

Texas Water Resources Institute

Watershed Assistance to Improve Water Quality in North Central Texas

USDA-NRCS Contract # 985

Quarter # 3

Reporting dates of January 1, 2011 through March 31, 2011

I. Abstract

Work conducted the quarter consisted primarily of bringing Dr. Jason Johnson onto the project to conduct the economic analysis which will be utilized in the SWAT model. The first Ag Producers meeting is planned for April 13, 2011 in Decatur, TX where BMP adoption scenarios will be collected and put into the Economic Model. A second Ag Producers meeting is anticipated for Mid May where results will be presented to the stakeholders to ensure accuracy. The SWAT Modeling has been moving forward with all BMPs simulated at 100% adoption rates. This also included the three new BMPs. Portions of the SWAT Final Report that consist of calibration and validation are being drafted. The input of the scenarios from the economic results is anticipated to be completed early May. Educational activities progressed as a total of 14 stakeholder meetings have been held for the development of the Cedar Creek Watershed Plan. Also, a total of 4 stakeholder meetings have been held for the Eagle Mountain Watershed Plan and more will be scheduled upon the completion of the economic analysis. In addition, several other educational activities were conducted and are listed later in the report. The publications for the project are moving forward with the Cedar Creek watershed fact sheet and water quality fact sheet being completed. The others, including Eagle Mountain watershed characterization, grassed waterways, vegetative filter strip and stream processes are all being drafted and only lack small components to be completed. Lastly, project coordination with all project partners has been moving along as monthly conference calls are being held the second Tuesday of every month at 9:00AM. Some delays in spending were experienced as first, overlap from the FY09 project ending on 9-23-10 and the beginning of FY10 which was 7-9-10 occurred and secondly, internal contracting somewhat delayed spending as well. Work next quarter will consist of, again, Ag Producers meetings, Economic modeling, SWAT modeling, continued educational activities and finalizing fact sheets.

II. Overall Progress and Results by Task

TASK 1: SWAT Modeling

Months 1-12:

A team of water quality modelers at the Texas A & M Spatial Sciences Laboratory will work with Tarrant Regional Water District and the economics team to develop and assess site specific conservation practices and locations within the Eagle Mountain and Cedar Creek watersheds. The SWAT model will be utilized to characterize and evaluate the loading potential of sediment and nutrients from small acreage lands by modeling NRCS land management practices and

other BMPs that control erosion and prevent non point sources of pollution in the Eagle Mountain watershed. (Dr. R. Srinivasan)

Deliverables:

- *Development of site specific conservation practices (Month 1 – 8)*
- *SWAT modeling results of BMPs (Month 1 – 12)*

The following actions have been completed:

- a. The SWAT Modeling has been completed for Cedar Creek and calibrated and validated for Eagle Mountain.
- b. All BMPs have been simulated at 100% adoption rates which also includes the 3 new BMPs
- c. The Modeling Final Reports are being drafted that will include the calibration, validation and simulations that have been run.
- d. Cost-effective scenarios for Eagle Mountain will be simulated upon the completion of the economic analysis and is anticipated to be completed by early May.

80% Complete

TASK 2: Economic Analysis

Months 1-12:

The economics team will utilize the economic model developed for Cedar Creek to finalize cost estimates to implement watershed best management practices in the Eagle Mountain watershed. They will cooperate with the modeling and educational teams to develop watershed protection plans and provide input on the cost associated with reaching water quality goals through economic analysis. Participate in briefings with TRWD and stakeholders as needed. They will also look at the cost of BMP implementation on small acreage lands in comparison to large tracts of agricultural lands. An economic final report will be written displaying these findings. (Dr. Jason Johnson & Dr. Ron Lacewell)

Deliverables:

- *Data identification, assimilation reviewed by stakeholders (Month 1 – 8)*
- *Economic model development (Month 1 – 8)*
- *Economic Analysis (Month 1 – 6)*
- *Economic Report*
 - *Draft (Month 1 – 6)*
 - *Final (Month 6 - 12)*

The following actions have been completed:

- a. An Ag Producers meeting was planned and will be held in mid April to collect the BMP scenarios that are necessary to begin running the economic model. The time that Dr. Johnson began on the project to the time of the Ag Producers meeting will be utilized to

review activities that have been conducted and work with TRWD to ensure that their needs are met.

- b. Upon completion of the data collection period, the model will be run and it is anticipated that inputs for SWAT will be ready by late April.
- c. A second Ag Producers Meeting is planned for Mid-May to ensure that results are accurate.

35% Complete

TASK 3: Education

Months 1-12:

Working with the Texas AgriLife Research and Extension Urban Solutions Center in Dallas the education/outreach team will continue to conduct stakeholder meetings in the Cedar Creek and Eagle Mountain Watersheds. The purpose of these meetings will be to gather stakeholder input for implementation of watershed management plans. (Justin Mechell & Clint Wolfe)

Deliverables:

- 4 stakeholder meetings in Eagle Mountain watershed (Month 1 – 12)
- 4 advisory committee meetings in Eagle Mountain watershed (Month 1 – 12)

The following actions have been completed:

- a. Thus far, a total of 14 Stakeholder meetings for the development of the Cedar Creek Watershed Protection Plan have taken place.
- b. A total of 4 stakeholder meetings for the development of the Eagle Mountain Watershed have taken place and more will be scheduled upon the completion of the economic analysis of proposed best management practices and subsequent computer modeling of forecasted implementation.
- c. The Texas AgriLife Research and Extension Center at Dallas presented the work of the Cedar Creek Watershed Plan at the EPA's annual drinking water conference. The Plan and partnership were held as an example of collaborative and technically advanced source of water protection.
- d. Agricultural producers in the Cedar Creek Watershed participated in a one-day workshop on February 11, 2011 which was organized by the Dallas Center. Speakers from Texas AgriLife Extension and USDA-NRCS presented concepts in nutrient management, soil fertility and testing, watershed planning, NRCS funding programs, riparian health and effectiveness of agricultural best management practices to improve water quality.
- e. The following educational activities were also conducted this quarter:

North Texas Master Naturalist Association	1/6/2011	Watersheds, stormwater, Presentation of Cedar Creek and Eagle Mountain Watershed Plans
Water Education Team Training Workshop	1/20/2011	Stream Trailer, enviroscape, rainfall simulator, The Incredible Journey, Freddy the Fish, dual flush

EPA 2011 Five State Drinking Meeting	1/27/2010	Presentation on Cedar Creek WPP
Cedar Creek Watershed Agricultural Workshop	2/11/2010	Full Day watershed and BMP workshop
Terrell Environmental Odyssey	3/8/2011 & 3/9/2011	Incredible Water Journey, Watershed definition, watershed identification, watershedstewardship
Stream Processes Workshop	3/23/2011	Stream Processes, erosion, best management practices, watersheds, stream trailer
Birdville ISD Envirofair	3/29/2011 & 3/30/2011	Rainfall simulator, Stream trailer, watershed definition, watershed identification, watershed stewardship

75% Complete

Task 3.1: Educational Programming

Months 1-12:

Texas AgriLife Extension Service working with local county offices will continue conducting educational activities in the watersheds managed by TRWD. The goal of these programs is to increase the water literacy of local residents and change attitudes and behaviors in order to protect and improve water quality a major focus of these efforts will be on educating and conducting demonstrations for small acreage landowners. Educational materials will also be developed and delivered relating to management of small acreage lands in the Cedar Creek and Eagle Mountain Reservoir Watersheds. (Justin Mechell)

Deliverables:

- *Cedar Creek watershed Implementation fact sheet (Month 1 – 6)*
- *Eagle Mountain watershed characterization fact sheet (Month 1 – 6)*
- *Water quality fact sheet (Month 1 – 6)*
- *Grassed waterways fact sheet (Month 1 – 6)*
- *Vegetative filter strip fact sheet (Month 1 – 6)*
- *Stream processes fact sheet (Month 1 – 6)*

The following actions have been completed:

- a. The Cedar Creek watershed fact sheet is complete and will be submitted to AgriLife Communications for publishing.

- b. The Eagle Mountain watershed characterization fact sheet has been drafted. We are waiting for results and information that will be received from the economic study and stake holder meetings to finalize the document and submit it to AgriLife Communications.
- c. The Water Quality fact sheet is complete and is at AgriLife Communications being published.
- d. The Grassed Waterways fact sheet is currently under development.
- e. The Vegetative filter strip fact sheet has been drafted and is under review.
- f. The Stream Processes fact sheet has been written. Drawings and diagrams for the fact sheet are under development. Once drawings are completed the document will go to AgriLife Communications for publishing.

75% Complete

TASK 4: Administration.

Months 1-12:

Provide administrative support for Tasks 1-3, including coordination among organizations and tasks, and submission of quarterly and annual reports. The Institute will also maintain the project Web site. The Web site will house all reports, educational materials and general information on the project and water quality. (Dr. Bill Harris & Allen Berthold)

Deliverables:

- *Quarterly Progress Reports (June 15, September 15, December 15, March 15)*
- *Annual report (March 15, 2011)*
- *Update and maintain website (Month 1 – 12)*

The following actions have been completed:

- a. The FY 09 project ended on September 23, 2010 but the FY10 project began July 9, 2010. This overlap caused contracting to be delayed until FY09 funds had been exhausted.
- b. A Project Coordination with all project partners and TRWD was held on January 13, 2011 in Ft. Worth to discuss the status of the project, paths forward and ways to best meet the needs of TRWD. It was determined that a new Economist was needed to meet the timeline of the project. TWRI was in search of the new Economist to work closely with TRWD to meet their needs.
- c. TWRI will host a minimum of MONTHLY conference calls with the project team throughout the duration of the project to ensure that project activities are being met. These conference calls will be held on the second Tuesday of every month at 9:00am
- d. TWRI has located a new economist, Jason Johnson, who has begun participating in the monthly project coordination meetings and will participate in stakeholder meetings in the future.
- e. The project website continues to be updated as activities are conducted.
- f. Quarterly Report 3 was turned in to NRCS on April 11, 2011.

75% Complete

III. Related Issues/Current Problems and Favorable of Unusual Developments

- Over allocation of our Economist's time has forced us to search for a new Economist in order to meet the deliverables on time.
- Difficulty of coordinating schedules has not allowed for the needed project coordination meetings but monthly conference calls have been scheduled for the second Tuesday of every month at 9:00.
- Setting up the subaccounts and subcontracts has been delayed in the internal contracting process and has forced project activities to be delayed as well.
- Due to the FY10 project start date of July 9, 2010, and the FY09 completion date of September 23, 2010, the overlap of projects did not allow for FY10 funds to begin being spent until FY09 money had been exhausted.

IV. Planned Activities for the future

- An Ag Producers meeting will be held in Decatur on April 13, 2011 to collect the economic scenarios.
- A second Ag Producers meeting is anticipated for Mid May to ensure that results are accurate.
- A full stakeholder meeting is anticipated to be held in June 2011.
- Continued educational programs
- Finalizing and printing fact sheets
- Completion of SWAT modeling

V. Budget

FY 10 Funded Project

	Current Balance (as of 1/31/11)
Texas Water Resources Institute	\$1,784
Texas AgriLife Research and Extension Center - Dallas	\$17,809
Spatial Sciences Lab - TAMU	\$21,436
Texas AgriLife Extension – BAEN and AGECE	\$123,109
TOTAL	\$164,138