



Western Crab Orchard Creek Watershed-based Plan Public Meeting

August 12, 2021 6:00pm Carbondale Civic Center

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

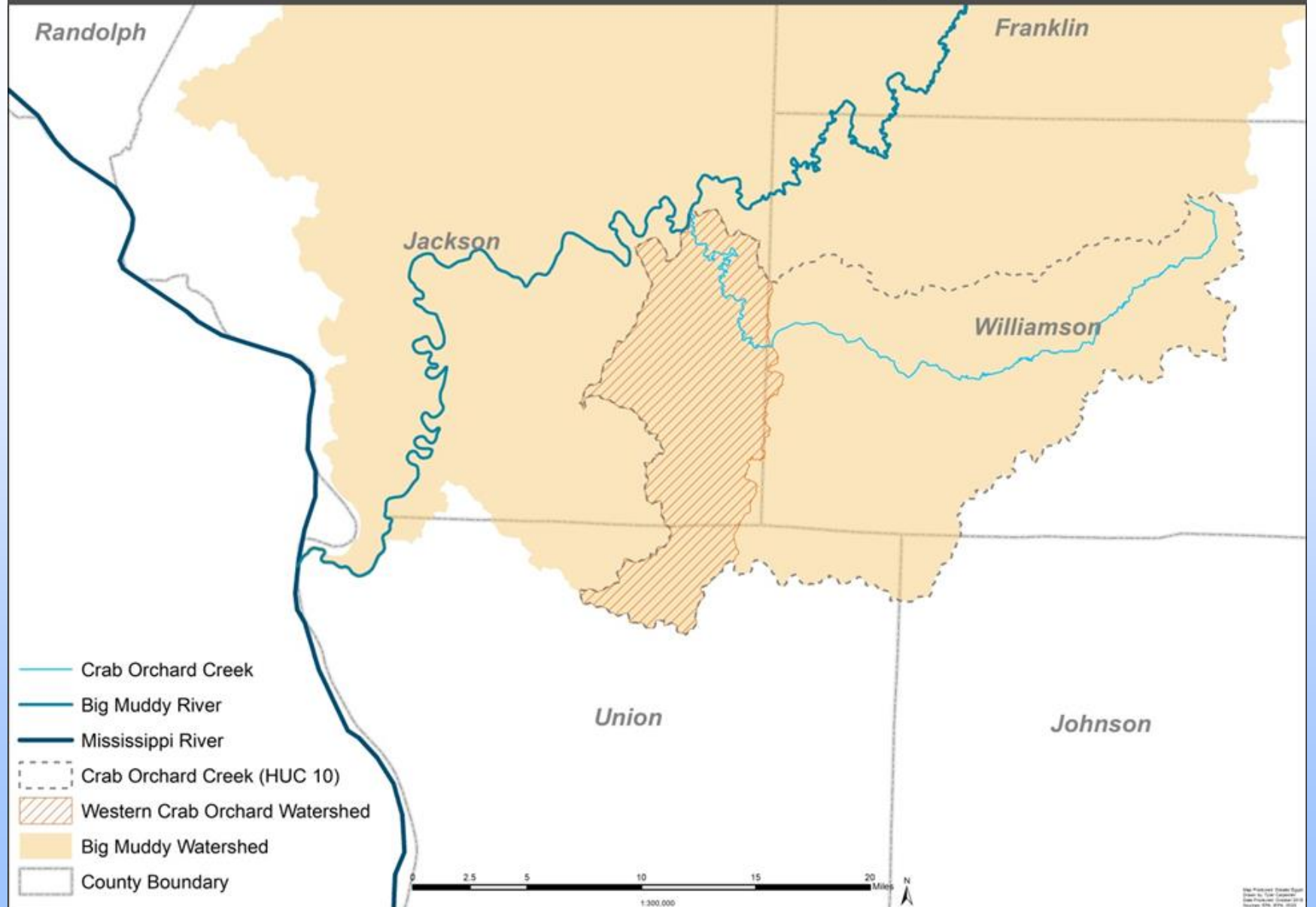
Western Crab Orchard Creek Watershed

Quick Facts

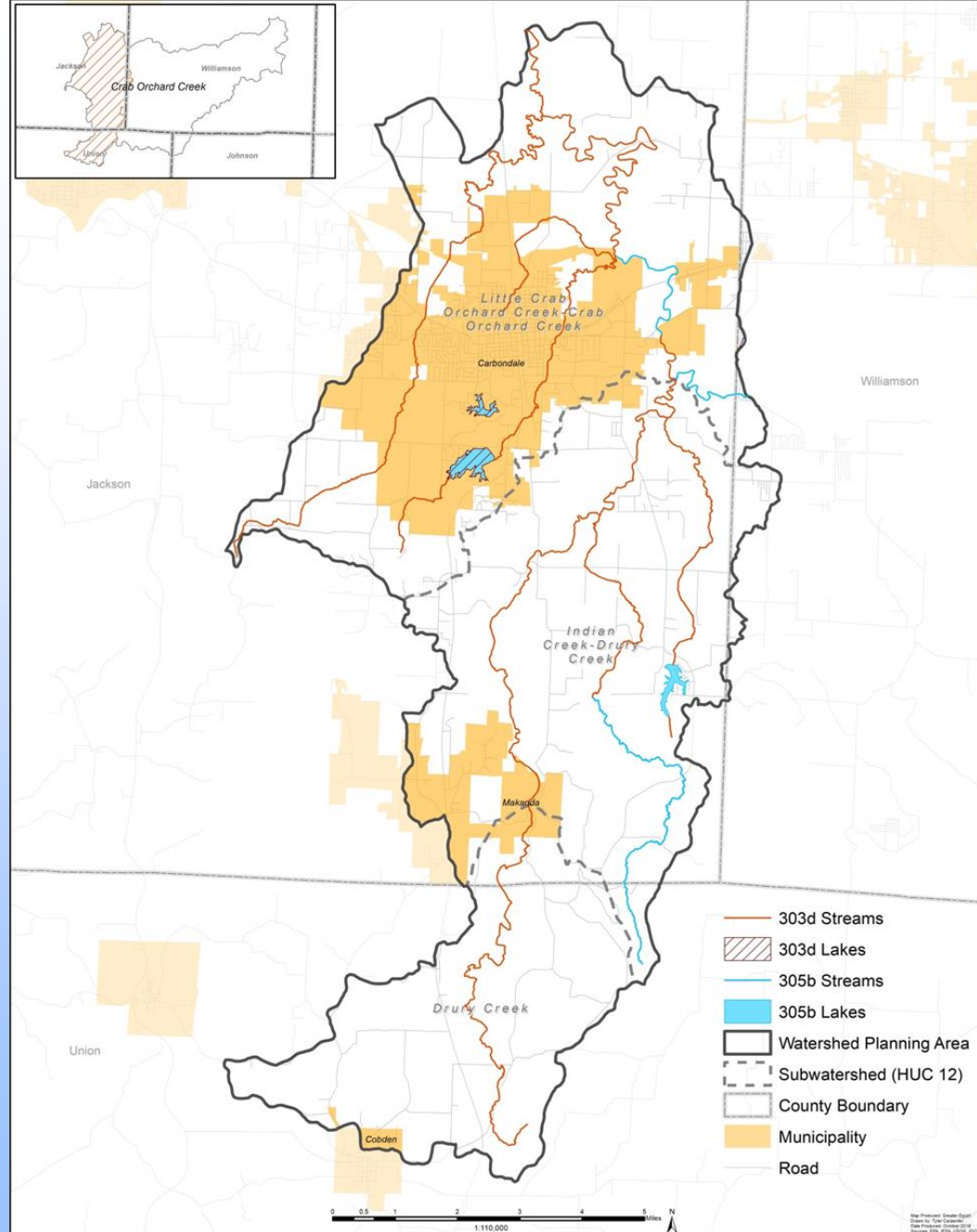
- ▶ 56,533 acres (88 sq miles)
- ▶ Jackson, Williamson, & Union counties
- ▶ All waterbodies flow to the Big Muddy River
- ▶ Includes 3 subwatersheds
 - ▶ Little Crab Orchard Creek
 - ▶ Indian Creek
 - ▶ Drury Creek



Western Crab Orchard Creek Watershed - Regional Location

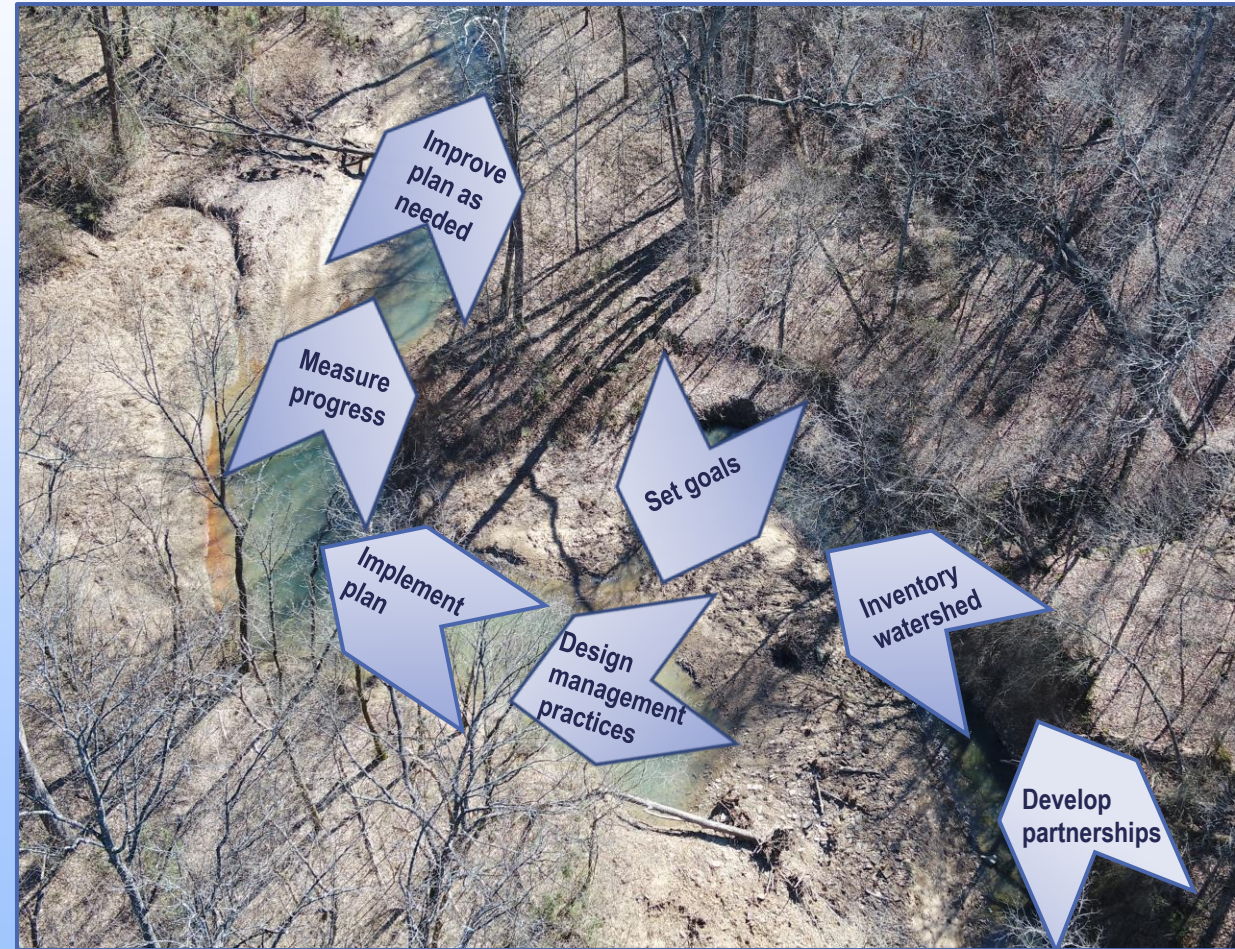


Western Crab Orchard Creek - Planning Area



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





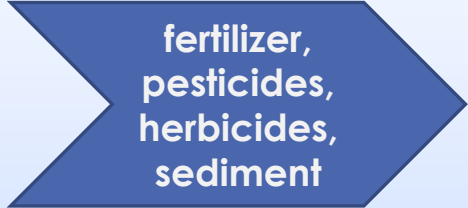
Water Pollution

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



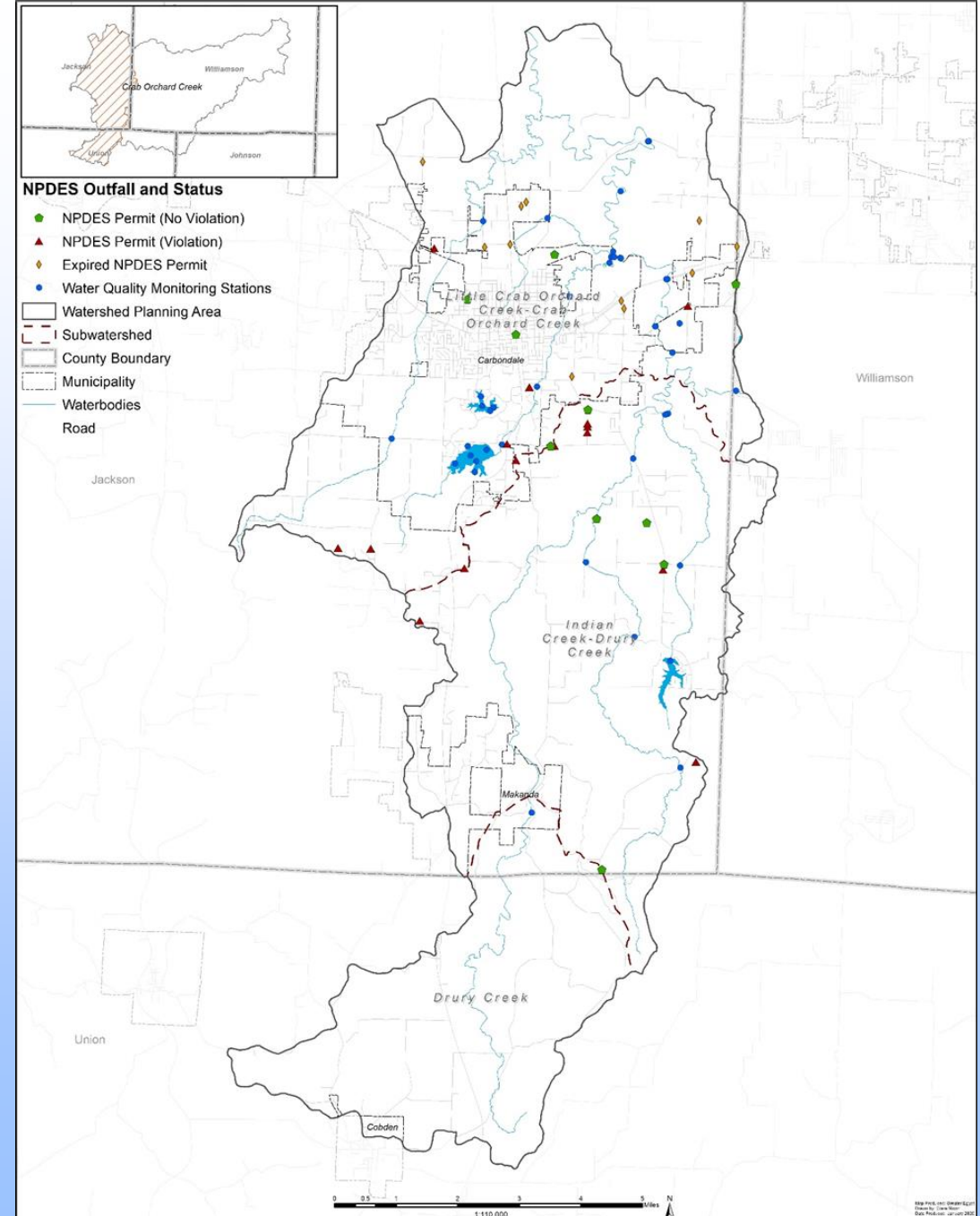
fertilizer,
pesticides,
herbicides,
sediment

NPDES facilities

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

Western Crab Orchard Creek Watershed - NPDES Outfall Locations



Estimated annual pollutant loads

Source	N Load (lb/yr)	Percent of Total Load	P Load (lb/yr)	Percent of Total Load	Sediment Load (tons/yr)	Percent of Total Load
Urban	81,390.36	24.88%	12,527.90	20.79%	1,870.49	3.91%
Cropland	31,256.72	9.56%	9,009.52	14.95%	5,606.23	11.71%
Pastureland	70,201.03	21.46%	8,968.51	14.88%	3,733.30	7.80%
Forest	8,619.41	2.64%	3,998.50	6.63%	845.65	1.77%
Groundwater	78,323.21	23.94%	3,696.34	6.13%	0.00	0.00%
Streambank	57,308.84	17.52%	22,063.91	36.61%	35,818.03	74.82%
Total	327,099.55		60,264.68		47,873.69	

Pollutant reduction goals

Watershed	SMU ID	Nitrogen (percent of total)	Nitrogen Load Reduction Target (lbs)	Phosphorus (percent of total)	Phosphorus Load Reduction Target (lbs)	Sediment (percent of total)	Sediment Load Reduction Target (tons)
Western Crab Orchard Creek	-	15.00%	49064.93	25.00%	15066.17	25.00%	11968.42
Subwatershed Load Reduction Targets							
Drury Creek	1	14.68%	7204.97	14.70%	2214.49	14.76%	1766.64
Indian Creek- Drury Creek	2	29.54%	14495.91	33.59%	5061.37	40.76%	4877.80
Little Crab Orchard Creek	3	55.77%	27364.06	51.71%	7790.31	44.48%	5323.98
TOTAL			49064.93		15066.17		11968.42

- 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.

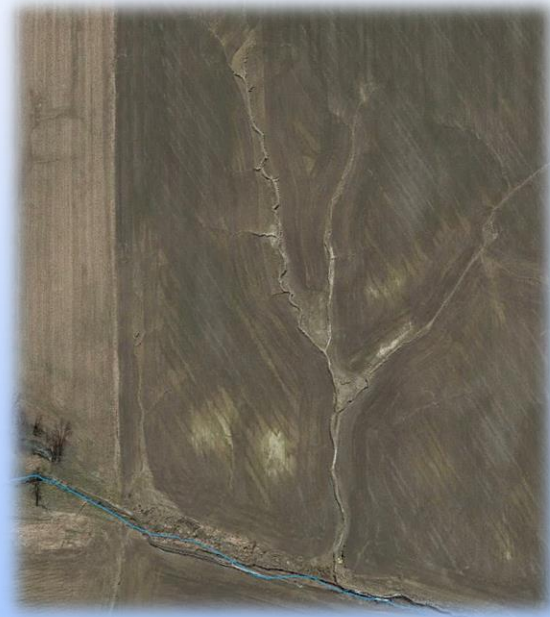


Urban tree designs that allow for healthy root development and stormwater uptake

Graphic source: EPA & Great Lakes Restoration Initiative

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Agricultural area experiencing severe erosion in the Little Crab Orchard Creek subwatershed

Agricultural BMPs

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



Grassed waterways in the Drury Creek subwatershed

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Bank stabilization at Spring Arbor Lake



Debris blockage at Little Crab Orchard Creek

Watershed wide BMPs

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

Western Crab Orchard Creek Planning Team

