

## WaterSMART Grants:

# Small-Scale Water Efficiency Projects for Fiscal Year 2017

**Applicant: City of El Paso- Parks and Recreation Department,  
El Paso, El Paso County, TX**

### **EXECUTIVE SUMMARY:**

The City of El Paso- Parks and Recreation Department is requesting grant funds to implement water conservation technology as a pilot project within the City's extensive Park System to create a sustainable water use strategy in El Paso's high desert eco-location. This project is aligned with several of The City of El Paso's Strategic Goals, such as Nurture and Promote a Healthy, Sustainable Community; Enhance and Sustain El Paso's Infrastructure Network, and Enhance El Paso's Quality of Life through Recreational, Cultural and Educational Environments. Requested funds would allow the City of El Paso to maximize irrigation efficiency at some of the larger park locations via a Central Irrigation Control System (CICS), through the use of Evapotranspiration data (ET) to determine true needs of the plant, and sensing excessive flow rates (line breaks, blow outs, etc.) then shutting down that zone or master valve. This approach using CICS is projected to yield a 20% reduction in water use as compared to the current system. Upon successful completion of this proposed pilot project, the City of El Paso would implement CICS technology at all park sites, as funds allowed.

This project would have a timeline of approximately 24 months.

The project is not located on a Federal facility.

**BACKGROUND DATA:**



*Fig. 1 – Location of the City of El Paso*



*Fig. 2 – Water sources for EPWU*

The City of El Paso is located entirely within El Paso County, Texas. The proposed project area is located within the City's 250 square-mile service area.

The primary water source for the region is El Paso Water (EPW). EPW provides water for all municipal, domestic, and industrial needs, as well as a portion of the agricultural needs, of the area. Water resources include a large desalination plant for groundwater use as well as surface water from the Bureau of Reclamation's Rio Grande Project upstream of El Paso.

As a water customer of EPW, the City of El Paso's primary use of this water is for irrigating City parks, landscapes, and medians. The City has more than 2,800 acres of parkland, of which more than 1,280 acres are planted in turfgrass, primarily for recreational sports use. Water is applied to all turf areas and landscapes by a combination of overhead irrigation and drip irrigation.

Under current demand, the park system historically uses around 2,757 acre-feet, or 898,782,000 gallons, per year for irrigating. Under future demand, the City expects irrigated parkland to increase 30 acres each year or approximately 1% compounded annually.

The current water delivery system consists of municipal application of water through a point of connection provided by EPW, with a connection leading to a pump or straight water pressure, through a mainline, then a system of laterals with an electric valve and finally irrigation spray heads and/or drip irrigation. Currently, the system is not centrally controlled, but is regulated through each site's satellite controllers, requiring field staff to visit each site to make any changes in operations. COEP-Parks has invested in six weather stations and a CICS, Rain Bird Maxicom. Therefore, the backbone or main infrastructure for a water saving system is in place.

The EPWU does provide treated effluent for municipal use, but that system has very limited infrastructure for delivery. The City of El Paso uses the treated effluent when available and as appropriate for city properties, but unfortunately infrastructure expansion is much more costly than technology upgrades (like this proposed CICS project).

There are no past direct working relationships with the Bureau of Reclamation and the City of El Paso- Parks and Recreation Department, only as an indirect beneficiary from the Rio Grande Project, as described previously.

## **PROJECT DESCRIPTION:**

### **PROBLEM & NEED:**

The City of El Paso's current delivery system for turf watering, simply put, wastes water. Inefficient monitoring technology regulates water use through each site's satellite controllers, requiring field staff to visit each site to make any changes in operations. With limited staff and man-hours spread across more than 300 park sites (existing and under development), water is inadvertently being wasted. As described in more detail below, this proposed project could reduce water usage by 20% from the previous year (approximately 179,500,000 gallons) at up to seven (7) of the park system's largest sites.

### **TECHNICAL DESCRIPTION:**

The City of El Paso- Parks and Recreation Department is requesting WaterSmart Small-Scale Efficiency Grant funds to purchase and install equipment and technology to fully implement water conservation irrigation systems at seven (7) initial high water-use park sites as a pilot project for the City.

The lack of a fully integrated and implemented CICS for system operations limits the efficiency of water delivery. Fully implementing the CICS will enhance the efficient use of manpower and other resources, while maximizing water efficiency by only applying the minimum amount water the landscape environment requires for sustainability.

Maxicom Central Control systems (Maxicom) utilize a Central Computer Controller installed at a primary location. Information is transmitted from this Central Controller to Cluster Control Units (CCU) or ESP-SITE Satellite Controllers in the field. The CCU acts as the system's "computer-in-the-field," allowing the ability to control hundreds of remote sites from one Central Controller. The CCU can monitor, communicate to, and manage as many as 28 ESP-SAT Satellite controllers or other field devices via a variety of hardwire and wireless communications options. Maxicom uses local ET data to efficiently set run time schedules that meet plant needs for each day. It also utilizes flow control sensors, master valves, and other monitors that communicate with Maxicom in order to sense an irrigation break and shut down that portion of the system to save water.

The proposed project would involve installing all necessary Maxicom equipment/hardware in up to 7 of the largest parks that represent 12% of the total turf acres in the parks system. This equates to 353.6 acre feet (or 114,895,063 gallons) of water annually based on historic figures. The proposed project could yield a water savings of up to 70.7 acre feet (or 22,979,013 gallons) as compared to the previous year, once fully implemented.

As evidence of the City's commitment to implementing such water-conservation technology *beyond* the scope of this project, up to \$15,000 of the City's matching funds would be allocated towards procuring, implementing and staff training required for the Maxicom CICS to be fully implemented at the seven pilot sites as well as any future sites. Currently, RainBird is developing the next version of Maxicom (Version 4.4). This new version should be available for release in the next 12 months, and would offer much more versatility (e.g. work on tablets and smartphones, Windows 10, etc.).

Each of the seven pilot project locations identified for implementation will have a baseline water consumption identified from the water meter usage. After one year of operation, a similar consumptive use will determine the actual water savings achieved through use of the CICS.

Each CICS site is separately metered and managed for maximum water conservation.

Park maintenance irrigation standards will educate city employees in use of CICS weather data, irrigation system maintenance. Installation of CICS master valve and flow sensors will allow individual valves, as well as mainlines to be remotely shut down, saving water and preventing complaints from the community, until City forces arrive to repair the problem.

The City will seek to adopt a park construction standard, requiring CICS implementation on all new parkland coming to the City; along with use of xeriscape landscape standard to remove non-functional turf from a park design before it is implemented. This approach will yield significant savings over time, as the City will not have to retrofit sites that already meet the water conservation goals

Upon successful completion of this proposed project, the City would like to expand the implementation of Maxicom to incorporate all park sites, as funding is available. As has been previously stated, the park system consists of more than 2,800 total acres and historically uses around 2,757 acre-feet, or 898,782,000 gallons, per year for irrigating. The system is also growing at a rate of approximately 30 acres per year. Fully implementing Maxicom at all sites could yield a savings of up to 552 acre-feet, or 179,756,400 gallons as compared to the previous year.

The City's matching funds will also include an end-of-study Public Relations "Parks & Water Conservation Campaign," informing the public of the total gallons of water saved with grant funds from Bureau of Reclamation. Recognition signage at each site where the new CICS system is implemented will also increase public awareness of the water

conservation grant and efforts.

**EXPECTED OUTCOMES:**

When CICS technology is fully implemented at the seven pilot park locations, water savings is projected to be 20%, as indicated below:

7 Initial Park Sites	Acre feet/year	Gallons/year
Current Usage/year	353.6	114,895,063
Projected Usage w/CICS	282.9	91,916,050
<i>Projected Water Savings</i>	<i>70.7</i>	<i>22,979,013</i>

**EVALUATION CRITERIA:**

**E.1.1.A. Planning Efforts Supporting the Project -**

The City of El Paso & EPW both have water conservation goals to reduce both costs and usage. COEP possesses a Central Computer and several Maxicom Ver 4.3, weather stations in key areas of the City, and is incorporating Maxicom compatibility and communications into the Parks Design Standards. We already utilize best design practices for a desert ecosystem in order to conserve water. Fully implementing the Maxicom system would further reduce water use by approximately 20% at each site implemented.

This proposed project reduces water usage, and therefore, costs, by approximately 20%, while still providing quality outdoor recreational spaces that promote healthy outdoor lifestyles and enhance the quality of life in our community.

Implantation of the Maxicom Control System is one key part of our water conservation approach. Existing design standards that encourage water conservation include: Intelligent application of irrigation water in our park system; Targeted conversion of “landscaping” turf that is rarely stepped on, and; Appropriate native or adapted plants that help in water conservation.

**E.1.2.B. Project Benefits -**

The City of El Paso Park System is one of the largest water users within the City's domain. Reducing park's water usage by 20% will ease the demand on our community's water supply and thus increase the effective amounts available for human and public health uses. Because water is a finite natural resource, an expected 20% savings is as significant benefit to El Paso Water Utility and the basin.

As mentioned above, the positive benefits of a 20% water use savings are diverse and will affect our local community in many ways - from agriculture to human consumption - and will benefit the quality of life and local economy directly.

E.1.3.C. Project Implementation -

E.1.4.D. Nexus to Reclamation -

The COEP Parks and Recreation Department is one of the largest volume municipal users of the local water system, El Paso Water Utility. As a municipal water system, the EPWU receives surface water from the Bureau of Reclamation's Rio Grande Project, located upstream of El Paso. Therefore, a reduction in water use at City parks after successful implementation of this pilot project will reduce the overall demand from EPWU resources, including surface water received from the Rio Grande Project.

### **ENVIRONMENTAL AND CULTURAL RESOURCE COMPLIANCE:**

The City of El Paso Parks and Recreation Department does not anticipate any negative environmental or cultural resource impacts. The proposed project locations are completely located on existing City park sites, all of which have been vetted in their initial design and construction phases and are in compliance with NEPA, ESA, and NHPA. These sites have already been brought into compliance, or mitigated to address these concerns, prior to completion of the projects and acceptance by the City.

### **REQUIRED PERMITS OR APPROVALS:**

All work would fall under the City's permit Policy for City Projects and not be a cost in the Project. Typically, projects are submitted to the City Construction Improvement Department, where all required permits are identified.

### **PROJECT BUDGET & NARRATIVE:**

As indicated earlier, this project entails the purchase and installation of equipment and technology to fully implement water conservation irrigation systems at seven (7) initial

high water-use park sites as a pilot project for the City.

The lack of a fully integrated and implemented CICS for system operations limits the efficiency of water delivery. Fully implementing the CICS will enhance the efficient use of manpower and other resources, while maximizing water efficiency by only applying the minimum amount water the landscape environment requires for sustainability.

Installing all necessary Maxicom equipment/hardware in target sites could equate to significant water savings based on historic figures. The proposed project could yield a water savings of up to 70.7 acre feet (or 22,979,013 gallons) as compared to the previous year, once fully implemented.

The City has obligated in its resolution to commit \$75,000 as a match for the Reclamation grant from this source of funding.

- The project is all Capital Improvements, no new positions are included
- Equipment is detailed in exhibits for the proposed (7) sites
- Installation of Maxicom equipment/parts will be done by City Staff, and will be in-kind where Staff costs and Vehicles/Equipment use will be based on hourly rates.
- Up to \$15,000 will be available from the City's match for future expansion to Version 4.4 of the software to allow for use with tablets and smartphones when available, and staff training.
- Greater detail of projected project expenses is given in the attachments.

**A RESOLUTION OF THE CITY OF EL PASO, TEXAS HEREIN AFTER REFERRED TO AS "APPLICANT," AUTHORIZING THE CITY MANAGER OR HIS DESIGNEE TO SUBMIT AN APPLICATION TO THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, HEREINAFTER REFERRED TO AS "DEPARTMENT," FOR THE WATERSMART: WATER AND ENERGY EFFICIENCY GRANT PROGRAM, HEREINAFTER REFERRED TO AS THE "PROGRAM"; CERTIFYING THAT THE APPLICANT IS ABLE TO PROVIDE FUNDING AND IN-KIND CONTRIBUTIONS NOT TO EXCEED \$75,000; UTILIZING THE FUNDS FOR WATER CONSERVATION PROJECTS AT PUBLIC PARKS AND MEDIANS IN THE CITY OF EL PASO.**

**WHEREAS,** the Department makes financial assistance available to local agencies through the WaterSMART: Water and Energy Efficiency Grant Program for water conservation and management projects; and

**WHEREAS,** the Applicant has identified a need for the modernization and improvement of its irrigation delivery system used in parks and street medians, minimization of water loss, and the need to convert various turf areas into xeriscape throughout the City of El Paso in order to conserve water; and

**WHEREAS,** the Applicant desires to apply for financial assistance through the Program.

**NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF EL PASO:**

SECTION 1: That the Applicant hereby certifies that it is eligible to receive assistance under the Program and supports and authorizes the submittal of an Application for financial assistance from the Bureau of Reclamation for City projects eligible under the Program.

SECTION 2: That the Applicant hereby certifies that if it is awarded the grant, the City is able to provide a 50% funding match, via operational funds and in-kind contributions that are specified in the funding plan, in an amount not to exceed \$75,000; with a total project to equal \$150,000.

SECTION 3: That the City Manager or his designee agrees to work with the Bureau of Reclamation to meet established deadlines for entering into a cooperative agreement.

SECTION 4: That the City Manager or his designee is hereby authorized to execute and submit all necessary documents related to the City's application for the WaterSMART Water and Energy Efficiency Grant funds and administration of any grant funds received.

*(Signatures begin on following page)*

PASSED AND APPROVED this 18<sup>th</sup> day of April, 2017.

**CITY OF EL PASO**



[Signature]  
Oscar Leeser  
Mayor

ATTEST:

[Signature]  
Richarda Duffy Momsen  
City Clerk

APPROVED AS TO FORM:

[Signature]  
Juan S. Gonzalez  
Assistant City Attorney

APPROVED AS TO CONTENT:

[Signature] for T. Novak  
Tracy Novak, Director  
Parks and Recreation Department

CLERK DEPT.  
2017 APR 11, AM 9:52

# EXHIBIT 1

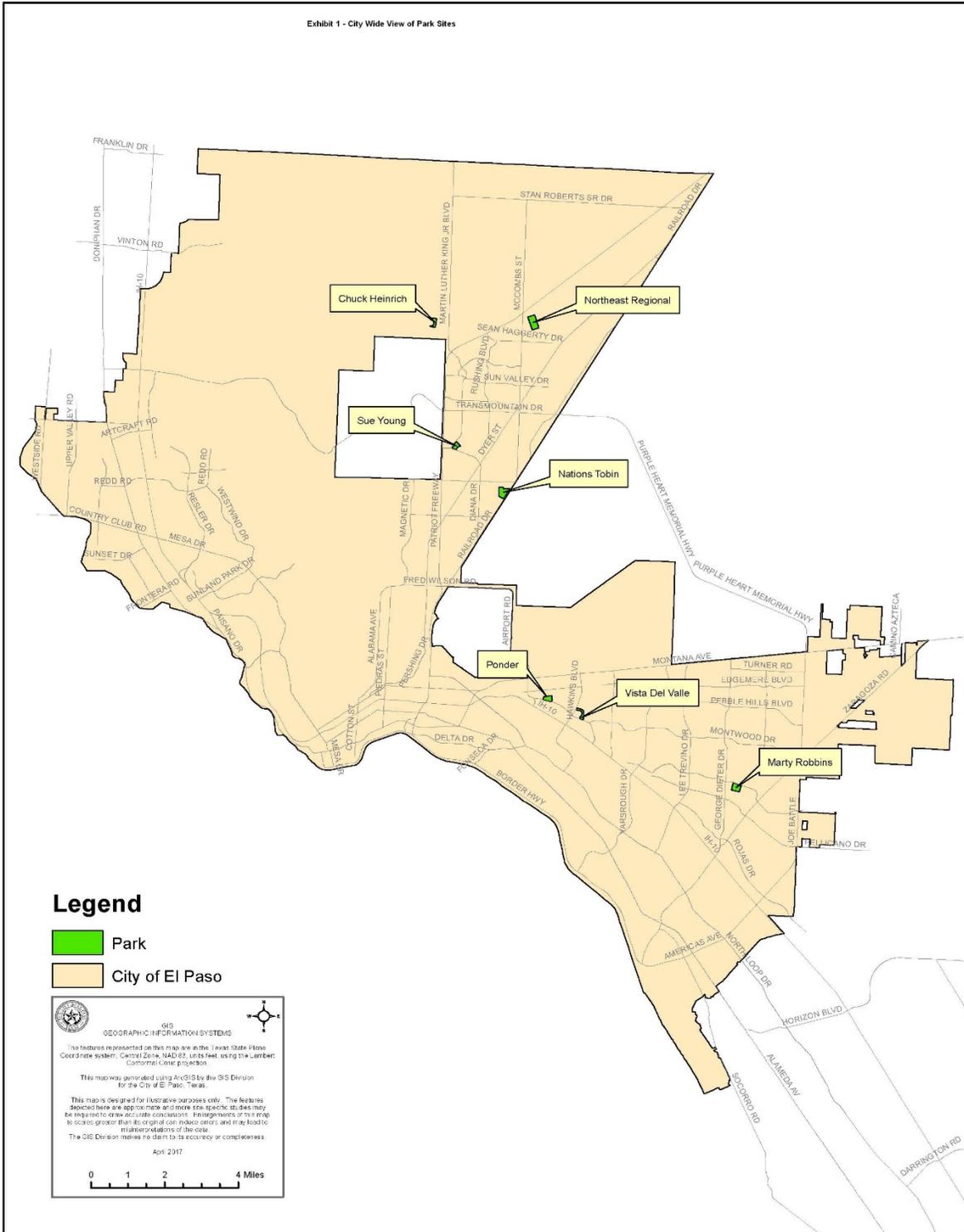
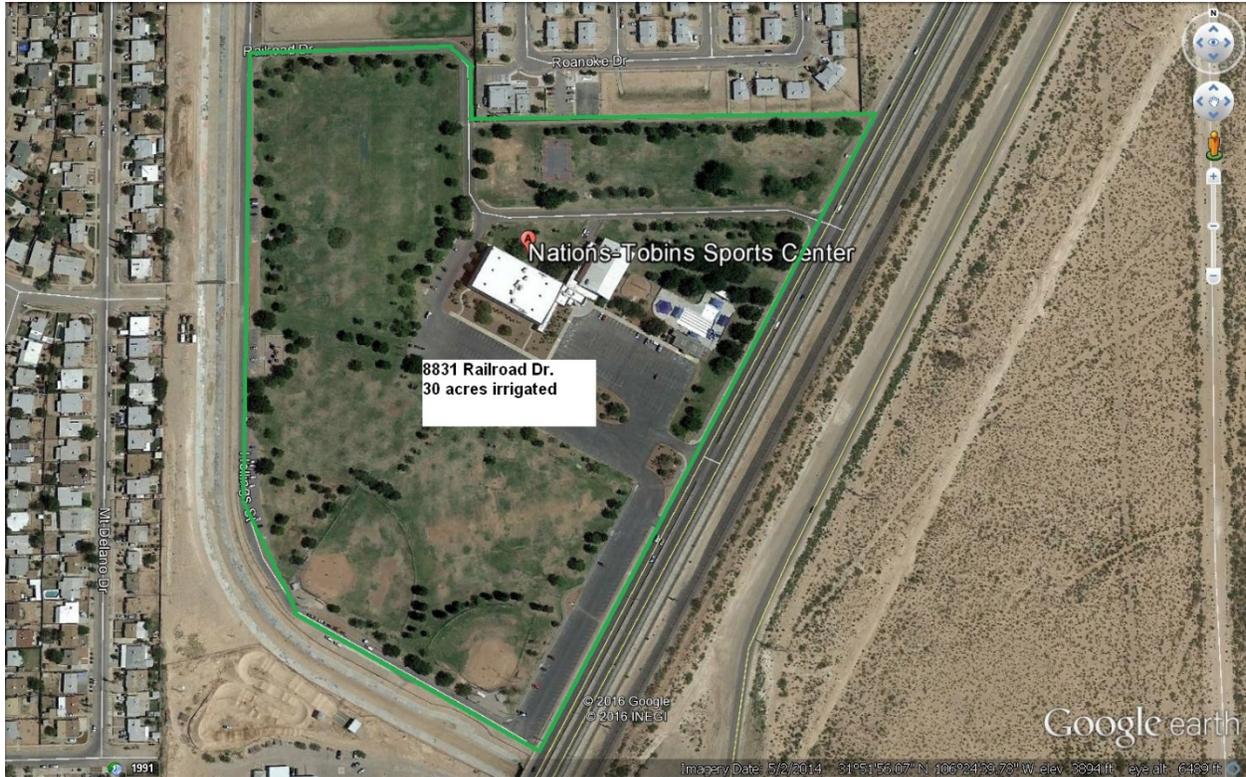




EXHIBIT 3



<b>Nations Tobin</b>			
<b>Item</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Extended</b>
CCU-28W Wall Mount	1	\$7,575.00	<b>\$ 7,575.00</b>
3" Elec Valve Brass	1	\$ 452.32	<b>\$ 452.32</b>
Flo Sensor Brass Inse	1	\$ 772.00	<b>\$ 772.00</b>
4" x 2" Bronze Saddle	1	\$ 85.75	<b>\$ 85.75</b>
RB 3002 Monitor	1	\$1,395.00	<b>\$ 1,395.00</b>
Rainfall Gauge	1	\$ 473.00	<b>\$ 473.00</b>
Power Supply Pulse Trans	1	\$ 119.00	<b>\$ 119.00</b>
Decoder Pulse	1	\$ 545.00	<b>\$ 545.00</b>
PE-39 Maxi Cable	10500	\$ 1.63	<b>\$17,115.00</b>
3" Rubber Duck Antenna	1	\$ 42.18	<b>\$ 42.18</b>
Wireless Router	1	\$750.00	<b>\$ 750.00</b>
Seed, Sod, and Misc Supplie	1	\$ 700.00	<b>\$ 700.00</b>
<b><u>TOTAL</u></b>			<b><u>\$30,024.25</u></b>

EXHIBIT 4



<b>Chuck Heinrich</b>			
<b>Item</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Extended</b>
CCU-28W Wall Mount	1	\$7,575.00	<b>\$ 7,575.00</b>
3" Elec Valve Brass	2	\$ 452.32	<b>\$ 904.64</b>
Flo Sensor Brass Inse	2	\$ 772.00	<b>\$ 1,544.00</b>
4" x 2" Bronze Saddle	2	\$ 85.75	<b>\$ 171.50</b>
RB 3002 Monitor	2	\$1,395.00	<b>\$ 2,790.00</b>
Power Supply Pulse Trans	2	\$ 119.00	<b>\$ 238.00</b>
Rainfall Gauge	2	\$ 473.00	<b>\$ 946.00</b>
Decoder Pulse	2	\$ 545.00	<b>\$ 1,090.00</b>
PE-39 Maxi Cable	50	\$ 1.63	<b>\$ 81.50</b>
3" Rubber Duck Antenna	1	\$ 42.18	<b>\$ 42.18</b>
Wireless Router	1	\$750.00	<b>\$ 750.00</b>
Seed, Sod, and Misc Suppli	1	\$ 700.00	<b>\$ 700.00</b>
<b><u>TOTAL</u></b>			<b><u>\$16,832.82</u></b>

EXHIBIT 5



<b>Marty Robbins</b>			
<b>Item</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Extended</b>
CCU-28W Wall Mount	1	\$7,575.00	<b>\$ 7,575.00</b>
3" Elec Valve Brass	2	\$ 452.32	<b>\$ 904.64</b>
Flo Sensor Brass Inse	2	\$ 772.00	<b>\$ 1,544.00</b>
6" x 2" Bronze Saddle	2	\$ 112.00	<b>\$ 224.00</b>
RB 3002 Monitor	2	\$1,395.00	<b>\$ 2,790.00</b>
Rainfall Gauage	2	\$ 473.00	<b>\$ 946.00</b>
Power Supply Pulse Trans	2	\$ 119.00	<b>\$ 238.00</b>
Decoder Pulse	2	\$ 545.00	<b>\$ 1,090.00</b>
PE-39 Maxi Cable	50	\$ 1.63	<b>\$ 81.50</b>
3" Rubber Duck Antenna	1	\$ 42.18	<b>\$ 42.18</b>
Wireless Router	1	\$750.00	<b>\$ 750.00</b>
Seed, Sod, and Misc Suppli	1	\$ 700.00	<b>\$ 700.00</b>
<b><u>TOTAL</u></b>			<b><u>\$16,885.32</u></b>

EXHIBIT 6



<b>Ponder</b>			
<b>Item</b>	<b>Quantity</b>	<b>Unit Cost</b>	<b>Extended</b>
3" Elec Valve Brass	2	\$ 452.32	\$ 904.64
Flo Sensor Brass Inse	2	\$ 772.00	\$ 1,544.00
4" x 2" Bronze Saddle	2	\$ 85.75	\$ 171.50
RB 3002 Monitor	2	\$1,395.00	\$ 2,790.00
Power Supply Pulse Trans	2	\$ 119.00	\$ 238.00
Rainfall Gauage	2	\$ 473.00	\$ 946.00
Decoder Pulse	2	\$ 545.00	\$ 1,090.00
PE-39 Maxi Cable	7500	\$ 1.63	\$12,225.00
3" Rubber Duck Antenna	1	\$ 42.18	\$ 42.18
Wireless Router	1	\$750.00	\$ 750.00
Seed, Sod, and Misc Suppli	1	\$ 700.00	\$ 700.00
<b><u>TOTAL</u></b>			<b><u>\$21,401.32</u></b>



April 20, 2017

Dear U.S. Bureau of Reclamation Grant Review Official(s):

With enthusiasm, El Paso Water supports the City of El Paso Parks and Recreation Department request for a Bureau of Reclamation WaterSmart Grant – Small Scale program. In recent years under the leadership of Parks Director Tracy Novak, the Department has adopted best practices, as evidenced by the water efficiency designs of newer parks. Yet, many of the older parks need attention with strategic turf reduction and improved irrigation technology. Budget constraints have prevented the Department from fulfilling its vision to transform parks to be more water efficient across the City. WaterSmart grant dollars would provide a much needed infusion of resources – even if modest – to accelerate the pace of positive change.

El Paso Water and the Parks and Recreation Department have been collaborating unofficially for years. More recently, we signed a Memorandum of Agreement that formalizes our relationship around demonstration projects that fulfill key objectives. One demonstration project underway involves the installation of the Rainbird Maxicom Central Control Irrigation System at several target parks in the City. As a team, we will be monitoring the effectiveness of this system and measuring the water savings to determine what types of parks benefit most from the Maxicom installation.

Again, I fully endorse the City of El Paso Parks and Recreation Department's application, and we stand willing to provide any expertise that would be valuable in the implementation of initiatives to make our parks more water efficient.

Sincerely,

Lisa Franklin Rosendorf  
Chief Communications &  
Government Affairs Officer