

Category 2: Agricultural Water Use Monitoring Equipment

Funding in this category was available for entities to cost-share agricultural water use monitoring equipment.

Category 3: Feasibility Study for Development of a Statewide Evapotranspiration Network

Funding in this category was available to study the feasibility of a statewide evapotranspiration network to promote irrigation scheduling resulting and support other functions of the TWDB by providing critical water-related data.

Category 4: Study of Irrigation Efficiency in Texas

Funding in this category was available for a study determining county-level irrigation application efficiencies, irrigation practices and technologies, irrigated acres by system type, and investments in irrigation efficiency.

KEY ISSUES

The Executive Administrator published the request for applications in the *Texas Register* on December 25, 2015. TWDB Contracts Administration received nine applications by the February 17, 2016, application deadline. Four applications were received in Category 1, three applications in Category 2, one application in Category 3, and one application in Category 4. The intent of the request for applications was to potentially fund at least one project from each category; however, the request for applications stated that TWDB reserved the right to reject parts of, any, or all applications if staff determined that the application(s) did not adequately meet the required criteria.

A technical review panel reviewed and ranked the applications according to the rules contained in 31 Texas Administrative Code Chapter 367, criteria and prioritization outlined in the request for applications, and the application instructions (Table 1).

The technical review panel determined that one application received in Category 1 (Sandy Land Underground Water Conservation District) was incomplete because it did not adequately justify the use of TWDB grant funding; therefore, this application is not recommended for funding. Two projects recommended for funding in Category 1 (Texas A&M AgriLife Research) and Category 2 (Chambers-Liberty Counties Navigation District) included ineligible activities and expenses in their applications. Those two projects are recommended for partial funding for eligible expenses contained in their project budgets. The single proposal received in Category 4 (Texas A&M AgriLife Extension) did not score high enough during the technical review process to receive consideration for funding.

Table 1. List of proposals received, their rank, funding requested, and funding recommended.

| Ranking | Category | Entity | Project Description | Funding Request | Recommended Funding |
|----------------|-----------------|--|---|------------------------|------------------------------|
| 1 | 3 | Texas A&M University and The University of Texas at Austin | Feasibility study for a statewide evapotranspiration network | \$149,964 | \$149,964 |
| 2 | 1 | North Plains Groundwater Conservation District | Efficient irrigation management via a fully integrated system | \$15,000 | \$15,000 |
| 3 | 2 | Hidalgo County Water Control & Improvement District No. 19 | Cost-share of irrigation measurement equipment | \$64,725 | \$64,725 |
| 4 | 1 | Texas A&M AgriLife Research | On-farm irrigation strategies for water conservation in the Lower Rio Grande Valley | \$149,717 | \$120,000¹ |
| 5 | 2 | Chambers-Liberty Counties Navigation District | Cost-share of irrigation measurement equipment | \$20,000 | \$16,000² |
| 6 | 1 | Texas A&M AgriLife Extension | Lower Rio Grande Valley irrigation education and outreach | \$150,000 | \$150,000 |
| 7 | 2 | Sutton County Underground Water Conservation District | Cost-share of irrigation measurement equipment | \$10,000 | \$10,000 |
| 8 | 4 | Texas A&M AgriLife Extension | Statewide study of agricultural irrigation efficiency | \$150,000 | \$0³ |
| 9 | 1 | Sandy Land Underground Water Conservation District | Mobile education trailer program with museum quality exhibits | \$150,000 | \$0⁴ |
| Totals | | | | \$859,406 | \$525,689 |

¹ The technical review panel determined that approximately 20 percent of the expenses included in the Texas A&M AgriLife Research project proposal in Category 1 were ineligible equipment purchases.

² The technical review panel determined that approximately 20 percent of the expenses included in the Chambers-Liberty Counties Navigation District application were ineligible according to the cost-share criteria in Category 2.

³ The technical review panel determined the Texas A&M AgriLife Extension project proposal in Category 4 consisted primarily of work that is essentially duplicative of the current TWDB staff irrigation estimates process, as it relied on many of the same data sources and methods already utilized by TWDB staff.

⁴ The technical review panel determined the Sandy Land Underground Water Conservation District application contained incomplete project budgets that did not adequately justify their funding request or specify how the TWDB grant funds would be used.

The recommended projects support implementation of irrigation conservation water management strategies in the 2017 State Water Plan and the 2016 regional water plans. Staff determined that the TWDB grant funds will supplement the applicants' own funding and serve the public interest. The funding provided for Category 1 projects will provide education and technical assistance to promote on-farm water conservation best management practices in the two major irrigated regions of the state, the Texas High Plains and the Lower Rio Grande Valley. The Category 2 projects will result in improvements to irrigation efficiency and improved data collection efforts to quantify the effects of water conservation practices. The funding provided in Category 3 will assist the TWDB in determining the feasibility of a statewide evapotranspiration network, to promote water conservation across the state.

A summary of each grant application project proposal and justification for funding recommendations is included as Attachment A.

The Assistant Executive Administrator recommends funding for the top seven ranked projects listed in Table 1.

RECOMMENDATION

The Assistant Executive Administrator recommends approval of this item.

Attachment(s):

Attachment A: Summary of Grant Application Project Proposals

Attachment A
Summary of Grant Application Project Proposals

Texas A&M University and The University of Texas at Austin

Feasibility Study for Development of a Statewide Evapotranspiration Network

Category 3: Feasibility Study for Development of a Statewide Evapotranspiration Network

Requested Project Funding and Justification for Funding Recommendation:

| | |
|--------------------------|---------------------|
| TWDB amount requested | \$149,964.00 |
| Local cash or in-kind | \$43,249.00 |
| Total Study Costs | \$193,213.00 |

This project is recommended for full funding, or \$149,964.

Participants:

Texas A&M University, the Bureau of Economic Geology at The University of Texas at Austin, Texas A&M AgriLife Extension, numerous stakeholders and interest groups

Project Area:

This is a statewide project, covering all 16 regional water planning areas.

Project Summary:

The proposed project involves (1) a study of existing statewide evapotranspiration networks in other states, (2) an evaluation of existing evapotranspiration networks in Texas, (3) a determination of potential water savings and other benefits, and (4) a thorough description of how a statewide evapotranspiration network might come into existence, function, and expand. The project team will develop an evaluation of the technical and financial considerations, benefits and end uses, challenges and opportunities associated with a statewide evapotranspiration network. The team will conduct surveys and workshops to gather input and feedback from stakeholders and interest groups. These efforts will facilitate the exchange of ideas, help to develop standards regarding network criteria, assess practical and political viability of network scenarios, establish open communication channels amongst the various network operators and users, and develop buy-in for the concept of a statewide evapotranspiration network.

This project supports implementation of municipal and irrigation conservation water management strategies in the 2017 State Water Plan and 2016 regional water plans.

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

The proposed study and draft final report are expected to be completed during the first year, with an additional year for final report revisions. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.

Attachment A
Summary of Grant Application Project Proposals

North Plains Groundwater Conservation District
Efficient Irrigation Management via a Fully Integrated System

Category 1: Technical Assistance, Outreach, Education, and Demonstrations

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|-------------|
| TWDB amount requested | \$15,000.00 |
| Local cash or in-kind | \$15,000.00 |
| Total Study Costs | \$30,000.00 |

This project is recommended for full funding, or \$15,000.

Participants:

North Plains Groundwater Conservation District, Texas A&M AgriLife Research and Extension Center in Amarillo, private industry cooperators, and agricultural producers

Project Area:

The project is located in Dallam, Hansford, Lipscomb, Ochiltree, Sherman, Hartley, Hutchinson, and Moore counties, which are in the Panhandle Regional Water Planning Area (Region A).

Project Summary:

The proposed project involves software development to integrate existing conservation technologies into a simplified irrigation management tool. The project team will use open source software licenses to build a fully integrated system that collects soil moisture measurements, weather station data, weather forecasts, and water use data from center pivots. The system will integrate this information into a single interface and provide functionality necessary to perform efficient irrigation management. The project will include education and outreach through the support of the existing agricultural demonstration project funded by TWDB through the district. The system will also be available through Texas A&M AgriLife to interested agricultural producers.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and the 2016 Panhandle Regional (Region A) Water Plan.

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

The project involves development of the application during the first two years and outreach and education activities during the following three years. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.

Attachment A
Summary of Grant Application Project Proposals

Hidalgo County Water Control & Improvement District #19
Cost-Share of Irrigation Measurement Equipment

Category 2: Agricultural Water Use Monitoring Equipment

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|--------------|
| TWDB amount requested | \$64,725.00 |
| Local cash or in-kind | \$71,775.00 |
| Total Study Costs | \$136,500.00 |

This project is recommended for full funding, or \$64,725.

Participants:

Hidalgo County Water Control & Improvement District #19, private industry, and area agricultural producers

Project Area:

The project is located in Hidalgo County, which is in the Rio Grande Regional Water Planning Area (Region M).

Project Summary:

The proposed project involves procuring and installing metering devices with remote telemetry capabilities to provide accurate total water flow amounts and daily electronic reports. District staff will install, maintain, and collect data from the sites. Data collection efforts will include crop type, acres irrigated, system pressure, and total hours of operation to determine the irrigation application efficiency for each crop production system. The project involves a private industry partnership with an equipment manufacturer (McCrometer, Inc.) who will provide in-kind contributions in the form of equipment and technical assistance. The data provided through the use of the equipment will improve the District's abilities to monitor water use, especially during low flow situations. The District expects to gain 10 to 20 percent water savings annually as a result of the project.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and the 2016 Rio Grande Regional (Region M) Water Plan.

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

The project involves approximately two years for the installation activities and five years of monitoring and reporting. If funded, the applicant will be required to report progress on a quarterly basis during the installation period. Following installation, the applicant must submit a minimum of five annual water savings estimates or water use efficiency improvements, as a result of the equipment installed through this project.

Attachment A
Summary of Grant Application Project Proposals

Texas A&M AgriLife Research

On-Farm Irrigation Strategies for Water Conservation in the Lower Rio Grande Valley

Category 1: Technical Assistance, Outreach, Education, and Demonstrations

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|--------------|
| TWDB amount requested | \$149,717.00 |
| Local cash or in-kind | \$117,686.00 |
| Total Study Costs | \$267,403.00 |

This project is recommended for approximately 80 percent partial funding, or \$120,000. The technical review panel determined that \$28,322 in requested TWDB funding for equipment was ineligible through Category 1, according to the specifications set forth in the request for applications. The 80 percent partial funding recommendation reflects this determination.

Participants:

Texas A&M AgriLife Research, Rio Farms Inc., Wonderful Citrus, Texas International Produce Association, Delta Lake Irrigation District, and the Harlingen Irrigation District, and agricultural producers

Project Area:

The project is located in Starr, Hidalgo, Cameron, and Willacy counties, which are in the Rio Grande Regional Water Planning Area (Region M).

Project Summary:

The proposed project addresses the need to develop irrigation water demonstrations that present the greater potential to conserve more water, increase water use efficiency, and generate an economic impact in the region. The project fills educational needs among water users, irrigation districts, grower organizations, farmers, students, and the general public. Project activities will consist of expanding upon the network of weather stations in the region and promoting irrigation scheduling through field demonstrations, training workshops, and conferences.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and the 2016 Rio Grande Regional (Region M) Water Plan.

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

The project involves approximately three years of education and outreach activities. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.

Attachment A
Summary of Grant Application Project Proposals

**Chambers-Liberty Counties Navigation District
Cost-Share of Irrigation Measurement Equipment**

Category 2: Agricultural Water Use Monitoring Equipment

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|-------------|
| TWDB amount requested | \$20,000.00 |
| Local cash or in-kind | \$20,000.00 |
| Total Study Costs | \$40,000.00 |

This project is recommended for 80 percent partial funding, or \$16,000. The technical review panel determined that a portion of the requested TWDB funding for non-equipment items were ineligible through Category 2, according to the specifications set forth in the request for applications.

Participants:

Chambers-Liberty Counties Navigation District, private consultants, and area agricultural producers

Project Area:

The project is located in Chambers County, which is in the Region H Regional Water Planning Area.

Project Summary:

The proposed project involves the procurement and installation of a sonar beam type flow device in the main canal downstream of the main pumping plant in Anahuac. The device will measure velocity and volume of water being pumped through the plant and will transmit this data to the district office. The project will provide more accurate accounting of the volume of water actually pumped into the system, compared to the current method of estimating the volume based on the pump capacity and run time. The improved accuracy of water use accounting is an important step in applying conservation measures. The District's goal is to reduce system delivery losses by at least five percent annually. This project will assist the District in working towards that goal.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and the 2016 Region H Water Plan.

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

The project involves approximately two years for the installation activities and five years of monitoring and reporting. If funded, the applicant will be required to report progress on a quarterly basis during the installation period. Following installation, the applicant must submit a minimum of five annual water savings estimates or water use efficiency improvements, as a result of the equipment installed through this project.

Attachment A
Summary of Grant Application Project Proposals

Texas A&M AgriLife Extension Service

Lower Rio Grande Valley Irrigation Education and Outreach Program

Category 1: Technical Assistance, Outreach, Education, and Demonstrations

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|--------------|
| TWDB amount requested | \$150,000.00 |
| Local cash or in-kind | \$103,243.00 |
| Total Study Costs | \$253,243.00 |

This project is recommended for full funding, or \$150,000.

Participants:

The Texas Water Resources Institute, Texas A&M AgriLife Extension Service, Texas A&M AgriLife Research, Texas A&M University-Kingsville Citrus Center, Harlingen Irrigation District, commodity group leaders, previous project participants in the Texas Project for Ag Water Efficiency, private consultants, and agricultural producers.

Project Area:

The project is located in Maverick, Hidalgo, Willacy, and Cameron counties, which are in the Rio Grande Regional Water Planning Area (Region M).

Project Summary:

The proposed project will promote water conservation strategies among growers and irrigation district boards and managers regarding the benefits and advantages of water conservation and water use efficiency of various on-farm irrigation and irrigation district management practices. The project will conduct irrigation training programs directed at growers of typical commodity crops produced in the region: citrus, row crops, and vegetables.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and the 2016 Rio Grande Regional (Region M) Water Plan.

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

The project involves approximately three years of education and outreach activities. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.

Attachment A
Summary of Grant Application Project Proposals

**Sutton County Underground Water Conservation District
Cost-Share of Irrigation Measurement Equipment**

Category 2: Agricultural Water Use Monitoring Equipment

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|-------------|
| TWDB amount requested | \$10,000.00 |
| Local cash or in-kind | \$17,500.00 |
| Total Study Costs | \$27,500.00 |

This project is recommended for full funding, or \$10,000.

Participants:

Sutton County Underground Water Conservation District and area agricultural producers

Project Area:

The project is located in Sutton County, which is in the Region F Regional Water Planning Area.

Project Summary:

The proposed project involves procuring a portable ultrasonic flowmeter to measure production rates of irrigation wells within the county. The data will allow the district to calculate groundwater use estimates based on measured flow rates and irrigators electric bills. This data will serve as a starting point for developing a conservation plan that benefits the irrigator and the District. The data will be shared with TWDB staff and will assist the District in monitoring groundwater withdrawals. The District will compare the data against monitored water levels to measure the impacts on the District's desired future conditions and modeled available groundwater. Information gathered through the project will be included in the District's outreach and education programs for water conservation targeting elementary and middle school students, as well as the general public. The District may also loan the equipment to other neighboring groundwater conservation districts, at little or no cost.

This project supports implementation of an irrigation conservation water management strategy in the 2017 State Water Plan and 2016 Region F Water Plan.

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

The project involves approximately two years for the installation activities and five years of monitoring and reporting. If funded, the applicant will be required to report progress on a quarterly basis during the procurement process. The applicant must submit a minimum of five annual water savings estimates or water use efficiency improvements, as a result of the equipment funded through this project.

Attachment A
Summary of Grant Application Project Proposals

Texas A&M AgriLife Extension Service

2018 Survey of Irrigation in Texas

Category 4: Study of Irrigation Efficiency in Texas

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|--------------|
| TWDB amount requested | \$150,000.00 |
| Local cash or in-kind | \$50,687.00 |
| Total Study Costs | \$200,687.00 |

This project is not recommended for funding. The technical review panel determined the project was duplicative and did not provide significant added value to the existing TWDB estimates process.

Participants:

Texas A&M AgriLife Extension Service, Texas A&M AgriLife Research, Texas State Soil & Water Conservation Board, Texas Commission on Environmental Quality, U.S. Department of Agriculture, groundwater conservation districts, irrigation districts, river authorities, local soil and water conservation districts, and irrigation equipment suppliers

Project Area:

This is a statewide project, covering all 16 regional water planning areas.

Project Summary:

The proposed project will collect existing data from a variety of sources and conduct surveys to determine (1) county level irrigation application efficiencies, (2) irrigation practices and technologies currently used by agricultural producers, (3) the number of acres per county under irrigation by system type, and (4) the level of investment from agricultural producers to improve their irrigation efficiency. The project team will compile and validate available irrigation data from various sources and technical reports. Results will be disseminated via final report, brochure, articles, web, and presentations on current status of irrigation in Texas. The statewide survey will help support water planning efforts, development and targeting of educational programs, and targeting of cost-share programs statewide thus benefiting and increasing the effectiveness of ongoing and future water conservation efforts.

This project supports implementation of irrigation conservation water management strategies in the 2017 State Water Plan and 2016 regional water plans.

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

The proposed study is expected to take approximately two years, with an additional year for the final reporting period. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.

Attachment A
Summary of Grant Application Project Proposals

**Sandy Land Underground Water Conservation District
Mobile Education Trailer Program with Museum Quality Exhibits**

Category 1: Technical Assistance, Outreach, Education, and Demonstrations

Requested Project Funding and Justification for Funding Recommendation:

| | |
|-----------------------|--------------|
| TWDB amount requested | \$150,000.00 |
| Local cash or in-kind | \$287,971.00 |
| Total Study Costs | \$437,971.00 |

This project is not recommended for funding. The technical review panel determined the project application incomplete, as the project budgets did not adequately justify how the districts would use the requested amount in TWDB grant funding.

Participants:

Sandy Land Underground Water Conservation District, Llano Estacado Underground Water Conservation District, South Plains Underground Water Conservation District, local communities, school districts, and area residents

Project Area:

The project is located in Gaines, Terry, and Yoakum counties, which are in the Llano Estacado Regional Water Planning Area (Region O).

Project Summary:

The proposed project involves the design, development, fabrication, and installation of museum quality educational exhibits. The project involves making presentations throughout the three participating districts. The primary goal of the project is to strengthen community knowledge of water conservation efforts targeting the Ogallala Aquifer, as well as reduce water consumption through education of area residents, students, and other community members including agricultural producers. The purpose of the project is to enhance the Education Cooperative's ability to educate the communities within the geographical boundaries on the importance of water conservation by providing interactive exhibits, displays, and lessons focusing on water conservation best management practices.

This project supports implementation of municipal and irrigation conservation water management strategies in the 2017 State Water Plan and 2016 Llano Estacado Regional (Region O) Water Plan.

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

The project involves design, fabrication, purchase, and installation of materials during the first year and two years of education and outreach activities. If funded, the applicant will be required to report progress on a quarterly basis and submit a final report upon completion, including a cumulative estimate of water savings or water use efficiency improvements.