

AGENDA ITEM MEMO

BOARD MEETING DATE: May 6, 2021

TO: Board Members

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

FROM: Kyla Peterson, Agricultural Water Conservation
John Sutton, Conservation & Innovative Water Technologies

SUBJECT: Fiscal Year 2021 Agricultural Water Conservation Grants

ACTION REQUESTED

Consider authorizing the Executive Administrator to negotiate and execute contracts for Fiscal Year 2021 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 and to support water management strategies that are outlined in the 2021 Regional Water Plans.

On November 20, 2020, the Board authorized the Executive Administrator to publish a Request for Applications for Fiscal Year 2021 Agricultural Water Conservation Grants, with up to \$1.2 million in funding available for projects that achieve one or more of the following goals:

- A. Improve irrigation efficiency through irrigation system improvements, such as the adoption of irrigation scheduling practices and irrigation district interconnections
- B. Enhance resilience to weather extremes and climate variability
- C. Promote innovation in agriculture by incorporating the latest water conservation technological advancements

Our Mission

Leading the state's efforts in ensuring a secure water future for Texas and its citizens

Board Members

Brooke T. Paup, Chairwoman | Kathleen Jackson, Board Member

Jeff Walker, Executive Administrator

To achieve these goals, projects should incorporate the following actions and objectives:

1. Engage agricultural producers and water managers through educational outreach in the form of field days, workshops, seminars, and demonstrations in classroom settings and on farms involved in the projects
2. Promote the adoption of innovative water conservation practices and technologies that result in improvements to irrigation efficiency, soil health, and soil moisture retention
3. Identify methods to measure and report water conservation performance metrics such as water savings, soil water holding capacity, soil moisture content, plant available water, and infiltration
4. Determine the long-term sustainability, feasibility, and profitability of the conservation practice(s) by quantifying the return on investment
5. Build upon the success of existing water conservation efforts
6. Leverage funding support from local, state, federal, and private industry partners

KEY ISSUES

The Request for Applications was published in the *Texas Register* and on the TWDB website. Procurement & Contract Services received 29 applications in response to the solicitation, with applicants requesting a total of \$6,570,461 in grant funding assistance. Attachment A includes a list of all applications by entity along with project titles, grant funding requests, and total project costs. Table 1 includes the top-ranking seven applicants, amounts requested, and grant funding recommendations. Additional information on the applications received may be found in Attachment A, along with a summary of the recommended projects in Attachment B.

Table 1. Top-ranked applications and funding recommendations.

Rank	Entity	Amount requested	Funding recommendation
1	Texas Tech University	\$203,054	\$203,054
2	North Plains Groundwater Conservation District	\$250,000	\$250,000
3	Santa Cruz Irrigation District No. 15	\$250,000	\$250,000
4	Menard County Water Control & Improvement District #1	\$65,900	\$65,900
5	Edwards Aquifer Authority	\$100,000	\$100,000
6	Middle Pecos Groundwater Conservation District	\$200,000	\$200,000
7	Gateway Groundwater Conservation District	\$50,000	\$50,000
Total		\$1,118,954	\$1,118,954

RECOMMENDATION

The Executive Administrator recommends approval of this item, as the projects will further water conservation in the state by supporting the implementation of irrigation conservation water management strategies identified in the 2021 Regional Water Plans.

Attachment(s):

- A. List of applications
- B. Summaries of recommended projects

Attachment A: List of applications

Entity	Project	Local match	Grant request	Total cost
Cameron County ID No. 6	134, 139, and 196 canal improvements	\$201,316.00	\$205,000.00	\$406,316.00
Edwards Aquifer Authority	Irrigation Efficiency Improvement Grant Program	\$215,000.00	\$100,000.00	\$315,000.00
El Paso County WID No. 1	Riverside Reservoir Engineering Feasibility Project	\$250,000.00	\$250,000.00	\$500,000.00
Evergreen UWCD	Flow Meters Installation Project	\$50,000.00	\$50,000.00	\$100,000.00
Gateway GCD	Agricultural Production Metering	\$50,000.00	\$50,000.00	\$100,000.00
Guadalupe Blanco River Authority	Goff Bayou Radial Gate Replacement Project	\$615,809.00	\$438,260.00	\$1,054,069.00
Harlingen ID	Texas AWE: Revive, Restore, Expand	\$65,000.00	\$200,000.00	\$265,000.00
Hidalgo County ID No. 16	3,000 LF Main Canal Lining Improvements	\$209,282.54	\$585,575.00	\$794,857.54
Hidalgo County ID No. 16	5,000 Liner Foot Main Canal Lining Project	\$323,738.51	\$1,117,075.00	\$1,440,813.51
Hidalgo County ID No. 6	Education/Research Center	\$0.00	\$550,000.00	\$550,000.00
High Plains UWCD No. 1	Water Trough Recycling and Reuse Project	\$420,800.00	\$339,100.00	\$759,900.00
Maverick County WCID No. 1	Lateral 2A Pipe Installation Project	\$10,000.00	\$70,000.00	\$80,000.00
Menard County WCID No. 1	Menard Irrigation Canal Project	\$65,900.00	\$65,900.00	\$131,800.00
Middle Pecos GCD	Advancing Water Conservation in Management Zone 1	\$187,950.00	\$200,000.00	\$387,950.00
North Plains GCD	Master Irrigator Project Cost Share	\$250,000.00	\$250,000.00	\$500,000.00
Panhandle GCD	Production Metering Modernization	\$152,222.00	\$62,500.00	\$214,722.00
Plateau UWCD	Rainwater harvesting demonstration project	\$8,500.00	\$8,500.00	\$17,000.00
Presidio County	Soil Moisture Monitoring & Well Monitoring at a Date Farm	\$17,750.00	\$17,750.00	\$35,500.00
Presidio County	Water Conservation to Help Solve Food Insecurity	\$17,500.00	\$17,500.00	\$35,000.00
Reeves County WID No. 1	Channelization of Lake Balmorhea Madera Draw intake	\$150,000.00	\$150,000.00	\$300,000.00
Santa Cruz ID No. 15	R-6 Canal Piping Project	\$271,271.00	\$250,000.00	\$521,271.00
Texas A&M – Kingsville	Preparing Dryland Farming for Weather Extremes	\$0.00	\$209,972.27	\$209,972.27
Texas A&M AgriLife Extension	Improving Ag Water Management for Sustainable Farming	\$216,000.00	\$162,157.00	\$378,157.00
Texas A&M AgriLife Extension	Educating LRGV growers to optimize water	\$13,500.00	\$257,636.00	\$271,136.00
Texas A&M AgriLife Extension	Ag Water Conservation through Wireless Sensor Network	\$8,786.00	\$226,107.00	\$234,893.00
Texas A&M AgriLife Research	Evaluating Water Conservation of Ultra-Short Season Crop	\$120,826.00	\$91,741.00	\$212,567.00
Texas A&M AgriLife Research	Citrus Trees Water Conservation Project	\$181,774.00	\$181,774.00	\$363,548.00
Texas Tech University	Alternative Water Remediation	\$92,579.00	\$260,860.00	\$353,439.00
Texas Tech University	Water Conservation through Soil Health Improvement	\$35,978	\$203,054.00	\$239,032.00
Total		\$4,201,482.05	\$6,570,461.27	\$10,771,943.32

GCD – groundwater conservation district; ID – irrigation district; WCID – water control & improvement district; WID – water improvement district; UWCD – underground water conservation district; UWCD – underground water conservation & supply district

Texas Tech University
Water Conservation through Soil Health on the Texas High Plains

Project Overview:

TWDB amount requested	\$203,054
Local cash or in-kind	\$35,978
Water Savings	Research project
Total project cost	\$239,032

This project is recommended for TWDB grant funding, in an amount not to exceed \$203,054. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Texas Tech University, Texas Alliance for Water Conservation (TAWC), and agricultural producers

Project area:

This project would occur in the Llano Estacado Water Planning Area (Region O).

Project summary:

This project includes conducting research on economically viable methods of soil and crop management that conserve irrigation water. Evaluating the water use and economics of multiple species, reduced tillage, and method of termination of cover crops will enable producers to make informed decisions. Workshops and seminars are planned to share findings and water management strategies. Specific objectives are to:

- 1) monitor soil water balance on selected producers' fields where minimum tillage, crop rotation, and multi-species cover crops are compared with conventional tillage and no cover crops;
- 2) analyze economic returns of such practices; and
- 3) demonstrate and disseminate results to crop producers through field visits, online presentations, and information guides.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 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):

This project would involve a two-year research and demonstration period, followed by the five years of reporting and educational outreach.

**North Plains Groundwater Conservation District
Master Irrigator Project Equipment Cost-Share**

Project Overview:

TWDB amount requested	\$250,000
Local cash or in-kind	\$250,000
Water Savings	1,330 acre/ft/yr
Total project cost	\$500,000

This project is recommended for TWDB grant funding, in an amount not to exceed \$250,000.00. The actual local match and total project amount will be determined during contract negotiations.

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. Since 2016, 90 growers have graduated from the educational program and installed over \$1.3 million worth of conservation improvements on their farms, through funding support from the U.S. Department of Agriculture – Natural Resources Conservation Service. This round of funding includes a particular educational focus on soil health initiatives. Agricultural producers wanting to participate in the program receive access to cost share funding for irrigation scheduling technologies and equipment upgrades. The 2021 class is at capacity, with participants on a waiting list as well. The District anticipates the project would result in water savings of approximately 1,333 acre-feet per year.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 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.

**Santa Cruz Irrigation District No. 15
R-6 Canal Piping Project**

Project Overview:

TWDB amount requested	\$250,000
Local cash or in-kind	\$271,271
Water Savings	419 acre/ft/yr
Total project cost	\$521,271

This project is recommended for TWDB grant funding, in an amount not to exceed \$250,00.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:

The Santa Cruz Irrigation District No. 15 (District)

Project area:

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

Project summary:

The project consists of placing 4,515 feet of the open channel R-6 Canal into a 36 inch diameter PVC pipeline to conserve approximately 419 acre-feet of water per year, verified by a seepage study. The project will also support and encourage more efficient on-farm irrigation practices via the installation of a pipeline, which can be pressurized via the use of check gates. The District will construct monitoring wells and collect soil samples, annually, to determine if eliminating canal seepage will enhance soil health for surrounding agricultural operations. The District will conduct a seminar to present the project results. The seminar will also include the latest technological advancements used to conserve water and manage soil health.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 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.

Menard County Water Control & Improvement District #1

Menard Irrigation Canal Project

Project Overview:

TWDB amount requested	\$65,900
Local cash or in-kind	\$65,900
Water Savings	2,400 acre/ft/yr
Total project cost	\$131,800

This project is recommended for TWDB grant funding, in an amount not to exceed \$65,900.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:

The Menard County Water Control & Improvement District #1 (District)

Project area:

The project would occur within the boundaries of the District in the West Texas Regional Water Planning Area (Region F).

Project summary:

This project consists of construction on the diversion headgate of the Menard Canal as well as a conveyance pipeline for the first three miles of the canal. Investment in the project and the resulting improved water use efficiency is anticipated to conserve greater than 2,400 acre-feet annually, or 120,000 acre-feet over the life of the infrastructure. The Menard Irrigation Canal, a historic irrigation structure that dates back to 1756, is considered one of the most primitive canal systems in Texas. Current seepage losses within the first two miles of the canal are estimated to be more than 50 percent, with diversions permitted up to 4,890 acre-feet annually.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 West Texas Regional Water Plan (Region F). 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.

Edwards Aquifer Authority
Irrigation Efficiency Improvements Grants Project

Project Overview:

TWDB amount requested	\$100,000
Local cash or in-kind	\$215,000
Water Savings	99 acre/ft/yr
Total project cost	\$315,000

This project is recommended for partial TWDB grant funding, in an amount not to exceed \$100,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:

The Edwards Aquifer Authority (EAA) and 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:

The EAA Irrigation Efficiency Improvement Grant Program improves water efficiency by implementing water conservation strategies among permitted Edwards Aquifer users. Since 2016, the EAA's grant program has solicited applications from irrigation permit holders for the purchase and installation of more efficient irrigation systems and technologies. The EAA will match \$200,000 to the funds requested from the Texas Water Development Board to provide a cost incentive for local producers to adopt irrigation water conservation practices. These water conservation grants have helped implement the sprinkler and micro irrigation system best management practices for irrigation users through the installation of linear sprinklers, center pivot sprinklers, and subsurface drip irrigation sprinklers.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 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 year installation period, followed by five years of reporting irrigation water use data and water savings information.

**Middle Pecos Groundwater Conservation District
Advancing Water Conservation in Management Zone 1**

Project Overview:

TWDB amount requested	\$200,000
Local cash or in-kind	\$187,950
Water Savings	1,500 acre/ft/yr
Total project cost	\$387,950

This project is recommended for partial TWDB grant funding, in an amount not to exceed \$200,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:

The Middle Pecos Groundwater Conservation District (District), Texas Water Trade, and agricultural producers

Project area:

The project would occur within the boundaries of the District in the West Texas Regional Water Planning Area (Region F).

Project summary:

This proposal is focused on engaging agricultural producers with the objective of reducing their irrigation use in the Edwards-Trinity Aquifer to boost aquifer storage in Management Zone 1 (MZ1), the area that contributes to Comanche Springs. Using an analysis of crop types, irrigation systems and hydrological interactions, the District—working in coordination with Texas Water Trade—will incentivize water conservation measures including crop switching and irrigation efficiencies in MZ1. The District will also coordinate with well owners within MZ1 to install flow meters on irrigation wells to enable accurate measurement of water use and efficacy of water conservation strategies. The District anticipates approximately 1500 acre-feet of water saved annually from water conservation tasks enumerated in this application.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 West Texas Regional Water Plan (Region F). 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.

**Gateway Groundwater Conservation District
Agricultural Production Metering**

Project Overview:

TWDB amount requested	\$200,000
Local cash or in-kind	\$187,950
Water Savings	1,500 acre/ft/yr
Total project cost	\$387,950

This project is recommended for TWDB grant funding, in an amount not to exceed \$50,000.00. The actual local match and total project amount will be determined during contract negotiations.

Participants:

The Gateway Groundwater Conservation District (District) and agricultural producers

Project area:

The project would occur within the boundaries of the District in the North Central Regional Water Planning Area (Region B).

Project summary:

This cost-share assistance program will provide an incentive to install approximately 75 irrigation flow meters on wells drilled prior to the metering rules as well as new irrigation wells subject to these rules. The District will also sponsor educational workshops for the cooperators in the program that will cover utilizing the flowmeter for irrigation management and other water conservation practices such as cover crops and minimum tillage for improved soil health. The District will engage producers in the region to promote water conservation, irrigation metering, and soil health considerations. This project has a potential 10 percent water savings projection for baseline water use in the region.

This project supports the implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2021 North Central Regional Water Plan (Region B). 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.