



City of Las Cruces[®]

MOUNTAINS OF OPPORTUNITY

Water Supply Reliability in City of Las Cruces:
*Using SMART Irrigation Technology to
Conserve, Better Use, and Make More Efficient Use of Water Supplies*

Applicant

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Section One: Executive Summary

Date: July 31, 2018
Primary Applicant: City of Las Cruces
City: Las Cruces
County: Doña Ana
State: New Mexico

Federal Facility: Not on a federal facility
Project Length: 24 months
Est. completion date: September 30, 2021

Project Summary. *The City of Las Cruces (City) proposes to conserve and better manage water supplies through the use of a SMART irrigation technology, thereby addressing city-wide critical water resource issues.* Efficient use of water and energy resources is the primary goal of the City’s Water Conservation Plan, a key component of the City’s 40-Year Water Development Plan, listed in multiple objectives of the City’s Sustainability Action Plan, and aligns with the City’s Strategic Plan which includes Capital Improvements and Infrastructure that enhance the quality of life for residents, businesses, and guests. The proposed project would implement the use of a centralized control irrigation system at one community park and seven recreational ballfields operated by the Las Cruces Parks and Recreation Department. ***Funds will be used*** to contract for the installation of booster pumps, a central control system, the irrigation sprinklers, and training. The central control irrigation system will be equipped with evapotranspiration technologies, flow management, and cycle and soak capabilities which, when combined, will reduce water waste and labor hours, thus improving water conservation efforts. ***Project activities include:***

- Plan and design the configuration for the central control system;
- Install irrigation booster pumps to optimize functionality of existing infrastructure;
- Install central control system to maximize water-use efficiency at eight locations;
- Install electrical wiring necessary to support the central control system;
- Customize irrigation schedules based on environmental and turf requirements;
- Provide training and education to irrigation staff; and
- Evaluate irrigation system performance and determine water savings.

The proposal aligns with the WaterSMART Small-Scale Water Efficiency Project goal to contribute to water supply reliability in the western United States by conserving and using water more efficiently through use of SMART irrigation technology. The total project cost is \$150,000; the funding request is for \$75,000 over the two-year grant period.

Section Two: Background Data

2.1 Water Supply

2.1.1 Source of water supply. Las Cruces Utilities (LCU) continues to develop and maintain a sustainable water supply through a proactive conservation program, as addressed in its 40-Year Water Development Plan, using water from two possible sources.

Mesilla Basin

The Mesilla Basin (or Bolson) covers more than 1,100 square miles. Water levels in the basin range from 10 feet below ground level (near the Rio Grande River) to a depth of approximately

300 feet in the western and east central part of the basin. Groundwater recharge in the Mesilla Basin occurs along arroyos during precipitation events and from the Rio Grande and associated irrigation canals.

Jornada del Muerto

Water levels in the Jornada del Muerto basin range from 50 to over 500 feet below ground level. Groundwater recharge in the Jornada del Muerto occurs from mountain front recharge, subsurface groundwater flow, and from geothermal upwellings.

LCU is a permitted water system allowing only a limited amount of water from two aquifers, making water conservation a critical part of the City's planning efforts. To conserve water, the City effectively utilizes water reclamation, according to Environmental Protection Agency guidelines and state regulations, for irrigation and construction purposes. Treated effluent from the Jacob A. Hands wastewater treatment facility is discharged as return flow to the Rio Grande. The East Mesa water reclamation facility produces very high quality reclaimed (Class A) water for landscape irrigation, and construction, and the West Mesa wastewater treatment plant produces reclaimed water used for sprinkler-irrigation of native vegetation in the West Mesa Industrial Park.

2.1.3 Total quantity of water supply managed and supplied. The LCU Water Section produces approximately 6.5 billion gallons of clean, safe drinking water annually. The City's water system pumps its water from two deep aquifers; the Mesilla and Jornada Bolsons. This section maintains 30 wells, 13 storage tanks, 10 booster stations, 30 regulating valves, and more than 600 miles of underground water lines. In addition, the City acquired the Jornada Water System. It consists of 14 wells, 12 storage tanks, 8 booster stations, 4 regulating valves, and more than 90 miles of underground water lines providing over 670 million gallons per year to customers.

The LCU Wastewater Section maintains approximately 533 miles of sewer lines and 17 lift stations. The Jacob A. Hands Wastewater Treatment Facility treats approximately 3.3 billion gallons of sewage per year. After successful separation of solids, the treated and disinfected wastewater (effluent) is safely discharged into the Rio Grande. The East Mesa Reclamation Plant cleans and purifies 1 million gallons per day (MGD) of wastewater to meet or exceed water quality standards for "purple pipe" irrigation for parks, sports fields, and golf courses.

2.1.4 Water Rights Involved. The LCU has been implementing water conservation activities for nearly twenty years to help ensure that future water demands, quality of life, and economic development can be supported. LCU currently has 51,179 acre-feet/year of groundwater rights, as follows:

- LRG-430: 21,869 AF/YR;
- LRG-East Mesa: 10,200 AF/YR;
- LRG-389: 2,550 AF/YR;
- LRG-399: 1,700 AF/YR;
- LRG-5818: 792 AF/YR;
- LRG-3275: 8,000 AF/YR;
- LRG-5039: 107 AF/YR, and
- LRG-4278: 5,961 AF/YR.

The City is required by water right Permit No. LRG-3275 et.al. to meet a Gallons Per Capita Day (GPCD) of 165 gallons by the year 2030. All permits require that water be used to the highest and best technology available and economically feasible.

2.1.5 Current Water Uses. Most water usage for the City service area is the single family residential sector with an overall system usage of 58%, with approximately 50% of that usage being applied for outdoor water usage. Las Cruces has the goal of reducing single-family residential GPCD use to 100 GPCD by 2055. This savings of 25 GPCD in terms of single-family residential GPCD translates to a 17 GPCD savings in terms of total GPCD. Thus, the City’s goal for reducing total GPCD use over the next 40 years will be accomplished in part through the reduction of single-family residential GPCD water use.

2.1.6 Number of Water Users Served. With a population of more than 101,759, the City manages its water supplies to provide water for drinking, landscape irrigation, industrial, and other municipal uses. The city’s population is estimated to increase from its 97,618 Census 2010 population to a little over 150,000 by 2040, an increase of 53.7%. The tremendous growth in the area over the past two decades has put many more people in the urban area, increasing the number of water users, limiting the supply of ground water, and making water conservation a primary concern in this desert-region metropolitan area.

2.1.7 Current and Projected Water Demand. The City has a successful water conservation program dedicated to reducing per capita water demand. While service area population has increased, diversion has been stable at 6.5 billion gallons per year (BGY). In 2017, Las Cruces filed its 40-Water Development Year Plan with the New Mexico Office of the State Engineer (OSE). The Plan projected water demand for three population growth scenarios (see Table I).

New Mexico is in the midst of a probable long-term drought and water may be over-allocated in the Lower Rio Grande Basin (LRGB). Most climate models indicate that the Southwest will become drier in the twenty-first century. Rising temperatures are expected to alter precipitation patterns, potentially increasing frequencies of extreme weather events, including drought and heat waves. Extreme and variable weather may affect water demand as households, businesses, and the municipalities attempt to sustain landscaping efforts.

Table I. City of Las Cruces Water Demand Projections
[projected population x projected total GPCD water use]

year	high growth, ac-ft/yr	medium growth, ac-ft/yr	low growth, ac-ft/yr
2015	22,133	22,133	22,133
2020	24,186	23,601	23,145
2025	26,404	25,143	24,145
2030	28,797	26,759	25,057
2035	31,440	28,508	25,915
2040	34,293	30,343	26,672
2045	37,364	32,262	27,365
2050	40,666	34,264	28,044
2055	44,207	36,347	28,705

ac-ft/yr - acre-feet per year

While some effort has been made to improve conservation efforts, many cost-effective efficiency measures remain to be considered. In the meantime, LCU has expanded measures focused on program actions which include reducing usage for City owned facilities and undertaking supply side conservation, which includes the implementation of automatic reading meters, and implementing evaluation tools such as the Alliance for Water Efficiency (AWE) tracking tool.

Implementation of these goals has led LCU to not only meet its 2030 GPCD goal but exceed it at a current GPCD of 171.

2.1.8 If water is primarily used for irrigation, describe major crops and total acres served.

The proposed project is for irrigation of turf sport and recreational fields. The total acreage of the parks to be serviced by this project amounts to 52 acres.

2.1.9 Potential shortfalls in water supply. Western New Mexico has been experiencing a protracted, multi-year drought that began in 1999. In recent years, droughts have caused a drop in groundwater during low supply years without adequately recovering in subsequent years, leading to concern for water supply. To address a potential shortfall in water supply, the City has instituted a Water Conservation Program to reduce water use among city residents and within the city government. The Program hosts educational programs, performs water audits, evaluates water use at city facilities, operates a water waste hotline, and administers the Water Conservation Ordinance.

2.2 Water Delivery or Distribution

2.2.1 Municipal Systems. The City provides water services through its Utilities Department. Water service is provided both within the City limits and in extraterritorial areas. Currently, the active key features of the existing Las Cruces water system include:

- 20 pressure zones;
- 35 pressure regulating valves;
- 45 supply wells;
- 18 booster pump stations (100 to 3,000 gallons per minute (GPM));
- 1 elevated and 20 ground storage reservoirs (90,000 to 3,000,000.00 gallons); and
- Over 713 miles of transmission and distribution system.

Three well fields (East Mesa, Valley, and West Mesa) currently provide water throughout the City's water service area. Additionally, the system includes the City's wastewater treatment plant. The City's water diversion to the Rio Grande averages 8.5 MGD of treated wastewater effluent. The City's reclamation plant distributes treated effluent through a network of purple pipes to local parks, golf courses, public school fields and other reclaimed uses as approved by the New Mexico Environmental Department.

The City's customer classes include residential, large multi-unit, small commercial, large commercial, industrial service, bulk water, parks, golf courses, and reclaimed water. Las Cruces has the following connections:

- Residential – 33,350
- Large Multi-Unit – 12,789
- Small Commercial – 3,725
- Large Commercial – 475
- Industrial – 24
- Parks – 103
- Reclaimed – 9
- Bulk – 86

2.2.2 Relationship with Reclamation. In 2006 the Las Cruces Water Conservation Program received a \$25,000 WaterSMART grant to aide in the development of the Lush and Lean Water Conservation Demonstration Garden. The popular and highly effective Lush and Lean water conserving landscape educational program received an additional Phase II \$12,300 to aid in classroom materials and the development of associated multimedia projects. The Las Cruces Water Conservation Program was highlighted in the BOR’s Spillway Newsletter identifying the City of Las Cruces’ Lush and Lean water conservation landscape training as one of the “Best in the West”. The Lush and Lean workshops continue today as an ongoing, widely attended and popular component of the public education programming focused on water-conserving landscape design, xeric plants and tree palettes, and irrigation technologies.

Section Three: Project Location

3.1 Proposed Project Location

3.1.1 Statement of Location. The proposed project, *Using SMART Irrigation Technology to Conserve, Better Use, and Make More Efficient Use of Water Supplies*, is located in Las Cruces, NM of Dōna Ana County, at the following parks and recreational areas:

1. Maag Ball Park (1700 W Hadley Ave, Las Cruces, NM 88001);
2. Harty Ballfield Complex (1840 E. Hadley Ave, Las Cruces, NM 88001);
3. Paz Ball Park (1875 E. Hadley, Las Cruces, NM 88001);
4. Ron D Galla T-Ball Fields (1800 E. Hadley Ave, Las Cruces, NM 88001);
5. Provencio Van Dam Fields (660 N Solano Ave, Las Cruces, NM 88001);
6. Soldados Multi-Use Complex (Hadley Ave @ Walnut, Las Cruces, NM 88001);
7. Apodaca Ballfield (801 E. Madrid Las Cruces, NM 88001); and
8. Apodaca Park (801 E. Madrid Las Cruces, NM 88001).

Section Four: Technical Project Description

4.1 Technical Project Description

4.1.1 Project Description. The proposed project would install and use a central control SMART irrigation system at the seven ballfields and one community park (as listed in section 3.1.1). At present, the irrigation systems for each recreation area are managed independently through controllers located at each specific site. Considering the number of and distance between irrigation controllers, the City faces several challenges that limit the ability to conserve water or manage the effective and efficient use of water while still providing high quality turfgrass surfacing for the residents of and visitors to Las Cruces. Installing a central controller for the irrigation system using SMART technology can remedy those issues and the project aligns with the City’s approved Water Conservation Plan (2012).

A SMART irrigation system directs the application of irrigation water based on environmental conditions and the properties of the irrigated site, such as soil type, solar orientation, slope, irrigated plant material, and the type of water application devices used to disperse the irrigation water. In addition, evapotranspiration (ET) data are utilized by the SMART system to determine

the actual amount of supplemental irrigation water required by the turfgrass. ET is a measure of the amount of water moved through an environment including evaporation of water from the soil and transpiration of water through the plants in the environment. For this project, ET is a measure of the water required by the turfgrass to live, thrive, and grow in the park or sports field.

Among the water conservation benefits provided by this new technology are: 1) comprehensive water management through a cloud-based platform, 2) connectivity to physical weather stations in proximity to the irrigated site, 3) and immediate crew notification of site issues associated with the irrigation system. The central control system is accessed through mobile devices, provides multiple individuals varied user access, allows for automatic weather-based program adjustments, updates programs based on local ET data, and guards against water-wasting line breaks.

These functions will aid irrigators in managing turfgrass quality, irrigation system functionality, and facility use and maintenance. At the same time water conservation measures will be prioritized easily, efficiency of the system will be measurable, and turfgrass health will be maximized.

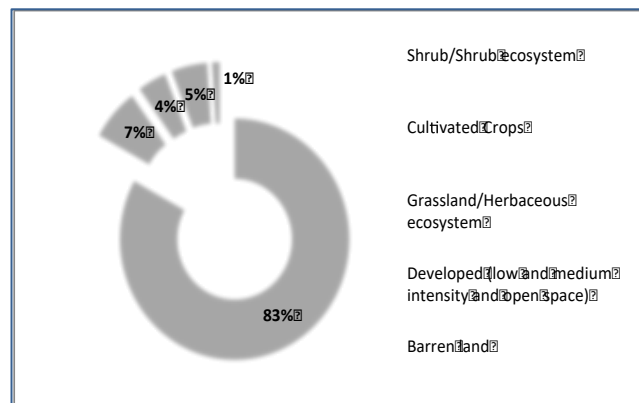
Specific project activities include:

- Plan and design the configuration for the central control system;
- Install irrigation booster pumps to optimize functionality of existing infrastructure;
- Install central control system to maximize water-use efficiency at eight locations;
- Install electrical necessary to support the central control system;
- Customize irrigation schedules based on environmental and turf requirements;
- Provide training and education to irrigation staff; and
- Evaluate irrigation system performance and determine water savings.

4.1.2 Identify the Problems and Needs. Las Cruces is located within the northern Chihuahuan Desert ecoregion. Las Cruces averages 350 days of sunshine each year and less than 10 inches of rainfall per year, making water conservation a critical concern. Much of Las Cruces (83%) is barren desert land (see Chart I). In order to sustain the grass in the ballparks used for soccer, baseball, and other recreational sports for both youth and adult leagues, the Las Cruces Parks and Recreation Department works closely with the LCU to develop irrigation plans. However, without SMART technology and a centralized control system, the current irrigation system does not contribute to the water conservation efforts that are critical to the future of Las Cruces, this region of the U.S., or the nation as a whole.

In addition to the problems created by the climate of the region, the City faces challenges to related to the time and effort it takes to maintain the current system. At present, the City is reliant on the physical observation of a site issue before an irrigator (staff) knows to respond to a situation. In order to address the situation, even critical situations such as a water-wasting line break, an irrigator must take the time to travel to the site, locate the

Chart I. Watershed Characteristics



exact problem, and manually adjust the water to alleviate the issue. This manual effort is draining on financial and water resources for the City.

Many more users occupy the sports fields and park (section 3.1.1.) than ever before. The irrigation systems in these parks are all over 40 years old. While the irrigation systems have been diligently maintained during that time, they are outdated and inefficient considering the dramatic improvements in landscape irrigation technology in recent years. Controller management of water applications has become quite sophisticated, using ET data and site-specific data to better aid irrigators in making quality decisions that result in reduced water use and improved turf quality.

Las Cruces Parks and Recreational Department seeks a centralized irrigation control to better address water management concerns, specifically to irrigate the seven ballfields and one community park which experience the most traffic and have the least efficient irrigation systems.

4.1.3 Describe how the project is intended to address the problems and needs. The City is dedicated to implementing solutions for effective water management and demonstrating best practices for area residents, businesses, and visitors. A central control irrigation system will allow City irrigators to effectively manage irrigation systems at a specific site, using the exact amount of water required to grow and maintain healthy turfgrass. The ET functionality of the SMART controllers will provide weather and water needs information to the irrigator through the central control system, allowing automatic or manual adjustment of the irrigation programs for specific sites, including remote handling of water-wasting line breaks. As a result, irrigators can maximize turfgrass quality and water use efficiency at the same time.

This project stands to decrease labor hours and vehicle miles, thereby reducing financial outputs, while also improving the city's capacity to conserve water.

4.1.4 Identify the expected outcomes. It is anticipated that the installation of a central control system will result in significant water savings as the outcome of efficient water management and higher quality turfgrass in play and sports areas. Use of the central control system will aid in the professional development and continued advancement of knowledge of the City irrigators, bringing additional recognition to the staff and department for their efforts and improvements in serving residents.

Irrigation system malfunctions, including line breaks, head blowouts, slow leaks, and stuck-open control valves, can be identified by the central control system, alerting the irrigators, and permitting immediate shut down of the system.

Adjustments to the irrigation system can easily be made through the central control system, allowing for modifications or shutdowns based on weather conditions, ET needs of the turfgrass, and amount of use. These easy adjustments can result in better growth of the turfgrass since it will get just the amount of water required. Fertilizer application, aeration treatments, and dethatching operations can be easily scheduled and accommodated by the irrigation system resulting in stronger turfgrass growth, more judicious use of supplies and materials, and less waste of time and effort. Also, sports fields may be kept open and accessible to the public more of the year with less rest and downtime required to allow the fields to recover from excessive use.

Section Five: Evaluation Criteria

5.1 Technical Proposal: Evaluation Criteria

5.1.1. Evaluation Criterion A—Project Benefits

The expected benefits and outcomes of implementing the proposed project to modernize the irrigation systems with a central control system will have an impact on the immediate area being irrigated, as well as a city-wide impact. It is expected that, with the central control irrigation system in place, the water supply delivery system will experience less water waste, more predictable use, and increased conservation of resources including water, time, and staff efforts. With the success of the central control system at the project sites, additional irrigation systems could be added to the central control until all the irrigation systems in the Parks and Recreation Department portfolio are under the central control. The effort, time, and water, savings will be magnified and will significantly impact the water supply delivery system. Also, the City central control system may serve as an example for other high water use institutions in the region, such as the Las Cruces Public Schools or area golf courses.

In addition, the more efficient use of water through the central control system will result in higher quality turfgrass with reduced input of water. The higher quality turfgrass sports fields may attract more sports tournaments, more league teams, and more users in general. With more users comes increased economic activity (restaurant meals, room stays, gas purchases, etc.).

5.1.2. Evaluation Criterion B—Planning Efforts Supporting the Project

The proposed WaterSMART project is supported by multiple existing planning efforts, most notably the City of Las Cruces 40-Year Water Development Plan, approved April 2017, with a goal of implementing the most efficient and effective technology available for the intended use to ensure conservation of water to the maximum extent practical. Las Cruces has the goal of reducing total GPCD water use to 140 GPCD by 2055, by reducing single-family residential GPCD, working with industrial, commercial, and institutional customers, conservation at City facilities, and by reducing non-revenue water to 9 percent of diversions. GPCD savings will be achieved through the Water Conservation Program by working with industrial, commercial, and institutional customers, and through conservation at City facilities. The Water Conservation Program of the LCU assists the Parks and Recreation Department with water conservation by providing water audits, and consulting on irrigation issues, water accounts, and level of use. The central control system at project sites is a joint effort of the Water Conservation Program of the LCU and the Parks and Recreation Department.

The Water Conservation Plan of 2012, developed through a public input process by LCU, defines objectives of the plan to 1) demonstrate "leadership in resource management working towards the goal of sustainability", 2) "reduce the frequency and duration of drought water use curtailments", and 3) demonstrate efficient use of water supplies. The central control system will provide the opportunity for the City to substantially demonstrate leadership in efficient water use by taking active measures to conserve water while increasing the level of service provided to Las Cruces residents and visitors.

The Parks and Recreation Department Strategic Business Plan, developed in 2017-2018 by the department staff, outlines several relevant Strategic Results for which the Department will aim. These include the “Strategic Result 2 – Economic Driver – As a consequence of up-to-date robust facilities,...Parks and Recreation will be recognized as an economic drive as evidenced by newly recruited business owners and employees who report that Parks and Recreation assets and program influenced their decision to relocate to Las Cruces.”

The Sustainability Action Plan (2014) identifies an objective to “Reduce water consumption in City buildings, parks, and operations by 3-percent of the end-of-2013 baseline rate.” The central control system will aid in continuing efforts to reduce water consumption per square foot of turfgrass area while maintaining safe, aesthetically pleasing, and healthy stands of turfgrass.

Water use by the Parks and Recreation Department is the highest of any department within the City. Largely the water use takes the form of irrigating the turfgrass sports fields and parks operated and maintained by the City. Substantial efforts have been made to date to reduce water use in parks by removing un-used turf at the edges of parks and in medians, installing gravel warning tracks at baseball and softball fields, and by thoroughly examining and repairing existing park irrigation systems. These efforts have paid off, resulting in reducing water use by the Parks and Recreation Department by one MGD per year. The next step in the direction of water conservation and super-efficient water use is to implement the new modern technology, central control.

5.1.3. Evaluation Criterion C—Project Implementation

Major tasks and dates are listed in Table II. Planning and Design for this project occurred pre-award via a thorough process involving a collaboration between LCU and Parks and Recreation. Planning included determining which parks were in the greatest need of a central control system, what staff would be involved in the design process, and how this project would have the greatest impact on water conservation. Design included researching options for the central control system and how ET data would best be used to provide effective and efficient water use, as well as working with contractors to get quotes and understand the scope of the project. Post-award tasks are listed below (see Table II).

Table II. Project Timeline

Major Tasks	FFY2019				FFY2020			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Contracting – Central Control System								
Contracting – Electrical Work								
Construction – Central Control System								
Construction – Electrical Work								
Closeout – Training and Evaluation								

Within the “Contracting – Electrical Work” period, permitting will be required. The electrical system upgrade at the project sites will require design work to be performed by a New Mexico licensed electrical engineer. This portion of the project must be permitted through New Mexico Construction Industries Division (CID) which has a permitting and inspection office located in Las

Cruces. The contractor for the electrical work will provide plans, stamped by a licensed electrical engineer, for review, approval, and permitting by CID, as part of the contracted work, prior to starting that portion of the project work.

5.1.4. Evaluation Criterion D—Nexus to Reclamation

Las Cruces receives Reclamation water through the Rio Grande Project. The central control system as proposed will not directly use Project water, however, the LCU Department does own water rights through the Elephant Butte Irrigation District which operates using water delivered through the Rio Grande Project.

The water conserved through the central control system for this project will reduce the amount of ground water diverted from the Mesilla Basin and Jornada del Muerto Bolson which are hydrologically linked to the Rio Grande. By diverting less groundwater from the adjacent bolsons, more water may flow in the Rio Grande or may be available for diversion for irrigated agriculture. While the City's diversions represent only 6.5% of total metered groundwater diversion in the LRGB, any amount of water not diverted aids in keeping the basins functional and available for future use.

Implementation of the City's water development plan, and of the central control irrigation system, will benefit the people of Las Cruces by providing a safe and reliable water supply while limiting water waste and optimizing water use efficiency.

5.1.5. Evaluation Criterion E—Department of the Interior Priorities

The central control irrigation system will use the latest in landscape irrigation technology, making use of ET data and linking with local and regional weather stations. These technologies permit data-driven decision making regarding irrigation of turfgrass in sports fields and parks. The irrigator uses the data to determine the optimal irrigation timing, rate, and frequency to both conserve water and maintain safe, healthy stands of turfgrass for use by residents and visitors.

Better water use and better turf management, through use of the central control system, will allow more use of the sports fields and community parks. With optimal, ET-based application of irrigation water to the turfgrass, irrigators can maintain the health and vitality of the turfgrass with less resting time, hence less time with no play allowed. This process will allow residents and visitors more access to recreational areas while still maintaining healthy stands of turfgrass.

In addition to conserving water, the central control system will save energy. Since the water provided by the LCU is diverted from groundwater, that water must be pumped and stored by using significant energy resources. Conservation of water through use of the central control system will reduce the amount of water diverted and, therefore, the amount of energy required.

Stewardship signage at the project sites will notify users of the commitment of the Bureau of Reclamation and the City to water conservation. These signs, detailing the project funded through this grant, will be seen by at least 20,000 children, adults, residents, and visitors annually.

Section Six: Project Budget

6.1 Funding Plan

The cash match funding will come directly from the City’s General Fund from the FY2019 approved budget. No in-kind, third party, or federal funding will be used towards this funding request.

Table III. Summary of Non-Federal and Federal Funding Sources

Funding Sources	Amount
Non-Federal Entities	
City of Las Cruces	\$75,000.00
Other Federal Entities	
N/A	\$0
Total Cost-Share	\$75,000.00
Requested Reclamation Funding	\$75,000.00

6.2 Budget Proposal

Table IV. Budget Proposal

Budget Item Description	Computation		Qty Type	TOTAL COST
	\$/Unit	Quantity		
Salaries & Wages				
N/A				
Fringe Benefits				
N/A				
Travel				
N/A				
Equipment (items \$5,000+)				
N/A				
Supplies & Materials (items <\$5,000)				
Tablet	\$150	3	EA	\$487.41
Misc. (repair/replacement parts)				\$2,002.95
Contractual/Construction				
Contractor for Electrical				\$32,493.75
Contractor for Installation				\$108,275.52
<i>Contractual/Construction PRE-BOND Sub-Total</i>				<i>\$140,769.27</i>
Bonding	3%			\$4,574.12
<i>Contractual/Construction Sub-Total</i>				<i>\$145,343.39</i>
Other				
Stewardship Signage	\$250	8		\$2,166.25
TOTAL DIRECT COSTS				\$150,000.00
Indirect Costs				
N/A				
TOTAL ESTIMATED PROJECT COSTS				\$150,000.00

6.3 Budget Narrative

The City requests \$75,000.00 from the U.S. Department of the Interior Bureau of Reclamation for the implementation of the WaterSMART Small-Scale Efficiency Projects grant. Funding is to be expended during the project period of October 1, 2018 to September 30, 2020. All expenses listed in the budget include the New Mexico Gross Receipts Tax (NMGRT) of 8.1325%.

Salaries and Wages

No funding is requested from the Bureau of Reclamation for salaries and wages.

Fringe Benefits

No funding is requested from the Bureau of Reclamation for fringe benefits category.

Travel

There are no requested travel expenses.

Equipment

There are no requested equipment expenses for this category; all equipment expenses will be purchased by the contractor and are listed in the Contractual/Construction Direct Costs.

Supplies and Materials

Supplies and materials includes the purchase of three tablets at a total cost of \$487.41 (\$150 each plus NMGRT) to be used by irrigators to monitor and manipulate the central control system. This category also includes miscellaneous supplies (i.e. parts to be used for repair or replacement).

Contractual

The grant will be led and administrated by the City and further supported by two contractors:

1. Electrical Wiring, Contractor to be procured, \$32,493.75 total
2. Central Control System Installation, Contractor to be procured, \$108,275.52 total

Funds requested from the Bureau of Reclamation will be used to procure a contractor or firm with the technical expertise to install the necessary components to complete the project. During the City's procurement process, the prospective vendors will be required to complete the Bureau of Reclamation budget template to ensure that a detailed budget estimate of time, rates, supplies and materials associated by task are included for consideration.

All equipment, supplies, and materials to be purchased as part of the project will be furnished and installed under a construction contract and are included in the construction cost estimate. Equipment will include controllers, central control system components, and booster pumps to be installed at Apodaca and Soldado fields. In addition, a central server and radio antenna will be installed at the Parks and Recreation Administration Building and radio tower to serve as the central communication hub for all the irrigation systems. Materials and supplies will include installation hardware, cables, outlet assemblies, conduits, mounts, and enclosures.

Contractual work to be accomplished by contractors includes: installation of controllers, communication equipment, and installation of a booster pump at Apodaca and Soldado fields. Electrical work will be included for the installation of the booster pump. In addition, the controllers will be programmed with an initial irrigation schedule and training will be given to all the relevant City staff including irrigators and supervisors.

The costs provided herein were identified as reasonable by comparison to an engineer's cost estimate based on 2016 RS Means costing data and tables. Escalation calculations to bring the estimate to 2018 figures were performed.

Contractor bonding (3-6%) is required.

Environmental and Regulatory Compliance Costs

There are no required environmental or regulatory compliance costs associated with this project.

Other Costs

Stewardship signage at a total cost of \$2,166.25, to be located at each project site, will notify the public of the commitment of the Bureau of Reclamation and the City to water conservation.

Indirect Costs

Indirect cost recovery not requested for this proposal.

Total Costs

Total project cost for this proposal, including the City is \$150,000.00.

Section Seven: Environmental and Cultural Resources Compliance

7.1 Environmental and Cultural Resources Impacts

The water delivery system for the City of Las Cruces was established in 1905. The proposed project and project site do not have any adverse impacts to the environment or cultural resources of the region.

Section Eight: Required Permits or Approvals

8.1 Permits or Approvals

The electrical system upgrade at Apodaca Park and Soldado will require design work to be performed by a New Mexico licensed electrical engineer. This portion of the project must be permitted through New Mexico Construction Industries Division (CID) which has a permitting and inspection office located in Las Cruces. The contractor for the electrical work will provide plans, stamped by a licensed electrical engineer, for review, approval, and permitting by CID, as part of the contracted work, prior to starting that portion of the project work.

Section Nine: Official Resolution

9.1 Resolution #19-009

See Attachment B.

Section Ten: Attachments

Attachment A: Letter of Commitment

Attachment B: Official Resolution

June 25, 2018

Mr. Matthew Reichert
Bureau of Reclamation
Financial Assistance Support Section
P.O. Box 25007, MS 84-814
Denver, CO 80225

RE: City of Las Cruces Parks and Recreation Submission to FFY2018 BOR's
WaterSMART Small-Scale Water Efficiency

Dear Mr. Reichert:

Please let this letter serve as the commitment by the City of Las Cruces to provide a 50% non-federal cash match for the WaterSMART Small-Scale Water Efficiency Project application submitted on behalf of the City's Parks and Recreation Department. The project we are requesting funding for is to install a central control SMART irrigation system at eight of our parks and recreational fields.

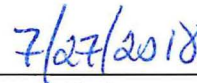
The City of Las Cruces commits to the following:

Federal Requested Share	\$ 75,000
Non-Federal City Cash Match	<u>\$ 75,000</u>
Total Project Cost	\$150,000

The non-federal cash match will be provided with funding from the City's general fund. This fund will have a balance sufficient to cover the match amount at the beginning of the 2019-2020 fiscal year.



David Dollahon
Assistant City Manager



Date

Area Affected by Project

Statement of Location

The proposed project, *Using SMART Irrigation Technology to Conserve, Better Use, and Make More Efficient Use of Water Supplies*, is located in Las Cruces, NM of Dōna Ana County, at the following parks and recreational areas:

1. Maag Ball Park (1700 W Hadley Ave, Las Cruces, NM 88001);
2. Harty Ballfield Complex (1840 E. Hadley Ave, Las Cruces, NM 88001);
3. Paz Ball Park (1875 E. Hadley, Las Cruces, NM 88001);
4. Ron D Galla T-Ball Fields (1800 E. Hadley Ave, Las Cruces, NM 88001);
5. Provencio Van Dam Fields (660 N Solano Ave, Las Cruces, NM 88001);
6. Soldados Multi-Use Complex (Hadley Ave @ Walnut, Las Cruces, NM 88001);
7. Apodaca Ballfield (801 E. Madrid Las Cruces, NM 88001); and
8. Apodaca Park (801 E. Madrid Las Cruces, NM 88001).

RESOLUTION NO. 19-009

A RESOLUTION AUTHORIZING THE CITY MANAGER TO SUBMIT A \$75,000.00 GRANT APPLICATION, WITH A 1:1 REQUIRED CASH MATCH OF \$75,000.00, TO THE UNITED STATES DEPARTMENT OF INTERIOR (DOI) AND THE BUREAU OF RECLAMATION (BOR) FOR THE WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS GRANT PROGRAM.

The City Council is informed that:

WHEREAS, the City of Las Cruces (City) Parks & Recreation Department (P&R) Department and the Water Conservation Program (WCP) is committed to supporting a sustainable and water efficient community; and

WHEREAS, the Department of Interior and Bureau of Reclamation is making available a competitive grant for small-scale water efficiency projects for FY2019; and

WHEREAS, the City of Las Cruces and City Council would like to apply for this grant to fund a project that includes water controllers on sprinkler systems at the City's recreational fields and parks.

NOW, THEREFORE, Be it Resolved by the Governing Body of the City of Las Cruces:

(I)

THAT the City Council of the City of Las Cruces hereby demonstrates its backing and support for smart, comprehensive, and coordinated small-scale water efficiency project for P&R and WCP that meets the requirements of the grant opportunity.

(II)

THAT the City approves the cash match commitment for the grant application in the amount of \$75,000.00 from the General Fund line item designated for Grant Match, as shown in the Proposed Source of Matching Funds Summary in Exhibit "A", attached

hereto and made a part of this Resolution.

(III)

THAT the City hereby authorizes the City Manager to submit the grant application for up to \$75,000.00, with a 1:1 required cash match, up to \$75,000.00, on the City's behalf.

(IV)

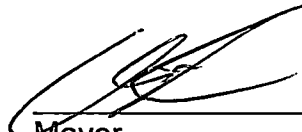
THAT the City hereby authorizes the City Manager to execute the grant agreement and ensure the requirements of DOI and BOR are met should the grant be awarded.

(V)

THAT the City staff is hereby authorized to do all deeds necessary in the accomplishment of the herein above.

DONE AND APPROVED this 16 day of July, 2018.

APPROVED:



Mayor

ATTEST:



City Clerk

(SEAL)

Moved by Sorg

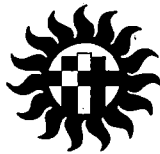
Seconded by Vasquez

VOTE:

Mayor Miyagishima:	<u>Aye</u>
Councillor Gandara:	<u>Aye</u>
Councillor Smith:	<u>Aye</u>
Councillor Vasquez:	<u>Aye</u>
Councillor Eakman:	<u>Aye</u>
Councillor Sorg:	<u>Aye</u>
Councillor Flores:	<u>Aye</u>

APPROVED AS TO FORM:

ZAKIM S. JUB
City Attorney



City of Las Cruces®

PEOPLE HELPING PEOPLE

Council Action and Executive Summary

Item # 5

Ordinance/Resolution# 19-009

For Meeting of _____
(Ordinance First Reading Date)

For Meeting of July 16, 2018
(Adoption Date)

Please check box that applies to this item:

QUASI JUDICIAL

LEGISLATIVE

ADMINISTRATIVE

TITLE: A RESOLUTION AUTHORIZING THE CITY MANAGER TO SUBMIT A \$75,000.00 GRANT APPLICATION, WITH A 1:1 REQUIRED CASH MATCH OF \$75,000.00, TO THE UNITED STATES DEPARTMENT OF INTERIOR (DOI) AND THE BUREAU OF RECLAMATION (BOR) FOR THE WATERSMART SMALL-SCALE WATER EFFICIENCY PROJECTS GRANT PROGRAM.

PURPOSE(S) OF ACTION:

To authorize submission of grant application.

COUNCIL DISTRICT: ALL		
Drafter/Staff Contact: Amy Johnson Bassford	Department/Section: Office of Management & Budget/Grants	Phone: 575-541-2281
City Manager Signature:		

BACKGROUND / KEY ISSUES / CONTRIBUTING FACTORS:

The City of Las Cruces Parks & Recreation (P&R) Department and Water Conservation Program (WCP) is seeking authorization for the City Manager to apply for the WaterSMART Small-Scale Water Efficiency Project Grant Program, issued by the Department of Interior and Bureau of Reclamation. The purpose of the grant is to fund projects that promote water conservation efforts in communities and will specifically provide irrigation water controllers and related infrastructure for the irrigation systems at the recreational fields at the Hadley Recreation Area, and the City's largest parks, Apodaca and Young Parks. If awarded, the grant will provide the City with up to \$75,000.00 in federal funds, with a required cash match ratio of 1:1, up to \$75,000.00, for a two-year grant period. The matching funds will be provided from the General Fund utilizing the \$1.5M designated grant match line item from the FY2019 approved budget.

The Resolution, if approved, demonstrates the City Council's and the City's support for smart, comprehensive, and coordinated water conservation efforts the City is implementing through the WCP and P&R. As defined in the approved Grants Administration Program Policy, the City Manager or his designee is authorized to sign the grant application and execute the resulting grant award. Should the grant be awarded, Council will approve the grant budget and match through a Budget Adjustment Resolution.

(Continue on additional sheets as required)

SUPPORT INFORMATION:

1. Resolution
2. Exhibit "A" – Proposed Match Funds Source Sheet.

SOURCE OF FUNDING:

N/A	Is this action already budgeted?	
	Yes	<input type="checkbox"/>
	No	<input type="checkbox"/>
	<i>Budget Adjustment Attached</i>	<input type="checkbox"/>
		See fund summary below
		If No, then check one below:
		Expense reallocated from: _____
		Proposed funding is from a new revenue source (i.e. grant; see details below)
		Proposed funding is from fund balance in the _____ Fund.
N/A	Does this action create any revenue?	
	Yes	<input type="checkbox"/>
		Funds will be deposited into this fund: _____ in the amount of _____ for FY _____
	No	<input type="checkbox"/>
		There is no new revenue generated by this action.

BUDGET NARRATIVE

N/A

FUND EXPENDITURE SUMMARY:

Fund Name(s)	Account Number(s)	Expenditure Proposed	Available Budgeted Funds in Current FY	Remaining Funds	Purpose for Remaining Funds
N/A	N/A	N/A	N/A	N/A	N/A

OPTIONS / ALTERNATIVES:

1. Vote "Yes"; will approve the Resolution and will authorize the City Manager to submit the application for funding in the amount of \$75,000.00, with a cash match of \$75,000.00 to DOI and BOR.
2. Vote "No"; this will not approve the Resolution to submit application for external funding to fund this project.
3. Vote to "Amend", this will delay the process to submit application and require direction to staff.
4. Vote to "Table"; however, this is not a viable option due to the grant submittal deadline.

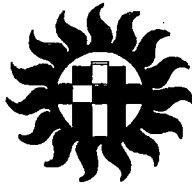
(Continue on additional sheets as required)

REFERENCE INFORMATION:

The resolution(s) and/or ordinance(s) listed below are only for reference and are not included as attachments or exhibit

N/A

(Continue on additional sheets as required)



City of Las Cruces[®]

PEOPLE HELPING PEOPLE

COUNCIL ACTION AND EXECUTIVE SUMMARY PACKET ROUTING SLIP

For Meeting of _____
(Ordinance First Reading Date)

For Meeting of July 16, 2018
(Adoption Date)

TITLE:

A RESOLUTION AUTHORIZING THE CITY MANAGER TO SUBMIT A \$75,000.00 GRANT APPLICATION, WITH A \$75,000.00 CASH MATCH REQUIRED, TO THE UNITED STATES DEPARTMENT OF INTERIOR (DOI) AND THE BUREAU OF RECLAMATION (BOR) FOR THE WATERSMART SMALL PROJECTS PROGRAM GRANT.

Purchasing Manager's Request to Contract (PMRC) {Required?} Yes No

DEPARTMENT	SIGNATURE	PHONE NO.	DATE
Drafter/Staff Contact	<i>Tom Bassford</i>	541-2281	6-15-18
Department Director	<i>Jeannette Monche</i>	2107	6/18/18
Budget	<i>Jeannette Monche</i>	2107	6/18/18
Assistant City Manager /William F. Studer, Jr.	<i>WFS</i>	2504	6-22-18
Assistant City Manager/David P. Dollahon	<i>David P. Dollahon</i>	2078	6/20/2018
City Attorney	<i>TRACIL F. SUB</i>	2014	06.22.2018
City Clerk	<i>[Signature]</i>	2115	7-8-18