



**Texas State Soil and Water Conservation Board
 State General Revenue Nonpoint Source Grant Program
 FY 2012 Project 12-52**

PROJECT SUMMARY PAGE																				
Title of Project	Recreational Use Attainability Analysis for Five Creeks in the Canadian River and Red River Basins																			
Project Goals/Objectives	<ul style="list-style-type: none"> To collect the needed data to evaluate factors affecting attainment of recreational use in Segments 0101A, 0101B, , 0214B, 0230A, and 0299A To facilitate public participation and coordinate stakeholder involvement to ensure that decision-making is founded on local input and that watershed action is successful To assess possible sources of bacteria by developing a comprehensive GIS inventory, evaluating historical water quality data, and conducting a watershed source survey 																			
Project Tasks	1) Project Administration; 2) Quality Assurance; 3) Assess Attainability of Recreational Use; 4) Public Participation and Stakeholder Facilitation; 5) Survey and Inventory Possible Bacteria Sources																			
Measures of Success	<ul style="list-style-type: none"> Decision-making for RUAA is founded on local stakeholder input Obtain access to private lands to conduct RUAA surveys Complete two RUAA surveys at each selected site Keep landowners and stakeholders informed regarding the RUAA Factors affecting attainment of recreation use are assessed 																			
Project Type	Implementation (); Education (); Planning (); Assessment (X)																			
Status of Waterbody on 2010 Texas Integrated Report	<table border="1"> <thead> <tr> <th>Segment ID</th> <th>Parameter</th> <th>Category</th> </tr> </thead> <tbody> <tr> <td>0101A Dixon Creek</td> <td>Bacteria and dissolved oxygen</td> <td>5b</td> </tr> <tr> <td>0101B Rock Creek</td> <td>Bacteria</td> <td>5c</td> </tr> <tr> <td>0214B Buffalo Creek</td> <td>Bacteria</td> <td>5b</td> </tr> <tr> <td>0230A Paradise Creek</td> <td>Bacteria</td> <td>5b</td> </tr> <tr> <td>0299A Sweetwater Creek</td> <td>Bacteria</td> <td>5b</td> </tr> </tbody> </table>	Segment ID	Parameter	Category	0101A Dixon Creek	Bacteria and dissolved oxygen	5b	0101B Rock Creek	Bacteria	5c	0214B Buffalo Creek	Bacteria	5b	0230A Paradise Creek	Bacteria	5b	0299A Sweetwater Creek	Bacteria	5b	
Segment ID	Parameter	Category																		
0101A Dixon Creek	Bacteria and dissolved oxygen	5b																		
0101B Rock Creek	Bacteria	5c																		
0214B Buffalo Creek	Bacteria	5b																		
0230A Paradise Creek	Bacteria	5b																		
0299A Sweetwater Creek	Bacteria	5b																		
Project Location (Statewide or Watershed and County)	Dixon Creek and Rock Creek in Hutchinson and Carson Counties, Buffalo Creek in Wichita County, Paradise Creek in Foard and Wilbarger Counties, and Sweetwater Creek in Wheeler and Gray Counties																			
Key Project Activities	Hire Staff (X); Surface Water Quality Monitoring (X); Technical Assistance (); Education (X); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (); Modeling (); Bacterial Source Tracking (); Other (X)																			
Texas NPS Management Program Elements	<ul style="list-style-type: none"> Element 1 – Long Term Goal Objectives A, G Element 1 – Short Term Goals 1A, 1B, 1C, 3D, 3F Elements 2, 5 																			
Project Costs	\$683,683																			
Project Management	<ul style="list-style-type: none"> Texas Institute for Applied Environmental Research at Tarleton State University 																			
Project Period	August 1, 2012 – July 31, 2014																			

Part I – Applicant Information

Applicant							
Project Lead	Dan Hunter						
Title	Executive Director						
Organization	Texas Institute for Applied Environmental Research at Tarleton State University						
E-mail Address	dhunter@tiaer.tarleton.edu						
Street Address	201 St. Felix St.						
City	Stephenville	County	Erath	State	Texas	Zip Code	76402
Telephone Number	254-968-9566			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 and source inventory. Develop GIS inventory. Facilitate public meetings. Develop final Technical Reports.
Soil and Water Conservation Districts Gray County SWCD #125, Wheeler County SWCD #141, Hutchinson SWCD #146, McClellan Creek SWCD #156, Foard County SWCD #161, Wilbarger SWCD #537, and Wichita SWCD #538	Collaborate as critical local stakeholders and play a lead role in communicating with other local stakeholders.

Part II – Project Information

Watershed Information

Watershed Name	Hydrologic Unit Code (12 Digit)	Segment ID	305(b) Category	Size (Acres)
Dixon Creek	11090106-0204 & -0208	0101A	5b	17,890
Rock Creek	11090106-0107 & -0109	0101B	5c	18,990
Buffalo Creek	11130206-0402 thru -0404	0214B	5b	64,975
Paradise Creek	11130105-0203 & -0204	0230A	5b	72,190
Sweetwater Creek	11120302-0201 thru -0210	0299A	5b	242,665

Water Quality Impairment

Describe all known causes of water quality impairments from any of the following sources: 2010 Texas Integrated Report, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

Bacteria is listed on the *2010 Texas 303(d) List* as an impairment for assessment units 0101A_01 Dixon Creek, 0101B_01 Rock Creek, 0214B_01 Buffalo Creek, 0230A_03 Paradise Creek, and 0299A_01 Sweetwater Creek. All five assessment units are classified as category 5b or 5c indicating that a review of the water quality standards for the waterbody needs to be conducted or additional data and information needs to be collected before a TMDL is scheduled.

Dixon Creek (AU 0101A_01) was first listed for bacteria in 2000 and is also listed in the 2010 Texas Integrated Report as impaired due to depressed dissolved oxygen concentrations. Dixon Creek has two AUs and only AU 0101A_01 from the confluence with the Canadian River upstream to the confluence with the permitted outfall receiving waters tributary is listed for bacteria. AU 0101A_02 is from the confluence with the permitted outfall receiving waters tributary to the confluence of the East, Middle, and West Forks of Dixon Creek. Concerns along Dixon Creek include chlorophyll-a (0101A_02) and nitrate (0101A_01).

Rock Creek (AU 0101B_01) is represented by only one AU and was first listed for bacteria in 2006. No other parameters are listed as impairments. Concerns along Rock Creek include chlorophyll-a, nitrate, and orthophosphorus.

Buffalo Creek (AU 0214B_01) is represented by only one AU and was first listed for bacteria 2010. Concerns along Buffalo Creek include ammonia, chlorophyll-a, nitrate, orthophosphorus, and total phosphorus.

Paradise Creek (AU 0230A_03) was first listed for bacteria in 2006 and has no other parameters listed as impairments. Paradise Creek has two AUs (0230A_03 and 0230A_04). In the 2010 Texas Integrated Report, 0230A_03 is defined as representing the lower five miles of the waterbody and 0230A_04 is defined as representing the remainder of the waterbody. Concerns for chlorophyll-a and nitrate are noted for both 0230A_03 and 0230A_04.

Sweetwater Creek (0299A_01) is represented by only one AU and was first listed for bacteria in 2002. No other parameters are noted for impairments or concerns for Sweetwater Creek.

Project Narrative

Problem/Need Statement

The five creeks to be addressed are located in the Panhandle Plains region of northern Texas. Rock Creek (Segment 0101B) and Dixon Creek (Segment 0101A) are located in Hutchinson and Carson Counties northeast of Amarillo, Texas within the Canadian River Basin. The watersheds of Rock and Dixon Creek abut one another, so both include portions of the City of Borger, Texas. Sweetwater Creek (Segment 0299A), Paradise Creek (Segment 0230A), and Buffalo Creek (Segment 0214B) are located within the Red River Basin. Sweetwater Creek forms in Gray County and flows through Wheeler County with Segment 0299A truncated as the Sweetwater River crosses the Texas-Oklahoma boarder. The watershed for Segment 0299A includes the cities of Mobeetie and Wheeler, Texas. Paradise Creek (Segment 0230A) initiates in the eastern portion of Foard County and flows through Wilbarger County terminating at its confluence with the Pease River just east of Vernon Texas. Within Foard County, the Paradise Creek watershed includes the City of Thalia, Texas and small portions of Vernon, Texas. The most eastern creek of the five is Buffalo Creek (Segment 0214B), which is located west of Wichita Falls, Texas entirely within Wichita County. The headwaters of Buffalo Creek include much of the city of Electra, Texas and the City of Iowa Park, Texas is located within the lower third of the watershed.

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 waterbody before initiating any watershed planning activity (e.g., TMDL or watershed protection plan).

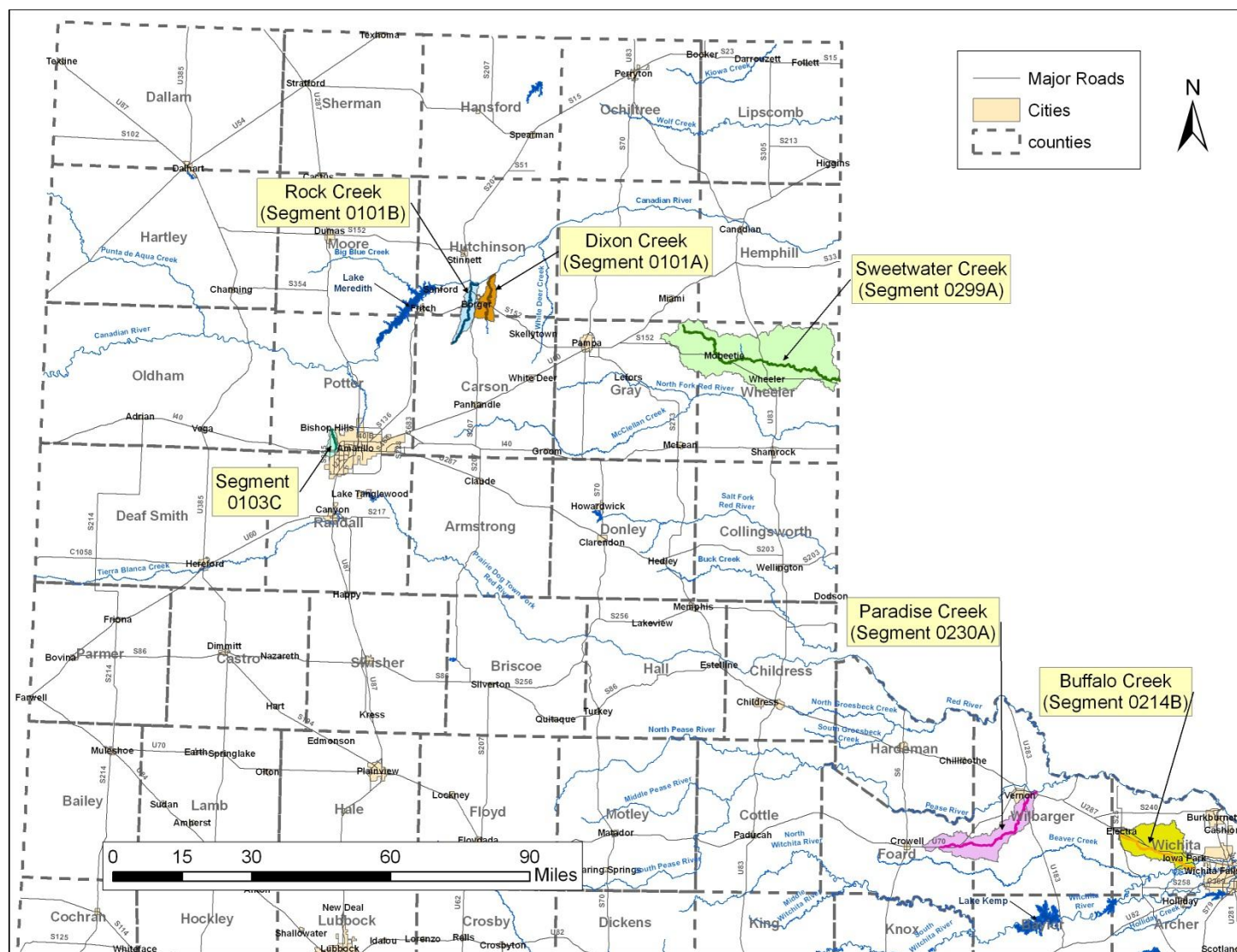
Major revisions to the Texas Surface Water Quality Standards (TSWQS) were adopted by TCEQ in 2010 and approved by EPA in 2011, including modifications to contact recreation use and bacteria criteria. As part of this process, TCEQ developed procedures for conducting RUAAs. In order for a new category of recreational use or a different bacteria water quality criterion to be applied to a waterbody, an RUAAs will need to be conducted. TCEQ and TSSWCB have collaborated on developing a list of priority waterbodies for collecting information needed for RUAAs and the waterbodies for this project (Dixon Creek, Rock Creek, Buffalo Creek, Paradise Creek, and Sweetwater Creek) are on that list. Since primary contact recreation use is presumed for the unclassified segments in the study area and it is not known with certainty that recreational use in these waterbodies occurs, the findings from an RUAAs will provide information regarding the level of recreational use actually occurring in the waterbodies.

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 RUAAs 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 five segments for this project: Dixon Creek (0101A), Rock Creek (0101B), Buffalo Creek (0214B), Paradise Creek (0230A), and Sweetwater Creek (0299A).

Project Narrative

General Project Description (Include Project Location Map)

Comprehensive RUAs will be conducted on five segments: Dixon Creek (0101A), Rock Creek (0101B), Buffalo Creek (0214B), Paradise Creek (0230A), and Sweetwater Creek (0299A) located within north Texas in the Canadian River and Red River Basins. These comprehensive RUAs consist of four main tasks: a) public participation and stakeholder interaction through educational outreach meetings, interviews and historical review of the recreational use of each waterbody; b) compilation of existing GIS data pertaining to each watershed including spatial identification of potential sources, such as point source dischargers; c) completion of the required two RUA surveys of each creek; and d) review of water quality data including a survey of potential bacteria sources.



RUA 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 provides opportunities for additional sites. Two surveys will be conducted at each of the selected sites by TIAER. Each survey will be conducted per the February 2012 version of the *TCEQ Procedures for a Comprehensive RUA and a Basic RUA 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 survey information will also be collected from

individuals either actively recreating at each site or knowledgeable of the site and the project creeks 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 waterbody for contact recreation. A historical information review will be conducted on recreation use that occurred on each creek on and after November 28, 1975.

As part of the RUAA, TIAER will also conduct a watershed source survey to better characterize possible sources of bacteria loadings. Local stakeholders and technical experts will be consulted on possible sources of bacteria loadings. Locations of possible bacteria sources identified during the source survey will be incorporated into the GIS inventory.

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 creek and 2) ensuring that decision-making regarding the RUAA is founded on local input. A initial public meeting will be held for each creek where the RUAA process is described and solicitation is made for access to the waterbody. Direct interaction with affected city councils, county commissioners' courts, and SWCDs will occur. Any necessary follow-up meetings will be conducted to further communicate the RUAA process and to obtain landowner permission for access to creek 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 Segments 0101A, 0101B, 0214B, 0230A, and 0299A by collecting all necessary data required for a Comprehensive RUAA; specifically, observations and physical measurements will be made of the waterbodies at several locations, survey information will be obtained from landowners familiar with the watershed and persons observed recreating in or near the bayou, and review of historical records from the study area.
- 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 assess possible sources of bacteria by developing a comprehensive GIS inventory, evaluating historical water quality data, and conducting a watershed source survey.

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 97 sites are needed
- Two RUAA surveys are completed at each selected site as described in TCEQ's 2012 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
- Potential sources of bacteria are documented through the source survey

2005 Texas Nonpoint Source Management Program Reference (Expand from Summary Page)

- Element 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 waterbodies... 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 One – Data Collection and Assessment – Objective C – Conduct special studies to determine sources of NPS pollution and gain information to target... BMP implementation.
 - 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 waterbodies impacted by NPS pollution.
- Element 2 – Working partnerships...[with] appropriate state, ...regional, and local entities, private sector groups, and federal agencies.
- Element 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	\$45,234		
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
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
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
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 format List of action items needed from project coordination meetings 		

Tasks, Objectives and Schedules			
Task 2	Quality Assurance		
Costs	\$17,273		
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 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 February 2012 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> .		
	Start Date	Month 1	Completion Date
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
Deliverables	<ul style="list-style-type: none"> QAPP for Task 3 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	\$275,109		
Objective	To collect information that can be used to evaluate factors affecting attainment of recreational use in Dixon Creek (0101A), Rock Creek (0101B), Buffalo Creek (0214B), Paradise Creek (0230A), and Sweetwater Creek (0299A).		
Subtask 3.1	TIAER will conduct at least one reconnaissance trip for each segment to assess potential survey sites. The goal will be to have approximately 3 sites per 5 miles of river (approximately 97 sites total). The reconnaissance should locate and document areas in which the waterbody 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 waterbody from private property.		
	Start Date	Month 1	Completion Date
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 waterbody. Proposed sites should be located in areas where the waterbody is accessible to the public and has the highest potential for recreational use (primary contact). Because public access is limited along these waterbodies, other sites on private property will also be selected for the purpose of characterizing the physical characteristics of the streams 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.		
	Start Date	Month 7	Completion Date
Subtask 3.3	TIAER shall conduct a thorough historical information review of the recreational uses of each waterbody 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 Red River Authority of Texas (RRA), Texas Parks and Wildlife Department (TPWD), and commercial providers of outdoor recreation goods and services should be consulted for historical information.		
	Start Date	Month 1	Completion Date
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 baseflow conditions. Baseflow 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 waterbody 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, air/stream temperature, 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 February 2012 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.		
	Start Date	Month 10	Completion Date
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 30 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.		
	Start Date	Month 10	Completion Date

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 February 2012 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> .			
	Start Date	Month 3	Completion Date	Month 18
Subtask 3.7	TIAER will combine findings from historical information review, field surveys, and user interviews into a Technical Report that shall at least include those contents described for a Comprehensive RUAA in the February 2012 version of the <i>TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey</i> . Per the <i>TCEQ Procedures</i> , separate Technical Reports will be developed for groups of waterbodies in different Basins.			
	Start Date	Month 15	Completion Date	Month 18
Deliverables	<ul style="list-style-type: none"> • Site Selection Rationale document for each waterbody • Contact Information Forms for each waterbody • 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 • Technical Reports summarizing historical information review, field surveys, and user interviews, with waterbodies grouped by Basin 			

Tasks, Objectives and Schedules			
Task 4	Public Participation and Stakeholder Coordination		
Costs	\$289,009		
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
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
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 7-8), 2) a project update meeting after the first field survey event (~Month 12-13), and 3) a summary of findings meeting presenting draft Technical Reports to stakeholders for review (~Month 18-19). A primary objective of the initial informational meetings is to discuss proposed sites and solicit landowner permission for private-land access to survey sites. Due to the geography of the watersheds in the study area, separate suites of meetings will be held for each waterbody, except that meetings for Dixon Creek and Rock Creek will be combined. 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
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 include, but are not limited to, city council meetings, county commissioners' court meetings, SWCD meetings, RRA 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
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 RRA for inclusion in CRP Basin Summary Report and Basin Highlights Report. TSSWCB must approve all materials and publications prior to public distribution. TSSWCB will host and maintain a webpage to serve as a public clearinghouse for all project-related information; TIAER shall contribute content matter for the webpage. The website will serve as a means to disseminate information to stakeholders and the general public.		
	Start Date	Month 1	Completion Date
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 		

Tasks, Objectives and Schedules			
Task 5	Survey and Inventory Possible Bacteria Sources		
Costs	\$57,058		
Objective	To develop a comprehensive GIS inventory for the study area, evaluate historical water quality data, and assess possible sources of bacteria loadings by conducting a watershed source survey.		
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 waterbodies, 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. Locations of possible bacteria sources, identified in Subtask 5.3, should be incorporated. The cumulative impact of TSSWCB-certified WQMPs on the management of agricultural and silvicultural lands should be documented.		
	Start Date	Month 1	Completion Date
Subtask 5.2	TIAER will conduct a historical data review for each waterbody 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) streamflow 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), RRA, 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
Subtask 5.3	TIAER will conduct a source survey (also known as a sanitary survey) that better characterizes possible sources of bacteria loadings. The source survey should evaluate warm and cool seasons and low and high flow conditions based on available data. The source survey should evaluate sources like WWTFs, central sewage collection systems, on-site sewage facilities (OSSF), and MS4s. TPDES compliance issues should be examined. Wildlife, livestock and non-domestic animal populations should be examined.		
	Start Date	Month 2	Completion Date
Deliverables	<ul style="list-style-type: none"> Technical Report describing the comprehensive GIS inventory and results from the source survey, and characterizing trends and variability in historical water quality monitoring data. 		

Part III – Financial Information

Budget Summary	
Category	Costs
Personnel	\$ 358,280
Fringe Benefits	\$ 107,484
Travel	\$ 81,533
Equipment	\$ 15,000
Supplies	\$ 27,610
Contractual	\$ 0
Construction	\$ 0
Other	\$ 4,600
Total Direct Costs	\$ 594,507
Indirect Costs ($\leq 15\%$)	\$ 89,176
Total Project Costs	\$ 683,683

Budget Justification		
Category	Costs	Justification
Personnel	\$ 358,280	<ul style="list-style-type: none"> • Research Scientist – oversight and technical assistance (10%) • Project Manager (36%) • 2 Public Participation Coordinators (@ 100%) • Quality Assurance Officer (3%) • Field Crew Supervisor for RUAA surveys (30%) • Senior Field Staff, RUAA team leader and technical assistance (53%) • Research Associate – GIS Specialist (12%) • Research Associate – field crew and technical assistance (11%) • Programmer – data management (4%) • 4 Student workers for RUAA surveys (@ 10%)
Fringe Benefits	\$ 107,484	Calculated at 30% of Personnel
Travel	\$ 81,533	Travel for reconnaissance trips, stakeholder meetings (3 per watershed area, 12 total), other public meetings (8 per watershed area), and 2 RUAA surveys – includes lodging, per diem, vehicle rental and gas expenditures.
Equipment	\$ 15,000	GPS units (2)
Supplies	\$ 27,610	Three desktop computers, three laptop computers, 4 field cameras, miscellaneous field supplies (survey rods, taglines, range finders, waders, power inverters, clinometers, survey stakes, paint, batteries, ice & water for crew) and miscellaneous presentation materials and advertising for meetings.
Contractual	\$ 0	N/A
Construction	\$ 0	N/A
Other	\$ 4,600	Miscellaneous charges, such as postage, shipping and overnight delivery, and GIS training
Indirect	\$ 89,176	Calculated at 15% of Total Direct Cost
SOURCE	TSSWCB will provide \$683,683 in non-federal funds sourced from state appropriations (FY2012 General Revenue) through the Nonpoint Source Grant Program to the Texas Institute for Applied Environmental Research at Tarleton State University.	