

Lake Creek Watershed Management Plan Stakeholder Meeting

March 1, 2017
6:00 PM





AGENDA

- I. Welcome and Introductions
- II. Watershed Basics
- III. Overview of Lake Creek Watershed
- IV. Elements of a Successful Watershed-based Plan
- V. Future Plan Involvement
- VI. Discussion

Greater Egypt Regional Planning and Development Commission

Tyler Carpenter
Regional Planner



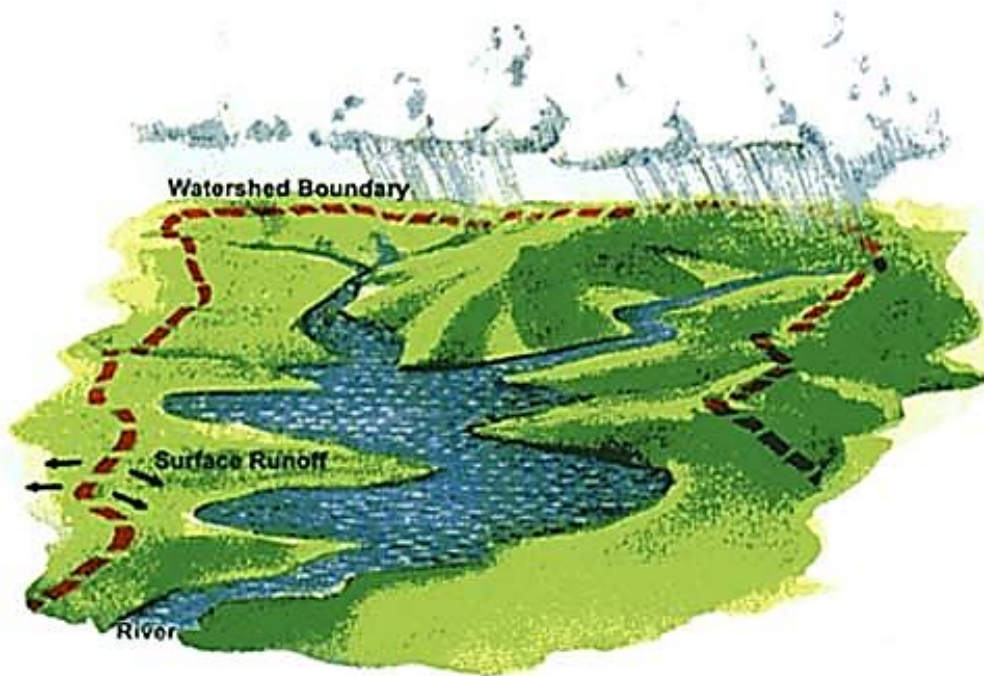
Illinois Environmental Protection Agency



IEPA- 604(b) Program

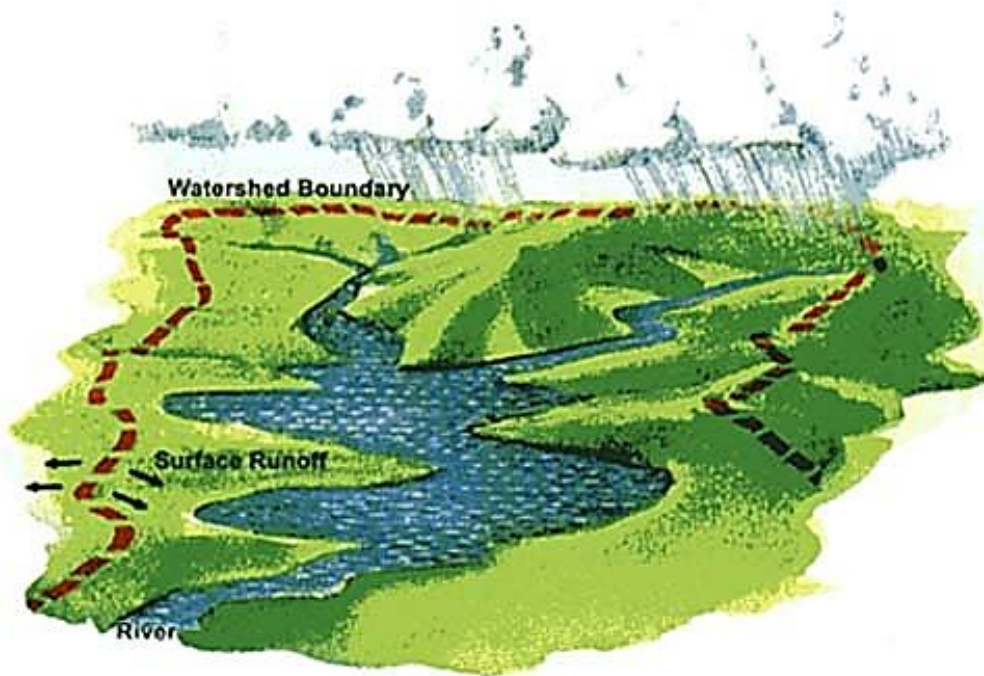
- Water Quality Management Planning Grant
- Greater Egypt's 604(b) grant includes watershed-based planning and coordinating the Volunteer Lake Monitoring Program (VLMP)

Watershed Basics



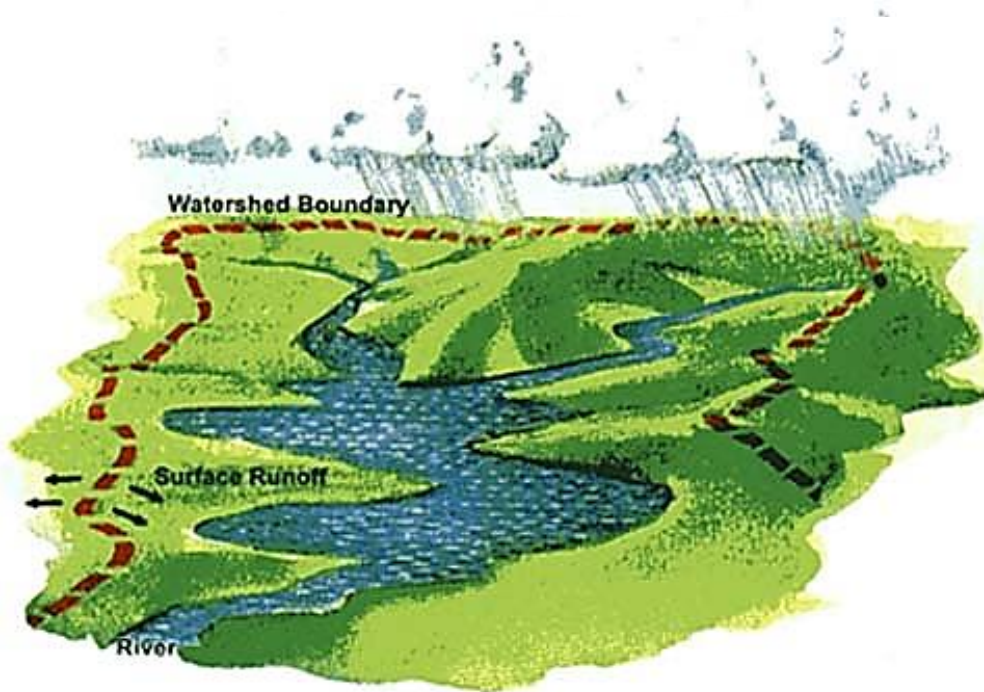
- What constitutes a watershed?
- What are the components of a watershed?

What is a Watershed?



- An area of land where all of the runoff flows to a common stream, or waterbody
- Boundaries are generally the highest points
- Watersheds can vary in size

Watershed Components



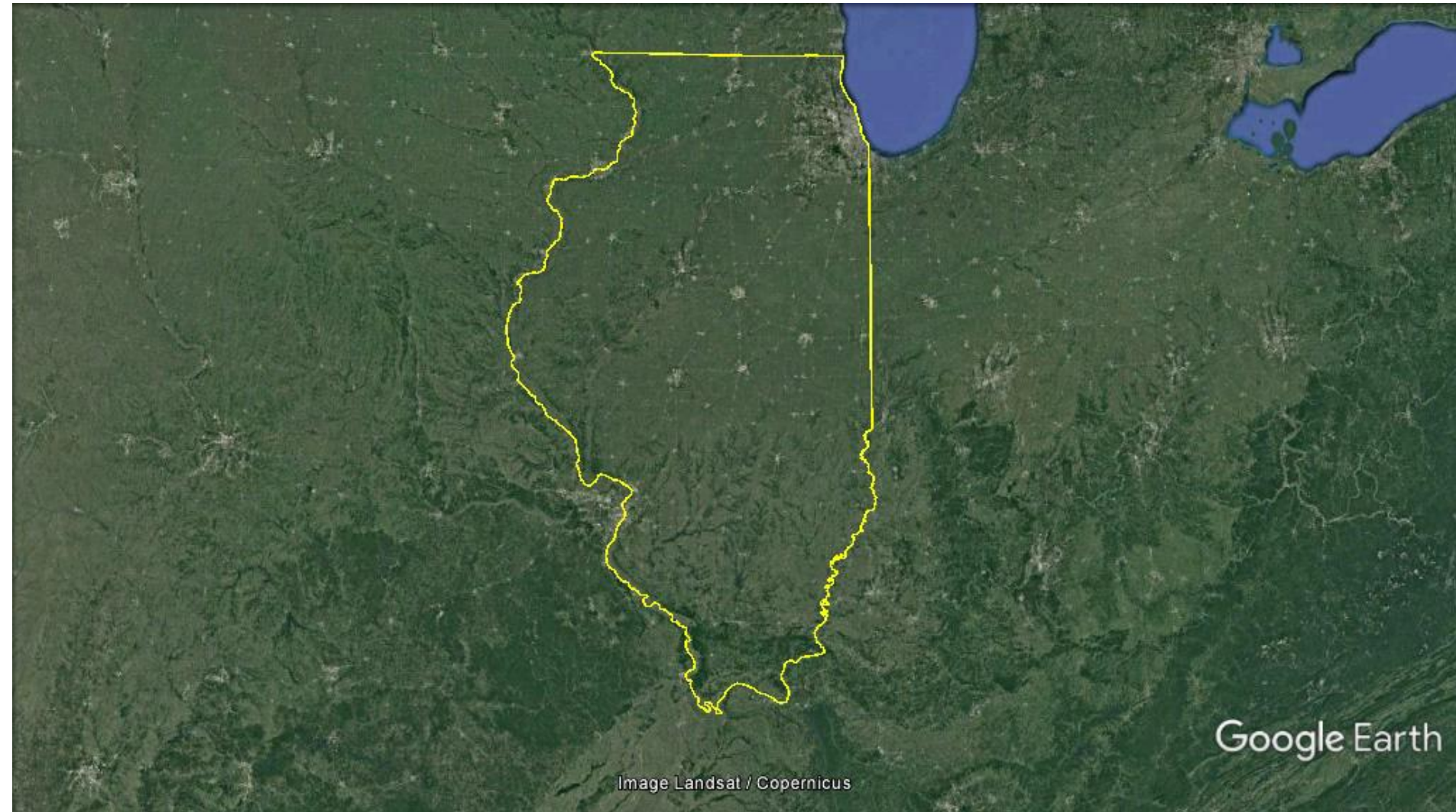
- Surface Water
 - Creeks, Lakes, Wetlands
- Riparian Areas
 - Plants along the banks
- Uplands
 - Steep terrain
- Groundwater
 - Bedrock, sand and gravel

Hydrologic Unit Code (HUC)

- Identify a hydrologic feature (watershed)
- Six levels of HUCs

Name	Level	Digits	Average size (square miles)	Number of HUCs (approximate)	Name	Code (HUC)
Region	1	2	177,560	21	Upper Mississippi	07
Subregion	2	4	16,800	222	Upper Mississippi-Kaskasia-Meramec	0714
Basin	3	6	10,596	352	Upper Mississippi-Meramec	070401
Subbasin	4	8	700	2,149	Big Muddy	07140106
Watershed	5	10	227	22,000	Pond Creek	0714010605
Subwatershed	6	12	40	160,000	Lake Creek	071401060503

Watershed Tour



Google Earth

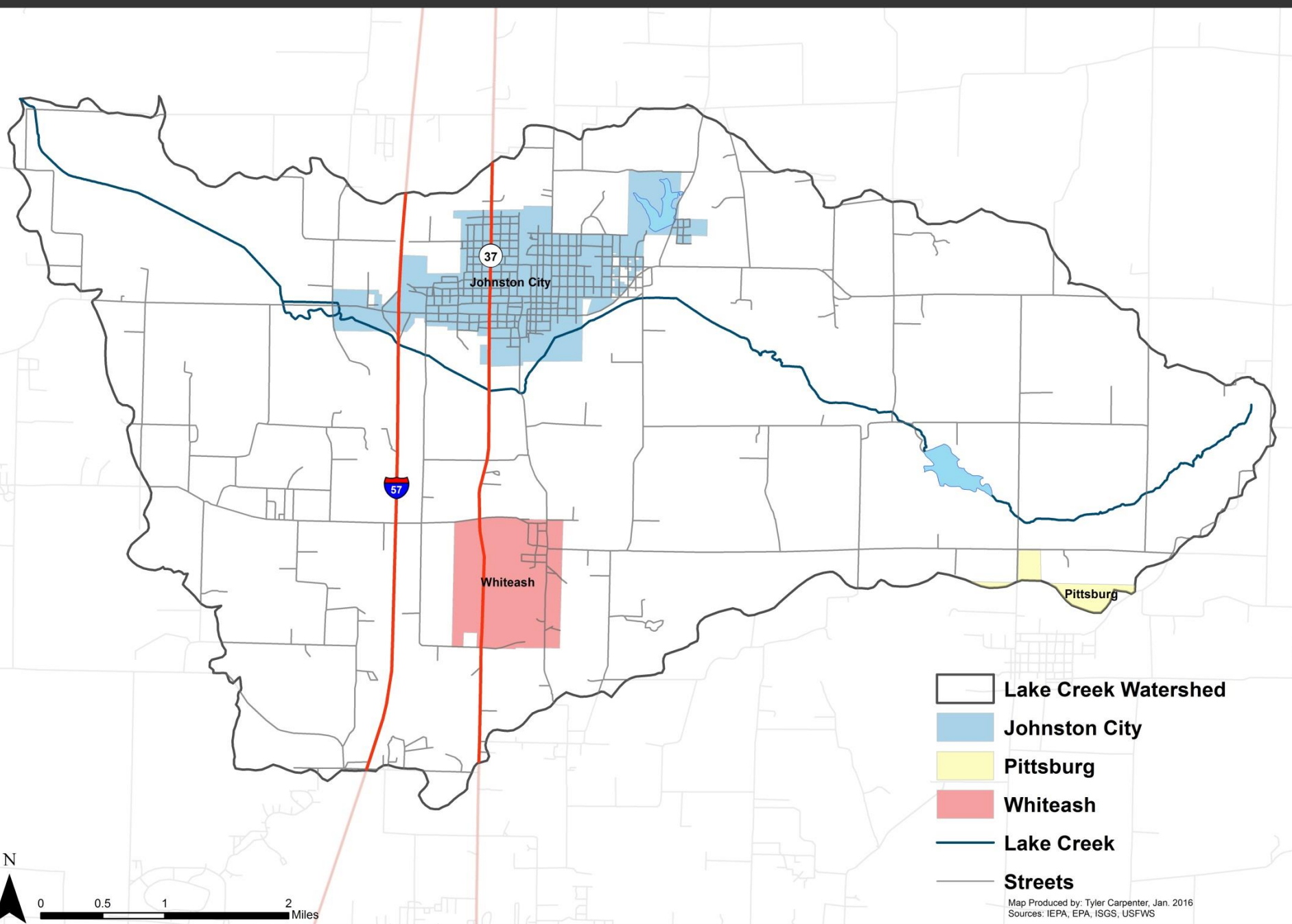
Image Landsat / Copernicus

Lake Creek Watershed

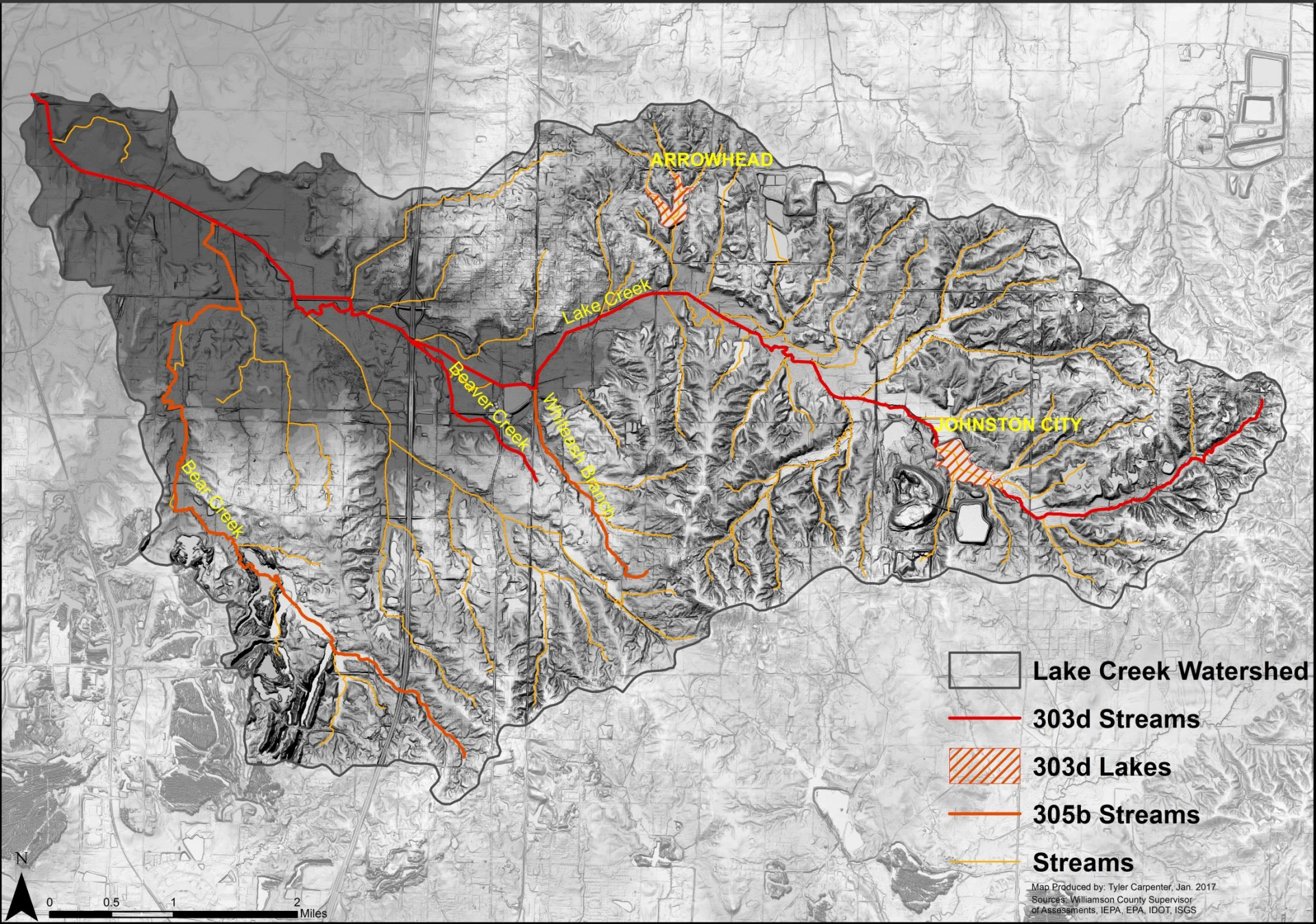
Quick Facts

- Encompasses 21,783 acres, or 34 square miles
- Located entirely within Williamson County
- Lake Creek runs 12.6 miles in a westerly direction
- Johnston City is the largest municipality in the watershed

Lake Creek Watershed - Planning Area



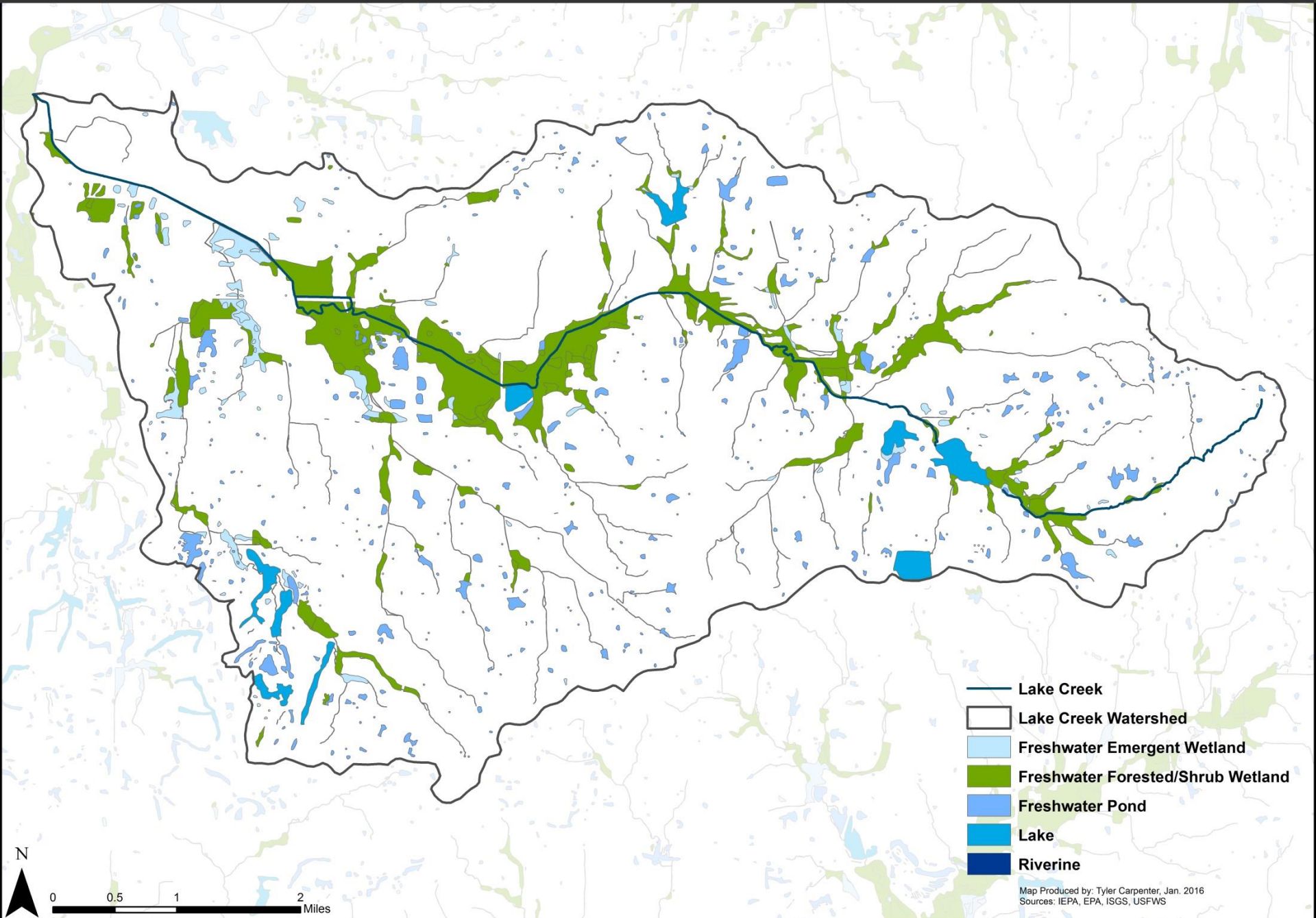
Lake Creek Watershed - Impaired Waters



-  Lake Creek Watershed
-  303d Streams
-  303d Lakes
-  305b Streams
-  Streams

Map Produced by: Tyler Carpenter, Jan. 2017.
Sources: Williamson County Supervisor of Assessments, IEPA, EPA, IDOT, ISGS

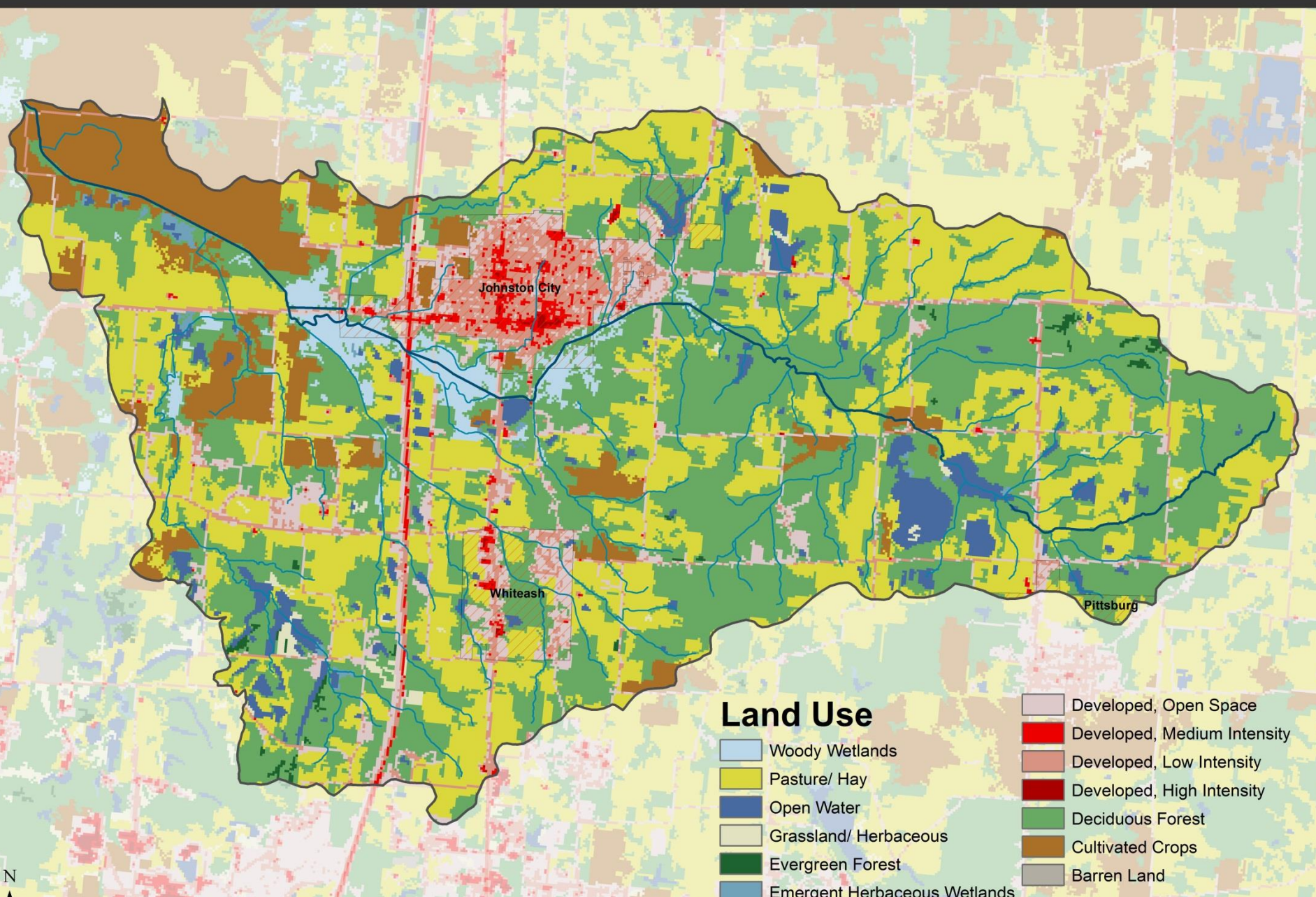
Lake Creek Watershed - Wetlands



N

0 0.5 1 2 Miles

Lake Creek Watershed - Land Use



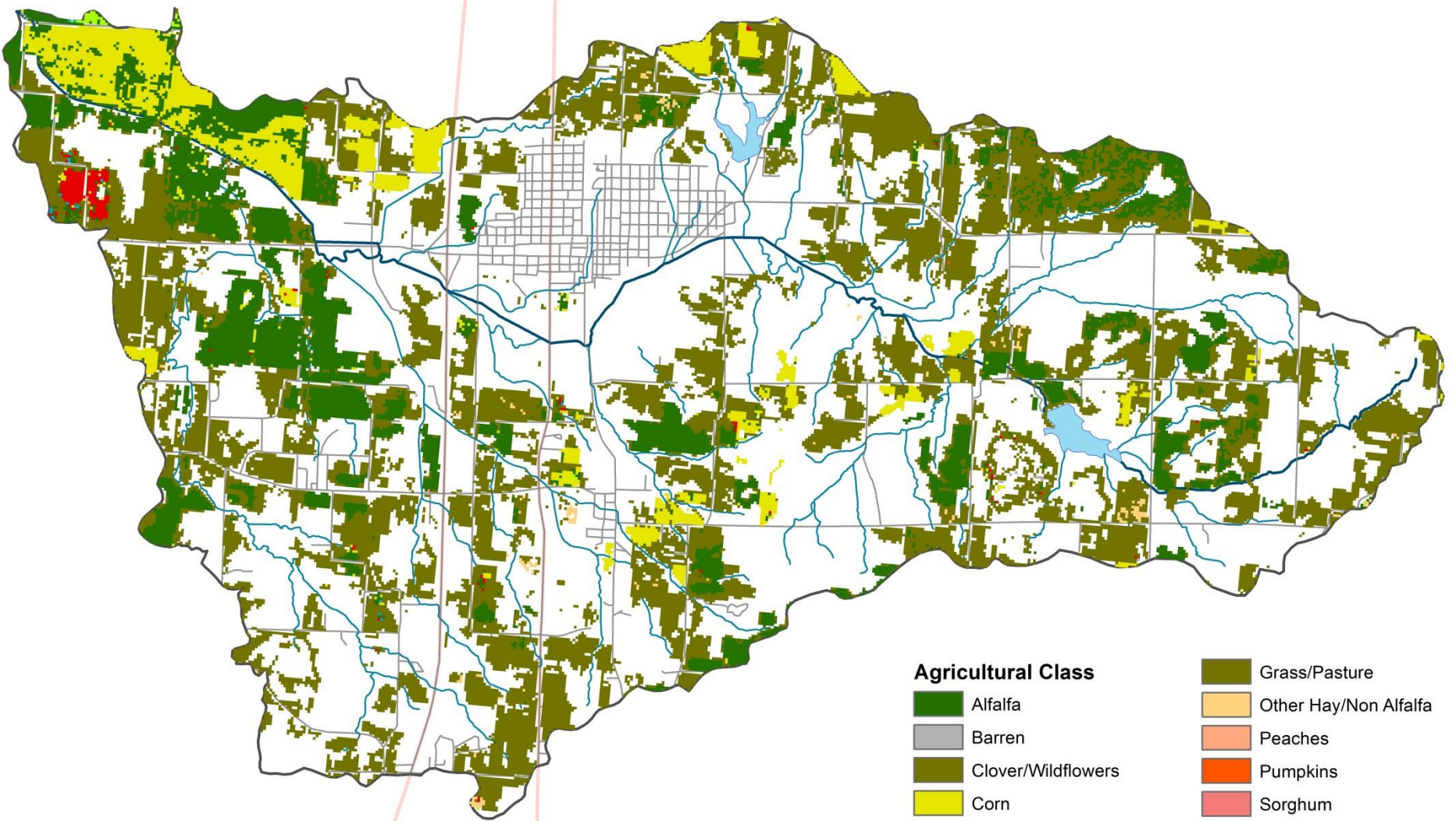
Land Use

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

















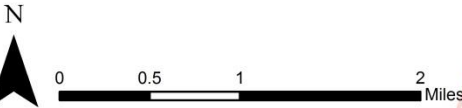
Map Produced by: Tyler Carpenter, Feb. 2017
Sources: IEPA, EPA, ISGS, USFWS, USDA, USGS

Lake Creek Watershed - Agriculture



Agricultural Class

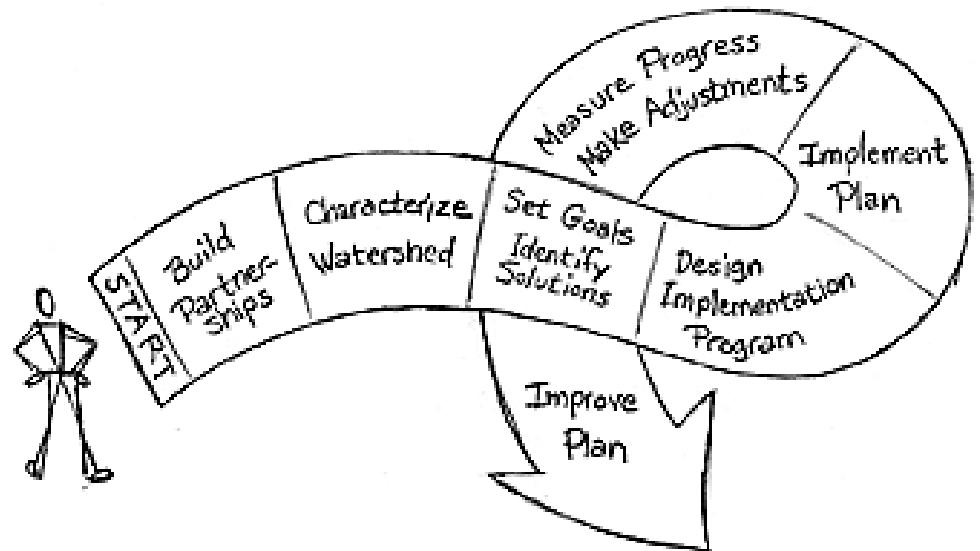
- | | |
|--|---|
|  Alfalfa |  Grass/Pasture |
|  Barren |  Other Hay/Non Alfalfa |
|  Clover/Wildflowers |  Peaches |
|  Corn |  Pumpkins |
|  Dbl Crop WinWht/Soybeans |  Sorghum |
|  Fallow/Idle Cropland |  Soybeans |
|  Gourds |  Winter Wheat |



Map Produced by: Tyler Carpenter, Jan. 2016
Sources: IEPA, EPA, ISGS, USFWS, USDA

Watershed-based Plan

- 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



Point Source Pollution

- Domestic WTPs
- Industrial WTPs
- Combined Sewer Overflows
- Sanitary Sewer Overflows
- Mine Discharges
- Landfills



Savingwater.co

Nonpoint Source Pollution

- Urban Runoff
- Golf Courses
- Crop Production
- Livestock Grazing
- Erosion
- Failing Septic Systems



CropLife.ca

Why Develop a Watershed-based Plan?

Benefits can include:

- Reduction of pollution on surface water and groundwater
- Restoration of water bodies to a healthy state
- Conservation of farmland
- Partnership and collaboration among stakeholders
- Support of sustainable communities and economic growth
- Prevention and reduction of flooding

Elements of a Successful Watershed-based Plan

Collaboration of Stakeholders

- Watershed-based planning is a stakeholder-supported approach to improving and protecting water resources
- Stakeholders can include representatives from local government, conservation groups, and landowners
- The success of a watershed-based plan is dependent on the involvement of the stakeholders



Planning Efforts

1. Identify causes and sources of water pollution and estimate existing pollutant loads.
2. Set water quality goals and load reduction targets to achieve those goals, and estimate load reductions expected from recommended management measures.
3. Describe the management measures needed to achieve load reduction targets.
4. Describe the technical and financial assistance (amount, costs, and sources) and relevant authorities needed to implement the plan.
5. Enhance public understanding through outreach measures.

Planning Efforts

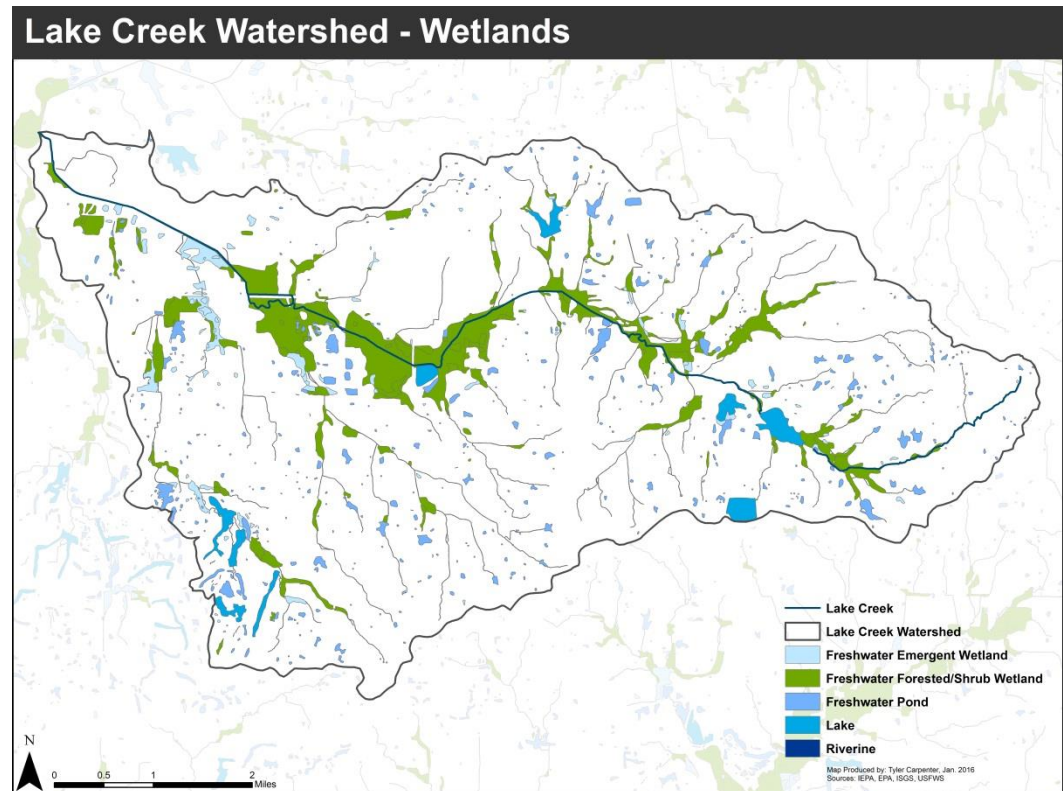
6. Provide a schedule for implementing the management measures identified in the plan.
7. Identify interim, measurable milestones for determining whether management measures are being implemented on schedule.
8. Identify interim benchmarks to measure progress in meeting water quality goals and load reduction targets.
9. Describe a monitoring component.

Elements of a Successful Watershed-based Plan

1.) Identify causes and sources of water pollution and estimate existing pollutant loads

Watershed Resource Inventory

- Documentation of existing conditions in the watershed and its sub-watersheds
- Inventory of components such as: Geographic Boundaries, Land Use, and Drainage Assessment
- Field Assessment of erosion and riparian areas



Elements of a Successful Watershed-based Plan

2.) Set water quality goals

Water Quality Goals could include:

- Achieve water quality standards and total maximum daily loads for specific pollutants
- Identify load reduction targets for specific pollutants

Waterbody	Causes of Impairment(s)	Sources of Impairment(s)
Lake Creek	Dissolved Oxygen, Phosphorus, Changes in Stream Depth and Velocity Patterns	Municipal Point Source Discharges, Crop Production, Agriculture, Urban Runoff/ Storm Sewers, Unknown Sources
Beaver Creek	Manganese, Changes in Stream Depth and Velocity Patterns, Loss of Instream Cover	Loss of Riparian Habitat, Municipal Point Source Discharges, Crop Production, Agriculture, Urban Runoff/ Storm Sewers, Runoff from Forest/Grassland/Parkland
Johnston City Lake	Total Suspended Solids, Phosphorus, Aquatic Algae	Littoral/ Shore Area Modifications, Runoff from Forest/Grassland/Parkland
Arrowhead Lake	Phosphorus	Runoff from Forest/Grassland/Parkland

Data acquired from the Specific Assessment Information for Lakes and Streams of 2016, EPA

Elements of a Successful Watershed-based Plan

3.) Describe the management measures needed to achieve load reduction targets

Management measures could include:

- Identify best management practices (BMPs) to achieve water quality objectives
- Identify priority areas and practices



Elements of a Successful Watershed-based Plan

4.) Describe the technical and financial assistance and relevant authorities needed to implement the plan

- IEPA 319 Grants offer a 60 percent cost share

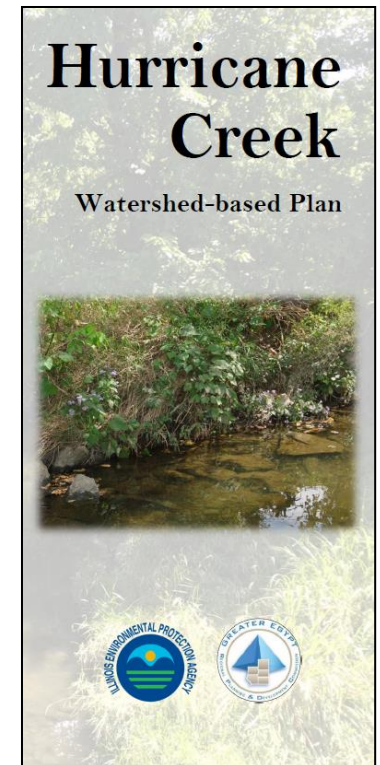
Best Management Practice	Funding Sources	Notes/Cost Share Rates
<ul style="list-style-type: none"> • Filter strips and riparian buffers • Dry dams (WASCBs) • Grass waterways • Terraces • Diversions • Wetland creation • Blind inlets and tile drainage management • Nutrient management • Cover crops 	Illinois EPA – 319 program NRCS – EQIP program FSA – CRP program SWCD – CPP program USFWS – Acres for wildlife program IDNR/SWCD – CREP program IDNR – SWG program NRCS – WHIP program IDNR – Special Wildlife Funds Grants	CREP eligible acres must be in the 100-year floodplain and/or have cropped ground with an erodibility index of 8 or greater adjacent to riparian zones; must have cropping history as defined by the USDA. SWG program requires 50% state match and must address goals/species outlined in the State of Illinois Comprehensive Wildlife Plan. NRCS, FSA, and SWCD programs generally provide 60% cost-share, however, some special programs and practices can provide up to 90%. FSA, CREP and some NRCS programs also provide annual rental payments for taking ground out of production.
<ul style="list-style-type: none"> • Streambank/lake shore stabilization and in-stream grade control or other grade control 	Illinois EPA – 319 Program SWCD – SSRP program NRCS – EQIP program	Illinois EPA 319 offers 60% cost share SSRP offers 75% cost share EQIP offers 60% cost share
<ul style="list-style-type: none"> • Wetland restoration and other habitat practices 	Illinois EPA – 319 program NRCS – EQIP program NRCS – WRP program FSA – CRP program USFWS – Landowner Incentive Program IDNR/SWCD – CREP program IDNR – SWG program IDNR – Special Wildlife Funds Grants	WRP program – multiple/stringent eligibility requirements. NRCS, FSA, and SWCD programs provide a minimum of 60% cost-share, however, some special programs and practices can provide up to 90%. FSA, CREP and some NRCS programs also provide annual rental payments for taking ground out of production.
<ul style="list-style-type: none"> • Livestock/equestrian practices, including fencing, stream crossings, pasture management, watering systems etc. 	Illinois EPA – 319 program NRCS – EQIP program IDNR – Forestry Development Act funding (FLEP)	FLEP is applicable to livestock fencing for woodlands. Livestock management recommendations outlined in this report that includes wetland and/or habitat restoration can be funded by other programs such as the US F&W – Landowner Incentive Program EQIP typically provides 60% cost-share

Elements of a Successful Watershed-based Plan

5.) Enhance public understanding through outreach measures

Measures could include:

- Public meetings
- Informational pamphlets about the watershed and planning efforts
- Workshops



Elements of a Successful Watershed-based Plan

6.) Construct an Implementation Schedule for measures in the plan

Schedule should include:

- Recommended best management practices (BMPs)
- Information and Education component
- Monitoring component

Goal	Phase I		Phase II				Phase III			
	Short-term (2 yr)		Mid-term (3-6 yr)				Long-term (7-10 yr)			
	1	2	3	4	5	6	7	8	9	10
Establish watershed action council	X									
Hold public meetings to gain input	X	X	X							
Hold workshops to inform public on stormwater management		X		X		X		X		
Continue researching funding and technical assistance	X	X	X							
Select site-specific BMPs for preliminary designs	X	X	X							
Submit grant applications based on BMPs in plan		X	X	X	X	X	X	X		
Meet with landowners to review BMPs in plan		X	X	X	X	X				
Implement and execute BMPs			X	X	X	X	X	X	X	X
Monitor progress of implementation				X	X	X	X	X	X	X
Announce success of plan implementation					X	X	X	X	X	X
Evaluate Accomplishments					X	X	X	X	X	X

Elements of a Successful Watershed-based Plan

7.) Identify milestones to determine if management measures are being implemented on schedule

Interim Measurable Milestones				
Goal	Indicator	Short (2-year)	Mid (6-yr)	Long (10-yr)
Address Impairments from Agricultural Practices/ Improve Water Quality	Linear Feet of Streambank Stabilized	-	7,000	14,000
	Agricultural Strips Created	-	6	12
	Acres Converting to Conservation Tillage	-	70	140
	Acres to Implement Cover Crops	-	70	140
	Grassed Waterways Created	-	5	10
	Acres of No Mow Pastures	150	300	600
	Riparian Buffers Created	-	1	2
	Stream Channel Sediment Reduction Channels Created	-	2	5
Improve Recreational Opportunities	Improve Ramp and Dock at Herrin Reservoir	-	-	1

Elements of a Successful Watershed-based Plan

8.) Identify interim benchmarks to measure progress in meeting water quality goals

Benchmarks could include:

- Total Suspended Solids Load Reduction
- Nitrogen, Phosphorus

Benchmark Period	Benchmark Reduction Target					
	Nitrogen (percent)	Nitrogen (lbs/ yr)	Phosphorus (percent)	Phosphorus (lbs/yr)	Sediment (percent)	Sediment (tons/yr)
2 Year (Phase I)	-	-	-	-	-	-
6 Year (Phase II)	6	8897	20	5497	20	3159
10 Year (Phase III)	15	22241	40	10995	45	7108

Elements of a Successful Watershed-based Plan

9.) Describe a monitoring component

Recommends future assessment activities to be undertaken and can be designed to:

- Better identify potential causes and sources of pollution
- Assess BMP effectiveness
- Track and evaluate the effectiveness of plan implementation

Monitoring Component	Phase I		Phase II				Phase III			
	1	2	3	4	5	6	7	8	9	10
Ambient Lakes Monitoring Program	X					X				
Sediment Monitoring	X		X		X		X		X	
Volunteer Lake Monitoring Program	X	X	X	X	X	X	X	X	X	X
Watershed Basin Surveys		X					X			

Future Plan Involvement

Development of a Planning Committee:

Should include individuals who have some authority to implement change.

- Mayors/ Village Presidents
- Wastewater Authorities
- Public Works Departments
- County/ City Planners
- Health Departments

Representatives from all jurisdictions in the watershed

- Johnston City
- Pittsburg
- Whiteash



Discussion

Questions/Comments

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