

# Western Crab Orchard Creek Watershed Planning Committee Meeting 2

February 23, 2021  
10:00 AM



# Agenda

- I. Welcome and Introductions
- II. Review of Previous Meetings
- III. Completed Elements
- IV. Element C: Management Measures
- V. Element D: Technical and Financial Assistance
- VI. Element E: Education/ Outreach
- VII. Element F-I: Implementation and Monitoring Strategy
- VIII. Needs from Committee/ Meeting Schedule
- IX. Adjourn

# Review of Previous Meetings

- **Nine Minimum Elements of a Watershed-based Plan**
- **Synopsis of the Western Crab Orchard Creek Watershed Inventory**
- **Concerns within the watershed**
  - 303(d) waterbodies
  - Impairments
- **Preliminary Goals**

# Completed Elements of the Plan

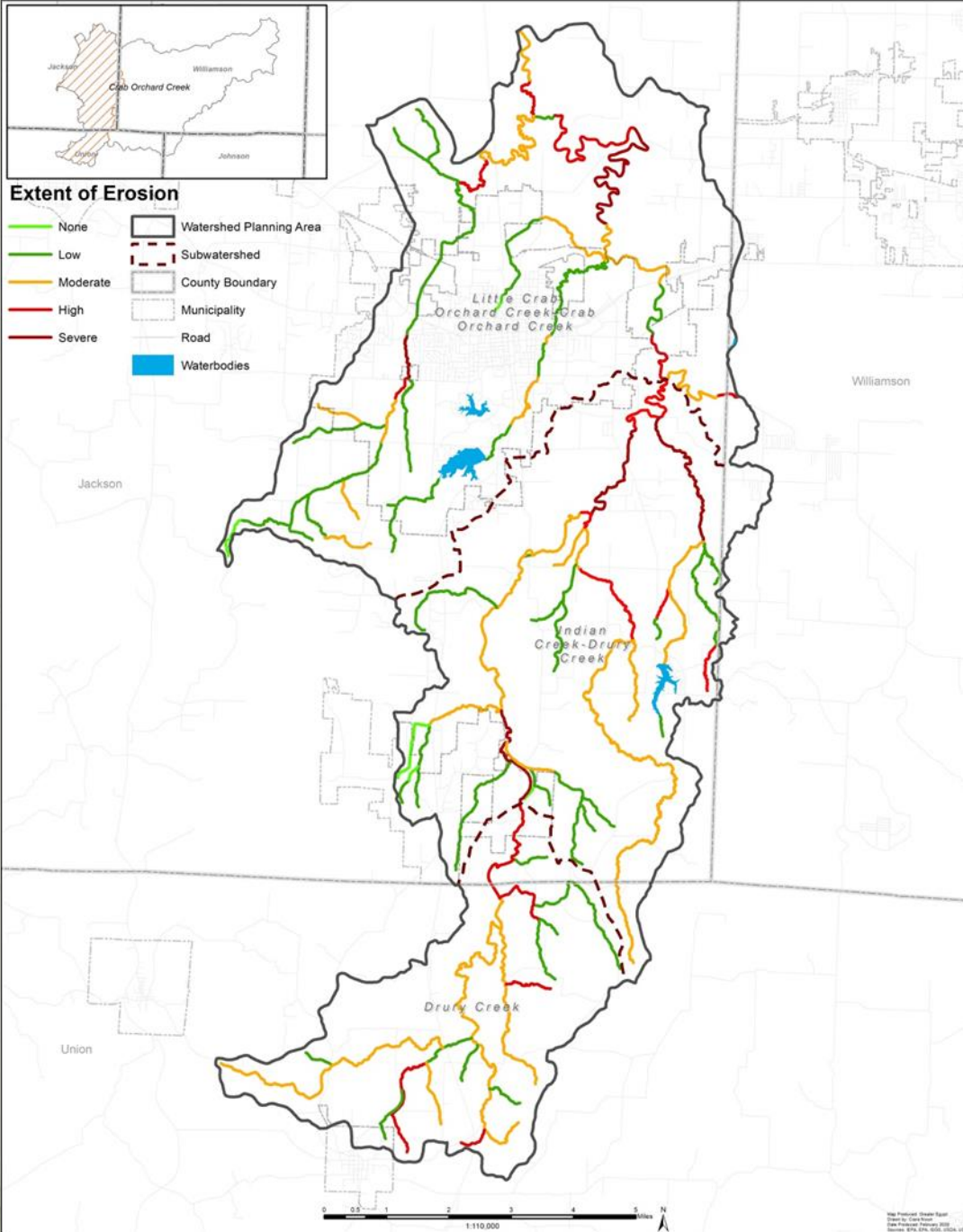
## Components include:

- **Element A-** *Identification of causes of impairment and pollutant sources that need to be controlled to achieve load reductions identified in watershed plan.*
- **Element B-** *An estimate of the load reductions expected from management measures*

# Element A- Impairments and Sources (Inventory and Assessment)

- **Sections included:** Geography, Geology, Soils, Jurisdictions, Demographics, Land Use, Assessment, Water Quality
- **Assessment:** Erosion, Channelization, Riparian Areas (Streams and Lakes)
- **Water Quality:** Waterbody Uses, Water Quality Data, Municipal Reports, NPDES Outfalls, Pollutant Load Analysis, Pollutant Load Reduction Targets

# Western Crab Orchard Creek - Erosion Assessment

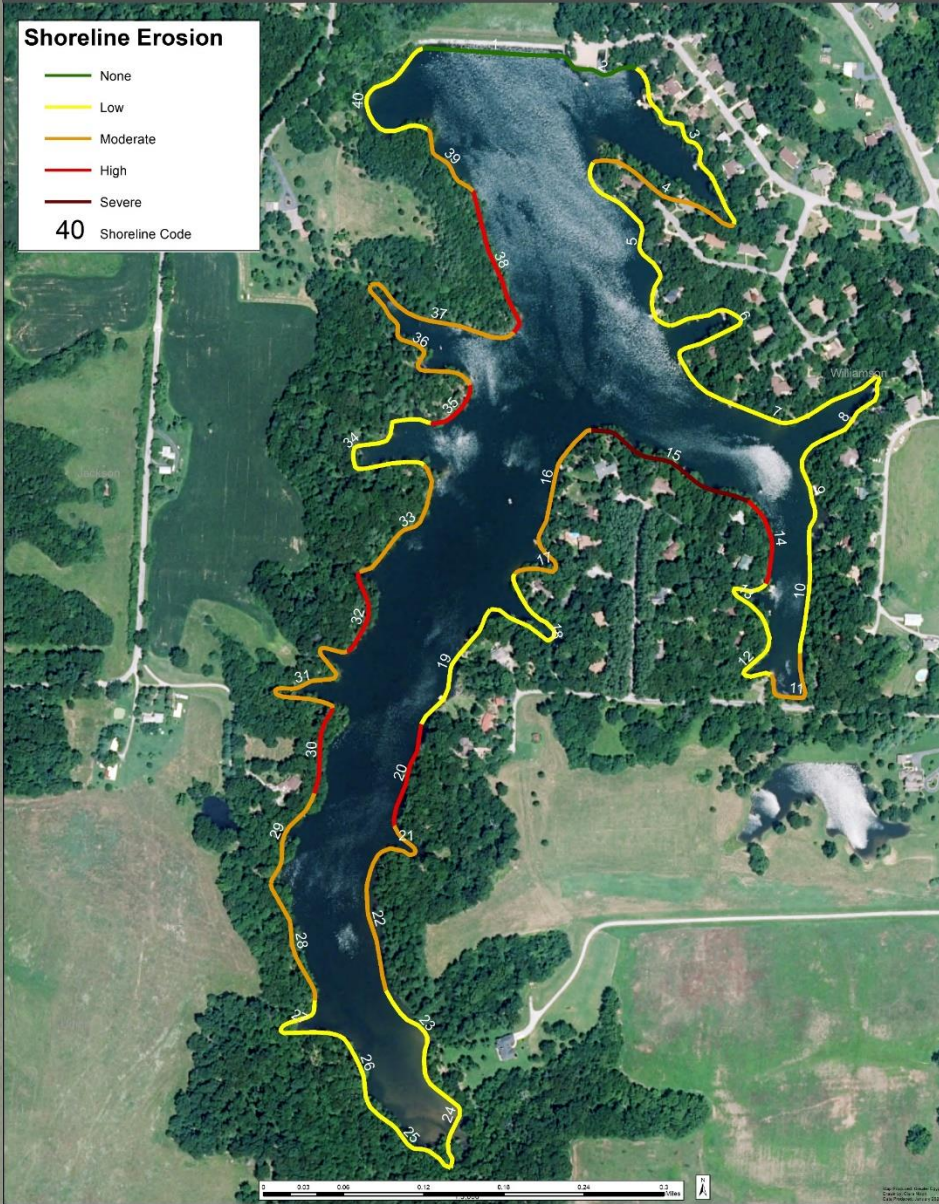


# Spring Arbor Lake-Erosion Assessment

## Shoreline Erosion

- None
- Low
- Moderate
- High
- Severe

40 Shoreline Code



# Campus Lake- Erosion

## Shoreline Erosion

- None
- Low
- Moderate
- High

10 Shoreline Code

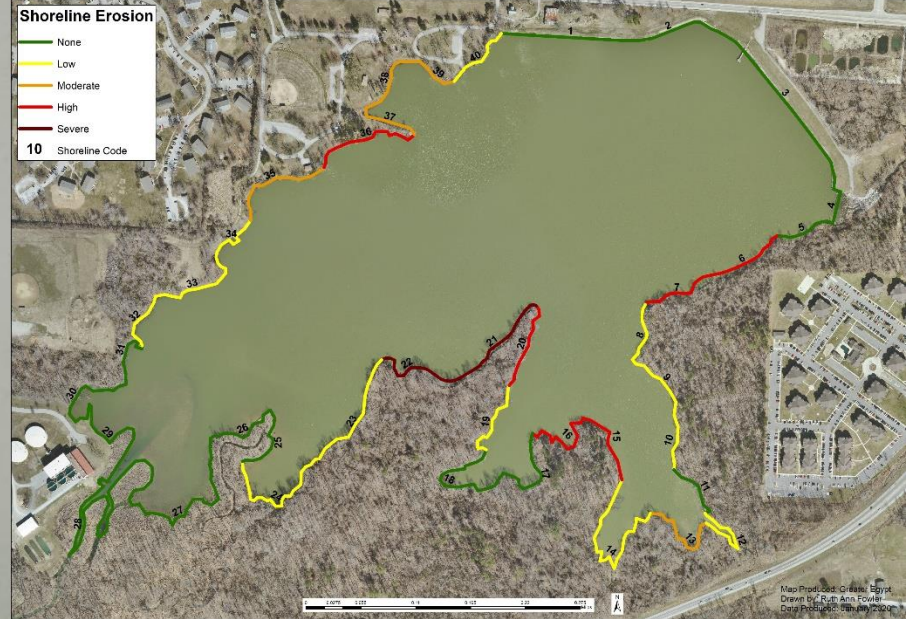


# Carbondale Reservoir- Erosion

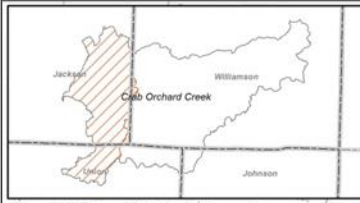
## Shoreline Erosion

- None
- Low
- Moderate
- High
- Severe

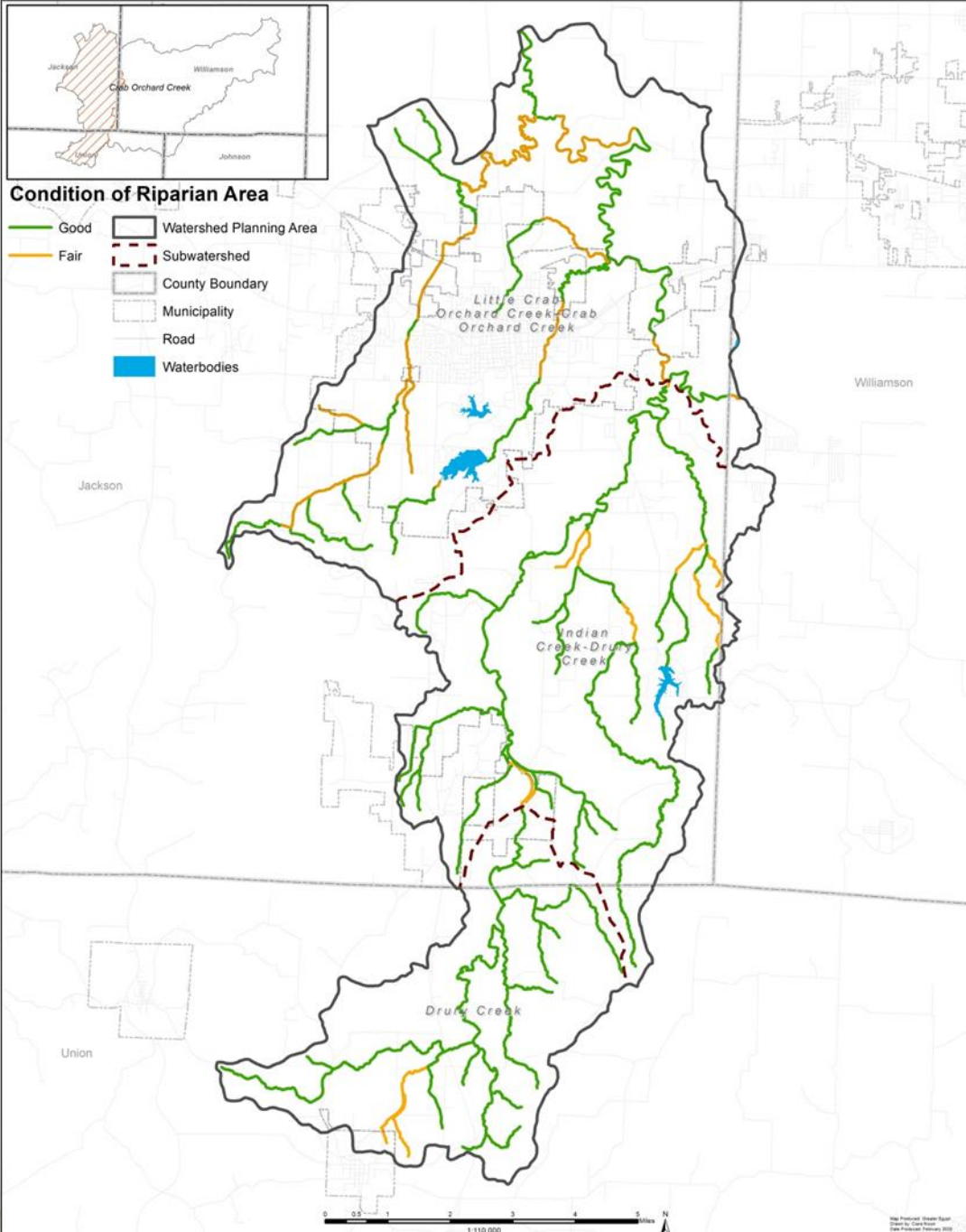
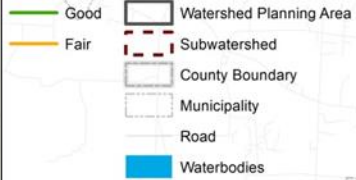
10 Shoreline Code



# Western Crab Orchard Creek - Riparian Assessment



## Condition of Riparian Area





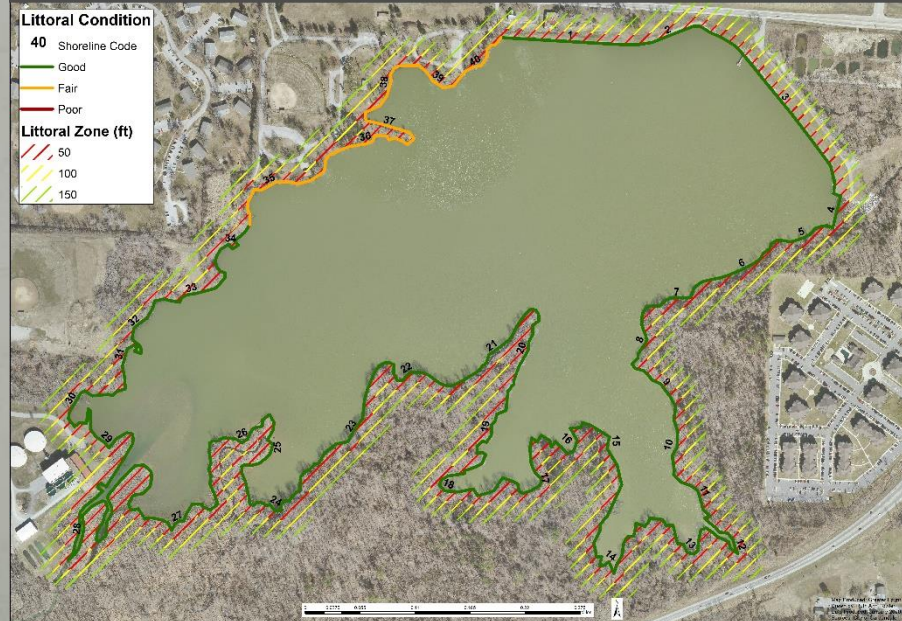
# Spring Arbor Lake- Littoral Condition



# Campus Lake- Littoral Condition



# Carbondale Reservoir- Littoral Condition

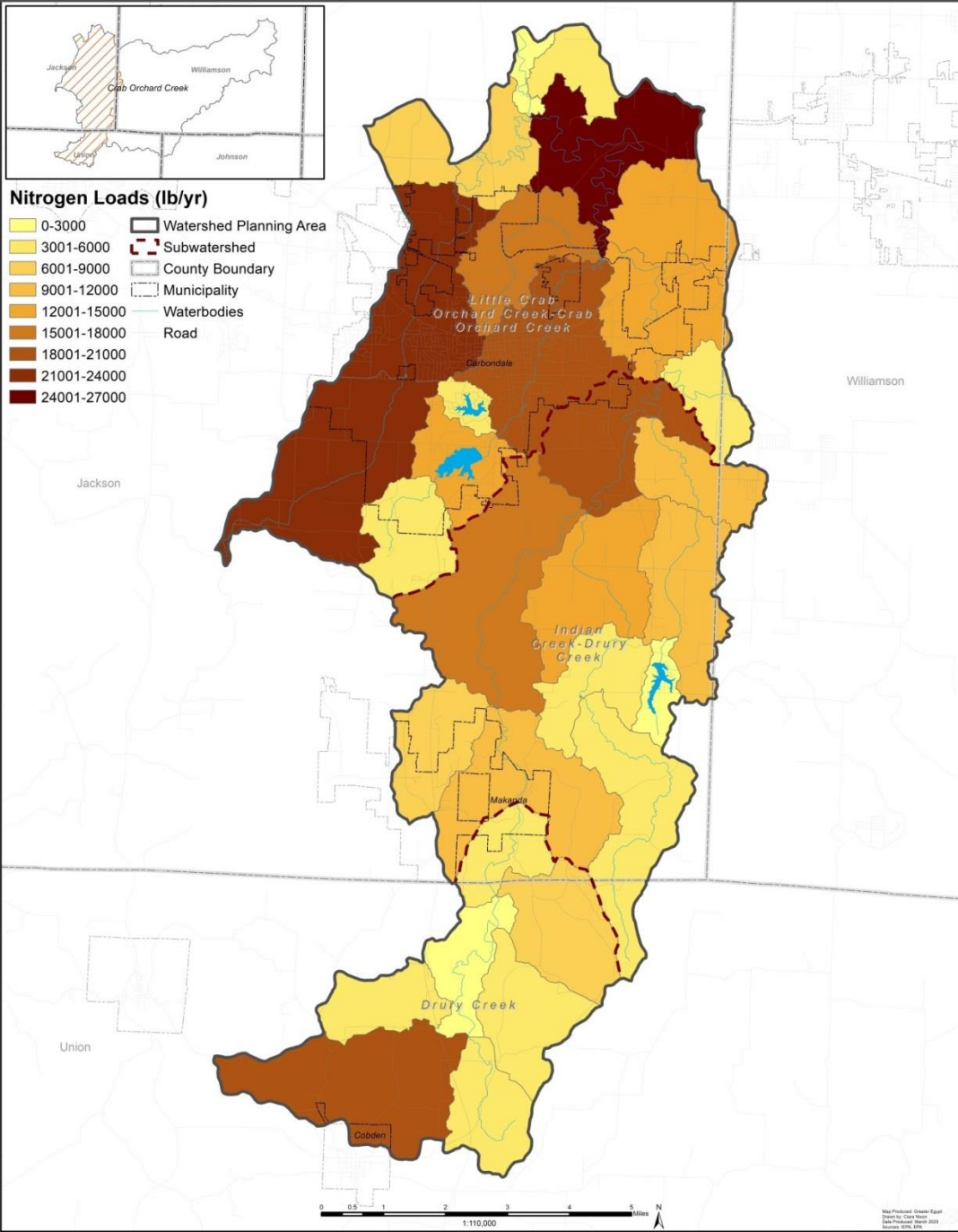


# Pollutant Loads

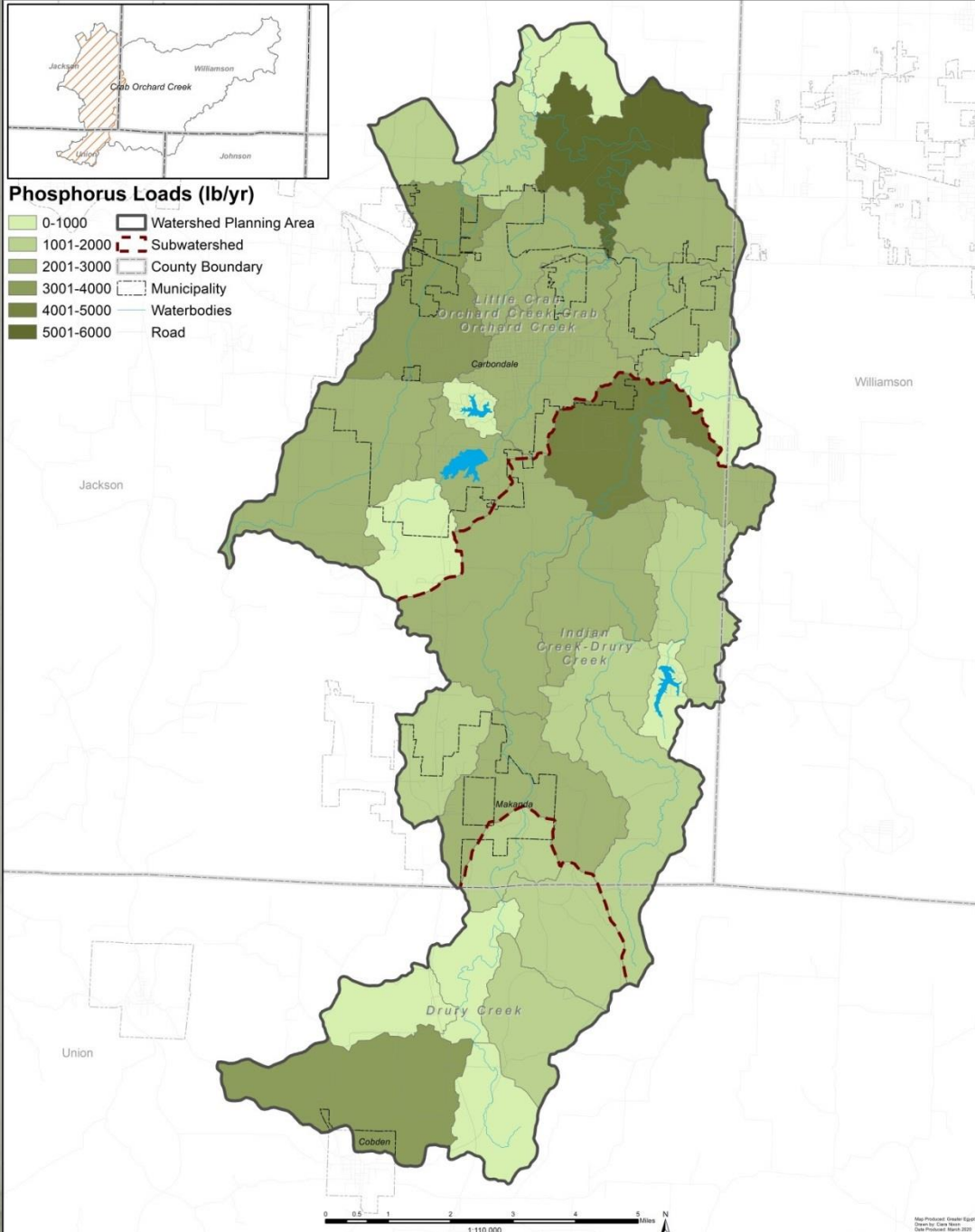
- Watershed-wide Pollutant Loading

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
<b>Urban</b>	81,390.36	24.88%	12,527.90	20.79%	1,870.49	3.91%
<b>Cropland</b>	31,256.72	9.56%	9,009.52	14.95%	5,606.23	11.71%
<b>Pastureland</b>	70,201.03	21.46%	8,968.51	14.88%	3,733.30	7.80%
<b>Forest and Grassland</b>	8,619.41	2.64%	3,998.50	6.63%	845.65	1.77%
<b>Groundwater</b>	78,323.21	23.94%	3,696.34	6.13%	0.00	0.00%
<b>Streambank</b>	57,308.84	17.52%	22,063.91	36.61%	35,818.03	74.82%
<b>Total</b>	<b>327,099.55</b>		<b>60,264.68</b>		<b>47,873.69</b>	

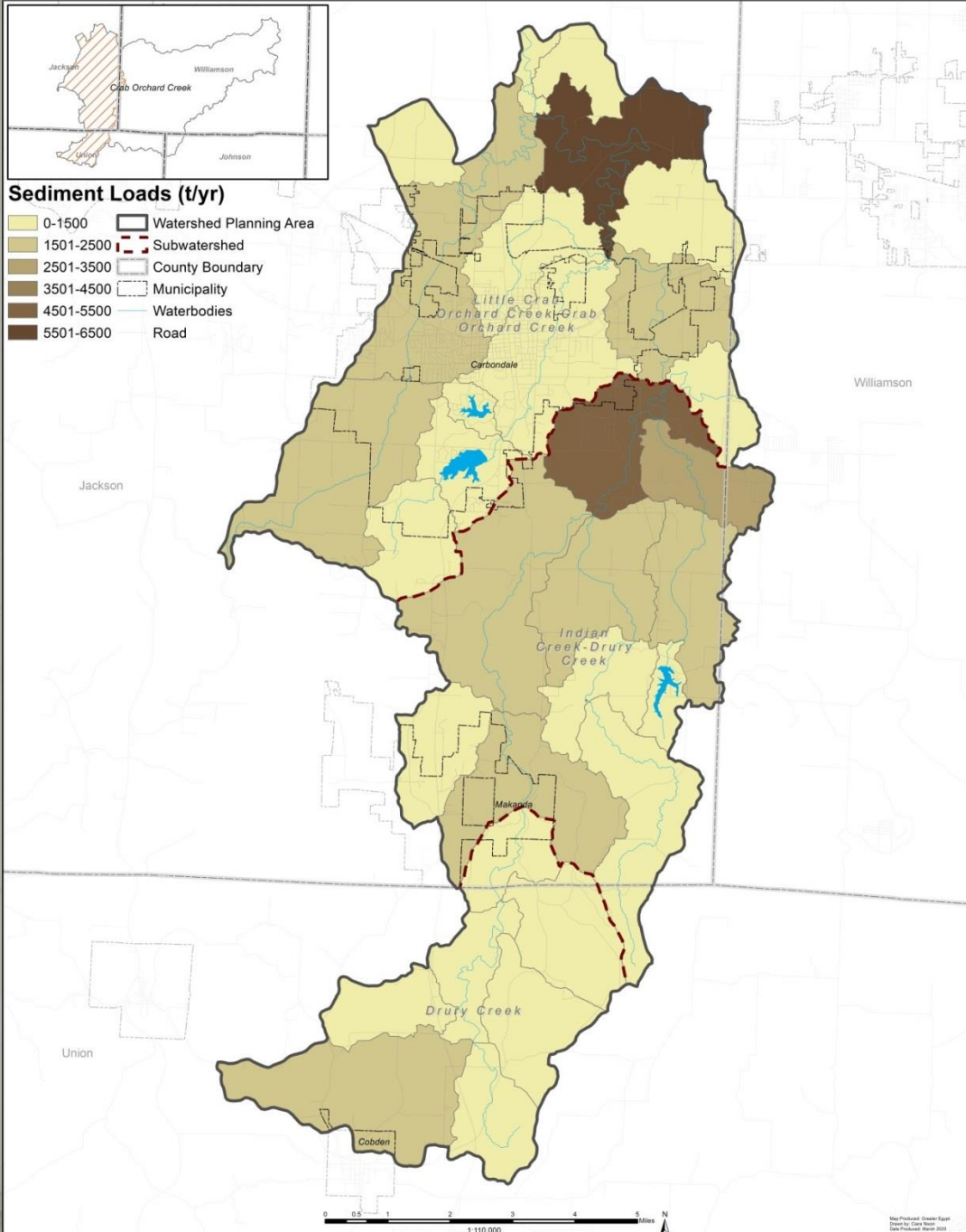
# Western Crab Orchard Creek - Nitrogen Load



# Western Crab Orchard Creek - Phosphorus Load



# Western Crab Orchard Creek - Sediment Load



## 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)
<b>Piles Fork</b>	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
<b>Campus Lake</b>	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 (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
- 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 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
<b>Subwatershed Load Reduction Targets</b>							
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
<b>TOTAL</b>			<b>49,064.93</b>		<b>15,066.17</b>		<b>11,968.42</b>



# Concerns Within the Watershed

## EPA 303d List of Impaired Waters by Subwatershed:

### Drury Creek Subwatershed:

- Drury Creek

### Indian Creek Subwatershed:

- Indian Creek
- Sycamore Creek

### Little Crab Orchard Creek Subwatershed:

- Big Muddy River
- Crab Orchard Creek
- Eek Creek
- Little Crab Orchard Creek – West
- Piles Fork Creek
- Carbondale City Lake
- Campus Lake

# Crab Orchard Creek Subwatershed 303d Information

Waterbody	Assessment Unit ID	Causes of Impairment(s)	Sources of Impairment(s)
Big Muddy River	IL_N-16	Dissolved Oxygen, Sedimentation/Siltation, Mercury	Non-irrigated Crop Production, Natural Sources, Atmospheric Deposition- Toxics, Source Unknown
Crab Orchard Creek	IL-ND-01	Mercury	Atmospheric Deposition-Toxics, Source Unknown
Crab Orchard Creek	IL-ND-02	Manganese, Other flow regime alterations, Dissolved Oxygen	Source Unknown, Impacts from Hydrostructure Flow Regulations/modification, Upstream Impoundments
Crab Orchard Creek	IL-ND-11	Dissolved Oxygen, Cause Unknown	Source Unknown
Eek Creek	IL_NDBA-01	Alteration in stream-side or littoral vegetative covers, Dissolved Oxygen, Water Temperature, Loss of Instream Cover	Channelization, Industrial Land Treatment, Loss of Riparian Habitat, Rcra Hazardous Waste Sites, Crop Production (Crop Land or Dry Land), Agriculture, Habitat Modification- other than Hydromodification
Little Crab Orchard Creek- West	IL_NDA-01	Alteration in stream-side or littoral vegetative covers, Methoxychlor, Dissolved Oxygen	Loss of Riparian Habitat, Streambank Modifications/destabilization, Crop Production ( Crop Land or Dry Land), Urban Runoff/Storm Sewers, Livestock (Grazing or Feeding Operations)
Piles Fork	IL_NDB-03	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	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
Carbondale City Lake	IL_RNI	Mercury, Total Suspended Solids(TSS), Phosphorus (Total)	Atmospheric deposition-Toxics, Source Unknown, Littoral/shore Area Modifications ( Non-riverine), Municipal Point Source Discharges, Urban Runoff/Storm Sewers, Runoff from Forest/Grassland/Parkland

# Indian Creek-Drury Creek Subwatershed 303d Information

Waterbody	Assessment Unit ID	Causes of Impairment(s)	Sources of Impairment(s)
Drury Creek	IL_NDC-02	Dissolved Oxygen	Acid Mine Drainage, Highway/Road/Bridge Runoff(Non-construction Related), Impacts from Abandoned Mine Lands (Inactive), Streambank Modifications/destabilization, Crop Production (Crop Land or Dry Land), Agriculture
Indian Creek	IL_NDCB-01	Alteration in stream-side or littoral vegetative covers, Low flow alterations, Dissolved Oxygen, Changes in Stream Depth and Velocity Patterns	Streambank Modifications/destabilization, Habitat Modification-other than Hydromodification, Loss of Riparian Habitat, Crop Production (Crop Land or Dry Land), Agriculture
Sycamore Creek	IL_NDCA	Dissolved Oxygen, pH	Acid Mine Drainage, Impacts from Abandoned Mine Lands (Inactive), Loss of Riparian Habitat, Crop Production (Crop Land or Dry Land), Agriculture

# Drury Creek Subwatershed 303d Information

Waterbody	Assessment Unit ID	Causes of Impairment(s)	Sources of Impairment(s)
Drury Creek	IL-NDC-01	Alteration in stream-side or littoral vegetative covers, Dissolved Oxygen	Loss of Riparian Habitat, Source Unknown

# Preliminary Goals

- Erosion along streambank/shoreline
- Address runoff from urban/agricultural areas
- Address 303(d) Impairments:
  - Dissolved Oxygen
  - pH
  - Sedimentation/Siltation
  - Mercury
  - Manganese
  - Water Temperature
  - Methoxychlor
  - TSS
  - Phosphorus
  - Polychlorinated biphenyls
- Encourage BMP for agricultural areas
- Increase public involvement

# Element C :

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

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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

# *BMP Checklist*

- Identify potential BMP
- Goals of the Plan
- Watershed Council/ Public input
- Land Use
- Site-specific/ Watershed-wide measures
- Load Reductions
- Cost



# Identify Potential Management Measures

- Create a list of BMP
- Find speakers to discuss successful implementation

	Structural Practices	Nonstructural Practices
Agriculture	<ul style="list-style-type: none"> <li>• Contour buffer strips</li> <li>• Grassed waterway</li> <li>• Herbaceous wind barriers</li> <li>• Mulching</li> <li>• Live fascines</li> <li>• Live staking</li> <li>• Livestock exclusion fence (prevents livestock from wading into streams)</li> <li>• Revetments</li> <li>• Riprap</li> <li>• Sediment basins</li> <li>• Terraces</li> <li>• Waste treatment lagoons</li> </ul>	<ul style="list-style-type: none"> <li>• Brush management</li> <li>• Conservation coverage</li> <li>• Conservation tillage</li> <li>• Educational materials</li> <li>• Erosion and sediment control plan</li> <li>• Nutrient management plan</li> <li>• Pesticide management</li> <li>• Prescribed grazing</li> <li>• Residue management</li> <li>• Requirement for minimum riparian buffer</li> <li>• Rotational grazing</li> <li>• Workshops/training for developing nutrient management plans</li> </ul>

	Structural Practices	Nonstructural Practices
Urban	<ul style="list-style-type: none"> <li>• Bioretention cells</li> <li>• Breakwaters</li> <li>• Brush layering</li> <li>• Infiltration basins</li> <li>• Green roofs</li> <li>• Live fascines</li> <li>• Marsh creation/restoration</li> <li>• Establishment of riparian buffers</li> <li>• Riprap</li> <li>• Stormwater ponds</li> <li>• Sand filters</li> <li>• Sediment basins</li> <li>• Tree revetments</li> <li>• Vegetated gabions</li> <li>• Water quality swales</li> <li>• Clustered wastewater treatment systems</li> </ul>	<ul style="list-style-type: none"> <li>• Planning for reduction of impervious surfaces (e.g., eliminating or reducing curb and gutter)</li> <li>• Management programs for onsite and clustered (decentralized) wastewater treatment systems</li> <li>• Educational materials</li> <li>• Erosion and sediment control plan</li> <li>• Fertilizer management</li> <li>• Ordinances</li> <li>• Pet waste programs</li> <li>• Pollution prevention plans</li> <li>• No-wake zones</li> <li>• Setbacks</li> <li>• Stormdrain stenciling</li> <li>• Workshops on proper installation of structural practices</li> <li>• Zoning overlay districts</li> <li>• Preservation of open space</li> <li>• Development of greenways in critical areas</li> </ul>



# *BMP Considerations*

## Goals of the Plan

- Incorporate objectives in plan with BMP selection
- Goals and BMP selection can vary in size and scope

## Public Input

- Local knowledge of watershed issues
- Attempt to reach out to larger group beyond planning council
- Public meetings



# *Land Use*

## Agricultural/ Forested/ Urban

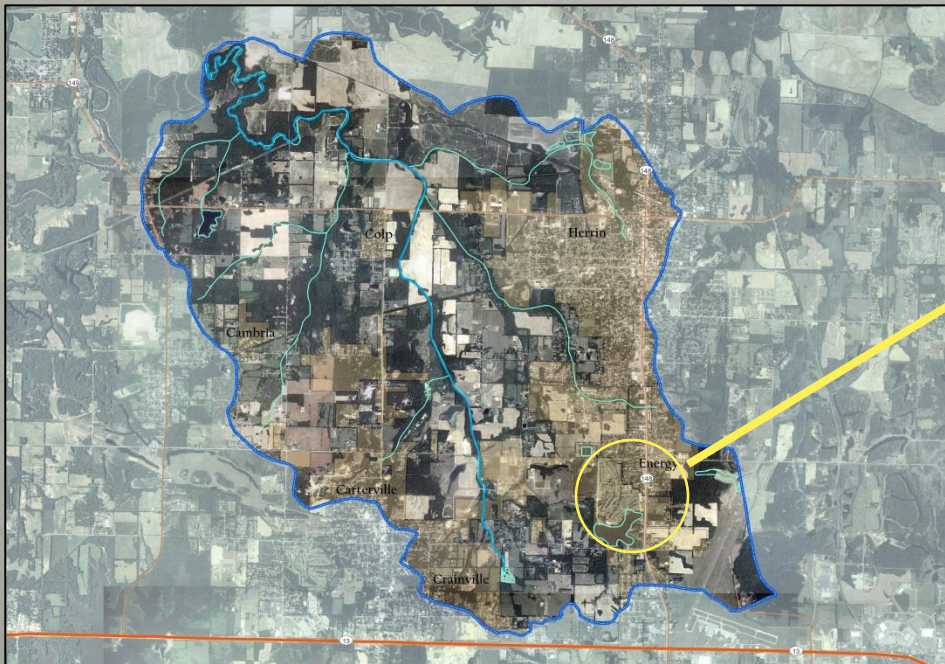
- Land use in Illinois
- Can dictate types of BMP
- Various limitations for each category



Source: Living History Farm

# *Location of Management Measures*

- Watershed-wide practices
- Site-specific BMP



## *Load Reductions*

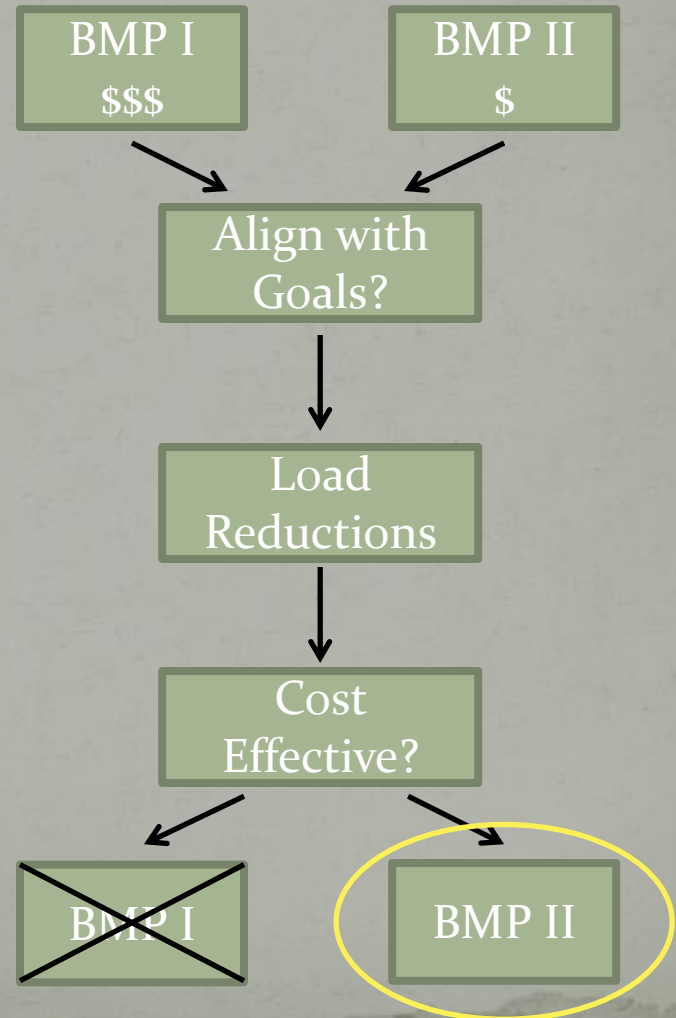
- Calculate load reductions for BMP
  - Various models
- Load reductions should be for watershed-wide and site-specific BMP
- Consider reduction targets

BMP	Amount	Unit	Load Reductions- lbs/ yr (N,P, TSS, BOD, COD), ton/yr- (Sediment)					
			N	P	Sediment	TSS	BOD	COD
Conservation Tillage	306.5	acres	1467	786	671	-	-	-
Green Roof	2	acres	17	1	-	1723	86	471
Porous Pavement	20	acres	784	59	-	92934	-	34608
Streambank Stabilization	43,349	feet	4421.6	2210.8	2210.8	-	-	-
		<b>TOTALS:</b>	<b>6689.6</b>	<b>3056.8</b>	<b>2881.8</b>	<b>94657</b>	<b>86</b>	<b>35079</b>
			N	P	Sediment	TSS	BOD	COD

General Area (Contributing Area)	BMP	Map ID	Target Area (Reach Code)	Amount	Unit	Load Reductions- lbs/ yr (N,P, TSS, BOD, COD), ton/yr- (Sediment)							Priority
						N	P	Sediment	TSS	BOD	COD	K	
North Herrin Tributary	Agricultural Filter Strip	19	7140106001218	196	feet	59	32	29	-	-	-	-	L
		20	7140106001218	3543	feet	873	468	405	-	-	-	-	H
		21	7140106001218	1340	feet	383	205	182	-	-	-	-	H
		22	7140106006989	503	feet	59	32	29	-	-	-	-	L
	Grassed Waterways	47	7140106001218	587	feet	40.9	20.5	20.5	-	-	-	-	L
		48	7140106001218	897	feet	62.5	31.3	31.3	-	-	-	-	L
		49	7140106001218	713	feet	277.3	138.6	138.6	-	-	-	-	L
		50	7140106001218	547	feet	72.1	36	36	-	-	-	-	L
		51	7140106001218	1111	feet	136	68	68	-	-	-	-	L
		52	7140106001218	403	feet	17.6	8.8	8.8	-	-	-	-	L
		53	7140106001218	252	feet	16.1	8	8	-	-	-	-	M
		54	7140106001218	375	feet	37.3	18.7	18.7	-	-	-	-	M
	Streambank Stabilization	86	7140106001218	206	feet	7	3.5	3.5	-	-	-	-	L
		87	7140106001218	1052	feet	36	18	18	-	-	-	-	M
Vegetative Filter Strip	106	7140106001218	1304	feet	79	10	-	7773	375	2061	-	M	
	109	7140106001218	194	feet	3	0	-	825	13	176	-	L	
	110	7140106001218	1087	feet	13	2	0	1196	59	297	-	L	
South Herrin Tributary	Agricultural Filter Strip	8	7140106001217	441	feet	22	12	11	-	-	-	-	L
		9	7140106001217	492	feet	110	59	54	-	-	-	-	L
	Grassed Waterways	37	7140106001217	348	feet	76.9	38.5	38.5	-	-	-	-	M
		38	7140106001217	799	feet	108.7	54.3	54.3	-	-	-	-	M
		39	7140106007055	521	feet	62	31	31	-	-	-	-	L
		40	7140106007055	829	feet	98.7	49.3	49.3	-	-	-	-	L
		41	7140106007055	360	feet	32.1	16.1	16.1	-	-	-	-	L
	Detention Basin	29	7140106001217	10	acres	18	2	-	3564	61	290	-	M
		30	7140106001217	12	acres	14	2	-	2398	36	184	-	M
	Streambank Stabilization	82	7140106001217	520	feet	265.2	132.6	132.6	-	-	-	-	H
		83	7140106001217	955	feet	568.4	284.2	284.2	-	-	-	-	H
91		7140106001217	473	feet	32	16	16	-	-	-	-	M	
					<b>TOTALS:</b>	<b>3579.8</b>	<b>1797.4</b>	<b>1683.4</b>	<b>15756</b>	<b>544</b>	<b>3008</b>	<b>0</b>	
						N	P	Sediment	TSS	BOD	COD	K	

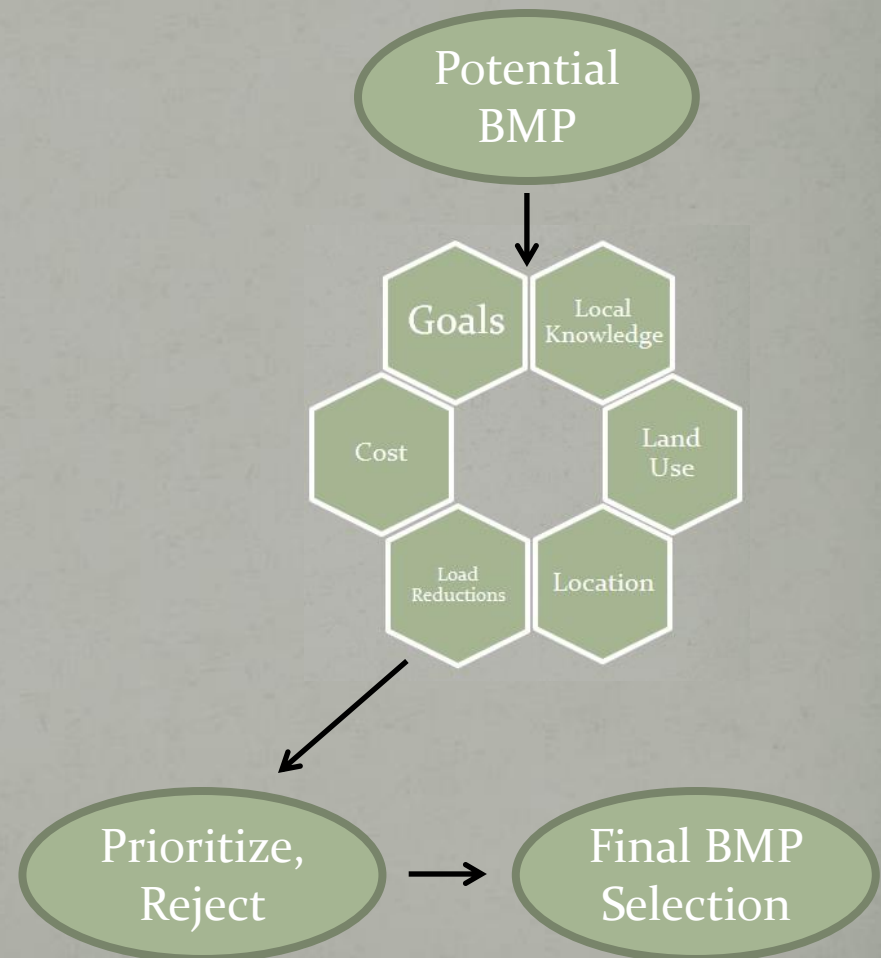
# Cost

- Weigh various components of management measures with cost
  - Goals
  - Load reductions
  - Cost Effective



## *Final Selection of BMP*

- List of Potential BMP
- Watershed Committee and public input
- Consider previous components
- Prioritize BMP
- Other considerations
  - Structural vs. non-structural
  - Labor
  - Legal requirements/ ordinances
  - Other benefits





## Agricultural Filters/Buffers Criteria



- Adjacent to waterbody
- Nutrient runoff reduction

## Debris Removal Criteria



- Limiting flow
- Areas with existing drainage issues
- Organic vs. Synthetic
- Other considerations



## Grassed Waterways 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
- High Level: 50%
- Medium Level- 25%
- None or Low- 10%
- Sediment reduction

## Riparian Buffer Criteria



- Based on assessment
- No tree cover
- Agricultural
- Intercepts nutrients

# Management Measure Timeline

- Planning Member submit BMP proposal
- GE Staff
  - Model load reductions from Planning Committee
  - Map all management measures
  - Calculate loads for HUC 12 and HUC 14 levels
  - Site-specific measures for:
    - Streambank/ Shoreline Stabilization
    - Riparian Buffers
    - Filter Strips/ Field Borders
    - Grassed Waterways

# BMP Worksheet

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

- Please provide a list of BMP for plan
- BMP Proposals by next meeting (April-May 2021)
- Complete list should meet load reduction targets

# Nine Elements of a Watershed-based Plan

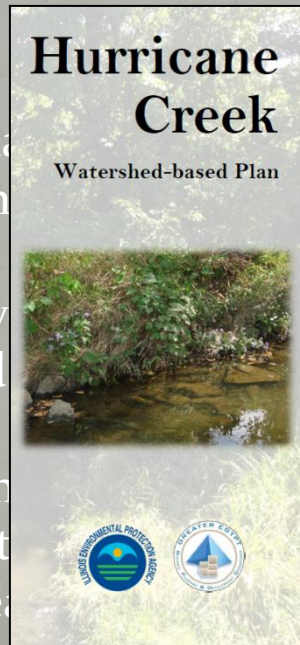
## Element E: Enhance Public Understanding Through Outreach Measures

- Public meetings
- Demonstration Sites
  - Green Earth Trail -Parrish Park
- Informational pamphlets regarding watershed planning efforts
  - Construct one for planning area

- Workshops
  - Stormwater Management
  - Rain Gardens

- Water Resources Survey
  - To be distributed

- Stormwater Management
  - Can use to invent management measures



This block contains a collection of outreach materials for the Hurricane Creek Watershed. At the top, there is a photograph of a white building with a green roof, likely a demonstration site. Below this is a map of the Hurricane Creek Watershed, showing the creek's path and surrounding areas. The map is color-coded by municipality: Hurricane Creek (blue), Herrin Old Lake (light blue), Streams (green), Cambria (light green), Cartersville (yellow), Colp (orange), Crainville (purple), Herrin (pink), and Street (grey). A legend on the right side of the map identifies these areas. Below the map is a scale bar from 0 to 2 miles.

**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: geography, 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 2004 list of Impaired Waters. Hurricane Creek has been placed on the list because of problems with sedimentation and siltation. Herrin 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(h) funding under the Clean Water Act.

**Hurricane Creek Watershed Quick Facts**

- 14,190 Acres (28 square miles)
- Contains six municipalities
- 23 % Agricultural, 30% Forested, 29 % Developed
- Fair amount of nutrient runoff from urban and agricultural areas

**Applying for CWA Section 319(h) Funding:**  
Applications for grants that address nonpoint source pollution can be awarded through Section 319(h) of the Clean Water Act. Section 319(h) 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(h) 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.



# 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

## 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

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

### Element G: Interim Measurable Milestones

<b>Interim Measurable Milestones</b>				
<b>Goal</b>	<b>Indicator</b>	<b>Short (2-year)</b>	<b>Mid (6-yr)</b>	<b>Long (10-yr)</b>
<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

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

### Element H: Benchmarks for load reduction targets

- Targets can be broken down into phases

Benchmark Period	Benchmark Reduction Target					
	Nitrogen (percent)	Nitrogen (lbs/ yr)	Phosphorus (percent)	Phosphorus (lbs/yr)	Sediment (percent)	Sediment (tons/yr)
<b>2 Year (Phase I)</b>	-	-	-	-	-	-
<b>6 Year (Phase II)</b>	7	22,896.97	10	6,026.47	15	7,181.05
<b>10 Year (Phase III)</b>	15	49,064.93	25	15,066.17	30	11,968.42

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

### 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

- BMP Worksheets
  - Turn in BMP proposals
  - Deadline – By next meeting
- Ideas for education/outreach
  - Promote Watershed –based Plan
  - Activities
  - Items can be covered by grants

# Meeting Schedule

<b>MEETING 1</b>	<b>Introduction of Plan Elements and Watershed Inventory</b>	<b>November 19, 2020</b>
<b>MEETING 2</b>	<b>Best Management Practices and Remaining Plan Elements</b>	<b>February 23, 2021</b>
<b>MEETING 3</b>	<b>Prioritization of Best Management Practices</b>	<b>April, 2021</b>
<b>MEETING 4</b>	<b>Draft Plan Review</b>	<b>June, 2021</b>
	<b>Final Draft DUE</b>	<b>June 30, 2021</b>



# Questions/Comments

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