TEXAS STATE Soil & Water CONSERVATION BOARD

Texas State Soil and Water Conservation Board
State Nonpoint Source Grant Program
FY 2024 Work Plan 24-53

SUMMARY PAGE			
Title of Project	Brushy Creek Continued Monitoring		
Project Goals	• Continue supplementing existing water data in an increasingly urbanized watershed through quality-assured routine water quality monitoring. • Maintain data continuity to support ongoing watershed characterization efforts.		
Project Tasks	(1) Project Administration; (2) Quality Assurance; (3) Surface Water Quality Monitoring and Data Summary		
Measures of Success	• Collection and analysis of quality-assured surface water quality data • Successful submission of collected data to the Surface Water Quality Monitoring Information System		
Project Type	Implementation ( ); Education ( ); Planning (X); Assessment (X); Groundwater ( )		
Status of Waterbody on *2022 Texas Integrated Report*	Segment ID/AU ID 1244_01 1244_03	Parameter of Impairment or Concern Bacteria Bacteria	Category 5c 5c
Project Location (Statewide or Watershed and County)	Project Watershed: Brushy Creek Project Counties: Williamson and Milam		
Key Project Activities	Hire Staff ( ); Surface Water Quality Monitoring (X); Technical Assistance ( ); Education ( ); Implementation ( ); BMP Effectiveness Monitoring ( ); Demonstration ( ); Planning ( ); Modeling ( ); Bacterial Source Tracking ( ); Other ( )		
2022 Texas NPS Management Program Reference	• Component 1: LTGs 1 and 2 • Component 1: STGs 1A and 1B • Components 2, 3, 7 • Milestone: Priority Watershed Level Milestones (Chapter 2) - Water Quality Monitoring		
Project Costs	$99,654		
Project Management	• Texas A&M AgriLife Research, Texas Water Resources Institute		
Project Period	March 13, 2024 – February 28, 2026		

Part I – Applicant Information

Applicant							
Project Lead	Dr. Lucas Gregory						
Title	Associate Director						
Organization	Texas A&M AgriLife Research, Texas Water Resources Institute						
E-mail Address	lucas.gregory@ag.tamu.edu						
Street Address	1001 Holleman Dr. E						
City	College Station	County	Brazos	State	Texas	Zip Code	77840
Telephone Number	979-314-2361			Fax Number	N/A		

Project Partners	
Names	Roles & Responsibilities
Texas State Soil and Water Conservation Board (TSSWCB)	Provide state oversight and management of all project activities and ensure coordination of activities with related projects and TCEQ.
Texas A&M AgriLife Research, Texas Water Resources Institute (TWRI)	Provide project administration, coordination, quality assurance, and water quality monitoring and data analysis

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 TMDL 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 2022 IR	Size (Acres)
Brushy Creek	120702050401 - 120702050410	1244_01 1244_03	5c, CS, CN, NS	332,653

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: *2022 Texas Integrated Report,* Clean Rivers Program Basin Summary/Highlights Reports, or other documented sources.

Impairments

Segment ID 1244: From the confluence with the San Gabriel River in Milam County to the confluence of South Brushy Creek in Williamson County

Parameter	Category	Year
Bacteria	5c	2006

1244_01: From the confluence of the San Gabriel River upstream to the confluence of Mustang Creek

1244_03: From the confluence of Cottonwood Creek upstream to the confluence of Lake Creek

Concerns

Segment ID 1244: From the confluence with the San Gabriel River in Milam County to the confluence of South Brushy Creek in Williamson County

Parameter	Level of Concern
Bacteria	NS

1244_01: From the confluence of the San Gabriel River upstream to the confluence of Mustang Creek

1244_03: From the confluence of Cottonwood Creek upstream to the confluence of Lake Creek

Parameter	Level of Concern
Bacteria	CN

1244_02: From the confluence of Mustang Creek upstream to the confluence of Cottonwood Creek

Parameter	Level of Concern
Nitrate	CS

1244_01: From the confluence of the San Gabriel River upstream to the confluence of Mustang Creek

1244_02: From the confluence of Mustang Creek upstream to the confluence of Cottonwood Creek

1244_03: From the confluence of Cottonwood Creek upstream to the confluence of Lake Creek

Parameter	Level of Concern
Fish Kill Reports	CN

1244_03: From the confluence of Cottonwood Creek upstream to the confluence of Lake Creek

Sources
Segment ID 1244: From the confluence with the San Gabriel River in Milam County to the confluence of South Brushy Creek in Williamson County

Brushy Creek: Segment ID 1244, AU ID 1244_01
E. coli, Nitrate
2022 Texas Integrated Report: non-point sources
2022 Brazos River Basin Summary Report: wild hogs

Brushy Creek: Segment ID 1244, AU ID 1244_02
E. coli, Nitrate
2022 Integrated Report: unknown point source
2022 Brazos River Basin Summary Report: over application of fertilizers or wastewater effluent

Brushy Creek: Segment ID 1244, AU ID 1244_03
E. coli, Fish Kill, Reports Nitrate
2022 Texas Integrated Report: non-point source, municipal point source discharges
2022 Brazos River Basin Summary Report: urbanization, pet waste

Project Narrative

Problem/Need Statement

To support the continued water quality protection and restoration efforts in the Brushy Creek watershed, TWRI acquired funding from the TSSWCB to collect water quality and streamflow data from two SWQM stations, 12059 and 22392, between July 1, 2022 and June 31, 2024 through Project #22-53. The data collected through this monitoring project will be used in the development of the Brushy Creek Characterization Report project with TCEQ, Contract #582-23-40237.

However, data collected through the above-mentioned monitoring project are insufficient when it comes to supporting the future development of Total Maximum Daily Load or Watershed Protection Plan because various human activities will alter the characteristics of the watershed, in terms of land cover and streamflow behavior, in the coming years. For example, the City of Round Rock continues to expand in the upper portion of the watershed, and the impact of urbanization on streamflow behaviors is well known, particularly in changes to high- and low-flow magnitudes. In addition, Brushy Creek regional wastewater treatment plant is undergoing considerable expansion due to an increasing amount of influent; moreover, additional tertiary filters are planned to be implemented in 2025. These activities will have an impact on water quality during low flows, especially total suspended solids and bacteria concentrations, which will be captured by SWQM station 12059. In the middle portion of the watershed, Samsung is establishing a large chip manufacturing facility near Taylor (Brazos River Basin Summary Report, 2022), disturbing 1,272 acres of the

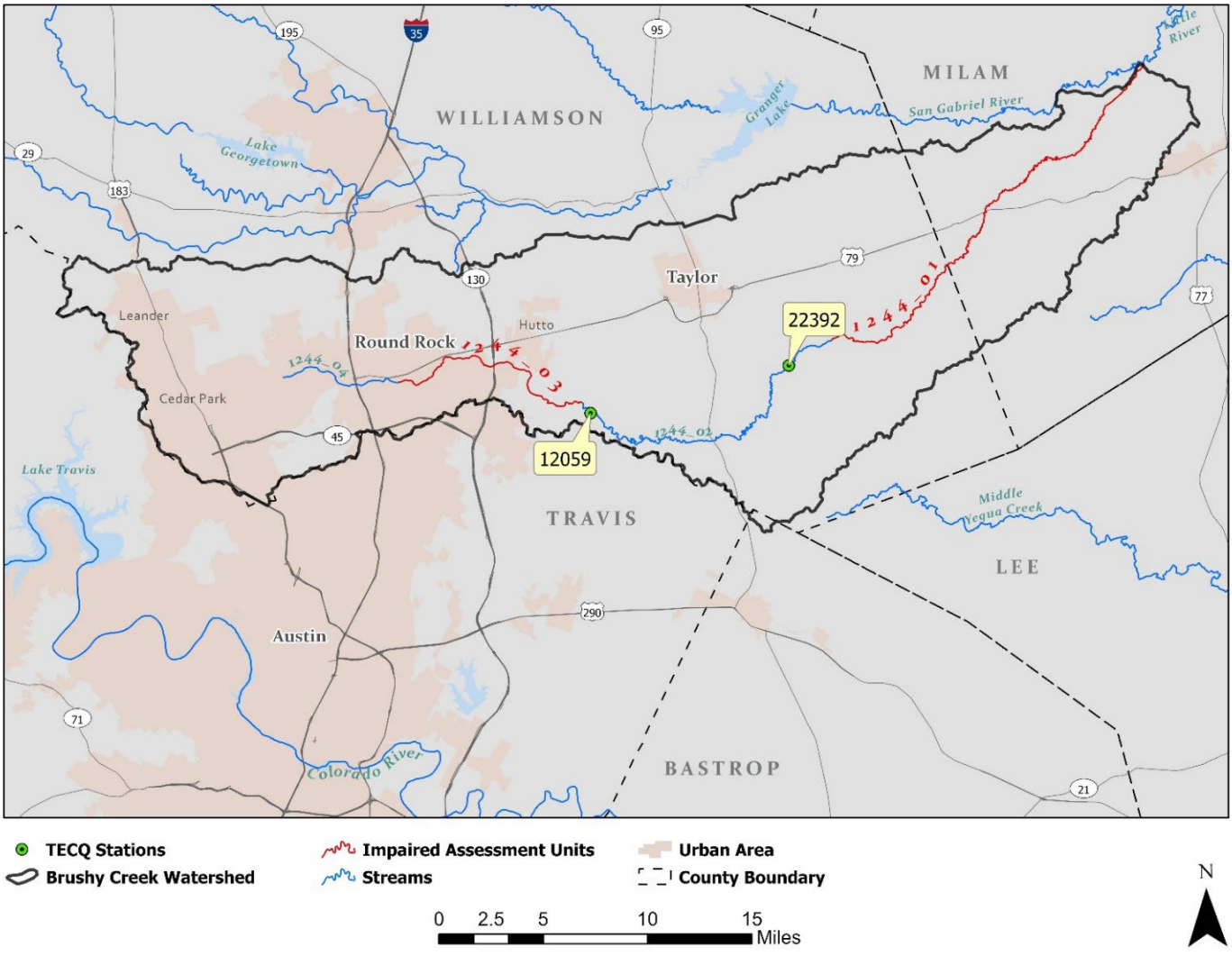
watershed (TCEQ Water Quality General Permits Search), of which the impact can be captured by the SWQM station 22392.

Overall, Brushy Creek watershed will be impacted by many pending land use and land cover changes and continued monitoring efforts will help us better understand the consequences of those changes and the ability to make adaptive watershed-based planning efforts that can reduce NPS pollution loads.

Project Narrative

General Project Description

The proposed project will collect 20 water samples and streamflow measurements at each monitoring site within the Brushy Creek watershed monthly. Together with the 18 samples collected through the on-going Brushy Creek monitoring project, we will have 38 pairs of *E. coli* and instantaneous streamflow measurements for both monitoring sites. The non-zero streamflow and *E. coli* measurements will be used to estimate the amount of bacteria load that need to be reduced under different flow conditions, e.g., low flows, dry condition, mid-range flows, and high flows, to meet the 126 cfu/100 mL primary contact recreation use I criterion.



Tasks, Objectives and Schedules				
Task 1	Project Administration			
Costs	$19,931			
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 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 1st of December, March, June and September. 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 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 3	Completion Date	Month 24
Subtask 1.4	TWRI 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 21	Completion Date	Month 24
Deliverables	• QPRs in electronic format • Reimbursement Forms and necessary documentation in electronic or hard copy format • Final Report in electronic and hard copy formats			

Tasks, Objectives and Schedules				
Task 2	Quality Assurance			
Costs	$4,185			
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	TWRI will develop a QAPP for activities in Task 3 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 3
Subtask 2.2	TWRI will implement the approved QAPP. TWRI will submit revisions and necessary amendments to the QAPP as needed.			
	Start Date	Month 4	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 3			

Tasks, Objectives and Schedules				
Task 3	Surface Water Quality Monitoring and Data Summary			
Costs	$75,538			
Objective	To collect and summarize water quality and streamflow data of known and acceptable quality for future watershed-based planning.			
Subtask 3.1	Upon QAPP approval, TWRI will conduct monthly ambient water quality monitoring at two sites for 20 months.			
	Start Date	Month 4	Completion Date	Month 24
Subtask 3.2	TWRI will maintain a master database of collected water quality data. Water quality data will be submitted to TCEQ to be included in the SWQMIS quarterly.			
	Start Date	Month 1	Completion Date	Month 24
Subtask 3.3	TWRI will aggregate existing water quality data in addition to the data collected in Subtask 3.2. The data will be visualized and analyzed using graphs, tables, etc. An analysis and summary of the data and monitoring activities will be included in the Final Report.			
	Start Date	Month 21	Completion Date	Month 24
Deliverables	• Documentation of sampling events • Field notes and instrument calibration sheets from first sampling event • Quarterly SWQMIS data submissions (data summary, checklist, event and result files, and validator report) • Data Summary Report (Draft and Final)			

Project Goals
• Collect water quality and streamflow data and submit lab analysis results to the SWQMIS. • Analyze collected water quality data and describe in the final project report. • Assess the next steps for improving the water quality issues.

Measures of Success
This project will be considered successful upon completion of 20 routine water quality monitoring events at the two sites and submission of all data to SWQMIS. Progress will be reported in quarterly progress reports and results will be provided in a final report.

***2022 Texas NPS Management Program* Reference**
Components, Goals, and Objectives
Component 1: Explicit short- and long-term goals, objectives … that protect surface and groundwater. • LTG 1: Focus NPS abatement efforts, implementation strategies, and available resources in watersheds identified as impacted by nonpoint source pollution • LTG 2: Support the implementation of state, regional and local programs to prevent NPS pollution through assessment, implementation, and education • STG 1: Data Collection and Assessment: coordinate with appropriate federal, state, regional, and local entities…. Where additional information may be needed • Objective A: Identify surface water bodies … that need additional information to characterize non-attainment of designated uses and water quality standards • Objective B: ensure that monitoring procedures meet quality assurance requirements …. or TSSWCB Quality Management Plans
Component 2: Working partnerships and linkages with appropriate state, … regional, and local entities, private sector groups and Federal agencies.
Component 3: Balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds.
Component 7: Manage and implement the NPS program efficiently and effectively, including necessary financial management

Part III – Financial Information

Budget Summary		
Category	**State**	
Personnel	$	51,134
Fringe Benefits	$	19,559
Travel	$	2,260
Equipment	$	0
Supplies	$	356
Contractual	$	0
Construction	$	0
Other	$	13,346
Total Direct Costs	$	86,655
Indirect Costs (≤ 15%)	$	12,999
Unrecovered IDC		
Total Project Costs	$	99,654

Budget Justification		
Category	Total Amount	Justification
Personnel	$ 51,134	PI: $108,526 annually, 0.48 mo. (2% per year) – $4,626 TBD Project Specialist: $75,040 annually, 2 mo. (8.33% per year) – $12,689 TBD Quality Assurance Officer: $78,750 annually, 1.2 mo. (5% per year) – $7,970 Research Specialist: $52,000 annually, 4.54 mo. (18.93% per year) – $20,977 TBD Research Assistant: $60,000 annually, 0.96 mo. (4 % per year) – $4,872 *Named positions are budgeted with a 5% annual pay increase in the first year and 3% in subsequent years; TBD positions and graduate students are budgeted with a 3% pay increase in years after year 1 *Salary estimates are based on an average monthly percent effort for the entire contract. Actual percent effort may vary more or less than estimated between months; but in aggregate, will not exceed total effort estimates for the entire project. *Cell phone allowances for project calls/emails during & after business hours & travel are occasionally factored into salaries & fringe, but again, will not exceed overall dollar amount.
Fringe Benefits	$ 19,559	Fringe for faculty and staff is calculated at 19.7% salary plus $1,033 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 aggregate, will not exceed the overall estimated total.
Travel	$ 2,260	Monitoring Mileage: 205 miles * at state rate * 20 trips
Equipment	$ 0	N/A
Supplies	$ 356	General monitoring supplies (sharpies, latex gloves, hand sanitizer, etc.): $186 Computer peripherals (keyboard, mouse, dock, etc.): $170
Contractual*	$ 0	N/A
Construction	$ 0	N/A
Other	$ 13,346	Sampling Equipment Rental: $8,400 Lab Analysis for 40 samples: $2,016 Laptop for computer analysis: $1,850 Water Database Maintenance: $1,080
Indirect	$ 12,999	Per the RFP requirements, indirect costs are limited to 15% of total direct costs - $86,655 * 15% = $12,999