

**Texas State Soil and Water Conservation Board
Clean Water Act §319(h) Nonpoint Source Grant Program
FY 2020 Workplan 20-11**

| SUMMARY PAGE | | | | | |
|--|--|---|-------------|-----------------------|-----------------|
| Title of Project | Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan | | | | |
| Project Goals | <ul style="list-style-type: none"> • Generate data of known and acceptable quality for surface water quality monitoring of the mainstem and select tributaries on the Lampasas River. • Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and assessing water quality improvement. | | | | |
| Project Tasks | (1) Project Administration; (2) Quality Assurance; (3) Water Quality Data Collection and Analysis | | | | |
| Measures of Success | <ul style="list-style-type: none"> • Data of known and acceptable quality are generated for surface water quality monitoring of mainstem and tributary stations in the Lampasas River watershed • Water quality data is communicated to the public and the Partnership | | | | |
| Project Type | Implementation (X); Education (); Planning (); Assessment (); Groundwater () | | | | |
| Status of Waterbody on 2014 Texas Integrated Report | <u>Segment ID</u> 1217D North Rocky Creek (unclassified water body) | <u>Parameter of Impairment or Concern</u> Depressed dissolved oxygen | | <u>Category</u> 5c | |
| Project Location (Statewide or Watershed and County) | Lampasas River Watershed in Bell, Burnet, Coryell, Hamilton, Lampasas, Mills, and Williamson Counties | | | | |
| Key Project Activities | Hire Staff (); Surface Water Quality Monitoring (X); Technical Assistance (); Education (); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other () | | | | |
| 2017 Texas NPS Management Program Reference | <ul style="list-style-type: none"> • Component 1 LTGs 1, 2, 3, 7 • Component1 STGs 1B, 1E, 3A, 3F • Component 2 | | | | |
| Project Costs | Federal | \$202,264 | Non-Federal | \$134,852 | Total \$337,116 |
| Project Management | Texas A&M AgriLife Research | | | | |
| Project Period | November 13, 2020 – October 31, 2023 | | | | |

Part I – Applicant Information

| Applicant | | | | | | | |
|------------------|----------------|---|------|------------|----------------|----------|-------|
| Project Lead | | Raghavan Srinivasan, Ph.D. | | | | | |
| Title | | Professor | | | | | |
| Organization | | Texas A&M AgriLife Research – Blackland Research and Extension Center | | | | | |
| E-mail Address | | r-srinivasan@tamu.edu | | | | | |
| Street Address | | 720 E. Blackland Rd. | | | | | |
| City | Temple | County | Bell | State | TX | Zip Code | 76502 |
| Telephone Number | (979) 845-5069 | | | Fax Number | (979) 862-2607 | | |

| Project Partners | |
|---|--|
| Names | Roles & Responsibilities |
| Texas State Soil and Water Conservation Board (TSSWCB) | Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ. |
| Texas A&M AgriLife Research – Blackland Research and Extension Center (AgriLife Research) | Provide project administration and reporting, coordination, data and analysis review, assistance for stakeholder relations, and technology transfer to the Lampasas River Watershed Partnership. Develop project final report. |
| Texas Institute for Applied Environmental Research (TIAER) | Provide water quality sampling and analysis for testing sites. Assist in coordinating water quality sampling efforts. Provide QAPP development and support. |
| Lampasas River Watershed Partnership (Partnership) | Collaborate as critical local stakeholders and play a lead role in communicating with other local stakeholders. |

Part II – Project Information

| Project Type | | | | | | | |
|---|---|--|--|----------------|------|----|--|
| Surface Water | X | Groundwater | | | | | |
| Does the project implement recommendations made in: (a) a completed WPP; (b) an adopted TMDL; (c) an approved I-Plan; (d) a Comprehensive Conservation and Management Plan developed under CWA §320; (e) the <i>Texas Coastal NPS Pollution Control Program</i> ; or (f) the <i>Texas Groundwater Protection Strategy</i> ? | | | | Yes | X | No | |
| If yes, identify the document. | | Lampasas River Watershed Protection Plan | | | | | |
| If yes, identify the agency/group that developed and/or approved the document. | | The Lampasas River Watershed Partnership facilitated by Texas A&M AgriLife Research and TSSWCB | | Year Developed | 2013 | | |

| Watershed Information | | | | |
|---|---------------------------------|--|--------------------------|--------------|
| Watershed or Aquifer Name(s) | Hydrologic Unit Code (12 Digit) | Segment ID | Category on 2014 IR | Size (Acres) |
| Lampasas River (Lampasas River above Stillhouse Hollow Lake, Rocky Creek, Sulphur Creek, Simms Creek) | 120702030101 – 120702030509 | 1217 1217B 1217D 1217C 1217G | 2 CS 5c 2 CS | 839,800 |

| Water Quality Impairment |
|--|
| Describe all known causes (i.e., pollutants of concern) and sources (e.g., agricultural, silvicultural) of water quality impairments or concerns from any of the following sources: Draft <i>2016 Texas Integrated Report</i> , Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources. |
| <p>2016 Integrated Report</p> <p>Sulphur Creek (1217B_02) is listed as impaired for not meeting state standards for contact recreation; Category 5c. Potential sources per the 2016 Texas IR include: NPS - Managed Pasture Grazing; NPS - On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); NPS – Rural (Residential Areas); NPS - Wildlife Other than Waterfowl.</p> <p>North Fork Rocky Creek (1217D_01) is listed as impaired for depressed DO; Category 5c. Potential sources per the 2016 Texas IR include: NPS - Natural Sources.</p> <p>Lampasas River Above Stillhouse Hollow Lake (1217_04) is listed as a concern for water quality based on screening levels for chlorophyll-a. Potential sources per the 2016 Texas IR include: NPS - Agriculture; NPS - Dairies (Outside Milk Parlor Areas); NPS - Loss of Riparian Habitat; NPS - On-site Treatment Systems (Septic Systems and Similar Decentralized Systems); NPS - Wildlife Other than Waterfowl.</p> <p>TSSWCB 16-06 Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan</p> <p>Lampasas River Above Stillhouse Hollow Lake (1217_05) Initial analysis of data collected through this project indicates elevated bacteria levels in routine samples collected June 2017 through July 2019.</p> |

Project Narrative

Problem/Need Statement

The Lampasas River (segment 1217) rises in eastern Mills County, 16 miles west of Hamilton and flows southeast for 75 miles. The river courses through Hamilton, Lampasas, Burnet and Bell Counties. In Bell County the river turns northeast and is dammed five miles southwest of Belton to form Stillhouse Hollow Lake (Segment 1216). Below Stillhouse Hollow Lake, the Lampasas River flows to its confluence with Salado Creek and the Leon River to form the Little River.

According to the 2002 through 2008 Texas Water Quality Inventory and 303(d) List, the Lampasas River (1217) was impaired by elevated bacteria concentrations and did not meet Texas Surface Water Quality Standards for contact recreation. However, the Lampasas River was delisted on the 2010 Integrated Report. The river was delisted on the 2010 Integrated Report because existing the historical data no longer met TCEQ's criteria due to temporal representativeness.

Prior to the river's delisting, AgriLife Research and TSSWCB established the Lampasas River Watershed Partnership in November 2009 as part of TSSWCB project 07-11, *Lampasas River Watershed Assessment and Protection Project*. This project updated land use, modeled water quality, and developed a WPP to address the bacteria impairment. With technical assistance from AgriLife Research and other state and federal partners, the Steering Committee identified water quality issues that are of importance to the surrounding communities. The WPP identified responsible parties, implementation milestones and estimated financial costs for individual management measures and outreach and education activities.

The WPP was accepted by EPA and the Steering Committee 2013 and can be at <http://www.lampasasriver.org>. TSSWCB project 12-09, *Coordinating Implementation of the Lampasas River Watershed Protection Plan* and project 14-07, *Continued Coordinating Implementation of the Lampasas River Watershed Protection Plan*, and 17-05 *Continued Coordination and Implementation of the Lampasas River Watershed Protection Plan*, have continued facilitation of the Lampasas River WPP.

In addition to the TSSWCB projects identified above, several other programs are being implemented in the watershed. Many other TSSWCB and TCEQ projects and programs have been implemented within the watershed to address NPS pollution from feral hogs, on-site sewer systems and technical and financial assistance for landowners to develop and implement Water Quality Management Plans. In order to monitor water quality response to the implementation efforts within the watershed, AgriLife Research and TIAER collaborated on TSSWCB project 13-09, *Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan* to collect monthly water quality data at ten sites to be utilized in evaluating the effectiveness of BMPs in the watershed. Project 13-09 collected monthly routine samples and quarterly flow biased samples from July 2014 through June 2016. A subsequent and ongoing collaboration in TSSWCB project 16-06 *Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan* began sample collection on the same ten sites in June 2017. The sample regime from 13-09 was utilized, although project partners added in the collection of five 24-hour dissolved oxygen samples in year two of sampling. TSSWCB 16-06 concluded its sampling program in July 2019. TSSWCB 19-54 *Continuation of Surface Water Quality Monitoring to Support the Implementation of the Lampasas River Watershed Protection Plan* will sample for 14 months, starting in October 2019.

This proposed project will provide continued support to collect surface water quality data within the watershed once sampling has ended in project 19-54 and will allow for a continuous dataset with no gaps. A robust data set will allow for more accurate assessment of the implementation activities within the watershed.

Project Narrative

General Project Description (Include Project Location Map)

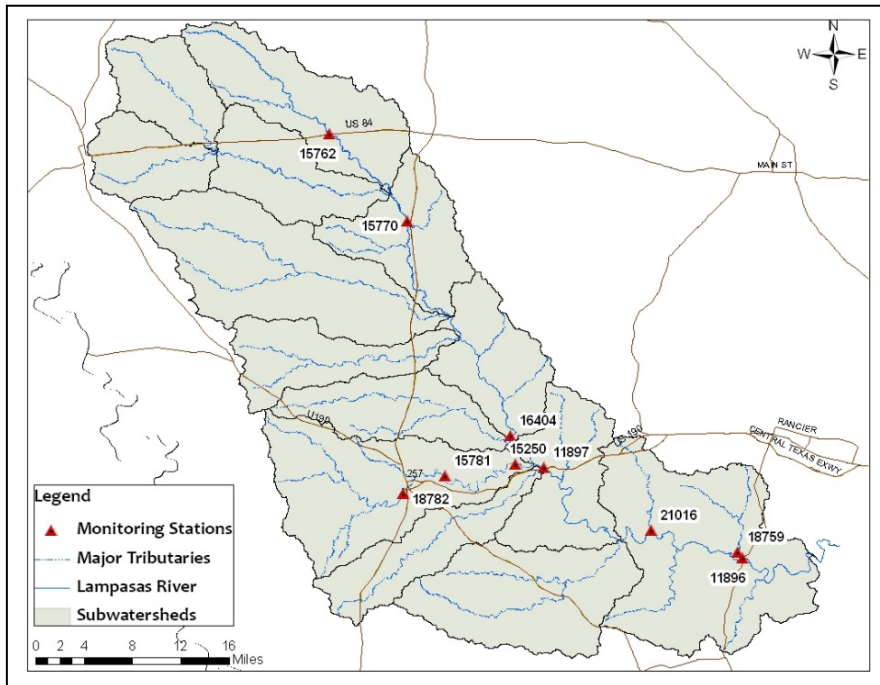


Figure 1 Map of water quality monitoring stations recommended by the Lampasas River Watershed Partnership to evaluate the effectiveness of BMP implementation.

TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have already been identified by the Partnership as shown in Table 1 and Figure 1. The sampling period will extend for at least 24 months with 240 routine samples budgeted. Spatial and seasonal variations will be captured across the sampling period.

TIAER will attempt to conduct biased flow monitoring (weather permitting) at the 10 sites listed in Table 1 once per quarter/season under wet weather conditions, collecting field, conventional, flow and bacteria parameter groups. If due to dry weather conditions, a wet-weather sample is not collected in a given quarter, an attempt will be made to collect a missed wet-weather event in future quarters. If a

routine sampling event happens to capture wet weather conditions, this event may be considered the wet-weather event for a given quarter. It is expected that no more than 80 biased flow samples will be collected over 4 quarters/seasons. Spatial, seasonal and meteorological variation will be captured across the sampling period.

All monitoring data will be provided to AgriLife and submitted by TIAER to TCEQ for upload into the TCEQ

SWQMIS for future water quality assessments. AgriLife Research will develop a final report that includes an assessment of water quality with respect to effectiveness of BMPs implemented, short-term progress made in achieving water quality goals stated in the WPP as well as statistical analysis to identify any trends within the dataset. AgriLife Research will communicate water quality conditions to the public and the Partnership Steering Committee in order to support adaptive management of the Lampasas River WPP and to expand public knowledge on Lampasas River water quality data as a task

| TCEQ ID | Location | Lat | Long |
|---------|------------------------------|----------|----------|
| 15762 | LAMPASAS RIVER AT US 84 | 31.48027 | -98.2735 |
| 15770 | LAMPASAS RIVER AT CR2925 | 31.119 | -98.0565 |
| 16404 | LAMPASAS RIVER AT FM 2313 | 30.97248 | -97.7786 |
| 11897 | LAMPASAS RIVER AT US 190 | 31.08167 | -98.0164 |
| 11896 | LAMPASAS RIVER AT HWY 195 | 30.95297 | -97.7212 |
| 18782 | SULPHUR CREEK AT NARUNA ROAD | 31.0504 | -98.1852 |
| 18781 | SULPHUR CREEK AT CR 3010 | 31.07091 | -98.1353 |
| 15250 | SULPHUR CREEK AT CR 3050 | 31.0854 | -98.0507 |
| 21016 | CLEAR CREEK AT OKALLA ROAD | 31.0063 | -98.8887 |
| 18759 | REESE CREEK NR FM 2670 BR985 | 30.9793 | -97.7847 |

Table 2 TCEQ ID and location of water quality monitoring stations recommended by the Lampasas River Watershed Partnership to evaluate the effectiveness of BMP implementation.

in the proposed project entitled Coordination and Implementation of the Lampasas River Watershed Protection Plan.

| Tasks, Objectives and Schedules | | | | | | |
|---------------------------------|---|----------|-------------|-----------------|----------|----------|
| Task 1 | Project Administration | | | | | |
| Costs | Federal | \$20,226 | Non-Federal | \$13,485 | Total | \$33,711 |
| Objective | To effectively administer, coordinate, and monitor all work performed under this project including technical and financial supervision, and preparation of status reports. | | | | | |
| Subtask 1.1 | AgriLife Research will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 1 st of January, April, July and October. QPRs shall be distributed to all Project Partners. | | | | | |
| | Start Date | Month 1 | | Completion Date | Month 36 | |
| Subtask 1.2 | AgriLife Research will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly. | | | | | |
| | Start Date | Month 1 | | Completion Date | Month 36 | |
| Subtask 1.3 | AgriLife Research will host coordination meetings or conference calls, at least quarterly, with Project Partners to discuss project activities, project schedule, communication needs, deliverables, and other requirements. AgriLife Research will develop lists of action items needed following each project coordination meeting and distribute to project personnel. | | | | | |
| | Start Date | Month 1 | | Completion Date | Month 36 | |
| Subtask 1.4 | AgriLife Research will develop a Final Report that summarizes activities completed and conclusions reached during the project and discusses the extent to which project goals and measures of success have been achieved. | | | | | |
| | Start Date | Month 1 | | Completion Date | Month 36 | |
| Deliverables | <ul style="list-style-type: none"> • QPRs in electronic format • Reimbursement Forms and necessary documentation in hard copy format • Final Report in electronic and hard copy formats | | | | | |

| Tasks, Objectives and Schedules | | | | | | |
|---------------------------------|--|----------|-------------|-----------------|----------|----------|
| Task 2 | Quality Assurance | | | | | |
| Costs | Federal | \$20,227 | Non-Federal | \$13,485 | Total | \$33,712 |
| Objective | To develop data quality objectives (DQOs) and quality assurance/control (QA/QC) activities to ensure data of known and acceptable quality are generated through this project. | | | | | |
| Subtask 2.1 | TIAER will develop a QAPP for activities in Task 3 consistent with the most recent versions of <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> . All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the <i>TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)</i> and <i>Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)</i> . [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference (NELAC) standards, shall be required where applicable.] | | | | | |
| | Start Date | Month 1 | | Completion Date | Month 6 | |
| Subtask 2.2 | TIAER will implement the approved QAPP. TIAER will submit revisions and necessary amendments to the QAPP as needed. | | | | | |
| | Start Date | Month 7 | | Completion Date | Month 36 | |
| Deliverables | <ul style="list-style-type: none"> • QAPP approved by TSSWCB and EPA in both electronic and hard copy formats • Approved revisions and amendments to QAPP, as needed • Data of known and acceptable quality as reported through Task 3 | | | | | |

| Tasks, Objectives and Schedules | | | | | | |
|---------------------------------|---|-----------|-------------|-----------------|----------|-----------|
| Task 3 | Water Quality Data Collection and Analysis | | | | | |
| Costs | Federal | \$161,811 | Non-Federal | \$107,882 | Total | \$269,693 |
| Objective | To provide data of known and acceptable quality for surface water quality monitoring of mainstem and tributary stations of the Lampasas River. | | | | | |
| Subtask 3.1 | <p>TIAER will conduct routine ambient monitoring at 10 sites monthly collecting field, conventional, flow and bacteria parameter groups. The 10 sites have been identified by the Partnership (Table 1).</p> <p>Sampling period extends over 24 months. Total number of samples scheduled for collection through this subtask is 240. Spatial and seasonal variation will be captured across the sampling period.</p> <p>TIAER's Laboratory will maintain NELAC accreditation and conduct sample analyses. Field parameters are pH, temperature, dissolved oxygen and specific conductance. Conventional parameters are total suspended solids, nitrate + nitrite nitrogen, total kjeldahl nitrogen, chlorophyll-a, pheophytin and total phosphorus. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. E. coli enumeration will be done using USEPA Method 1603.</p> | | | | | |
| | Start Date | Month 6 | | Completion Date | Month 30 | |
| Subtask 3.2 | <p>TIAER will attempt to conduct biased-flow monitoring at 10 sites (Table 1) once per quarter/season under wet weather conditions, collecting field, conventional (with the exception of chlorophyll-a and pheophytin), flow and bacteria parameter groups. These sites shall be the same as the sites for routine ambient monitoring described in Subtask 3.1. If due to dry weather conditions, a wet-weather sample is not collected in a given quarter, an attempt will be made to collect a missed wet-weather event in future quarters. If a routine sampling event under subtask 3.1 happens to capture wet weather conditions, this event may be considered the wet-weather event for a given quarter. Parameters are the same as defined in subtask 3.1, except chlorophyll-a and pheophytin will not be included with storm samples that are specifically collected to represent wet-weather conditions under subtask 3.2 due to interference issues with high sediment concentrations often associated with these samples.</p> <p>The sampling period extends through 8 quarters/seasons. The number of samples planned for collection through this subtask is 80. Spatial, seasonal and meteorological variation will be captured across the sampling period.</p> <p>Samples will be analyzed at TIAER's Laboratory.</p> | | | | | |
| | Start Date | Month 6 | | Completion Date | Month 30 | |
| Subtask 3.3 | <p>TIAER will submit monitoring data from activities in subtasks 3.1-3.2 for upload into the TCEQ SWQMIS at least quarterly. Data will be transferred in the correct format using the TCEQ file structure along with a completed Data Summary, as described in the most recent version of the TCEQ Surface Water Quality Monitoring Data Management Reference Guide. TIAER will submit Station Location Requests to TCEQ, as needed, to obtain TCEQ station numbers for new monitoring sites. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. All monitoring data files, data summary reports and data correction request forms will also be provided to AgriLife Research. TIAER will input monitoring regime, as detailed in the QAPP, into the TCEQ CMS.</p> | | | | | |
| | Start Date | Month 6 | | Completion Date | Month 33 | |
| Subtask 3.4 | <p>AgriLife Research will summarize the results from Task 3 to be included in the BRA's Clean Rivers Program Basin Highlights Report and Basin Summary Report. AgriLife Research will provide updates on the results and activities of Task 3.1 and 3.2 to the Steering Committee.</p> | | | | | |
| | Start Date | Month 6 | | Completion Date | Month 36 | |

| | |
|--------------|---|
| Deliverables | <ul style="list-style-type: none">• Station Location Request Forms (as needed) in electronic format• Monitoring data files and Data Summary in electronic format• Data correction request forms (as needed) in electronic format• Summary of findings from monitoring activities included in BRA CRP BHR and BSR in both electronic and hardcopy formats |
|--------------|---|

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| Project Goals (Expand from Summary Page) |
| <ul style="list-style-type: none">• Generate data of known and acceptable quality for surface water quality monitoring (routine ambient, targeted ambient) of mainstem and tributary stations for field and conventional parameters, flow, and bacteria• Support the implementation of the Lampasas River WPP by collecting water quality data for use in evaluating the effectiveness of BMPs and in assessing water quality improvement |

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| Measures of Success (Expand from Summary Page) |
| <ul style="list-style-type: none">• Data of known and acceptable quality are generated for surface water quality monitoring of main stem and tributary stations on Lampasas River for field and conventional parameters, flow, and bacteria• Water quality data is used to evaluate progress in implementing the Lampasas River WPP• Monitoring data is appropriately managed and transferred for inclusion into the TCEQ SWQMIS |

| 2017 Texas NPS Management Program Reference (Expand from Summary Page) |
|---|
| Components, Goals, and Objectives |
| Component 1 - Explicit short- and long-term goals, objectives, and strategies to restore and protect surface and groundwater, as appropriate. |
| Long Term Goal - Protect and restore water quality affected by nonpoint source pollution through assessment, implementation, and education. |
| Objective 2 - Support the implementation of state, regional, and local programs to prevent nonpoint source pollution through assessment, implementation, and education. |
| Objective 3 - Support the implementation of state, regional, and local programs to reduce nonpoint source pollution, such as the implementation of strategies defined in TMDL I-Plans, WPPs, and other water quality planning efforts in the state. |
| Objective 7 - Increase overall public awareness of nonpoint source issues and prevention activities |
| Short Term Goals – Goal 1: Coordinate with appropriate federal, state, regional, and local entities, and stakeholder groups to target water quality assessment activities in high priority, nonpoint source-impacted watersheds, vulnerable and impacted aquifers, or areas where additional information is needed. |
| Objective B - Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved TCEQ or TSSWCB Quality Management Plans. |
| Objective E - Conduct monitoring to determine the effectiveness of TMDL I-Plans, WPPs, and BMP implementation. |
| Short Term Goals – Goal 2: Implement TMDL I-Plans and/or WPPs and other state, regional, and local plans/programs to reduce nonpoint source pollution by targeting implementation activities to the areas identified as impacted or potentially degraded by nonpoint source pollution with respect to use criteria. |
| Objective D - Implement TMDL I-Plans, WPPs, and other state, regional, and local plans developed to restore and maintain water quality in water bodies identified as impacted by nonpoint source pollution. |
| Short Term Goals – Goal 3: Conduct education and technology transfer activities to increase awareness of nonpoint source pollution and activities which contribute to the degradation of water bodies, including aquifers, by nonpoint source pollution. |
| Objective A - Enhance existing outreach programs at the state, regional, and local levels to maximize the effectiveness of nonpoint source education. |
| Objective D - Conduct outreach through the CRP, SWCDs, and others to enable stakeholders and the public to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen. |
| Component 2 - Working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities, private sector groups, and federal agencies. |

| EPA State Categorical Program Grants – Workplan Essential Elements FY 2018-2022 EPA Strategic Plan Reference |
|---|
| Strategic Plan Goal – Goal 1 Core Mission: Deliver a cleaner, safer, and healthier environment for all Americans and future generations by carrying out the Agency’s core mission. |
| Strategic Plan Objective – Objective 1.2 Provide for Clean and Safe Water to ensure waters are clean through improved water infrastructure and, in partnership with states and tribes, sustainably manage programs to support drinking water, aquatic ecosystems, and recreational, economic, and subsistence activities. |

Part III – Financial Information

Budget Summary

| | | | | |
|-------------------------------|----|----------------|--------------------|--------------|
| Federal | \$ | 202,264 | % of total project | 60% |
| Non-Federal | \$ | 134,852 | % of total project | 40% |
| Total | \$ | 337,116 | Total | 100% |
| Category | | | | |
| | | Federal | Non-Federal | Total |
| Personnel | \$ | 52,398 | \$ 20,340 | \$ 72,738 |
| Fringe Benefits | \$ | 14,752 | \$ 4,427 | \$ 19,179 |
| Travel | \$ | 2,116 | \$ 0 | \$ 2,116 |
| Equipment | \$ | 0 | \$ 0 | \$ 0 |
| Supplies | \$ | 1,000 | \$ 0 | \$ 1,000 |
| Contractual | \$ | 104,616 | \$ 69,736 | \$ 174,352 |
| Construction | \$ | 0 | \$ 0 | \$ 0 |
| Other | \$ | 1,000 | \$ 0 | \$ 1,000 |
| Total Direct Costs | | | | |
| | \$ | 175,882 | \$ 94,503 | \$ 270,385 |
| Indirect Costs (≤ 15%) | | | | |
| | \$ | 26,382 | \$ 40,349 | \$ 66,731 |
| Total Project Costs | | | | |
| | \$ | 202,264 | \$ 134,852 | \$ 337,116 |

| Budget Justification (Federal) | | |
|---------------------------------------|---------------------|--|
| Category | Total Amount | Justification |
| Personnel | \$ 52,398 | 1 Principal Investigator (annual salary \$235,164; 0.99 month) 1 Data Analyst (annual salary \$60,000; 6 months) *All salary estimates include an annual 3% salary increase and any longevity pay that has accrued. **Salary estimates are based on average monthly percent effort for the entire contract. Actual percent effort may vary more or less than estimated between months; but in the aggregate, will not exceed total effort estimates for the entire project. |
| Fringe Benefits | \$ 14,752 | Fringe benefits are calculated at a rate of 18.2% of salary to cover FICA, UCI, WCI, and retirement. An additional amount of \$746/month** (prorated by % FTE) is calculated for group medical insurance. These estimates are in accordance with the TAMUS Office of Budget and Accounting estimating procedures established for FY2020. * All fringe estimates include an annual 3% salary increase |
| Travel | \$ 2,116 | Travel from Temple to the Lampasas River Watershed, Stephenville, College Station, and Waco (average 200 miles roundtrip) for project planning and coordination meetings and to participate in the BRA CRP meetings. Estimate approximately 4 trips annually, with 1 overnight stay.. *All travel will be reimbursed at @ current state mileage rate (\$0.58 used in estimate), \$96 room night and \$55/day per diem, or actual costs, not to exceed current per diem rates for the state of Texas |
| Equipment | \$ 0 | N/A |
| Supplies | \$ 1,000 | Computer repair and software licensing, computer consumables, presentation and meeting supplies to include ink, paper, toner |
| Contractual* | \$ 104,616 | Tarleton State University - Texas Institute of Applied Environmental Research |
| Construction | \$ 0 | N/A |
| Other | \$ 1,000 | Shipping/postage, professional printing of fact sheets or reports, training registration fees, computer equipment |
| Indirect | \$ 26,382 | 15% of Total Direct Costs |

| Budget Justification (Non-Federal) | | |
|---|---------------------|--|
| Category | Total Amount | Justification |
| Personnel | \$ 20,340 | 1 Principal Investigator (annual salary \$235,164, 0.97 months) *All salary estimates include an annual 3% salary increase and any longevity pay that has accrued. **Salary estimates are based on average monthly percent effort for the entire contract. Actual percent effort may vary more or less than estimated between months; but in the aggregate, will not exceed total effort estimates for the entire project. |
| Fringe Benefits | \$ 4,427 | Fringe benefits are calculated at a rate of 18.2% of salary to cover FICA, UCI, WCI, and retirement. An additional amount of \$746/month** (prorated by % FTE) is calculated for group medical insurance. These estimates are in accordance with the TAMUS Office of Budget and Accounting estimating procedures established for FY2020. * All fringe estimates include an annual 3% salary increase |
| Travel | \$ 0 | N/A |
| Equipment | \$ 0 | N/A |
| Supplies | \$ 0 | N/A |
| Contractual* | \$ 69,736 | Tarleton State University - Texas Institute of Applied Environmental Research |
| Construction | \$ 0 | N/A |
| Other | \$ 0 | N/A |
| Indirect | \$ 40,349 | Texas A&M AgriLife Research DHHS negotiated indirect cost rate is 51.5%. Indirect cost match at the sponsor's required rate of 15% of total direct cost for a total of \$27,594 in unrecovered funds and a total indirect cost of \$40,349. |

| Contractual Budget Justification (Federal) –Tarleton State University - TIAER | | |
|--|---------------------|--|
| Category | Total Amount | Justification |
| Personnel | \$ 35,151 | See personnel table below for details. Federal portion represents about 73 % of total category costs. |
| Fringe Benefits | \$ 10,817 | Approximately 27% of federal salaries (see below for more details) |
| Travel | \$ 0 | N/A |
| Equipment | \$ 0 | N/A |
| Supplies | \$ 4,045 | Field supplies: pH solution \$125; miscellaneous other standards \$500 Equipment maintenance and repair: YSI repairs \$250; Replacement DO probe \$750; Replacement pH probe \$350; Temp/Conductivity Probe \$770. Fuel Charges* for \$3,121. Only 60% of total Supply costs charged to the federal portion of the project. *Fuel charges are billed as supplies through TAMUS |
| Contractual | \$ 0 | N/A |
| Construction | \$ 0 | N/A |
| Other | \$ 46,828 | Lab analyses for samples (\$75,004); vehicle maintenance @ 13 cents/mile (\$2,554), and miscellaneous charges, such as postage and shipping (\$100). More details provided below. Only about 60% of the total Other costs will be charged to the federal portion of the project. |
| Indirect | \$ 7,775 | Indirect charged 15% of total direct minus federal cost of lab analyses of samples (\$45,002). |

| Contractual Budget Justification (Non-Federal) – Tarleton State University – TIAER | | |
|---|--------------|--|
| Category | Total Amount | Justification |
| Personnel | \$ 13,117 | See personnel table given below for details. Non-federal portion represents about 27% of total category costs. |
| Fringe Benefits | \$ 4,036 | Approximately 27% of non-federal salaries (see below for more details) |
| Travel | \$ 0 | N/A |
| Equipment | \$ 0 | N/A |
| Supplies | \$ 2,696 | Field supplies: pH solution \$125; miscellaneous other standards \$500 Equipment maintenance and repair: YSI repairs \$250; Replacement DO probe \$750; Replacement pH probe \$350; Temp/Conductivity Probe \$770. Fuel Charges for \$3,121. **Only about 40% of the total Supplies costs will be charged to the non-federal portion of the project. |
| Contractual | \$ 0 | N/A |
| Construction | \$ 0 | N/A |
| Other | \$ 30,831 | Lab analyses for samples (\$75,004); vehicle maintenance @ 13 cents/mile (\$2,554), and miscellaneous charges, such as postage and shipping (\$100). More details provided below. **Only about 40% of the total Other costs will be charged to the non-federal portion of the project. |
| Indirect | \$ 19,056 | Non-federal match for indirect calculated as the difference between total and federal indirect. Total indirect calculated as 37% of modified total indirect (Tarleton State University's indirect rate). Modified total indirect for this budget equals total direct minus laboratory costs (\$147,505-\$75,004). |

| | Staff Name or Vacant | Position or Title | Avg. Annual Salary or Hourly Wage During Project* | | % Time to Project *** | Total Cost to Project |
|--|---|---------------------------------|---|--|-----------------------|-----------------------|
| Field Operations | | | | | | |
| | Stroebel, Jeff | Research Associate | \$66,916 | | 6.75% | \$14,473 |
| | Millican, Jimmy | Project Manager 3 | \$69,117 | | 3.48% | \$7,924 |
| | Adams, Todd | Research Associate | \$58,454 | | 0.77% | \$1,457 |
| | Blankenship, David | Senior Research Assistant | \$45,475 | | 6.73% | \$9,988 |
| | Hunter, James | Lab Manager | \$57,987 | | 3.78% | \$6,968 |
| | Hunt, Vickie | Staff Technician | \$35,680 | | 0.64% | \$766 |
| | Taylor, Leah | Senior Project Administrator II | \$58,299 | | 0.64% | \$1,157 |
| QA, Coordination of Field Effort, Data Management, Data Submittals | | | | | | |
| | Easterling, Nancy | Research Associate | \$31.21/hr | | 1.63% | \$3,000 |
| | Rogers, Jim | Sr. IT Professional I | \$33.67/hr | | 1.03% | \$2,031 |
| | Murphy, Mark | | \$43.61/hr | | 0.19% | \$493 |
| | * Budget assumes a salary increase of 3% per year. | | | | Salary | \$48,257 |
| | *** Percent time to the project will vary based on when work for tasks and subtasks occurs. | | | | | |

Fringe Uses Approved Rates

Fringe rate for salaried staff calculated as 18.2% times salary costs plus insurance rate of \$747/month (modified budget based on actual spending within the fringe category, which varies by individual). For wage employees, fringe calculated as 10% of hourly rate.

Detailed Justification for Other:

Lab Analysis – For monitoring under Task 3 over 24 month, the budget includes 240 routine grab for conventional parameters of E. coli, CHLA and pheophytin, NO2-N+NO3-N, TKN, TP and TSS (estimated cost per sample \$249) and 80 biased-flow samples of E. coli, NO2-N+NO3-N, TKN, TP and TSS (estimated cost per sample \$190). CHLA and pheophytin will not be analyzed for biased-flow samples. E. coli will be analyzed per EPA method 1603. Other laboratory costs that may be charged to the project include data review, bottle preparation for sampling and extra filtration (as needed for “dirty” samples).

Vehicle maintenance – TIAER maintains its own fleet of vehicles. A small portion of Other (about \$2,554) is included for maintenance items, such as oil changes, replacement tires and other miscellaneous items estimated based on anticipated mileage (about 15 cents per mile). Because TIAER uses its own vehicles, there is an overall savings to the project in comparison to using rental or personal vehicles.

