Texas Water Development Board

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TO: Board Members

THROUGH: Jeff Walker, Executive Administrator
John T. Dupnik, P.G., Deputy Executive Administrator, Water Science & Conservation
Todd Chenoweth, General Counsel
Rebecca Trevino, Chief Financial Officer

FROM: Cameron Turner, Manager, Agricultural Water Conservation
Kevin Kluge, Director, Conservation & Innovative Water Technology

DATE: March 28, 2019

SUBJECT: Fiscal Year 2019 Agricultural Water Conservation Grants

ACTION REQUESTED

Consider authorizing the Executive Administrator to negotiate and execute contracts for Fiscal Year 2019 agricultural water conservation grants.

BACKGROUND

The Texas Water Development Board's (TWDB) Agricultural Water Conservation Grants Program annually offers grant funding to state agencies and political subdivisions for activities that promote water conservation in the state. Grant topics vary from year to year to address current issues in agricultural water conservation.

On October 16, 2018, the Board authorized the Executive Administrator to publish a request for applications for Fiscal Year 2019 agricultural water conservation grants, with up to $600,000 in funding available for the following activity:

Irrigation efficiency and system improvements

(maximum 50 percent reimbursement of eligible equipment, materials, and supplies)

Funding is available for the purchase of agricultural water conservation equipment, materials, and supplies designed to monitor irrigation water use, implement irrigation scheduling, and/or improve upon irrigation efficiency. Examples of eligible expenses include, but are not limited to, soil moisture and crop stress monitoring devices, remote management of irrigation systems, telemetry, automated gates, supervisory

Our Mission
To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas

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control and data acquisition, weather stations, metering equipment, and materials and supplies for infrastructure improvements in irrigation conveyance systems. Funding recipients must submit annual reports with irrigation water use data and an estimate of actual water savings realized through the implementation of the project for a period of five years following installation or construction completion.

KEY ISSUES

The request for applications appeared in the *Texas Register* on October 26, 2018. Contract Administration received 13 applications by the January 16, 2019, application deadline, requesting $1,660,802.42 in grant funding assistance. Table 1 includes a list of all applicants and the amounts requested.

Table 1. Applications received for Fiscal Year 2019 agricultural water conservation grants.

Entity	Amount requested
Adams Gardens Irrigation District No. 19	$18,000.00
Bayview Irrigation District No. 11	$150,000.00
Cameron County Irrigation District No. 6	$105,000.00
Cibolo Creek Municipal Authority	$12,000.00
Edwards Aquifer Authority	$100,000.00
El Paso County Water Improvement District No. 1	$200,000.00
Evergreen Underground Water Conservation District	$150,000.00
High Plains Underground Water Conservation District No. 1	$250,000.00
Lake Proctor Irrigation Authority	$76,952.19
Mesquite Groundwater Conservation District	$25,000.00
North Plains Groundwater Conservation District	$400,000.00
Panhandle Groundwater Conservation District	$150,000.00
Texas A&M AgriLife Extension	$23,850.23
Total	**$1,660,802.42**

A technical review panel reviewed and ranked the applications according to the rules contained in 31 Texas Administrative Code Chapter 367, ranking criteria outlined in the request for applications, and the application instructions.

Table 2 includes the top five applicants, amounts requested, and the grant funding recommendations. Additional information on the recommended projects may be found in Attachment A, along with more information on other project proposals in Attachment B.

Table 2. Top-ranked applications and funding recommendations.

Rank	Entity	Amount requested	Funding recommendation
1	Cameron County Irrigation District No. 6	$105,000.00	$97,500.00
2	High Plains Underground Water Conservation District No. 1	$250,000.00	$230,000.00
3	Lake Proctor Irrigation Authority	$76,952.19	$70,000.00
4 (tie)	El Paso County Water Improvement District No. 1	$200,000.00	$180,000.00
4 (tie)	Mesquite Groundwater Conservation District	$25,000.00	$22,500.00
	Total	**$656,952.19**	**$600,000.00**

RECOMMENDATION

The Executive Administrator recommends approval of this item, as the projects will further water conservation in the state by supporting the implementation of the irrigation conservation water management strategies identified in the 2017 State Water Plan.

Attachments:

Attachment A: Summary of applications recommended for funding
Attachment B: Summary of all other applications received

Attachment A

Summary of applications recommended for funding

Cameron County Irrigation District No. 6
Bennett and Swan Nelson Canal Improvements

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$105,000.00
Local cash or in-kind	$291,912.00
Total study cost	$396,912.00

This project is recommended for TWDB grant funding, in an amount not to exceed $97,500.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:
The Cameron County Irrigation District No. 6 (District) and agricultural producers

Project area:
This project would occur within the boundaries of the District in the Rio Grande Regional Water Planning Area (Region M).

Project summary:
The project would convert 5,520 linear feet of earthen canals into PVC pipeline, conserving an estimated 317 acre-feet per year. The project would also improve public safety as one of the canals runs parallel to a public roadway. The District would develop engineering plans and conduct any necessary environmental assessments prior to construction. Following installation, the District would host an educational workshop at the Rio Grande Center for Ag Water Efficiency for board members, staff, agricultural producers, and other interested parties to discuss the conservation success of the project.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Rio Grande Regional Water Plan (Region M). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year construction period, followed by five years of reporting irrigation water use data and water savings information.

El Paso County Water Improvement District No. 1
Franklin Feeder Canal Lining Project

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$200,000.00
Local cash or in-kind	$913,360.00
Total study cost	$1,113,360.00

This project is recommended for TWDB grant funding, in an amount not to exceed $180,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:
The El Paso County Water Improvement District No. 1 (District) and agricultural producers

Project area:
The project would occur within the boundaries of the District in the Far West Texas Regional Water Planning Area (Region E).

Project summary:
This project would involve using reinforced concrete to line 5,500 feet of canal, generating an estimated 376 acre-feet per year in water savings. The District's application highlights that surface water users in the region are currently experiencing near drought of record conditions, with the Elephant Butte Reservoir dropping to about 3 percent of capacity in late 2018. The application boasts project support from multiple local, state, and federal water stakeholders in the region. The District would hold several meetings with agricultural producers, communities, and regional water stakeholders and elected officials to promote the conservation success of the project.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Far West Texas Regional Water Plan (Region E). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year construction period, followed by five years of reporting irrigation water use data and water savings information.

High Plains Underground Water Conservation District No. 1
Assistance in Irrigation Management

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$250,000.00
Local cash or in-kind	$310,000.00
Total study cost	$560,000.00

This project is recommended for TWDB grant funding, in an amount not to exceed $230,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:
The High Plains Underground Water Conservation District No. 1 (District) and agricultural producers

Project area:
The project would occur within the boundaries of the District, primarily in the Llano Estacado Regional Water Planning Area (Region O), and partially in the Panhandle Regional Water Planning Area (Region A).

Project summary:
This project would involve cost share opportunities for agricultural producers to purchase and install telemetry equipment that would be connected with existing center pivot and subsurface drip irrigation systems. The program allows the district to quantify water savings acquired from the irrigation management equipment. The District experienced high demand for cost share funding through this program in recent years and was unable to fund all eligible applicants through previous TWDB funding allocations. If funded, the District intends to tailor outreach efforts towards agricultural producers in areas lacking in participation and experiencing the most declining aquifer levels. The District would also develop videos for social media and other online promotion of the agricultural producers' conservation efforts.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Llano Estacado Regional Water Plan (Region O). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a one-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Lake Proctor Irrigation Authority
Irrigation Conservation Project

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$76,952.19
Local cash or in-kind	$81,052.19
Total study cost	$158,004.38

This project is recommended for TWDB grant funding, in an amount not to exceed $70,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:
The Lake Proctor Irrigation Authority (Authority) and agricultural producers

Project area:
The project would occur within the boundaries of the Authority in the Brazos Regional Water Planning Area (Region G).

Project summary:
This project would involve the purchase and installation of an automated control system for the seventeen pecan growers served by the Authority's subsurface drip irrigation distribution system. The automated control system would provide reliable, cost-effective filtration, real-time moisture monitoring, allow for irrigation scheduling, provide alerts of system performance issues, and the ability to remotely turn off irrigation pumps to prevent damage to the system and provide conservation benefits. These upgrades are anticipated to improve irrigation uniformity and provide a 30 percent improvement in irrigation efficiency. The Authority would also host an agricultural field day to inform and educate the public on the benefits of conserving water and power, and how the system improves irrigation water efficiency for the agricultural producers.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Brazos Regional Water Plan (Region G). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a one-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Mesquite Groundwater Conservation District
Irrigation Water Use Measurement

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$25,000.00
Local cash or in-kind	$25,000.00
Total study cost	$50,000.00

This project is recommended for TWDB grant funding, in an amount not to exceed $22,500.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:
The Mesquite Groundwater Conservation District (District) and agricultural producers

Project area:
The project would occur within the boundaries of the District, primarily in the Region B Regional Water Planning Area, and partially in the Llano Estacado Regional Water Planning Area (Region O).

Project summary:
This project would involve cost share opportunities for agricultural producers to purchase and install metering equipment on their irrigation systems. The meters would provide participating agricultural producers with a tool to understand baseline water use and improve upon their irrigation water management. The data obtained through the meters would improve upon the District's ability to make informed decisions regarding the current state of the aquifers within their jurisdiction, by monitoring the groundwater production and measuring the impacts to water levels in each aquifer. The District's rules require metering of all non-exempt water production. This project would provide cost share funding opportunities to agricultural producers within the District, as well as agricultural producers interested in annexing additional parcels into the District's territory.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Llano Estacado Regional Water Plan (Region O). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Attachment B

Summary of all other applications received

Adams Gardens Irrigation District No. 19
System Interconnection with La Feria Irrigation District Cameron County No. 3

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$18,000.00
Local cash or in-kind	$65,338.00
Total study cost	$83,338.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The Adams Gardens Irrigation District No. 19 (District) and La Feria Irrigation District Cameron County No. 3

Project area:
This project would occur within the boundaries of the District in the Rio Grande Regional Water Planning Area (Region M).

Project summary:
This project would involve the construction of an interconnect with the La Feria Irrigation District's Wilson Canal, which transects the Adams Gardens Irrigation District's service area. The District would develop engineering plans and conduct any necessary environmental assessments, and then install a 30-inch PVC pipe, flow meter, and an aluminum gate. The interconnect would improve the irrigation delivery efficiency to the 2,076 acres in the northern portion of the District by 30 percent, generating an estimated 623 acre-feet of water savings, annually.

The project would also involve an educational seminar at the Rio Grande Center for Ag Water Efficiency. The purpose of the seminar is to education the board members and staff of both districts, agricultural producers, and other interested parties, of the conservation success and benefits of interconnecting the two districts.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Rio Grande Regional Water Plan (Region M). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year construction period, followed by five years of reporting irrigation water use data and water savings information.

Bayview Irrigation District No. 11
Main Canal Pipe Conversion Project, Phase 1
Water Conservation through Improved Efficiency

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$150,000.00
Local cash or in-kind	$155,700.00
Total study cost	$305,700.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The Bayview Irrigation District No. 11 (District), the City of Los Fresnos, the Arroyo Colorado Watershed Partnership, and agricultural producers

Project area:
The project would occur within the boundaries of the District in the Rio Grande Regional Water Planning Area (Region M).

Project summary:
This project would convert 1,350 linear feet of the District's main canal to 48-inch PVC pipe, generating an annual water savings of approximately 63 acre-feet. This is the first phase of a larger project, envisioned to convert the entire 6.88 miles of the District's main canal to pipeline. The City of Los Fresnos agreed to provide $150,000 in funding towards the project, as the long-term vision supports their health and recreation goals by including a hike-and-bike trail along the pipeline, and future phases would improve emergency drainage assistance to help protect lives and property from flooding. The project is also supported through outreach efforts of the Arroyo Colorado Watershed Partnership, a joint initiative involving the Texas Water Resources Institute, Texas A&M AgriLife, the Texas State Soil and Water Conservation Board, and the Texas Commission on Environmental Quality.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Rio Grande Regional Water Plan (Region M). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
This project would involve a two-year construction period, followed by five years of reporting irrigation water use data and water savings information.

Cibolo Creek Municipal Authority
Irrigation Pump Equipment Cost Share

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$12,000.00
Local cash or in-kind	$16,838.00
Total study cost	$28,838.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The Cibolo Creek Municipal Authority (Authority) and reclaimed water customers

Project area:
This project would occur within the boundaries of the Authority in the South Central Texas Regional Water Planning Area (Region L).

Project summary:
This project would involve the purchase and installation of a pump serving the Authority's reclaimed water distribution system. The Authority provides reclaimed wastewater as a source of irrigation for agricultural fields and other reclaimed water customers, such as the Schertz-Cibolo-Universal City Independent School District. The project would occur at the OJR Wastewater Plant in Bexar County. The Authority provides educational and informational tours of the wastewater plant, which highlights the irrigation system.

According to the Authority's application, the implementation of an irrigation conservation water management strategy in the state or regional water plan is not applicable to this equipment cost share grant. If funded, however, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a one-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Edwards Aquifer Authority
Irrigation Efficiency Improvement Program

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$100,000.00
Local cash or in-kind	$115,000.00
Total study cost	$215,000.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The Edwards Aquifer Authority (Authority) and participating agricultural producers

Project area:
The project would occur within the boundaries of the Authority in the South Central Texas Regional Water Planning Area (Region L).

Project summary:
This project involves the administration of a competitive conservation grant program. The program is designed to assist agricultural producers with implementing conservation plans and improving water use efficiency. The Authority solicits applications from irrigation permit holders and selects projects that result in the installation of efficient irrigation systems and technologies, thus eliminating outdated and inefficient irrigation methods. Examples include upgrades to more efficient sprinkler heads on linear and center pivot sprinkler systems or installing drip irrigation. Based upon funding provided in previous years, the average project results in a 44 percent efficiency improvement. This translates to an estimated annual water savings of 99 acre-feet per year.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 South Central Texas Regional Water Plan (Region L). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Evergreen Underground Water Conservation District
Purchase of Water Measuring Devices for
Agricultural Water Conservation Monitoring

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$150,000.00
Local cash or in-kind	$150,000.00
Total study cost	$300,000.00

This project is not recommended for TWDB grant funding at this time.

Participants:
Evergreen Underground Water Conservation District (District) and agricultural producers

Project area:
This project would occur within the boundaries of the District in the South Central Texas Regional Water Planning Area (Region L).

Project summary:
This project would involve the purchase and installation of irrigation metering equipment on participating agricultural producers' irrigation systems. The project would assist the District to monitor groundwater withdrawals and determine the effects of groundwater pumping on the Carrizo-Wilcox Aquifer within the district. Recent oil and gas activity in the region prompted the District to consider improving upon other water users' reports. Agricultural producers currently have the option to report usage based on alternative reporting methods, but the District anticipates the cost share opportunities available through the grants program would entice participation in a voluntary irrigation metering program.

This project supports the implementation of the groundwater sustainability and irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 South Texas Central Regional Water Plan (Region L). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):

The project would involve a three-year installation period, followed by five years of reporting irrigation water use data and water savings information.

North Plains Groundwater Conservation District
Master Irrigator Conservation Initiative

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$400,000.00
Local cash or in-kind	$400,000.00
Total study cost	$800,000.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The North Plains Groundwater Conservation District (District) and agricultural producers

Project area:
The project would occur within the boundaries of the District in the Panhandle Regional Water Planning Area (Region A).

Project summary:
This project would support the District's award-winning Master Irrigator Program. Agricultural producers selected to participate in the program during 2020 would receive access to cost share funding for irrigation scheduling technologies and equipment upgrades. The program was supported with $1.6 million in funding for the 2016–2019 program years by the U.S. Department of Agriculture – Natural Resources Conservation Service. Upon successful completion of the 2020 Master Irrigator Program, the participating agricultural producers would be eligible for up to 50 percent cost share of eligible conservation practices. The District anticipates the project would result in water savings of approximately 800 acre-feet per year.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Panhandle Regional Water Plan (Region A). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Panhandle Groundwater Conservation District
Agricultural Production Metering

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$150,000.00
Local cash or in-kind	$256,262.00
Total study cost	$406,262.00

This project is not recommended for TWDB grant funding at this time.

Participants:
The Panhandle Groundwater Conservation District (District) and agricultural producers

Project area:
The project would occur within the boundaries of the District in the Panhandle Regional Water Planning Area (Region A).

Project summary:
This project would allow the District to expand upon their existing metering program. The District recently revised their rules to require meters on all production wells or irrigation systems. The project would provide agricultural producers with cost share funding for the purchase of metering equipment, providing an incentive to participate in the project and gain compliance with District rules. The data from the meters would also assist the District in making informed decisions, improved pumping estimates, and management of the aquifer.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 Panhandle Regional Water Plan (Region A). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
The project would involve a two-year installation period, followed by five years of reporting irrigation water use data and water savings information.

Texas A&M AgriLife Extension Service
Leak Detection and Condition Assessment of Irrigation District Canals and Pipelines

Requested project funding, local match, and funding recommendation:

TWDB amount requested	$23,850.23
Local cash or in-kind	$111,222.00
Total study cost	$135,072.23

This project is not recommended for TWDB grant funding at this time.

Participants:
Texas A&M AgriLife Extension (AgriLife), the Lower Colorado River Authority (LCRA), and irrigation districts in the Lower Rio Grande Valley

Project area:
This project would occur in the Lower Colorado Regional Water Planning Area (Region K) and the Rio Grande Regional Water Planning Area (Region M).

Project summary:
This project would equip an unmanned aerial vehicle (UAV) with a new multispectral, high-resolution, radiometric thermal camera, and ground-penetrating radar sensor. AgriLife would assist irrigation districts in the Lower Rio Grande Valley, as well as the LCRA's downstream irrigation divisions, with the detection of leaks in their conveyance systems. This effort is similar to work that was done in the mid-2000's using fixed-wing aircraft equipped with visual, thermal, and multi-spectral cameras. Technology advancements, along with proven research from the Texas A&M University System's 2015 Water Seed Grant Program, resulted in the development of a more cost-effective and feasible solution to detecting leaks within open canals and pipelines. AgriLife would demonstrate the system to at least six irrigation districts through the project.

This project supports implementation of irrigation conservation water management strategies in the 2017 State Water Plan, the 2016 Lower Colorado Regional Water Plan (Region K), and the 2016 Rio Grande Regional Water Plan (Region M). If funded, the project would serve the public interest and further water conservation in the state. The TWDB grant funding would supplement rather than replace the funding of the applicant.

Project duration (to be determined during contract negotiations, if funded):
This project would involve a three-year demonstration period, followed by the submission of a comprehensive final report.