



**Texas State Soil and Water Conservation Board
 State General Revenue Nonpoint Source Grant Program
 FY2016 Project 16-60**

PROJECT SUMMARY PAGE			
Title of Project	Recreational Use Attainability Analysis for One Water Body in the Sulphur River Basin and One Water Body in the Cypress Creek River Basin		
Project Goals/Objectives	<ul style="list-style-type: none"> To collect the needed data to evaluate factors affecting attainment of recreational use in water body 0303B and water body 0409B. To facilitate public participation and coordinate stakeholder involvement to ensure that decision-making is founded on local input and that watershed action is successful. Develop a comprehensive GIS inventory and evaluate water quality data. 		
Project Tasks	1) Project Administration; 2) Quality Assurance; 3) Assess Attainability of Recreational Use; 4) Public Participation and Stakeholder Facilitation; 5) Comprehensive GIS inventory and Water Quality Review		
Measures of Success	<ul style="list-style-type: none"> Decision-making for RUAA is founded on local stakeholder input Access to private lands to conduct RUAA surveys is obtained Two RUAA surveys at each selected site are completed Landowners and stakeholders are kept informed regarding the RUAA Factors affecting attainment of recreation use are assessed 		
Project Type	Implementation (); Education (); Planning (); Assessment (X)		
Status of Waterbody on 2012 Texas Integrated Report	<u>Segment ID</u> 0303B – White Oak Creek 0409B – South Lilly Creek	<u>Parameter</u> Bacteria & dissolved oxygen Bacteria	<u>Category</u> 5b 5c
Project Location (Statewide or Watershed and County)	White Oak Creek in Morris and Hopkins Counties; and South Lilly Creek in Wood, Camp, and Upshur Counties.		
Key Project Activities	Hire Staff (); Surface Water Quality Monitoring (); Technical Assistance (); Education (X); Implementation (); BMP Effectiveness Monitoring (); RUAA (X); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other (X)		
Texas NPS Management Program Elements	<ul style="list-style-type: none"> Component 1 – Long Term Goal Objectives A, G Component 1 – Short Term Goals 1A, 1B, 1C, 3D, 3F Components 2, 5 		
Project Costs	\$257,237		
Project Management	Texas Institute for Applied Environmental Research at Tarleton State University		
Project Period	November 1, 2015 – October 31, 2017		

Part I – Applicant Information

Applicant							
Project Lead	Dr. Anne McFarland						
Title	Interim Executive Director						
Organization	Texas Institute for Applied Environmental Research at Tarleton State University						
E-mail Address	amcfarland@tiaer.tarleton.edu						
Street Address	201 St. Felix St.						
City	Stephenville	County	Erath	State	Texas	Zip Code	76402
Telephone Number	254-968-9569			Fax Number	254-968-9336		

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 the Texas Commission on Environmental Quality (TCEQ).
Texas Institute for Applied Environmental Research at Tarleton State University (TIAER)	Coordinate and manage all work described in Tasks. Responsible for project administration. Develop and maintain relationships with landowners and stakeholders. Perform RUAA survey activities. Develop GIS inventory. Facilitate public meetings. Develop final Technical Reports.

Part II – Project Information

Watershed Information				
Watershed Name	Hydrologic Unit Code (12 Digit)	Segment ID	305(b) Category	Size (Acres)
White Oak Creek	11140303102	0303B	5b	471,603
	11140303106			
	11140303108			
	11140303111			
	11140303201			
	11140303202			
	11140303204			
	11140303206			
	11140303207			
	11140303208			
South Lilly Creek	111403070105	0409B	5c	14,495

Water Quality Impairment

Describe all known causes of water quality impairments from any of the following sources: 2012 Texas Integrated Report, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

Bacteria is indicated on the 2012 Texas 303(d) List as an impairment for White Oak Creek (0303B) based on data from assessment units (AUs) 0303B_01, 0303B_02, and 0303B_04. Depressed dissolved oxygen (DO) is also indicated on the 2012 Texas 303 (d) List as an impairment in AUs 0303B_01, 0303B_02, 0303B_03, and 0303B_04. Bacteria is indicated on the 2012 Texas 303 (d) List as an impairment for South Lilly Creek (0409B) based on data from AU 0409_01.

For the bacteria impairment, White Oak Creek is categorized as 5b indicating that a review of the water quality standards needs to be conducted before a management strategy is selected, including a possible revision to the water quality standards. South Lilly Creek is categorized as 5c for its bacteria impairment indicating that additional data or information needs to be collected and/or evaluated before a management strategy is selected.

White Oak Creek (0303B) was first listed as impaired for depressed DO in 2000 and bacteria in 2006 and remains on the 2012 Texas Integrated Report. White Oak Creek is an unclassified water body that extends from the confluence of the Sulphur River north of Naples in Morris County to the upstream perennial portion of the stream east of Sulphur Springs in Hopkins County.

South Lilly Creek (0409B) was first listed as impaired for bacteria in 2006 and remains on the 2012 Texas Integrated Report. South Lilly Creek is an unclassified water body that extends from the confluence of Lilly Creek to approximately

2 miles west of Farm-to-Market (FM) 1647.

Project Narrative

Problem/Need Statement

White Oak Creek (0303B) is located in the north eastern region of Texas and crosses portions of Morris, Titus, Franklin, and Hopkins Counties. South Lilly Creek (0409B) is located in the Cypress Creek River Basin in the north eastern region of Texas crosses portions of Wood, Camp, and Upshur Counties.

The TCEQ and the TSSWCB established a joint, technical Task Force on Bacteria Total Maximum Daily Loads (TMDLs) in September 2006 charged with making recommendations on cost-effective and time-efficient bacteria TMDL development methodologies. The Task Force recommended the use of a three-tier approach that is designed to be scientifically credible and accountable to watershed stakeholders. In June 2007, the TCEQ and the TSSWCB adopted the principles and general process recommended by the Task Force. Fundamental in the three-tier approach is ensuring that the appropriate water quality standard (i.e., designated use) is applied to the water body before initiating any watershed planning activity (e.g., TMDL or watershed protection plan).

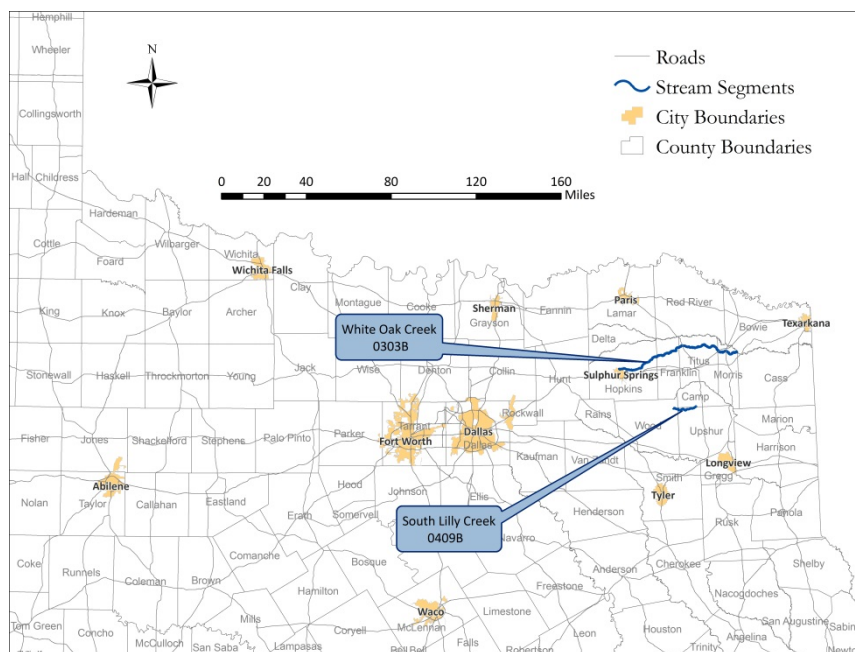
Major revisions to the Texas Surface Water Quality Standards (TSWQS) were adopted by TCEQ in 2010 and approved by EPA in 2011, including modifications to contact recreation use and bacteria criteria. As part of this process, TCEQ developed procedures for conducting RUAs. In order for a new category of recreational use or a different bacteria water quality criterion to be applied to a water body, an RUA needs to be conducted. TCEQ and TSSWCB have collaborated on developing a list of priority water bodies for collecting information needed for RUAs and the water bodies for this project (White Oak Creek and South Lilly Creek are on that list). Since primary contact recreation use is presumed for both water bodies in the study area, the findings from an RUA will provide information to substantiate the level of recreational use actually occurring in the water bodies.

In accordance with the Watershed Action Planning process (<http://www.tceq.texas.gov/waterquality/planning/wap/>) and the *Memorandum of Agreement Between the TCEQ and the TSSWCB Regarding TMDLs, Implementation Plans, and Watershed Protection Plans*, the TSSWCB has agreed to take the lead role in addressing the bacteria impairments in this project's study area. Through this project, the TSSWCB and TIAER will work with local stakeholders to progress through the data collection components of an RUA and at the end of this project have adequate data that either supports the existing designated use (primary contact recreation) or supports a change in designated use (e.g., secondary contact recreation) for the two water bodies in this project.

Project Narrative

General Project Description (Include Project Location Map)

Comprehensive RUAs will be conducted on White Oak Creek (0303B) and South Lilly Creek (0409B). These comprehensive RUAs consist of five main tasks: a) public participation and stakeholder interaction through educational outreach meetings, b) interviews and historical review of the recreational use of each water body, c) development of a comprehensive GIS inventory, d) review of water quality data, and e) completion of the two required RUAA surveys of each water body.



RUAA survey site selection is predicated on reconnaissance trips, public participation, and stakeholder interaction. An initial reconnaissance trip will be completed prior to meeting with stakeholders about the project, and follow-up trips will occur when interaction with local landowners can provide opportunities for additional sites. Two field surveys will be conducted at each of the selected sites by TIAER. Each survey will be conducted according to the March 2014 version of the *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey* and will include the collection of transect information along a stretch of the creek at each site documenting the presence or absence of water recreation activities and characteristics regarding stream flow type and pool depths. Interview information will

also be collected from individuals either actively recreating or knowledgeable of sites and/or the project water bodies in general. Each survey will be performed at a time of year under weather and hydrologic conditions that are conducive to observing recreational use, which means when air temperatures are warm to hot (>70° F). Field surveys will be conducted during the period people would most likely be using the water body for contact recreation. A historical information review will be conducted on recreation use that occurred on each creek on and after November 28, 1975.

The public education and stakeholder interaction task is critical to the success of the project. This task will be performed by TIAER to accomplish two complimentary goals – 1) obtaining landowner permission for access to sites along each project water body and 2) ensuring that decision-making regarding the RUAA is founded on local input. An initial public meeting will be held for each water body where the RUAA process is described and solicitation is made for access to the water body. TIAER will work with Sulphur-Cypress #419, Hopkins-Rains #445, Wood #444, and Upshur-Gregg #417 SWCDs and affected city councils, county commissioners' courts, and water districts in communicating with other local landowners and stakeholders. Any necessary follow-up meetings will be conducted to further communicate the RUAA process and to obtain landowner permission for access to water body sites. A mid-project update meeting and a meeting to present findings of the RUAA surveys will also be conducted.

Project Goals (Expand from Summary Page)

- To collect needed data to evaluate factors affecting attainment of recreational use in water body 0303B and water body 0409B by collecting all necessary data required for a Comprehensive RUAA. This will include observations and physical measurements of both the segment and the water body at several locations, survey information from landowners familiar with the watershed and persons observed recreating in or near each water body, and a review of historical records focusing on recreational use of these two water bodies
- To facilitate public participation and coordinate stakeholder involvement to ensure that decision-making is founded

on local input and that watershed action is successful by hosting and conducting public meetings, disseminating informational materials, and through direct interaction with affected local entities.

- To develop a comprehensive GIS inventory and evaluate historical water quality data.

Measures of Success (Expand from Summary Page)

- Decision-making for RUAA activities is founded on local stakeholder input garnered at public meetings and through direct interaction with affected landowners and entities
- Access to private lands is obtained from landowners to conduct RUAA surveys to obtain the desired density and spacing of RUAA sites; approximately 80 total sites are needed
- Two RUAA surveys are completed at each selected site as described in TCEQ's 2014 RUAA guidance
- Landowners and stakeholders are kept informed regarding the RUAA through public notices and meetings and are solicited to participate through the RUAA surveys and interviews
- Factors affecting attainment of recreation use are assessed and adequate data of known and acceptable quality is provided that either supports the existing use or supports changing the water quality standard

2012 Texas Nonpoint Source Management Program Reference (Expand from Summary Page)

- Component 1 – Explicit short- and long-term goals, objectives and strategies that protect surface...water.
 - Long Term Goal – Objective A – Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by NPS pollution.
 - Long-Term Goal – Objective G – Enhance public participation and outreach by providing forums for citizens... to contribute their ideas and concerns about the water quality management process.
 - Short-Term Goal One – Data Collection and Assessment – Objective A – Identify surface water bodies... from the Texas Water Quality Inventory and 303(d) List... that need additional information to characterize non-attainment of designated uses and [water] quality standards.
 - Short-Term Goal One – Data Collection and Assessment – Objective B – Ensure that monitoring procedures meet quality assurance requirements and are in compliance with [the] EPA-approved... TSSWCB Quality Management Plan.
 - Short Term Goal Three – Education – Objective D – Conduct outreach...to facilitate broader participation and partnerships...[to] enable stakeholders...to participate in decision-making and provide a more complete understanding of water quality issues and how they relate to each citizen.
 - Short Term Goal Three – Education – Objective F – Implement public outreach and education to maintain and restore water quality in water bodies impacted by NPS pollution.
- Component 2 – Working partnerships...[with] appropriate state, ...regional, and local entities, private sector groups, and federal agencies.
- Component 5 – The State...identifies waters...impaired by NPS pollution and ...establishes a process to progressively address these...waters by conducting more detailed watershed assessments...

Tasks, Objectives and Schedules

Task 1	Project Administration			
Costs	\$23,151			
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	TIAER will prepare electronic quarterly progress reports (QPRs) for submission to TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15 th of December, March, June and September.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.2	TIAER 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 24

Subtask 1.3	TIAER will host coordination meetings or conference calls with TSSWCB, and any Project Partners as appropriate, at least quarterly to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TIAER will develop lists of action items needed following each project coordination meeting and distribute to project personnel, as appropriate.			
	Start Date	Month 1	Completion Date	Month 24
Deliverables	<ul style="list-style-type: none"> Quarterly Progress Reports in electronic format Reimbursement Forms, and necessary supporting documentation, in either electronic or hard copy form at least quarterly List of action items needed from project coordination meetings 			

Tasks, Objectives and Schedules				
Task 2	Quality Assurance			
Costs	\$7,626			
Objective	To develop and implement 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 quality assurance project plan (QAPP) covering activities outlined in Task 3 and Task 5 that is 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> . All procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the March 2014 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> .			
	Start Date	Month 1	Completion Date	Month 8
Subtask 2.2	TIAER will implement the approved QAPP. TIAER will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 9	Completion Date	Month 24
Deliverables	<ul style="list-style-type: none"> QAPP for Tasks 3 and 5 approved by TSSWCB in both electronic and hard copy formats Approved revisions and amendments to the QAPP, as needed Data of known and acceptable quality as reported through Task 3 			

Tasks, Objectives and Schedules				
Task 3	Assess Attainability of Recreational Use			
Costs	\$155,509			
Objective	To collect information that can be used to evaluate factors affecting attainment of recreational use in White Oak Creek (0303B) and South Lilly Creek (0409B).			
Subtask 3.1	TIAER will conduct at least one reconnaissance trip for each segment and water body to assess potential survey sites. The goal will be to have approximately 3 sites per 5 miles of river (approximately 80 sites total). The reconnaissance should locate and document areas in which the water body is accessible to the public and involve contacting and coordinating with local streamside landowners (in conjunction with subtask 4.1) in order to obtain permission to access the water body from private property.			
	Start Date	Month 1	Completion Date	Month 6

Subtask 3.2	Utilizing information from subtask 3.1 (reconnaissance trip), subtask 5.1 (comprehensive GIS inventory), subtask 4.1 (public input), and other relevant information, TIAER will identify sites for RUAA data collection for each water body. Proposed sites should be located in areas where the water body is accessible to the public and has the highest potential for recreational use (primary contact). Because public access is limited along these water bodies, other sites on private property will also be selected for the purpose of characterizing the physical characteristics of these creeks to assist in determining the potential level of recreation use that could be supported. The sites should be well-spaced and, in general, distributed such that there are 3 sites for every 5 miles of stream. TIAER will prepare a Site Selection Rationale document for TSSWCB submission to TCEQ. The QAPP, as detailed in Task 2, will precisely identify selected sites.				
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Start Date	Month 5	Completion Date	Month 8		
Subtask 3.3	TIAER shall conduct a thorough historical information review of the recreational uses of each water body back to November 28, 1975. Historical resources that should be examined include, but are not limited to, photographic evidence, local newspapers, museum collections, published reports, historical society records, and long-term landowners/residents. The Sulphur River Basin Authority (SRBA) and the Northeast Texas Municipal Water District (NETMWD), Texas Parks and Wildlife Department (TPWD), and commercial providers of outdoor recreation goods and services should be consulted for historical information.				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">Start Date</td> <td style="width:25%; text-align:center;">Month 1</td> <td style="width:25%; text-align:center;">Completion Date</td> <td style="width:25%; text-align:center;">Month 18</td> </tr> </table>	Start Date	Month 1	Completion Date	Month 18
Start Date	Month 1	Completion Date	Month 18		
Subtask 3.4	TIAER will conduct 2 field surveys at each selected site (subtask 3.2). Surveys shall be conducted during a normal warm season (air temperature $\geq 70^{\circ}\text{F}$) during base flow conditions. Base flow conditions are sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather. The surveys should be performed during the period people would most likely be using the water body for contact recreation, typically May to September (e.g., summer, holidays, and weekends). To ascertain the suitability of streams for contact recreation use, field surveys shall document stream characteristics, such as width and depth of channel and substantial pools, flow severity, bank access, dominant substrate, and conditions that may promote or impede recreational activities. Information to be collected shall at least satisfy those questions found on the Field Data Sheet from the March 2014 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> . TIAER shall document and describe antecedent (prior to fieldwork) rainfall conditions (approximately 30 days) at each selected site.				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">Start Date</td> <td style="width:25%; text-align:center;">Month 9</td> <td style="width:25%; text-align:center;">Completion Date</td> <td style="width:25%; text-align:center;">Month 12</td> </tr> </table>	Start Date	Month 9	Completion Date	Month 12
Start Date	Month 9	Completion Date	Month 12		
Subtask 3.5	TIAER shall collect a digital photographic record of each selected site during the field surveys. Photographs shall, at a minimum, include upstream, left and right bank, and downstream views at the 0 m, 150 m, and 300 m transects. Any evidence of observed uses or indications of human use shall be photographed. Photographs should clearly depict the entire channel and each transect measured.				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">Start Date</td> <td style="width:25%; text-align:center;">Month 9</td> <td style="width:25%; text-align:center;">Completion Date</td> <td style="width:25%; text-align:center;">Month 12</td> </tr> </table>	Start Date	Month 9	Completion Date	Month 12
Start Date	Month 9	Completion Date	Month 12		
Subtask 3.6	In order to obtain information on existing and historical uses and stream characteristics, TIAER shall conduct interviews of 1) users present during the field surveys, 2) streamside landowners along the field survey transects, 3) local residents, and 4) commercial providers of outdoor recreation goods and services. Surveys shall include at least those questions found on the Interview Form from the March 2014 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> .				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">Start Date</td> <td style="width:25%; text-align:center;">Month 9</td> <td style="width:25%; text-align:center;">Completion Date</td> <td style="width:25%; text-align:center;">Month 18</td> </tr> </table>	Start Date	Month 9	Completion Date	Month 18
Start Date	Month 9	Completion Date	Month 18		
Subtask 3.7	TIAER will combine findings from historical information review, field surveys, and user interviews into two separate Technical Reports (one for each water body as they are in separate basins) that shall at least include those contents described for a Comprehensive RUAA in the March 2014 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> . Per the <i>TCEQ Procedures</i> .				
	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:25%; text-align:center;">Start Date</td> <td style="width:25%; text-align:center;">Month 13</td> <td style="width:25%; text-align:center;">Completion Date</td> <td style="width:25%; text-align:center;">Month 24</td> </tr> </table>	Start Date	Month 13	Completion Date	Month 24
Start Date	Month 13	Completion Date	Month 24		

Deliverables	<ul style="list-style-type: none"> • Site Selection Rationale document for each water body • Contact Information Forms for each water body • Field Data Sheets and Data Summary in electronic format • Digital photographic record, cataloged in an appropriate manner • Interview Forms and Data Summary in electronic format • A Technical RUAA report for each water body summarizing historical information review, field surveys, and user interviews
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Tasks, Objectives and Schedules

Task 4	Public Participation and Stakeholder Coordination		
Costs	\$51,773		
Objective	To facilitate public participation and coordinate stakeholder involvement to ensure that decision-making is founded on local input and that watershed action is successful.		
Subtask 4.1	TIAER will facilitate public participation activities and coordinate stakeholder involvement in the project. TIAER will develop (Months 1-3) and maintain (Months 4-24) a database of stakeholders likely to be affected by this project.		
	Start Date	Month 1	Completion Date
			Month 24
Subtask 4.2	TIAER will contact local entities listed on the Contact Information Form to notify them that a RUAA is being conducted in their watershed.		
	Start Date	Month 1	Completion Date
			Month 3
Subtask 4.3	TIAER will provide logistical support for public meetings, including, but not limited to, securing meeting facilities, preparing/disseminating meeting notices and agenda, conducting meetings, and preparing meeting summaries. At a minimum, public stakeholder meetings shall consist of 1) an initial informational meeting prior to the first field survey event (~Month 4-6), 2) a project update meeting after the first field survey event (~Month 9-12), and 3) a summary of findings meeting presenting draft Technical Reports to stakeholders for review (~Month 19-23). A primary objective of the initial informational meetings is to discuss proposed sites and solicit landowner permission for private-land access to survey sites. Meeting frequency may be adjusted throughout the course of the project to accomplish project goals. TSSWCB will review and approve all meeting notices, agendas, materials, and summaries prior to public dissemination.		
	Start Date	Month 2	Completion Date
			Month 24
Subtask 4.4	TIAER will attend and participate in other public meetings, as appropriate, in order to communicate project goals, activities, and accomplishments to affected parties. Such meetings may include, but are not limited to, city council meetings, county commissioners' court meetings, SWCD meetings, SRBA Clean Rivers Program (CRP) Steering Committee and Coordinated Monitoring meetings, and other appropriate meetings of critical watershed stakeholder groups.		
	Start Date	Month 1	Completion Date
			Month 24
Subtask 4.5	In order to engage the public and affected entities in the RUAA process, TIAER will develop and disseminate educational material to watershed stakeholders, including, but not limited to, flyers, brochures, letters, and news releases. TIAER will utilize all appropriate communication mechanisms including direct mail, e-mail, and mass media (print, radio, television). TIAER will provide information about the project to SRBA and NETMWD for inclusion in CRP Basin Summary Report and Basin Highlights Report. TSSWCB must approve all materials and publications prior to public distribution. TIAER will host and maintain a webpage to serve as a public clearinghouse for all project-related information. The website will serve as a means to disseminate information to stakeholders and the general public.		
	Start Date	Month 1	Completion Date
			Month 24

Deliverables	<ul style="list-style-type: none"> Stakeholder contact list, updated as appropriate Public meeting notices, agendas, materials, summaries and lists of attendees Educational materials, as developed and disseminated List of other meetings attended and dates with brief summary of topics discussed and action needed included in QPRs Information developed for inclusion in CRP materials Content matter for webpage
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Tasks, Objectives and Schedules			
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Task 5	GIS Inventory and Water Quality Review		
Costs	\$19,178		
Objective	To develop a comprehensive GIS inventory for the study area and review historical water quality data.		
Subtask 5.1	TIAER will develop a comprehensive GIS inventory for each watershed. Data should include the most recent information available on land use/land cover classification, elevation, soils, stream networks, reservoirs, roads, public parklands, municipalities, and satellite imagery or aerial photography. Locations of SWQM stations, USGS gages, public access points to the water bodies, floodwater-retarding structures, wetlands, TPDES permittees (including WWTFs, CAFOs and MS4s), and subdivisions should also be included, as well as, sites permitted for land application of sewage sludge and septage.		
	Start Date	Month 1	Completion Date
			Month 8
Subtask 5.2	TIAER will conduct a historical data review for each the water body in order to assess and characterize trends and variability in water quality, specifically bacteria. Historical data collection activities should concentrate on 1) ambient water quality data; 2) stream flow and water level data; 3) precipitation records; and 4) permitted facilities, discharges, and effluent quality. At a minimum, USGS, National Weather Service, TPWD, Texas Water Development Board (TWDB), SRBA, NETMWD, TCEQ, and the U.S. Environmental Protection Agency (EPA) should be queried for data related to the study area.		
	Start Date	Month 1	Completion Date
			Month 18
Deliverables	<ul style="list-style-type: none"> Comprehensive GIS inventory and characterizing trends and variability in historical water quality monitoring data to be used in the RUAA report. 		

Part III – Financial Information

Budget Summary	
Category	Costs
Personnel	\$138,252
Fringe Benefits	\$42,736
Travel	\$34,918
Equipment	N/A
Supplies	\$4,140
Contractual	N/A
Construction	N/A
Other	\$3,638
Total Direct Costs	\$223,684
Indirect Costs (≤15%)	\$33,553
Total Project Costs	\$257,237

Budget Justification		
Category	Costs	Justification
Personnel	\$138,252	<ul style="list-style-type: none"> • Project Manager, Coordinator, & Field Crew Team Member (~45%) • Research Scientist – QAO & technical oversight (4%) • 1 Field Coordinator for RUAA surveys (~43%) • 1 Field Crew Team Member for RUAA surveys (~8%) • 1 Student Worker for RUAA surveys (~18%) • 2 Research Associates – GIS Specialist/RUAA survey asst. (~3%) • Programmer – data management & website maintenance (~1%) • Admin. Asst. – to aid in coordinating travel and formatting of final report (~5%) • 1 Graduate Assistant – Assist Project Manager & Field Coordinator (~12%)
Fringe Benefits	\$42,736	About 31% of Personnel based TAMUS fringe rate
Travel	\$34,918	Travel includes stakeholder meetings (administrative, SWCD, and public meetings) reconnaissance trips to each field survey area, 2 RUAA surveys for the segment and the water body, and coordinated monitoring meetings – includes lodging, per diem, vehicle rental and gas expenditures, and vehicle maintenance for TIAER field trucks – details for travel are provided below.
Equipment		N/A
Supplies	\$4,140	Field supplies (waders, power inverters, survey stakes, tagline, survey paint, batteries, and ice & water for crew), presentation materials and advertising for meetings.
Contractual		N/A
Construction		N/A
Other	\$3,638	Miscellaneous charges, such as vehicle maintenance for TIAER vehicles, postage, shipping and overnight delivery, printing, and venue rental.
Indirect	\$33,553	Calculated at 15% of Total Direct Cost

Detailed Travel Justification:

For stakeholder meetings and public outreach, travel consists of the following for each water body:

- White Oak Creek (0303B)
 - 10 total meetings (2 administrative, 2 SWCD, and 6 public)
 - Public Stakeholder meetings to be held in Sulphur Springs and Mount Vernon, Texas

- South Lilly Creek (0409B)
 - 6 total meetings (1 administrative, 2 SWCD, and 3 public)
 - Public Stakeholder meetings to be held in Pittsburg, Texas

Administrative meetings include one per SWCD within each watershed, additional meetings for other administrative groups, such as municipalities and counties, and three public stakeholder meetings per watershed. Travel also includes one trip per year to present information regarding the project at coordination meetings held by the SBRA and NETMWD. Travel to administrative meeting includes 2 people for both water body 0303B and water body 0409B. Travel to public stakeholder meetings includes 2 people for meetings 1, 2, and 3.

Field travel includes the two field surveys as well as reconnaissance trips to each watershed for site selection including meeting with private land owners to solicit site access. Reconnaissance includes 3 trips each a week long for 0303B and 2 trips each for 2.5 days for 0409B. Field surveys for 0303B include 3 people on 4 week-long trips for each field survey (8 trips total). Field surveys for 0409B include 3 people for three days for each survey (2 trips total) for 0409B.