

# Kinkaid Creek Watershed-based Plan Public Meeting

September 23, 2021 6:00pm Murphysboro City

Presentation and meeting materials prepared by Greater Egypt Regional  
Planning and Development Commission

Funding provided by Illinois Environmental Protection Agency



# Greater Egypt Regional Planning and Development Commission

- ▶ 5 county regional planning district
  - ▶ Serving Franklin, Jackson, Jefferson, Perry, & Williamson counties
- ▶ Tyler Carpenter - GIS & Environmental Planning Director
- ▶ Kelsey Bowe - Planner
- ▶ Gabrielle Reed - Planner



# IEPA

## Illinois Environmental Protection Agency

### **Section 604(b) Clean Water Act**

- ▶ Includes Water Quality Management Planning Grants
  - ▶ Causes and extent of point and nonpoint source pollution
  - ▶ Water quality management plans
  - ▶ Watershed based plans
  - ▶ Pollution control
  - ▶ Design plans for Best Management Practices
  - ▶ Public outreach & education



Illinois Environmental  
Protection Agency

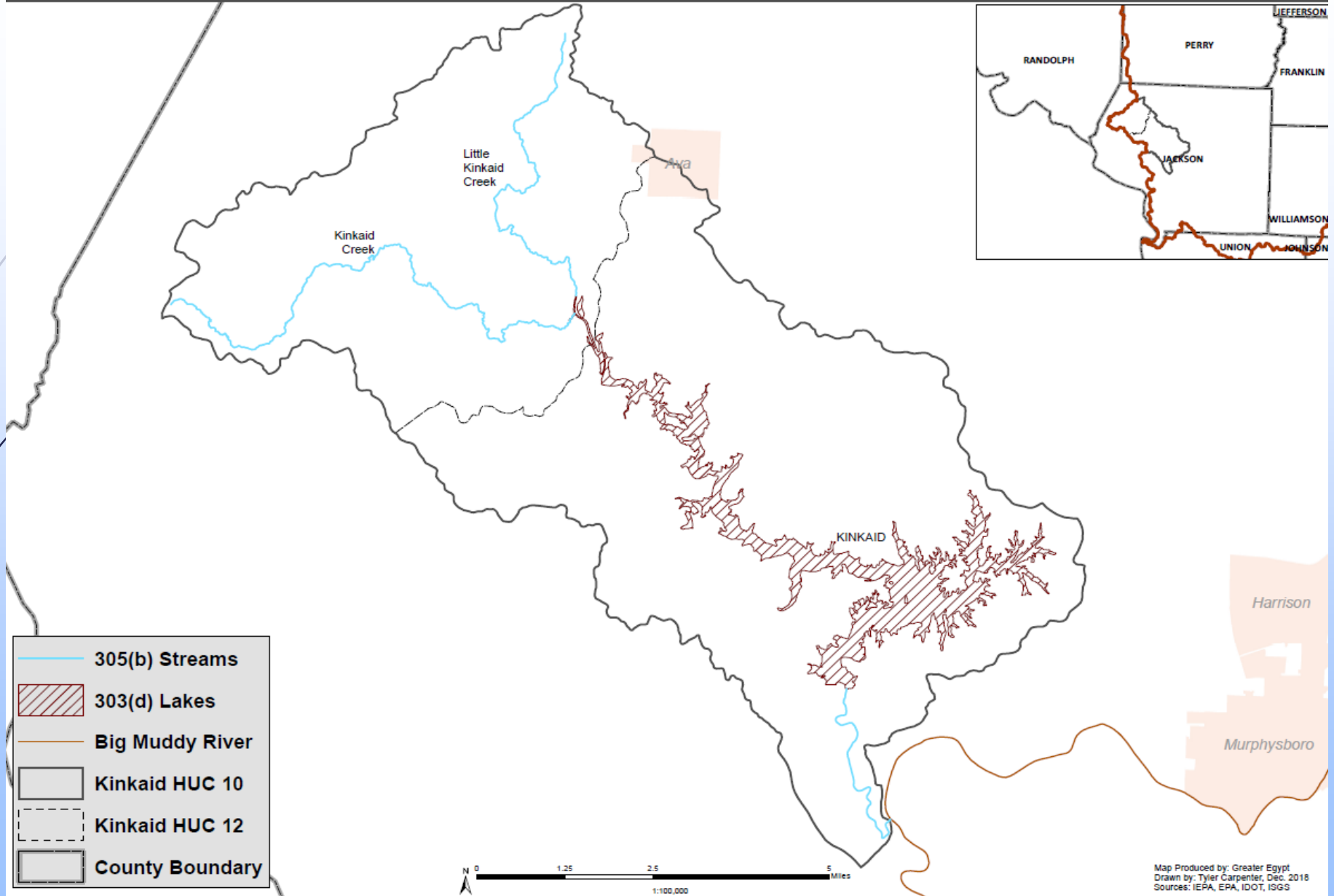
# Kinkaid Creek Watershed

## Quick Facts

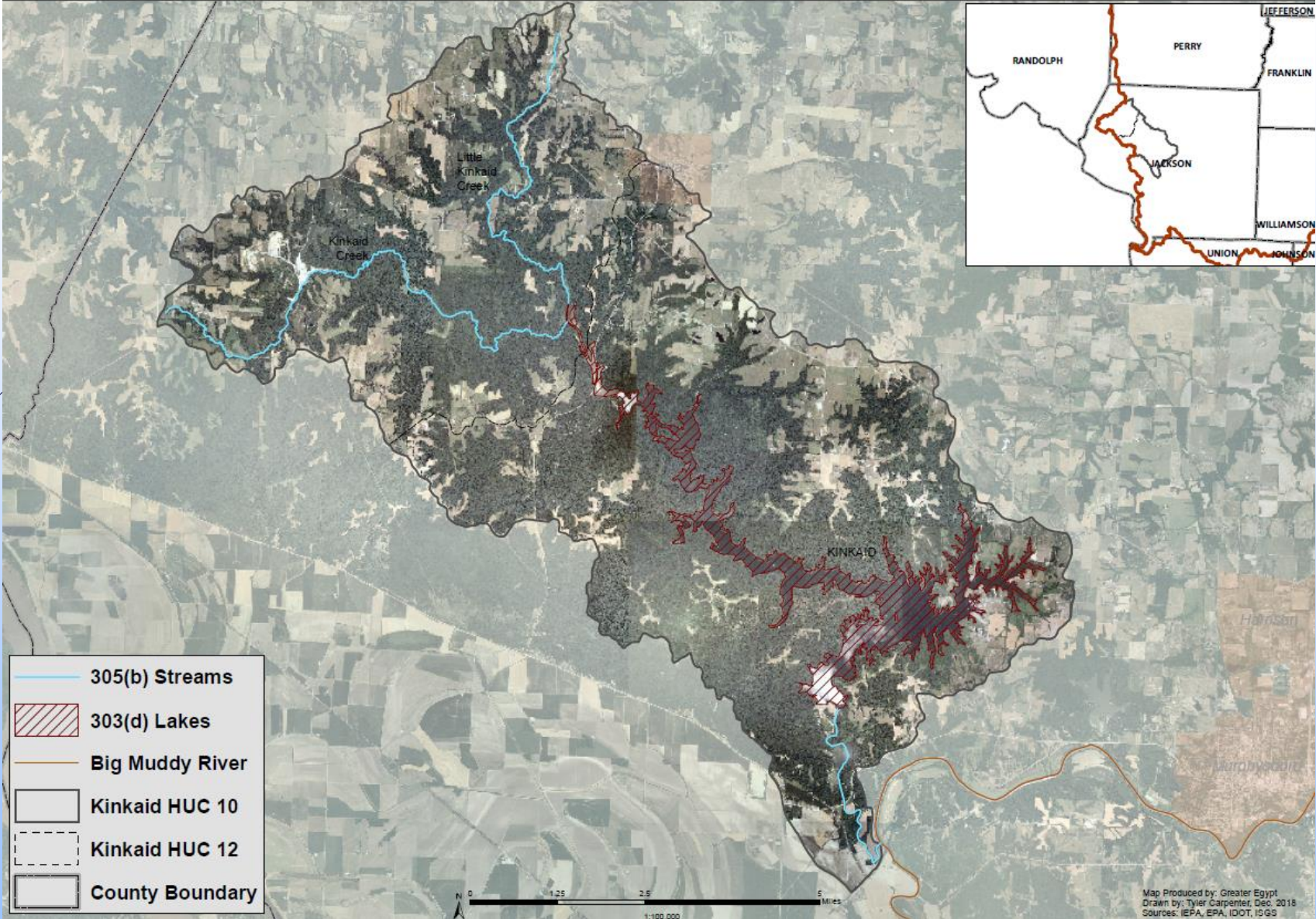
- ▶ The planning area encompasses 41,225 acres, or around 64 square miles.
- ▶ Jackson County
- ▶ All waterbodies flow to the Big Muddy River
- ▶ Includes 2 subwatersheds
  - ▶ Little Kinkaid Creek- Kinkaid Creek
  - ▶ Kinkaid Lake- Kinkaid Creek



# Kinkaid Creek Watershed - Planning Area

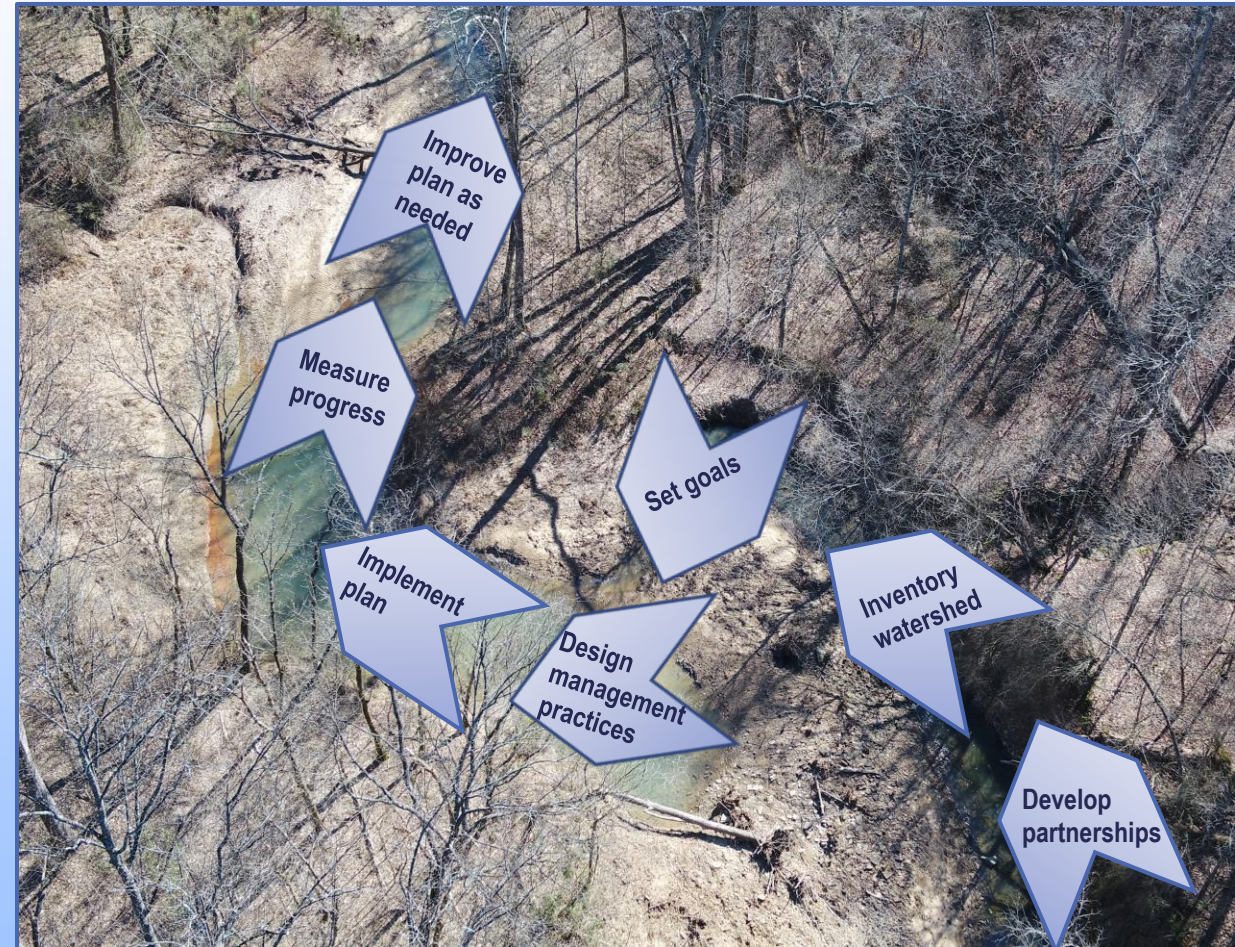


# Kinkaid Creek Watershed - Planning Area



# Watershed-Based Planning

- Summarizes the overall condition of the watershed
- Provides a framework to restore water quality in impaired waters
- Protects water quality in other waters adversely affected or threatened by point source and non-point source pollution



# Nine Minimum Elements of a Watershed-based Plan

Developed by the EPA and must be included for plan to be approved

- ▶ Identify sources and amounts of water pollution
- ▶ Set water quality and pollution reduction goals
- ▶ Describe management practices needed to achieve goals
- ▶ Describe technical and financial assistance
- ▶ Include public outreach and engagement
- ▶ Provide a schedule of planning process and management implementation
- ▶ Identify measurable milestones of management measures & water quality targets
- ▶ Describe monitoring plan



# Benefits of a Watershed-based Plan

- ▶ Partnerships and collaboration among community groups, farmers, and local government
- ▶ Supports sustainable communities for the future
- ▶ Reduction of different sources of pollution
- ▶ Farmland conservation
- ▶ Prevention/reduction of flooding
- ▶ Restoration of degraded water bodies
- ▶ Create management strategies to mitigate climate change effects



# Water Pollution

## Point Source

- ▶ Wastewater Treatment Plant outflows
- ▶ Mine discharges
- ▶ Landfills
- ▶ Power plant outflows
- ▶ Combined Sewer Overflows

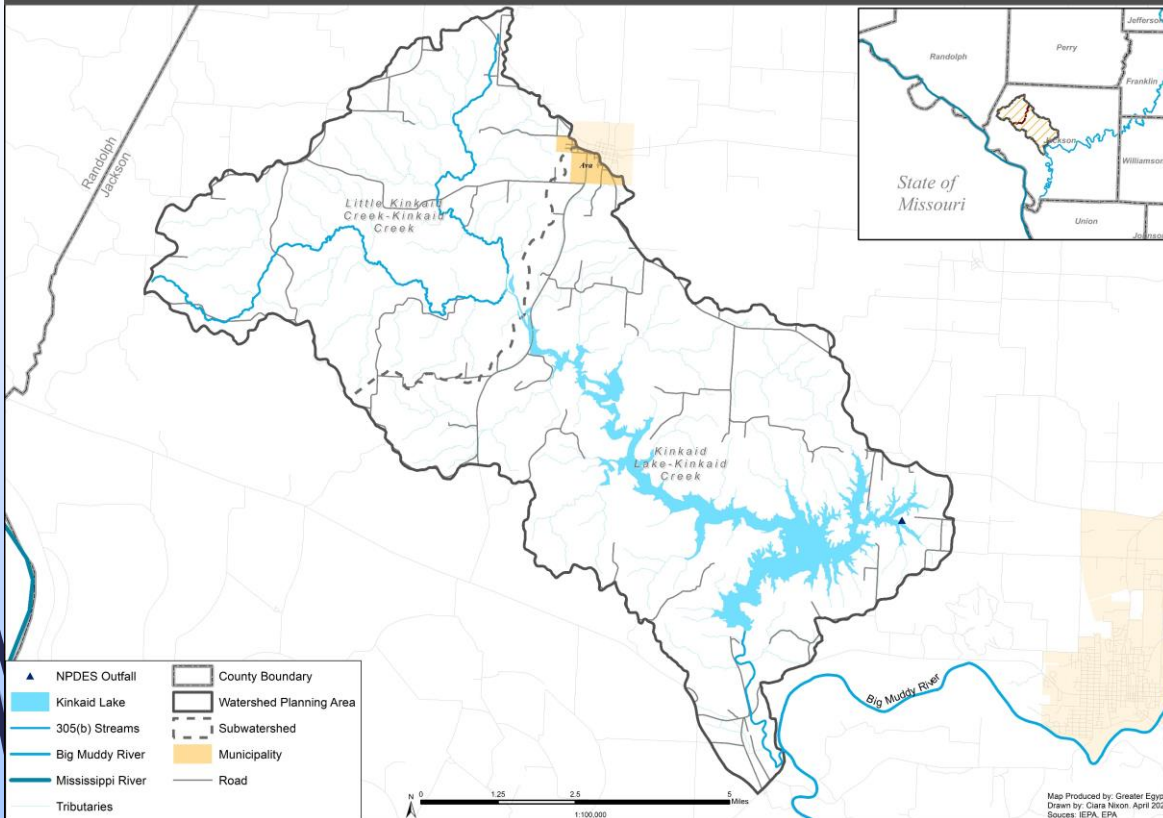
## Nonpoint Source

- ▶ Urban runoff
- ▶ Golf courses
- ▶ Agriculture
- ▶ Livestock
- ▶ Erosion
- ▶ Deteriorating infrastructure

fertilizer,  
pesticides,  
herbicides,  
sediment

# NPDES facilities

## Kinkaid Creek Watershed Planning Area - NPDES Outfall Location



## National Pollution Discharge Elimination System

- ▶ Permit program through the Clean Water Act
- ▶ Required for all point source pollution discharge into "Waters of the US"
- ▶ Permits specify acceptable levels of pollutants that can be released into water bodies
- ▶ Enforced by IEPA

# Estimated annual pollutant loads

Table 8.18- Kinkaid Creek Watershed-wide Existing Pollutant Loads

Source	N Load (lb/yr)	Percent of Total Load	P Load (lb/yr)	Percent of Total Load	Sediment Load (t/yr)	Percent of Total Load
Urban	11,832.9	5.95%	1,820.9	4.39%	272.0	0.77%
Cropland	43,772.4	22.02%	13,645.4	32.90%	9,266.0	26.36%
Pastureland	46,777.5	23.54%	6,789.5	16.37%	3,307.7	9.41%
Forest	7,371.0	3.71%	3,353.0	8.08%	903.6	2.57%
Streambank	34,245.3	17.23%	13,184.4	31.79%	21,405.9	60.89%
Groundwater	54,740.8	27.54%	2,681.4	6.47%	0.0	0.00%
<b>Total</b>	<b>198,739.8</b>	-	<b>414,74.6</b>	-	<b>35,155.1</b>	-

# Pollutant reduction goals

Subwatershed	Nitrogen (percent of total)	Nitrogen Load Reduction Target	Phosphorus (percent of total)	Phosphorus Load Reduction Target	Sediment (percent of total)	Sediment Load Reduction Target
Kinkaid Creek	15%	29,810.97	25%	10,368.65	25%	8,788.78
<b>Subwatershed Load Reduction Targets</b>						
Little Kinkaid Creek- Kinkaid Creek	44.05%	13,132.49	40.04%	4,151.15	37.48%	3,294.01
Kinkaid Lake- Kinkaid Creek	55.95%	16,678.48	59.96%	6,217.51	62.52%	5,494.77
<b>Total</b>	-	<b>29,810.97</b>	-	<b>10,368.65</b>	-	<b>8,788.78</b>

- ▶ Nitrogen and phosphorus reduction goals based on the Illinois Nutrient Reduction Strategy
  - ▶ Phase 1 includes a benchmark of these reduction amounts by 2025
  - ▶ The statewide overall goal is a 45% reduction in N and P

# Best Management Practices (BMPs)

Designed to reduce pollutant loads, reduce erosion, restore habitat, and mitigate flooding problems

## Urban BMPs

- Bioswales
- Rain gardens & barrels
- Green roofs
- Permeable pavement
- Detention/retention basins
- No spray zones
- Urban tree planting



Rain garden at the Jackson County Uofl extension center

### Structural Cells

Modular manufactured cells that support pavement and are filled with loose soils that encourage root growth.



### Suspended Sidewalks

Sidewalks with a supporting understructure that allows loose root-friendly soils to be continued under the walk.



### Structural Soils

A blend of crushed rock and soil that is able to support pavement and can also support root growth.



Urban tree designs that allow for healthy root development and stormwater uptake

Graphic source: EPA & Great Lakes Restoration Initiative

# Best Management Practices (BMPs)

Designed to reduce pollutant loads, reduce erosion, restore habitat, and mitigate flooding problems



Agricultural area experiencing erosion, and the development of a channel in the middle of the field

## Agricultural BMPs

- Grassed waterways
- Ag filter strips
- Conservation tillage
- Cover crops



A cow pasture on the north end of the Kinkaid watershed.



An erosion rut formation within one of the Agricultural BMP

# Best Management Practices (BMPs)

Designed to reduce pollutant loads, reduce erosion, restore habitat, and mitigate flooding problems

## Watershed wide BMPs

- Streambank stabilization
- Riparian restoration
- Wetland conversion
- Debris removal

Streambank erosion in a southern tributary in Kinkaid Creek



Riparian buffer to reduce erosion rates within the Kinkaid Creek watershed





# Kinkaid Creek Planning Team

KINKAID-REED'S CREEK CONSERVANCY DISTRICT



Illinois Environmental  
Protection Agency

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN



Illinois Extension

