

Pond Creek Watershed-based Plan Initial Stakeholder Meeting

August 23, 2018
6:00 PM



Agenda

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

Greater Egypt Regional Planning and Development Commission

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GIS & Environmental Planning Manager

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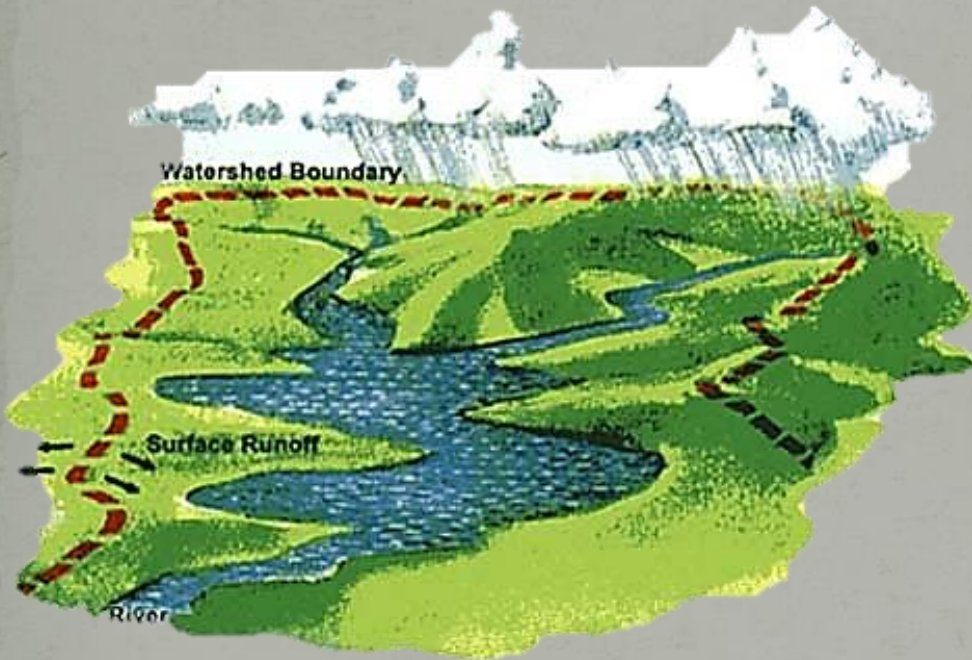
Illinois Environmental Protection Agency



IEPA- 604(b) Program

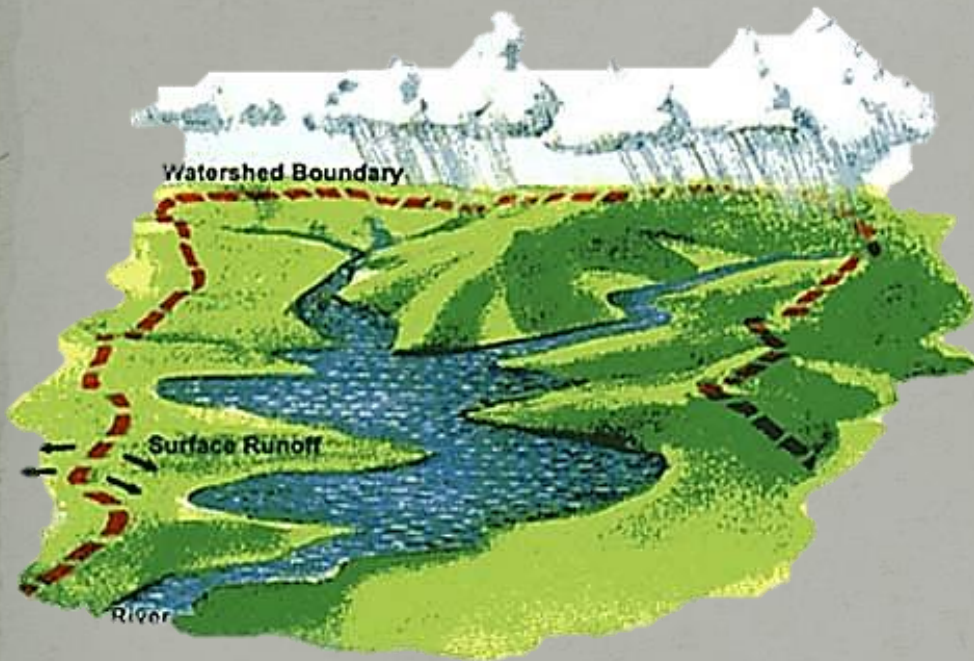
- Water Quality Management Planning Grant
- Greater Egypt's 604(b) grants include:
 - watershed-based planning
 - coordinating the Volunteer Lake Monitoring Program (VLMP)
 - stormwater management educational materials

Watershed Basics



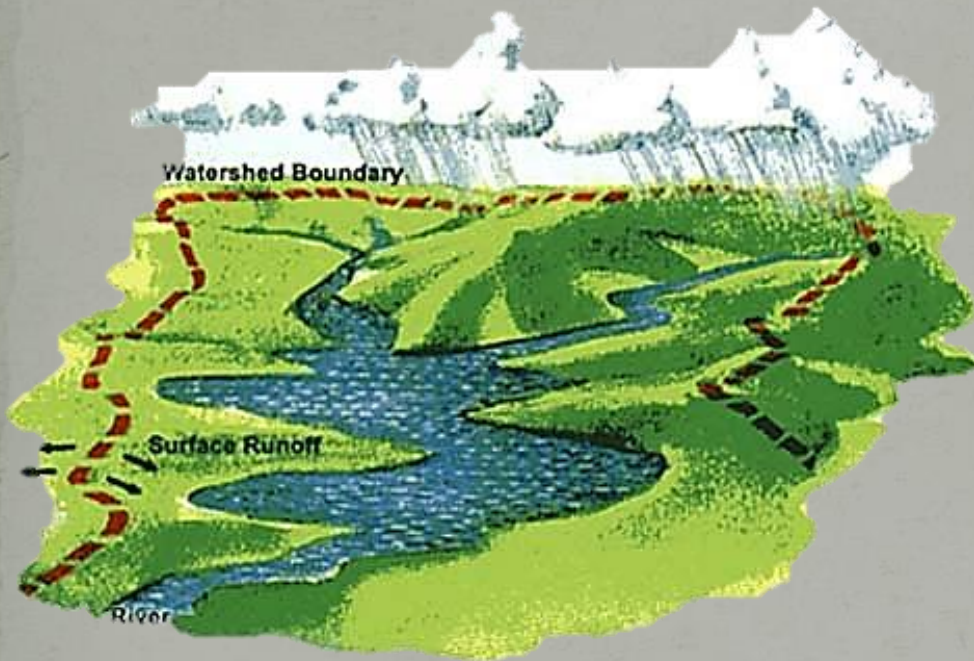
- What constitutes a watershed?
- What are the components of a watershed?

What is a Watershed?



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

Watershed Components



- Surface Water
 - Creeks, Lakes, Wetlands
- Riparian Areas
 - Plants along banks
- Uplands
 - Steep terrain
- Groundwater
 - Bedrock, Sand and Gravel

Hydrologic Unit Code (HUC)

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

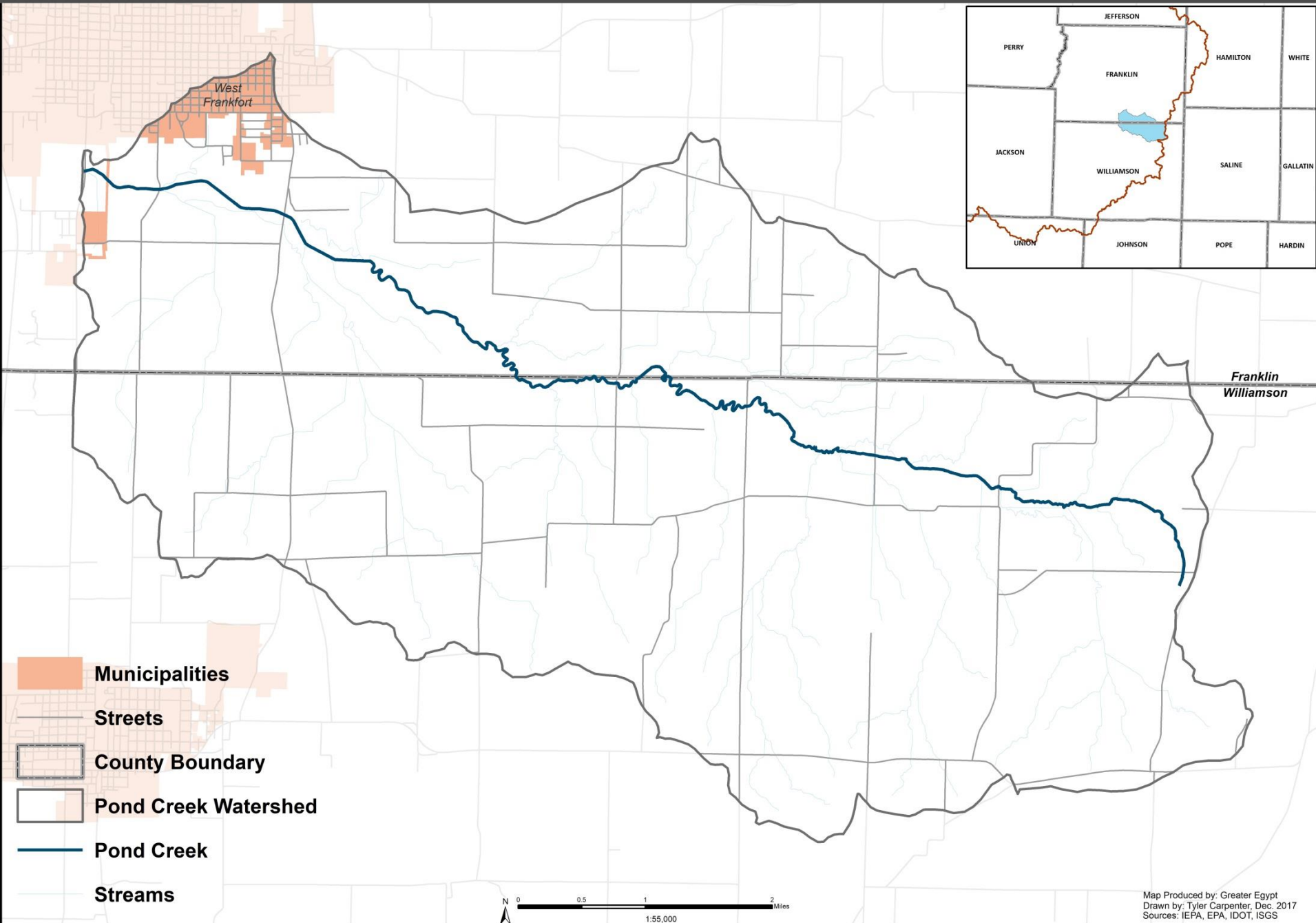
| Name | Level | Digits | Average size (square miles) | Number of HUCs (approximate) | Name | Code (HUC) |
|--------------|-------|--------|-----------------------------|------------------------------|------------------------------------|--------------|
| Region | 1 | 2 | 177,560 | 21 | Upper Mississippi | 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 | 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

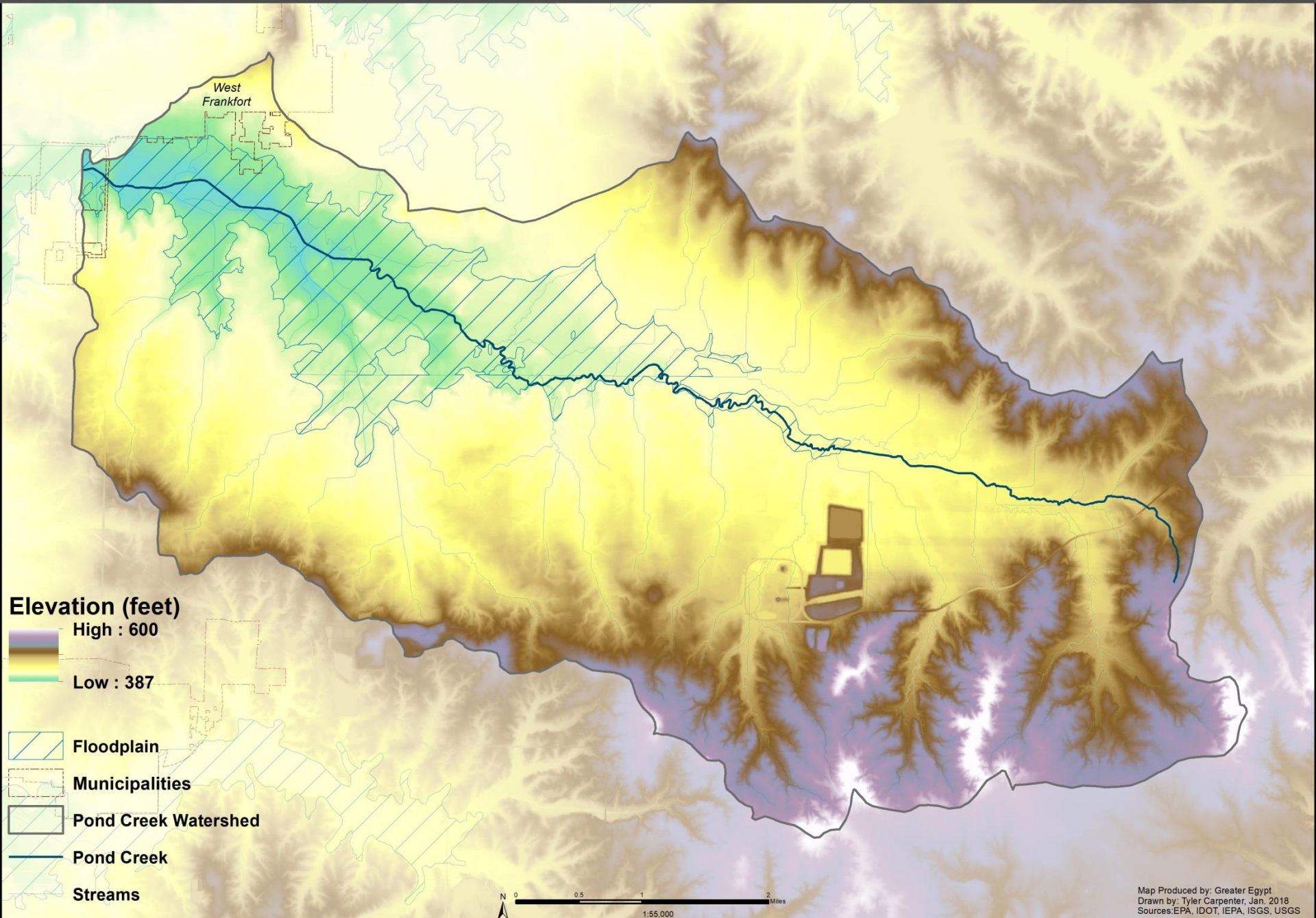
Pond Creek Watershed - Planning Area



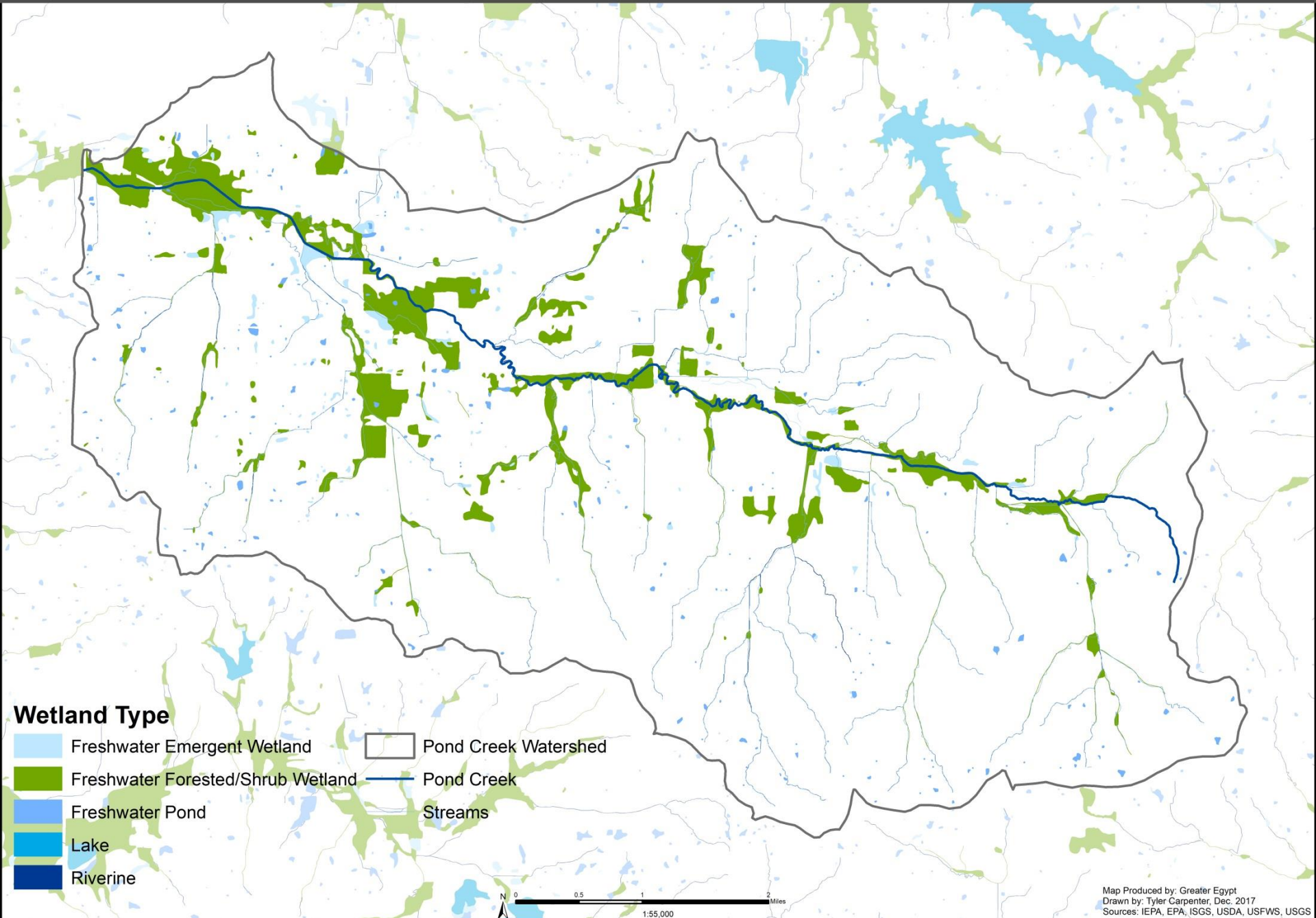
- Municipality
- Streets
- County Boundary
- Pond Creek Watershed
- Pond Creek
- Streams



Pond Creek Watershed - Elevation and Floodplain



Pond Creek Watershed - Wetlands



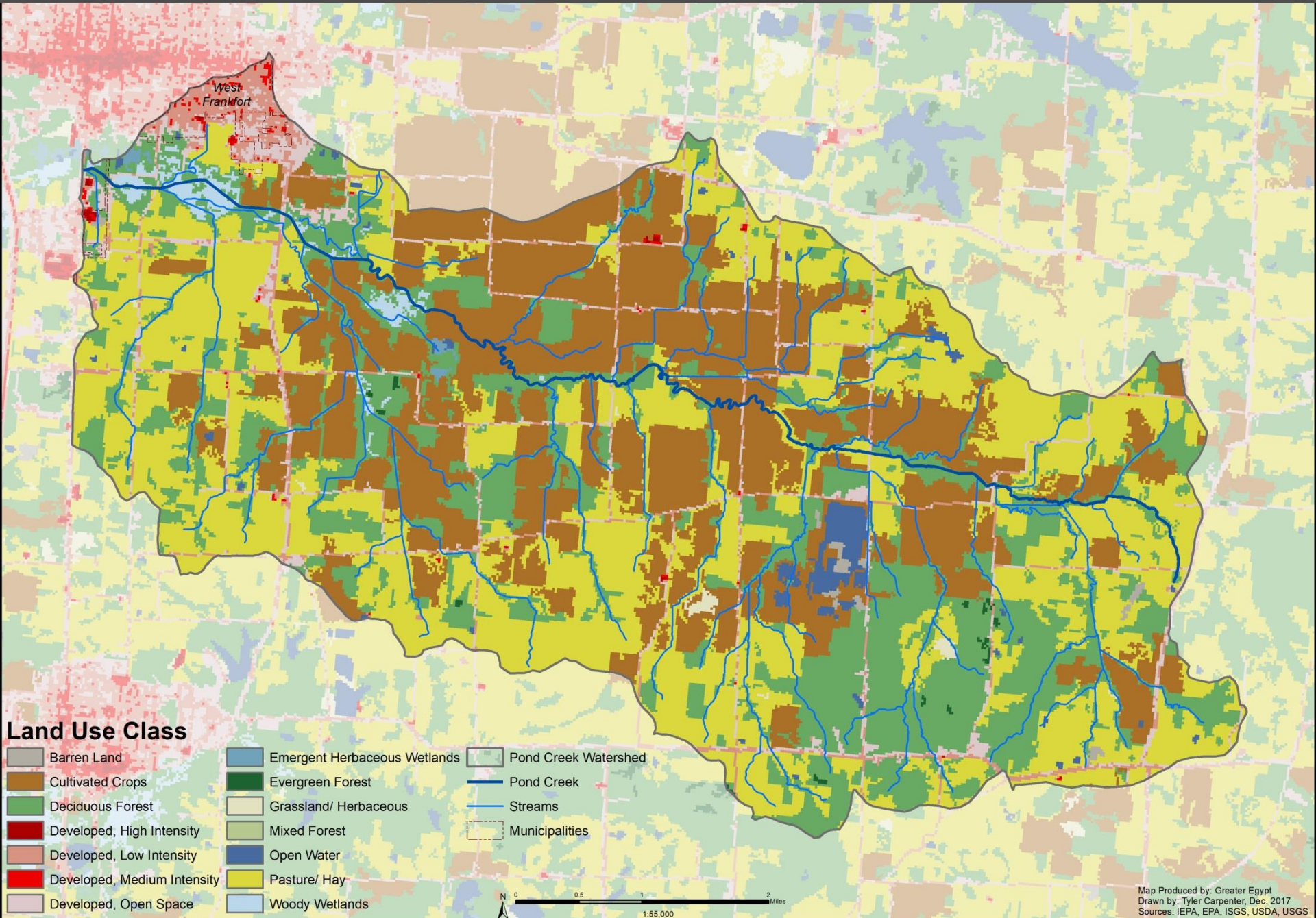
Wetland Type

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



Map Produced by: Greater Egypt
Drawn by: Tyler Carpenter, Dec. 2017
Sources: IEPA, EPA, ISGS, USDA, USFWS, USGS

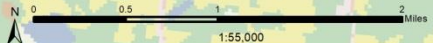
Pond Creek Watershed - Land Use



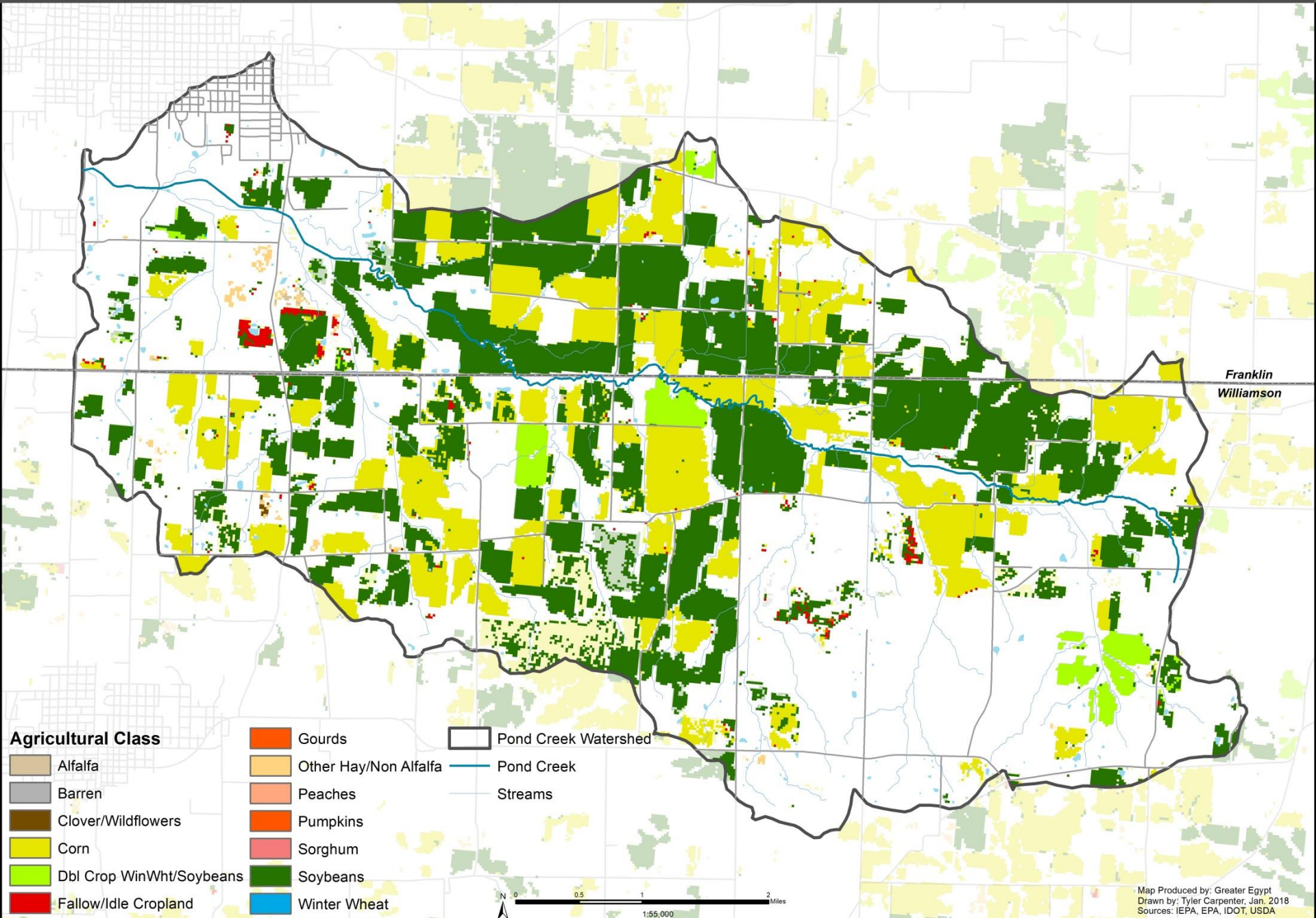
West Frankfort

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

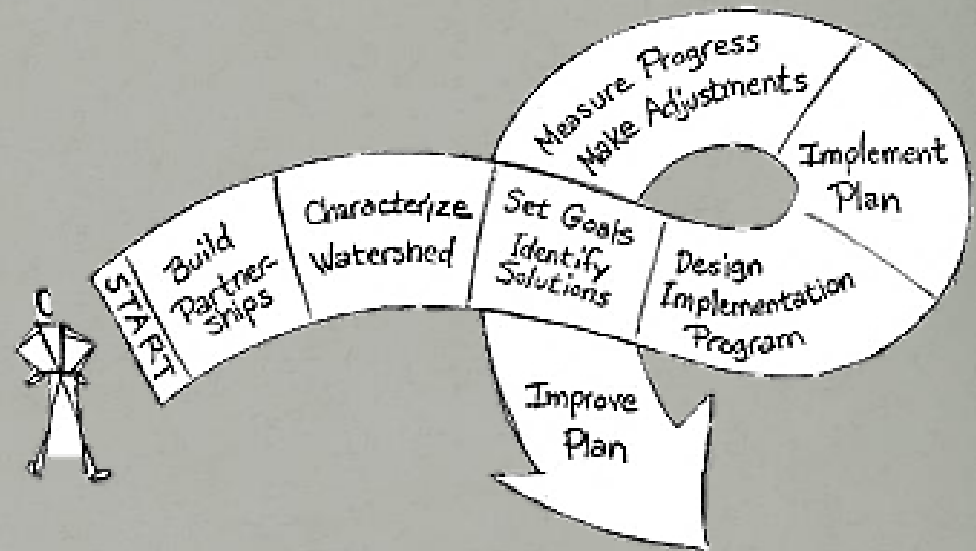
- Pond Creek Watershed
- Pond Creek
- Streams



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

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



Types of Water Quality Pollution

Point Source

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

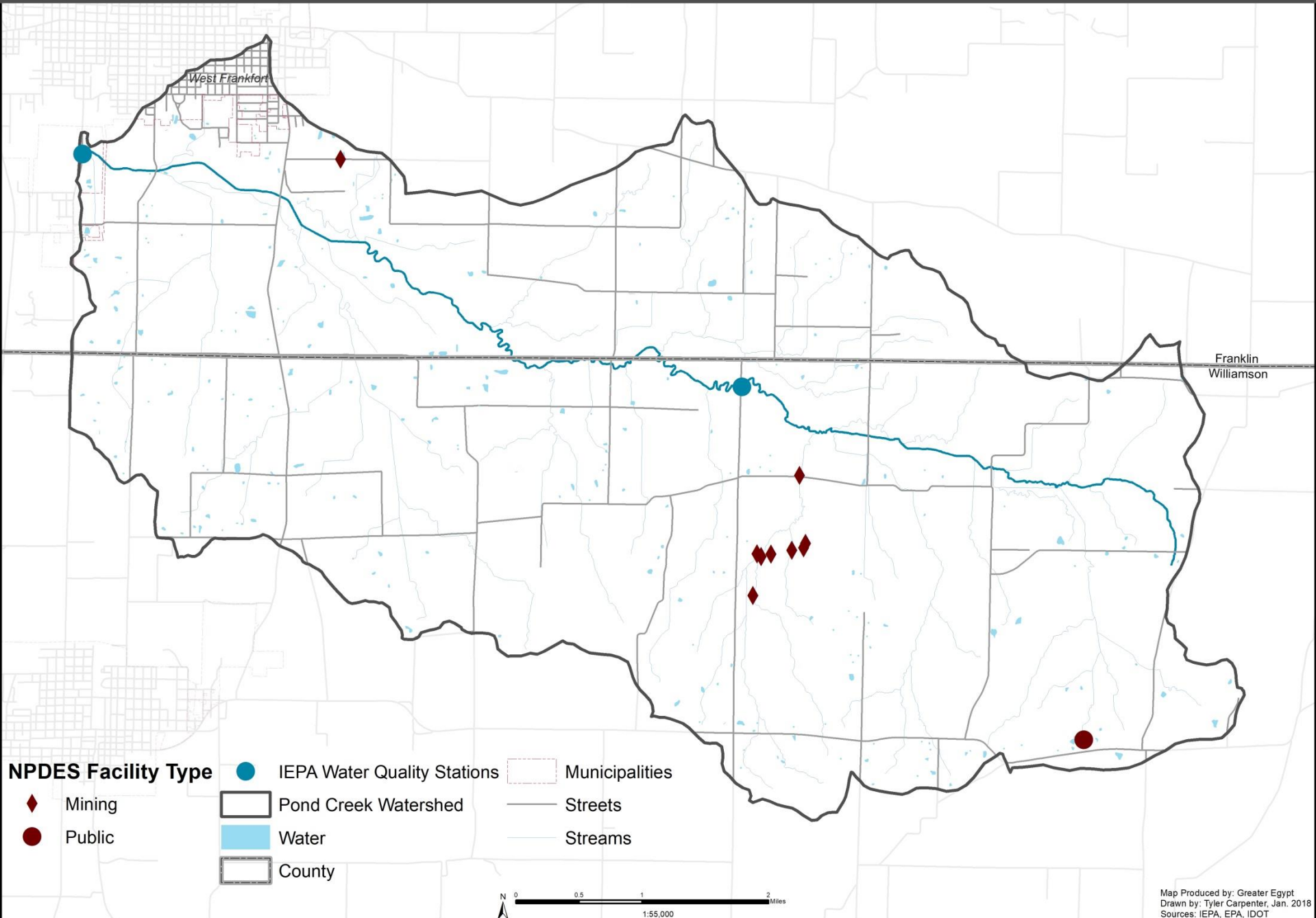


Nonpoint Source

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



Pond Creek Watershed - NPDES Facilities



Why Develop a Watershed-based Plan?

Benefits can include:

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

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



Nine Elements of a Watershed-based Plan

- 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 reductions targets
- 4.) Describe the technical and financial assistance and relevant authorities needed to implement the plan
- 5.) Enhance public understanding through outreach measures

Nine Elements of a Watershed-based Plan

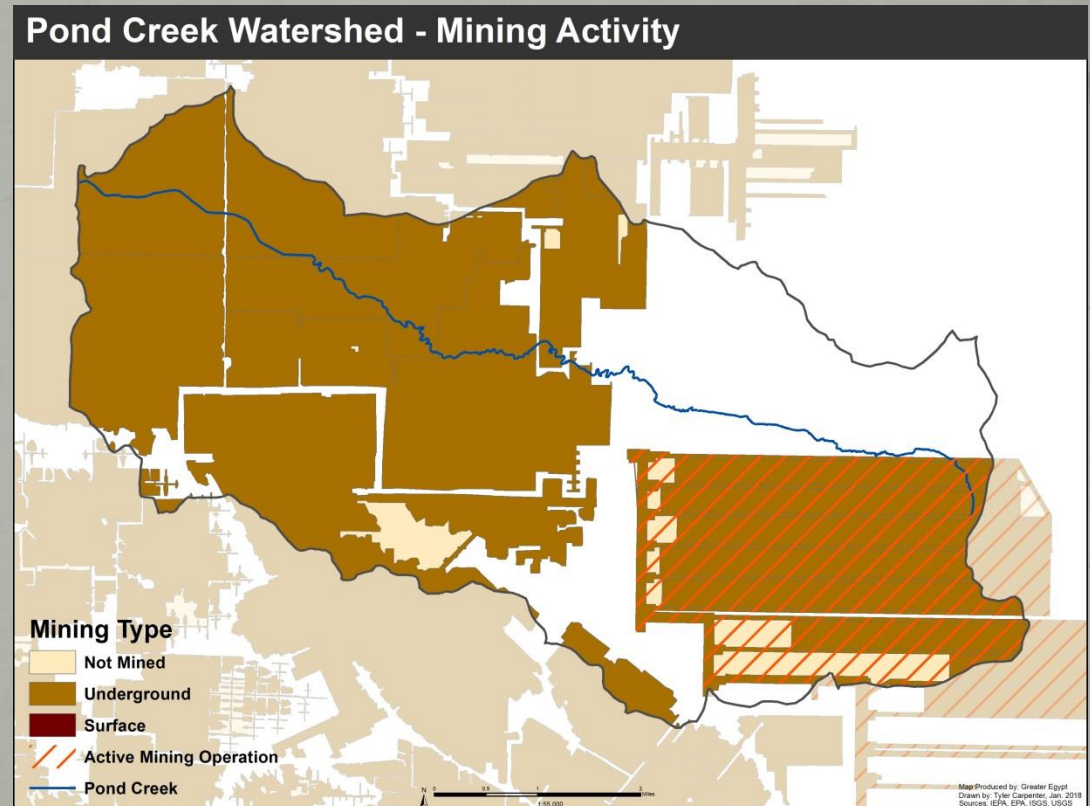
- 6.) Provide a schedule for implementing the management measures identified in the plan
- 7.) Identify interim, measurable milestones for determining whether management measures are being implemented on schedule
- 8.) Identify interim benchmarks to measure progress in meeting water quality goals and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

Nine Elements of a Watershed-based Plan

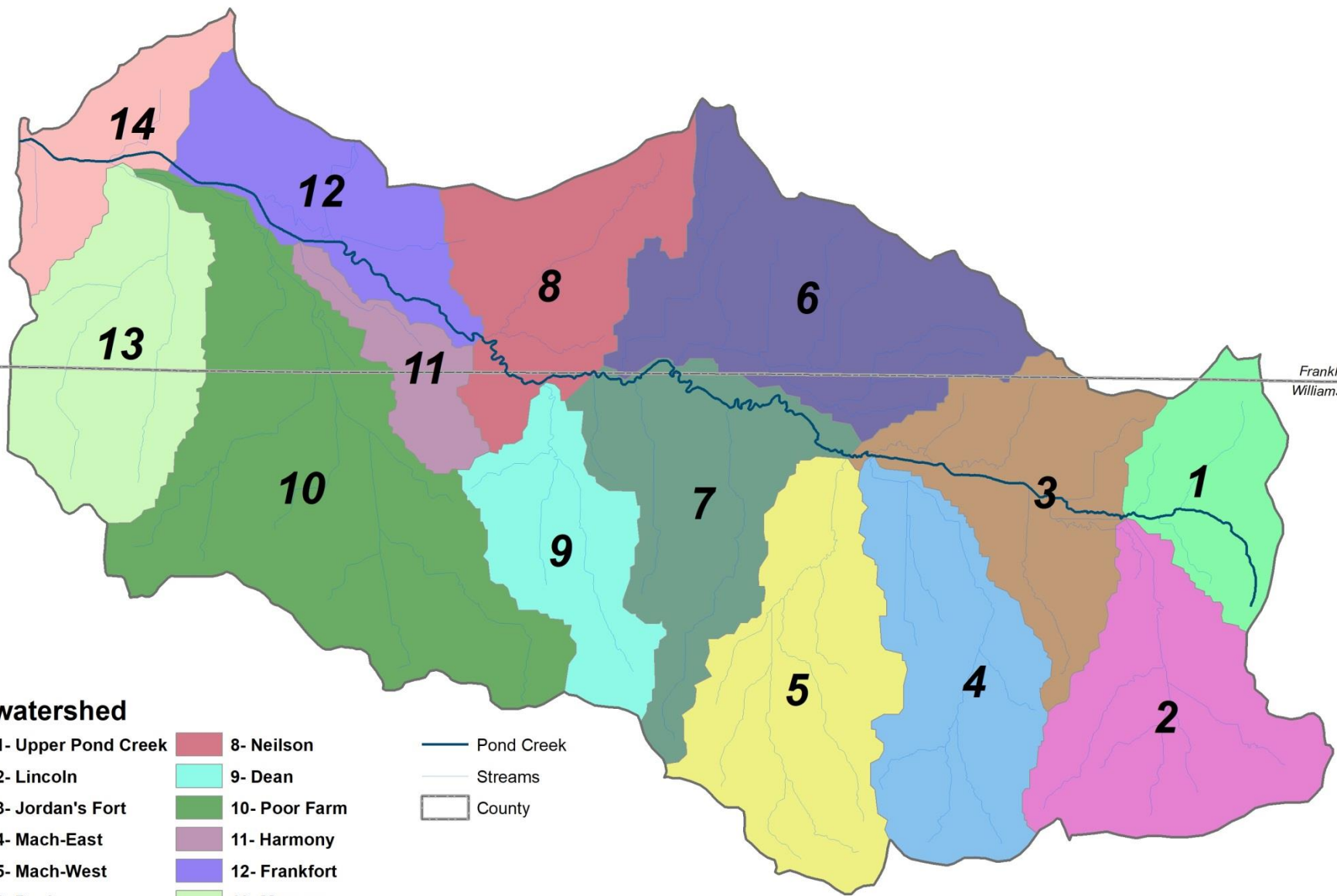
1.) Identify Causes and Sources of Water Pollution and Estimate Existing Pollutant Loads

Watershed Resource Inventory

- Documentation of existing conditions in the watershed and subwatersheds
- Inventory and assessment of components such as: geographic boundaries, land use, and drainage
- Field assessment of erosion, riparian areas, and channelization



Pond Creek Watershed - Subwatersheds



Franklin
Williamson

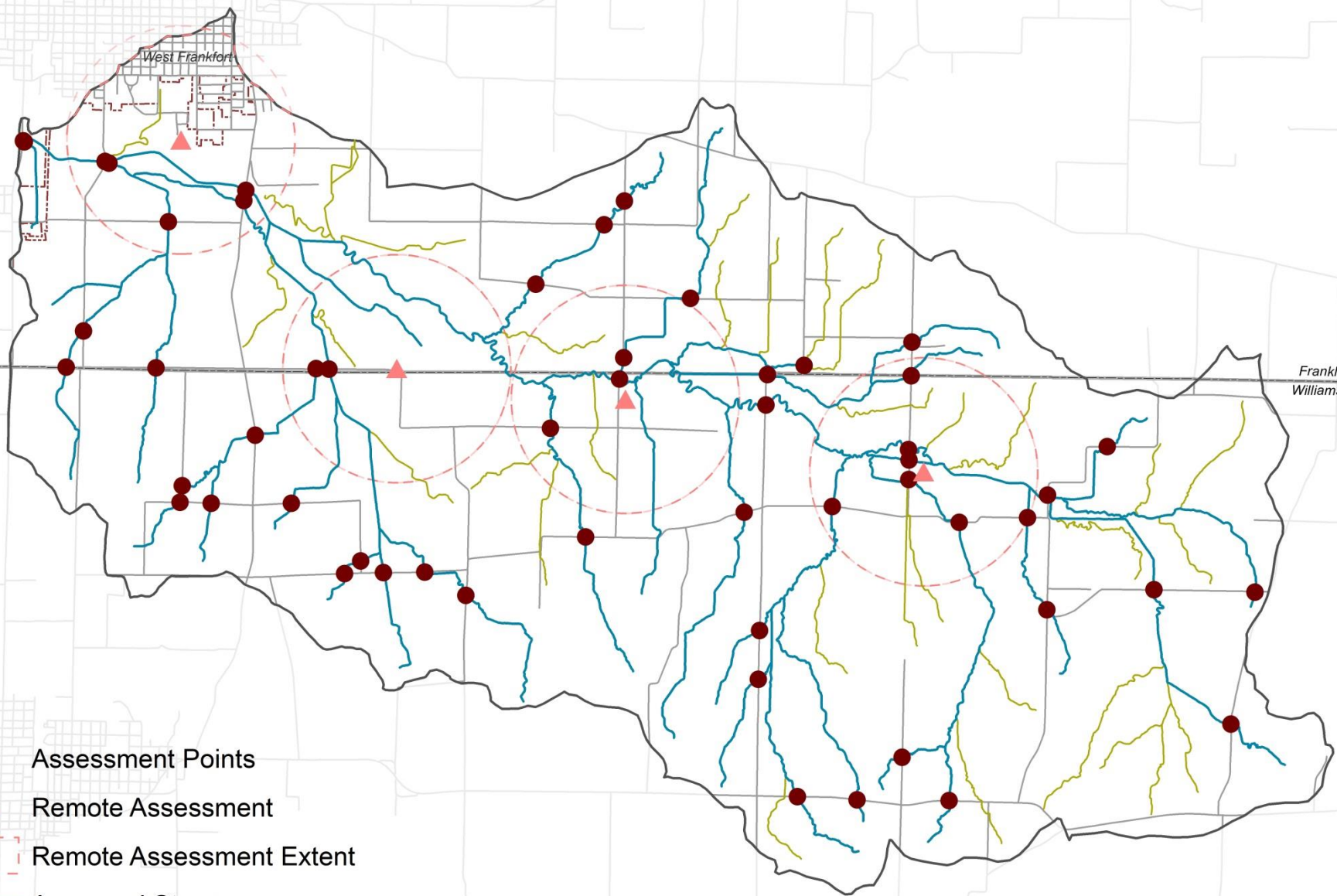
Subwatershed

- | | |
|---------------------|----------------------|
| 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

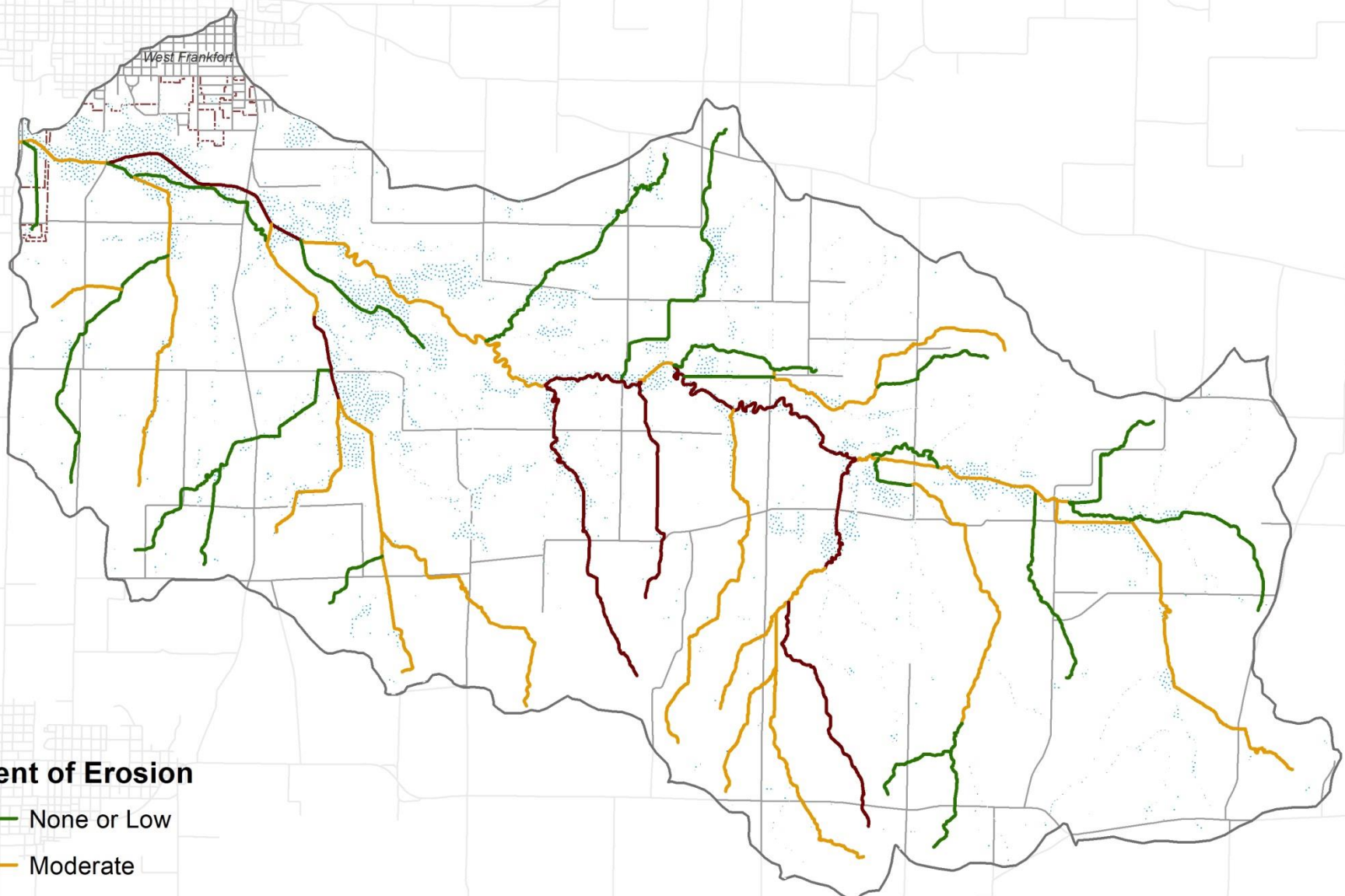


- Assessment Points
- ▲ Remote Assessment
- ⋯ Remote Assessment Extent
- Assessed Streams
- Other Streams





Pond Creek Watershed - Extent of Erosion

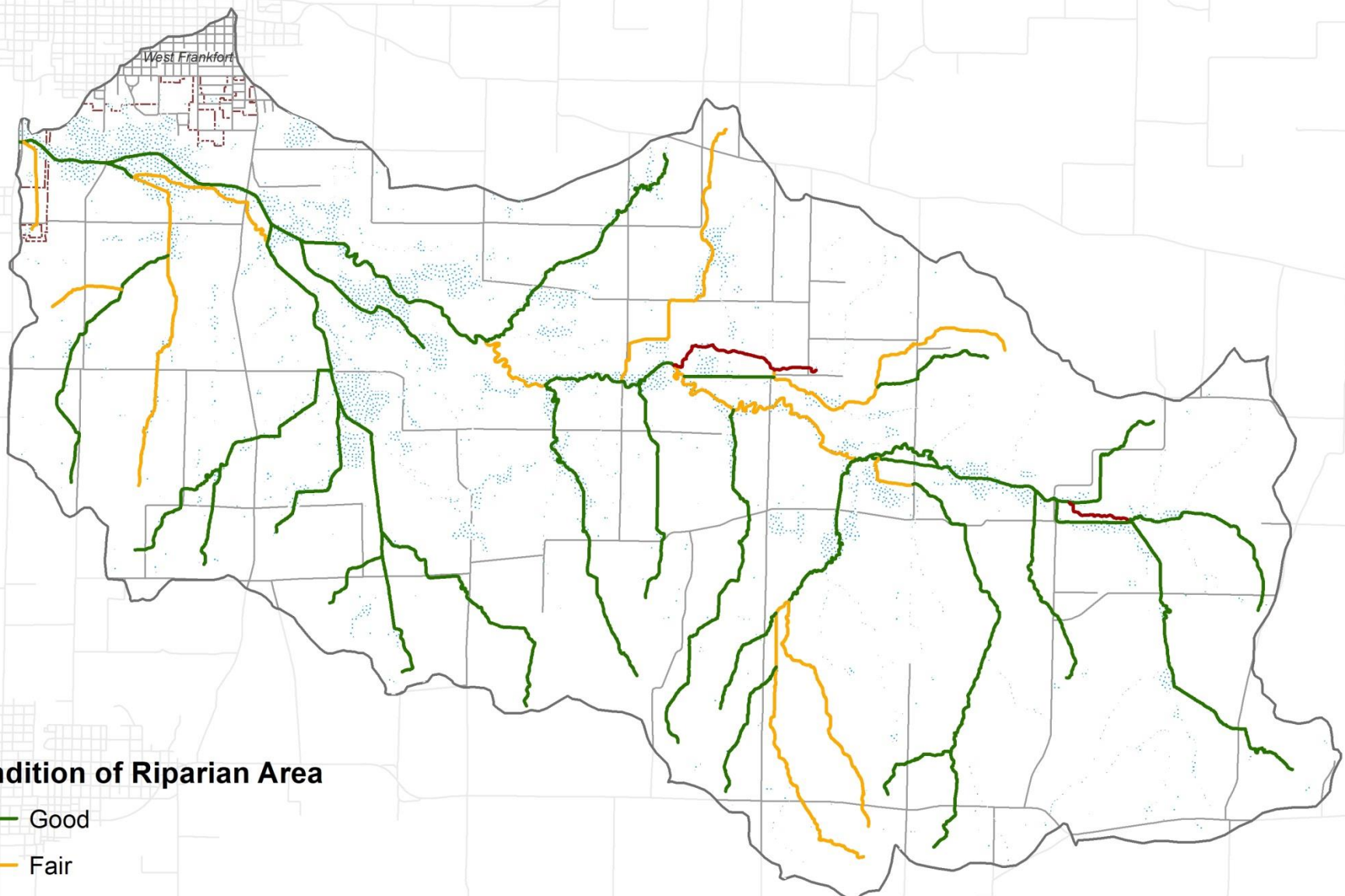


Extent of Erosion

- None or Low
- Moderate
- High
- Wetlands



Pond Creek Watershed - Condition of Riparian Area

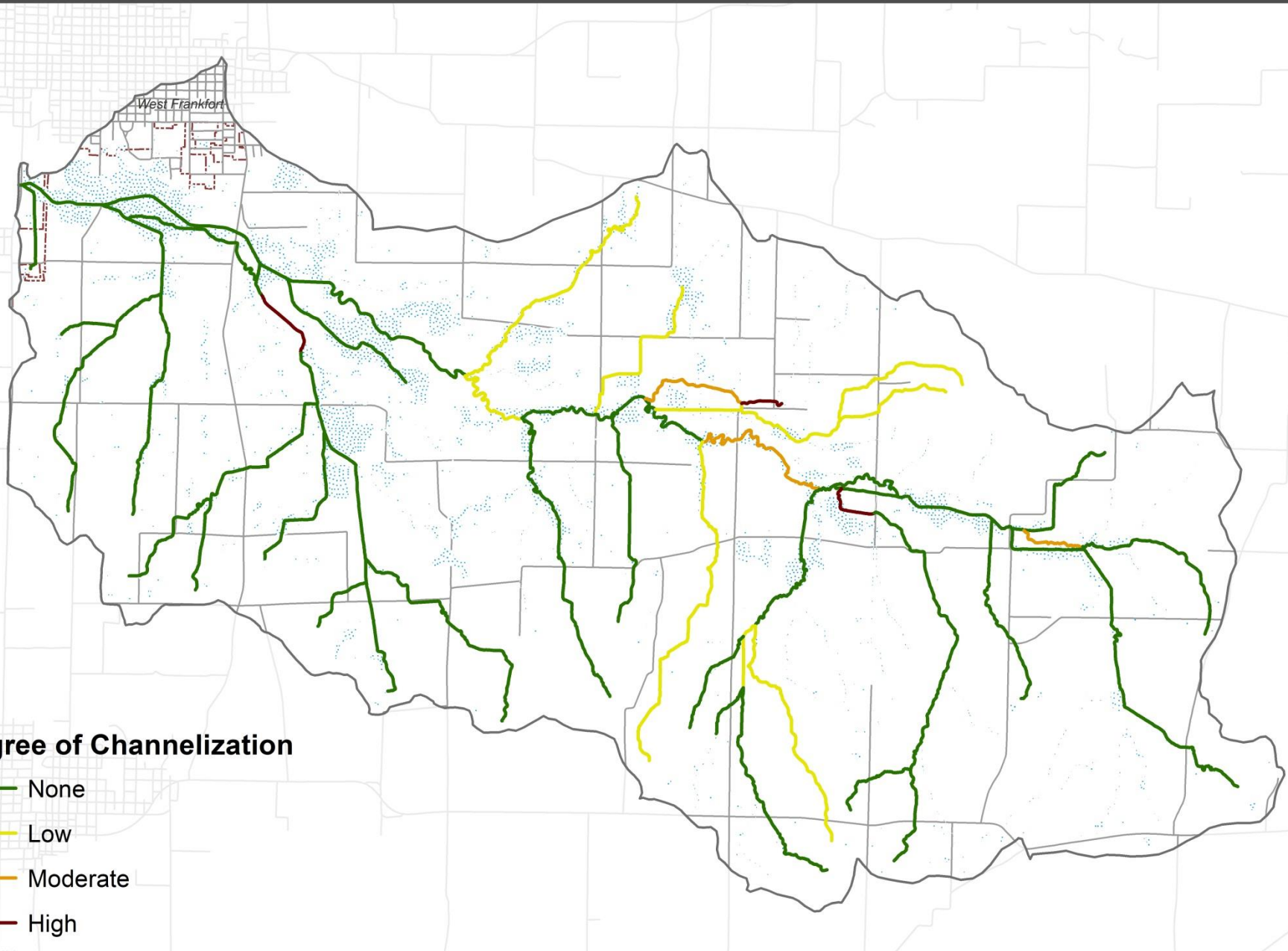


Condition of Riparian Area

- Good
- Fair
- Poor
- Wetlands



Pond Creek Watershed - Degree of Channelization



Degree of Channelization

- None
- Low
- Moderate
- High
- Wetlands



Nine Elements of a Watershed-based Plan

Estimated 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 | 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% |
| Total | 224751.35 | | 43793.88 | | 26561.99 | |

Nine Elements of a Watershed-based Plan

2.) Set Water Quality Goals and Load Reduction Targets

Goals could:

- 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 nutrients/ pollutants

| Waterbody | Causes of Impairment | Possible Sources of Impairment |
|----------------------------|---|--|
| Pond Creek | Alteration in stream-side or littoral vegetative covers, Chloride, Dissolved Oxygen, Sedimentation/ Siltation, Changes in stream depth and velocity patterns, Loss of instream cover | 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

Nine Elements of a Watershed-based Plan

3.) Describe Management Measures Needed to Achieve Load Reduction Targets

Management measures include:

- Identifying best management practices (BMP) to achieve water quality objectives
- Identifying priority areas and practices



Nine Elements of a Watershed-based Plan

4.) Describe the Technical and Financial Assistance Needed to Implement the Plan

- EPA 319 Grants offer a 60 percent cost share
- Other funding sources can come from various state/ federal agencies:

- USDA
- IDNR
- USFWS

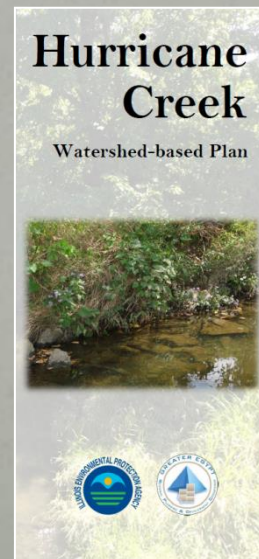
| Best Management Practice | Funding Sources | Notes/Cost Share Rates |
|---|---|--|
| <ul style="list-style-type: none"> • Filter strips and riparian buffers • Dry dams (WASCBs) • Grass waterways • Terraces • Diversions • Wetland creation • Blind inlets and tile drainage management • Nutrient management • 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 |

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 303d 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 |

Nine Elements of a Watershed-based Plan

7.) Identify Milestones to Determine if Management Measure 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 |

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 |

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 authority to implement change:

- Mayors
- Wastewater Authorities
- Public Works
- County/ City Planners
- Health Departments
- State/ Federal Departments

Have local knowledge of the watershed:

- Water Departments
- Street Departments
- Landowners
- Businesses

Are impacted by water-related issues:

- City officials
- Businesses
- Landowners
 - Farmers

Discussion

Questions/Comments

Tyler Carpenter

Greater Egypt

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