

**Submittal by El Paso Water Utilities
In Response to:**

Funding Opportunity Announcement No. R14AS00030

WaterSMART:

**“Development of Feasibility Studies under Title XVI,
Water Reclamation and Reuse Program for FY 2014;
Funding Group I”**

Dated April 30, 2014

Title Page

**Applicant: El Paso Water Utilities Public Service Board
(EPWU-PSB)**

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Proposed Project Title

“Collection, Storage, Recharge and Recovery of Conserved Source Waters for Advanced Purified Treatment (APT) of Reclaimed Water”

Project Proposed for Funding Group I under U. S. Bureau of Reclamation (USBR) Funding Opportunity Announcement No. R14AS00030 referred to as “WaterSMART; Development of Feasibility Studies under title XVI, Water Reclamation and Reuse Program, FY 2014”

Project Summary Description:

El Paso Water Utilities (EPWU) proposes to evaluate a comprehensive program to combine the advanced treatment of wastewater for potable use along with creation of wildlife habitat utilizing reclaimed water and captured runoff, impaired agricultural drain waters, and available excess surface water orders, all to increase the available potable water supply by approximately 15,000 acre-feet per year (AFY) to the public at an estimated total cost of approximately \$1,250.00 to \$1,500.00 per AF. This volume of additional annual water supply equates to approximately 10 percent of annual public water demand. If successful, the project will provide approximately 450 to 500 acres of wetland habitat in the dry Chihuahua Dessert for the benefit of several listed and endangered species and reduce the need for an equivalent amount of raw water supply from the U.S. Bureau of Reclamation Rio Grande Project and the Hueco and Mesilla groundwater Bolsons combined.

EPWU is an eligible applicant under this feasibility study program, and the proposed project, with a total cost estimate of \$551,000.00 over 17 months is consistent with USBR’s purpose and scope. The 17 -month proposed schedule and grant request of \$150,000.00 are within USBR’s schedule requirements and funding allocation limit of \$150,000.00 under Group I of this program. If proven successful at this proposed level of

operation, the concept could be expanded to increase the potable water productive capacity at other wastewater plant locations in El Paso and elsewhere nationally.

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Executive Summary

Date: April 30, 2014

Applicant Name: El Paso Water Utilities Public Service Board

City: El Paso

County: El Paso

State: Texas

Project Summary:

El Paso Water Utilities (EPWU) proposes to evaluate a comprehensive program to combine the advanced purified treatment of wastewater for potable use along with creation of wildlife habitat utilizing reclaimed water and captured runoff, impaired agricultural drain waters, and available excess surface water orders, all to increase the available potable water supply by approximately 15,000 acre-feet per year (AFY) at an estimated total cost of approximately \$1,250.00 to \$1,500.00 per AF. This volume of additional annual water supply equates to approximately 10 percent of annual public water demand. If successful, the project will provide approximately 450 to 500 acres of wetland habitat in the dry Chihuahuan Dessert for the benefit of several listed and endangered species and reduce the need for an equivalent amount of raw water supply from the U.S. Bureau of Reclamation Rio Grande Project and the Hueco and Mesilla groundwater Bolsons combined.

Project's Proposed Duration: Seventeen Months

Estimated Completion Date for Study: December 2015

Background Data

El Paso Water Utilities (EPWU) / Public Service Board operates the Water, Wastewater, Reclaimed Water and Stormwater utilities in El Paso, Texas. The entire service territory is located within the El Paso County, and primarily operates within the boundaries of the City of El Paso.

EPWU is nationally recognized as a leader in the implementation of water management programs, including water conservation, reclaimed water and water desalination.

The Public Service Board (El Paso Water Utilities) was established in 1952, by City Ordinance No. 752 to completely manage and operate the water and wastewater system for the City of El Paso. The seven-member board of trustees which make up the Public Service Board consists of the Mayor of the City of El Paso and six residents of El Paso County, Texas, who are appointed by the City Council.

EPWU serves the city of El Paso, located in El Paso County, Texas. Figure 1 below shows the geographical location. Interstate 10 crosses the city of El Paso from West to East.



Figure 1 - Location of EPWU (El Paso, Texas)

The sources of water for EPWU are

- Ground water from the Hueco Bolson (25% of demand)
- Ground water from the Mesilla Bolson (19% of demand)
- Surface water from the Rio Grande (49% of demand)
- Reclaimed water used for non-potable uses (7% of demand)

The Utility's potable water capacity is approximately 220 million gallons per day (MGD), including groundwater, desalinated brackish groundwater and surface water treatment capacity of 100 MGD. The treatment plants currently process an average of 60,000 acre-feet per year of surface water, or about 20 billion gallons in a normal year. The utility owns land in the County of El Paso for the purposes of water rights, and currently leases additional acres for water rights. Furthermore, the Utility has third party agreements with El Paso County Water Improvement District #1 and the Bureau of Reclamation that

allows for the purchase of additional surface water to supply the Jonathan Rogers WTP. In addition, the Utility built a desalination plant in east El Paso. This plant can produce 27.5 MGD of potable water. The water sources for the desalination plant are large brackish water areas in the Hueco Bolson estimated to hold 20 million acre-feet of water. Figure 2 below shows the location for the sources of water for EPWU.



Figure 2 - Sources of Water For EPWU

The primary water uses for EPWU customers are municipal, residential, commercial and industrial. The Bureau of Reclamation and Irrigation districts in the area are responsible for the supply and distribution of surface water for irrigation purposes.

Table 1 - Relevant Statistics for EPWU System

Item	2008	2009	2010	2011	2012
Maximum water supply capacity in acre-feet per day	675	675	675	675	675
Maximum daily water demand in acre-feet	443	468	486	502	501
Daily average consumption in peak week in acre-feet	461	426	453	468	467
Water customers, retail and wholesale	198,390	202,150	207,593	210,987	214,254
Water pumped in acre-feet	108,390	113,754	116,419	120,900	120,890
Water metered, retail and wholesale in acre-feet	98,416	104,793	105,734	113,942	111,417
Percent of water billed to water pumped	90.80%	92.1%	90.8%	94.2%	94.0%
Miles of water mains in place	2,467	2,488	2,505	2,544	2,561

Technical Proposal: Technical Study Description

The component parts of this proposed project are shown on the attached Appendix 1 at the end of this application. EPWU has designed a pipeline from the Roberto Bustamante Water Reclamation (Wastewater) Plant to deliver treated wastewater to the Rio Bosque Wetlands Park to improve the wetlands habitat at that location. The project area consists of one, single contiguous tract of land that is 372 acres in area.

Currently, Rio Bosque Wetlands Park receives water only sporadically, depending on the water demands for irrigation. The park typically receives water only in late fall and early winter, on average for approximately 3.5 months each year. Up to 100 acres can be flooded during this period, and 2,000-5,000 wintering ducks can be present. Water deliveries typically end in mid-winter when waterfowl numbers are at their peak. The park's shallow flooded impoundments quickly drain, mainly through groundwater flux, and the birds leave. Throughout the late winter, spring, summer and early fall, the park's impoundments are dry, and conditions suitable for development of soils and vegetation characteristic of wetlands are lacking.

The permanent source of water will be treated reclaimed wastewater from EPWU's adjacent Roberto Bustamante Wastewater Treatment Plant. Infrastructure to be constructed will include installation of distribution pipe to critical location(s) within the Rio Bosque Park connecting the two facilities, along with appurtenant valves, gates, meters, monitoring, controls, and so forth. The project will require approximately 7,500 linear feet of new 24-inch diameter pipe. The proposed project will make water available to the park throughout the year. This change will enable development of palustrine emergent marsh in some areas within the impoundments, allow moist-soil management of other areas, and promote establishment of riparian-forest habitat along the 2-mile long former bend of the Rio Grande that winds through the park. EPWU estimates that up to 10,000 AFY of reclaimed water may be legitimately available for delivery to the Rio Bosque from the Roberto Bustamante Plant.

Flooding of the river bed and ponding areas at the Rio Bosque will recharge the shallow, very permeable, shallow aquifer with reclaimed water of improved quality compared to the shallow native ground water. This improved supply can be recovered using shallow recovery wells and returned for treatment to useable, potable standards at either the existing, nearby Jonathan Rogers Water Treatment Plant or at the newly proposed Advanced Purified Treatment Plant (APTP) located at the adjacent Bustamante Reclamation Plant site.

The concept for the APTP Project is to treat effluent from the Roberto R. Bustamante Wastewater Treatment Plant (WWTP) to drinking water quality. The concept assumes additional treatment (e.g., nitrification and denitrification) of wastewater from the Bustamante WWTP, followed by advanced treatment. After the advanced purification process the water will take one of the following paths: enter into the distribution system, blend with potable water and enter into the distribution system or enter the Jonathan Rogers Water Treatment Plant. The final project direction will be determined through consultation meetings with the Texas Commission on Environment Quality (TCEQ). The project concept

targets an initial capacity for recycled water treatment of 2 million gallons per day (MGD), with provisions to accommodate phased expansion up to 10 MGD.

Information collected from EPWU, other agencies, and via field investigations will be reviewed to assess water quality, treatment flows, and available land and infrastructure features at the Bustamante WWTP and Jonathan Rogers WTP to support implementation of the potable reuse project. Historical water quality at the Bustamante WWTP (including industrial wastewater discharges to the WWTP), the Riverside Canal, and Jonathan Rogers WTP (raw and finished water) will be assessed. Water quality trending will be conducted to assess any temporal changes in water quality that could impact operations and treatment requirements for the potable reuse project. Water quality data will be tabulated and graphs prepared to illustrate changes in water quality over time and as a result of drought conditions. Operations data from the Bustamante WWTP and Jonathan Rogers WTP will be used to conduct disinfection benchmarking for existing treatment process and to identify additional disinfection requirements for the potable reuse project.

The technology alternatives to be evaluated include:

- Nitrification / denitrification for the potable reuse source stream at the Bustamante WWTP
- Disinfection at the Bustamante WWTP and/or the Advanced Purified Treatment Plant
- Membrane treatment at the Bustamante WWTP (i.e., membrane bioreactors [MBR]) and/or microfiltration/ultrafiltration (MF/UF) low pressure membranes at the Advanced Purified Treatment Plant
- Nanofiltration (NF) or reverse osmosis (RO) at the Advanced Purified Water Treatment Plant to reduce salt concentrations (chloride, bromide) and remove inorganic and organic pollutants
- Advanced oxidation (e.g., UV/AOP)
- Residuals Handling and Brine Disposal
- Engineered barrier considerations (storage/monitoring/controls) for direct potable reuse risk mitigation in lieu of environmental barriers present at indirect potable reuse projects.

The consultant will coordinate with TCEQ and the El Paso County Water Improvement District No. 1 as required, and coordinate with other agencies/institutions to identify:

- State and local requirements for implementation of the potable reuse project.
- Discharge requirements to the Riverside Canal (e.g., for blending NF or RO brine with Bustamante WWTP effluent).
- Relevant water rights for the project.
- Other agency concerns/considerations regarding the potable reuse project.

As a final component to this project, EPWU has been approached voluntarily by El Paso County Water Improvement District No. 1 (EPCWID) regarding the possible joint EPWU-EPCWID project to jointly utilize available and possibly new water diversion and collection features, and the old Socorro Pond Location adjacent to the Rio Bosque Park for the collection and temporary storage and distribution of a combination of agricultural drain waters, stormwater runoff and overflow order water. These source waters could amount to as much as 20,000 AFY, which could be available for local wildlife habitat at the Socorro location, and/or divided mutually between EPWU and EPCWID for agricultural, municipal, environmental and other shared uses. Allocation of the source waters according to water rights priorities will have to be properly negotiated and established.

EPWU's portion of such collected and stored water would be available for distribution among the Rio Bosque Wetlands, the Jonathan Rogers Plant and the APTP plant at the Bustamante site. Of course, any component of the water supply delivered to the Rio Bosque could be recovered using shallow wells for additional treatment at either the Rogers Plant or the APTP facility for potable use by the public.

As previously mentioned, this comprehensive program combines advanced treatment of wastewater for potable use along with creation of wildlife habitat utilizing reclaimed water and captured runoff, impaired agricultural drain waters, and available excess surface water orders, to increase the available potable water supply by approximately 15,000 acre-feet per year (AFY) at an estimated total cost of approximately \$1,250.00 to \$1,500.00 per AF. This volume of additional annual water supply equates to approximately 10 percent of annual public water demand. If successful, the project will provide approximately 450 to 500 acres of wetland habitat in the dry Chihuahuan Dessert for the benefit of several listed and endangered species and reduce the need for an equivalent amount of raw water supply from the U.S. Bureau of Reclamation Rio Grande Project and the Hueco and Mesilla groundwater Bolsons combined.

Other Issues relevant to this Proposal:

Means by which the Project Contributes to the Overall Goals of the USBR:

- 1) **Water Conservation:** *Approximately 15, 000 Acre-Feet per Year (AFY) of additional potable water*
- 2) **Benefits to Endangered Species:** *Approximately 7,500 AFY of water left either in Elephant Butte or Caballo Reservoirs, or potentially available for "in-stream" flows*

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. Assuming that EPWU's raw, source water averages 50% of the average annual supply, this will equate to 7,500 AFY in terms of water left either in Elephant Butte or Caballo Reservoirs, or available within the river or canal system as "in-stream" flows. This water is potentially available for benefits to the environment and potentially endangered species.

- 3) **Water Marketing:** *At least 15,000 AFY of water potentially available for agricultural and municipal communities*

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. This water is potentially available for marketing among the agricultural and municipal communities. Under the current Operating Agreement among the Bureau of Reclamation, El Paso County Water Improvement District No.1, and Elephant Butte Irrigation District, this 15,000 AFY could be classified as carry-over storage and will either be carried over proportionally according to the users' water rights into the following year, or be available for purchase by a willing buyer according to the wishes of a willing seller.

- 4) **Water Supply Sustainability/WaterSmart Basin Studies:**
EPWU annually purchases raw surface water from the USBR-Rio Grande Project, and the Rio Grande Project is located in a "WaterSmart Basin Study. The concept is also transferrable to other areas with similar water shortage conditions.
- 5) **Additional Non-Federal Funding:** *EPWU is proposing to pay for 70% of the Feasibility Project.*
- 6) **Connection to an Existing U. S. Bureau of Reclamation (USBR) Project:**

Evaluation Criteria

Evaluation Criterion 1: Statement of Problem and Needs (10 points)

Describe in Detail the water resource management problems and needs in the area and explain how water reclamation and reuse may address these problems and needs. Elaborate on the watershed-based aspects of the solution:

Meeting the municipal water demands of the El Paso public has historically relied on the combined water mix of ground water and treated surface water supplied by the USBR Rio Grande Surface Water Project. As the river drought in the West continues, the available water supply from the Rio Grande has become increasingly less reliable. In addition, longer term, the water plan under state requirements, shows demand possibly exceeding supply within less than 20 years. With forethought in mind, it is apparent that EPWU needs to explore new sources of water supply beyond the historic, straightforward use of surface and ground water.

In order to balance available water supplies to meet water demands, EPWU will need to reduce net per capita consumption from the current level of approximately 130 gallons per day per person (gpcd) to approximately 118 gpcd over the next fifteen years. This calculation is documented in the approved Texas State Water Plan for the Far West Texas Region. This equates to approximately a 10% effective, net demand reduction for El Paso. This proposed project can essentially meet that requirement.

EPWU has been a leader in water conservation and water reuse and reclamation. This comprehensive program combines advanced treatment of wastewater for potable use along with creation of wildlife habitat utilizing reclaimed water and captured runoff, impaired agricultural drain waters, and available excess surface water orders, to increase the available potable water supply by approximately 15,000 acre-feet per year (AFY) at an estimated total cost of approximately \$1,250.00 to \$1,500.00 per AF. This volume of additional annual water supply equates to approximately 10 percent of annual public water demand.

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. Assuming that EPWU's raw, source water averages 50% of the average annual supply, this will equate to 7,500 AFY in terms of water left either in Elephant Butte or Caballo Reservoirs, or available within the river or canal system as "in-stream" flows. This water is potentially available for benefits to the environment and potentially endangered species.

This 15,000 AFY of water is potentially available for marketing among the agricultural and municipal communities. Under the current Operating Agreement among the Bureau of Reclamation, El Paso County Water Improvement District No.1, and Elephant Butte Irrigation District, a portion of this 15,000 AFY could be classified as carry-over storage and will either be carried over proportionally according to the users' water rights into the following year, or be available for purchase by a willing buyer according

to the wishes of a willing seller. Bert Cortez and Mike Landis at the El Paso office of USBR have informed EPWU that the USBR-Rio Grande Project is located within one of the “WaterSmart Basin Studies”. The proposed project is within EPWU’s service area, and EPWU annually purchase raw surface water from the Rio Grande Project through several water rights and administrative contracts with USBR and El Paso County Water Improvement District No. 1. In addition, Joshua German of the Denver Office of USBR has informed EPWU that the Upper Rio Grande Basin Study is now complete.

Due to the simplicity and transportability of this technology, it is eminently transferrable to any location within other watersheds that exhibit similar source water constraints. The proposed project is within EPWU’s service area, and EPWU annually purchase raw surface water from the Rio Grande Project through several water rights and administrative contracts with USBR and El Paso County Water Improvement District No. 1.

Evaluation Criterion 2: Water Reclamation and Reuse Opportunities (15 points)

- 1) *Environmental restoration, fish and wildlife, groundwater recharge, recreation, agriculture and municipal uses.*
- 2) *Potential for Water market availability to use the recycled water, methods to stimulate recycled water demand, and eliminate obstacles to reclaimed water.*
- 3) *Sources of water to be evaluated for reclamation, including impaired surface and ground waters.*

Rio Bosque Wetlands Park is open to the Public during Daylight Hours. UTEP’s Center for Environmental Resources Management (CERM) operates the Park (with EPWU) and provides Regular Tours designed to highlight and present various Fauna inhabiting the Park seasonally.

The project area consists of one, single contiguous tract of land that is 372 acres in area. The permanent source of water will be treated reclaimed wastewater from EPWU’s adjacent Roberto Bustamante Wastewater Treatment Plant. Infrastructure to be constructed will include installation of distribution pipe to critical location(s) within the Rio Bosque Park connecting the two facilities, along with appurtenant valves, gates, meters, monitoring, controls, and so forth. The water supply will be reliable and not interruptible.

The wetland habitats enhanced and established through this project will provide important cover, resting areas and diverse food supplies for Central Flyway migrants, including the priority species and other waterfowl listed above. By providing wintering and migratory habitats needed to return these species to their northern breeding grounds in good physiological condition, the project will contribute to achieving North American Waterfowl Management Plan (NAWMP) population objectives, especially for **Northern Pintail, Mallard** and **American Wigeon**, all of which are common migrants and winter residents at Rio Bosque Wetlands Park. These benefits will be of greatest importance for **Northern Pintail** and **American Wigeon**, both currently below their NAWMP population objectives. In the case of **Mallard**, the project will establish some breeding habitat for “**Mexican**” **Mallards**

The proposed project will make water available to the park throughout the year. This change will enable development of palustrine emergent marsh in some areas within the impoundments, allow moist-soil

management of other areas, and promote establishment of riparian-forest habitat along the 2-mile long former bend of the Rio Grande that winds through the park. As a result:

- habitat suitable for migrating and wintering waterfowl will be present for a longer period each year;
- the quality of that habitat will be higher and will support greater numbers of birds; and
- suitable habitat will be present in summer for nesting by Wood Duck, “Mexican” Mallard, Cinnamon Teal and possibly other species such as Blue-winged Teal and Redhead.

In addition, Appendix 2 attached includes other tables compiled by John Sproul, Park Director for Rio Bosque Park, indicating other special or endangered species that would benefit from a regular water supply to the park. EPWU estimates that up to 10,000 AFY of reclaimed water may be legitimately available for delivery to the Rio Bosque from the Roberto Bustamante Plant.

Finally, the addition of a water supply to the adjacent Socorro Ponds, using agricultural drain waters and captured storm waters, will also promote the return of similar wetland species to this location. This could add up to an additional 130 acres of wetlands for a combined project total wetlands area of nearly 500 acres.

This 15,000 AFY of water is potentially available for marketing among the agricultural and municipal communities. Under the current Operating Agreement among the Bureau of Reclamation, El Paso County Water Improvement District No.1, and Elephant Butte Irrigation District, a portion of this 15,000 AFY could be classified as carry-over storage and will either be carried over proportionally according to the users’ water rights into the following year, or be available for purchase by a willing buyer according to the wishes of a willing seller.

EPWU and the County of El Paso have completed a County-based Stormwater Masterplan in 2010, which will be a good source of information regarding the volumes of stormwater that routinely fall within the City of Socorro, Texas, and are available for capture and delivery to either the Rio Bosque Wetlands or the adjacent Socorro Ponds areas. Available data indicates that this source of runoff water could equate to as much as 2,500 to 5,000 AFY of storm water that could be captured and stored. This volume added to the 15,000 AFY previously mentioned could bring the total water conserved volume up to approximately 20,000 AFY. Appendix 3 of this proposal contains the sample cover page for the County Stormwater Master Plan.

As previously detailed, EPWU has been approached voluntarily by El Paso County Water Improvement District No. 1 (EPCWID) regarding the possible joint EPWU-EPCWID project to jointly utilize available and possibly new water diversion and collection features, and the old Socorro Pond Location adjacent to the Rio Bosque Park for the collection and temporary storage and distribution of a combination of agricultural drain waters, stormwater runoff and overflow order water. These source waters could amount to as much as 20,000 AFY, which could be available for local wildlife habitat at the Socorro location, and/or divided mutually between EPWU and EPCWID for agricultural, municipal, environmental and other shared uses. Allocation of the source waters according to water rights priorities will have to be properly negotiated and established.

EPWU’s portion of such collected and stored water would be available for distribution among the Rio Bosque Wetlands, the Jonathan Rogers Plant and the AWPP plant at the Bustamante site. Of course, any component of the water supply delivered to the Rio Bosque could be recovered using shallow wells for additional treatment at either the Rogers Plant or the APTP facility for potable use by the public.

In conclusion, this project opens the opportunity to capture and beneficially use a variety of source waters for environmental, municipal and agricultural purposes. These source waters include treated wastewater, reclaimed water, stored and recycled water, impaired-agricultural drain waters, stormwaters, and excess surface water orders.

Evaluation Criterion 3: Description of Potential Alternatives (15 points)

Describe the pertinent water supply alternatives.

- 1) *Describe the objectives that all Alternatives must meet. What other alternatives will be devaluated?*
- 2) *General description of the proposed project.*
- 3) *Describe the Technologies that will be investigated for water reuse and reclamation.*

The concept for the APTP Project is to treat effluent from the Roberto R. Bustamante Wastewater Treatment Plant (WWTP) to drinking water quality. The concept assumes additional treatment (e.g., nitrification and denitrification) of wastewater from the Bustamante WWTP, followed by advanced treatment. After the advanced purification process the water will take one of the following paths: enter into the distribution system, blend with potable water and enter into the distribution system or enter the Jonathan Rogers Water Treatment Plant. The final project direction will be determined through consultation meetings with the Texas Commission on Environment Quality (TCEQ). The project concept targets an initial capacity for recycled water treatment of 2 million gallons per day (MGD), with provisions to accommodate phased expansion up to 10 MGD.

The proposed project will evaluate a comprehensive program to combine the advanced treatment of wastewater for potable use along with creation of wildlife habitat utilizing reclaimed water and captured runoff, impaired agricultural drain waters, and available excess surface water orders, all to increase the available potable water supply by approximately 15,000 acre-feet per year (AFY) at an estimated total cost of approximately \$1,250.00 to \$1,500.00 per AF. This volume of additional annual water supply equates to approximately 10 percent of annual public water demand. If successful, the project will provide approximately 450 to 500 acres of wetland habitat in the dry Chihuahua Dessert for the benefit of several listed and endangered species and reduce the need for an equivalent amount of raw water supply from the U.S. Bureau of Reclamation Rio Grande Project and the Hueco and Mesilla groundwater Bolsons combined.

The new technology alternatives evaluated for treatment of reclaimed/reuse waters will include:

- Nitrification / denitrification for the potable reuse source stream at the Bustamante WWTP
- Disinfection at the Bustamante WWTP and/or the Advanced Purified Treatment Plant
- Membrane treatment at the Bustamante WWTP (i.e., membrane bioreactors [MBR]) and/or microfiltration/ultrafiltration (MF/UF) low pressure membranes at the Advanced Purified Treatment Plant

- Nanofiltration (NF) or reverse osmosis (RO) at the Advanced Purified Water Treatment Plant to reduce salt concentrations (chloride, bromide) and remove inorganic and organic pollutants
- Advanced oxidation (e.g., UV/AOP)
- Residuals Handling and Brine Disposal
- Engineered barrier considerations (storage/monitoring/controls) for direct potable reuse risk mitigation in lieu of environmental barriers present at indirect potable reuse projects.

The consultant will coordinate with TCEQ and the El Paso County Water Improvement District No. 1 as required, and coordinate with other agencies/institutions to identify:

- State and local requirements for implementation of the potable reuse project.
- Discharge requirements to the Riverside Canal (e.g., for blending NF or RO brine with Bustamante WWTP effluent).
- Relevant water rights for the project.
- Other agency concerns/considerations regarding the potable reuse project

Discussions will also be conducted with the City of Socorro, Texas, regarding the locations available and alternative methods to capture and deliver unwanted, nuisance stormwater flows to the Rio Bosque and/or Socorro Ponds areas. Review of existing and planned drainage conditions and drainage facilities will need to be performed with the City of Socorro. Also, as previously described, evaluations will be conducted with EPCWID to review and evaluate alternatives for the collection and storage of impaired irrigation return flows, water over-orders, and their own capabilities to capture stormwater flows.

Evaluation Criterion 4: Stretching Water Supplies (15 points)

Proposal must demonstrate that it helps to secure or stretch water supplies.

- 1) *Project must reduce, postpone, or eliminate the development of new or expanded water supplies.*
- 2) *Project must reduce or eliminate the use of existing diversions from natural watercourses, or aquifer withdrawals.*
- 3) *Project must reduce the demand on existing Federal water supply facilities. Describe the specific issues.*

This project opens the opportunity to capture and beneficially use a variety of source waters not currently being used for either municipal or agricultural uses. These source waters include treated wastewater, reclaimed water, stored and recycled water, impaired-agricultural drain waters, stormwaters, and excess surface water orders.

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. Assuming that EPWU's raw, source water averages 50% of the average annual supply, this will equate to 7,500 AFY in terms of water left either in Elephant Butte or Caballo Reservoirs, or available within the river or canal system as "in-stream" flows. The project will reduce the

use of existing diversions and federal water supplies by an equal amount of approximately 7,500 AFY from the USBR Rio Grande Project. This water will be available for benefits to the public, the environment, and potentially endangered species.

Correspondingly, this project will also reduce ground water diversions from the El Paso Bolsons by approximately 7,500 AFY. Likewise, this project will postpone the need to increase delivery and storage infrastructure for federal, municipal, agricultural, and other water supply agencies.

Evaluation Criterion 5: Environment and Water Quality (15 points)

Describe how the project will improve surface, ground water, or effluent quality, restore or enhance habitat for non-listed species, or provide water for critical habitat for federally listed or threatened or endangered species.

- 1) *How will the project improve surface or ground water?*
- 2) *How will the project improve flow conditions in the natural stream channel?*
- 3) *How will the project provide water or habitat for federally listed threatened or endangered species?*

This project opens the opportunity to capture and beneficially use a variety of source waters not currently being used for either municipal or agricultural uses. These source waters include treated wastewater, reclaimed water, stored and recycled water, impaired-agricultural drain waters, stormwaters, and excess surface water orders.

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. Assuming that EPWU's raw, source water averages 50% of the average annual supply, this will equate to 7,500 AFY in terms of water left either in Elephant Butte or Caballo Reservoirs, or available within the river or canal system as "in-stream" flows. The project will reduce the use of existing diversions and federal water supplies by an equal amount of approximately 7,500 AFY from the USBR Rio Grande Project. This water will be available for benefits to the public, the environment, and potentially endangered species. Correspondingly, this project will also reduce ground water diversions from the El Paso Bolsons by approximately 7,500 AFY.

Rio Bosque Wetlands Park is open to the Public during Daylight Hours. UTEP's Center for Environmental Resources Management (CERM) operates the Park (with EPWU) and provides Regular Tours designed to highlight and present various Fauna inhabiting the Park seasonally.

The project area consists of one, single contiguous tract of land that is 372 acres in area. The permanent source of water will be treated reclaimed wastewater from EPWU's adjacent Roberto Bustamante Wastewater Treatment Plant. Infrastructure to be constructed will include installation of distribution pipe to critical location(s) within the Rio Bosque Park connecting the two facilities, along with appurtenant valves, gates, meters, monitoring, controls, and so forth. The water supply will be reliable and not interruptible.

The wetland habitats enhanced and established through this project will provide important cover, resting areas and diverse food supplies for Central Flyway migrants, including the priority species and other

waterfowl listed above. By providing wintering and migratory habitats needed to return these species to their northern breeding grounds in good physiological condition, the project will contribute to achieving North American Waterfowl Management Plan (NAWMP) population objectives, especially for **Northern Pintail, Mallard** and **American Wigeon**, all of which are common migrants and winter residents at Rio Bosque Wetlands Park. These benefits will be of greatest importance for **Northern Pintail** and **American Wigeon**, both currently below their NAWMP population objectives. In the case of **Mallard**, the project will establish some breeding habitat for “**Mexican**” **Mallards**

The proposed project will make water available to the park throughout the year. This change will enable development of palustrine emergent marsh in some areas within the impoundments, allow moist-soil management of other areas, and promote establishment of riparian-forest habitat along the 2-mile long former bend of the Rio Grande that winds through the park. As a result:

- habitat suitable for migrating and wintering waterfowl will be present for a longer period each year;
- the quality of that habitat will be higher and will support greater numbers of birds; and
- suitable habitat will be present in summer for nesting by Wood Duck, “Mexican” Mallard, Cinnamon Teal and possibly other species such as Blue-winged Teal and Redhead.

Appendix ___ attached includes other tables compiled by John Sproul, Park Director for Rio Bosque Park, indicating other special or endangered species that would benefit from a regular water supply to the park. EPWU estimates that up to 10,000 AFY of reclaimed water may be legitimately available for delivery to the Rio Bosque from the Roberto Bustamante Plant.

These environmental and wildlife habitat improvements are consistent with the Biological Management Plan for the Rio Bosque Park. Selected portions of the Biological Management Plan are included in the attached Appendix 4.

Finally, the addition of a water supply to the adjacent Socorro Ponds, using agricultural drain waters and captured storm waters, will also promote the return of similar wetland species to this location. This could add up to an additional 130 acres of wetlands for a combined project total wetlands area of nearly 500 acres.

“WaterSmart Basin Studies”

Bert Cortez and Mike Landis at the El Paso office of USBR have informed EPWU that the USBR-Rio Grande Project is considered to be located within one of the “WaterSmart Basin Studies”. In addition, Joshua German of the Denver Office of USBR has informed EPWU that the Upper Rio Grande Basin Study is now completed.

Benefits to Water Supply Sustainability (Potentially Addressing Drought and/or Climate Change):

This project addresses water supply shortages due to climate variability in the upper Rio Grande Basin, and in particular in the area of the USBR-Rio Grande Project. El Paso gets up to 50% of its water supply from the Rio Grande when water is available in Elephant Butte Dam from runoff in southern Colorado and northern New Mexico. When the water supply from the Rio Grande is limited (as has been the case in recent years), El Paso must rely on groundwater, water conservation and water reclamation projects to make up for the shortage. The extra water that would be available through implementation of this project will be critical during periods of high demand. Use of these concepts may preclude the requirement for invoking Stage 2 water restrictions at various times during the high-demand periods of May through September.

Applicability of the Project to Other Areas:

This technology can be applied to water treatment at other locations where the raw, source water is brackish, in high demand, or requires TDS removal. Vast areas of the Western U.S. contain brackish ground and surface waters that require RO for potable and agricultural use. The ability to generate approximately up to an additional 10% worth of useable, treated water from the original wastewater of brackish supply sources makes this concept very attractive.

Evaluation Criterion 6: Legal and Institutional Requirements (10 points)

How will the project address legal or institutional requirements or barriers, such as water rights issues and other unresolved issues?

EPWU estimates that up to 10,000 AFY of reclaimed water may be legitimately available for delivery to the Rio Bosque from the Roberto Bustamante Plant. Also, EPWU has been approached voluntarily by El Paso County Water Improvement District No. 1 (EPCWID) regarding the possible joint EPWU-EPCWID project to jointly utilize available and possibly new water diversion and collection features, and the old Socorro Pond Location adjacent to the Rio Bosque Park for the collection and temporary storage and distribution of a combination of agricultural drain waters, stormwater runoff and overflow order water. These source waters could amount to as much as 20,000 AFY, which could be available for local wildlife habitat at the Socorro location, and/or divided mutually between EPWU and EPCWID for agricultural, municipal, environmental and other shared uses. Allocation of the source waters according to water rights priorities will have to be properly negotiated and established.

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. This water is potentially available for marketing among the agricultural and municipal communities. Under the current Operating Agreement among the Bureau of Reclamation, El Paso County Water Improvement District No.1, and Elephant Butte Irrigation District, this 15,000 AFY could be classified as carry-over storage and will either be carried over proportionally according to the users' water rights into the following year, or be available for purchase by a willing buyer according to the wishes of a willing seller.

This 15,000 AFY of water is potentially available for marketing among the agricultural and municipal communities. Under the current Operating Agreement among the Bureau of Reclamation, El Paso County Water Improvement District No.1, and Elephant Butte Irrigation District, a portion of this 15,000 AFY could be classified as carry-over storage and will either be carried over proportionally according to the users' water rights into the following year, or be available for purchase by a willing buyer according to the wishes of a willing seller.

As previously detailed, EPWU has been approached voluntarily by El Paso County Water Improvement District No. 1 (EPCWID) regarding the possible joint EPWU-EPCWID project to jointly utilize available and possibly new water diversion and collection features, and the old Socorro Pond Location adjacent to the Rio Bosque Park for the collection and temporary storage and distribution of a combination of agricultural drain waters, stormwater runoff and overflow order water. These source waters could amount to as much as 20,000 AFY, which could be available for local wildlife habitat at the Socorro location, and/or divided mutually between EPWU and EPCWID for agricultural, municipal, environmental and

other shared uses. Allocation of the source waters according to water rights priorities will have to be properly negotiated and established.

Also, EPWU has active and operational Water Conservation and Drought Contingency Plans that are available for review on request.

Evaluation Criterion 7: Renewable Energy and Energy Efficiency (10 points)

How will the Project incorporate renewable energy or otherwise address energy efficiency?

Solar panels will be installed to power and operate the monitoring data stations for flow and water levels for this project, as well as to operate the visitors' center at the Rio Bosque Wetlands Park. Since the project at completion should offset approximately 7,500 AFY of ground water that will not have to be pumped from the Hueco or Mesilla Bolsons, an estimated commensurate electrical energy savings of approximately 55,000.00 \$/year will be experienced. Finally, the project consultant will evaluate the opportunities for solar and hydroelectric generation from available hydrologic flows to power the APT facility.

Evaluation Criterion 8: Watershed Perspective (10 points)

How will the project promote a regional or watershed perspective related to water resources management?

Bert Cortez and Mike Landis at the El Paso office of USBR have informed EPWU that the USBR-Rio Grande Project is considered to be located within one of the "WaterSmart Basin Studies". The proposed project is within EPWU's service area, and EPWU annually purchase raw surface water from the Rio Grande Project through several water rights and administrative contracts with USBR and El Paso County Water Improvement District No. 1. In addition, Joshua German of the Denver Office of USBR has informed EPWU that the Upper Rio Grande Basin Study is now completed.

The 15,000 AFY of water generated by this project translates into an equal volume of water per year that will not have to be diverted from either surface water from the Rio Grande Project or from other groundwater sources. Assuming that EPWU's raw, source water averages 50% of the average annual supply, this will equate to 7,500 AFY in terms of water left either in Elephant Butte or Caballo Reservoirs, or available within the river or canal system as "in-stream" flows.

This equates to a decrease in demand on the watershed of an equal annual volume of water, or 7,500 AFY. The watershed in this case would be the area within the Rio Grande Project below Elephant Butte Reservoir in New Mexico to basically the Hudspeth County line in Texas. In terms of water resources management, the parties affected, Elephant Butte Irrigation District, EPCWID and EPWU all have mechanisms in place to administratively account for and distribute these conserved waters among each other, and the appropriate water rights holders.

On a more localized, watershed basis, this proposed project will utilize the existing aforementioned El Paso County Stormwater Master Plan and further evaluate the volume and availability of capturing stormwater runoff within the City of Socorro, Texas, that now currently causes extensive, flood-induced property damage during the summer monsoon season in El Paso. Currently these flows originate in the upland areas north of Socorro near the Hueco Mountains, and cause property losses and the community receives little or no benefit from these water resources. These flood waters could provide up to an estimated 5,000 AFY supply to the communities for municipal, agricultural, recreational, and environmental uses.

Required Permits or Approvals

EPWU currently operates the existing wells and wastewater treatment plants under the applicable permits for water delivery to the public and wastewater effluent discharges issued by the Texas Commission for Environmental Quality (TCEQ) under the pertinent standards of the Environmental Protection Agency (EPA). The final project direction will be determined through consultation meetings with the Texas Commission on Environment Quality (TCEQ). The project concept targets an initial capacity for recycled water treatment of 2 million gallons per day (MGD), with provisions to accommodate phased expansion up to 10 MGD. The consultant will coordinate with TCEQ and the El Paso County Water Improvement District No. 1 as required, and coordinate with other agencies/institutions to identify:

- State and local requirements for implementation of the potable reuse project.
- Discharge requirements to the Riverside Canal (e.g., for blending NF or RO brine with Bustamante WWTP effluent).
- Relevant water rights for the project.
- Other agency concerns/considerations regarding the potable reuse project.

System for Award Management

All applicants must be registered in the System for Awards Management (SAM) prior to award under this FOA. All applicants must maintain an active SAM registration with current information at all times while they have an active Federal award or an application under consideration.

EPWU is now registered on the System for Awards Management (SAM) and a copy of this registration notice is attached as Appendix Number 5 of this Proposal.

Letters of Project Support

EPWU and USBR will be the primary parties involved in this project at the feasibility stage. The forthcoming official EPWU Resolution will serve as EPWU's letter of support or participation. Attached as Appendix 6 is a copy of EPCWID's voluntary graphics and economics presentation to EPWU's Board of Directors regarding their endorsed component to the overall project, the Regulating Reservoir at the Location of the Socorro Ponds. The managers and staff members at EPCWID will be contacted and negotiations will be conducted regarding water delivery,

distribution and water rights aspects of the project. EPCWID will not be a funding partner for the feasibility stage of this project.

Official Resolution

EPWU has placed the required Board of Directors Resolution on the agenda for the May 14, 2014 Board Meeting. Attached as Appendix Number 7 is EPWU's sample draft Board Meeting Agenda showing this item listed for approval of an official Resolution signed by the appropriate Members of the Board of Directors signifying the commitment of EPWU to the cost, expenses and terms and conditions cited in this proposal. Then final signed resolution will be submitted to USBR immediately after the May Board Meeting.

Project Budget

The project budget includes: Funding Plan, Budget Proposal, Budget Narrative and Budget Form. Appendix Number 8 of this Proposal is the Proposed Project Budget in the Recommended USBR Format

- 1) How you will make your contribution to the cost share requirement, such as monetary and/or in-kind contributions and source funds contributed by the applicant (e.g., reserve account, tax revenue, and/or assessments). **EPWU's cash and in-kind contributions will be provided from revenues either currently approved in the current year budget, or to be approved by the Board of Directors in the FY 2015-2016 budget within the Capital and O&M budgets.**
- 2) Describe any pre-award costs incurred before the anticipated project start date that you seek to include as project costs. Include:
 - a) What project expenses have been incurred: approximately **\$100,000.00 for evaluation of AWPP from July 1, 2013 to the present.**
 - b) How they benefitted the project: **Evaluations have identified available reclaimed water volumes and preliminary treatment and regulatory requirements.**
 - c) The amount of the expense: approximately **\$100,000.00**
 - d) The date of cost incurrence: **July 2013 through April 2014.**
- 3) Provide the identity and amount of funding to be provided by funding partners, as well as the required letters of commitment: **EPWU is the only funding partner.**
- 4) Describe any funding requested or received from other Federal partners. Note: other sources of Federal funding may not be counted towards your 50 percent cost share unless otherwise allowed by statute: **None.**
- 5) Describe any pending funding requests that have not yet been approved, and explain how the project will be affected if such funding is denied: **Not Applicable.**

Table 1 below summarizes the respective proposed non-Federal and Federal (USBR) funding source components. “In-kind” contributions are designated with an asterisk (*). Review of this table reveals that the total Federal funding component (Reclamation) does not exceed 50 percent of the total estimated project cost. On a Total Project Cost Basis, EPWU is proposing to pay for 73% of the project expenses in terms of both cash and in-kind services. On a cash-only basis, EPWU is proposing to pay for 70 % of the total project.

Table 1. Summary of non-Federal and Federal funding sources.

Funding Sources	Funding Amount
Non-Federal Entities	
1. El Paso Water Utilities (EPWU)	\$350,000.00
2. El Paso Water Utilities (EPWU)	\$51,000.00*
3.	
Non-Federal Subtotal:	\$401,000.00
Other Federal Entities	
1. NA	
2.	
3.	
Other Federal Subtotal:	-0-
Requested Reclamation Funding:	\$150,000.00
Total Project Funding:	\$551,000.00

*In-Kind Contributions (\$51,000.00)

Since this application is being submitted in accordance with the requirements of Funding Group I, Table 2 is offered to summarize the funding requested by year from USBR.

Table 2. Funding Group I Funding Request.

Funding Group I Request			
	Year 1 (FY 2014)	Year 2 (FY 2015)	Year 3 (FY 2015)
Funding Requested from USBR	\$130,000.00	\$20,000.00	-0-

Funding Plan and Letter of Commitment (Resolution):

On May 14, 2014, the EPWU Board of Directors will approved by Resolution a total of \$350,000.00 in cash over 17 months to fund this project’s local match, plus \$51,000.00 in terms of In-Kind Contributions as shown in the Appendix Number 8, Budget Form. Of this cash amount from EPWU, \$ 100,000.00 is available now from EPWU budget revenues.

Then at the end of calendar year 2014, EPWU's Board will approve an additional \$ 250,000.00 in cash for expenditure between March 1, 2015 and December 15, 2015, if the project is funded by USBR. This funding disbursement scheme is represented on the previous Tables above. The in-kind services, worth \$51,000.00 are available on an as-needed basis without restrictions, if the project proceeds. Therefore, there are essentially no time-constraints on the availability of EPWU's funds. The only contingency applied to the use of the EPWU funds is the requirement that USBR select the project for funding.

Budget Narrative:

Please refer to the attached Budget Form, Appendix Number 8:

Salaries and Wages (in-kind)

The following EPWU personnel will be involved in this project. The respective roles and value of their in-kind services is described as follows:

John Balliew is the President and CEO of EPWU and will function as the official Lead Manager for this proposed Project. He will be responsible for overall project oversight and has the authority to advance the objectives of the study and assure its completion within budget and on schedule. Hector Gonzalez works directly under the supervision of John Balliew and will function as the Assistant Project Manager. Mr. Gonzalez's official title at EPWU is Government Affairs Manager. For all practical purposes Mr. Gonzalez will be the day-to-day staff member responsible for daily and routine activities. Mike Fahy, as the Grant Manager, will be responsible for adherence to project budgets and all necessary routine reporting to USBR. Mr. Fahy will be the initial point of contact with USBR for regular, routine questions about project scheduling and reporting. Mr. Balliew, Mr. Gonzalez, and Mr. Fahy all work together in close proximity at EPWU's Headquarters building and are all accessible, as needed, for USBR representatives. It is estimated that Mr. Fahy will spend approximately 6% of his time overall on the project over the seventeen month duration. Manpower commitments by Mr. Balliew and Mr. Gonzalez will be considerably smaller, less than 2%.

Alan Shubert is the new EPWU Vice President of Operations and Technical Services, and Gilbert Trejo will be the new Chief Technical Officer. Both of these individuals occupy upper-level technical management positions at EPWU and will be responsible for ultimate approval and review of consultant selection, contracting and monitoring overall project progress to verify conformance with the original intended goals and objectives. EPWU estimates that their manpower commitment will equal approximately 2% of each of their available times for this project.

Aide Zamarron is a Project Engineer at EPWU and will be responsible for direct contract supervision of the consultant and any other contractors during the project. She will maintain day to day communications with the selected consultant to trouble-shoot any problems that arise and assure that the project stays on schedule. Her manpower requirement will equal approximately 8% of her labor during the seventeen month project duration. Robert Riley will be the Engineering Supervisor for Ms. Zamarron and will provide routine supervision and act as intermediary with Gilbert Trejo. Mr. Riley will review the weekly

progress of the consultant with Aide and provide necessary technical and managerial guidance as needed. It is estimated that approximately 3% of his available manpower will be required to complete his mission over the project duration.

Paul Rivas is the Director of EPWU's Chemical Testing Laboratory (International Water Quality Laboratory) and will be responsible for assuring that all water quality testing required for the project is performed properly and according to all ASTM, EPA, TCEQ and other applicable standards. EPWU estimates that Mr. Rivas will invest less than 1% of his time overall on this project. Therefore, he has not been listed directly on the Project Budget.

Irma Finlay will be the staff accountant responsible for oversight of all funds and cash reimbursements required for the proposed project. She will maintain the project spreadsheet recording all expenses incurred, both cash and in-kind, and assure that all contracted invoices are paid. Ms. Finlay will also compile EPWU's reimbursement requests after expenses are paid and submit them to USBR for back payment to EPWU. Her manpower requirement was estimated at 3% of her total available time over the seventeen month project. Jeff Tepsick is Ms. Finlay's immediate supervisor and will check and verify all invoice payments and reimbursement requests. His labor commitment was stated at approximately 1% of his time over the project.

Fringe Benefits (in-kind)

The in-kind fringe benefits for EPWU personnel involved in this project were computed on a "Fringe" basis and were derived by subtracting the hourly salary rate cost for EPWU manpower (person-by-person) from the loaded value per hour (also person-by-person).

Travel (in-kind, and cash for consultant)

The travel costs included in this project are for mileage by EPWU field personnel for travelling between the three locations. The total mileage is expected to be 491 miles, and at a cost of \$0.56/mi, the total project cost is estimated at \$275.00 for in-kind travel for EPWU. In terms of travel costs in cash for the consultant, these are calculated at a total of \$6,000.00, based on a total of 6 man-trips equivalent, at approximately \$1,000.00 each.

Materials, Supplies, and Services (in-kind)

Water samples will be collected from the various raw, treated and feed water site locations on an "as-needed basis", and analyzed at EPWU's International Water Quality Laboratory. The analyses will include anions/cations, pH, conductivity, silica, TDS, arsenic and other parameters deemed necessary as the project progresses. At a cost of \$340.00 per sample for 20 samples, the cost of this service is \$6,800.00.

Contractual

EPWU will use the Qualifications-based method for selection of a qualified and experienced consulting engineering firm to perform evaluations and assemble the required documents. There are several qualified engineering firms located in El Paso to choose from and all are very familiar with basic water

treatment, membrane processes for water treatment, hydrology and stormwater studies, and EPWU's requirements and procedures for competitive bidding of construction and equipment installations. These firms would include CH2M Hill, Parkhill, Smith and Cooper, CDM, ARCADIS, and others. The budget estimate of \$ 488,000.00 for the Engineering Consultant was derived using the anticipated number of man-hours required by discipline and the estimated hourly rate as shown on the attached Budget in Appendix 8.

The professional engineering services are divided into the following tasks:

- Task 100 – Project Management
- Task 200 – Existing Conditions, Hydrology, and Source Water Evaluation
- Task 300 – Alternatives Evaluation
- Task 400 – Conceptual Design of Short-Listed Alternative(s)
- Task 500 – Pilot Test Plan
- Task 600 – Independent Advisory Panel Reviews
- Task 700 – Agency Coordination
- Task 800 – Public Communications / Outreach Support

The consultant will collect and analyze flow and water quality data and available land/infrastructure information provided for both the Jonathan Rogers WTP and Roberto Bustamante WWTP that is required to evaluate treatment and blending alternatives for use of effluent from the Bustamante WWTP as a possible additional source of supply for the Jonathan Rogers WTP. Specific subtasks needed to execute the scope in this task are described below.

- Information collected from EPWU, other agencies, and via field investigations will be reviewed to assess water quality, treatment flows, and available land and infrastructure features at the Bustamante WWTP and Jonathan Rogers WTP to support implementation of the potable reuse project. Historical water quality at the Bustamante WWTP (including industrial wastewater discharges to the WWTP), the Riverside Canal, and Jonathan Rogers WTP (raw and finished water) will be assessed. Water quality trending will be conducted to assess any temporal changes in water quality that could impact operations and treatment requirements for the potable reuse project. Water quality data will be tabulated and graphs prepared to illustrate changes in water quality over time and as a result of drought conditions. Operations data from the Bustamante WWTP and Jonathan Rogers WTP will be used to conduct disinfection benchmarking for existing treatment process and to identify additional disinfection requirements for the potable reuse project.

The engineering consultant will develop potentially-viable treatment alternatives for potable reuse of effluent from the Bustamante WWTP, building upon results from a proposed Concept Workshop and completing the following subtasks delineated below. The Alternatives Evaluation will also be carefully coordinated with regulatory discussions to develop treatment and blending alternatives that meet State regulatory requirements and expectations for a direct potable reuse project.

- The consultant will develop schematic process flow diagrams, preliminary major process equipment sizing, site layout figures, and hydraulic profiles for the most promising treatment train(s). Recommendations for pilot testing to address anticipated permitting requirements, data gaps, and opportunities for refinement/optimization of design criteria will be prepared for the most promising train(s).
- The engineer will develop AACE Class 4 conceptual capital cost opinions for the most promising treatment train(s) identified. Conceptual annual operations and maintenance (O&M) costs will be estimated based on engineering experience, the experience of EPWU's Operations staff, EPWU's historical costs for treatment, and information obtained from equipment technology manufacturers. The conceptual capital and O&M cost opinions will be used to calculate a life cycle cost for the train(s).

The services of a qualified, professional hydrologist will be required to meet with representatives and technical staff of the City of Socorro, Texas, regarding the locations available and alternative methods to capture and deliver unwanted, nuisance stormwater flows to the Rio Bosque and/or Socorro Ponds areas. Review of existing and planned drainage conditions and drainage facilities will need to be performed with the City of Socorro. Also, as previously described, evaluations will be conducted with EPCWID to review and evaluate alternatives for the collection and storage of impaired irrigation return flows, water over-orders, and their own capabilities to capture stormwater flows.

This proposed project will also utilize the existing aforementioned El Paso County Stormwater Master Plan and further evaluate the volume and availability of capturing stormwater runoff within the City of Socorro, Texas during the summer monsoon season in El Paso. Such flows originate in the upland areas north of Socorro near the Hueco Mountains, and cause property losses and the community receives little or no benefit from these water resources. These flood waters could provide up to an estimated 5,000 AFY supply to the communities for municipal, agricultural, recreational, and environmental uses.

The total estimated cost for these consultant tasks equals approximately \$488,000.00 and is comprised of a number of cost elements, the bulk of which falls under the category of professional manpower. These costs break down as follows; Manpower for the Lead Engineer = \$45,000.00; Manpower for the Project Engineer = \$232,700.00; Technician Manpower = \$91,360.00; Manpower for the Hydrologist = \$117,000.00; and finally, Report Preparation at \$2,000.

Environmental and Regulatory Compliance Costs

The Lump Sum estimate of \$6,000.00 was applied for this task, and is based on the cost from a prior USBR Challenge Grant in which USBR performed the work, and concluded that there would be no significant environmental impacts.

Reporting (in-kind)

A calculated sum amount of \$2,000.00 is included for report preparation (for printing, binding, distribution, etc.).

Other Expenses

No other expenses are shown.

Indirect Costs

There are no indirect costs shown. The in-kind services for EPWU labor were calculated on a “loaded”, fringe basis.

Total Costs:

The total cost of the project is \$551,000.00. The Bureau of Reclamation share is \$150,000. El Paso Water Utilities’ contribution will be \$350,000.00 in cash and \$51,000.00 for in-kind services.

List of Appendices

EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program “Feasibility Studies Under Title XVI Water Reclamation and Reuse Program for Fiscal Year 2014”

FOA # R14AS00030

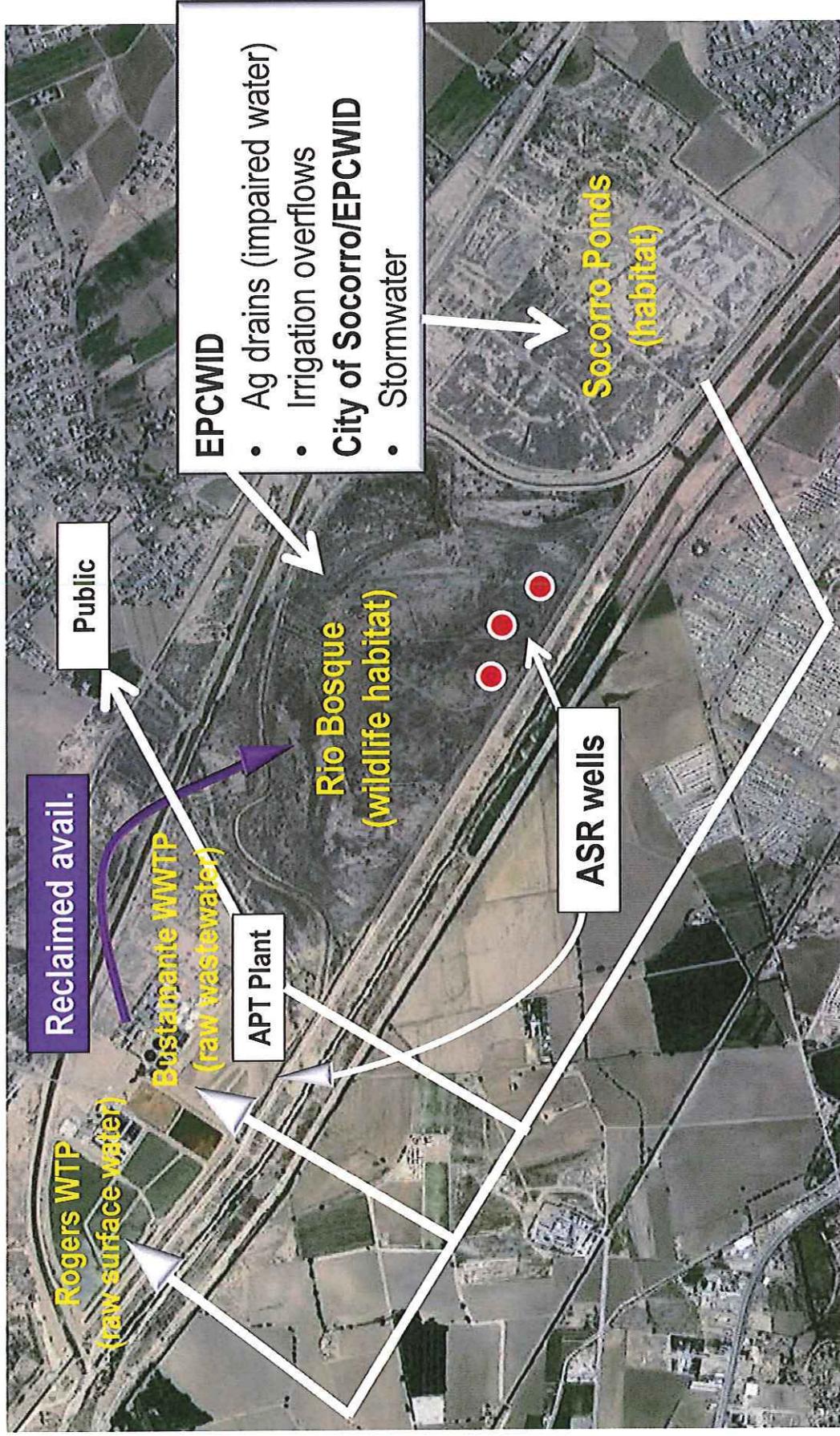
<u>Appendix Number</u>	<u>Title</u>
1	Project Location and Feature Map
2	Tables Showing Wildlife and Habitat Improvements from Proposed Project
3	Selected Page(s) from El Paso County Stormwater Master Plan
4	Selected Pages from Rio Bosque Biological Management Plan
5	Proof of Registration in System for Award Management
6	Selected Pages from EPCWID Presentation to EPWU Board Regarding Providing Surface Water to Socorro Ponds
7	Draft of May 14, 2014, EPWU Board Agenda showing Resolution Approval to USBR for this Project
8	Proposed Project Budget in USBR Format

Appendix Number 1

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

Project Location and Feature Map

Collection, Storage, Recharge and Recovery of Conserved Source Water for Advanced Purified Treatment (APT) of Reclaimed Water



Appendix Number 2

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

**Tables Showing Wildlife and Habitat Improvements from
Proposed Project**

How does the proposal contribute to the conservation of waterfowl habitat?

- A. **High Priority Species:** Northern Pintail, Mallard, Lesser Scaup
- B. **Other Priority Species:** Wood Duck, Redhead, Canvasback, Ring-necked Duck, American Wigeon
- C. **Other Waterfowl:** Gadwall, Blue-winged Teal, Cinnamon Teal, Northern Shoveler, Green-winged Teal, Bufflehead

NARRATIVE

1. Describe how the proposal will aid in meeting objectives of waterfowl conservation plans.

The wetland habitats enhanced and established through this project will provide important cover, resting areas and diverse food supplies for Central Flyway migrants, including the priority species and other waterfowl listed above. By providing wintering and migratory habitats needed to return these species to their northern breeding grounds in good physiological condition, the project will contribute to achieving North American Waterfowl Management Plan (NAWMP) population objectives, especially for **Northern Pintail, Mallard and American Wigeon**, all of which are common migrants and winter residents at Rio Bosque Wetlands Park. These benefits will be of greatest importance for **Northern Pintail and American Wigeon**, both currently below their NAWMP population objectives. In the case of **Mallard**, the project will establish some breeding habitat for “**Mexican**” **Mallards**.

2. For the species listed above, describe how many individuals/pairs will use the proposal area before and after the proposal is completed and for what life cycle stage(s) after the proposal is completed.

	Species	Breeding		Migration		Wintering	
		Before	After	Before	After	Before	After
High Priority	Northern Pintail	0	0	500-2000	700-2500	200-1000	250-1500
	Mallard	0	3-4 pair	750-2000	1000-2500	500-1000	600-1500
	Lesser Scaup	0	0	10-15	15-25	5-10	10-15
Priority	Wood Duck	0	1-3 pair	0-3	5-10	0-2	2-5
	Redhead	0	0-1 pair	2-10	5-20	2-10	5-15
	Canvasback	0	0	1-5	5-10	1-5	2-8
	Ring-necked Duck	0	0	8-16	30-100	8-16	10-25
	American Wigeon	0	0	750-2000	1000-3000	400-1000	500-1500
Other	Gadwall	0	0	200-400	300-600	250	300
	Blue-winged Teal	0	0-1 pair	20-30	50-100	0	0
	Cinnamon Teal	0	1-2 pair	40-60	60-120	5-10	10-15
	Northern Shoveler	0	0	200-400	300-600	250	300
	Green-winged Teal	0	0	750-2000	1000-3000	500-1000	600-1500
	Bufflehead	0	0	5-8	10-15	1-2	3-5

3. How will the proposal impact species affected and improve habitat quality (describe before- and after-proposal environment)?

Currently, Rio Bosque Wetlands Park receives water only sporadically, depending on the water demands for irrigation. The park typically receives water only in late fall and early winter, on average for approximately 3.5 months each year. Up to 100 acres can be flooded during this period, and 2,000-5,000 wintering ducks can be present. Water deliveries typically end in mid-winter when waterfowl numbers are at their peak. The park’s shallow flooded impoundments quickly drain, mainly through groundwater flux, and the birds leave. Throughout the late winter, spring, summer and early fall, the park’s impoundments are dry, and conditions suitable for development of soils and vegetation characteristic of wetlands are lacking.

The proposed project will make water available to the park throughout the year. This change will enable development of palustrine emergent marsh in some areas within the impoundments, allow moist-soil management of other areas, and promote establishment of riparian-forest habitat along the 2-mile long former bend of the Rio Grande that winds through the park.

A. NAWCA Priority Bird Species for BCR 35

Species/Plan	Numbers Affected (with Improvements)	Benefits of Project	Tract Importance
Bald Eagle NAWCA (BCR 35)	Very rare winter visitor; present some years, not others; visits have all involved single birds; stays ranged from 2 days to 3 months; expect more frequent visits with project, some possibly involving more than 1 bird.	Year-round water and resulting development of additional wetland habitat will improve conditions for prey species at park and extend period when conditions are favorable for prey species.	Rio Bosque Wetlands Park is one contiguous land tract.
Snowy Plover NAWCA (BCR 35) USSCP (Highly Imperiled)	Very rare migrant at park; only 1 record, May 2000; expect more frequent visits with project.	Provision of year-round water will provide potential migratory stopover habitat that is currently lacking.	Rio Bosque Wetlands Park is one contiguous land tract.
Long-billed Curlew NAWCA (BCR 35) USSCP (Highly Imperiled)	Rare migrant at park, very rare in winter; 1-5 birds annually; expect more frequent visits with project, to perhaps 15-20 birds annually.	Provision of year-round water will provide potential migratory stopover habitat that is currently lacking.	Rio Bosque Wetlands Park is one contiguous land tract.
Yellow-billed Cuckoo NAWCA (BCR 35)	Very rare summer visitor; 1-3 pairs formerly nested, but no nesting since extensive clearing of salt cedar at park in 1997; only 1 sighting since, in 2007. Goal: 1-3 pairs again nesting at park.	Project will increase riparian-forest habitat along old river channel and margins of flooded areas that will provide potential nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
Bell's Vireo NAWCA (BCR 35)	Fairly common summer-resident breeder; not known from park 1980-1998; 1 st appearance 1999; 1 st nesting 2005; today, 3-5 pairs; expect increase to 6-10 pairs with project.	Project will increase riparian habitat along old river channel and margins of flooded areas that will provide additional nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
Painted Bunting NAWCA (BCR 35)	Fairly common summer-resident breeder; 3-7 pairs; expect increase to 5-12 pairs with project.	Project will increase riparian habitat along old river channel and margins of flooded areas that will provide additional nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.

B. Other Wetland-Associated Bird Species

Species/Plan	Numbers Affected (with Improvements)	Benefits of Project	Tract Importance
Pied-billed Grebe NAWCP (High Concern)	1-2 pairs nested at park in 2001-2002 when water present most of year; expect to see similar numbers again with return of summer water.	Mix of open water and dense stands of emergent vegetation will provide suitable nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
Least Bittern NAWCP (High Concern)	In 1930s, a fairly common nesting species in river-valley wetlands in El Paso area; today, a very rare summer visitor in area; no records from park. Goal: To establish as nesting species at park.	Development of palustrine emergent marsh with tall, dense cattail stands will provide potential nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
Snowy Egret NAWCP (High Concern)	Nested in a mixed-species colony in salt cedars at park in 1990s; 5-50 present throughout summer in 2001-2002 when water present most of year; expect to see similar numbers again with return of summer water; future nesting possible.	Shallow partial flooding in wetland areas will provide favorable conditions for foraging; development of riparian-forest habitat along old river channel and margins of flooded areas will provide potential nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
White-faced Ibis NAWCP (Low Concern) Texas Status <i>Threatened</i>	Common migrant in El Paso area, rare in summer and winter; 20-60 regularly at park in winter; in 2001-2002 when water present most of year, 400+ seen in during spring migration and up to 40 in summer; expect to see similar numbers again with project.	Shallow partial flooding in wetland areas will provide favorable conditions for foraging and roosting during migration; development of palustrine emergent marsh could potentially lead to future nesting.	Rio Bosque Wetlands Park is one contiguous land tract.
Black-necked Stilt USSCP (Low Concern)	15-20 pairs nested at park in 2001-2002 when water present most of year; expect to see similar numbers again with return of summer water	Shallow partial flooding in wetland areas should create favorable nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.
American Avocet USSCP (Moderate Concern)	15-20 pairs nested at park in 2001-2002 when water present most of year; expect to see similar numbers again with return of summer water	Shallow partial flooding in wetland areas should create favorable nesting habitat.	Rio Bosque Wetlands Park is one contiguous land tract.

Appendix Number 3

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

Selected Page(s) from El Paso County Stormwater Master Plan

El Paso County Stormwater Master Plan

August 2010

Prepared for:

El Paso Water Utilities
1154 Hawkins Boulevard
El Paso, Texas 79961



Texas Water Development Board
1700 N. Congress Avenue
Austin, TX 78711

and

El Paso County
500 E. San Antonio
El Paso, TX 79901



Prepared by:

URS Corporation
Austin, TX, Albuquerque, NM

The URS logo consists of the letters "URS" in a bold, blue, sans-serif font.

Appendix Number 4

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

Selected Pages from Rio Bosque Biological Management Plan

A Biological Management Plan for Rio Bosque Wetlands Park



City of El Paso, Texas
University of Texas at El Paso

October 2002



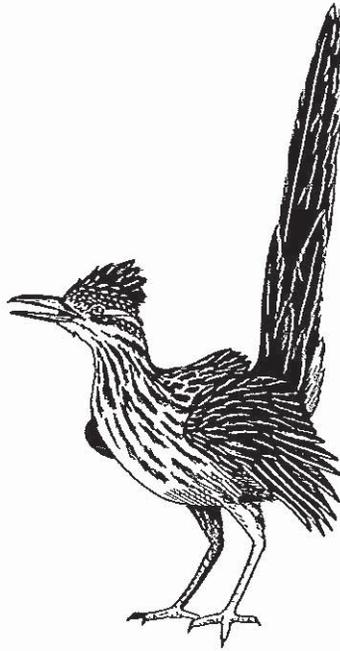
A Biological Management Plan for Rio Bosque Wetlands Park

October 2002

City of El Paso, Texas
Parks & Recreation Department

University of Texas at El Paso
Biological Sciences Department
Center for Environmental Resource Management

Funding for the preparation of this Biological Management Plan was provided, in part, through a grant from the U.S. Environmental Protection Agency's Wetlands Program, (Grant Agreement No. CD986224-01-0). The statements, findings, conclusions, recommendations, and other data in this report are solely those of the grantee and contractors, and do not necessarily reflect the views of the Environmental Protection Agency.



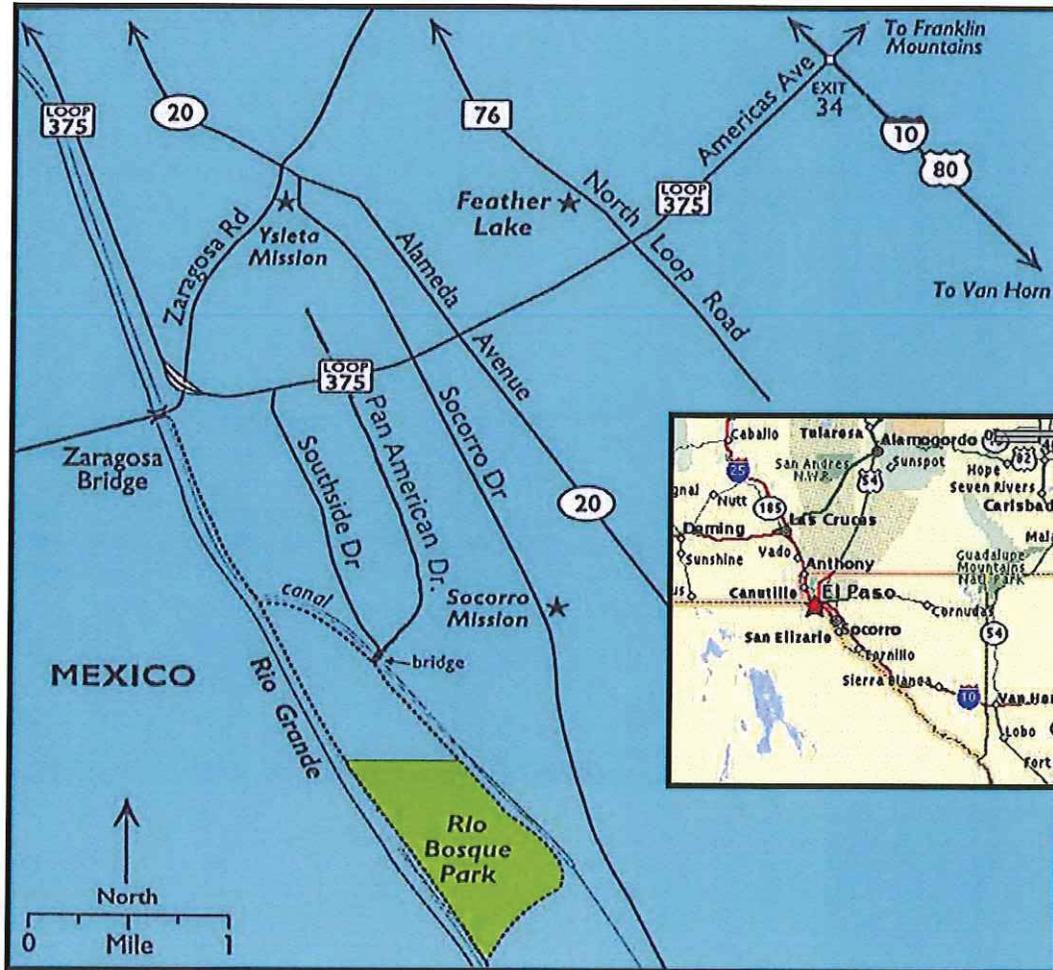
Greater Roadrunner
Geococcyx californianus

Printed October 2002
City of El Paso, Texas

Principal Authors:

Susan H. Watts, Ph.D.
John Sprout
Ed Hamlyn, AICP

Center for Environmental Resource Management
University of Texas at El Paso
500 West University Avenue
El Paso, Texas 79968



Appendix Number 5

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

Proof of Registration in System for Award Management

Mike P. Fahy

From: notification@sam.gov
Sent: Tuesday, November 13, 2012 9:26 AM
To: Mike P. Fahy
Subject: Invitation to join an Entity

This email was sent by an automated administrator. Please do not reply to this message.

Dear MIKE FAHY, This email is to notify you that you have been invited to register in the U.S. federal government's System for Award Management (SAM).

Entity: 'EL PASO WATER UTILITIES PUBLIC SERVICE BOARD' Please click on the following link to review the invitation and take the desired action.

<https://www.sam.gov/portal/public/SAM?invitationId=8067&fn=hvMgezCUlroN67gwAscFjw==&ln=noYBaV4N6sbvcapnIfJkIA==&em=qxde4krjfpHP+P+rbHDflw==>

You may also copy and paste the URL into your browser address line to go directly to the web page. For assistance, please contact the Federal Service Desk at www.fsd.gov or by telephone at 866-606-8220 (toll free) or at 334-206-7828 (internationally).

Thank you,
The System for Award Management (SAM) Administrator

Register New Entity

Account Settings

Data Access

General

DUNS: _____

DoDAAC: _____

Office Code: _____

SEARCH CLEAR

Entity List	Registration Details
<p>EL PASO WATER UTILITIES PUBLIC SERVICE BOARD</p>	<p>Entity Name: EL PASO WATER UTILITIES PUBLIC SERVICE BOARD</p> <p>Entity Details</p> <p>DUNS Number: 148678837</p> <p>Address Line 1: 1154 HAWKINS BLYD</p> <p>Address Line 2:</p> <p>City: EL PASO</p> <p>State / Province: TX</p> <p>Country: UNITED STATES</p> <p>ZIP/Postal Code: 79925 - 6436</p> <p>Registration Status: Active</p>

Appendix Number 7

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

**Draft of May 14, 2014, EPWU Board Agenda showing Resolution
Approval to USBR for this Project**

DRAFT #8

NOTICE: The regular meeting of the Public Service Board will be held at **8:00 a.m., Wednesday, May 14, 2014**, at the Public Service Board Meeting Room, 1154 Hawkins Boulevard, El Paso, Texas.

**CITY OF EL PASO
PUBLIC SERVICE BOARD
AGENDA**

May 14, 2014

8:00 a.m.

NOTICE TO THE PUBLIC

All matters listed under the CONSENT AGENDA will be considered by the Public Service Board to be routine and will be enacted by one motion in the form listed below. There will be no separate discussion of these items unless members of the Board or persons in the audience request specific items be removed from the CONSENT AGENDA to the REGULAR AGENDA for discussion prior to the time the Public Service Board votes on the motion to adopt the CONSENT AGENDA. The Public Service Board may reconsider an agenda item at any time prior to adjournment. Comment as to any regular agenda item may be allowed by the Chair at its discretion. Reasonable time limits may be imposed by the Chair.

CALL TO ORDER
ESTABLISHMENT OF A QUORUM
MOMENT OF SILENT PRAYER
PLEDGE OF ALLEGIANCE

CONSENT AGENDA

1. Consider approval of the minutes of the regularly scheduled meeting held on April 9, 2014.
- 2.
- 3.
4. .

REGULAR AGENDA

- 5.
- 6.
- 7.
- 8.
- 9.

REGULAR AGENDA (Continued)

- 10.
- 11.
- 12.
- 13.
- 14.
- 15.
- 16.
- 17.

18. Consider and adopt a resolution authorizing the President/CEO of El Paso Water Utilities (EPWU) to submit an application to the United States Bureau of Reclamation (USBR) for \$150,000 in grant funds from the 2014 WATERSMART Program for Development of Feasibility Studies under the Title XVI Water Reclamation and Reuse Program for FY 2014, to evaluate the feasibility of the Collection, Storage, Recharge and Recovery of Conserved and Reclaimed Source Waters for the Advanced Purified Water Treatment Plant. *(Hector/Mike)*

19. Management Report.
 - Update on Trip to Washington, D.C.
 - TecH2O Water Resources Learning Center Update
 - Drought Update

20. Public Comment: The PSB will permit public comment on any item not on the agenda. The Chair may impose reasonable time limits for each speaker.

Appendix Number 8

(EPWU Proposal for 2014 WaterSmart: Title XVI Feasibility Program)

Proposed Project Budget in USBR Format

Appendix Number 8: Budget Proposal

EPWU Proposal for 2014 WaterSmart Program; Date: April 28, 2014
"Feasibility Studies under Title XVI, Water Reclamation and Reuse Program"
 Funding Opportunity Announcement No. R14AS00030

**Title: Collection, Storage, Recharge and Recovery of Conserved Source Waters for
 Advanced Purified Treatment of Reclaimed Waters**

<u>Employees: (Hours and Rate)</u>	<u>Quantity</u>	<u>Unit Value (\$)</u>	<u>In-Kind Services</u>	<u>Dollar Value (\$):</u>	
				<u>EPWU (Cash)</u>	<u>U. S. Bureau of Reclamation (Cash)</u>
John Balliew, CEO/Proj. Manager	25	\$96.15	\$ 2,403.75	\$ -	\$ -
Hector Gonzalez, Asst. Proj. Mgr.	55	\$57.95	\$ 3,187.25	\$ -	\$ -
Michael Fahy, Grant Manager	154	\$70.00	\$ 10,780.00	\$ -	\$ -
Alan Shubert, V.P. Oper./Engr.	40	\$76.92	\$ 3,076.80	\$ -	\$ -
Gilbert Trejo, Chief Tech. Officer	50	\$70.00	\$ 3,500.00	\$ -	\$ -
Robert Riley, Engineer Supervisor	70	\$42.73	\$ 2,991.10	\$ -	\$ -
Aide Zamarron, Project Engineer	240	\$30.59	\$ 7,341.60	\$ -	\$ -
Irma Finlay, Payroll Specialist	109	\$17.59	\$ 1,917.31	\$ -	\$ -
Jeff Tepsick, Fiscal Oper. Mgr.	20	\$35.21	\$ 704.20	\$ -	\$ -
Subtotals:			\$ 35,902.01	\$ -	\$ -
 <u>Fringe Benefits: (Hours and Rate)</u>					
John Balliew, CEO/Proj. Mgr.	25	\$30.47	\$ 761.75	\$ -	\$ -
Hector Gonzalez, Asst. Proj. Mgr.	55	\$18.40	\$ 1,012.00	\$ -	\$ -
Alan Shubert, V.P. Oper./Engr.	40	\$24.45	\$ 978.00	\$ -	\$ -
Gilbert Trejo, Chief Tech. Officer	50	\$23.00	\$ 1,150.00	\$ -	\$ -
Robert Riley, Engineer Supervisor	70	\$13.60	\$ 952.00	\$ -	\$ -
Aide Zamarron, Project Engineer	240	\$9.75	\$ 2,340.00	\$ -	\$ -
Irma Finlay, Payroll Specialist	109	\$5.80	\$ 632.20	\$ -	\$ -
Jeff Tepsick, Fiscal Oper. Mgr.	20	\$11.45	\$ 229.00	\$ -	\$ -
Subtotal:			\$ 8,054.95	\$ -	\$ -
 <u>Travel: (miles)</u>					
Mileage (to/from sites)	491.00	\$0.56	\$ 274.96	\$ -	\$ -
 <u>Supplies/Materials/ Services:</u>					
Water Sample Testing (No. samples, Unit cost)	20	\$ 340.00	\$ 6,800.00	\$ -	\$ -
 <u>Environmental, Cultural Resource Compliance</u>					
-USBR	15	15	\$ -	\$ -	\$ 6,000.00
 <u>Contractual Agreements:</u>					
 <u>Technical/Engin. Consultant</u> (Qualifications-Based Selection)					
<u>USBR Cash</u>					
Project Lead Engineer	75	\$200.00			\$15,000.00
Project Engineer	790	\$130.00			\$102,700.00
Technicians	329	\$80.00			\$26,320.00
 <u>EPWU Cash</u>					
Project Lead Engineer	150	\$200.00		\$30,000.00	
Project Engineer	1000	\$130.00		\$130,000.00	
Hydrologist	650	\$180.00		\$117,000.00	
Technicians	813	\$80.00		\$65,040.00	
Travel (6 man-trips)	6	\$1,000.00		\$6,000.00	
 <u>Report Preparation:</u>					
Printing, Binding, Distr.	4000 (pages)	\$0.50		\$2,000.00	\$ -
Totals:			\$ 51,031.92	\$350,040.00	\$ 150,020.00
Total Estimated Project Cost:		Cash Only:	\$ 500,060.00	Cash & In-Kind:	\$ 551,091.92

Budget Proposal

**EPWU Proposal for 2014 WaterSmart Program;
"Feasibility Studies under Title XVI, Water Reclamation and Reuse Program"**

Date: April 28, 2014

Funding Opportunity Announcement No. R14AS00030

**Title: Collection, Storage, Recharge and Recovery of Conserved Source Waters for
Advanced Purified Treatment of Reclaimed Waters**

			<u>Dollar Value (\$):</u>		
<u>Employees: (Hours and Rate)</u>	<u>Quantity</u>	<u>Unit Value (\$)</u>	<u>In-Kind Services</u>	<u>EPWU (Cash)</u>	<u>U. S. Bureau of Reclamation (Cash)</u>
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