Texas State Soil and Water Conservation Board
State Nonpoint Source Grant Program
FY 2019 Workplan 19-52

SUMMARY PAGE			
Title of Project	Coordinating Implementation of the Watershed Protection Plan for Mid and Lower Cibolo Creek		
Project Goals	• Maintain a watershed coordinator to continue with development of WPP until final acceptance and effective implementation of the Mid and Lower Cibolo Creek Watershed Protection Plan. • Conduct regular stakeholder meetings to encourage citizen participation, provide partners with updates on progress, and seek stakeholder input and recommendations on needed activities. • Support future funding acquisition, track management implementation, and encourage best management practice (BMP) adoption. • Coordinate and conduct water resources and related environmental outreach/education efforts across the watershed. • Conduct water quality monitoring and analyze data.		
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Engagement, Support, and Facilitation of WPP Implementation; (4) Water Quality Monitoring		
Measures of Success	• Watershed partnership engagement maintained and WPP implementation promotion continued • Knowledge of watershed and resource management enhanced through education and outreach program delivery • Potential funding sources identified and sought • Supplemental surface water quality monitoring		
Project Type	Implementation (X); Education ( ); Planning ( ); Assessment ( ); Groundwater ( )		
Status of Waterbody on *2014 Texas Integrated Report*	Segment ID	Parameter of Impairment or Concern	Category
	1902_01	bacteria	5b
	1902_02	bacteria	5b
	1902_03	bacteria, impaired fish community	5b, CN
	1902_04	nitrate	CS
	1902_05	nitrate, total phosphorus	CS, CS
	1902C_01	bacteria, depressed dissolved oxygen, total phosphorus	5b, 5c, CS
	1902A_01	bacteria, total phosphorus	CN, CS
	1902A_03	bacteria, nitrate, total phosphorus	CN, CS, CS
	1902A_04	bacteria, nitrate, total phosphorus	CN, CS, CS
	1913_01	nitrate, total phosphorus	CS, CS
	1913_02	nitrate, total phosphorus	CS, CS
	1902B_01	ammonia, nitrate, total phosphorus	CS, CS, CS
Project Location (Statewide or Watershed and County)	Mid and Lower Cibolo Creek watershed in Guadalupe, Wilson, Bexar, Karnes, and Comal counties		
Key Project Activities	Hire Staff ( ); Surface Water Quality Monitoring ( ); Technical Assistance ( ); Education (X); Implementation (X); BMP Effectiveness Monitoring ( ); Demonstration ( ); Planning (X); Modeling ( ); Bacterial Source Tracking ( ); Other ( )		

2017 Texas NPS Management Program Reference	• Component 1: LTG Objectives 1, 2, 3, 6, 7, 8 STG 1 Objectives B, E; STG 2 Objectives A, B, D; STG 3 Objectives A, B, D, G • Component 2 • Component 3 • Component 4 • Component 5
Project Costs	$153,156
Project Management	• Texas A&M AgriLife Research, Texas Water Resources Institute • San Antonio River Authority
Project Period	May 1, 2019 – April 30, 2021

Part I – Applicant Information

Applicant							
Project Lead	Dr. Lucas Gregory						
Title	Sr. Research Scientist and QA Officer						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	lfgregory@ag.tamu.edu						
Street Address	578 John Kimbrough Blvd., 2260 TAMU						
City	College Station	County	Brazos	State	Texas	Zip Code	77843
Telephone Number	979-845-7869			Fax Number	979-845-0662		

Project Co-Lead	Patricia M. Carvajal						
Title	Quality Assurance Supervisor						
Organization	San Antonio River Authority						
E-mail Address	pmcarvajal@sara.tx.org						
Street Address	600 Euclid						
City	San Antonio	County	Bexar	State	Texas	Zip Code	78212
Telephone Number	210-227-1372			Fax Number	210-858-0265		

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 A&M AgriLife Research, Texas Water Resources Institute (TWRI)	Provide project administration, coordination, and quality assurance, water quality monitoring and modeling.
San Antonio River Authority (SARA)	Provide project administration, coordination, and quality assurance, water quality monitoring and modeling.
SWCA Environmental Consultants	Provide assistance in the collection or stormwater samples.

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 *Texas Coastal NPS Pollution Control Program*, or (f) the *Texas Groundwater Protection Strategy*?			Yes		No	X	
If yes, identify the document.	N/A						
If yes, identify the agency/group that developed and/or approved the document.	N/A		Year Developed	N/A			

Watershed Information				
Watershed or Aquifer Name(s)	Hydrologic Unit Code (12 Digit)	Segment ID	Category on 2014 IR	Size (Acres)
Mid Cibolo Creek	121003040304 121003040301 121003040302 121003040305 121003040303	1913	CS	27,764.88
Lower Cibolo Creek	121003040405 121003040403 121003040402 121003040404 121003040401	1902	5b, 5c	349,379.09

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: *2014 Texas Integrated Report*, Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

2013 San Antonio River Basin Clean Rivers Program Basin Summary Report
http://www.sara-tx.org/public_resources/library/documents/water_quality_monitoring/2013BSR-web.pdf

Ammonia, Nitrite, Ortho-phosphorus, and Total phosphorus could be the result of wastewater treatment plant discharge; low flows and natural weathering and leaching of sedimentary rocks, soils, and salt deposits; runoff of inadvertent over-application of fertilizers; and organic matter carried to the stream with stormwater runoff.

Causes of *E. coli* impairment can be attributed to sewer breaks and overflows, poorly maintained septic systems, stormwater runoff from livestock operations, and wildlife.

Impairments

SegID 1902: Lower Cibolo Creek: From the confluence with the San Antonio River in Karnes County to a point 100 meters (110 yards) downstream of IH-10 in Bexar/Guadalupe County

Parameter	Category	Year
Bacteria	5b	2004
1902_01: Lower 5 miles of segment		

1902_02: From 5 miles upstream of confluence with the San Antonio River to FM 541
1902_03: From FM 541 to confluence with Clifton Branch

SegID 1902C: Clifton Branch: From the confluence of the Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale.

Parameter	Category	Year
Bacteria	5c	2014

1902C_01: From the confluence of Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale

Parameter	Category	Year
Depressed dissolved oxygen	5c	2014

1902C_01: From confluence of the Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale

Concerns

SegID 1902: Lower Cibolo Creek: From the confluence with the San Antonio River in Karnes County to a point 100 meters (110 yards) downstream of IH-10 in Bexar/Guadalupe County

Parameter	Level of Concern
Impaired fish community	CN

1902_03: From FM 541 to confluence with Clifton Branch

Parameter	Level of Concern
Nitrate	CS

1902_04: From confluence with Clifton Branch to the confluence with Elm Creek
1902_05: Upper end of segment

Parameter	Level of Concern
Total Phosphorus	CS

1902_05: Upper end of segment

SegID 1902A: Martinez Creek: Perennial stream from the confluence with Escondido Creek upstream to Binz-Engleman Road

Parameter	Level of Concern
Bacteria	CN

1902A_01: From confluence with Cibolo Creek to confluence with Salatrillo Creek
1902A_03: From confluence with Escondido Creek to about 1.9 miles downstream of IH-10
1902A_04: From approximately 1.1 km downstream of FM 1516 to Binz-Engleman Road

Parameter	Level of Concern
Nitrate	CS

1902A_03: From confluence with Escondido Creek to about 1.9 miles downstream of IH-10
1902A_04: From approximately 1.1 km downstream of FM 1516 to Binz-Engleman Road

Parameter	Level of Concern
Total Phosphorus	CS

1902A_01: From confluence with Cibolo Creek to confluence with Salatrillo Creek
1902A_03: From confluence with Escondido Creek to about 1.9 miles downstream of IH-10
1902A_04: From approximately 1.1 km downstream of FM 1516 to Binz-Engleman Road

SegID 1902C: Clifton Branch: From the confluence of the Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale

Parameter	Level of Concern
Depressed dissolved oxygen	CS

1902C_01: From the confluence of Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale

Parameter	Level of Concern
Total phosphorus	CS

1902C_01: From the confluence of Lower Cibolo Creek upstream to the headwater 0.6 miles upstream of Wilson CR 424 north of Stockdale

SegID 1913: Mid Cibolo Creek: From a point 100 meters (110 yards) downstream of IH-10 in Bexar/Guadalupe County to the Missouri-Pacific Railroad bridge west of Bracken in Comal County

Parameter	Level of Concern
Nitrate	CS

1913_01: From 100 M downstream of IH-10 up to unnamed tributary approximately 0.3 miles upstream of Weir Road, Bexar County, Texas
1913_02: From the confluence with unnamed tributary approximately 0.3 miles upstream of Weir Road, Bexar County, Texas up to 100 meters upstream of the Cibolo Creek Municipal WWTP

Parameter	Level of Concern
Total phosphorus	CS

1913_01: From 100 M downstream of IH-10 up to unnamed tributary approximately 0.3 miles upstream of Weir Road, Bexar County, Texas
1913_02: From the confluence with unnamed tributary approximately 0.3 miles upstream of Weir Road, Bexar County, Texas up to 100 meters upstream of the Cibolo Creek Municipal WWTP.

Project Narrative

Problem/Need Statement

The 2014 303(d) List identifies the Lower Cibolo Creek (Segment 1902) as exceeding the contact recreation criterion for *E. coli* bacteria. It has been listed as impaired since 2004. To address the high bacteria levels, as well as low levels of depressed dissolved oxygen present in the watershed, a WPP is currently being developed and will be submitted in Spring 2019. This plan includes the impaired segments as well as surrounding tributaries that have several water quality concerns. The ultimate water quality goal for this segment is to reduce bacterial concentrations to within acceptable risk levels for the stream to meet the Primary Contact Recreation Standard 1. (https://www.sara-tx.org/public_resources/library/documents/water_quality_monitoring/2013BSR-web.pdf).

The Mid Cibolo and Lower Cibolo Creek have seen increased development in the residential sector as well as increased activity because of hydraulic fracturing activity in the Eagle Ford Shale formation. With this increased development, it is important that the plan being developed to protect the watershed's creeks and streams continue to be supported and implemented to protect the biological and riparian resources in the Mid and Lower Cibolo Creek watershed.

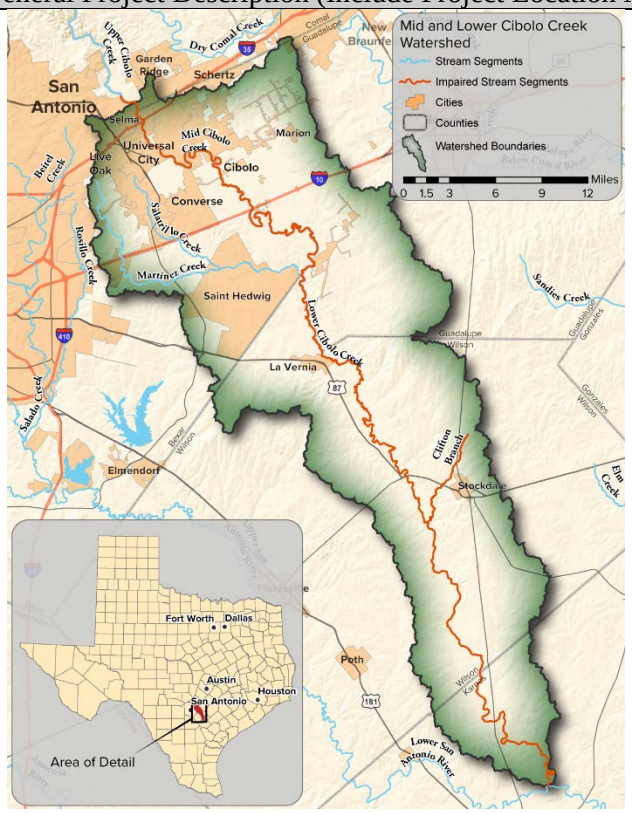
To ensure the overall success of the WPP from development to implementation, education and outreach programs will occur throughout the watershed. In FY18, programs such as the Texas Watershed Stewards and Texas Riparian and Stream Ecosystem Education have been performed in the watershed. These education programs allow stakeholders to gain knowledge on water quality issues in the area and what can be done to mitigate water quality impacts. Education and outreach will continue to play a crucial role during implementation of the WPP.

Coordinating the delivery of these programs and tracking the successful implementation of the WPP requires a concerted effort. Continued support for the development and implementation of the Mid and Lower Cibolo Creek WPP is important because strong connections have been started with locals who live and work in the watershed. We have an engaged stakeholder group, and we would like to maintain these connections with the community to keep them interested and active in the plan. This will provide greater fluidity from planning to implementation, increasing the likelihood for adoption of BMPs discussed in the WPP.

Previous monitoring efforts conducted by the San Antonio River Authority (SARA) include intensive monitoring efforts in the Lower Cibolo Creek watershed to assist in identifying areas that may be contributing to elevated pollutant loads in the watershed. This proposed project will allow this data to continue to be monitored and recorded, which will help track implementation successes and support other SARA projects. One such project is the Cibolo Creek Holistic Watershed Master plan, which will also utilize the water quality monitoring data to address flood issues (hydrologic and hydraulic analysis), stream restoration, water quality modeling, water quality best management practices, (GIS)/mapping/remote sensing, low impact development, MS4 permitting, conservation easements, mitigation banking, and nature-based park planning in the watershed. The activities of this project include identification of major flooding reaches, stream characterization and identification of the restoration potential, point and nonpoint pollutant sources that impact water quality, and development of holistic solutions to address identified risk centers and to meet multiple objects and goals. This project has shared data during the development of the WPP for this area and will continue to support the WPP in the implementation process.

Project Narrative

General Project Description (Include Project Location Map)



TWRI and SARA will continue working with key stakeholders and partner agencies to facilitate implementation outlined in the watershed-based plan. TWRI and SARA will assist governmental and non-governmental organizations within the watershed in identification and acquisition of resources to enable implementation.

TWRI will serve as the primary conduit for interaction with landowners, citizens, and entities to facilitate implementation. TWRI will coordinate with the Steering Committee and general stakeholder group to update them on progress of WPP acceptance, seek their input and recommendations on needed activities and educational programs in the watershed, and continue to support implementation efforts of the plan. TWRI and SARA will continue to assist stakeholders to implement management measures to improve water quality and acquire resources to enable implementation as well as work with state and federal agencies, as appropriate, to bring technical and financial assistance to the watershed.

Coordination of outreach and education efforts by TWRI will facilitate and support public participation by private individuals and local officials during implementation. TWRI will develop publications, factsheets, website content, and other materials to promote and communicate watershed pollution prevention efforts. Additionally, TWRI will coordinate and conduct water resources education and outreach efforts across the watershed, organizing educational programs such as the Riparian and Stream Ecosystem Training, Lone Star Healthy Streams, Texas Watershed Stewards and Texas Well Owner Network and various other programs identified in subtask 3.6.

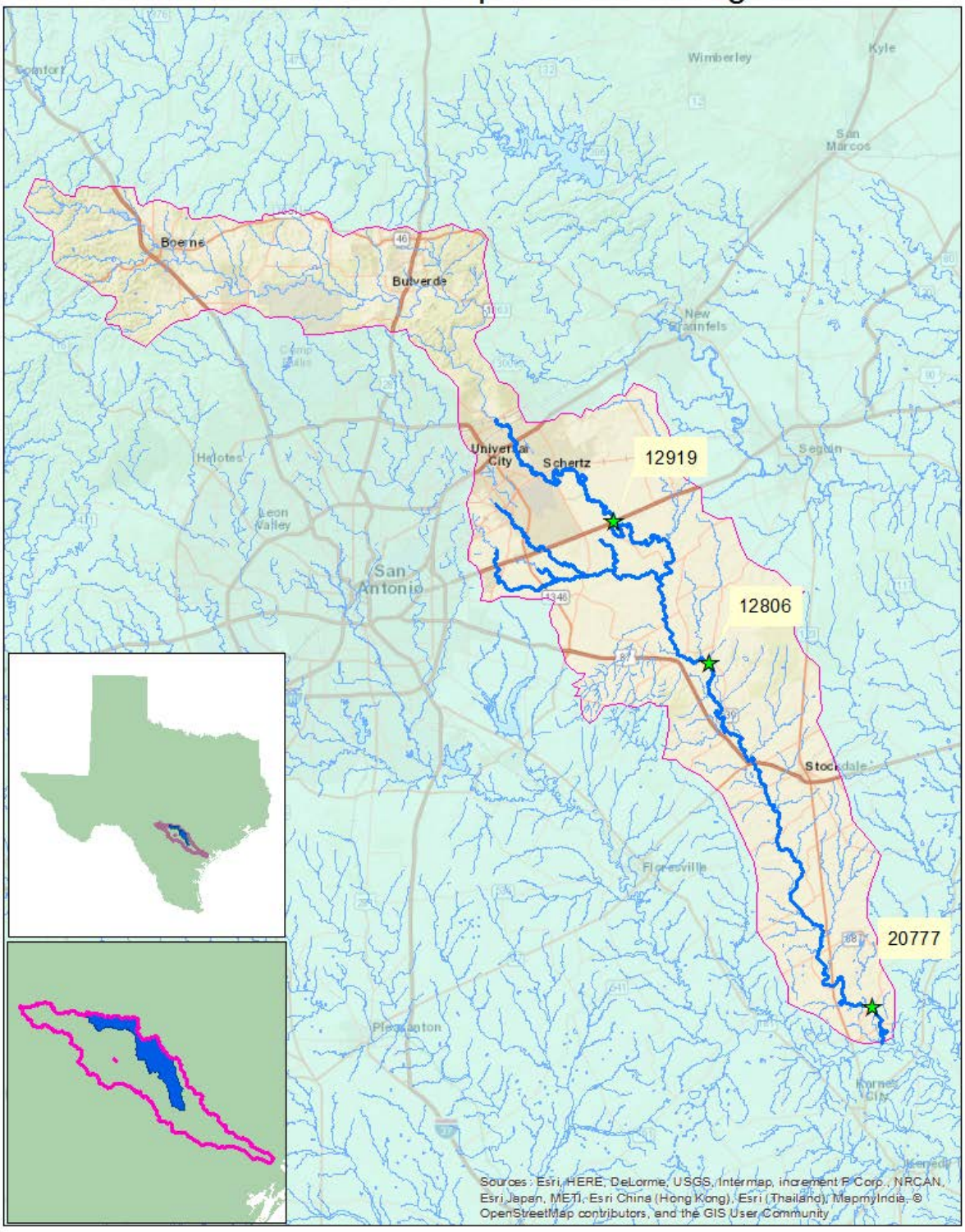
The project will include automated stormwater monitoring at three locations on the Mid and Lower Cibolo Creek. Samplers will collect discrete samples along the hydrograph of various storm events. Data will support WPP development/implementation and other projects underway at SARA, including the Cibolo Creek Holistic Watershed Master Plan. Sample locations for this monitoring have been identified (refer to Proposed Monitoring Sites map).

The monitoring sites are currently included in the San Antonio River Authority Instream Stormwater Monitoring Project. This project includes using automatic samplers to collect hydrograph stormwater samples from various types of storm events within the basin. A minimum antecedent dry period is included in this monitoring program. The sample locations are identified on the map below.

The *Development of a Watershed Protection Plan for Mid and Lower Cibolo Creek* project #17-50 engaged a local stakeholder group, analyzed data and developed a watershed-based plan that will be submitted in Spring 2019. The WPP will identify implementable best management practices that are based on the goals of water quality improvement and watershed protection. A comprehensive watershed approach will be utilized, beginning with concentrating on the most significant sources of pollution contributing to the impairments while at the same time looking ahead at potential sources of pollution from urban and suburban growth.

The outcomes of the project, which include working with local stakeholders to determine identification and estimation of sources, will benefit the local government entities as they look at developing future master plans and stormwater management strategies. Recommended best management practices identified by the steering committee, work groups, and partner agencies will be evaluated for their relative impact on water quality. An important benefit of the project is the identification of implementation strategies that get ahead of growth so that it can be directed in an environmentally safe and community-accepted direction. A holistic look at impacts to water quality is important.

Cibolo Creek WPP Proposed Monitoring Sites



Stormwater Monitoring Locations	
Site	Description
12806	Cibolo Creek at CR337
12919	Cibolo Creek at IH/US 90
20777	Cibolo Creek at FM 2724

Tasks, Objectives and Schedules				
Task 1	Project Administration			
Costs	$15,316			
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	TWRI with assistance from SARA 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 15th of March, June, September and December. QPRs shall be distributed to all Project Partners.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.2	TWRI 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	TWRI with assistance from SARA 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. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 1.4	TWRI with assistance from SARA 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 24
Deliverables	• 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	$7,657			
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	SARA will develop a QAPP for activities in Task #4 consistent with the most recent versions of *EPA Requirements for Quality Assurance Project Plans (QA/R-5)* and the *TSSWCB Environmental Data Quality Management Plan.* All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the *TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415)* and *Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416)*. [Consistency with Title 30, Chapter 25 of the Texas Administrative Code, *Environmental Testing Laboratory Accreditation and Certification*, 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	SARA will implement the approved QAPP. SARA will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 6	Completion Date	Month 24
Deliverables	• 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 # 4			

Tasks, Objectives and Schedules				
Task 3	Engagement, Support, and Facilitation of WPP Implementation			
Costs	61,262			
Objective	To facilitate continued stakeholder engagement in the watershed planning process and to ensure successful implementation of the WPP and to track implementation.			
Subtask 3.1	TWRI will assist governmental and non-governmental organizations (i.e., responsible parties identified in the WPP) in identification and acquisition of resources (financial and technical) to enable WPP implementation. TWRI will actively seek and pursue funding opportunities and work with partners to develop grant proposals. TWRI will work with state and federal agencies, as appropriate, to bring technical and financial resources to the watershed.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 3.2	TWRI will facilitate communication with stakeholders to engage the public and affected entities in implementation. TWRI will use all appropriate communication mechanisms including direct mail, email, and a project website. TWRI will develop and disseminate general project informational materials, including, but not limited to, flyers, letters, factsheets, news releases, and other appropriate promotional publications.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 3.3	TWRI will attend and participate in other public meetings as appropriate to communicate project goals, activities, and accomplishments to affected parties. Such meetings may include, but are not limited to, city councils, county commissioners' courts, Clean River Program Basin Steering Committee and Coordinated Monitoring, local soil and water conservation districts (SWCDs), and other appropriate meetings of critical watershed stakeholder groups.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 3.4	TWRI will facilitate public participation and stakeholder involvement in the watershed, specifically by facilitating meetings of the watershed Coordination Committee (quarterly) and work groups (as needed) to provide regular updates on progress to implement the WPP, the status of monitoring efforts, progress in identifying implementation funding, and movement toward sustaining and improving water quality. TWRI will seek input and recommendations on needed activities. TWRI will coordinate meetings, secure locations, and prepare and disseminate meeting notices and agendas. Meeting summaries will be prepared and posted to the project website. TWRI and SARA will provide all interested and responsible parties with updates on progress of implementation.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 3.5	TWRI will maintain a database of watershed stakeholders and affected parties for use in engaging the public in the implementation process. The database created and used during the WPP development process will be added to as needed. The database will represent a cross section of watershed landowners, citizens, local and regional governmental entities and elected officials, state and federal agencies, and environmental and special interest groups.			
	Start Date	Month 1	Completion Date	Month 24

Subtask 3.6	TWRI will coordinate education and outreach activities as identified in the WPP. TWRI will make presentations and give general NPS pollution information to community organizations as well as support, promote, and participate in, as appropriate, any field days, demonstrations, site tours, or education events sponsored by Texas A&M AgriLife Extension Service, U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), and/or SWCDs in the watershed. TWRI will work with collaborating entities to organize three educational events a year. Specific programs will be prioritized by the Steering Committee. Example educational programs include, but are not limited to, the following: - Lone Star Healthy Streams (Feral Hog component) workshop - Lone Star Healthy Streams (Grazing Cattle component) workshop - Lone Star Healthy Streams (Horse component) workshop - Intro to Septic Systems for Homeowners - Aerobic system operation and maintenance workshops for homeowners - Riparian Management Workshops for landowners and land managers - Texas Watershed Steward Program - Texas Well Owner Network training and well screening - Feral Hog Management Workshop			
	Start Date	Month 1	Completion Date	Month 24
Deliverables	• Documentation of resource opportunities identified, applied for, and resources obtained to support plan implementation • Communication materials, as developed and disseminated, including flyers, letters, news releases, etc. • List of other meetings attended and dates with brief summary of topics discussed and action needed included in QPRs • Database for tracking implementation progress • Notices, agendas, meeting materials, attendance lists, and summaries from public meetings • Stakeholder contact list, updated as needed • Notices, agendas, meeting materials, attendance lists, and summaries from workshops, field tours, demonstrations, site tours, or educational events attended • Educational and promotional materials, as developed and disseminated			

Tasks, Objectives and Schedules				
Task 4	Water Quality Monitoring			
Costs	$68,921			
Objective	To complete water quality monitoring for storm events of varying size and intensity to support the development and calibration of a Hydrological Simulation Program-Fortran (HSPF) water quality model for the Cibolo Creek watershed.			
Subtask 4.1	SARA, in consultation with the Project Manager for the Cibolo Creek Holistic Watershed Master Plan, will develop a water quality monitoring plan. The monitoring will consist of stormwater monitoring with automatic samplers at three locations within the Mid and Lower Cibolo Creek watersheds. It is intended that one sample be collected during dry seasons and two samples be collected during wet seasons.			
	Start Date	Month 1	Completion Date	Month 6
Subtask 4.2	SARA will conduct water quality monitoring of the watershed as described in the plan developed in subtask 4.1 and under the QAPP developed in subtask 2.1.			
	Start Date	Month 6	Completion Date	Month 18
Deliverables	• Water Quality Monitoring Plan • Water Quality Data Results			

Project Goals (Expand from Summary Page)

1. Facilitate watershed stakeholders and foster coordinated assistance activities between cities, counties, TSSWCB, local SWCDs, and NRCS by providing a presence in the watershed.
2. Conduct public meetings to provide updates on progress, seek stakeholder input and recommendations on needed activities, and encourage citizen participation.
3. Support and facilitate stakeholders in implementing management measures identified in the WPP to improve water quality, developing proposals to acquire funding for implementation, and facilitating education programs in order to encourage adoption of BMPs.
4. Work with state and federal agencies, as appropriate, to bring technical and financial assistance to the watersheds.
5. Coordinate and conduct water resources education and outreach across the watershed by developing publications and website content to promote and communicate watershed efforts, and by organizing training programs.
6. Continue to conduct stormwater quality monitoring throughout the watershed.

Measures of Success (Expand from Summary Page)

Measures of success include:

1. Technical assistance provided to the watershed stakeholders through identification and acquisition of resources, funding opportunities pursued, and grant proposals developed.
2. Increased watershed stewardship among stakeholders.
3. Increased knowledge of citizens, landowners, and agricultural producers of management measures identified in the WPP through outreach and education efforts in the watershed.
4. Continued operation and maintenance of the project website to announce relevant activities, project updates, and other activities relevant to the WPP development and implementation process.
5. Collection of storm water quality samples from a minimum of five stormwater events.

***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.

- Long-Term Goal – Protect and restore water quality affected by nonpoint source pollution through assessment, implementation, and education.
    - Objective 1 – Focus nonpoint source abatement efforts, implementation strategies, and available resources in watersheds and aquifers identified as impacted by nonpoint source pollution.
    - 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 planning efforts in the state.
    - Objective 6 – Develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage nonpoint source pollution.
    - Objective 7 – Increase overall public awareness of nonpoint source issues and prevention activities.
    - Objective 8 – Enhance public participation and outreach by providing forums for citizens and industry to contribute their ideas and concerns about the water quality management process.
- Short-Term Goal One – Data Collection and Assessment
    - 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 effectiveness of TMDL I-Plans, WPPs, and BMP implementation.
- Short-Term Goal Two – Implementation
    - Objective A – Work with regional and local entities to determine priority areas and develop and implement strategies to address nonpoint source pollution in those areas
    - 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 Goal Three – Education
    - Objective B – Administer programs to educate citizens about water quality and their potential role in causing nonpoint source pollution.
    - Objective D – Conduct outreach through the CRP, AgriLife Extension, 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.
    - Objective G – Implement public outreach and education to maintain and restore water quality in water bodies impacted by nonpoint source pollution.

Component 2 – Working partnerships and linkages to appropriate state, interstate, tribal, regional, and local entities, private sector groups, and federal agencies.

Component 3 – Combination of statewide nonpoint source programs and on-the-ground projects achieve water quality benefits; efforts are well-integrated with other relevant state and federal programs.

Component 5 - Identify waters and their watersheds impaired by NPS… Progressively address these identified waters by conducting more detailed watershed assessments and developing watershed plans (e.g., WPPs or TMDLs and Implementation Plans), and then by implementing the plans.

Part III – Financial Information

Budget Summary		
Category		
Personnel	$	32,750
Fringe Benefits	$	10,941
Travel	$	2,160
Equipment	$	0
Supplies	$	1,700
Contractual	$	78,228
Construction	$	0
Other	$	7,400
Total Direct Costs	$	133,179
Indirect Costs (≤ 15%)	$	19,977
Unrecovered IDC		
Total Project Costs	$	153,156

Budget Justification		
Category	Total Amount	Justification
Personnel	$ 32,750	Sr Research Scientist & QA Officer: $84,256 annually @ 0.48 months Research Associate: $48,010 annually @ 4.8 months Program Manager: $57,564 annually @ 2 months *named positions are budgeted with a 3% annual pay increase in all years; TBD positions are budgeted with a 3% pay increase in years after year 1 *(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	$ 10,941	Fringe for faculty and staff is calculated at 16.8% salary plus $746 per month *(Fringe benefits estimates are based on salary estimates listed. Actual fringe benefits will vary between months coinciding with percent effort variations; but in the aggregate, will not exceed the overall estimated total.)
Travel	$ 2,160	12 trips – La Vernia, Seguin, San Antonio or other watershed locations for stakeholder meetings and planning. State vehicle mileage @ $0.5/mile and 180 miles per trip: $2,160
Equipment	$ 0	N/A
Supplies	$ 1,700	Meeting supplies: paper, nametags, pens, sandwich boards, presentation supplies Office supplies for meeting preparation: paper, toner, pens, notepads
Contractual*	$ 78,228	Sub-contract to SARA
Construction	$ 0	N/A
Other	$ 7,400	Communication Services: $2,000 GAT/DAT: $600 Equipment/Facility Rental Fees: $2,400 TWRI printing materials and manuals: $2,000 Software (ArcGIS, Adobe CC): $400
Indirect	$ 19,977	15% of Total Direct Costs

***SARA Contractual Budget Justification**

<table>
<tr><th>Category</th><th>Total Amount</th><th>Justification</th></tr>
<tr><td>Personnel</td><td>$ 28,500</td><td>
<table>
<tr><th>Position/Title</th><th>Rate ($)</th><th>Estimated Hours</th><th>Total</th></tr>
<tr><td>Project Manager</td><td>$50.00</td><td>300</td><td>$15,000.00</td></tr>
<tr><td>Stormwater Supervisor</td><td>$50.00</td><td>150</td><td>$7,500.00</td></tr>
<tr><td>Stormwater scientist</td><td>$25.00</td><td>240</td><td>$6,000.00</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td>Total</td><td>$28,500.00</td></tr>
</table>
</td></tr>
<tr><td>Fringe Benefits</td><td>$ 4,275</td><td>15% of personnel</td></tr>
<tr><td>Travel</td><td>$ 841</td><td>
<table>
<tr><td>Training Courses</td><td></td><td>$ 841.00</td><td></td></tr>
<tr><td colspan="4">Watershed Coordinator Course</td></tr>
<tr><td>Lodging (3 nights: $114 per night)</td><td></td><td>$ 342.00</td><td></td></tr>
<tr><td>Per Diem (4 Days: $59 per day)</td><td></td><td>$ 236.00</td><td></td></tr>
<tr><td></td><td></td><td>$ 578.00</td><td></td></tr>
<tr><td colspan="4">Implementation Course</td></tr>
<tr><td>Lodging (1 nights: $135 per night)</td><td></td><td>$ 135.00</td><td></td></tr>
<tr><td>Per Diem (2 days: $64/day)</td><td></td><td>$ 128.00</td><td></td></tr>
<tr><td></td><td></td><td>$ 263.00</td><td></td></tr>
</table>
</td></tr>
<tr><td>Equipment</td><td>$ 6,000</td><td>Purchase new sonde at Cibolo Creek Monitoring Site</td></tr>
<tr><td>Supplies</td><td>$ 690</td><td>Laboratory supplies and water quality monitoring supplies
Replacement sondes for continuous monitoring units (temperature, pH, conductivity, dissolved oxygen</td></tr>
<tr><td>Contractual*</td><td>$ 14,184</td><td>
<table>
<tr><th>Position/Title</th><th>Bill Rate ($/hr)</th><th>Estimated Hours</th><th>Total</th></tr>
<tr><td>Project Manager</td><td>$78.68</td><td>50</td><td>$3934.00</td></tr>
<tr><td>Specialist I/ biologist</td><td>$65.00</td><td>50</td><td>$3250.00</td></tr>
<tr><td>Technician II</td><td>$50.00</td><td>70</td><td>$3500.00</td></tr>
<tr><td>Technician II</td><td>$50.00</td><td>70</td><td>$3500.00</td></tr>
<tr><td></td><td></td><td></td><td>14184.00</td></tr>
</table>
Above is the rates and hours that will be needed by consultant staff to collect samples from the stormwater stations on Cibolo Creek.
</td></tr>
<tr><td>Construction</td><td>$ 0</td><td>N/A</td></tr>
</table>

<table>
<tr><td>Other</td><td>$ 19,463</td><td>
<table>
<tr><th>Laboratory analysis</th><th>Cost</th><th>#of events</th><th># of samples</th><th></th></tr>
<tr><td>TSS</td><td>$ 20.00</td><td>3</td><td>7</td><td>$ 420.00</td></tr>
<tr><td>Ammonia</td><td>$ 27.00</td><td>3</td><td>7</td><td>$ 567.00</td></tr>
<tr><td>chloride</td><td>$ 26.00</td><td>3</td><td>7</td><td>$ 546.00</td></tr>
<tr><td>E. coli</td><td>$ 30.00</td><td>3</td><td>7</td><td>$ 630.00</td></tr>
<tr><td>Nitrate</td><td>$ 26.00</td><td>3</td><td>7</td><td>$ 546.00</td></tr>
<tr><td>Nitrite</td><td>$ 26.00</td><td>3</td><td>7</td><td>$ 546.00</td></tr>
<tr><td>sulfate</td><td>$ 26.00</td><td>3</td><td>7</td><td>$ 546.00</td></tr>
<tr><td>BOD</td><td>$ 35.00</td><td>3</td><td>7</td><td>$ 735.00</td></tr>
<tr><td>Total Phos</td><td>$ 38.00</td><td>3</td><td>7</td><td>$ 798.00</td></tr>
<tr><td>TKN</td><td>$ 47.00</td><td>3</td><td>7</td><td>$ 987.00</td></tr>
<tr><td></td><td></td><td></td><td></td><td>$ 6,321.00</td></tr>
<tr><td></td><td></td><td></td><td># of sites</td><td>3</td></tr>
<tr><td></td><td></td><td></td><td>Total</td><td>$ 18,963.00</td></tr>
</table>
Registration fees for Watershed Coordinators Course ($400) and Implementation Course ($100): $500
</td></tr>
<tr><td>Indirect</td><td>$ 4,275</td><td>15% of Labor
28,500*.15 = $4,275.00</td></tr>
<tr><td>Total</td><td>$ 78,228</td><td></td></tr>
</table>