Western Crab Orchard Creek Watershed

Planning Committee

October 7, 2021
10:00 AM

Agenda

1. Welcome and Introductions
2. Review of Previous Meetings
3. Element C: Best Management Practices
   a) Load Reduction Targets
   b) Watershed-wide practices
   c) Site-specific practices
4. Element D: Technical and Financial Assistance
   a) Funding/Grants
5. Element E: Education/ Outreach
6. Element F-I: Implementation and Monitoring Strategy
7. Remaining Meeting Schedule
8. Adjourn

Review of Previous Meetings

- **Nine Minimum Elements of a Watershed-based Plan**
- **Western Crab Orchard Creek Watershed Inventory & Assessment**
- **Concerns within the watershed**
  - **303(d) waterbodies**
  - **Impairments**
  - **Pollutant Loads**
- **Preliminary Goals**
- **Load Reduction Targets**
- **Best Management Practices**
- **Public Meeting – 8/12/21**

Element C : Best Management Practices

Describe management measures that will achieve load reductions and targeted critical areas

Prerequisites for recommending best management practices (BMP)

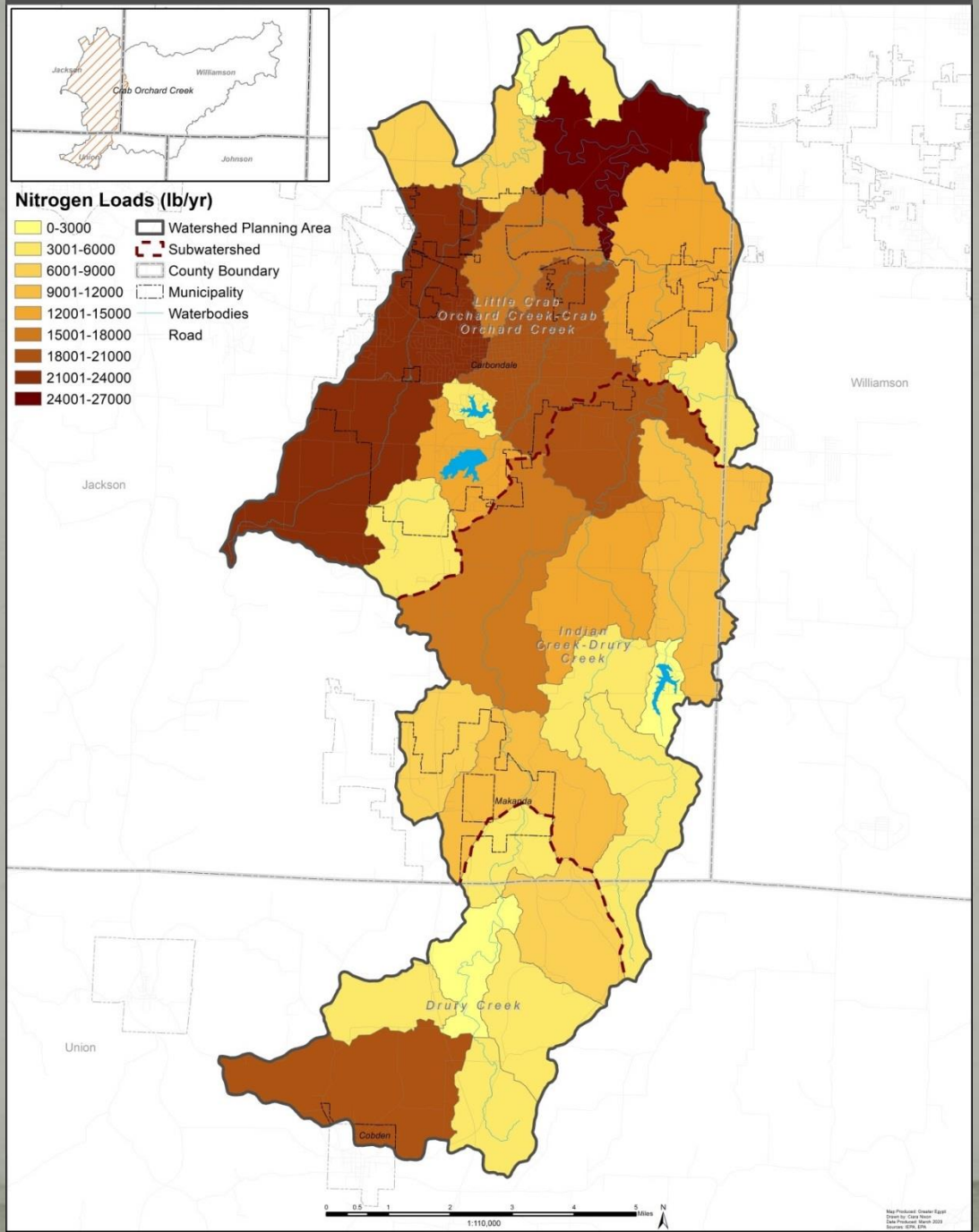
- Identify sources of pollutants and impairments to waterbodies
- Define pollutant loads for watershed and subwatersheds
- Develop pollutant load reduction targets

Pollutant Loads

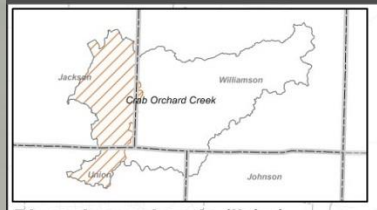
- Watershed-wide Pollutant Loading

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**	

Western Crab Orchard Creek - Nitrogen Load



Western Crab Orchard Creek – Phosphorus Load



Phosphorus Loads (lb/yr)

- 0-1000
- 1001-2000
- 2001-3000
- 3001-4000
- 4001-5000
- 5001-6000

- Watershed Planning Area
- Subwatershed
- County Boundary
- Municipality
- Waterbodies
- Road

Little Crab Orchard Creek-Crab Orchard Creek

Carbondale

Williamson

Jackson

Indian Creek-Drury Creek

Makanda

Drury Creek

Union

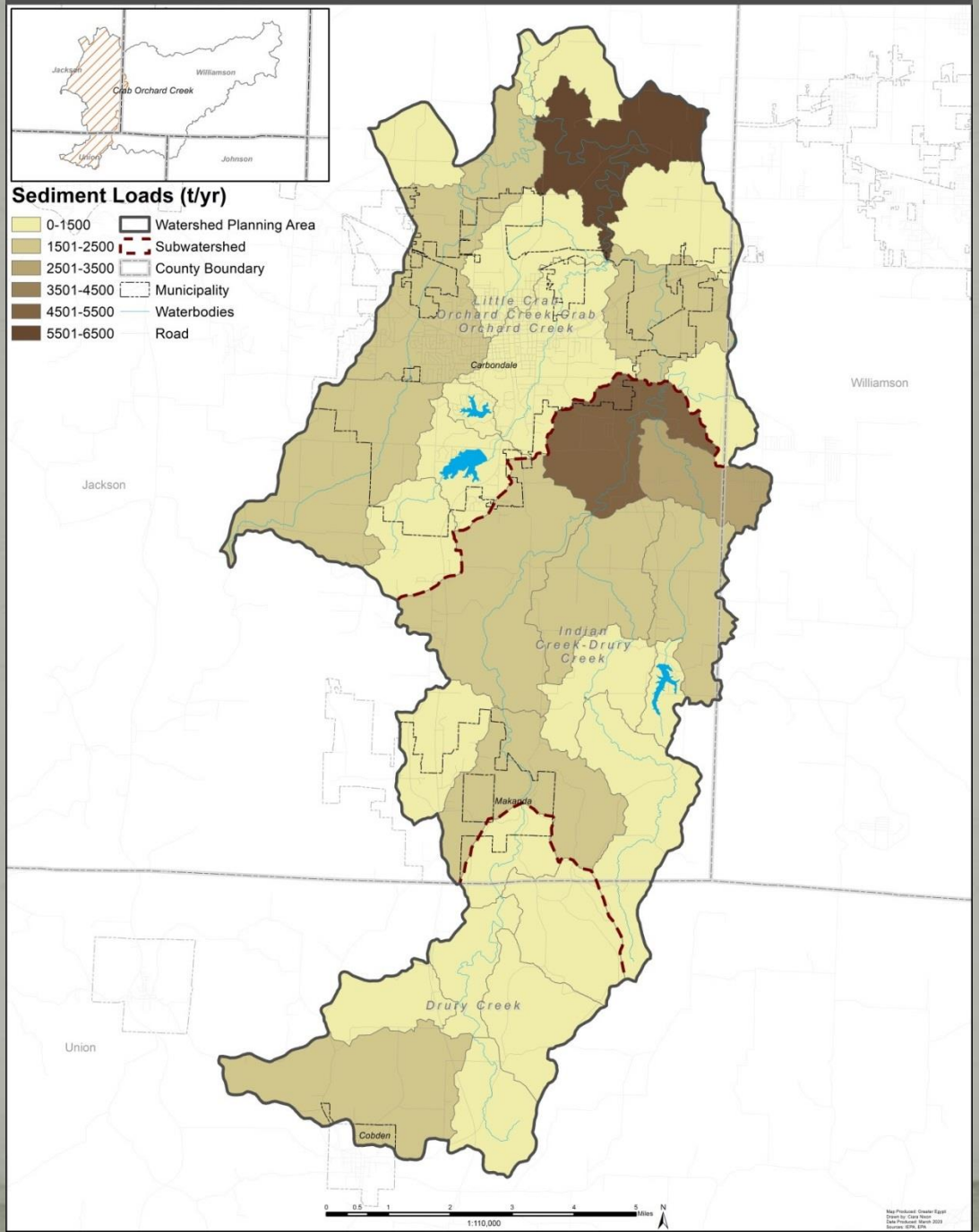
Cobden

0 0.5 1 2 3 4 5 Miles

N

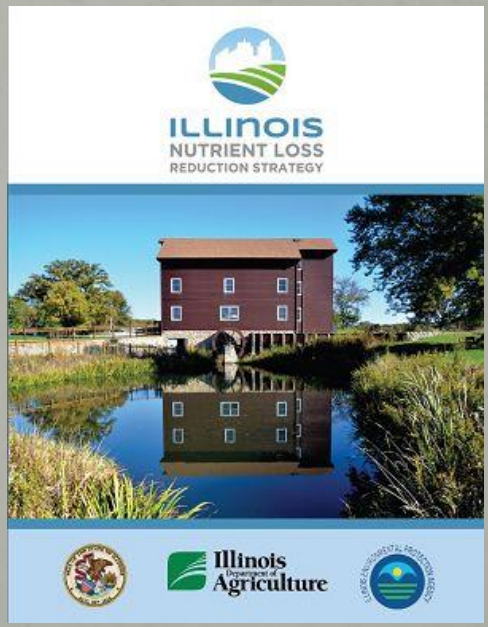
1:110,000

Western Crab Orchard Creek – Sediment Load



IL Nutrient Loss Reduction Strategy (NLRS)

- 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
- **25% reduction in phosphorus load (2025)**
- **15% reduction in nitrate-nitrogen load (2025)**
- **Eventual goal is 45% for both nutrients**

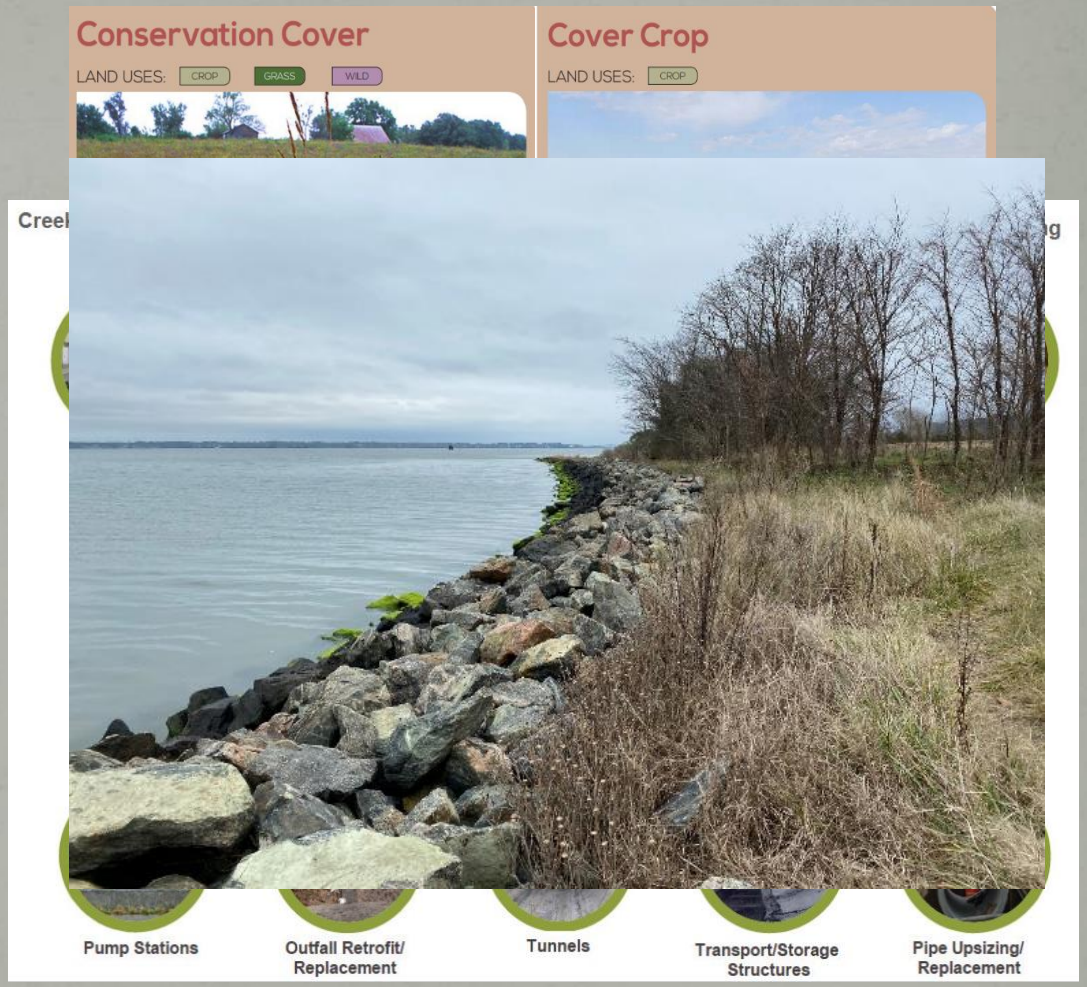


Pollutant Load Reduction Targets

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	**-**	**0.15**	**49,064.93**	**0.25**	**15,066.17**	**0.25**	**11,968.42**
Subwatershed Load Reduction Targets							
Drury Creek	**1.00**	0.15	7,204.97	0.15	2,214.49	0.15	1,766.64
Indian Creek- Drury Creek	**2.00**	0.30	14,495.91	0.34	5,061.37	0.41	4,877.80
Little Crab Orchard Creek	**3.00**	0.56	27,364.06	0.52	7,790.31	0.44	5,323.98
TOTAL			**49,064.93**		**15,066.17**		**11,968.42**

Watershed-wide Practices

- Agriculture
  - Conservation Cover
  - Cover Crops
  - Filter Strips
  - Nutrient Management
  - No Till
  - Strip Till
- Forest
  - Riparian Buffers
  - Forest Management
- Hydrologic
  - Streambank Stabilization
  - Shoreline Stabilization
  - Gully Stabilization
- Urban
  - Green Infrastructure
  - Stormwater



Watershed-wide Load Reductions

BMP	Amount	Unit	Load Reductions- lbs/ yr (N, P) ton/yr-(Sediment)		
			N	P	Sediment
Conservation Cover	762	acre	4,661	2,490	2,131
Cover Crops	762	acre	4,661	2,490	2,131
Critical Area Planting	572	acre	3,600	1,924	1,658
Debris Removal	-				
Drainage Water Management	381	acre	2,498	1,335	1,162
Livestock Crossing	-				
No-Till	762	acre	4,661	2,490	2,131
Nutrient Management Plan	1,144	acre	6,719	3,589	3,041
Pasture/Hayland Planting	191	acre	1,341	717	635
Streambank Stabilization*	105,500	feet	4,430	2,215	2,215
Strip-Till	762	acre	4,661	2,490	2,131
Terrace	381	acre	2,498	1,335	1,162
		TOTALS:	**39,730**	**21,075**	**18,397**
			N	P	Sediment

Site-specific Practices

- Streambank Stabilization
- Shoreline Stabilization
- Gully Stabilization

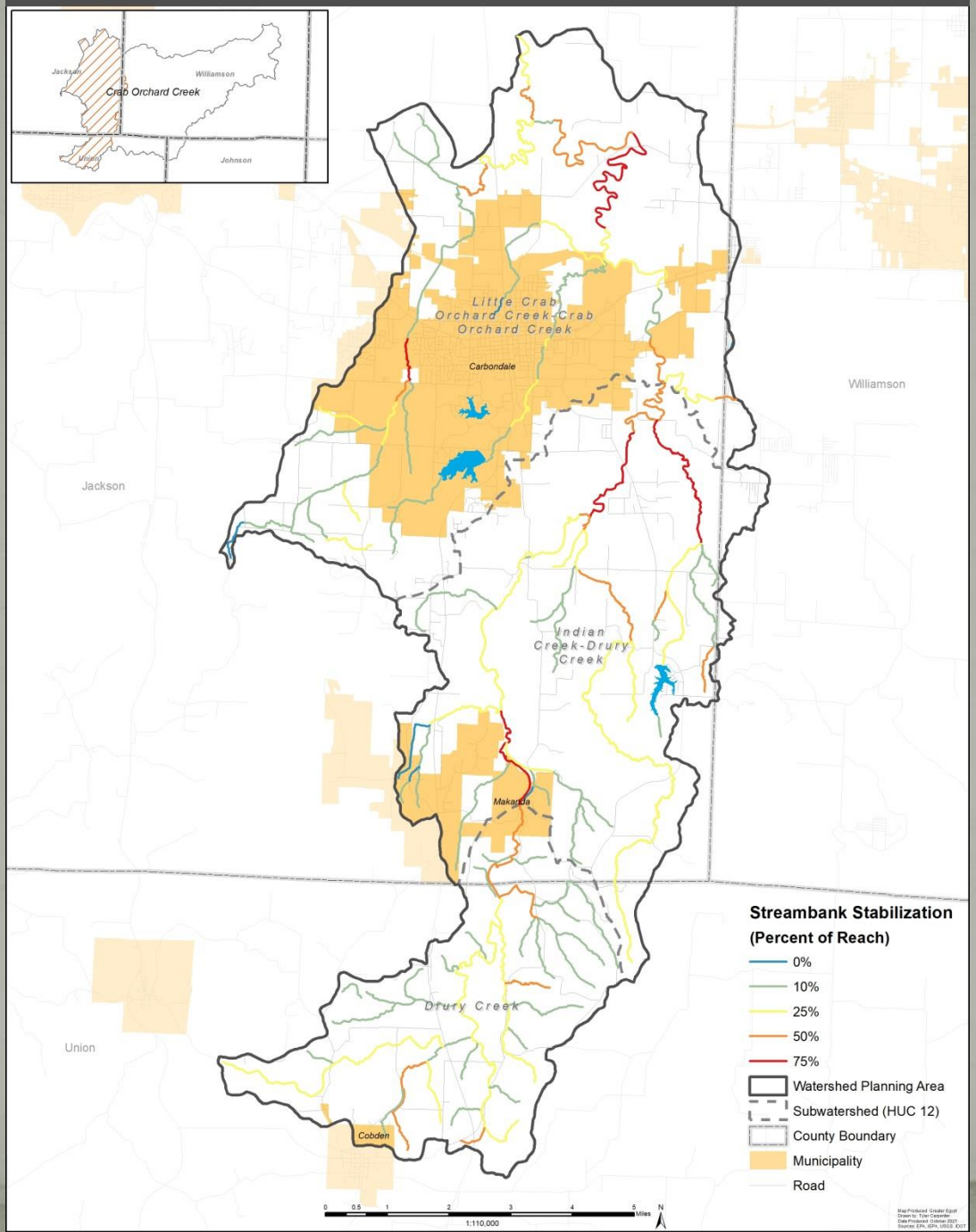
Gully Stabilization Criteria

- Proximity to waterbody
- Priority given to areas exceeding five years of observed erosion
- Reduction of sediment
- Reduction of nutrient runoff

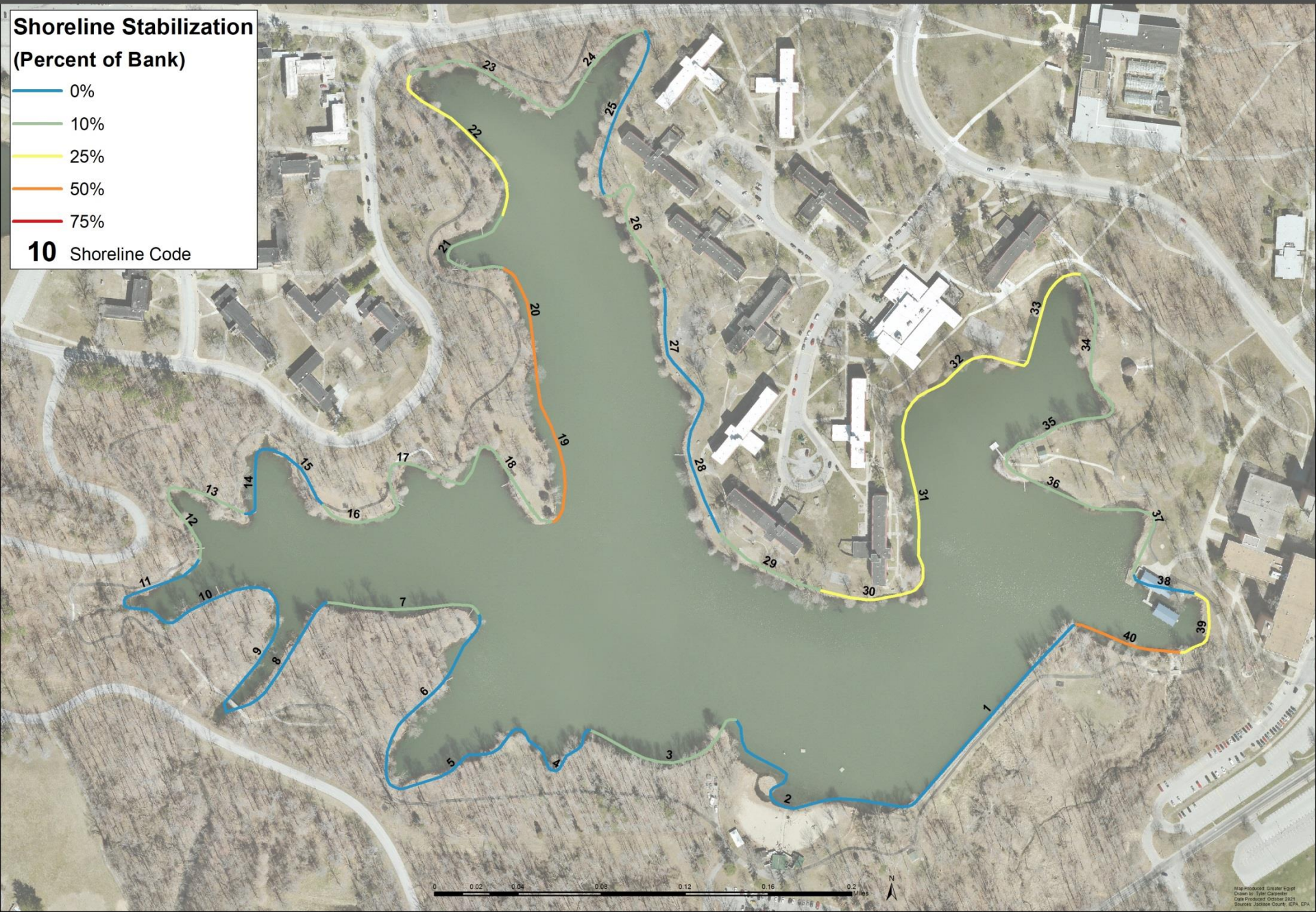
Streambank/Shoreline Stabilization Criteria

- Based on assessment
- Severe: 75%
- High Level: 50%
- Medium Level- 25%
- None or Low- 10%
- Sediment reduction

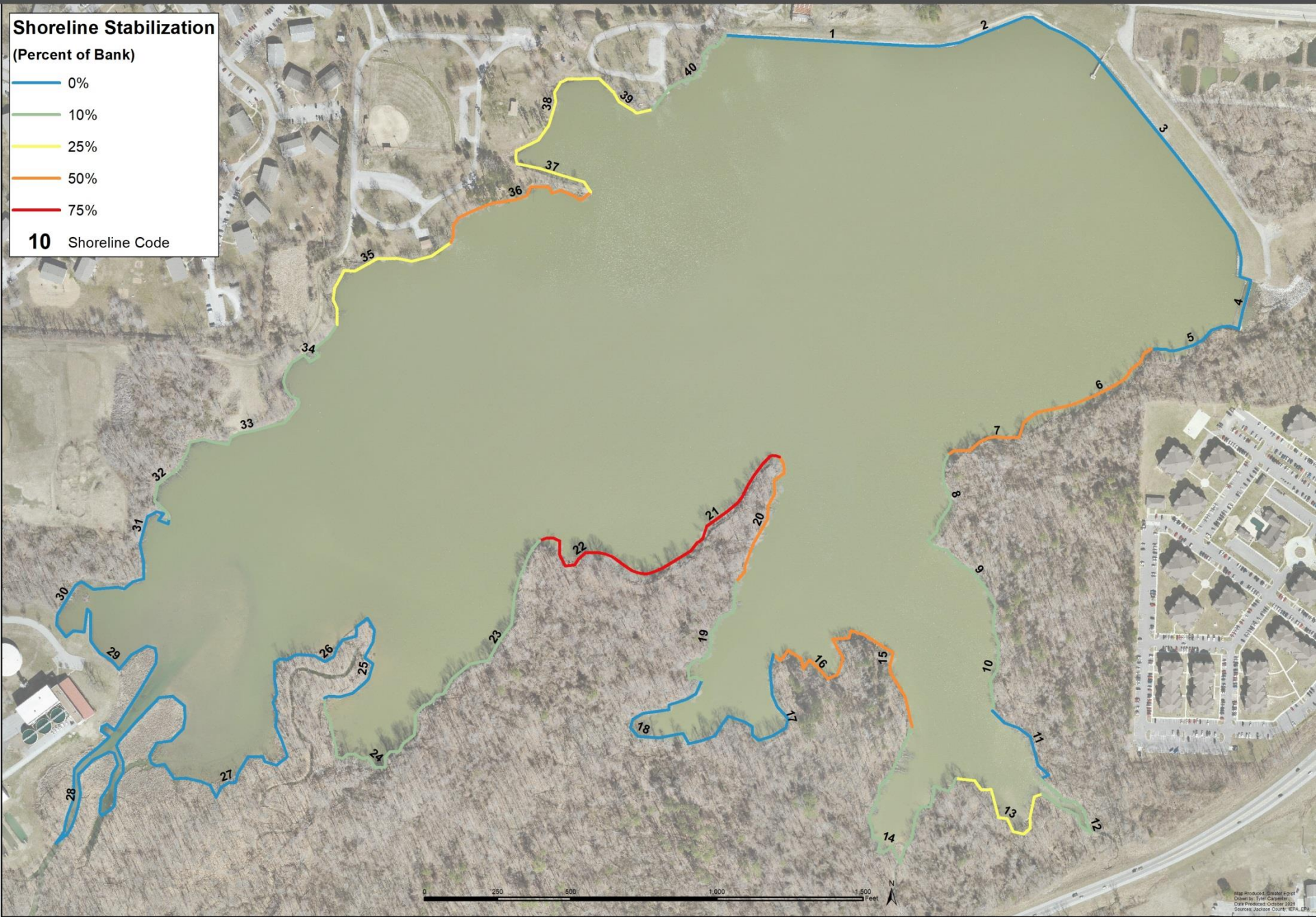
Western Crab Orchard Creek - Streambank Stabilization



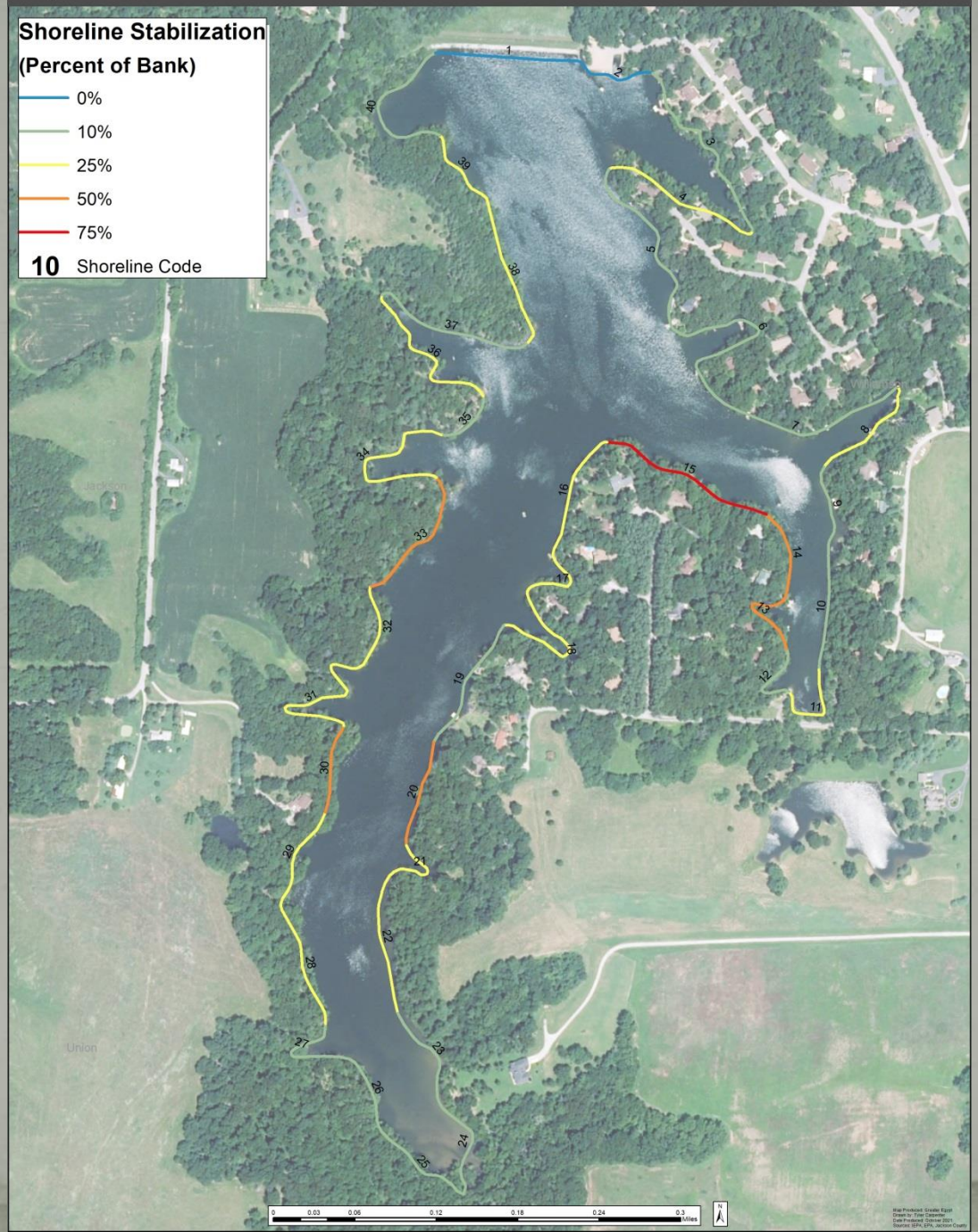
Campus Lake- Shoreline Stabilization



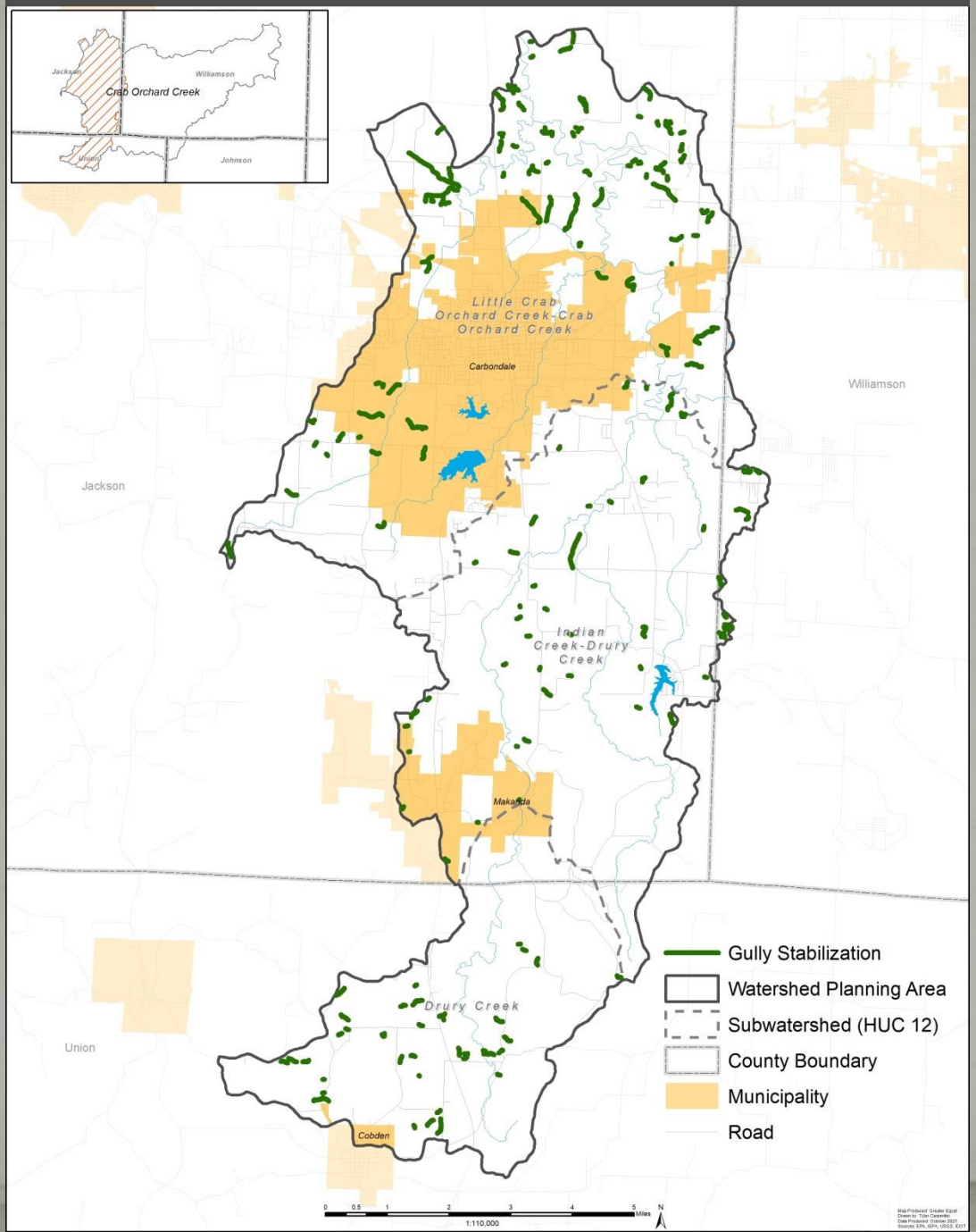
Carbondale Reservoir- Shoreline Stabilization



Spring Arbor Lake - Shoreline Stabilization



Western Crab Orchard Creek - Gully Stabilization



Site-specific BMP Load Reduction Targets

BMP	Unit	Amount	Load Reductions- lbs/ yr (N, P) ton/yr-(Sediment)		
			Sediment	P	N
Streambank Stabilization	feet	200,084	33,100	33,100	65,810
Shoreline Stabilization	feet	9,339	527	527	1,055
Gully Stabilization	feet	125,106	5,966	5,966	11,934
	TOTALS:	**334,529**	**39,594**	**39,594**	**78,798**
			Sediment	P	N

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)
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Load Reductions- lbs/ yr (N, P) ton/yr-(Sediment)		
Sediment	**P**	**N**
57,991	**60,669**	**118,528**

BMP Worksheet

Western Crab Orchard Creek Watershed BMP Worksheet			
BMP	**Target Area** (Be as specific as possible)	**Amount** (If applicable)	**Unit** (If applicable)
e.g. Grassed Waterway	*Farmer Joe's Property, NE Lot*	*2.5*	*acres*
e.g. Permeable Pavement	*Schnuck's Western Parking Lot*	*20,000*	*square feet*
e.g. Streambank Stabilization	*Drury Creek - Adjacent to Makanda Boardwalk*	*600*	*feet*

- Still time for suggestions!

Element D: Technical and Financial Assistance

BMP funding and technical assistance

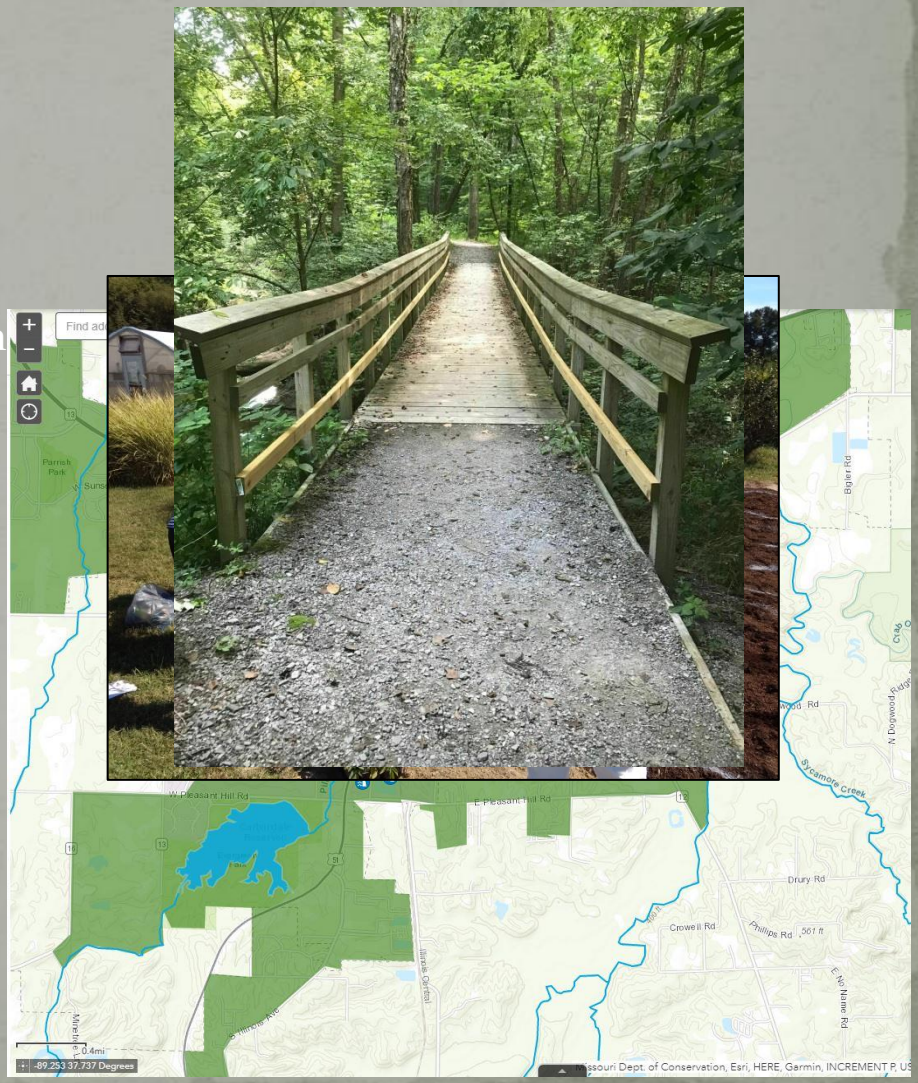
- BMP Funding sources
  - EPA 319 Grants
  - USDA- CRP, CREP, EQIP
  - DOT
  - Landowners, Municipalities
- BMP technical assistance
  - Contractors
  - Public Works
  - Landowners
  - Volunteers

BMP	Cost	Unit	Technical Assistance	Funding Source(s)
Agricultural Filter Strip	$0.00-$300	acre	Landowner, public works, NRCS	IEPA 319 Grant, FSA CRP (No cost assumes using existing vegetation, if any)
Animal Waste Control (Ordinance)	$0.00*	site	Public Works Departments	Municipality
Bioswale	$42.00	foot	IDOT, contractor, municipality, public works	IEPA 319 Grant
Conservation Tillage	$33.33	acre	Landowner, public works, NRCS	NRCS EQIP, FSA CRP
Cover Crops	$66.67	acre	Landowner, public works, NRCS	NRCS EQIP, FSA CRP
Debris Removal	$486.00	site	Volunteers, landowners, public works, contractor	Volunteers, landowners, public works, contractor
Detention Basin	$0.74	cubic foot	Landowner, IDOT, contractor, municipality, public works	Landowners, municipality

BMP	Cost	Unit	Total Units	Total Cost per BMP
Agricultural Filter Strip	$177.00	acre	45	$7,965.00
Agricultural Management Workshop	$1,950.00	workshop	2	$3,900.00
Cover Crops	$86.00	acre	762	$65,532.00
Critical Area Planting	$185.00	acre	572	$105,820.00
Debris Removal	$500.00	site	10	$5,000.00
Detention Basin	$0.74	cubic foot		$0.00
Drainage Water Management	$100.00	acre	381	$38,100.00
Gully Stabilization	$150.00	linear foot	125,106	$18,765,900.00
Litter Cleanup	$0.00	acre	-	-
No-Till Farming	$21.00	acre	762	$16,002.00
Nutrient Management Planning	$4.00	acre	1,144	$4,576.00
Pasture and Hayland Planting	$393.00	acre	191	$75,063.00
Public Education on Fertilizer Use	$0.50 each / $150.00 per 300	flyer/brochure	2,500	$1,250.00
Public Education on Stormwater/Agricultural Management	$0.50 each / $150.00 per 300	flyer/brochure	2,500	$1,250.00
Streambank Stabilization	$75.00	linear foot	305,584	$22,918,800.00
Strip-Till Farming	$21.00	acre	762	$16,002.00
Terrace Farming	$4.00	linear feet	381	$1,524.00
			Total Cost:	$42,026,684.00

Element E: Enhance Public Understanding Through Outreach Measures

- Public meetings
- Demonstration Sites
  - Green Earth Trails
    - Watershed tours
    - Litter cleanup events
- Informational pamphlets regarding watersh
  planning efforts
  - Construct one for planning area
- Workshops
  - Stormwater Management
    - Rain Garden workshop
- Water Resources Survey
  - Survey complete
  - Report in December
- Stormwater Management BMP Map
  - Inventory of existing management measures



VII. Elements F-I of the Watershed-based Plan

Remaining elements of the plan:

- Element F- Implementation schedule of BMP
- Element G- Interim measurable milestones
- Element H- Benchmarks for load reduction targets
- Element I- Monitoring strategy

VII. Elements F-I of the Watershed-based Plan

Element F: Implementation Schedule

- Should reflect BMP, educational component, and general goals of plan

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

Element G: Interim Measurable Milestones

Interim Measurable Milestones				
Goal	**Indicator**	**Short -year)**	**Mid (6-yr)**	**Long (10-yr)**
Address Impairments from Agricultural Practices/ Improve Water Quality	Linear Feet of Streambank Stabilized	-	10,000	25,000
	Agricultural Strips Created	-	8	16
	Acres to Implement Critical Planting	50	200	300
	Acres Converting to Conservation Tillage	200	400	600
	Acres Converting to No-Till	-	150	300
	Acres Converting to Strip-Till	-	150	300
	Acres Converting to Terracing	-	50	100
	Acres to Implement Cover Crops	200	400	600
	Nutrient Management Planning Partnerships	1	5	10
	Gullies Stabilized	-	12	24
	Acres of Drainage Water Management	-	100	200
	Riparian Buffers Created	-	1	2

Element H: Benchmarks for load reduction targets

- Targets can be broken down into phases

	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	22,896.97	10	6,026.47	15	7,181.05
10 Year (Phase III)	15	49,064.93	25	15,066.17	25	11,968.42

Element I: Monitoring strategy

- How successful are BMP?
- Should use existing federal, state, and regional programs
- Can collect data from other agencies

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			

Needs from the Planning Committee

- Ideas for education/outreach
  - Promote Watershed –based Plan
  - Activities
  - Items can be covered by grants

- Last chance for BMP suggestions

Plan Schedule

MEETING 4	**Prioritization of Best Management Practices**	**October 7, 2021**
	Draft for Planning Committee	**October 29, 2021**
MEETING 5	**Draft Plan Review – Final Meeting**	**November 16, 2021**
	Final Draft DUE	**November 30, 2021**

Following plan submission:

- IEPA / EPA Review
- IEPA / EPA Approval
- Continuation of Plan & Updates
- Future Role of Greater Egypt

Questions/Comments

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