

# Pond Creek Watershed Management Planning Meeting 1

December 13, 2018  
10:00 AM



# Agenda

- I. Welcome and Introductions
- II. Review of Initial Stakeholders Meeting
- III. Nine Elements of a Watershed-based Plan
- IV. Synopsis of the Pond Creek Watershed (Inventory)
- V. Concerns Within the Watershed
- VI. 1997 Pond Creek Investigation Report
- VII. Preliminary Goals
- VIII. Needs from the Council
- IX. Meeting Schedule

# Greater Egypt Regional Planning and Development Commission

Tyler Carpenter

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# Illinois Environmental Protection Agency



## IEPA- 604(b) Program

- Water Quality Management Planning Grant
- Greater Egypt's 604(b) grants include:
  - watershed-based planning
  - coordinating the Volunteer Lake Monitoring Program (VLMP)
  - stormwater management educational materials

# Initial Stakeholders Meeting Recap

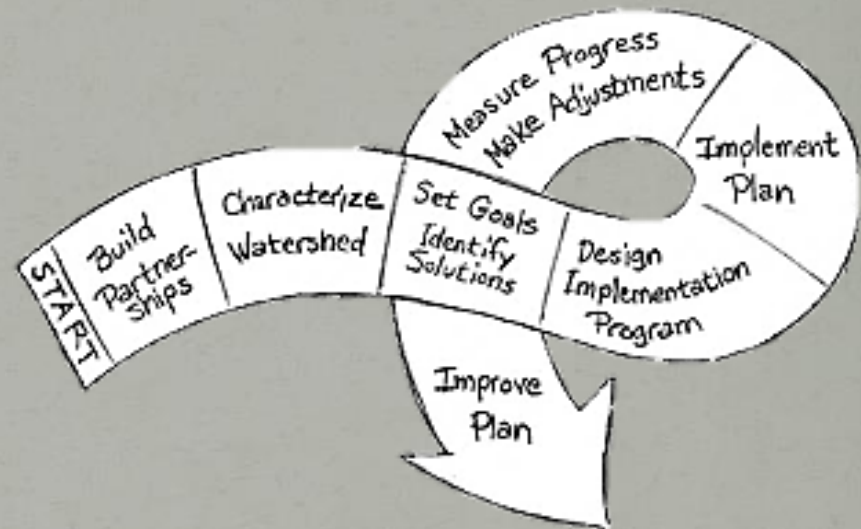
August 23, 2018- WF Aquatic & Activities Center

- Staff reviewed Inventory and Assessment/ Watershed-based Planning Components
- Public mentioned a few concerns:
  - Cover crops have not worked in the past; slugs have eaten cover material
  - Long walls being constructed in the Pond Creek Watershed
    - Pond Creek Mine- Discharge to Big Muddy River
  - Flooding around IL-37



# 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](http://Savingwater.co)

## Nonpoint Source Pollution

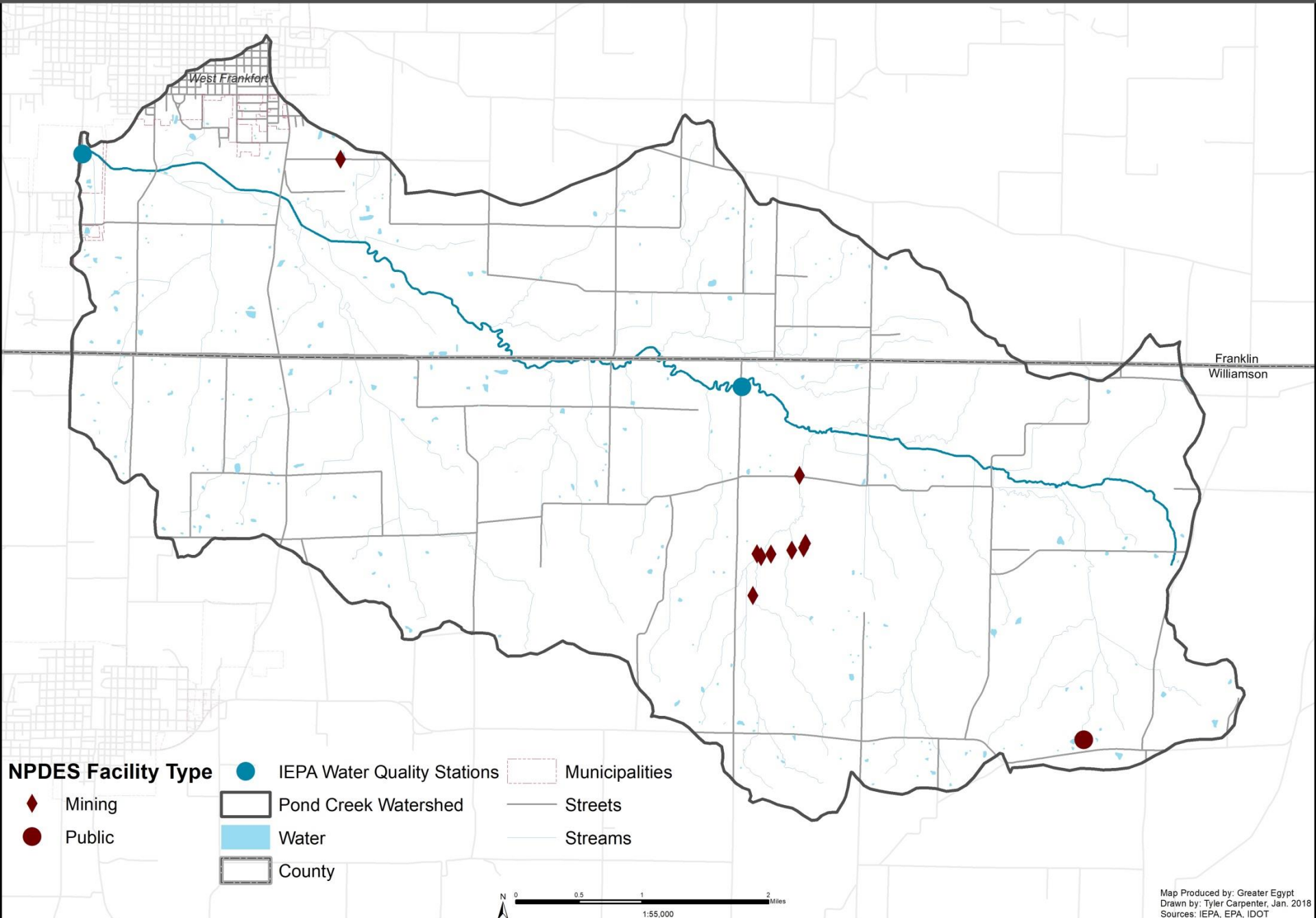
- Urban Runoff
- Golf Courses
- Crop Production
- Livestock Grazing
- Erosion
- Failing Septic Systems



[CropLife.ca](http://CropLife.ca)



# Pond Creek Watershed - NPDES Facilities



# Why Develop a Watershed-based Plan?

## Benefits can include:

- Conservation of farmland
- Restoration of water bodies to a healthy state
- Reduction of pollution on surface water and groundwater
- 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



## Elements of a Successful Watershed-based Plan

### 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.

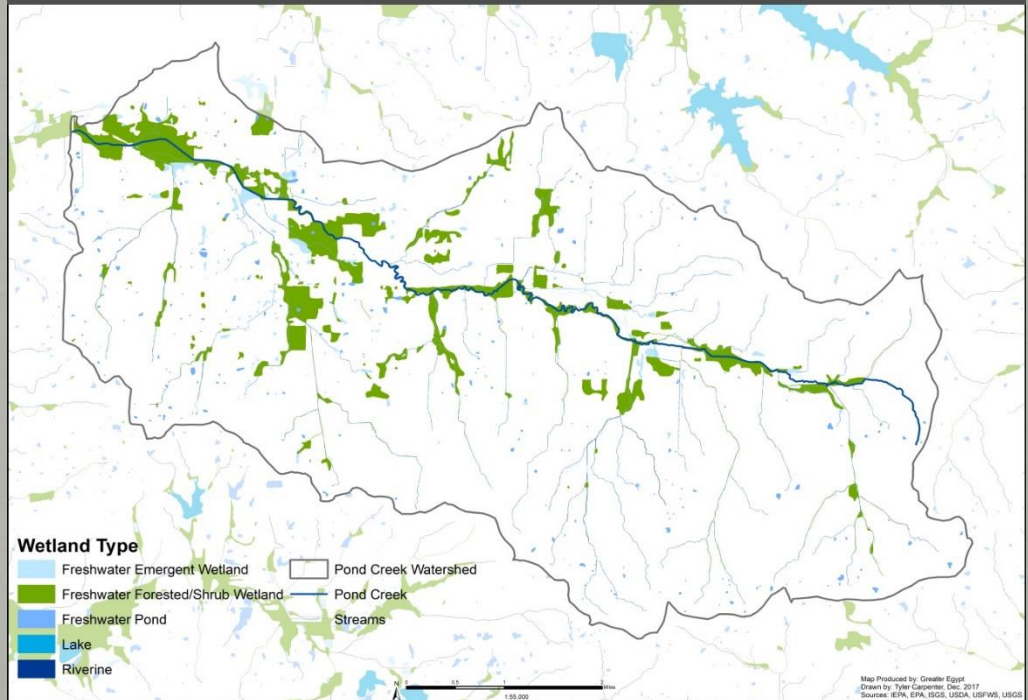
# Elements of a Successful Watershed-based Plan

## 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

Pond Creek Watershed - Wetlands



# Elements of a Successful Watershed-based Plan

## 2.) Set water quality goals and load reduction targets

Water Quality Goals could include:

- Achieve water quality standards and total maximum daily loads for specific pollutants
- Base nutrient reduction goals off of the IL Nutrient Loss Reduction Strategy
- Identify load reduction targets for specific pollutants

Waterbody	Causes of Impairment	Possible Sources of Impairment
<b>Pond Creek</b>	<b>Alteration in stream-side or littoral vegetative covers, Chloride, Dissolved Oxygen, Sedimentation/ Siltation, Changes in stream depth and velocity patterns, Loss of instream cover</b>	Channelization
		Impacts from abandoned mine lands (inactive)
		Loss of Riparian Habitat
		Streambank Modifications/ Destabilization
		Unknown Source
		Crop Productions
		Agriculture
Urban Runoff/ Storm Sewers		

# 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
- Multiple other sources

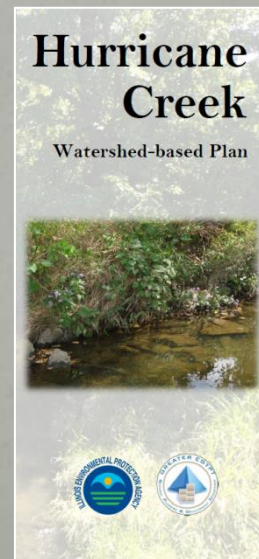
Best Management Practice	Funding Sources	Notes/Cost Share Rates
<ul style="list-style-type: none"> <li>• Filter strips and riparian buffers</li> <li>• Dry dams (WASCBs)</li> <li>• Grass waterways</li> <li>• Terraces</li> <li>• Diversions</li> <li>• Wetland creation</li> <li>• Blind inlets and tile drainage management</li> <li>• Nutrient management</li> <li>• Cover crops</li> </ul>	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"> <li>• Streambank/lake shore stabilization and in-stream grade control or other grade control</li> </ul>	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"> <li>• Wetland restoration and other habitat practices</li> </ul>	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"> <li>• Livestock/equestrian practices, including fencing, stream crossings, pasture management, watering systems etc.</li> </ul>	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

# Nine Elements of a Watershed-based Plan

## 5.) Enhance Public Understanding Through Outreach Measures

### Measures could include:

- Public meetings
- Informational pamphlets regarding watershed planning efforts
- Workshops
  - Stormwater management
  - Agricultural activities



**What is a Watershed-based Plan?**

A watershed-based plan is a collaborative effort that addresses nonpoint source pollution to improve water quality. These plans are prepared to assess existing conditions, identify pollutants, develop best management practices (BMPs) to address pollutants, determine costs, and develop implementation and evaluation indicators.

**Hurricane Creek Watershed-based Plan**

Planning efforts began in 2015 with the development of a watershed inventory. This characterized the watershed by defining many components such as geographic, soils, demographics, land use, streambank and lake assessment, and water quality assessment.

An initial stakeholders meeting was held to raise awareness of planning efforts and to garner membership of the Hurricane Creek Watershed Council. The Council provided guidance throughout the planning phase including recommending BMPs to address water quality impairments.

Two waterbodies in the watershed have been placed on the EPA's 303(d) list of Impaired Waters. Hurricane Creek has been placed on the list because of problems with sedimentation and siltation. Herin Old Lake exhibits many other impairments including: mercury, PCBs, total suspended solids, phosphorus, and algae. These impairments are largely due to agricultural practices and urban runoff.

To improve water quality in the waterbodies and the watershed, BMPs were suggested. Some of the proposed BMPs include: streambank and shoreline stabilization, filter strips, and grassed waterways. BMP implementation is dependent on Section 319(b) funding under the Clean Water Act.

**Hurricane Creek Watershed Quick Facts**

- 26,300 Acres (99 square miles)
- Contains an unincorporated
- 24% agricultural, 50% Forested, 29% Developed
- Fair amount of runoff runoff from urban and agricultural uses

**Applying for CWA Section 319(b) Funding:**

Applications for grants that address nonpoint source pollution can be awarded through Section 319(b) of the Clean Water Act. Section 319(b) grants generally have a 60/40 match. This means that the EPA can cover up to 60 percent of the grant costs while the applicant is responsible for the remaining 40 percent.

If you are interested in plan implementation, CWA Section 319(b) funding, or would like more information, please contact Tyler Carpenter at the Greater Egypt Regional Planning and Development Commission. Contact information can be found on the back of this document.

## Nine Elements of a Watershed-based Plan

### 6.) Construct an Implementation Schedule for Measures in the Plan

Schedule should include:

- Recommended BMP
- Information and Education components
- 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)
<b>Address Impairments from Agricultural Practices/ Improve Water Quality</b>	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
<b>Improve Recreational Opportunities</b>	Improve Ramp and Dock at Herrin Reservoir	-	-	1

## 8.) Identify Interim Benchmarks to Measure Progress in Meeting Water Quality Goals

### Benchmarks should include:

- Load Reduction Targets of:
  - Nitrogen
  - Phosphorus
  - Sediment
  - Other pollutants

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)	7	11527	10	2789	15	2359
10 Year (Phase III)	15	24701	25	6971	30	4718

## Nine Elements of a 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			

# 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-Kaskaskia-Meramec	0714
Basin	3	6	10,596	352	Upper Mississippi-Meramec	071401
Subbasin	4	8	700	2,149	Big Muddy	07140106
Watershed	5	10	227	22,000	Pond Creek	0714010605
Subwatershed	6	12	40	160,000	Pond Creek	071401060501

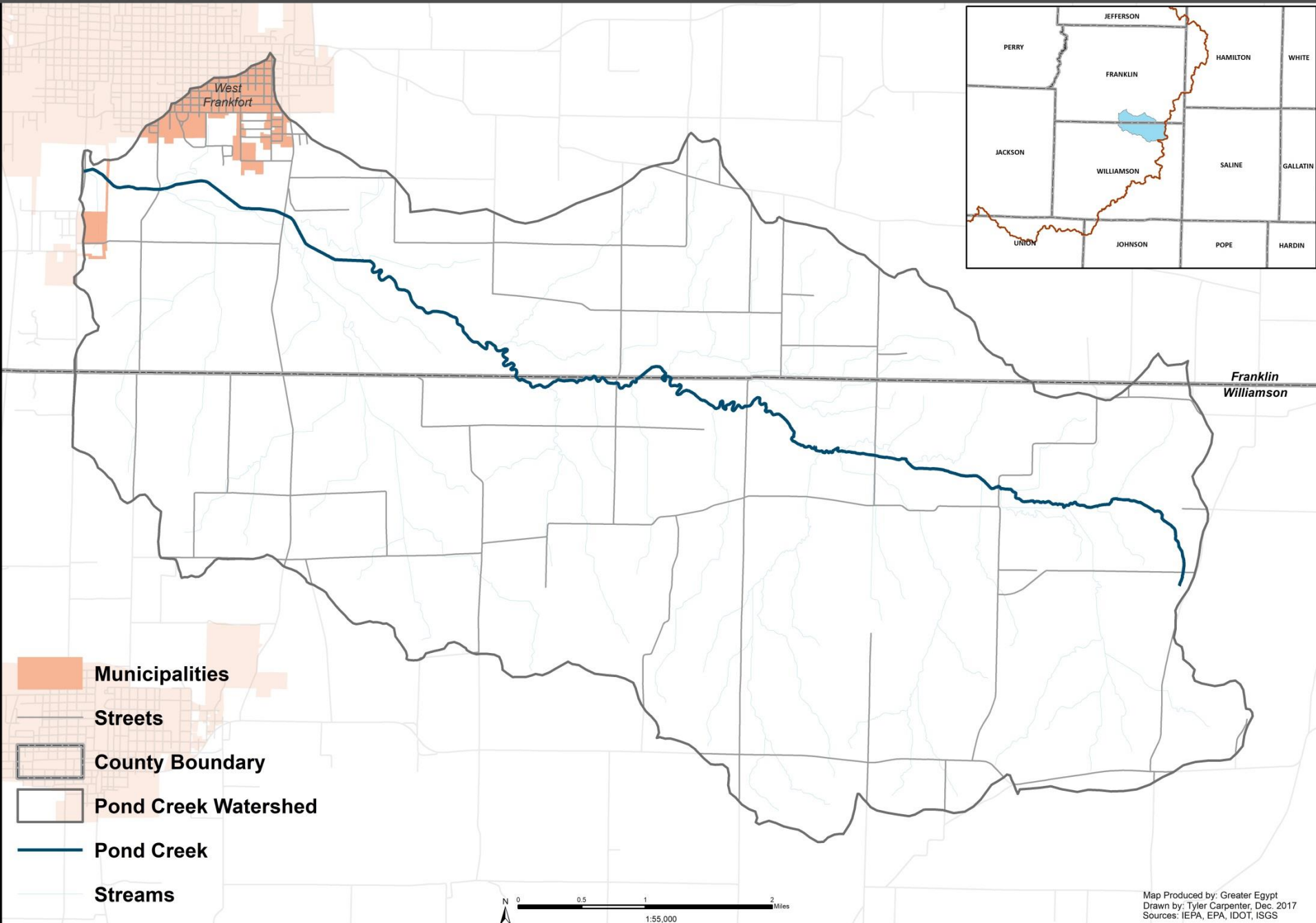
# Pond Creek Watershed

## Quick Facts:

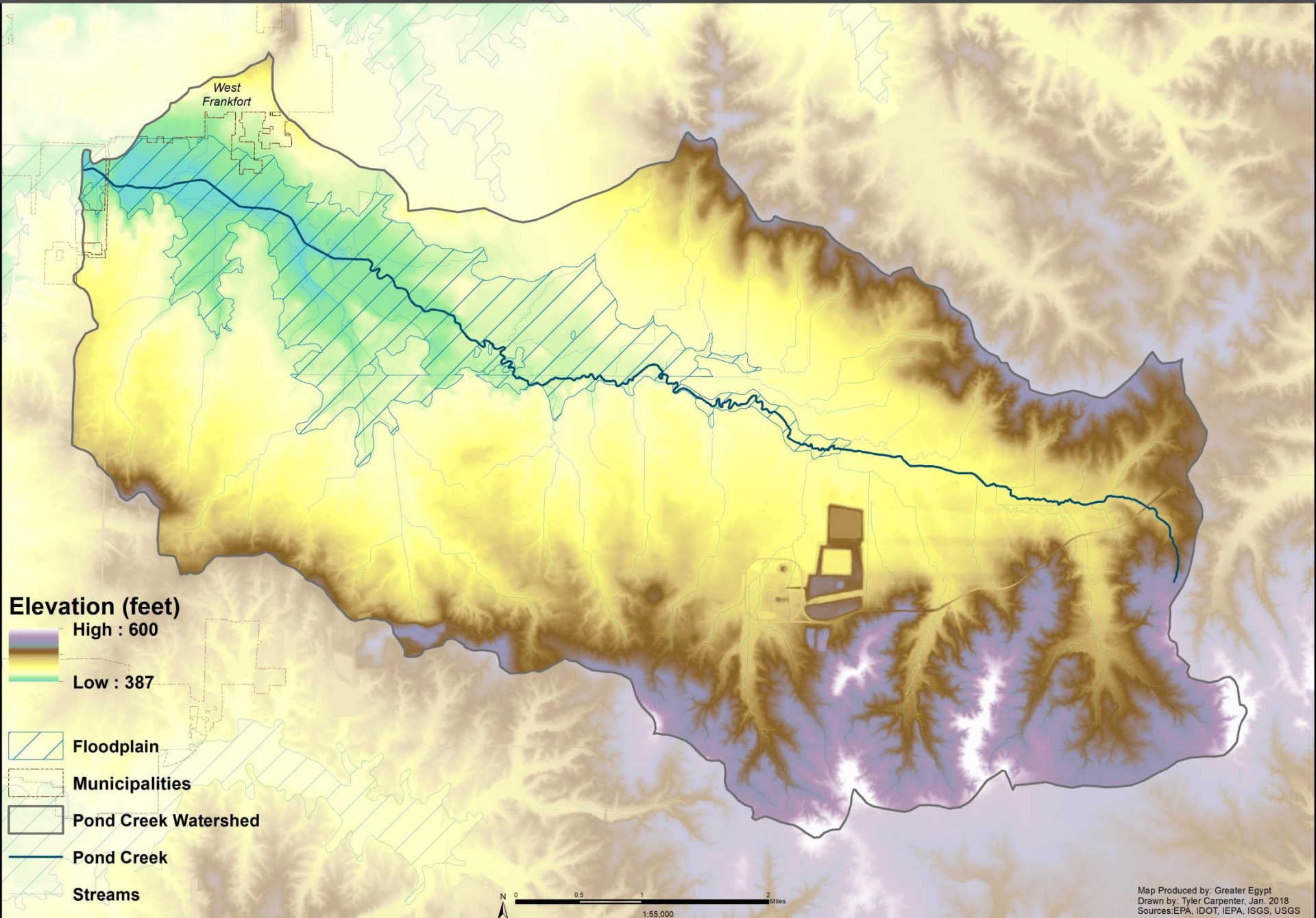
- 21,192 acres, or 33 square miles
- Located in Franklin and Williamson Counties
  - 32.7 % Franklin County
  - 67.3 % Williamson County
- Pond Creek runs 12.04 miles in a northwesterly direction
- West Frankfort is the only municipality in the watershed
- Detailed information can be found in the watershed inventory and assessment
  - Available on our site



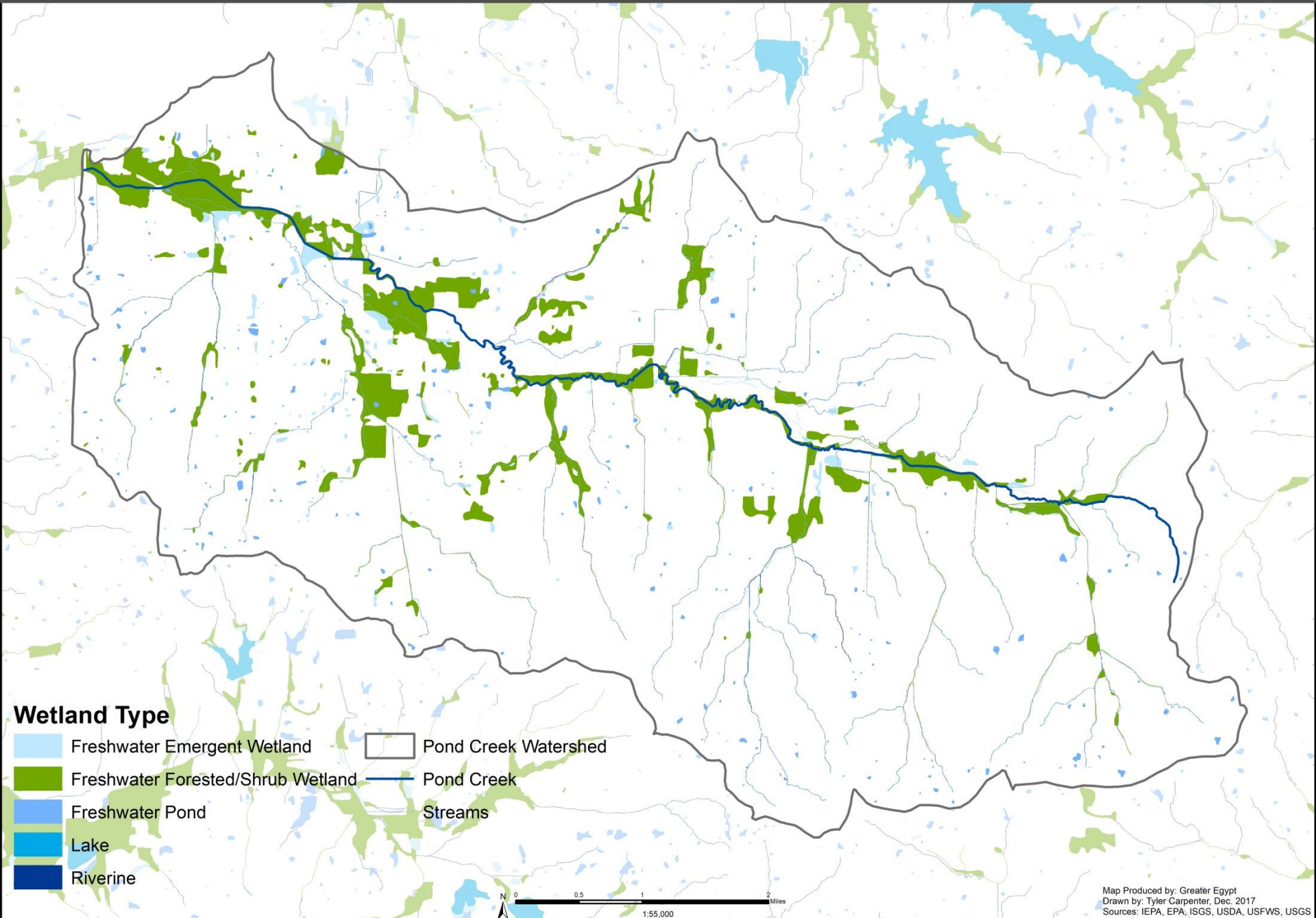
# Pond Creek Watershed - Planning Area



# Pond Creek Watershed - Elevation and Floodplain



# Pond Creek Watershed - Wetlands

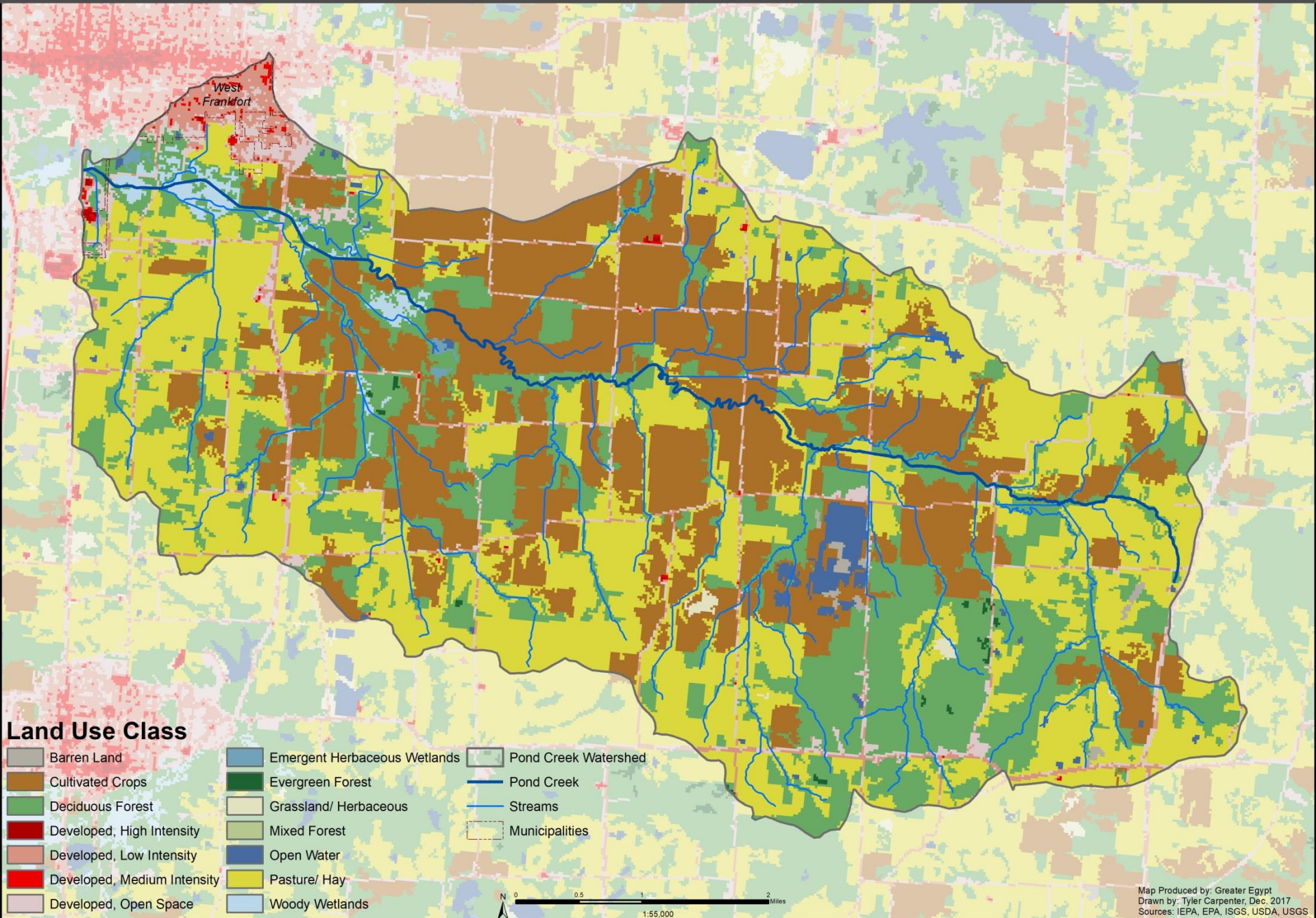


## Wetland Type

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine
- Pond Creek Watershed
- Pond Creek
- Streams



# Pond Creek Watershed - Land Use



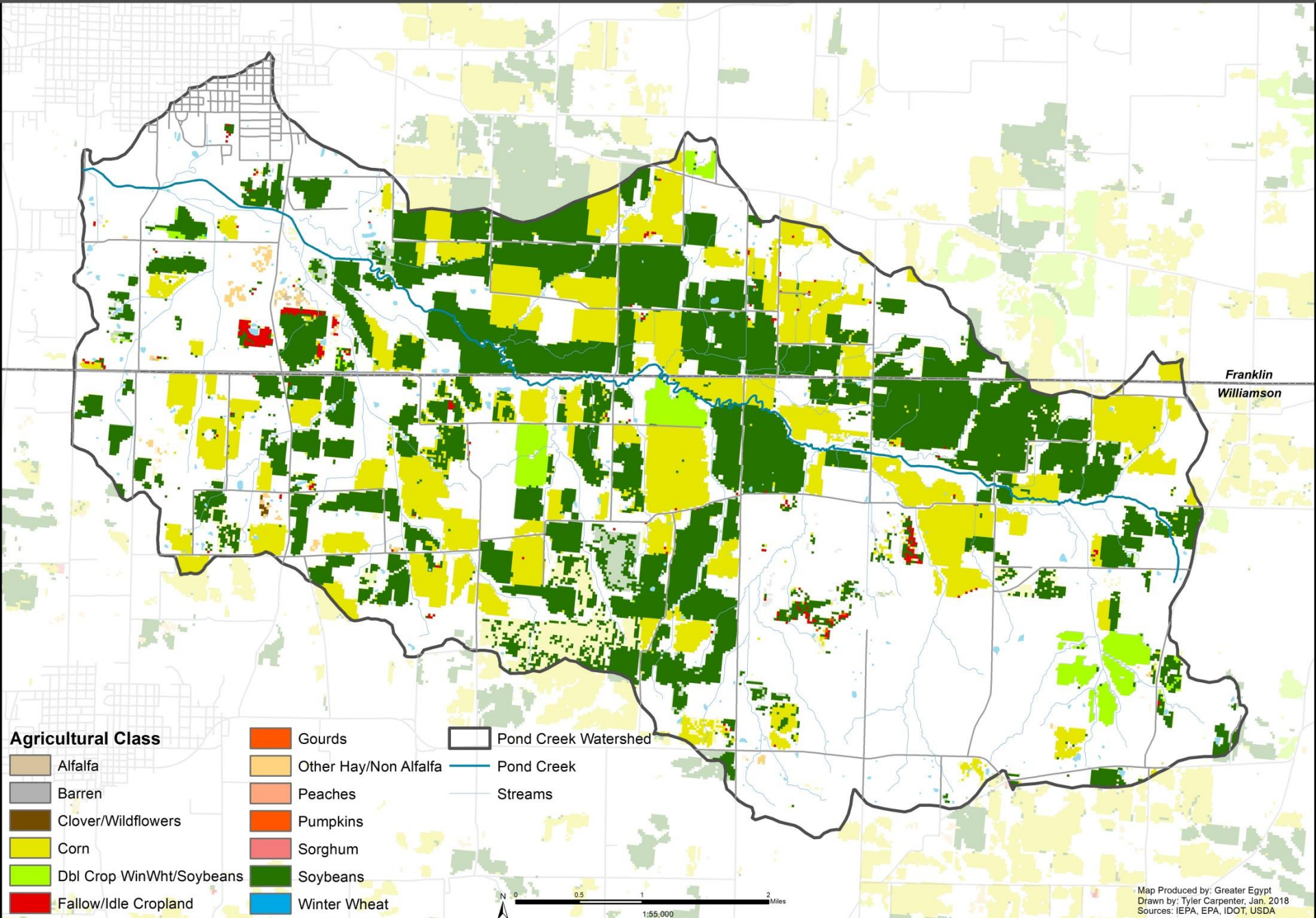
West Frankfort

## Land Use Class

- |                             |                              |                      |
|-----------------------------|------------------------------|----------------------|
| Barren Land                 | Emergent Herbaceous Wetlands | Pond Creek Watershed |
| Cultivated Crops            | Evergreen Forest             | Pond Creek           |
| Deciduous Forest            | Grassland/Herbaceous         | Streams              |
| Developed, High Intensity   | Mixed Forest                 | Municipalities       |
| Developed, Low Intensity    | Open Water                   |                      |
| Developed, Medium Intensity | Pasture/Hay                  |                      |
| Developed, Open Space       | Woody Wetlands               |                      |



# Pond Creek Watershed - Agriculture



Franklin  
Williamson

**Agricultural Class**

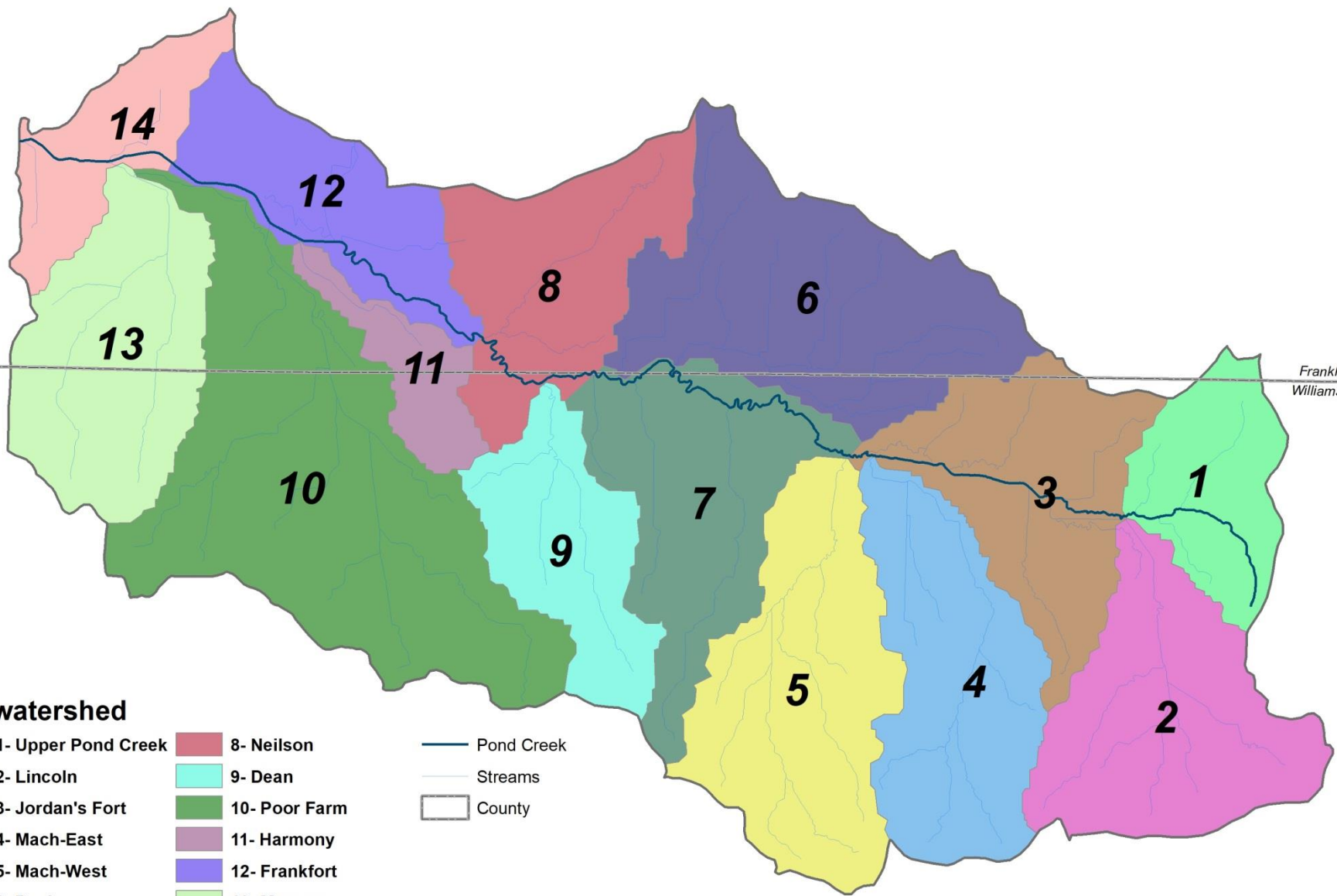
- Alfalfa
- Barren
- Clover/Wildflowers
- Corn
- Dbl Crop WinWht/Soybeans
- Fallow/Idle Cropland
- Gourds
- Other Hay/Non Alfalfa
- Peaches
- Pumpkins
- Sorghum
- Soybeans
- Winter Wheat

- Pond Creek Watershed
- Pond Creek
- Streams



Map Produced by: Greater Egypt  
 Drawn by: Tyler Carpenter, Jan, 2018  
 Sources: IEPA, EPA, IDOT, USDA

# Pond Creek Watershed - Subwatersheds



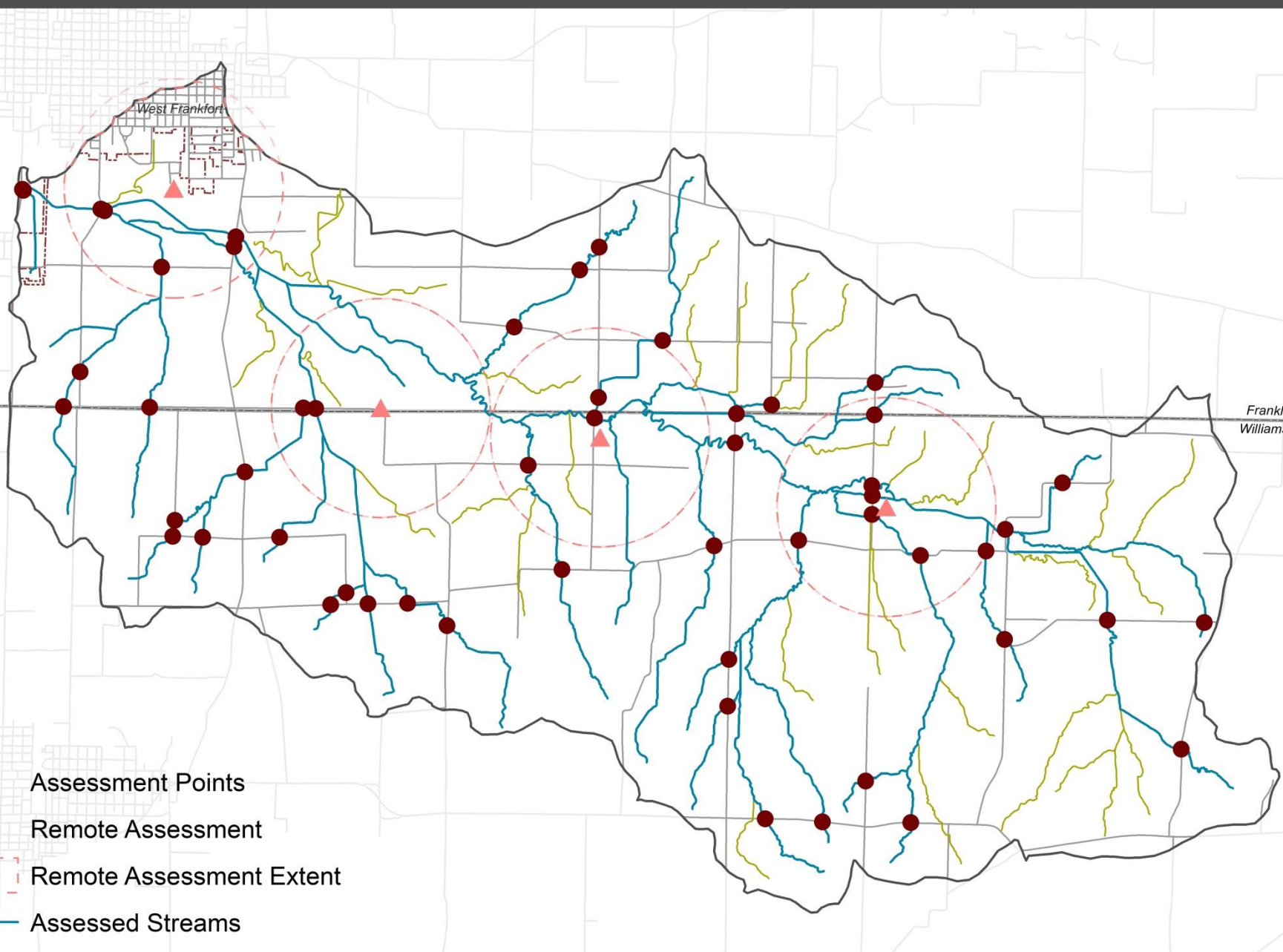
## Subwatershed

- |                     |                      |
|---------------------|----------------------|
| 1- Upper Pond Creek | 8- Neilson           |
| 2- Lincoln          | 9- Dean              |
| 3- Jordan's Fort    | 10- Poor Farm        |
| 4- Mach-East        | 11- Harmony          |
| 5- Mach-West        | 12- Frankfort        |
| 6- Davis            | 13- Monroe           |
| 7- Prairie          | 14- Lower Pond Creek |

- Pond Creek
- Streams
- County



# Pond Creek Watershed - Assessed Streams



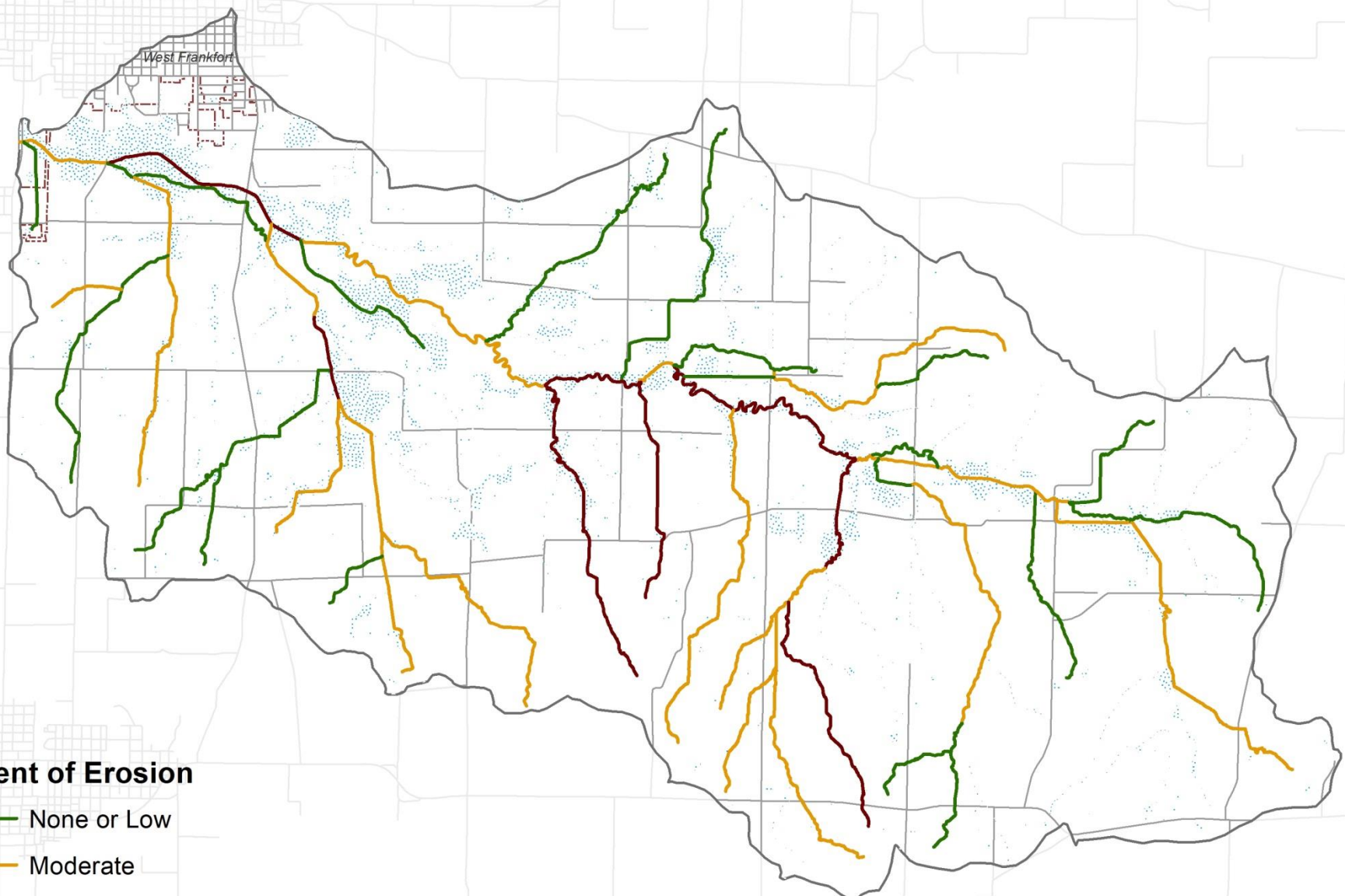
- Assessment Points
- ▲ Remote Assessment
- - - Remote Assessment Extent
- Assessed Streams
- Other Streams







# Pond Creek Watershed - Extent of Erosion

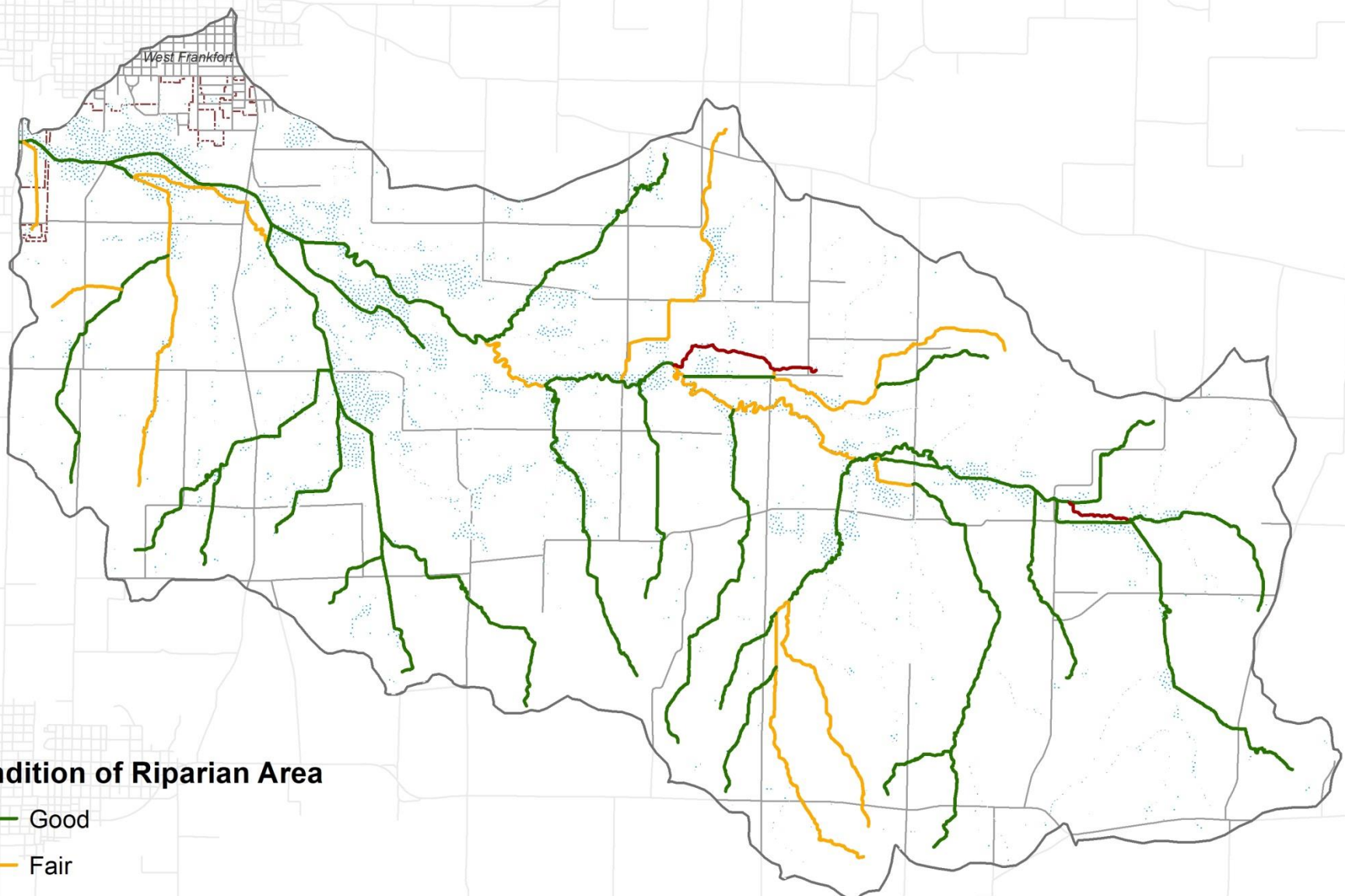


## Extent of Erosion

- None or Low
- Moderate
- High
- Wetlands



# Pond Creek Watershed - Condition of Riparian Area

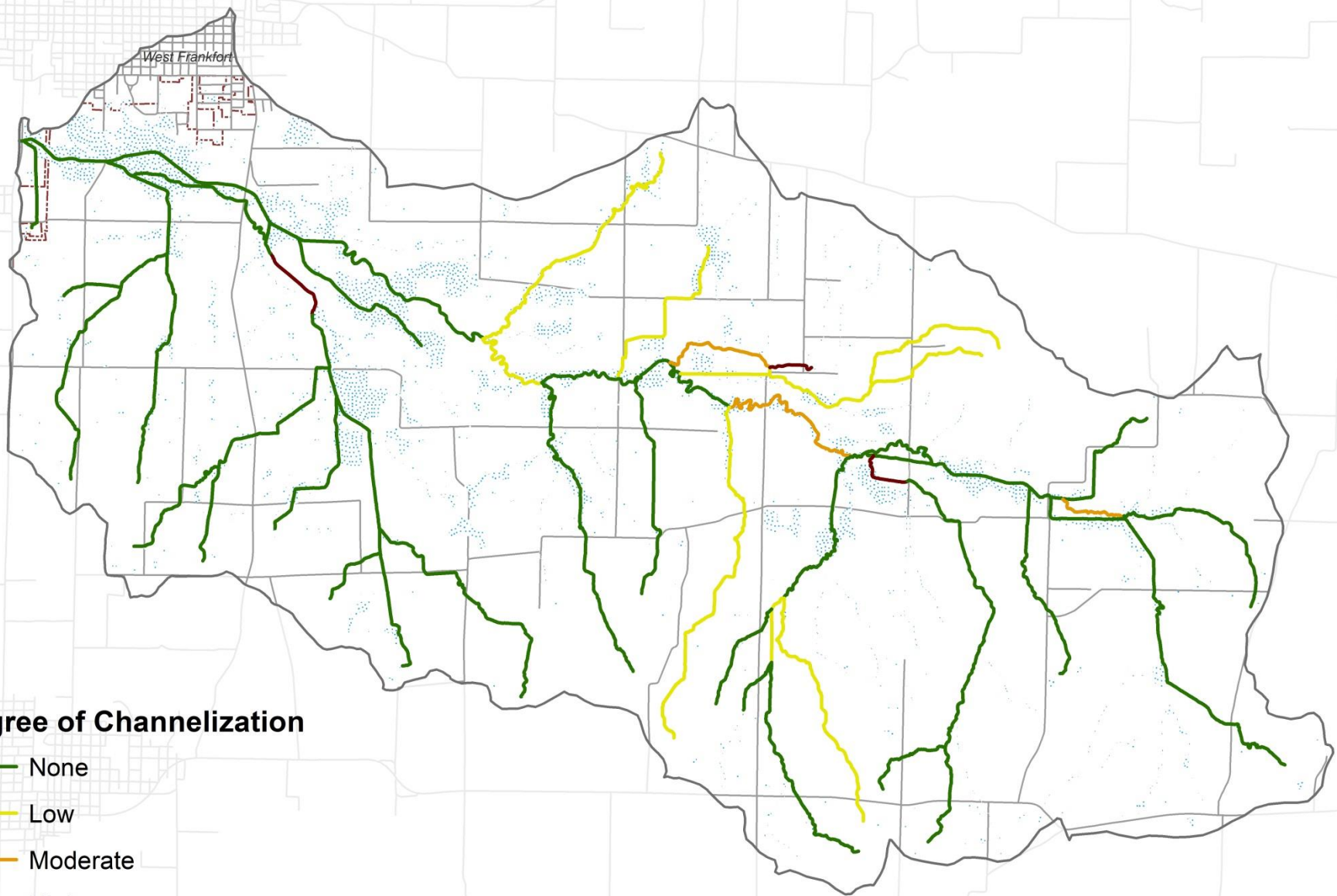


## Condition of Riparian Area

- Good
- Fair
- Poor
- Wetlands



# Pond Creek Watershed - Degree of Channelization



## Degree of Channelization

- None
- Low
- Moderate
- High
- Wetlands



# Estimated Pollutant Loads

- Spreadsheet Tool For Estimating Pollutant Loads (STEPL)

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	13226.85	5.89%	2044.62	4.67%	303.61	1.14%
Cropland	88475.27	39.37%	25491.76	58.21%	15854.41	59.69%
Pastureland	81533.71	36.28%	9785.49	22.34%	3700.06	13.93%
Forest & Grassland	2510.17	1.12%	1183.70	2.70%	193.97	0.73%
Streambank	10415.90	4.63%	4010.12	9.16%	6509.94	24.51%
<b>Total</b>	<b>224751.35</b>		<b>43793.88</b>		<b>26561.99</b>	

# Set water quality goals and load reduction targets

Water Quality Goals could include:

- Achieve water quality standards and total maximum daily loads for specific pollutants
- Base nutrient reduction goals off of the IL Nutrient Loss Reduction Strategy
- Identify load reduction targets for specific pollutants

Waterbody	Causes of Impairment	Possible Sources of Impairment
<b>Pond Creek</b>	<b>Alteration in stream-side or littoral vegetative covers, Chloride, Dissolved Oxygen, Sedimentation/ Siltation, Changes in stream depth and velocity patterns, Loss of instream cover</b>	Channelization
		Impacts from abandoned mine lands (inactive)
		Loss of Riparian Habitat
		Streambank Modifications/ Destabilization
		Unknown Source
		Crop Productions
		Agriculture
		Urban Runoff/ Storm Sewers

# IL Nutrient Loss Reduction Strategy (ILNLRs)

- Collaborative effort between IEPA, IL Dept. of Agriculture, and the IL NLRs Policy Working Group and subcommittees
- Develop strategies and promote best management practices (BMP) for nutrient runoff
- Goals include: **25% reduction in phosphorus load (2025)**  
**15% reduction in nitrate-nitrogen load (2025)**  
**Eventual goal is 45% for both nutrients**

# Load Reduction Targets

Watershed	SMU ID	Nitrogen (percent reduction)	Nitrogen Load Reduction Target (lbs)	Phosphorus (percent reduction)	Phosphorus Load Reduction Target (lbs)	Sediment (percent reduction)	Sediment Load Reduction Target (tons)
<b>Pond Creek</b>	-	<b>15.00%</b>	<b>33712.68</b>	<b>25.00%</b>	<b>10948.46</b>	<b>25.00%</b>	<b>6640.47</b>
<b>Sub-watershed Load Reduction Targets</b>							
<b>Upper Pond Creek</b>	<b>1</b>	4.37%	1474.39	3.48%	381.16	2.69%	178.57
<b>Lincoln</b>	<b>2</b>	6.66%	2246.18	5.42%	593.72	4.44%	294.70
<b>Jordan's Fort</b>	<b>3</b>	7.41%	2497.36	7.41%	811.34	6.82%	452.98
<b>Mach-East</b>	<b>4</b>	3.78%	1272.73	3.88%	425.07	3.51%	232.98
<b>Mach-West</b>	<b>5</b>	8.12%	2736.07	8.27%	905.94	9.57%	635.65
<b>Davis</b>	<b>6</b>	12.21%	4114.96	12.28%	1344.40	11.21%	744.70
<b>Prairie</b>	<b>7</b>	10.23%	3448.48	11.82%	1294.57	14.75%	979.29
<b>Nielson</b>	<b>8</b>	8.06%	2717.83	10.20%	1117.18	10.33%	685.91
<b>Dean</b>	<b>9</b>	5.83%	1965.55	5.92%	647.88	6.82%	452.95
<b>Poor Farm</b>	<b>10</b>	16.10%	5426.16	15.61%	1708.58	15.25%	1012.74
<b>Harmony</b>	<b>11</b>	2.26%	762.30	2.78%	304.23	2.68%	177.88
<b>Frankfort</b>	<b>12</b>	5.11%	1723.35	5.77%	631.95	6.34%	420.79
<b>Monroe</b>	<b>13</b>	7.36%	2480.60	5.15%	563.86	4.00%	265.92
<b>Lower Pond Creek</b>	<b>14</b>	2.51%	846.70	2.00%	218.56	1.59%	105.41
<b>TOTAL</b>			<b>33712.68</b>		<b>10948.46</b>		<b>6640.47</b>

# Concerns Within the Watershed

## EPA 303d List of Impaired Waters:

- Pond Creek

## • Other Concerns

- Flooding
- Erosion
- Mining practices

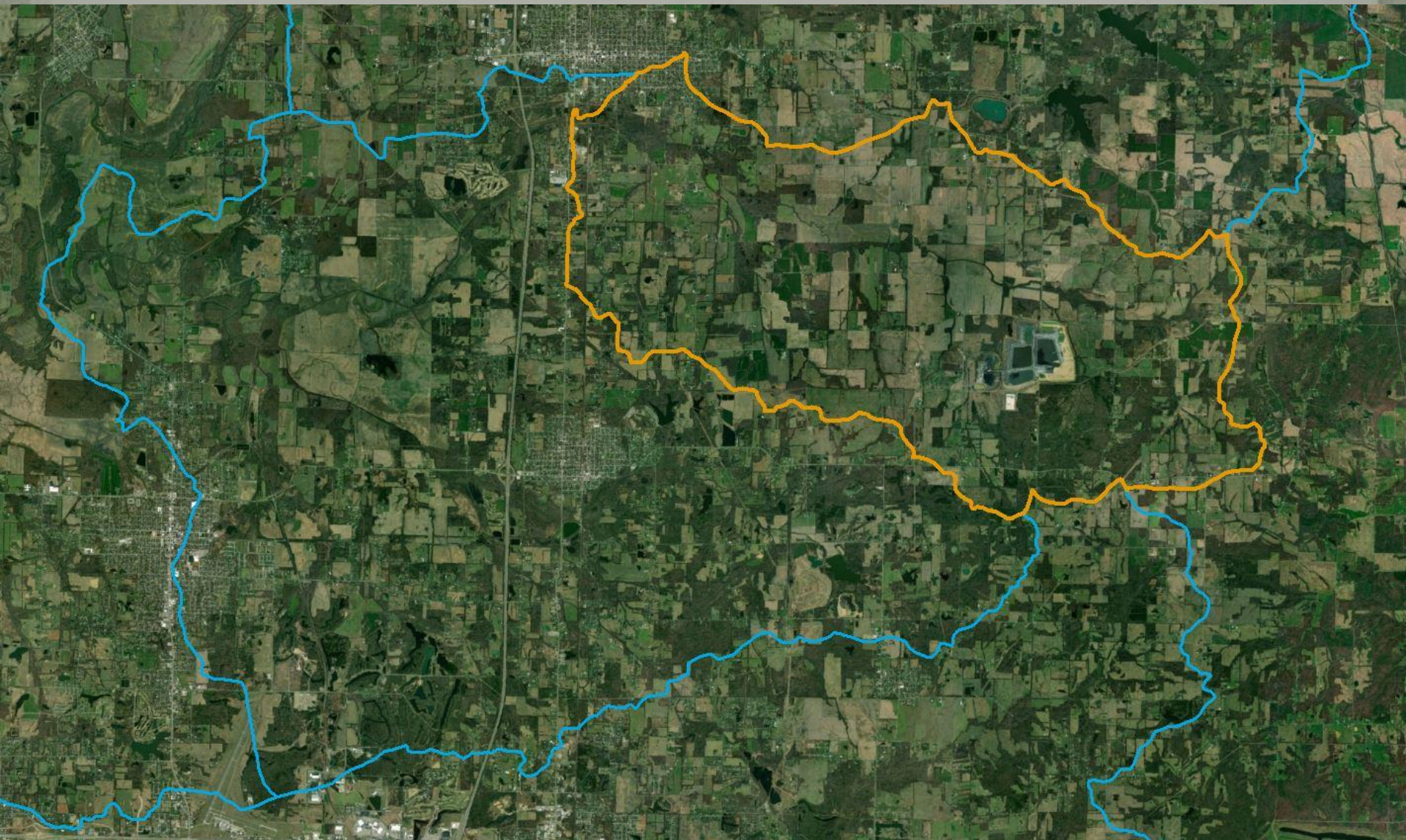


# 303d Information

Waterbody	Causes of Impairment	Possible Sources of Impairment
<b>Pond Creek</b>	<b>Alteration in stream-side cover</b>	Channelization
	<b>Chloride</b>	Impacts from abandoned mine lands (inactive)
	<b>Dissolved Oxygen</b>	Loss of Riparian Habitat
	<b>Sedimentation/Siltation</b>	Streambank Modifications/ Destabilization
	<b>Changes in stream depth and velocity patterns</b>	Unknown Source
	<b>Loss of instream cover</b>	Crop Productions
		Agriculture
		Urban Runoff/ Storm Sewers

# 1997 Pond Creek Investigation Report

- Collaboration between agencies and citizens
- Preliminary concerns focused on:
  - Erosion
  - Water pollution
  - Flooding
  - Mine Subsidence
  - Dumping
- Solutions proposed were various flood proofing dikes
  - Areas in southern West Frankfort
  - Near current ballfields
  - If these are still relevant, they could be included in this plan



# Preliminary Goals

- Reduce flooding/ Improve drainage issues
- Increase public involvement
- Address 303(d) Impairments:
  - Chloride
  - Dissolved Oxygen
  - Sedimentation/Siltation
- Other goals?
- Address runoff from urban/agricultural areas
- Encourage BMP for agricultural areas

# Needs from the Planning Committee

- Attend future planning meetings
- Propose Best Management Practices (BMP)
- Give knowledge of watershed issues and concerns
- Guidance on education/outreach component of plan
- Technical support (if available)
- Review work of the Pond Creek Watershed-based Plan

# Meeting Schedule

<b>MEETING 1</b>	<b>Introduction of Plan Elements and Watershed Inventory</b>	<b>December 2018</b>
<b>MEETING 2</b>	<b>Best Management Practices and Remaining Plan Elements</b>	<b>February 2019</b>
<b>MEETING 3</b>	<b>Prioritization of Best Management Practices</b>	<b>May 2019</b>
<b>MEETING 4</b>	<b>Draft Plan Review</b>	<b>July 2019</b>
	<b>Final Draft DUE</b>	<b>September 2019</b>

# Questions/Comments

Tyler Carpenter

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