

**Best Management Practice- Benefit Verification Infrastructure Improvement Plan
for the Bosque River Basin**

Texas Water Resources Institute
FY06 Federally Appropriated Funds
Project #06-64255

Quarter No. 2 From: 1/1/2007 Through: 3/31/2007

I. Abstract:

This project is an extension of a previous project that identified 22 feasible best management practices (BMPs) that can be implemented in the Bosque River watershed in an effort to reduce sediment and nutrient loads entering the waterway. This second phase of the project is using the Soil and Water Assessment Tool (SWAT) to evaluate various BMP implementation scenarios and their ability to effectively prevent nutrients and/or sediment from entering the waterway. Analysis is being done on a sub-watershed basis and only evaluates suites of BMPs instead of individuals.

In connection with the BMP evaluation, a document that describes each BMP in detail is also being drafted. Essentially, a description is given for each BMP along with information about feasible locations, applicable operations, estimated capital costs, operation and maintenance requirements and costs, expected pollutant reductions and installation considerations. This document will be used by people interested in installing or implementing one or more of the suggested BMPs to gain information about the practice, costs and expected benefits.

II. Progress By Task:

Task 1: SWAT Assessment of BMPs

Activity this quarter:

- a. Data collection and model set-up has been the major task of the last quarter. See attachment for a list of basic data sets used in the modeling process.
- b. Calibration of the model is in process and is planned for completion during the next quarter. SWAT is being calibrated for the time period 1970-2000.
- c. Validation of BMP effectiveness is yet to begin. Once the model has been fully calibrated, BMP evaluation will begin.

55% Complete

Task 2: Environmental infrastructure improvement plan for the North, Middle and South Bosque River

Activity this quarter:

- a. Work on this phase has been initiated but will be dependent on final results from the SWAT assessment of the BMP suites.
- b. Current activities include compilation of background materials.

5% Complete

Task 3: BMP description document that discusses the effectiveness of each practice at reducing NPS pollution

Activity this quarter:

- a. Work has continued on this document. Research information has been collected and writing is in progress.
- b. Approximately 9 out of 22 BMP descriptions are in final draft form.

40% Complete

III. Related Issues/Current Problems, Favorable, or Unusual Developments

- A project meeting will be held during the next quarter to assess project progress and discuss modeling results.

IV. Projected Work for Next Quarter

- Model calibration and validation should be completed during the next quarter
- Writing of the Environmental Infrastructure Improvement plan will begin during the upcoming quarter
- Work will continue on the BMP description document, the document should be nearing completion by the end of the quarter.

Attachment:

The basic dataset used in the modeling process are listed in the table below

Data Type	Source
DEM	USGS 30m x 30m
Landuse/Landcover	USGS_NLCD1992
Soils	SSURGO; 1:24,000
PL566	USDA-NRCS
Wastewater Treatment Plants	8 plants; TiAER
Waste Application Fields	TiAER
Weather (Precipitation and Temperature)	Observed daily from 11 precipitation stations and 7 temperature stations; National Weather Service-National Climatic Data Center (NWS-NCDC)
Land Management Information on waste and non-waste application fields	TiAER / Santhi et al. (2001a, 2001b) / expert opinion