

Paxton Creek Stormwater Project



***Development of Innovative and
Cooperative Stormwater Management
Solutions for Pennsylvania Communities***



Funded by the U.S. Environmental Protection Agency
Administered by the National Fish and Wildlife Foundation

Stormwater in the Susquehanna Basin

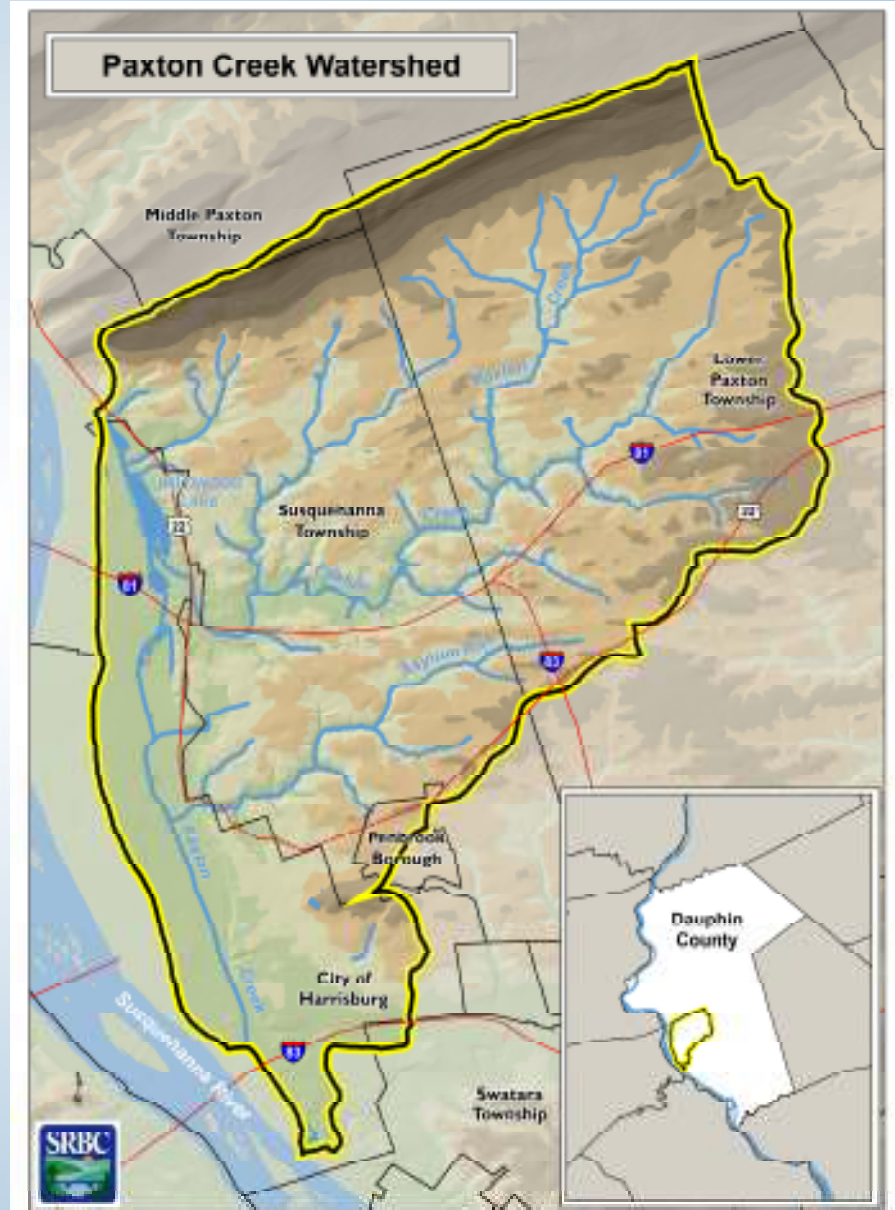
- Runoff from developed areas in the Susquehanna Basin is the third largest source of pollution for rivers/streams -- behind agriculture and abandoned mine drainage (AMD)
- Loading from most other major sources are declining/stable-- point source discharges, agriculture, AMD, etc.
- Runoff increasing from developed areas -- the fastest growing source of pollution to the Bay and its rivers
- Price (\$\$) per pound for nutrient/sediment removal significantly higher in developed areas

Partner Building

- **Paxton Creek Watershed & Education Association**
- **Centennial Acres Homeowners and other Paxton Watershed Residents**
- **City of Harrisburg**
- **Lower Paxton Township**
- **Susquehanna Township**
- **Dauphin County**
- **Dauphin County Conservation District**
- **Harrisburg Authority**
- **Cameron Management Inc.**
- **Harrisburg Area Community College**
- **The Alliance for Aquatic Resource Monitoring – Dickinson College**
- **PA State Police**
- **PA Department of Environmental Protection**
- **PA Department of General Services**
- **PA Department of Transportation**
- **PA Department of Agriculture – Farm Show Bureau**
- **Alliance for the Chesapeake Bay**

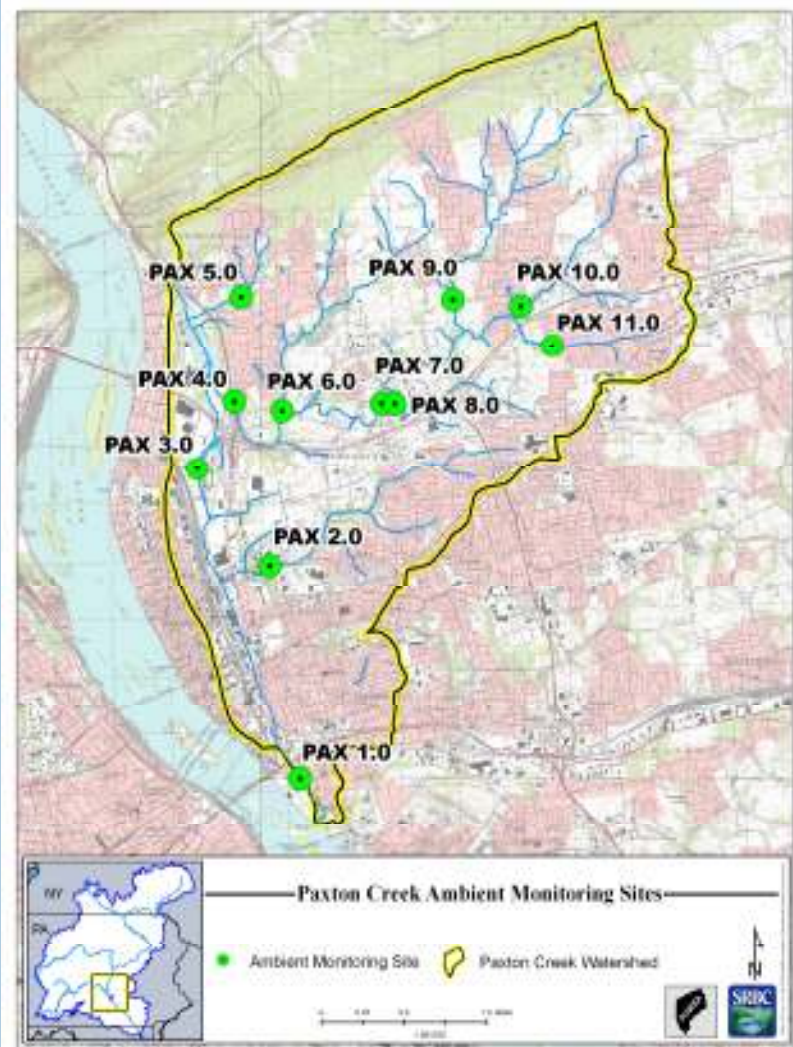
Watershed Background

- Drains 27 square miles
- Primarily three municipalities
 - 53% Developed
 - 25% Agriculture
 - 22% Forested
- Enters the Susquehanna River at two locations
- Over 50 miles of streams
- Over 16 miles “impaired” – TMDL approved June 2008
- Some of the highest yields for phosphorus and sediment in the Susquehanna Basin
- CSO problems
- Flooding problems





Monitoring Efforts



Yields in Pounds/Acre/Year

Sampling Site	Total N	Total P	Suspended Sediment	Total Organic Carbon
Laurel Run	0.25	0.16	74.01	1.41
Conestoga River	36.00	2.39	1,331.10	26.13
Paxton Creek at PAX 4.0	44.88	2.24	1,992.67	121.18

Paxton Stormwater Project Overview

U.S. EPA Targeted Watershed Grant awarded through the National Fish and Wildlife Foundation in 2006 -- *Implements components of the Paxton Watershed Rivers Conservation Plan*

The Education/Outreach Campaign

The Demonstration Projects

- Demonstrating measures to improve water quality while supporting a sustainable approach through the use partnerships – focusing on public/government, commercial, and private homeowner lands.

The Management Study

- Working with watershed communities and government to explore innovative and cost-effective ways to reach **sustainable** stormwater management solutions.

Outreach / Education Campaign

- Public, private/commercial, government
- Meetings/workshops, media campaign, educational materials (public service announcements, fact sheets, surveys, website, etc.)
- Raise awareness, educate, and change behaviors

Paxton Creek Watershed Stormwater Project
A project of the USEPA Chesapeake Bay Targeted Watershed Grant Program

PROJECT OVERVIEW

PROJECT PARTNERS AND CONTRIBUTIONS
In spring 2006, the Susquehanna River Basin Commission (SRBC) received a \$725,000 grant from the U.S. Environmental Protection Agency's (USEPA) Targeted Watershed Grant Program to partner with the Paxton Creek Watershed and Education Association (PCWEA) and other local interests to develop an innovative and cooperative stormwater management approach for Pennsylvania communities, and possibly nationwide, using the Paxton Creek Watershed as a demonstration model. In addition to the USEPA grant, which is being administered by the National Fish and Wildlife Foundation, the project partners, listed above, also are contributing \$735,800 in cash and in-kind match, making this a \$1.46 million stormwater demonstration project.

PROJECT LOCATION
The Paxton Creek Watershed is a 27-square-mile area in the City of Harrisburg, Lower Paxton Township, Susquehanna County, Pennsylvania. The watershed is 50 miles of stream, mostly forested and urban areas, that flow into the Susquehanna River through a man-made dam at Wildwood Lake, and (2) The Susquehanna River the Chesapeake Bay – percent of the freshwater.

PROJECT PURPOSES AND SCOPE
The two overarching goals are:
(1) Develop multi-media, mass sustainable flood demonstration
(2) Test management strategies to remove pollutants from storm runoff
• Create residential buffers through the watershed
• Capital V with redevelopment initiatives

Paxton Creek Watershed Stormwater Project
A Chesapeake Bay Targeted Watershed Grant Project

Management Study
SRBC and PCWEA are working with the project partners to explore innovative and cost-effective ways to address stormwater issues in the Paxton Creek Watershed. Problems associated with stormwater runoff are increasing in the Paxton watershed. This project is helping determine the approach needed to manage a sustainable stormwater program on a watershed basis.

Objectives of the Management Strategy:
• Promote inter-governmental cooperation
• Evaluate existing codes

Centennial Acres Park Demonstration Site
A Bioretention Model

Types of Stormwater Management Practices

Demonstration Projects

Demonstrate measures to improve water quality in Paxton Creek through partnerships, and monitor their effectiveness

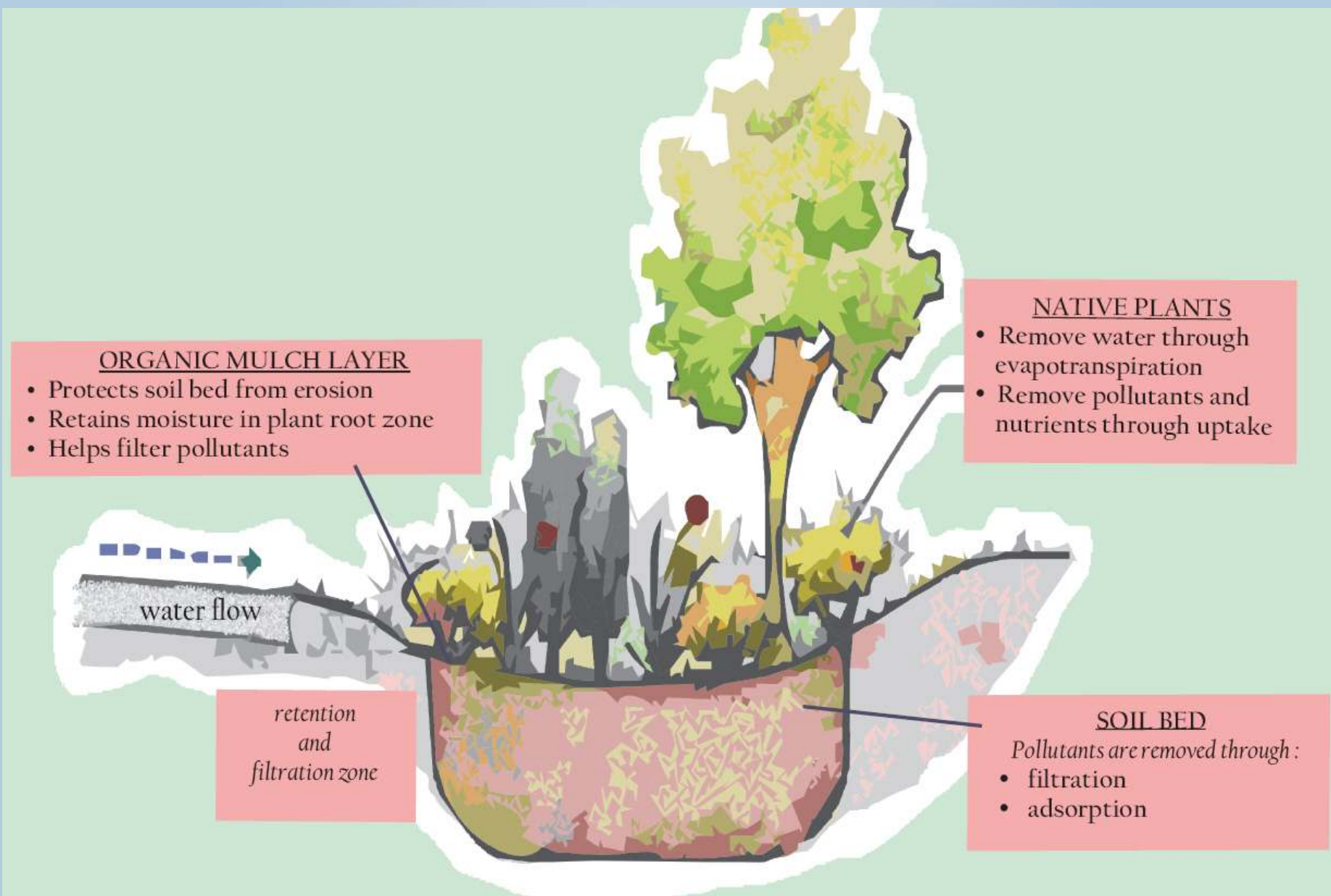
- Centennial Acres Park (township government – local community)
- Centennial Acres (residential homeowners)
- State Police Headquarters (state facilities / transportation)
- State Farm Show Complex (state / public)
- Capitol View Commerce Center (commercial real estate)

Centennial Acres Park

- Establish bioretention measures
- Enhance stream buffer
- Couple management portion with Centennial Acres for high-profile educational opportunity
- Partner with local government – focus on township controlled lands











Centennial Acres



- Implement pilot residential retrofit program (retain roof runoff using conservation landscaping, reduce fertilizer & mowing, enhance streamside buffers)



PA State Police Headquarters



- Implement bioretention measures to collect and treat runoff
- Encourage BMP measures on state facility grounds and provide guidance for streamlining the planning process
- Working with both PADGS and PennDOT – focus on transferring concepts to other projects
- Fall 2008 implementation





PA Farm Show Complex



Generates stormwater runoff in excess of 50 million gallons annually from all impervious areas (~60 acres of impervious surface)

Stormwater demonstrations will provide an educational opportunity for over 1 million visitors annually

Rooftop runoff/reuse demonstration – 10,000+ gallon system

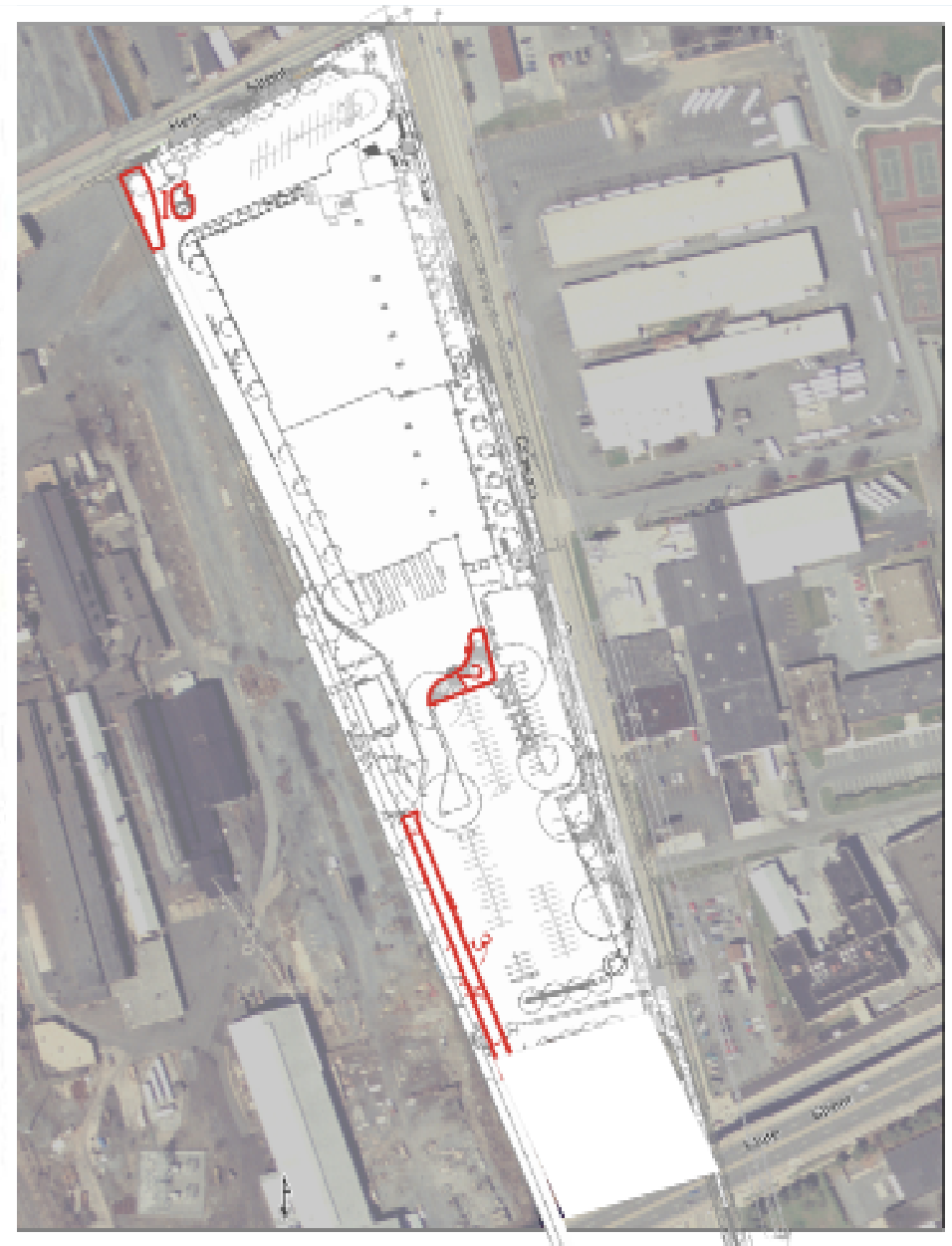
Potential for incorporating additional concepts into larger capital improvement and landscaping projects

Capitol View Commerce Center



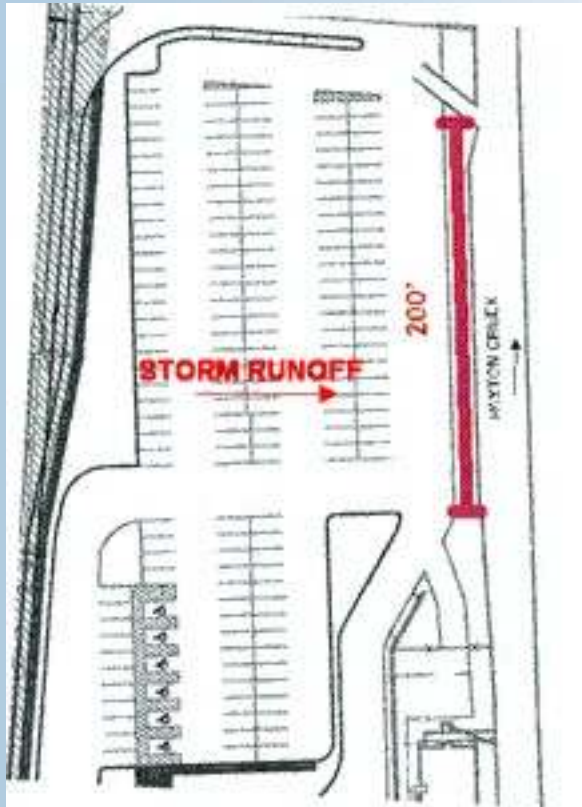
- Establish bioretention measures, green space, and a functional riparian corridor
- Explore the use of incentives, as well as outreach and education tools, to reduce the impacts of stormwater runoff from commercially controlled lands
- Spring 2009 implementation



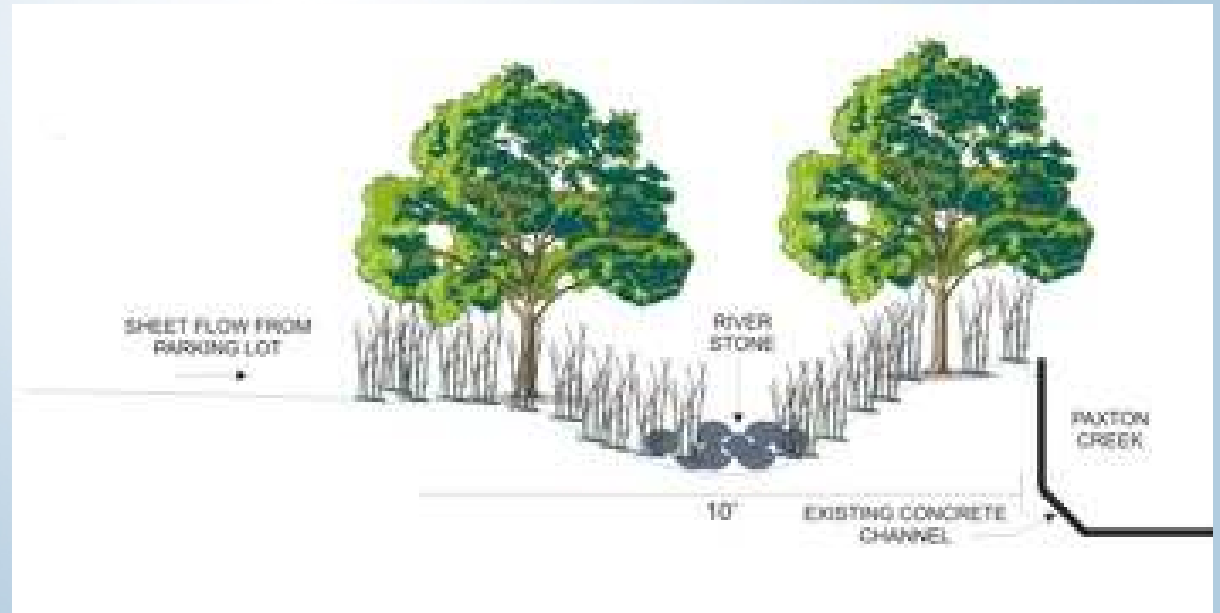


Bio-Swale

Vegetated Swale and Filter Strip (1 of 3 BMPs)



Filter stormwater from 70,000 square feet parking area.



Management Study Focus

- Develop strategies/incentives for addressing multiple objectives
 - Water conservation/reuse
 - Nuisance flooding (reducing commercial losses, citizen complaints, etc.)
 - “Greenbelt” trails, open space initiatives, etc.
- Targeted educational campaign based on lessons learned from demonstration sites
 - Examples: citizen/municipal/county forums, PennDOT/PaDGS project planning, etc.
- TRANSFERABILITY / SUSTAINABILITY
 - Guides for key decision makers
 - Build “peer” acceptance and promote concepts beyond the demonstration sites (practical/local examples)