

Parkerson Mill Creek Restoration: Building Bridges with Water Resources



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Brief overview of stream enhancement
and restoration

Introduction to Parkerson Mill Creek

Case study

Next up



Stream Ecosystems - What makes a stream a stream?



Stream Ecosystems

Channel (bed & banks)

Water & Sediment

Floodplain

Plants & Animals





Streams and floodplains experience disturbance



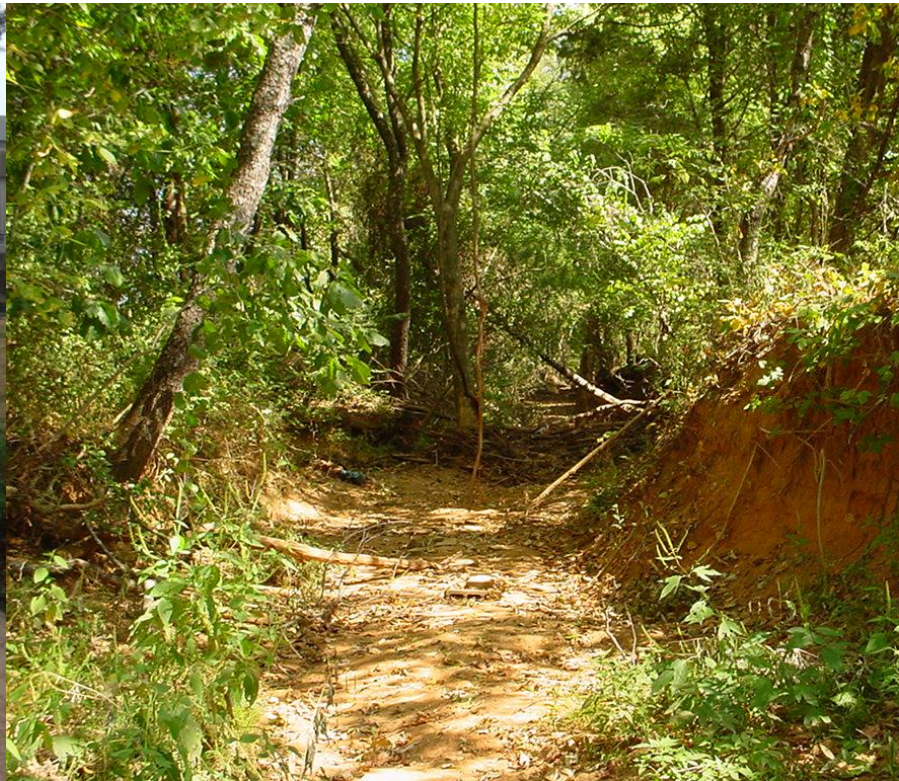
Water Quantity Disturbances

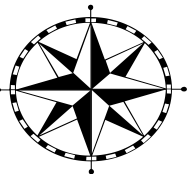
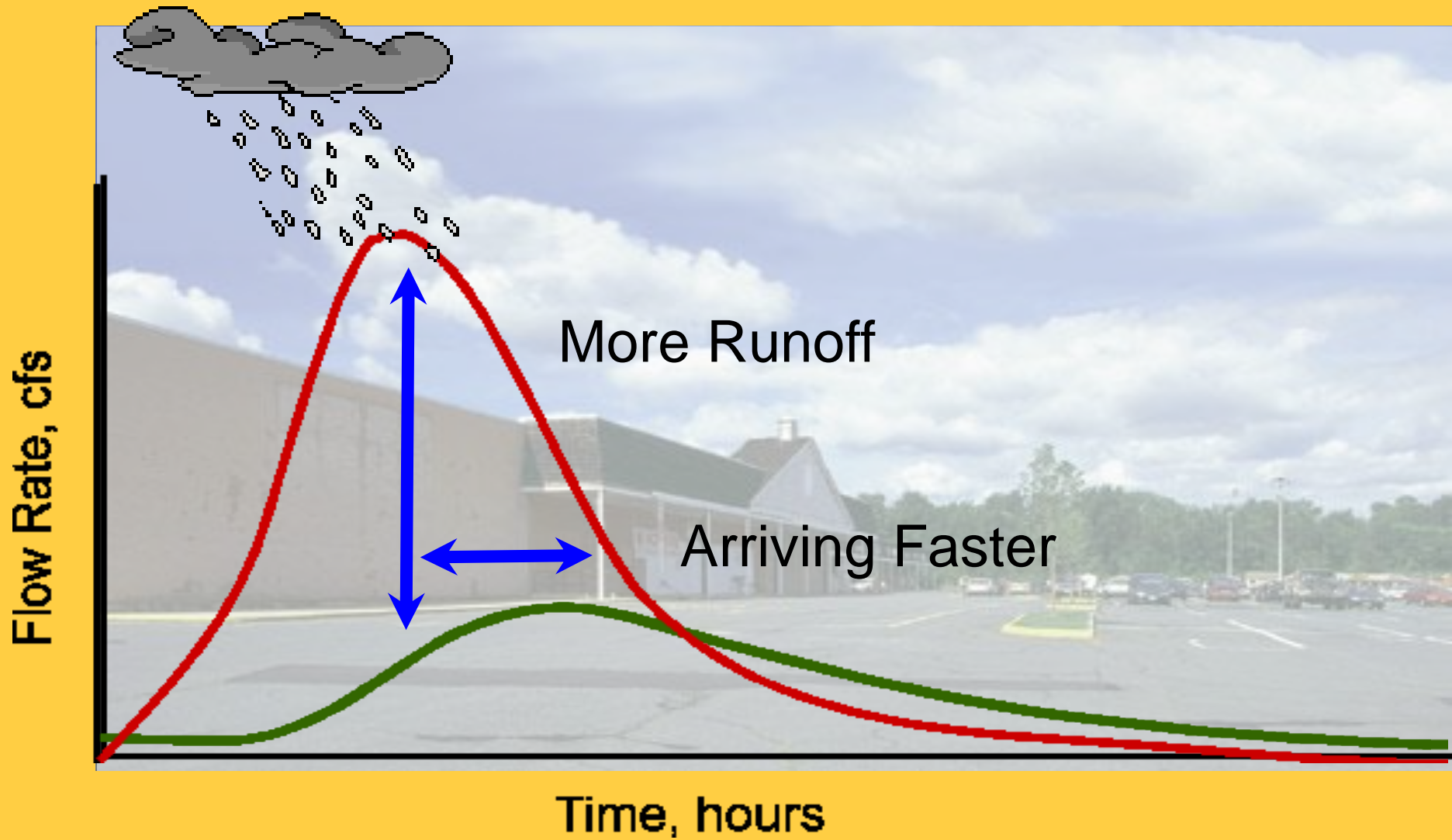
Altered stream flows

Too much

Not enough

Flashiness







Water Quality Disturbances

Increased water temperatures

Decreased dissolved oxygen

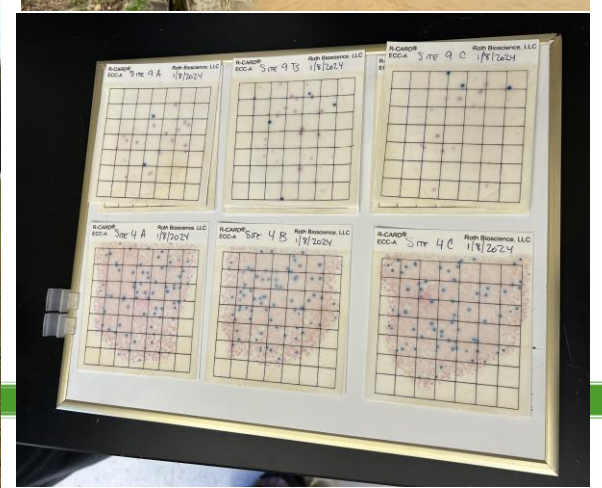
Increased pathogens

Increased nutrients

Increased sediment

Increased toxins

Increased litter



Plant Disturbances

Competition with invasive, exotics



Loss to wildlife / maintenance



Water + Plant + Soil + Physical Disturbances =
Loss of Stream Functions



Terrestrial Habitat

Recreation & Aesthetics

Transport Water

Transport Sediment

Safe Water Supply

Aquatic Habitat

Enhancement and Restoration

Enhancement – Modification of specific structural features ... to increase one or more functions based on management objectives (Gwin, et al. 1999)

Restoration – Process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed (SER)



Stream Improvement Elements

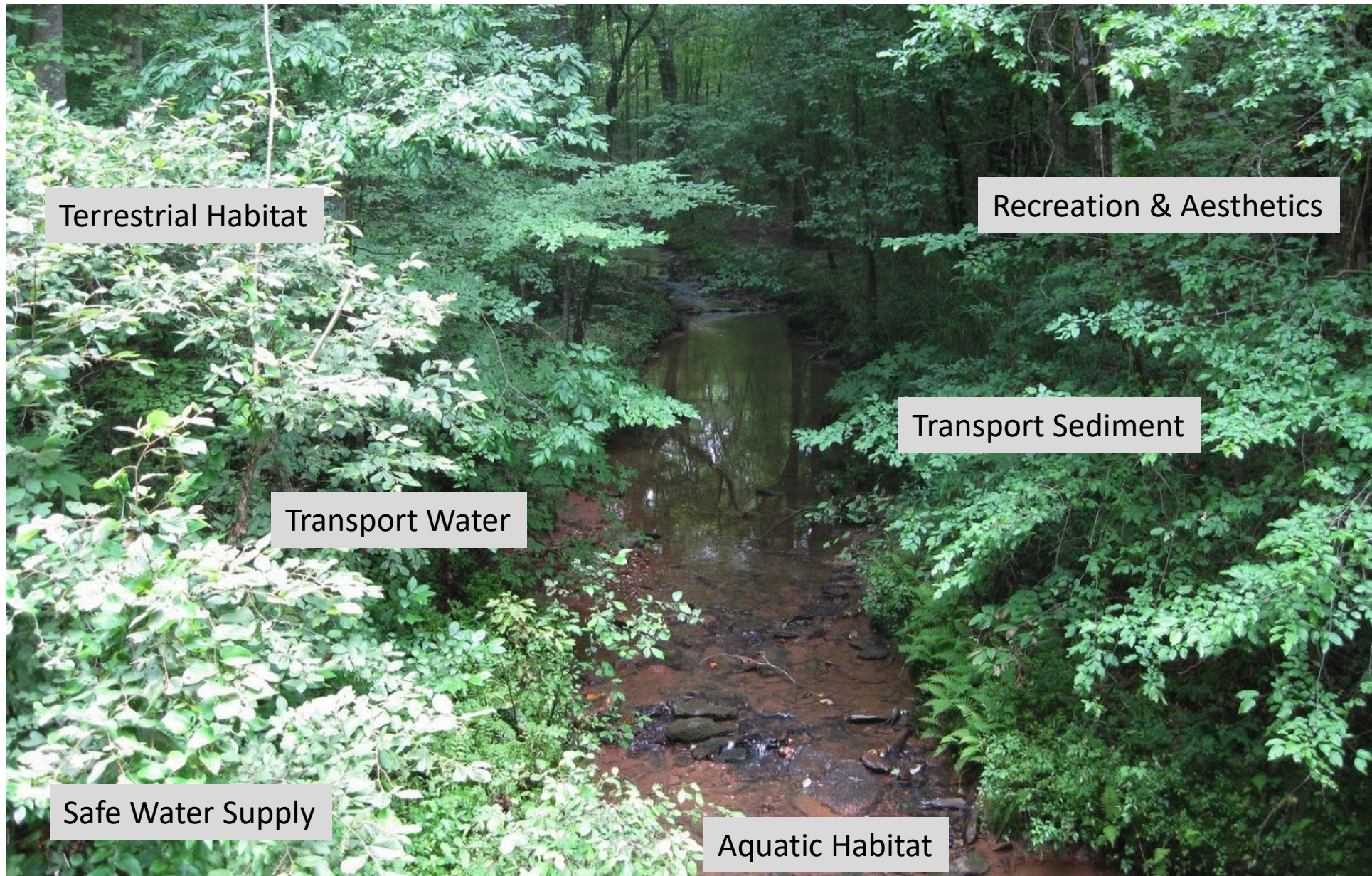
Maximize Floodplain

Deeply rooted native vegetation

Incorporate in-stream structures



Water + Plant + Soil + Physical Enhancement =
Gain of Stream Functions



Terrestrial Habitat

Recreation & Aesthetics

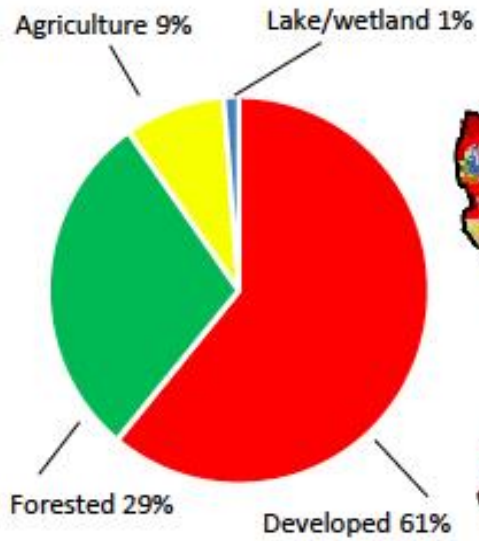
Transport Sediment

Transport Water

Safe Water Supply

Aquatic Habitat

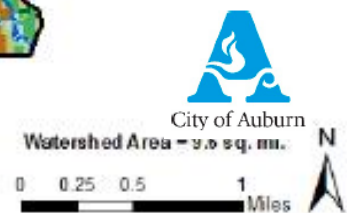
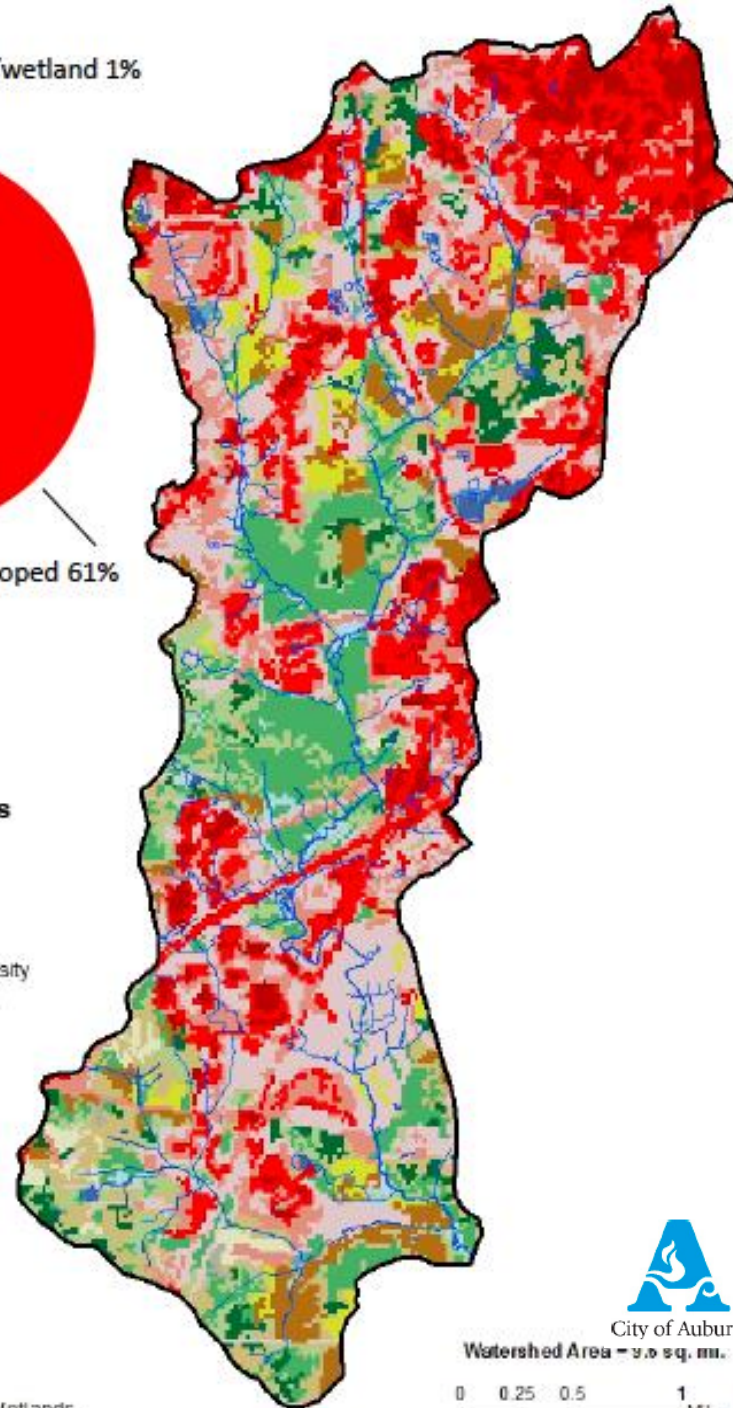




EXPLANATION

2011 Land Cover Classes

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceous Wetlands



2005 July

Concerns:

erosion (infrastructure)

aesthetics

water quality

habitat quality



Parkerson Mill Creek Watershed Plan Grant

Funding from the Section 319 non-regulatory outreach section of ADEM

Grant awarded to Auburn University Water Resources Center (1 of 5 projects – supporting Center of Watershed Excellence)

Project Contact: Alabama Cooperative Extension System

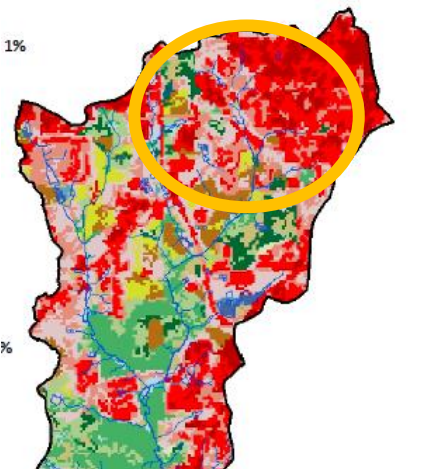
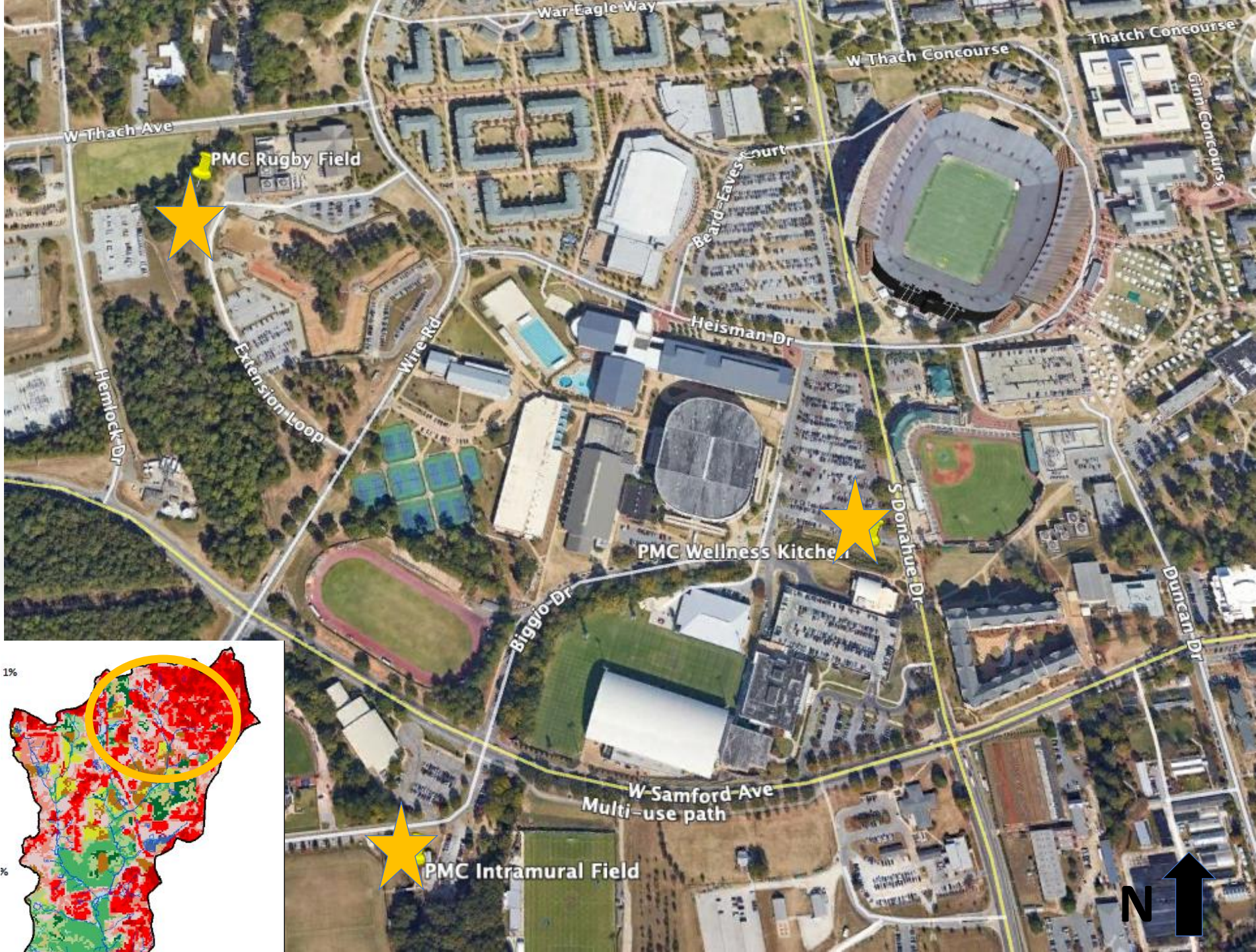
Awarded December 2009

Completed December 2010

Implementation 2011

Completion 2014





2003



2004



2006





PMC – Wellness Kitchen



SHRUBS

SOD

STACKED BOULDERS

NATIVE GRASS
TRANSITIONAL AREA

SHRUBS AND NATIVE
PLUGS

NATIVE SEED MIX

OUTDOOR
CLASSROOM

NATIVE GRASS
TRANSITIONAL AREA

STACKED
BOULDERS

SOD

SOD

South Donahue Drive

WELLNESS KITCHEN

PARKING GARAGE

Coliseum

Complementary Goals: Improved Water & Habitat Quality

Recreation

To establish and maintain existing trails and access to Parkerson Mill Creek and its tributaries where desired and feasible.

Education

Promote stakeholder education on best management practices and to use Parkerson Mill Creek as an outdoor classroom.



Project Team

- Engineers
- Contractors
- Designers
- Ecologist
- Biologists
- Utilities
- Local, State and Federal Agencies
- Planners
- Landscape Architects
- Horticulturists
- Forestry
- Educators
- Elected Officials
- Watershed Groups
- Community Members



2014 Project Overview:

Funding Auburn University, ADEM Section 319

Goals include improved stability, improved water quality & habitat, aesthetics, outdoor classroom, public education

Construction June-July 2014

105 m length

Stilling basin

3 boulder cross vanes

Floodplain bench

Native vegetation

2014 June



Setting boulder cross vanes

2014 July



2014 July



**Hydromulch –
Temporary and permanent seed
Erosion control blanket (coir)**



2014 September





October 2019



2022 November

2024 January



Parkerson Mill Creek, Rugby Field

2004



Parkerson Mill Creek, Rugby Field

2018









The background image shows a stream with a yellow pipe extending into the water. The stream is surrounded by rocks and vegetation. The text is overlaid on a semi-transparent grey box.

Project Overview:

Funding Auburn University

Construction January 2019

3 stormwater outfalls

6 boulder vanes

6 constructed riffles

toe wood

Flexamat

Floodplain bench – 2 stage channel

Native vegetation – intentional design



February 2019



August 2019





Photo John Slupecki



Photo John Slupecki

November 2019



Parkerson Mill Creek Tributary, Paterson Greenhouse

2016



Parkerson Mill Creek Tributary, Paterson Greenhouse



2024 March

Funding: Auburn University,
Facilities

Outdoor Classroom

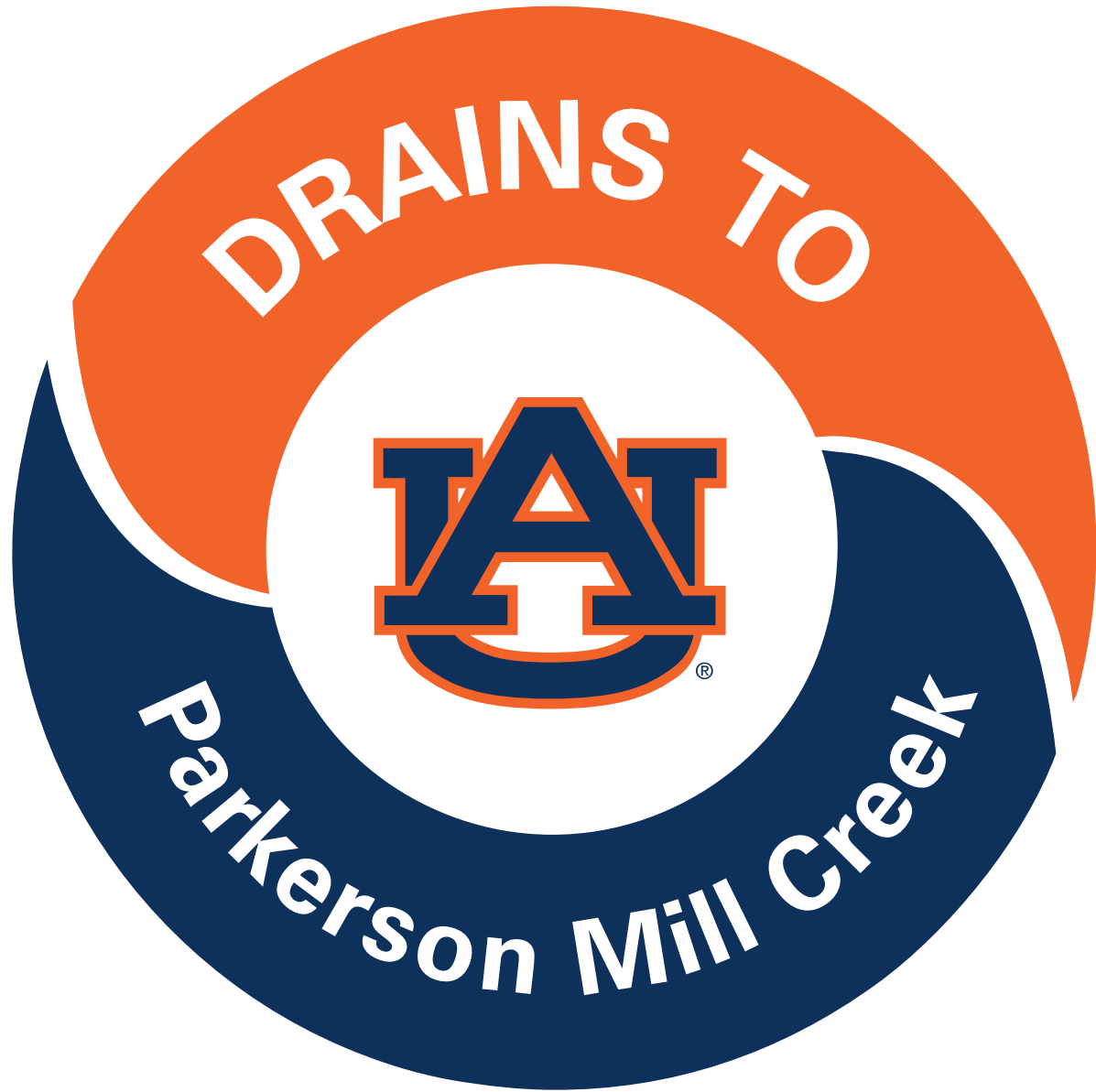












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