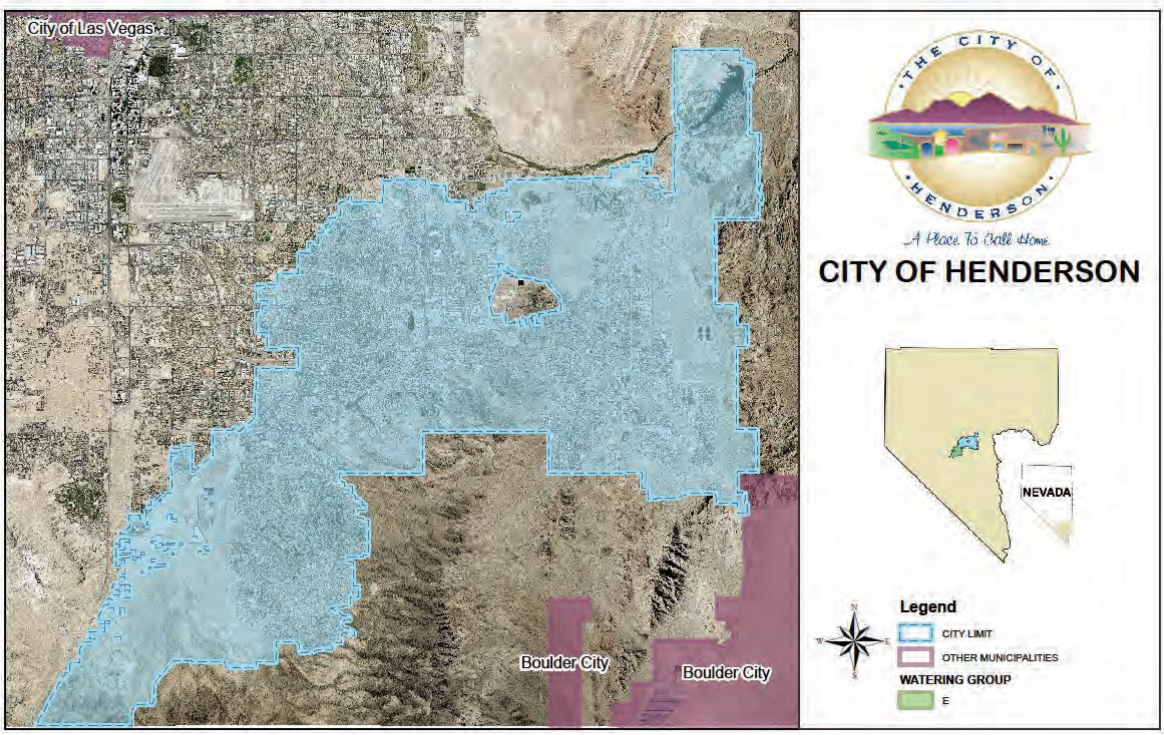
Length of Project
This project will start in February 2022 and is expected to be completed in a year by January 31, 2023.

Non-Federal Facility
The project is NOT located on a federal facility.

Project Location

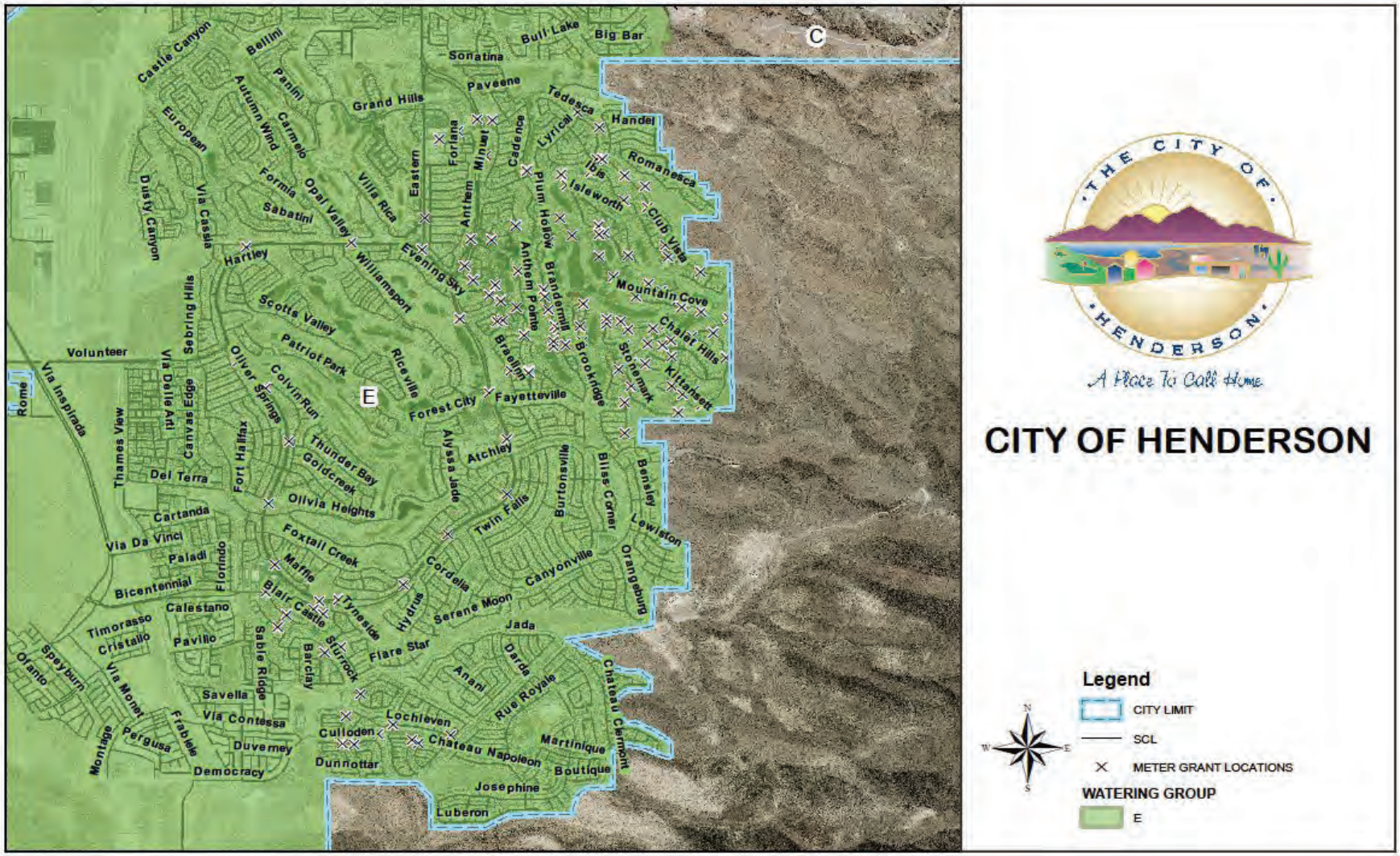
The project is located in the City of Henderson, Clark County, Nevada, adjacent to Las Vegas, Nevada. The project located at latitude is 36.0395° N, and longitude is 114.9817° W, see **Map 1**.

Map 1 – Henderson Location



Please refer to **Map 2** for exact locations of the 128 meters. These meters were selected because they are within the E watering group. Historically, the E watering group has the most significant number of water waste violations due to the landscape in this area. There are 5 meters in this area not included in the installation plan due to them already having cell-based units. However, these meters will be a part of the overall project, and the data gathered from these registers will be analyzed for the same objectives. Therefore, the total number of meters included in the project is 133.

Map 2 - Meter Locations Map



Project Description

The City of Henderson was officially incorporated on April 16, 1953, with a population of 7,410 residents. It originally only consisted of about 13 square miles in size. Today, the City of Henderson has grown to more than 103 square miles and, with a population of 330,084 residents, is the second-largest City in Nevada. Henderson is often referred to as having small-town values with big city efficiencies. The City's slogan "Henderson-a Place to Call Home" reflects a community that enjoys small-town values while benefiting from big city efficiencies.

The City of Henderson provides water treatment and distribution, wastewater collection and treatment, and reclaimed water services to approximately 330,084 residents and businesses.

Even though Henderson's population continues to increase, the demand of gallons per capita per day (GPCD) has decreased from 312 GPCD to 224 GPCD since 2002. As a member agency of the Southern Nevada Water Authority, the City of Henderson is committed to an ongoing conservation strategic planning process that will result in the implementation of a 199 GPCD conservation goal by 2035. With the installation of cell-based registers on 128 of the City's irrigation accounts, the City will be able to 1) enforce regional irrigation watering restrictions, 2) determine customer use patterns, and 3) address potential leaks earlier and ultimately reduce total outdoor irrigation water consumption which is non-recyclable. Reduction in water consumption will contribute to the sustainability of the local water supply.

This important project starts with the City of Henderson purchasing 128 cell-based registers. While waiting on delivery of the new registers, the City will conduct a survey of the water system for any existing meter issues. Any issues found will be addressed accordingly. Then upon receipt of new registers, the City will begin to assign register replacements to internal staff, a Meter Services Specialist II. As the new registers are installed, an internal Utility Business Analyst II from the Department of Utility Services Conservation Unit will complete the activation of the new registers on the vendors web-based portal. Once all 128 registers have been placed on meters and activated on the web-portal, the City will begin to use the data provided immediately. As the portal will provide on-demand access to data, any issues can be addressed directly to rectify water waste from continuous use, leaks, off-schedule watering, and overuse, ultimately conserving water.

Evaluation Criteria

As suggested, this section contains the evaluation criteria copied from the announcement.

Evaluation Criterion A—Project Benefits (35 points)

- *Describe the expected benefits and outcomes of implementing the proposed project.*

The primary benefit from installing cell-based registers is the ability to mitigate the City's environmental footprint by being able to conserve natural resources. Installation of cell-based registers allows the City the ability to analyze water usage on these meters right after the consumption is registered. By the City being able to quickly have access to the data, continuous

use can be identified, which is a strong indicator of a leak, and any violations to the mandated watering restrictions can also be identified. This allows the City the opportunity to quickly bring this information to the customers attention which in turn results in a reduction in water consumption. With the current technology the City is not able to detect service line leaks after the meter until potentially 30 days from when they occur during the regular monthly meter read. Overall water savings will contribute to the Regional water conservation goal of reaching a GPCD of 199 by year 2035.

Estimated Water Savings: Based on the pilot program recently completed the City is estimating a 28% decrease in water consumption by analyzing data obtained from cell-based registers.

City of Henderson records indicate annual water volume billed to the 133 Irrigation only meters of approximately 277,979,240 gallons or 853 AF of water.

$$\frac{277{,}979{,}240 \text{ Gallons}}{325{,}851} = 853.086 \text{ AF}$$

Assuming a 28% reduction in water consumption for these customers, water savings is expected to be between 77,834,187 gallons of water or 238 AF.

The amount of water saved from the installation of cell-based registers will be measured by comparing historical water consumption with consumption collected by the cell-based registers after installation.

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

With the reduction of water consumption because of this project, the City can reduce energy use. The reduction in water consumption will yield a lower level of water being pumped to a holding tank. This will increase the longevity of the City's water supply delivery system and as well mitigate repairs. Currently, during the summer months, the pump station that feeds watering group E runs at full capacity for long periods of time. By decreasing the amount of water delivered in these areas the City can help to shorten these periods.

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

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

Water conservation is at the core of improving overall water supply reliability. By conserving water now, the City can ensure water reliability in the future.

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

The project allows the City to learn more about how outdoor water is used in the City due to the in-depth data provided by the new technology. This new data will be shared with partners in the region to help the region develop new strategies to help conserve water.

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

A direct benefit to the customers involved in the program is the ability to save money from decreasing their water use. Customers are sometimes not aware of leaks at their property until they receive their monthly water bill and with this project, the City can significantly reduce that window of time. This ability will not only save the customer money from the water saved but they can also save on the costs involved to repair a leak if it's addressed sooner rather than later.

This new data will be helpful to the City when the time does come to update all infrastructure to go to Automated Meter Infrastructure (AMI). AMI has been discussed and is in the plans but not for another 5+ years due to the costs involved with AMI.

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

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

Yes, a current goal on the City water conservation plan is to increase field enforcement to garnish higher water use compliance. The project supports the City to achieve this goal as the project allows the City to patrol watering restrictions from a desktop therefore eliminating someone from having to complete this task by driving a vehicle door to door. The ability to pull reports from the new units allows the City to patrol larger areas quicker and more efficiently than before. In addition, the pump station that feeds watering group E is running at full capacity for long periods of time during the summer months. Other pumping stations in the city equipped with the same number of pumps do not operate at full capacity. By us decreasing water usage in this area we can decrease these long periods which ensures water reliability.

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

Upon completion of the pilot program in which the City first began installing and using the technology from these cell units, it was discovered that it is successful, and results show significant water savings as mentioned previously. Due to this success the City has made this type of implementation a priority. The City can implement this type of program without having to recruit partners and the project provides results within months of installation. Watering group E is composed of 24,000+ meters of which approximately 650 are irrigation only. The City has a long-term plan in place to install cell-based units on all irrigation-only meters in the city. The plan is to complete the replacements in phases and due to the volume of water used in watering group E, it has been made a priority. The city can commit to replacing at least 125

irrigation-only meter registers per year due to available budget and manpower involved. The City intends to apply for this grant annually in order to complete the larger project goals.

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.*

Installation of 128 cell-based registeres would be completed in-house. The City would start with a preliminary survey of the water system for any existing meter issues. Properly functioning meters ensure a more accurate estimate of the material and labor expense.

As cell-based registers are installed, the City would obtain access to the Neptune online portal and set-up the registers online so that data can start to be analyzed.

The installation of cell-based registers on all irrigation meters in Henderson is expected to take one year to complete (February 2022 to January 2023). The Schedule is detailed in **Table 1**.

Table 1 – Project Schedule

Milestone/Task/Activity	Start Date	Completion Date
Place cell-based register order	2/1/2022	2/15/2022
Survey water system for meter issues	2/1/2022	2/29/2022
Installation of cell-based registers	3/1/2022	1/31/2023
Set-up of cell-based units on the vendors portal	3/1/2022	1/31/2023
Replace register in Web Based Billing System	3/1/2022	1/31/2023
Project Close-out Final Reporting	2/1/2023	3/30/2023

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

There are no permits or approval required for this project. This is a replacement of registers on existing meters.

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

In November of 2019, the City implemented a pilot of this exact project to test the technology of the cell-based registers and to see what all could be done with the data received from the registers. The pilot had three objectives for the data received from the registers: 1) enforce regional irrigation watering restrictions 2) determine customer use patterns, and 3) identify continuous use. After a year, the pilot project confirmed that the installation and usage of these registers decreases water consumption.

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

No new policies or administrative actions are needed as this type of activity is already under the purview of the Utility Department.

- *Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?*

The area in which the project will take place is pre-disturbed soil. The project does not involve the installation of new equipment into the soil. Environmental assessment was completed by BOR "WaterSMART Grants Program", Finding of No Significant Impact and Final Environmental Assessment LC-18-24 in February 2020 for all of Southern Nevada.

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?

The City of Henderson has its own individual Colorado River Water Entitlement as listed below and the City of Henderson is a member agency of the Southern Nevada Water Authority (SNWA) which receives delivery of Colorado River water from Reclamation under several contracts held by the SNWA or its member agencies, as listed below:

SNWA Contracts:

Contract Number 2-07-30-W0266, Amendment Number 1, Amended and Restated Contract with the Southern Nevada Water Authority for the Delivery of Colorado River Water
Contract number 7-07-30-W0004, Amendatory and Supplemental Contract between the United States and the State of Nevada for the Delivery of Water and Construction of Project Works

SNWA Member Agency Contracts:

Contract number 14-06-300-978, Boulder Canyon Project Arizona-California-Nevada Contract for the Delivery of Water, City of Boulder City
Contract Number 14-06-300-2130, Boulder Canyon Project Contract for Delivery of Water to Las Vegas Valley Water District
Contract Number 2-07-30-W0269, Boulder Canyon Project Contract with the Big Bend Water District, Nevada, for the Delivery of Colorado River Water

The water delivered by SNWA under these contracts is diverted at Lake Mead.

City of Henderson Contracts:

Contract Number 0-07-30-W0246, Contract for Delivery of Water to City of Henderson

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

No, project is not on Reclamation land or involving Reclamation facilities.

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

Yes, Lake Mead, any water saved would stay in Lake Mead and can be used elsewhere.

- *Will the project benefit any tribe(s)?*

No, there is not a tribe in the project area.

Project Budget

Funding Plan

City of Henderson's contribution to the project funding will come from the Department of Utility Services, Meter Services section Operating Budget. **Table 2** shows the Annual Operating Budget for the Meter Services section of Utility Services, demonstrating that the City has sufficient funding in the operating budget. The awarded grant funding will contribute to the materials needed for the project.

Letters of Commitment: All committed funds are internal and no letter of support is needed.

Table 2: Utility Service - Meter Services Section Operating Budget

Fund	Dept	Account	Account Description	Project	Budget	YTD Expense
5201	3607	501000	Salaries - Full Time	00000	1,953,522.00	1,250,432.05
5201	3607	501001	Salaries - Part Time	00000	60,000.00	44,708.81
5201	3607	501002	Salaries - Over Time	00000	109,662.00	84,549.01
5201	3607	501006	Salaries - Out of Class	00000	18,000.00	16,478.50
5201	3607	501009	Salaries - Vacation	00000	5,592.00	2,978.82
5201	3607	501011	Salaries - Call Out	00000	5,000.00	527.96
5201	3607	501013	Salaries - Stand By	00000	2,200.00	111.15
5201	3607	501014	PTO Exchange	00000	2,019.00	2,019.23

5201	3607	501100	Insurance Employ Med Teamsters	00000	375,000.00	235,204.04
5201	3607	501101	Insurance Employ Med Self Fund	00000	13,000.00	8,781.60
5201	3607	501102	Medicare	00000	30,567.00	20,370.18
5201	3607	501103	Retirement (PERS)	00000	571,303.00	376,921.78
5201	3607	501106	Workmen's Compensation	00000	60,888.00	41,994.05
5201	3607	501109	Clothing Allowance	00000	29,573.00	21,080.00
5201	3607	501112	Retiree Health Savings	00000	29,483.00	18,095.08
5201	3607	501115	Life Insurance Teamsters	00000	3,338.00	779.56
5201	3607	501116	LTD Insurance Teamsters	00000	5,472.00	3,701.35
5201	3607	501117	AD&D Insurance Teamsters	00000	835	188.79
5201	3607	501120	Retiree Medical Pricing	00000	600	453.21
5201	3607	501121	Medical Contribution Allowance	00000	21,180.00	14,320.00
5201	3607	601004	Contract Maintenance	00000	22,000.00	17,537.34
5201	3607	601012	Professional Services	U9115	1,700.00	0
5201	3607	601201	Equipment Repairs & Maint.	00000	1,500,000.00	696,671.89
5201	3607	601406	Clothing & Protective Gear	00000	3,000.00	998.99
5201	3607	601414	Dues, Fees, Memberships	00000	450	0
5201	3607	601418	Fees, Permits, Licenses	00000	50	50
5201	3607	601430	Minor Computer Equipment	00000	1,000.00	0
5201	3607	601431	Minor Equipment	00000	8,200.00	0
5201	3607	601432	Operating Expenses	00000	10,838.00	2,423.61
5201	3607	601433	Operating Materials	00000	400,000.00	419.46
5201	3607	601434	Postage & Freight	00000	500	-2.44
5201	3607	601435	Printing/Copying/Newsletters	00000	162	161.59
5201	3607	601440	Computer Software	00000	28,300.00	99.98
5201	3607	601440	Computer Software	U9115	35,000.00	0
5201	3607	601441	Training & Tuition	00000	3,200.00	951.25
5201	3607	601445	Safety Expense & Supplies	00000	12,500.00	17.72
5201	3607	603005	City Shop Charges	00000	234,328.00	234,328.00

Budget Proposal

Table 3. Total Project Cost Table

Source	Amount
SOURCE AMOUNT Costs to be reimbursed with the requested Federal funding	$30,763.00
Costs to be paid by the applicant	$30,765.00
Value of third-party contributions	0
Total Project Costs	$61,528.00

Table 4. Project Budget Proposal

Budget Item	Computation		Total Cost	Recipient Share	BOR Share
	$/hour or Unit	Quantity			
Salaries and Wages					
Meter Services Specialist I	$29.05	10	$291.00		
Meter Services Specialist II	$32.41	43	$1,394.00		
Meter Services Planner/Scheduler	$35.12	10	$352.00		
Customer Service Specialist	$30.31	15	$455.00		
Utilities Business Analyst II	$44.38	54	$2,397.00		
SUBTOTAL			**$4,889.00**	**$4,889.00**	**$0.00**
Benefits					
PERS	29.25%	$4,889	$1,431.00		
Medicare	1.45%	$4,889	$71.00		
Workers Comp	3.00%	$4,889	$147.00		
Vantage Care	1.50%	$4,889	$74.00		
EGI - Annual Plus Health Ins.	$ 12,504	0.51%	$64.00		
SUBTOTAL			**$1,787.00**	**$1,787.00**	**$0.00**
Travel					
SUBTOTAL			**$0.00**	**$0.00**	**$0.00**
Equipment					
SUBTOTAL			**$0.00**	**$0.00**	**$0.00**
Supplies					
Cell based unit	$383.00	128	$49,024.00		
Splice	$0.20	384	$77.00		
Connector	$1.22	128	$157.00		
SUBTOTAL			**$49,258.00**	**$18,495.00**	**$30,763.00**
Contract					
SUBTOTAL			**$0.00**	**$0.00**	**$0.00**
Other					
Total Direct Costs			**$55,934.00**		
Indirect Cost					
De minimus	10%	$55,934	$5,594.00		
Total Indirect Costs			**$5,594.00**	**$5,594.00**	
Total Project Costs			**$61,528.00**	**$30,765.00**	**$30,763.00**

Budget Narrative

The budget for this project was prepared to include the following tasks:

- Initialize Grant -includes analyst time and central staff time to track, report, and finalize grant documents.
- Project Activities -budget includes project management time and utility workers, who will perform inspections, water service shut-offs, installation of the meters, installation of meters to web portal system and web based billing system.
- Project closeout/final reporting -includes central staff time to prepare final payment, closeout documents, and final financial and performance reports.

The estimated total cost of the project is approximately $61,528.00. If awarded, the City of Henderson will contribute $30,765.00 to complete the project.

Salaries and Wages - The identified positions are employees of the City of Henderson. Labor costs, associated salary, and benefit figures were calculated using figures from wage schedules and position costing forms provided by Human Resources and Finance departments for staff needs throughout the projects.

Benefits - The fringe rates include all benefits paid to employees as outlined by the contract agreements for that job classification and includes health/dental/vision/life insurance (fixed contributions based on insurance type selected by the employee $12,504 annually), and retirement benefits {29.25%). It also includes payments made by the City on the employee's behalf for Workers Comp (3.00%), Medicare {1.45%), and Vantage Care 1.5%).

Travel -Not applicable

Equipment - Not applicable

Contractual - Not applicable

Supplies - The materials and supplies needed for the project are listed in the above table, including unit price and quantity. All items are those that will be used in the field for accomplishing the goals of the project. All costs were derived from actual product costs or by quotes the City of Henderson received on each product within the last 365 days.

Contract - Not applicable

Other - Not applicable

Indirect Costs -The City of Henderson uses the 10% de minimus indirect cost rate. The indirect costs will cover central staff that facilitate purchasing, financial tracking, human resources duties, and facilities maintenance.

Environmental and Regulatory Compliance Costs

Environmental assessment was completed by BOR "WaterSMART Grants Program Finding of No Significant Impact and Final Environmental Assessment LC-18-24", in February 2020 for all of Southern Nevada. Very minimal environmental costs will be incurred and would be absorbed by the BOR.

Required Permits or Approvals

There are no permits or approval required for this project. This is a replacement of registers on existing meters.

Official Resolution

The Official Resolution for the City of Henderson's Irrigation Cell-Base Registers Project will be signed at the next Council Meeting on April 6th and submitted within 30 days of the application deadline.

Run Date: 3/08/21

Quote

Customer #	**035656**
Order #	**N846607**
Date Ordered	03/08/21
Job #	
Job Name	METER PARTS '14
Purchase Order #	METER PARTS 2014
Method of Shipment	OUR TRUCK
Contract Order #	B875872
Ordered By	
Ship Via	CORE & MAIN LP

Sold To:
HENDERSON CITY NV
STOCK LAS VEGAS
ACCOUNTS PAYABLE
240 S WATER ST MSC# 811
HENDERSON, NV 89015 7227

Ship To:
HENDERSON CITY NV
450 E GALLERIA DR
HENDERSON, NV 89015 0000

Branch:
LAS VEGAS NV
Branch - 034
2829 Losee Rd
N Las Vegas, NV 89030

Phone: 702-494-1000

Bid Seq#	Product Code	Description	Qty Ordered	Qty Shipped	Qty B/O	Net Price	UOM	Ext Price
	/45016458272	CMIU-PIT-VERIZON LTE RADIO 10 YEAR DATA W/6'WIRE NEPTUNE P/N: 13678-200	128			382.35000	EA	48940.80

Terms in accordance with shipping manifest.

Special Instructions/Comments:

C/O # B875872

Total Ordered:	
Tax Amount:	
Other Charges:	**48940.80**
Total:	
	.00
	48940.80
	.00