

P.O. Box 13231, 1700 N. Congress Ave. Austin, TX 78711-3231, www.twdb.texas.gov Phone (512) 463-7847, Fax (512) 475-2053

AGENDA ITEM MEMO

BOARD MEETING DATE: July 24, 2025

- **TO:** Board Members
- **THROUGH:** Bryan McMath, Executive Administrator Ashley Harden, General Counsel Georgia Sanchez, Chief Financial Officer John T. Dupnik, P.G., Deputy Executive Administrator, Water Science & Conservation
- **FROM:** Antonio Delgado, Manager, Agricultural Water Conservation Erika Mancha, Director, Conservation and Innovative Water Technologies
- SUBJECT: Fiscal Year 2025 Agricultural Water Conservation Grants

ACTION REQUESTED

Consider authorizing the Executive Administrator to execute contracts for Fiscal Year 2025 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 in the 2022 State Water Plan.

On December 17, 2024, the Board authorized the Executive Administrator to publish a request for applications for Fiscal Year 2025 Agricultural Water Conservation Grants, with up to \$1.5 million in funding available for projects.

Two award categories were featured during this grant cycle. Category 1 includes conservation projects or programs that best align with 31 Texas Administrative Code Chapter 367, and Category 2 reflects programmatic needs and agency data goals to improve irrigation water use estimates and methodologies.

• Category 1: Agricultural water conservation projects - Projects that may be eligible to apply must meet the definition of a conservation program or project (31 Texas Administrative Code §367.2 and §367.3), including irrigation monitoring equipment and software, irrigation scheduling practices, irrigation conveyance efficiency improvements, rainwater harvesting for agricultural irrigation, precipitation enhancement for agriculture, demonstrations and technology transfer, and regenerative agricultural practices.

Our Mission Board Members

Leading the state's efforts in ensuring a secure water future for Texas L'Oreal Stepney, P.E., Chairwoman | Tonya R. Miller, Board Member Bryan McMath, Executive Administrator Board Members July 24, 2025 Page 2

• Category 2: Remote sensing data to assist with estimating agricultural irrigation water use projects – Projects include irrigated crop field boundary data (geospatial), tools, and training that will be used to improve upon the current estimation methodology used by the TWDB to develop annual agricultural irrigation water use estimates.

KEY ISSUES

The request for applications was published in the *Texas Register* and on the TWDB website. Thirty-seven applications were received in response to the solicitation, with applicants requesting a total of \$9,650,826 in grant funding assistance. A technical review panel reviewed and ranked the applications according to the rules contained in 31 Texas Administrative Code Chapter 367. The ranking considers administrative requirements, project details including scope and deliverables, budget and funding information, emphasizes a commitment to water conservation and its associated benefits, and how the application addresses the goals. Table 1 shows the top ranked applicants, amounts requested, and grant funding recommendations. Additional information on all applications received may be found in Attachment 1, along with summaries of the recommended projects in Attachment 2.

Entity	Amount requested	Funding recommendation
Category 1		
Cameron County Irrigation District #6	\$150,000	\$150,000
Delta Lake Irrigation District	\$150,000	\$150,000
Edwards Aquifer Authority	\$300,000	\$300,000
Lost Pines Groundwater Conservation District	\$50,000	\$50,000
Menard County Water Control & Improvement District	\$84,000	\$84,000
North Plains Groundwater Conservation District	\$750,000	\$160,595.85
Plum Creek Conservation District	\$200,000	\$200,000
United Irrigation District	\$105,404.25	\$105,404.25
Category 2		
The University of Texas at Austin	\$299,999.90	\$299,999.90
Tota	I \$2,089,404	\$1,500,000

Table 1. Top ranked applications received and TWDB funding recommendations.¹

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 in the 2022 State Water Plan.

Attachments

- 1. List of all applications
- 2. Summaries of recommended projects

¹ If during contract negotiations it is determined that a contract cannot be executed with a selected entity, contract negotiations will be extended to the next highest-ranked applicant until the funding is exhausted.

Entity	Project	Local match	Grant request	Total cost
Bayview Irrigation District #11	Main Canal Pipe Conversion, Phase 2	\$250,000	\$500,000	\$750,000
Cameron County Irrigation District #6	Aquatic Harvester to Conserve Water, Improve Irrigation Efficiency and Soil Health	\$200,000	\$150,000	\$350,000
Culberson County GCD	Advanced Metering and Monitoring System to Help Conserve Water	\$36,370	\$104,800	\$141,170
Delta County Soil And Water Conservation District #443	Creating Biochar at Scale to Increase Water Retention On Agricultural Land	\$10,000	\$295,000	\$305,000
Delta Lake Irrigation District	J-22 Canal Conversion to Pipeline Project	\$1,058,177.80	\$150,000	\$1,208,177.80
Edwards Aquifer Authority (EAA)	Funding the EAA Irrigation Efficiency Improvement Grant Program	\$300,000	\$300,000	\$600,000
Engelman Irrigation District	Main Canal Conversion to Pipeline Project	\$210,028.12	\$100,000	\$310,028.12
City Of Fort Worth – Rolling Hills Tree Farm	Irrigation Upgrade	\$42,000	\$458,000	\$500,000
Harlingen Irrigation District Cameron County #3	Adam Gardens Reservoir Improvements Project Phase 1	\$1,052,423	\$150,000	\$1,202,423
La Feria Irrigation District Cameron County #3	Engineering And Design Services to Convert Two Canals to Pipelines	\$10,000	\$190,000	\$200,000
Lost Pines GCD	Agricultural Production Meter Project	\$50,000	\$50,000	\$100,000
Menard County Water Control And Improvement District #1	Irrigation Canal Project, Phase 2 – Headgate Construction	\$0	\$84,100	\$84,100
North Plains GCD	The Master Irrigator Program Equipment Cost Share	\$805,000	\$750,000	\$1,555,000
Plum Creek Conservation District	Advancing Agricultural Resilience Through Cost Effective Ground Water Treatment in South Central Texas	\$200,000	\$200,000	\$400,000
Post Oak Savannah GCD	Statewide Field Polygon Development with Groundwater Conservation District Participation and OpenET Support	\$50,000	\$200,000	\$250,000
Prairie View A&M University	Combining Remote Sensing, Artificial Intelligence, And Field Observations to	\$0	\$256,447	\$256,447

Entity	Project	Local match	Grant request	Total cost
	Investigate Green and Blue Water Dynamics, Nutrient Stress, and Crop Health			
Texas A&M University - Kingsville	Fostering Sustainable Crop Management Practices to Mitigate Salinity Stress and Improve Soil Water Dynamics	\$108,351	\$294,672	\$403,023
Texas A&M University – Kingsville, Citrus Center	Improving Soil Moisture Retention	\$114,921.42	\$250,319.62	\$365,241.04
Texas A&M University – Kingsville, Farm Ponds	Farm Ponds: An Asset for Agricultural Water Conservation	\$93,609.23	\$249,412.19	\$343,021.42
Texas A&M University - Kingsville	Enhancing Grapefruit Agroecosystem Sustainability Through No-Till, Arbuscular Mycorrhizal Fungal Inoculation, And Salicylic Acid Treatment for Improved Water Conservation and Drought Resilience	\$0	\$95,000	\$95,000
Texas A&M University - Kingsville	Integrated Smart Irrigation Strategies for Sustainable Citrus Production in the Rio Grande Valley	\$0	\$98,787	\$98,787
Tarleton State University	Rainwater Collection	\$223,642	\$223,642	\$447,284
Texas A&M Agrilife Research	A Reproducible, Integrated Framework for Field-Level Agricultural Irrigation Water Use Estimation in Texas Using Deep Learning, Remote Sensing, And Process-Based Modeling	\$150,710	\$750,000	\$900,710
Texas A&M Agrilife Research	Irrigation Strategies for Water Conservation in Citrus Orchards	\$0	\$217,672	\$217,672
Texas A&M Agrilife Research	Optimizing Irrigation Scheduling for Sustainable Water Management in Onions	\$0	\$150,407	\$150,407

Entity	Project	Local match	Grant request	Total cost
Texas A&M Agrilife Extension Group	Enhancing Water Conservation and Soil Productivity through Microbial Inoculation in Semi-Arid West Texas	\$506,400	\$643,200	\$1,149,600
Texas A&M Agrilife Research	Remote Sensing Data to Assist with Estimating Agricultural Irrigation Water Use	\$0	\$319,991	\$319,991
Texas A&M Agrilife Research	Feasibility Study on Capturing and Reusing Flood-Irrigated Water in Arid Agriculture	\$0	\$199,998	\$199,998
Texas A&M Agrilife Research	Saving Water Resources Through Precision Irrigation: a Multi-Region Evaluation of Soil Moisture Sensors and Farmer Education for Water Conservation	\$0	\$500,299	\$500,299
Texas A&M Agrilife Research	Smart Irrigation Management to Optimize Water Use in Drought and Heat-Tolerant Tomato Varieties: Impact on Yield and Quality	\$0	\$399,598	\$399,598
Texas State University	Effect of Regenerative Agricultural Practices on Soil Water Conservation and Sustainability of Orchard (Pecan) Soil Health	\$0	\$284,079	\$284,079
Texas Tech University	Agricultural Water Sustainability Summit	\$49,293	\$20,600	\$69,893
Texas Tech University	Assess Promising Ground and Remote Sensing Irrigation Technologies and Develop New Tools to Strengthen Water Conservation Efforts in Southern Texas High Plains	\$0	\$250,000	\$250,000
United Irrigation District	Scada System at Pump Station E458	\$52,702.13	\$105,404.25	\$158,106.38
University Of Texas at Austin	Texas Irrigation Watch: Operational Mapping of Statewide Irrigation Practices	\$0	\$300,000	\$300,000
University Of Texas at San Antonio	Advanced Water Management for Texas Agriculture Through Coupled Modeling and Remote Sensing	\$0	\$180,198	\$180,198

Entity	Project		Local match	Grant	Total cost
Entity	roject			request	Total Cost
Victoria County GCD	Expanding Aquifer Monitoring Efforts		\$60,912	\$179,200	\$240,112
		Total	\$5,634,539.70	\$9,650,826.06	\$15,285,365.76

Note: GCD = groundwater conservation district

Cameron County Irrigation District No. 6

Aquatic Harvester to Conserve Water, Improve Irrigation Efficiency and Soil Health

TWDB amount requested	\$150,000
Local cash or in-kind	\$200,000
Total project cost	\$350,000
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$150,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Cameron County Irrigation District #6.

Project area:

The project would take place in the Lower Rio Grande Valley (LRGV) in Cameron County, which is within Region M Rio Grande.

Project summary:

Purchase and deploy an aquatic harvester to conserve water, improve irrigation efficiency, and build soil health. The district delivers water to approximately 17,000 acres of actively irrigated farmland, two potable water suppliers, and two downstream irrigation districts. The district system includes approximately 69 acres of main canal and 900 acres of storage and transmission reservoirs. The transmission and storage facilities are overgrown with aquatic weeds including water hyacinth, hydrilla, water lettuce, and carrizo cane (arundo donax).

The unwanted aquatic vegetation restricts flow and increases water surface losses due to evapotranspiration of water hyacinth being up to three times that of an open water surface. The hyacinth infestation covers approximately 20 percent of the water surface area, resulting in 1,550-acre feet of evapotranspiration loss via this invasive species. The conservation results, project cost, and soil health benefits of adding the harvested hyacinth as organic matter to farm fields will be included in the final report.

Project duration (to be determined during contract negotiations, if funded): The project will span five years (October 2025 – October 2030).

Category 1

Delta Lake Irrigation District

J-22 Canal Conversion to Pipeline Project

TWDB amount requested	\$150,000
Local cash or in-kind	\$1,058,177.80
Total project cost	\$1,208,177.80
Estimated water savings	230 acre-feet annually

This project is recommended for TWDB grant funding in an amount not to exceed \$150,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Delta Lake Irrigation District.

Project area:

This project would take place northeast of Raymondville in Willacy County, which is within Region M Rio Grande.

Project summary:

The Delta Lake Irrigation District proposes to convert 4,020 linear feet of the J-22 Canal, an open canal, into a low-head-pressure Poly Vinyl Chloride (PVC) pipeline to eliminate water losses to seepage and evaporation and improve the system's pressure. This project will conserve an estimated 230 acre-feet of water annually, reduce energy consumption by 6,835 kilowatt-hour/year, and enhance operational efficiency.

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

The project has an expected timeline of 21 months (June 2025 – March 2027).

Category 1

Edwards Aquifer Authority

EAA Irrigation Efficiency Improvement Grant Program

TWDB amount requested	\$300,000
Local cash or in-kind	\$300,000
Total project cost	\$600,000
Estimated water savings	200 acre-feet annually

This project is recommended for TWDB grant funding in an amount not to exceed \$300,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Edwards Aquifer Authority (EAA).

Project area:

The Irrigation Efficiency Improvement Program is offered to EAA irrigation permit holders within the EAA jurisdictional area, which covers all or parts of an eight-county region located in south central Texas, including Uvalde, Medina, Bexar, Atascosa, Comal, Hays, Guadalupe, and Caldwell counties. The project is located within Region L South Central Texas, Region J Plateau, and Region K Lower Colorado.

Project summary:

The EAA's Irrigation Efficiency Improvement Grant Program directly impacts local irrigators by providing financial assistance for irrigation system improvement projects. The program incentivizes irrigation permit holders to transition from older, less efficient practices to more efficient, water-conserving methods and technologies. Past projects have included installing soil moisture sensors on farmland, replacing furrow irrigation with overhead sprinkler systems, and replacing 20+ year-old center pivot systems with new center pivot systems, and installing subsurface drip irrigation systems. Projects funded through the Irrigation Efficiency Improvement Grant Program also allow permitted irrigators to maintain their livelihoods while using less water, which is critical with the uncertainty of future weather patterns' impact on south central Texas.

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

The project has an expected timeline of five years.

Category 1

Lost Pines Groundwater Conservation District

Agricultural Production Meter Project

TWDB amount requested	\$50,000
Local cash or in-kind	\$50,000
Total project cost	\$100,000
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$50,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Lost Pines Groundwater Conservation District (LPCGD).

Project area:

The project's location consists of Bastrop and Lee counties in the Lower Colorado and Brazos regions. The project is within Region K Lower Colorado and Region G Brazos.

Project summary:

The LPGCD Agricultural Production Meter Project will purchase sixty-five meters throughout the district for wells on a first-come, first-served basis. This cost-share assistance program will provide an incentive to install irrigation flow meters on wells that provide accurate water extraction data for producers' on-farm water management as well as the district's basin-wide water management. The district will also sponsor educational workshops for program cooperators covering utilization of flow meters for irrigation management and other water conservation practices, including cover crops and minimum tillage for improved soil health.

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

The project has an expected timeline of one year.

Category 1

Menard County Water Control and Improvement District #1

Irrigation Canal Project, Phase 2 – Headgate Construction

TWDB amount requested	\$84,100
Local cash or in-kind	\$0
Total project cost	\$84,100
Estimated water savings	2,400 acre-feet annually

This project is recommended for TWDB grant funding in an amount not to exceed \$84,100. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Menard County Water Control and Improvement District #1 (MCWCID#1).

Project area:

The project is in Menard County near the San Saba River Basin, which is within Region F.

Project summary:

The Menard Irrigation Canal is a historic structure dating back to 1756 and is considered one of the most primitive canal systems in Texas. The canal is capable of diverting thousands of acre-feet of irrigation water from the San Saba River through a gravity-fed diversion system and providing water to customers along a seven-mile stretch of the San Saba River near Menard. 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. The district is currently working with the U.S. Bureau of Reclamation through the WaterSmart Environmental Water Resources Grant to pipe and re-slope the first three miles of the canal. This is a \$2.5 million investment, with the district contributing \$630,500 to the project. MCWCID#1 was granted a TWDB Agricultural Water Conservation Grant in 2021 for an initial phase of the headgate. The district completed the feasibility study, initial engineering plans, and environmental assessment with the awarded grant. However, MCWCID#1 saw material costs, including rebar and concrete, rise exponentially in the first two years of the project, hindering the district's ability to complete the construction phase of the headgate. The district is applying with updated and more accurate cost estimates to complete Phase 2 of the headgate project. MCWCID#1 is proposing a funding request to aid in the construction of a diversion headgate to control the flow of the conveyance for the first three miles. Investment in the project and the resulting improved water use efficiency by the WaterSmart Pipe Project are anticipated to conserve greater than 2,400 acre-feet annually, or 120,000 acre-feet over the life of the infrastructure.

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

The project has an expected timeline of three months once given notice to proceed.

Category 1

North Plains Groundwater Conservation District

The Master Irrigator Program Equipment Cost Share

TWDB amount requested	\$750,000
Local cash or in-kind	\$805,000
Total project cost	\$1,555,000
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$160,595.85. The actual local match and total project amount will be determined during contract negotiations.

Participants:

North Plains Groundwater Conservation District.

Project area:

The project is located within the boundaries of the North Plains Groundwater Conservation District, covering approximately 7,300 square miles in the northern Texas Panhandle encompassing Dallam, Hansford, Lipscomb, Ochiltree and Sherman counties, as well as portions of Hartley, Moore, and Hutchinson counties. The project is within Region A, the Panhandle.

Project summary:

The Master Irrigator Program is an irrigation management curriculum made up of four days of intensive training designed to reduce the learning curve necessary for adoption of proven irrigation conservation techniques. The program seeks further adoption by providing cost-share funds and allowing participants to improve the efficiency of their irrigation through the implementation of new technologies and equipment. Since its launch in 2016, the Master Irrigator Program has trained 184 participants responsible for over 650,000 acres of irrigated farmland. The requested funding will secure the future of the program from 2026 through 2028, allowing even more growers to save more water. The Region A Panhandle Initially Prepared Plan projects the enhanced education program could result in total water savings of 310,145 acre-feet over the next 50 years in the counties of Dallam, Hartley, Sherman, and Moore.

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

The project has an expected timeline of 26 months (June 2025 – August 2027).

Category 1

Plum Creek Conservation District

Advancing Agricultural Resilience through Cost Effective Ground Water Treatment in South Central Texas

TWDB amount requested	\$200,000
Local cash or in-kind	\$200,000
Total project cost	\$400,000
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$200,000. The actual local match and total project amount will be determined during contract negotiations.

Participants:

Plum Creek Conservation District.

Project area:

The location for this project is the Luling Foundation, a 1,134-acre demonstration farm established in 1927 that is located in Caldwell County. The project is within Region L South Central Texas.

Project summary:

Agriculture is the largest water-consuming sector in Texas, yet desalination remains infeasible due to high energy costs, brine disposal challenges, and rural operational constraints. The state water plan highlights groundwater as a crucial resource, which underscores the need for innovative treatment solutions. This project will deploy a 40-gallonper-minute batch reverse osmosis (RO) system to desalt ~2,400 ppm saline groundwater on Luling Foundation land. The treated water will irrigate 25 acres of peaches or alfalfa, conserving 40 acre-feet of fresh water annually. The batch RO process features variable pressure operation that minimizes energy use and brine disposal costs through higher water recovery rates. Replacing high-salinity irrigation blends with treated water may improve soil health and crop yields. Supported by Plum Creek Conservation District and Harmony Desalting, this project will demonstrate an alternative water supply, helping farmers increase profitability and resilience while simultaneously reducing reliance on dwindling freshwater resources.

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

The project has an expected timeline of 15 months plus the reporting period.

Category 1

United Irrigation District

SCADA System at Pump Station E458

TWDB amount requested	\$105,404.25
Local cash or in-kind	\$52,702.13
Total project cost	\$158,106.38
Estimated water savings	750 acre-feet annually

This project is recommended for TWDB grant funding in an amount not to exceed \$105,404.25. The actual local match and total project amount will be determined during contract negotiations.

Participants:

United Irrigation District.

Project area:

The project will be in the Rio Grande Valley Region in Hidalgo County, which is within Region M Rio Grande.

Project summary:

The project involves the acquisition and installation of a Supervisory Control and Data Acquisition (SCADA) system at United Irrigation District's Pump Station E458. This pump station received construction funding from the TWDB's Agricultural Water Conservation Grants Program for Fiscal Year 2022 and is currently under construction. The original design of the pump station included the SCADA system; however, due to exceptional construction cost inflation, the SCADA system was not included in the construction contract. The pump station along with the SCADA system will enable farms along Lateral 7N to use drip and micro irrigation, thereby improving irrigation efficiency. Additionally, it will increase water supply reliability as it provides an alternate route for water to the City of McAllen and Sharyland Water Supply Corporation's two treatment plants. District interconnectivity is also enhanced as the pump station can divert water to Hidalgo County Consolidated Water Control and Improvement District.

The pump station's SCADA system will expand upon this conservation and allow more precise data collection and analysis and improve water control and monitoring for the pump station's service area. These benefits also occur during water conveyance from the western side of the district to the eastern side when water is conveyed by gravity from the Mission Main Canal at a higher elevation to the Bryan Canal via the 24-inch Lateral 7N pipeline, which ties into the 24-inch pipeline at the pump station and contains a 24-inch flow meter to be monitored by the proposed SCADA system.

Project duration (to be determined during contract negotiations, if funded): The project has an expected timeline of two years and 10 months (August 2025 – June 2028).

Category 2

The University of Texas at Austin

Texas Irrigation Watch: Operational Mapping of Statewide Irrigation Practices

TWDB amount requested	\$299,999.90
Local cash or in-kind	\$0
Total project cost	\$299,999.90
Estimated water savings	To be determined

This project is recommended for TWDB grant funding in an amount not to exceed \$299,999.90. The actual local match and total project amount will be determined during contract negotiations.

Participants: The University of Texas at Austin.

Project area:

The project study area is the entire State of Texas (all 16 regional water planning areas).

Project summary:

Irrigated agriculture, while water-intensive, is essential for crop production in Texas. Fieldscale information on irrigation location, technologies, water sources, and water use is fundamental for growers and policymakers to assess water demand, manage conflicts, plan for future needs, and implement effective conservation strategies. Despite urgent needs, such information is often incomplete, outdated, or available only at coarse resolutions. To address these critical data gaps in Texas water management, this project leverages open-access remote sensing data and advanced machine learning to develop TX Irrigation Watch—a tool for operationally mapping irrigated fields, identifying irrigation technologies, estimating water sources, and evaluating irrigation water use across the state. The project builds upon our previous efforts on mapping irrigation practices and will be implemented from 2008 to 2027. The resulting data products and models will equip the TWDB with essential tools for routinely monitoring irrigation practices to support more effective agricultural conservation strategies across the state.

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

The project has an expected timeline of two years and five months (October 2025 – March 2028).