



**Texas State Soil and Water Conservation Board
 Clean Water Act §319(h) Nonpoint Source Grant Program
 FY 2008 Project 08-06**

NONPOINT SOURCE SUMMARY PAGE for the CWA §319(h) Agricultural/Silvicultural Nonpoint Source Grant Program						
Title of Project:	Development of a Watershed Protection Plan for Geronimo Creek					
Project Goals:	The goals of the project are to collect and analyze water quality data and coordinate the development of a watershed protection plan for the Geronimo Creek watershed that satisfies the nine elements.					
Project Tasks:	The project tasks include: 1) coordinate the development of a watershed protection plan for the Geronimo Creek watershed for the Geronimo Creek Watershed Partnership Steering Committee, working in concert with federal, state, and local agencies, the City of Seguin, Guadalupe County and other local stakeholders; 2) conduct data analysis, identify data gaps and perform selective modeling to support the development of the Geronimo Creek Watershed Protection Plan; and 3) conduct water quality monitoring in areas where data gaps have been identified.					
Measures of Success:	Development and submission of a completed Watershed Protection Plan for Geronimo Creek					
Project Type:	Implementation (); Education (X); Planning (X); Assessment (X); Groundwater ()					
Status of Water Body: 2004 Texas Water Quality Inventory and 303(d) List	<u>Segment ID:</u> 1804A	<u>Parameter:</u> Bacteria and Nutrients (nitrate-nitrogen)	<u>Category:</u> 5c			
Project Location: (Statewide or County and Watershed Name)	Geronimo Creek and its tributary, Alligator Creek, in Guadalupe and Comal Counties					
Key Project Activities:	Hire Staff (); Surface Water Quality Monitoring (X); Technical Assistance (); Education (); Implementation (); BMP Effectiveness Monitoring (); Demonstration (); Planning (X); Modeling (X); Bacterial Source Tracking (); Other ()					
Texas NPS Management Program Elements:	1) Develop local watershed committee to solicit input and encourage participation of local stakeholders; 2) complete assessment of pollutants by reviewing existing water quality data, conducting an inventory of point and nonpoint sources, land use data, and known stressors influencing water quality; 3) conduct water quality monitoring and analyze data, assess loadings and determine origin and distribution; 4) develop models to determine numerical load allocations; 5) develop watershed protection plan, establishing goals and objectives, load allocations, strategies and timetables for implementation; 6) implement voluntary and regulatory actions in the watershed.					
Project Costs:	Federal:	\$472,398	Non-Federal Match:	\$320,115	Total:	\$792,513
Project Management:	Guadalupe-Blanco River Authority					
Project Period:	October 1, 2008 – January 31, 2013					

Part I – Applicant Information

Applicant							
Project Lead		Debbie Magin					
Title		Director of Water Quality Services					
Organization		Guadalupe-Blanco River Authority					
E-mail Address		dmagin@gbra.org					
Street Address		933 E. Court St.					
City	Seguin	County	Guadalupe	State	TX	Zip Code	78155
Telephone Number	(830) 379-5822			Fax Number	(830) 379-7478		

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
Guadalupe-Blanco River Authority (GBRA)	Provide project administration, coordination, quality assurance, water quality monitoring and modeling (Tasks 1-4)
Texas AgriLife Extension Service (Extension)	Facilitate the development of the Geronimo Creek Watershed Protection Plan (Task 5)
Doug Faseler, City Manager, City of Seguin	Provide non-federal match
Larry Timmermann, Road Administrator, Guadalupe County	Provide non-federal match

Part II – Project Information

Project Type							
Surface Water	<input checked="" type="checkbox"/>	Groundwater	<input type="checkbox"/>				
Does the project implement recommendations made in a Watershed Protection Plan or TMDL Report or Implementation Plan?				Yes	<input type="checkbox"/>	No	<input checked="" type="checkbox"/>
If yes, identify the document. (Approved or Draft)							
If yes, identify the agency/group that developed and/or approved the document.					Year Developed		

Watershed Information				
Watershed Name(s)	Hydrologic Unit Code (8 Digit)	Segment ID	305 (b) Category	Size (Acres)
Geronimo Creek (including its tributary, Alligator Creek)	121000202	1804A	5c	44,152

Project Narrative

Problem/Need Statement

State and federal water resource management and environmental protection agencies have embraced the watershed approach for managing water quality. The watershed approach involves assessing sources and causes of impairments and utilizing this information to develop and implement watershed management plans. This project will address the bacterial impairment and high and increasing nutrient concentrations in Geronimo Creek. The 2004 303(d) list indicated Geronimo Creek as impaired for *E. coli* bacteria (geometric mean = 162 organisms/100 milliliters). The GBRA has been sampling Geronimo Creek since 1996. The mean concentration for nitrate-nitrogen during that period is 11.0 milligrams per liter, well over the assessment screening concentration of 1.95 milligrams per liter and over the drinking water standard of 10.0 milligrams per liter. The only point source to the creek is within three-quarter mile of the confluence with the Guadalupe River, downstream of the historical monitoring locations. Hence, excess contributions of the bacteria and nutrient loads are most likely from nonpoint sources.

The land use in the area is primarily agricultural. The 44,152-acre watershed is made up of 45.5% cropland, including managed pasture, 31.6% rangeland, 9.8% forest and 11.5% developed land. Also located in the watershed is the New Braunfels airport and a commercial fish hatchery, neither of which has a point source discharge. The lower portion of the Geronimo Creek watershed is in the extra-territorial jurisdiction (ETJ) of the city of Seguin. The upper portion of the Alligator Creek subwatershed lies in the ETJ of the city of New Braunfels. Alligator Creek begins on the west side of IH 35 and travels southeast, crossing IH 35 and travelling through a rapidly developing area of the IH 35 corridor. The city of Seguin is in the process of developing a master plan for the city which includes a component that is looking at projected growth in its ETJ and environmental impacts from the projected growth. Also, Guadalupe County is applying for a grant from the Texas Water Development Board to look at flood control and stormwater management in the Geronimo Creek watershed. The timing for this watershed protection planning effort is good as the project will work in concert with both of the other governmental entities' efforts.

The TSSWCB Regional Watershed Coordination Steering Committee (WCSC) was formed in 2005 with the charge to develop a system to evaluate and rate watersheds for watershed protection plan (WPP) development. Using a set of established criteria, the system prioritizes watersheds in southeast and south central Texas for WPP development. After a very successful watershed protection planning project on Plum Creek in the Guadalupe River Basin, the committee was asked to nominate candidate watersheds for the next WPP development project. Using the criteria that included stream impairment and the watershed's status on the 303(d) list, land use, potential for success and stakeholder involvement, Geronimo Creek ranked in the top two. After significant discussions the WCSC selected a different watershed to pursue funding for. However, after considering on-going activities and the high interest level of stakeholders in the watershed, GBRA believes a watershed protection planning effort was warranted.

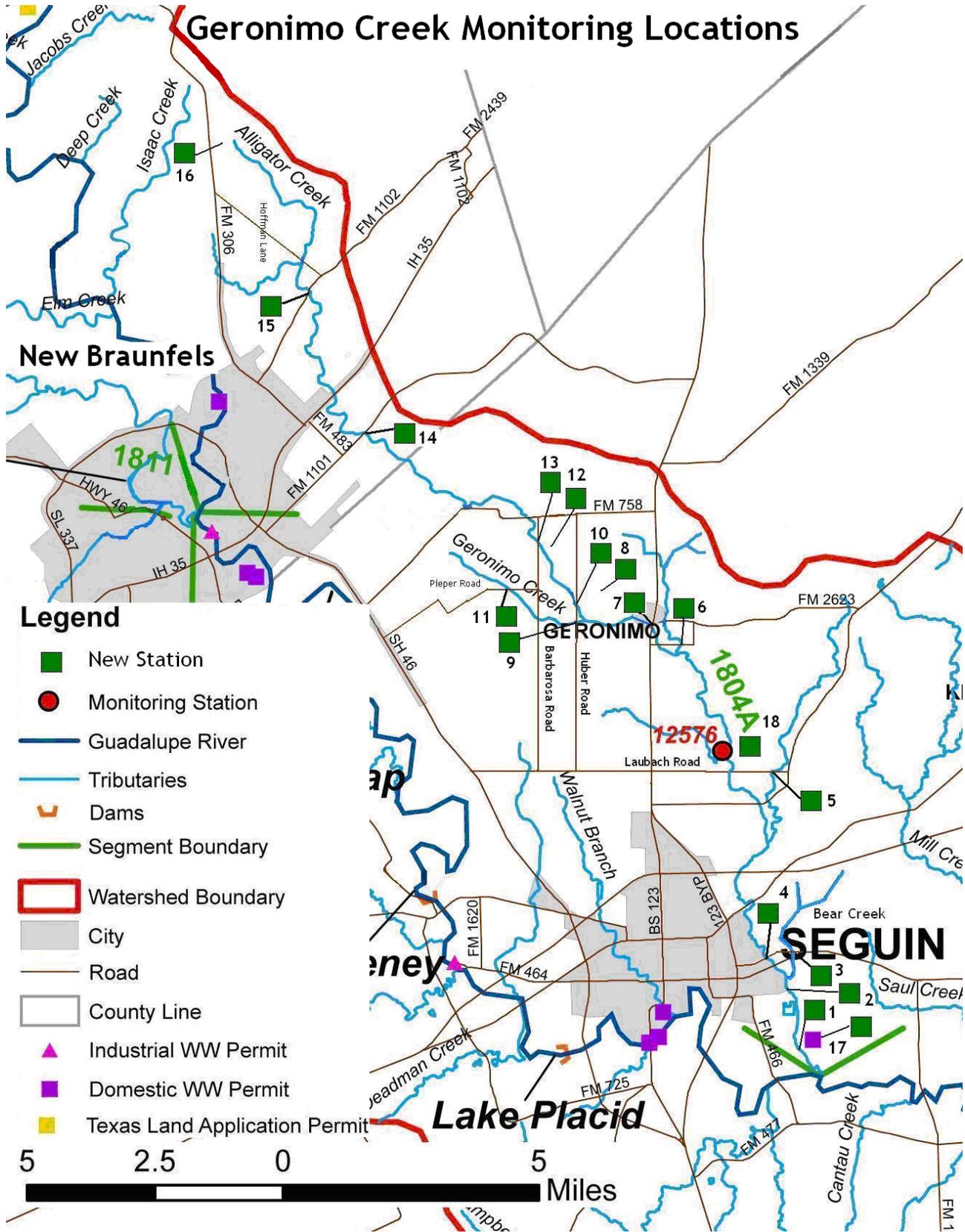
The project will result in the production of a watershed protection plan that has been developed with buy-in from local stakeholders and governmental entities. The WPP will identify implementable best management practices that are based on the goals of water quality improvement and watershed protection. A comprehensive watershed approach will be a strong focus with concentration on the most significant sources of agricultural nonpoint source pollution contributing to the current impairments, at the same time looking ahead at potential sources of pollution from urban and suburban growth. The outcomes of the project, which include data in the form of identification and estimation of sources and in partnerships with local stakeholders, would benefit the local governmental entities as they look at developing master plan and stormwater management strategies. Recommended best management practices that are identified by the steering committee, work groups and partner agencies will be evaluated for their relative impact on water quality. An important benefit or outcome of the project would be 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 critical because it would be unfortunate to implement best management practices aimed to correct an impairment caused by the existing agricultural activities, only to have the impairment replaced by land use activities associated with urban development, i.e. pet waste and stormwater, that is only in the planning stages.

Project Narrative

General Project Description (Include Project Location Map)

The project will include data collection on the Geronimo Creek and Alligator Creek watersheds. The data will be used to address pollutant sources and gather basic information. Using a spatially specific geographic information system and the appropriate model, estimates will be made concerning the fate and transport of pollutants and *E. coli* within the watershed.

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- Legend**
- New Station
 - Monitoring Station
 - Guadalupe River
 - Tributaries
 - Dams
 - Segment Boundary
 - Watershed Boundary
 - City
 - Road
 - County Line
 - ▲ Industrial WW Permit
 - Domestic WW Permit
 - Texas Land Application Permit

Proposed Monitoring Locations				
Station ID ¹	Lat_dd	Long_dd	Task	Description
1	29.549736	-97.921145	Routine	Geronimo Creek at 450 Seitz Road, below City of Seguin WWTP, near Seguin TX
2	29.567394	-97.924639	Routine	Geronimo Creek at 1955 Mount Vernon, below confluence with Bear Creek, near Seguin, TX
3	29.576231	-97.943592	Routine	Bear Creek at East Walnut Street near Seguin, TX
4	29.574758	-97.930553	Routine	Geronimo Creek at East Walnut Street near Seguin, TX
5	29.628294	-97.925756	Targeted	Unnamed tributary at Laubach Road (CR 108) near Seguin, TX
6	29.665244	-97.956458	Targeted	Unnamed tributary at Heinemeyer Road (CR 121) near Geronimo, TX
14932	29.669657	-97.966174	Routine	Geronimo Creek at SH 123 near Geronimo, TX
8	29.680122	-97.981597	Spring	Geronimo Creek headwater spring near Geronimo, TX
9	29.671272	-97.990778	Routine	Geronimo Creek at Huber Road near Geronimo, TX
10	29.676511	-97.990778	Routine	Alligator Creek at Huber Road, near Geronimo, TX
11	29.680103	-98.010719	Targeted	Geronimo Creek at Pieper Road (CR 130) near Geronimo, TX
12	29.693906	-98.002008	Spring	Alligator Creek Headwater Spring near Geronimo, TX
13	29.694806	-98.003058	Targeted	Alligator Creek at Barbarosa Road (CR 107A) near Geronimo, TX
14	29.726645	-98.058403	Targeted	Alligator Creek at FM 1101 near New Braunfels, TX
15	29.767258	-98.075817	Targeted	Alligator Creek at FM 1102 near New Braunfels, TX
16	29.808658	-98.101164	Groundwater	Water well near Blackjack Oak Road and FM 306
17				City of Seguin Geronimo Creek WWTP
18				Additional well in Geronimo Creek subwatershed
Alternate or additional sites:				
	29.671058	-97.962233	Targeted	Unnamed tributary at FM 2623 near Geronimo, TX
	29.701353	-98.005656	Targeted	Alligator Creek at FM 758 near Geronimo, TX
	29.773903	-98.077978	Targeted	Alligator Creek at Hoffman Lane near New Braunfels, TX
	29.628172	-97.941425	Targeted	Geronimo Creek at Laubach Road (CR 108) near Seguin, TX
				Fish hatchery on Seitz Road, near Seguin, TX (upstream of site #1)

¹ – temporary identification number if not already assigned a TCEQ site location number (SLOC). TCEQ SLOCs will be obtained for data reporting purposes.

Water Quality Impairment

Describe all known causes (pollutants of concern) of water quality impairments from any of the following sources: 2004 Texas Water Quality Inventory and 303(d) List, 2006 Texas Water Quality Inventory and 303(d) List or Other Documented Sources (ex. Clean Rivers Program Basin Summary or Basin Highlights Reports).

Geronimo Creek is listed as impaired on the 2004 and 2006 303(d) Lists due to bacterial contamination. The data from the period of record showed that the geometric mean for *E. coli* bacteria exceeded the stream standard of 126 organisms per 100 milliliters. The geometric mean of Geronimo Creek based on 58 samples was 162 organisms per 100 milliliters. The stream was not assessed in the 2008 assessment.

The GBRA monitoring location on Geronimo Creek, established in 1996, was moved 1.5 miles downstream to an established TCEQ ecoregion site in 2003. Analyzing the GBRA historical data combined from both sites through December 2007 (132 data points), the geometric mean for *E. coli* in the stream is somewhat reduced to 144 organisms per 100 milliliter but still exceeds the stream standard of 126 organisms per 100 milliliters. Looking at the nitrate-nitrogen concentration at the combined sites, the mean concentration is 11.1 milligram per liter and the median concentration is 10.4 milligrams per liter.

The Clean Rivers Program Basin Highlights Reports for the Guadalupe River Basin since 2004 comment on the elevated nitrate-nitrogen concentrations, suggesting that the source appears to be groundwater seepage and likely due to agricultural activity – fertilizers seeping into groundwater or entering the stream from rainfall runoff. The private wells that have been monitored in the area are shallow and have concentrations in excess of 20 milligrams per liter.

GBRA holds a Clean Rivers Program steering committee meeting each year to brief the committee on CRP activities and monitoring in the basin. At the 2007 meeting a gentleman with some prior knowledge of the Geronimo Creek watershed commented that he had seen an elevated concentration of selenium in the creek. At the meeting, the TCEQ's Surface Water Quality Monitoring Program representative agreed to add Geronimo Creek to the fish tissue surveys that were planned in the future. To date, GBRA is not aware of any fish tissue analyses that have been completed. The annual metals sampling that has been conducted by GBRA CRP since 1999 has found a mean concentration for total selenium of 2.07 micrograms per liter. Comparing this historical mean to the thirteen other sites sampled for metals concentrations in the Guadalupe River Basin, Geronimo Creek is higher than the other sites that range from 0.24 micrograms per liter to 1.84 micrograms per liter total selenium. This difference in concentration warrants the addition of the analysis of total selenium to the routine, groundwater and spring sites once during the monitoring period.

Tasks, Objectives and Schedules						
Task 1:	Project Administration					
Costs:	Federal:	\$0	State:	\$30,000	Total:	\$30,000
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:	GBRA 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 15 th of January, April, July and October. QPRs shall be posted on the project website and provided to all project partners.					
	Start Date:	Month 1		Completion Date:	Month 52	
Subtask 1.2:	GBRA 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 52	
Subtask 1.3:	GBRA will host coordination meetings or conference calls with TSSWCB, and any subcontractors as appropriate, at least quarterly to discuss project activities, project schedule, communication needs, deliverables and other requirements.					
	Start Date:	Month 1		Completion Date:	Month 52	
Deliverables	<ul style="list-style-type: none"> Quarterly progress reports in electronic format Reimbursement forms in either electronic format or hard copy format Website 					

Tasks, Objectives and Schedules						
Task 2:	Quality Assurance					
Costs:	Federal:	\$15,000	State:	\$24,000	Total:	\$39,000
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 the project.					
Subtask 2.1:	GBRA, in consultation with the technical consultant, will develop a Quality Assurance Project Plan (QAPP) for activities in tasks 3 and 4, consistent with <i>EPA Requirements for Quality Assurance Project Plans (QA/R-5)</i> and the <i>TSSWCB Environmental Data Quality Management Plan</i> .					
	Consistency with Title 30, Chapter 25 of the Texas Administrative Code, <i>Environmental Testing Laboratory Accreditation and Certification</i> , which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference standards, shall be required.					
	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> .					
	Start Date:	Month 1		Completion Date:	Month 3	
Subtask 2.2:	GBRA will submit revisions and necessary amendments to the QAPP as needed.					
	Start Date:	Month 4		Completion Date:	Month 24	
Deliverables	<ul style="list-style-type: none"> QAPP for tasks 3 and 4 approved by TSSWCB in both electronic and hard copy formats Approved revisions and amendments to QAPP 					

Tasks, Objectives and Schedules						
Task 3:	Conduct water quality monitoring to support water quality modeling and the development of the watershed protection plan.					
Costs:	Federal:	\$75,415	State:	\$56,000	Total:	\$131,415
Objective:	Review historical data, identify data gaps, and develop and implement a monitoring plan to support the development of the watershed protection plan.					
Subtask 3.1:	The technical consultant will compile historical and baseline data on the Geronimo Creek watershed, including water quality data, land use, topography, soil types and vegetation.					
	Start Date:	Month 3		Completion Date:	Month 5	
Subtask 3.2:	GBRA, in consultation with the technical consultant, will produce a nineteen-month water quality monitoring plan based on information identified in Subtask 3.1, including monthly routine and targeted monitoring of the stream and tributaries, quarterly monitoring of springs (up to four locations), and the quarterly monitoring of wells (up to four locations) that are in close enough proximity to be contributing to the stream flow through springs.					
	Start Date:	Month 5		Completion Date:	Month 6	
Subtask 3.3:	GBRA will conduct water quality monitoring of the watershed as described in the plan developed in Subtask 3.2 and under the QAPP developed in Task 2.					
	Start Date:	Month 6		Completion Date:	Month 24	
Deliverables	<ul style="list-style-type: none"> Historical baseline data report, including digital land use maps Water quality data results 					

Tasks, Objectives and Schedules						
Task 4:	Conduct water quality modeling and data analysis in support of the development of a watershed protection plan.					
Costs:	Federal:	\$122,157	State:	\$66,601	Total:	\$188,758
Objective:	Generate data analysis and analytical tools that support the development of a watershed protection plan and support the evaluation and prioritization of best management practices that if implemented in the watershed have a high likelihood of positive impacts.					
Subtask 4.1:	The technical consultant will perform services that include the selection of a model that facilitates development of the watershed protection plan; produces geographical information including digitizing of land use data to the subwatershed level; conducts data analysis to rank sources of the impairments; estimates the fate and transport of bacteria, nutrients and other constituents; and produces tools that can be used to evaluate the effectiveness of best management practices.					
	Start Date:	Month 20		Completion Date:	Month 24	
Subtask 4.2:	The technical consultant will perform all necessary phases of modeling that facilitate development of the watershed protection plan as described in task 5.					
	Start Date:	Month 24		Completion Date:	Month 30	
Deliverables	<ul style="list-style-type: none"> Technical report detailing modeling results 					

Tasks, Objectives and Schedules						
Task 5:	Watershed partnership facilitation and protection plan development.					
Costs:	Federal:	\$259,826	State:	\$143,514	Total:	\$403,340
Objective:	GBRA and Texas AgriLife Extension Service will work with stakeholders, partner agencies and organizations to develop a watershed protection plan for the Geronimo Creek watershed.					
Subtask 5.1:	GBRA will subcontract with the Texas AgriLife Extension Service to facilitate the development of the Geronimo Creek Watershed Partnership Steering Committee and associated subcommittees for the purpose of plan development, including Texas Watershed Steward Program workshop for stakeholders.					
	Start Date:	Month 1	Completion Date:	Month 52		
Subtask 5.2:	Extension, in collaboration with GBRA, will facilitate the development of the Geronimo Creek Watershed Protection Plan.					
	Start Date:	Month 25	Completion Date:	Month 52		
Deliverables	<ul style="list-style-type: none"> • Meeting agendas • Meeting attendance lists • News releases and meeting announcements • Draft watershed protection plan • Final watershed protection plan that satisfies the nine elements 					

Project Goals (Expand from NPS Summary Page)
<ol style="list-style-type: none"> 1. To coordinate the development of a watershed protection plan for Geronimo Creek that satisfies the nine elements. 2. To foster coordinated technical assistance activities between TSSWCB, GBRA, and cities. 3. To collect quality-assured data.

Measures of Success (Expand from NPS Summary Page)
Measures of success include 1) the development and submission of a watershed protection plan that has been carried through a thorough public review process and accepted by federal, state and local stakeholders; 2) the utilization of the plan by local governmental agencies and other partners to implement suggested best management practices and to establish ordinances and other governmental control and management measures that have taken environmental impacts into consideration; and 3) increase in awareness of impacts of land use activities and agricultural and fertilizer use and storage.

2005 Texas Nonpoint Source Management Program Reference (Expand from NPS Summary Page)
Goals &/or Milestone(s)
Long term goal – Develop partnerships, relationships, memoranda of agreement, and other instruments to facilitate collective, cooperative approaches to manage NPS pollution.
Short Term Goal One – Data Collection and Assessment – Ensure that monitoring procedures meet quality assurance requirements and are in compliance with EPA-approved...TSSWCB Quality Management Plans.
Short Term Goal One – Data Collection and Assessment – Conduct special studies to determine sources of NPS pollution and gain information to target...BMP implementation.
Short Term Goal One – Data Collection and Assessment – Develop...Watershed Protection Plans to maintain and restore water quality in waterbodies identified as impacted by NPS pollution.

Part III – Financial Information

Budget Summary			
Federal 319(h)	\$ 472,398	% of total project	60%
Non-Federal Match	\$ 320,115	% of total project (at least 40%)	40%
Total \$ Cost	\$ 792,513	Total project %	100%
Category	Federal	Non-Federal Match	Total
Personnel	\$ 0	\$ 120,192	\$ 120,192
Fringe Benefits	\$ 0	\$ 29,461	\$ 29,461
Subtotal	\$ 0	\$ 149,653	\$ 149,653
Travel	\$ 0	\$ 1,500	\$ 1,500
Equipment	\$ 0	\$ 0	\$ 0
Supplies	\$ 0	\$ 3,000	\$ 3,000
Contractual	\$ 421,983	\$ 143,514	\$ 565,497
Construction	\$ 0	\$ 0	\$ 0
Other	\$ 50,415	\$ 0	\$ 50,415
Subtotal	\$ 472,398	\$ 148,014	\$ 620,412
Total Direct Costs	\$ 472,398	\$ 297,667	\$ 770,065
Indirect Costs (≤15%)	\$ 0	\$ 22,448	\$ 22,448
Total Project Costs	\$ 472,398	\$ 320,115	\$ 792,513

The TSSWCB CWA §319(h) Nonpoint Source Grant Program has a 60/40% match requirement. The cooperating entity will be reimbursed 60% from federal funds and must contribute a minimum of 40% of the total costs to conduct the project. The 40% match must be from non-federal sources and should be described in the budget justification. Reimbursable indirect costs are limited to 15% of total federal direct costs. The project budget generally covers a three year period.

Budget Justification (Federal)		
Category	Total Amount	Justification
Personnel & Fringe Benefits	\$ 0	
Travel	\$ 0	
Equipment	\$ 0	
Supplies	\$ 0	
Contractual	\$ 421,983	Texas AgriLife Extension Service for facilitation and plan development in Task 5 (\$259,826), which includes \$225,935 in direct costs and \$33,33,891 in indirect (15%); technical consultant for quality assurance plan development, modeling and data analysis described in Tasks 2, 3 and 4 (\$162,157)
Construction	\$ 0	
Other	\$ 50,415	Water quality sample analyses for task 3
Indirect	\$ 0	

Budget Justification (Non-Federal)		
Category	Total Amount	Justification
Personnel & Fringe Benefits	\$ 149,653	Labor contributed by GBRA, City of Seguin, Guadalupe County and a UTSA doctoral student
Travel	\$ 1,500	Travel contributed by GBRA to collect samples, ground-truthing, plan development and stakeholder meetings
Equipment	\$ 0	
Supplies	\$ 3,000	Supplies contributed by GBRA for production of plan, meetings and monitoring
Contractual	\$ 143,514	Match provided by Texas AgriLife Extension Service
Construction	\$ 0	
Other	\$ 0	
Indirect	\$ 22,448	Indirect supplied by GBRA and other stakeholders