Western Crab Orchard Creek Watershed-based Plan Initial Stakeholder Meeting

August 27, 2020
6:00 PM

Agenda

I. Welcome and Introductions

II. Watershed Basics

III. Overview of the Planning Area

IV. Elements of a Successful Watershed-based Plan

V. Future Plan Involvement

VI. Discussion

Greater Egypt Regional Planning and Development Commission

Tyler Carpenter
GIS & Environmental Planning Director

Ruth Ann Fowler
Planner

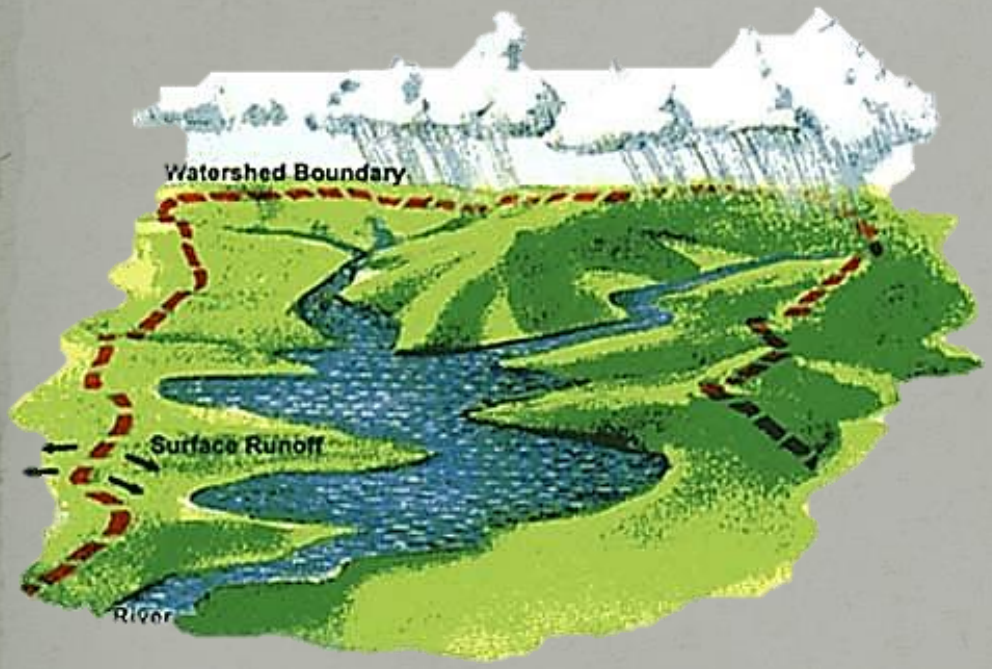
Ciara Nixon
Planner

Illinois Environmental Protection Agency

IEPA- 604(b) Program

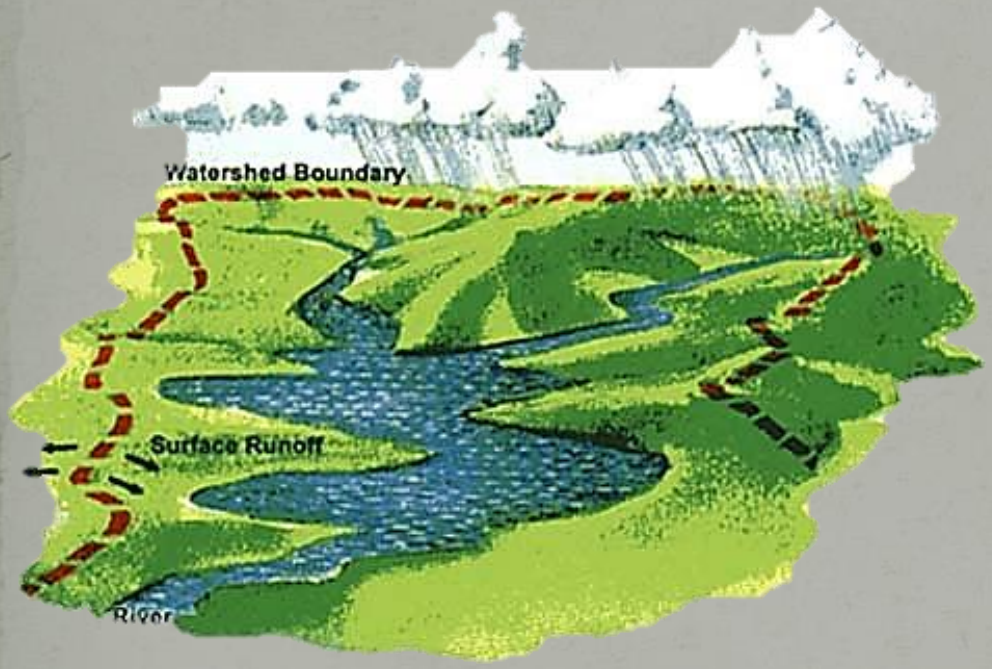
- Water Quality Management Planning Grant
- Greater Egypt's 604(b) grants include:
  - watershed-based planning
  - coordinating the Volunteer Lake Monitoring Program (VLMP)
  - stormwater management & educational materials

Watershed Basics



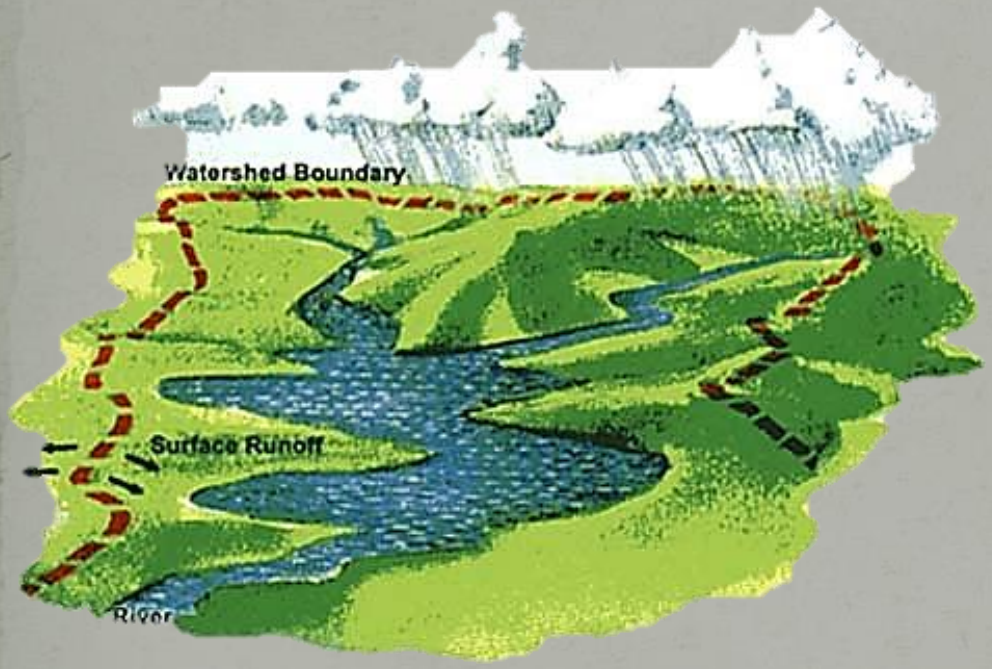
- What constitutes a watershed?
- What are the components of a watershed?

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
  - Natural area along banks
- Uplands
  - Steep terrain
- Groundwater
  - Bedrock, Sand and Gravel

Hydrologic Unit Code (HUC)

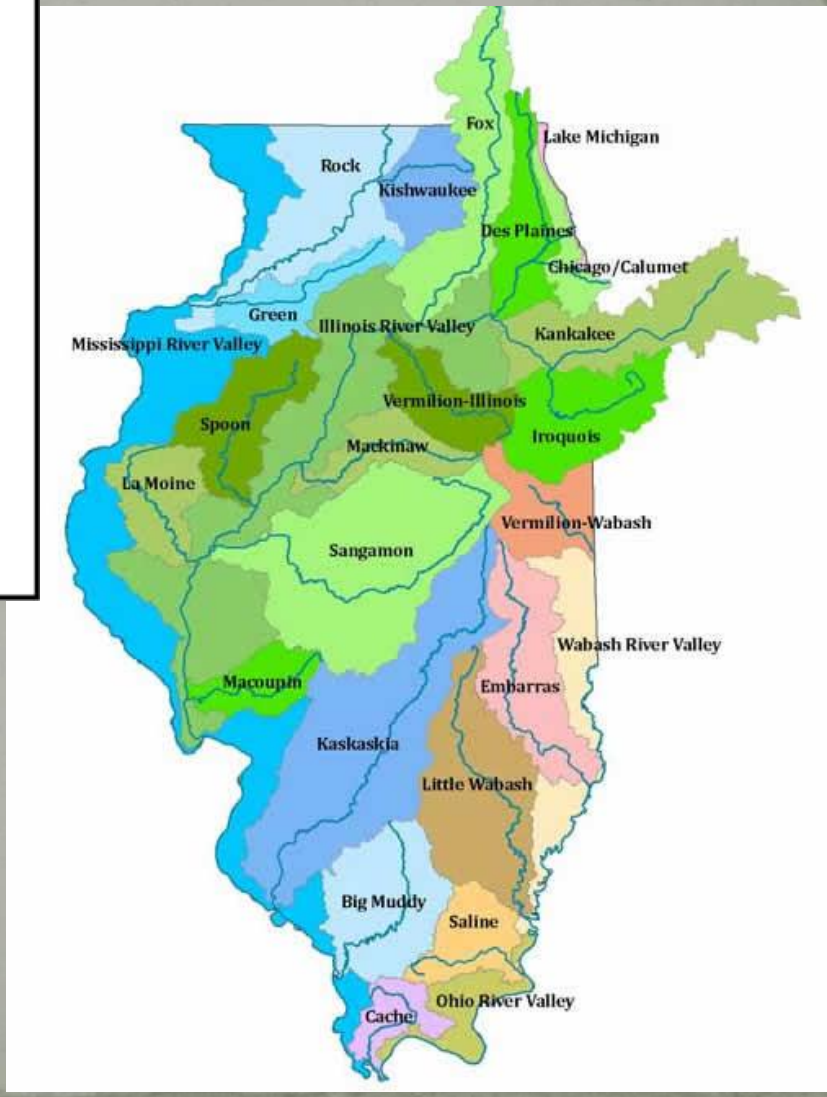
- Identify a hydrologic feature (watershed)
- Six levels of HUC

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-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	Crab Orchard Creek	0714010608
Subwatershed	6	12	40	160,000	Little Crab Orchard Creek	071401060809

HUC 2


Water Resource Regions
Pacific Northwest
Souris Red Rainy
New England
Great Lakes
Missouri
Upper Mississippi
Mid Atlantic
Great Basin
Upper Colorado
Ohio
California
Lower Colorado
Arkansas-White-Red
Tennessee
Rio Grande
Lower Mississippi
South Atlantic Gulf
Texas-Gulf
Hawaii
Alaska
Caribbean

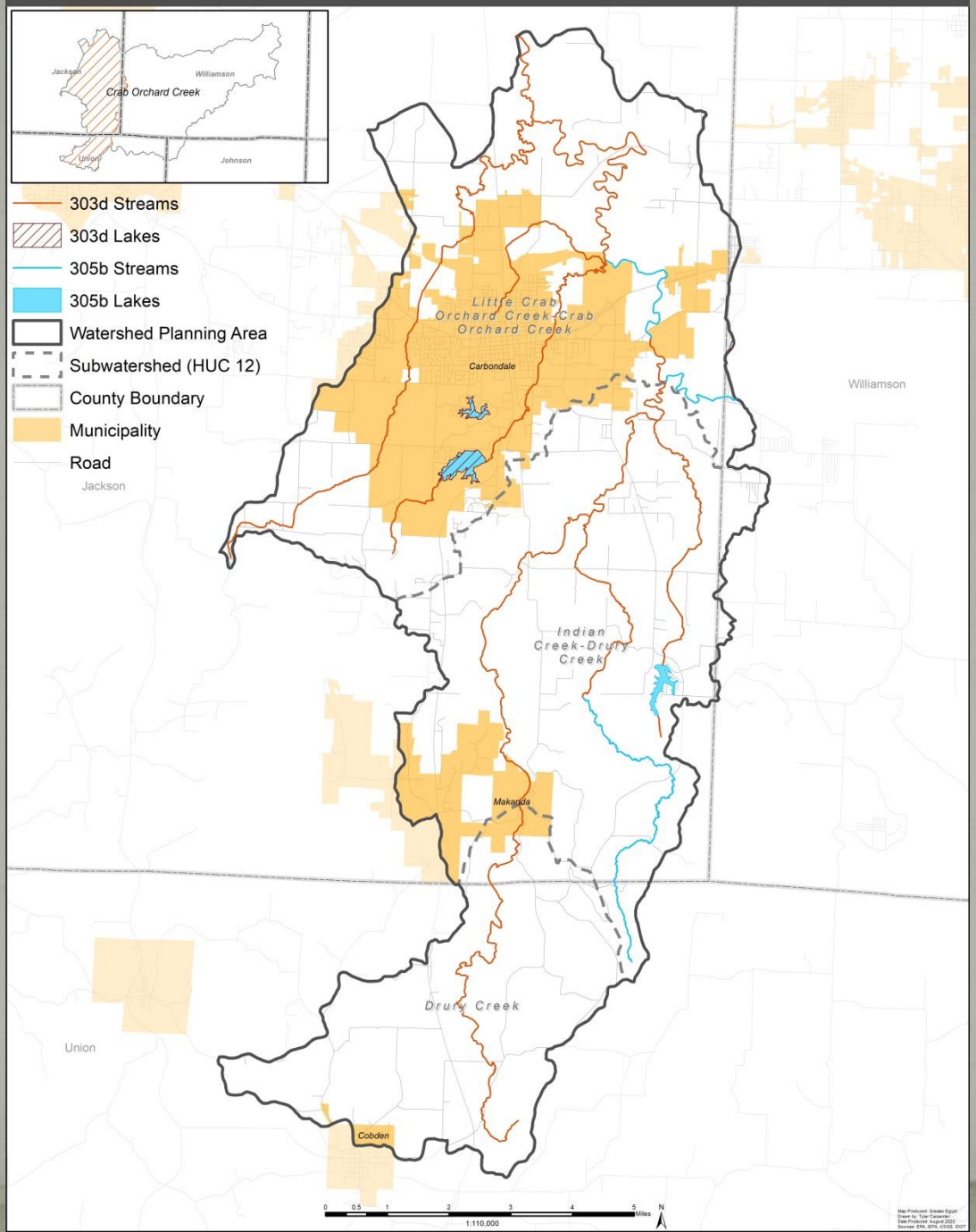
HUC 8


Fox
Lake Michigan
Rock
Kishwaukee
Des Plaines
Chicago/Calumet
Green
Illinois River Valley
Kankakee
Mississippi River Valley
Vermilion-Illinois
Spoon
Iroquois
Mackinaw
La Moine
Vermilion-Wabash
Sangamon
Wabash River Valley
Macoupin
Embarras
Kaskaskia
Little Wabash
Big Muddy
Saline
Ohio River Valley
Cache

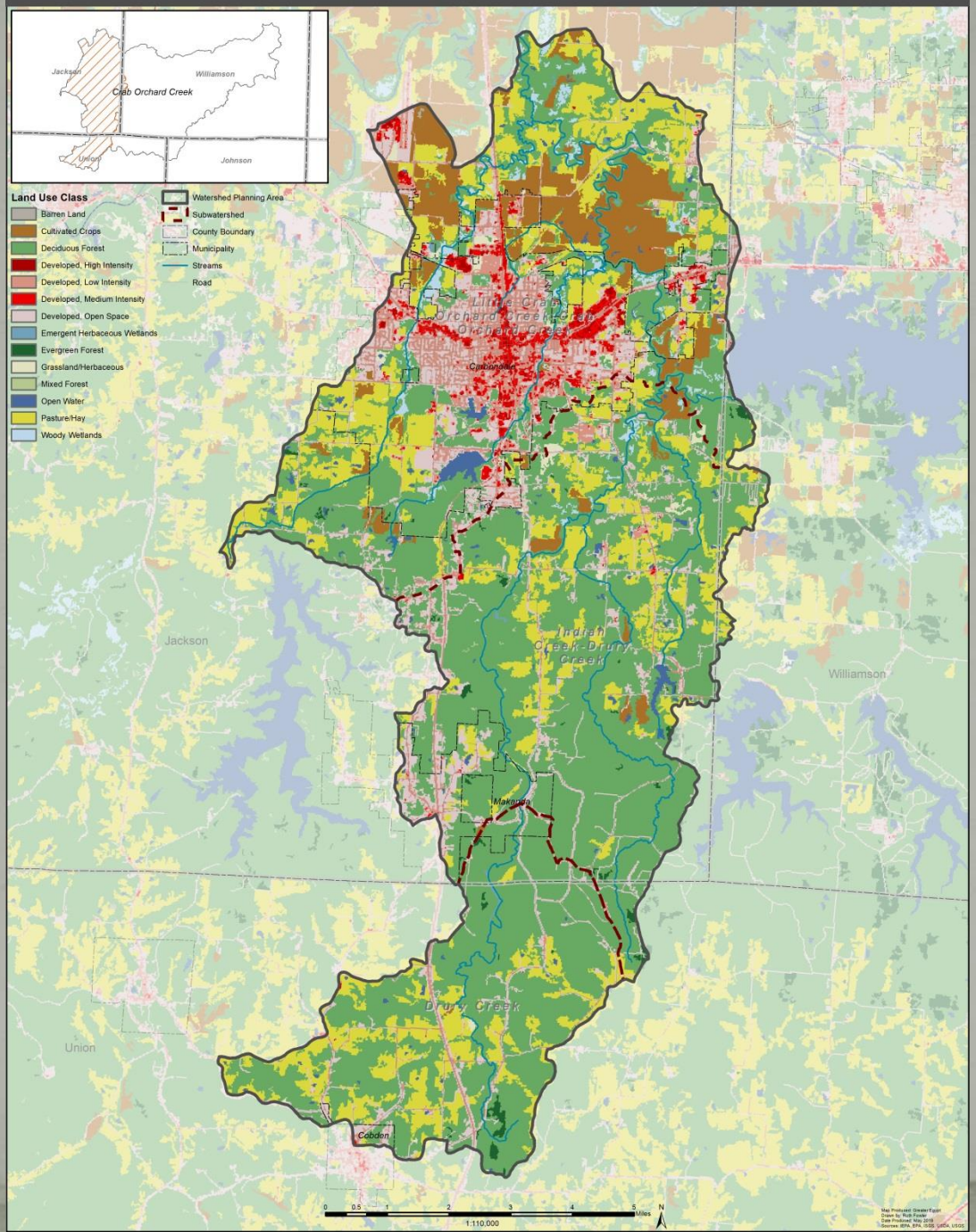
Western Crab Orchard Creek Watershed

- 56,533 acres, or 88 square miles
- Located in Jackson and Union Counties
- Three separate HUC 12 watersheds:
  - Little Crab Orchard Creek
    - 24,539
  - Indian Creek- Drury Creek
    - 20,018
  - Drury Creek
    - 11,454
- Municipalities include:
  - Carbondale
  - Makanda
  - Cobden

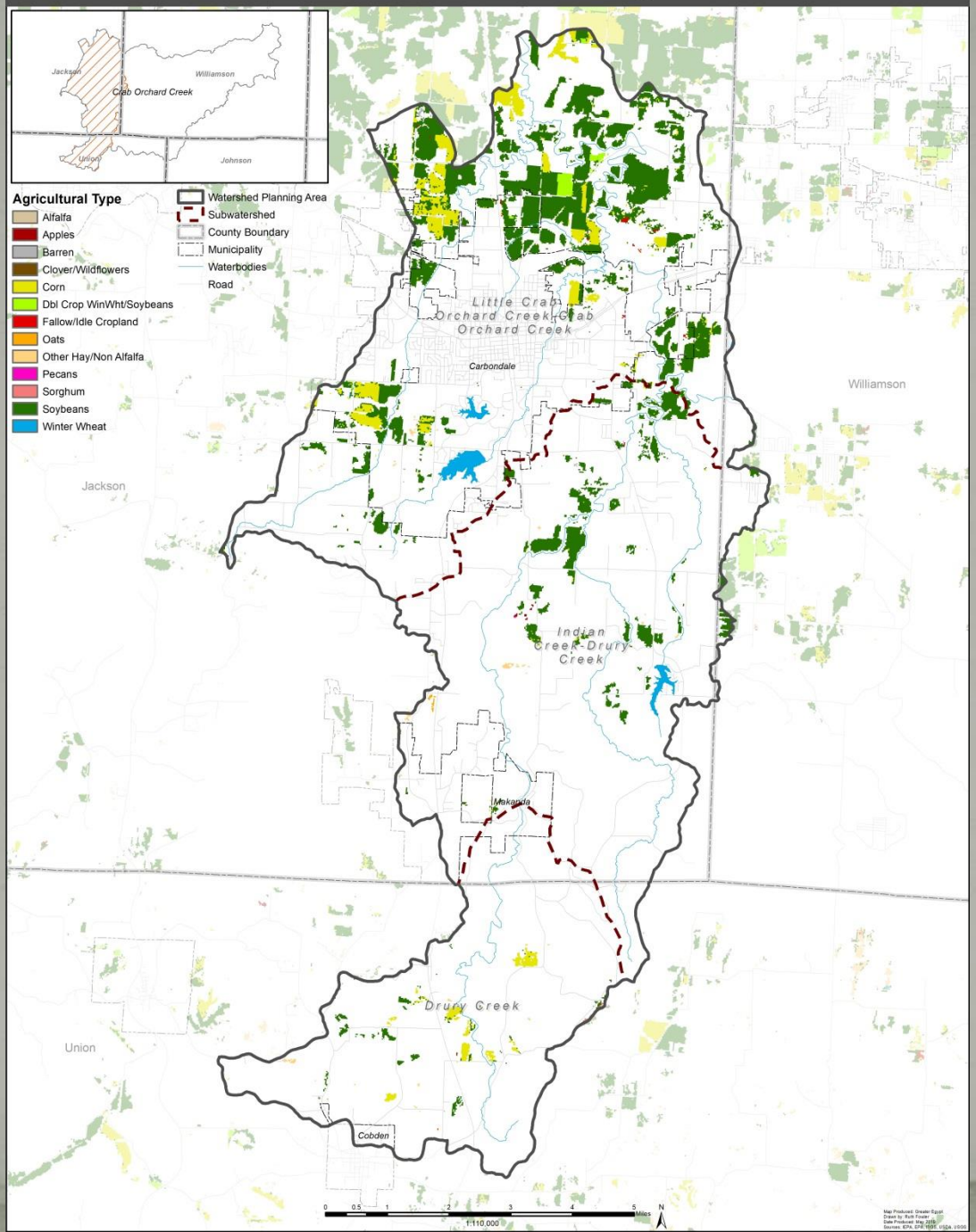
Western Crab Orchard Creek - Planning Area



Western Crab Orchard Creek - Land Use

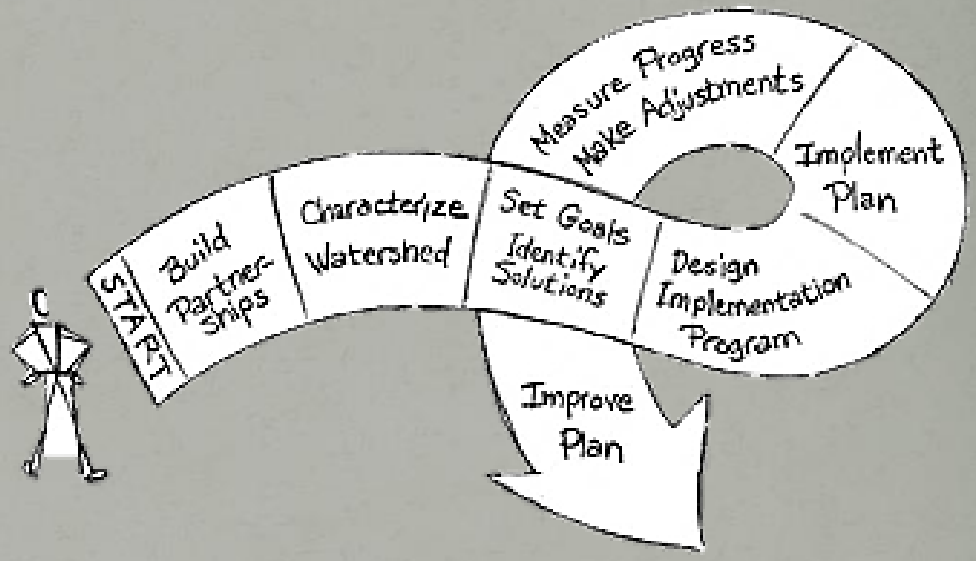


Western Crab Orchard Creek - Agriculture



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
- Allows for funding of water quality projects through EPA 319 Program



Types of Water Quality Pollution

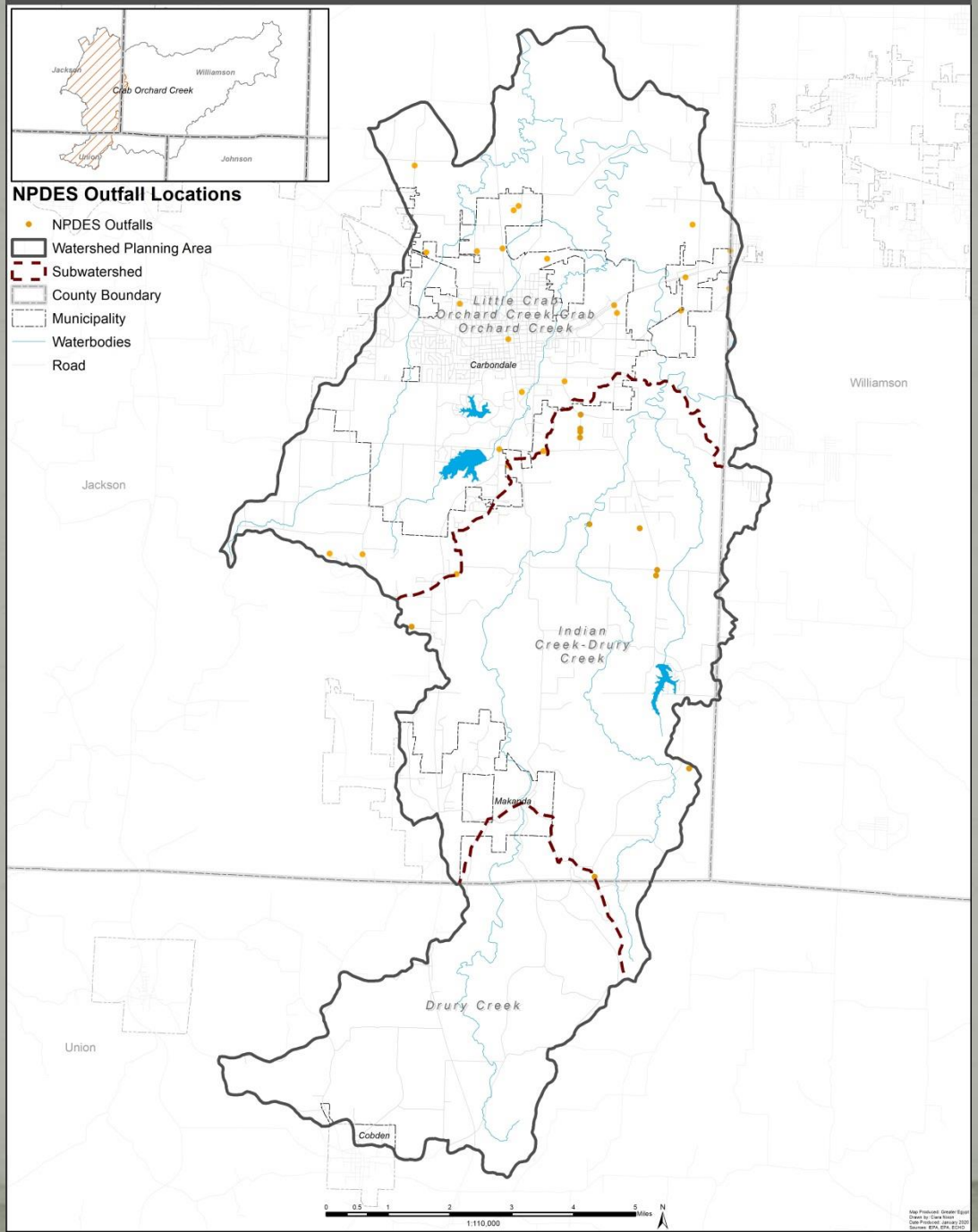
Point Source

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

Nonpoint Source

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

Western Crab Orchard Creek - NPDES Outfalls



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
- Funding for various management measures

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

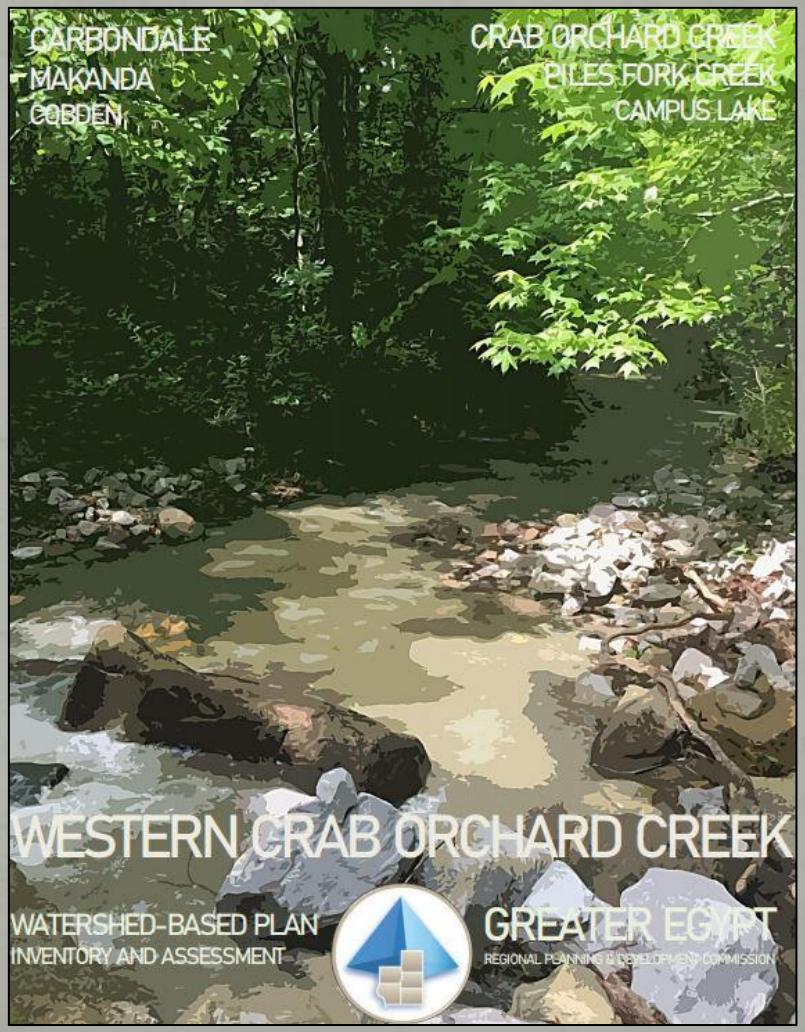
8.) Identify interim benchmarks to measure progress in meeting water quality goals and load reduction targets

9.) Describe a monitoring component

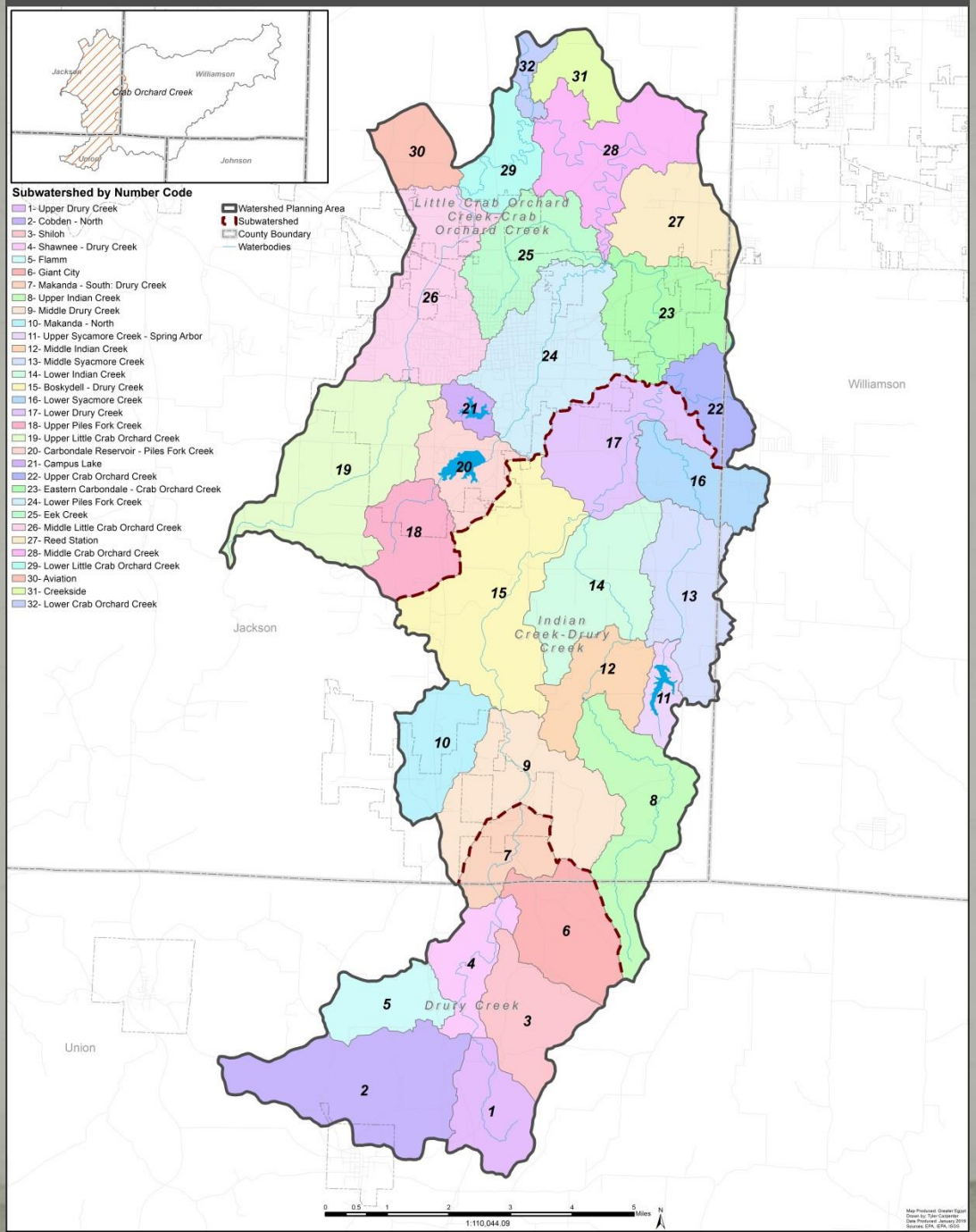
1.) Identify Causes and Sources of Water Pollution and Estimate Existing Pollutant Loads

Watershed Resource Inventory

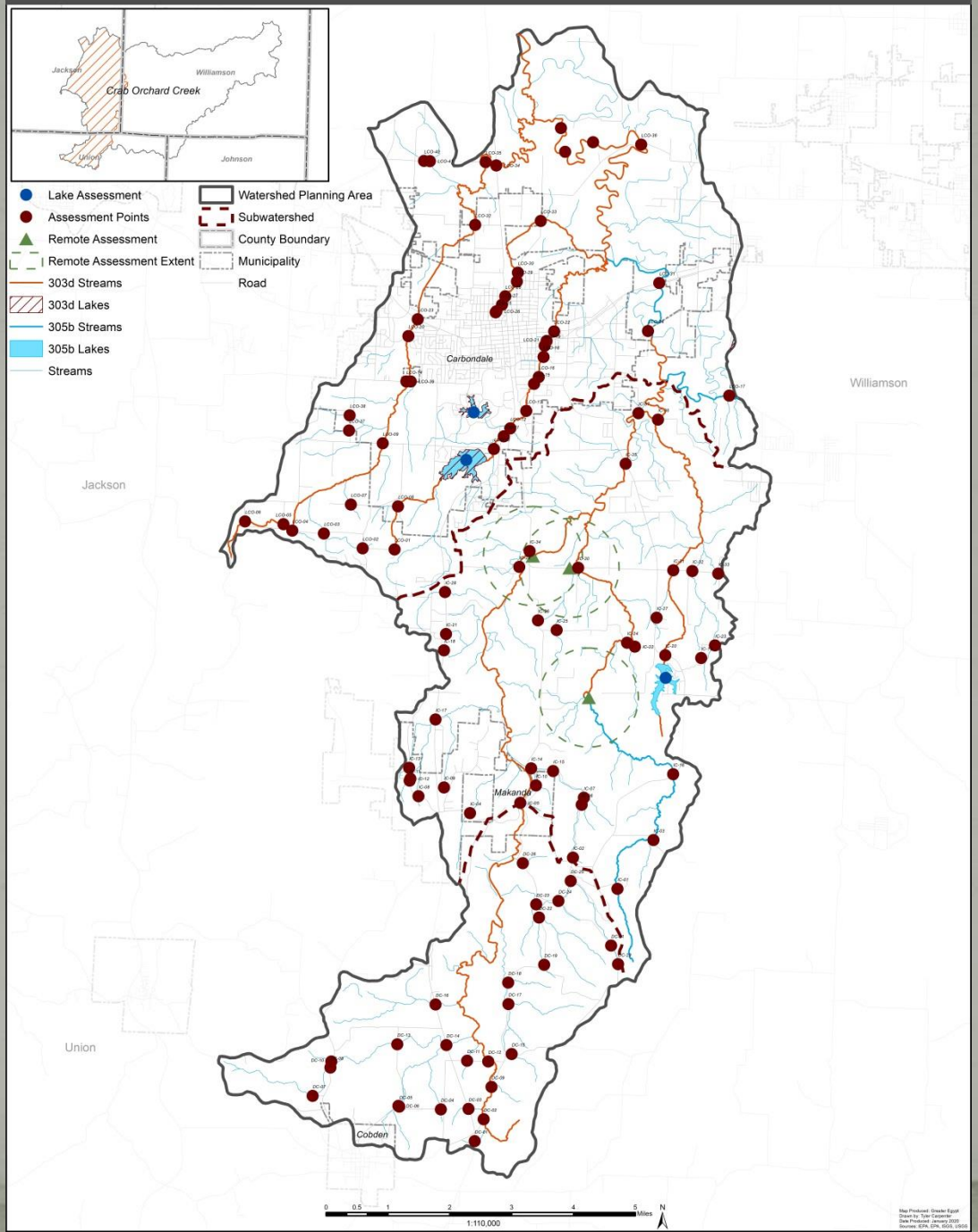
- Documentation of existing conditions in the watershed and subwatersheds
- Inventory and assessment of components such as: geographic boundaries, land use, and drainage
- Field assessment of erosion, riparian areas, and channelization



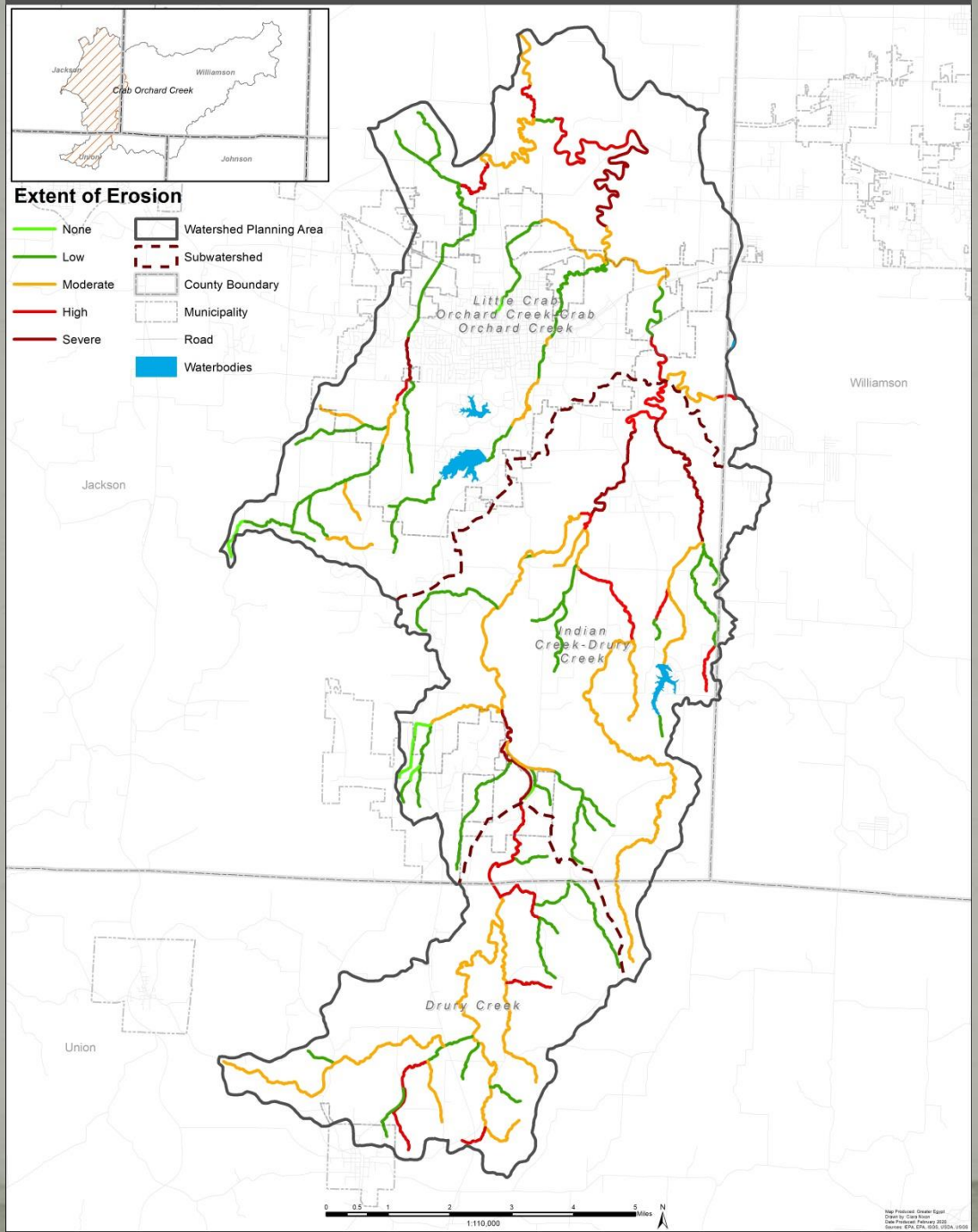
Western Crab Orchard Creek - Subwatersheds



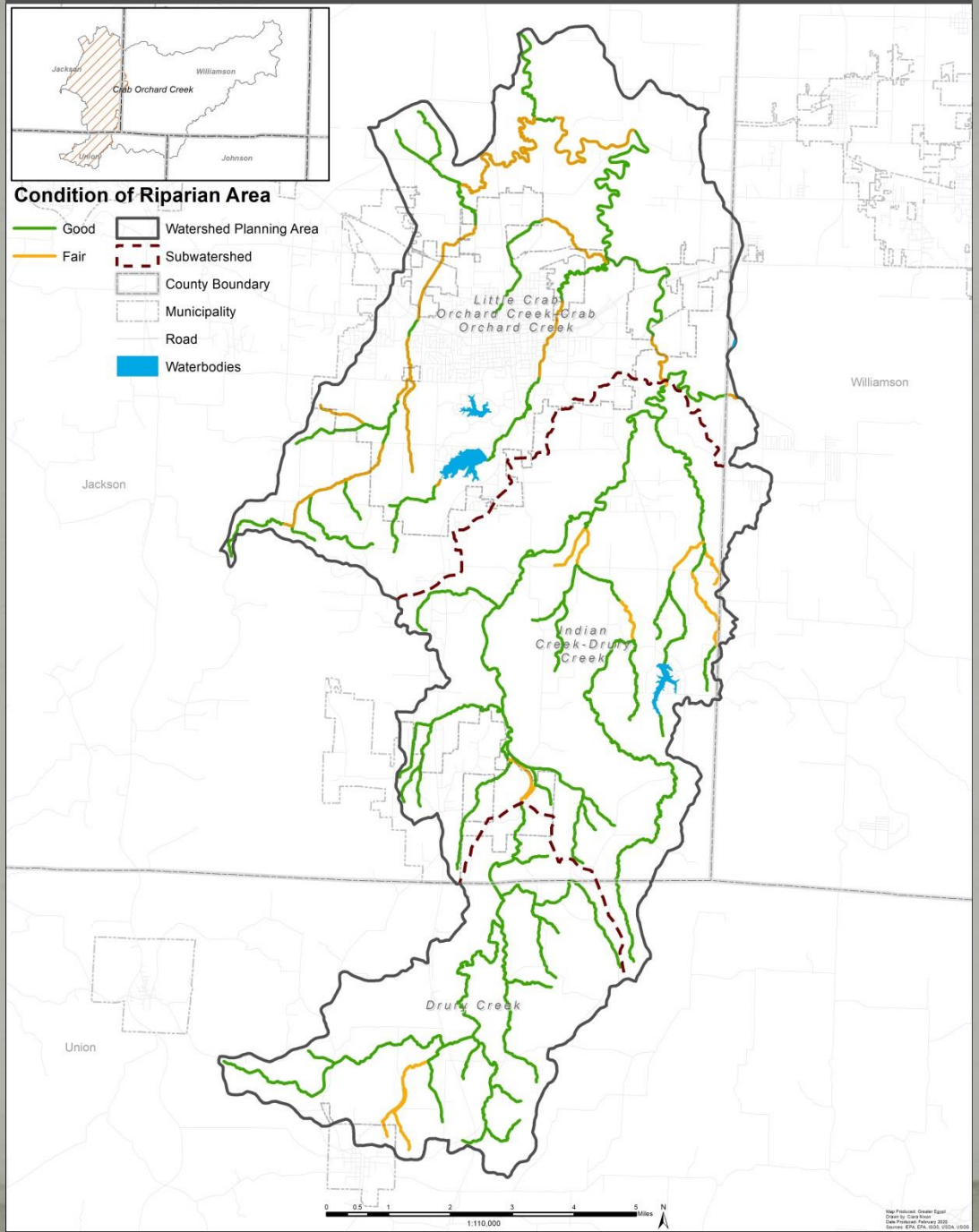
Western Crab Orchard Creek – Assessed Waterbodies



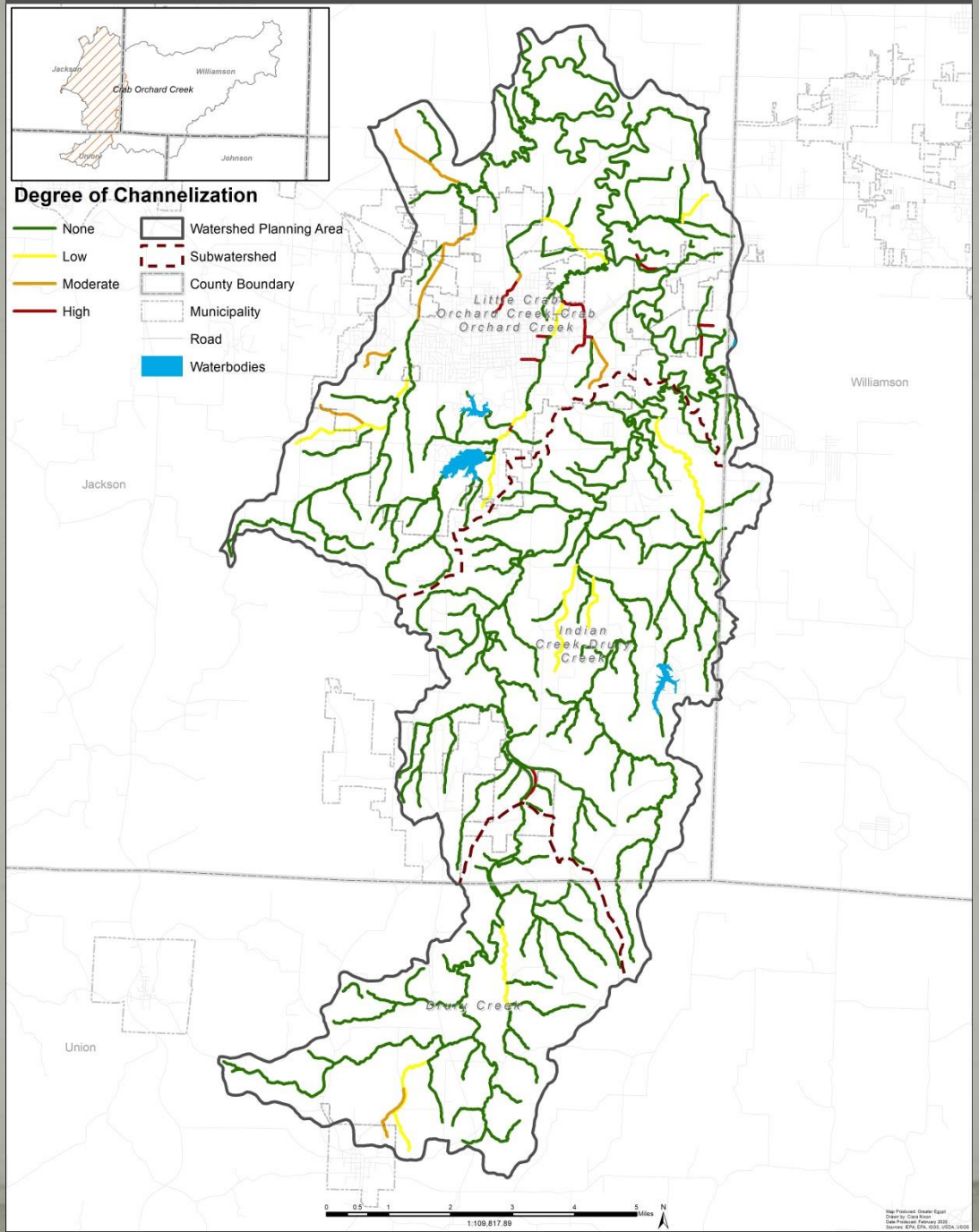
Western Crab Orchard Creek - Erosion Assessment



Western Crab Orchard Creek - Riparian Assessment



Western Crab Orchard Creek - Channelization Assessment



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	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 and Grassland	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**	

2.) Set Water Quality Goals and Load Reduction Targets

- 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	Assessment Unit ID	Size	Causes of Impairment(s)	Sources of Impairment(s)
Piles Fork	IL_NDB-03	7.2	Alteration in stream-side or littoral vegetative covers, Methoxychlor, Other flow regime alterations, Dissolved Oxygen	Highway/Road/Bridge Runoff (Non-construction related), Impacts from Hydrostructure Flow Regulations/modification, Streambank Modifications/destabilization, Urban Runoff/Storm Sewers, Upstream Impoundments
Campus Lake	IL_RNZH	41.2 ac	Mercury, Polychlorinated biphenyls, Total Suspended Solids(TSS), Phosphorus(Total)	Atmospheric Deposition-Toxics, Source Unknown, Other Spill Related Impacts, Waterfowl, Urban Runoff/Storm Sewers, Runoff from Forest/Grassland/Parkland

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)

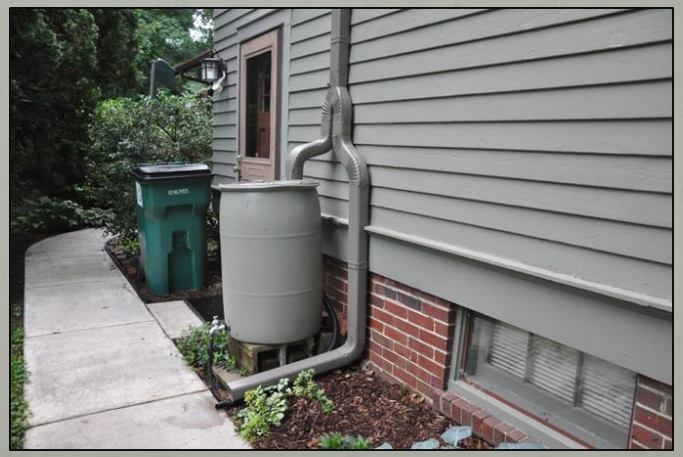
  Eventual goal is 45% for both nutrients

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

Management measures should:

- Identify best management practices (BMP) to achieve water quality objectives and load reduction targets

- Identify priority areas and practices



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
• 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.
• 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
• 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.
• 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

5.) Enhance Public Understanding Through Outreach Measures

Measures could include:

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

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

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)**
Outreach and Education	Educational Brochures for Stormwater Management	500	1000	1500
	Educational Brochures for Agricultural Management	500	1000	1500
	Electronics Drive	1	2	3
	Number of Litter Cleanup Days	3	6	9
	Public Meetings Held	4	10	14
	Agricultural Management Workshops Held	1	3	5
Reduce/Mitigate Flooding	Detention Basin	-	-	1
	Infiltration Basins	-	1	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 Reduction Target					
Benchmark Period	**Nitrogen (percent)**	**Nitrogen (lbs/ yr)**	**Phosphorus (percent)**	**Phosphorus (lbs/yr)**	**Sediment (percent)**	**Sediment (tons/yr)**
2 Year (Phase I)	-	-	-	-	-	-
6 Year (Phase II)	7%	22,897	10%	6,026	10%	4,787
10 Year (Phase III)	15%	49,065	25%	15,066	25%	11,969

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

Future Plan Involvement

Western Crab Orchard Creek Watershed-based Plan				
Action	2020		2021	
	QTR 3	QTR4	QTR 1	QTR 2
Initial Stakeholders Meeting				
Watershed Planning Elements Meeting				
Best Management Practices Meeting				
Implementation and Monitoring Strategy Meeting				
Final Meeting				
Draft Plan				5/1/2021
Final Plan				6/30/2021

Questions/Comments

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