

# Best Management Practices for Streambank Protection

**Project 05-400 FY 05 CWA Section 319(h)**

Arkansas Game and Fish Commission

Arkansas Watershed Conservation Center

Arkansas Water Resources Center

University of Arkansas, Biological and Agricultural Engineering

City of Rogers

# Goals and Objectives

- Demonstrate best management practices in urban areas
- Collect physical, chemical, and hydrological data on the site
- Collect geomorphologic data to characterize the current rate of stream bank erosion
- Collect geomorphologic data to design restoration project
- Reduce bank erosion, increase channel stability and decrease long-term sediment loading to the system
- Conduct educational workshops for regional planners



# Completed to Date

- Land-use inventory
- GIS mapping
- BEHI and NBS (over 400 sites)
- Geomorphic survey
- Restoration design and re-design and re-design
- Permit submittal and re-submittal and re-submittal
- Chemical and physical data collection and analysis

# Land Use Analysis

Blossom Way Watershed  
Project Area  
Rogers, Arkansas

Anderson Level I  
Land-Use Classification  
(Draft April 2006)

-  Urban or Built-up Land
-  Agricultural Land
-  Forest Land
-  Water
-  Barren Land

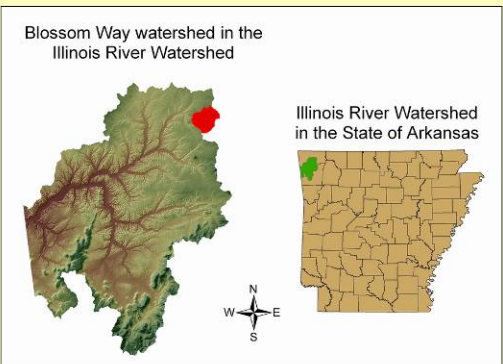
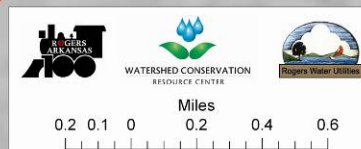
Level I Land Use Description	Area (mi <sup>2</sup> )	% of total
Urban or Built Up Land	4.18	57.4%
Agricultural Land	2.11	29.0%
Forest Land	0.36	4.9%
Water	0.08	1.1%
Barren Land	0.55	7.6%
<b>Total</b>	<b>7.28</b>	<b>100.0%</b>

26th Street  
Water Quality Monitoring Station

Notes:  
Land-use classifications were determined by performing a heads-up digitization of aerial imagery created between January and February 2005.

The digitization was completed by the Watershed Conservation Resource Center, between January and April, 2006 with funding from the City of Rogers, Arkansas and through an U.S. Environmental Protection Agency 319(h) grant administered by the Arkansas Natural Resources Commission.

This map should be used for illustrative purposes only.





# Streambank Inventory

- Bank Erosion Hazard Index (BEHI)
- Near-bank Sheer Stress
- Osage Creek and tributaries within the project area
- 400 individual streambanks evaluated





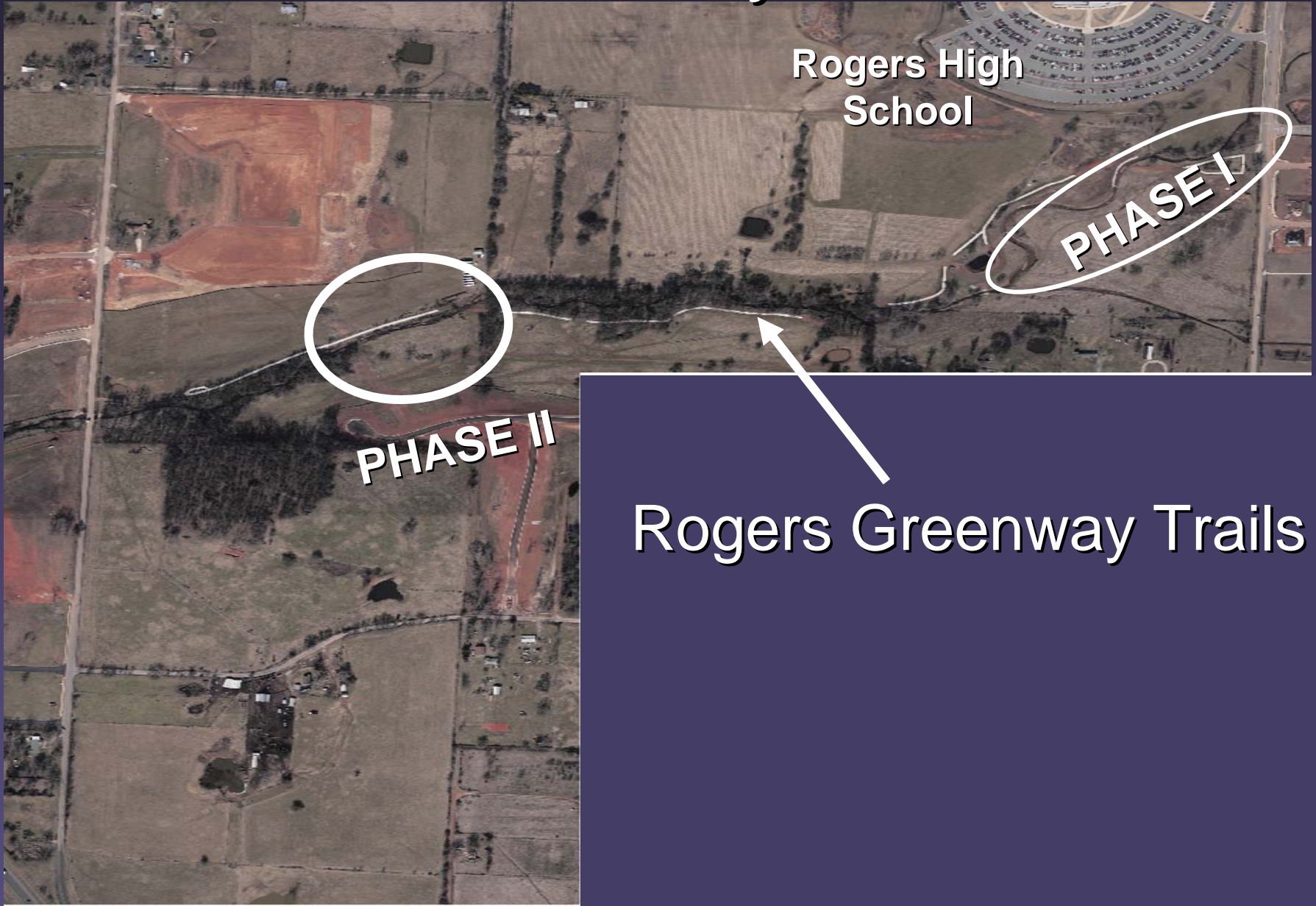
# Toe Pin Installation

- 9 sites
- 30 cross-sections
- 39 toe pins





# Blossom Way Creek



Rogers High School

PHASE I

PHASE II

Rogers Greenway Trails



# Geomorphic Characterization



- Incised channel
- Eroded Bank



Head cut



# Water Quality and Quantity Monitoring

- NO<sub>3</sub>-N
- NH<sub>3</sub>-N
- TN
- TP
- PO<sub>4</sub>
- TSS
- Conductivity
- Turbidity
- Temperature
- pH
- Flow



# Phase II – Pre-Construction





# Removing the Sod



SEP 8 2008



# Digging the Flood Plain





# Flagged Channel



SEP 10 2008



# New Channel Construction





# Constructed Flood Plain





# Flooded





# Access Road



# Remaining Tasks

- Continue water quality monitoring
- Continue bank pin monitoring
- Complete stream restoration/ construction
- Educational presentations