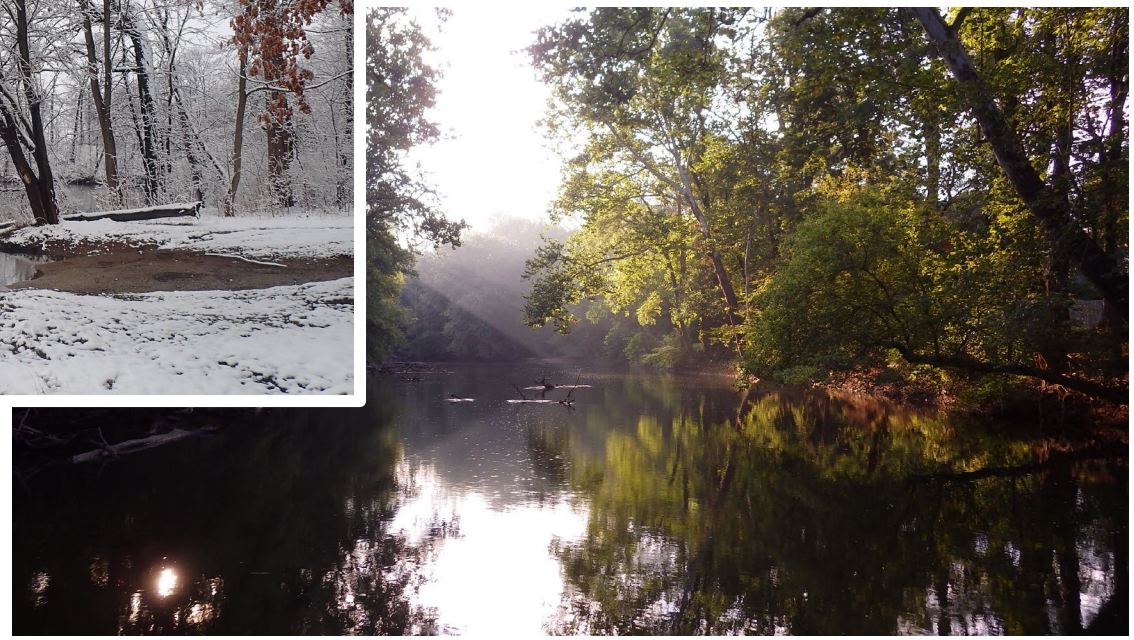
Lower Elkhart River Grant Steering Committee Meeting

Tuesday, April 30th at 10:00 am

City of Goshen Annex Conference Room – 204 E Jefferson Street

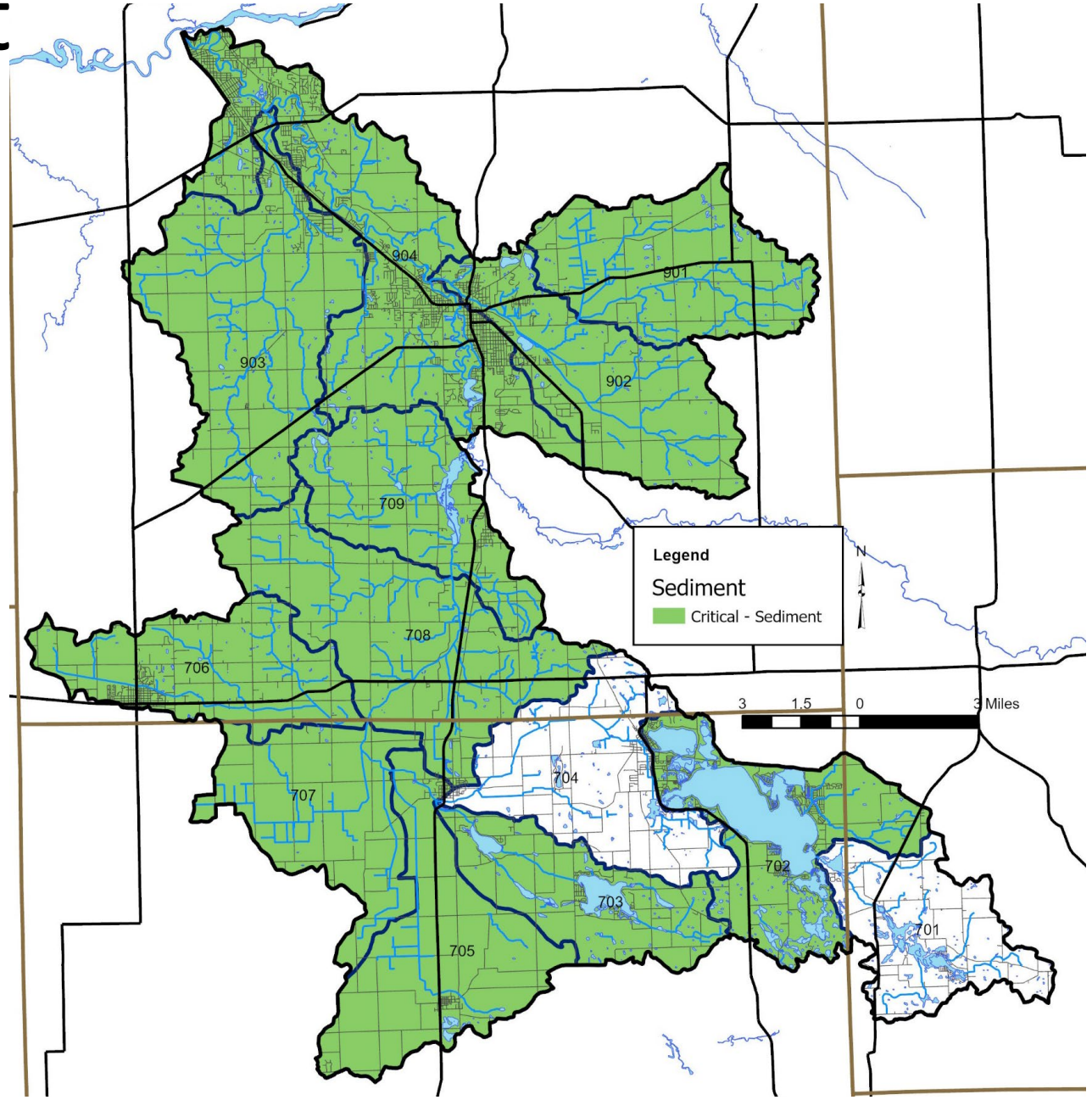


Sediment

- Livestock access
- HEL
- Streambank erosion
- TSS current, historic
- Narrow buffers
- Ag land
- Urban land

Subwatershed Name	HUC	HEL	Livestock access	Streambank erosion	narrow buffer	Ag - Row +Pasture	Urban	TSS historic	TSS current	Score	Revised Score
Berlin Ct. Ditch	706	2		6	1	6	3	7	4	4.14	4.67
Coppes Ditch-Turkey Creek	705	1				2	10	11	7	6.20	6.20
Dausman Ditch-Turkey Creek	708	5		1	2	4	8	4	7	4.43	4.83
Goshen Dam Pond-Elkhart River	904	12				12	1	9	1	7.00	7.00
Headwaters Yellow Creek	903	10	1	3	4	7	5	3	7	5.00	5.83
Hoopingarner Ditch-Turkey Creek	704	7				9	6		13	8.75	8.75
Hoover Ditch-Rock Run Creek	901	6	2	8	5	3	11	1	7	5.38	6.00
Horn Ditch-Rock Run Creek	902	4		2		11	2	8	2	4.83	4.83
Lake Wawasee	702	3				13	4	10	5	7.00	7.00
Omar-Neff Ditch-Turkey Creek	707	11		7	3	1	13	5	7	6.71	7.33
Swoveland Ditch-Turkey Creek	709	9	3	5		5	7	6	7	6.00	6.50
Village Lake-Turkey Creek	701	13		4		8	12	11	3	8.50	8.50
Wabee Lake-Hammond Ditch	703	8				10	9	1	6	6.80	6.80

Sediment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Sediment
Critical - Sediment
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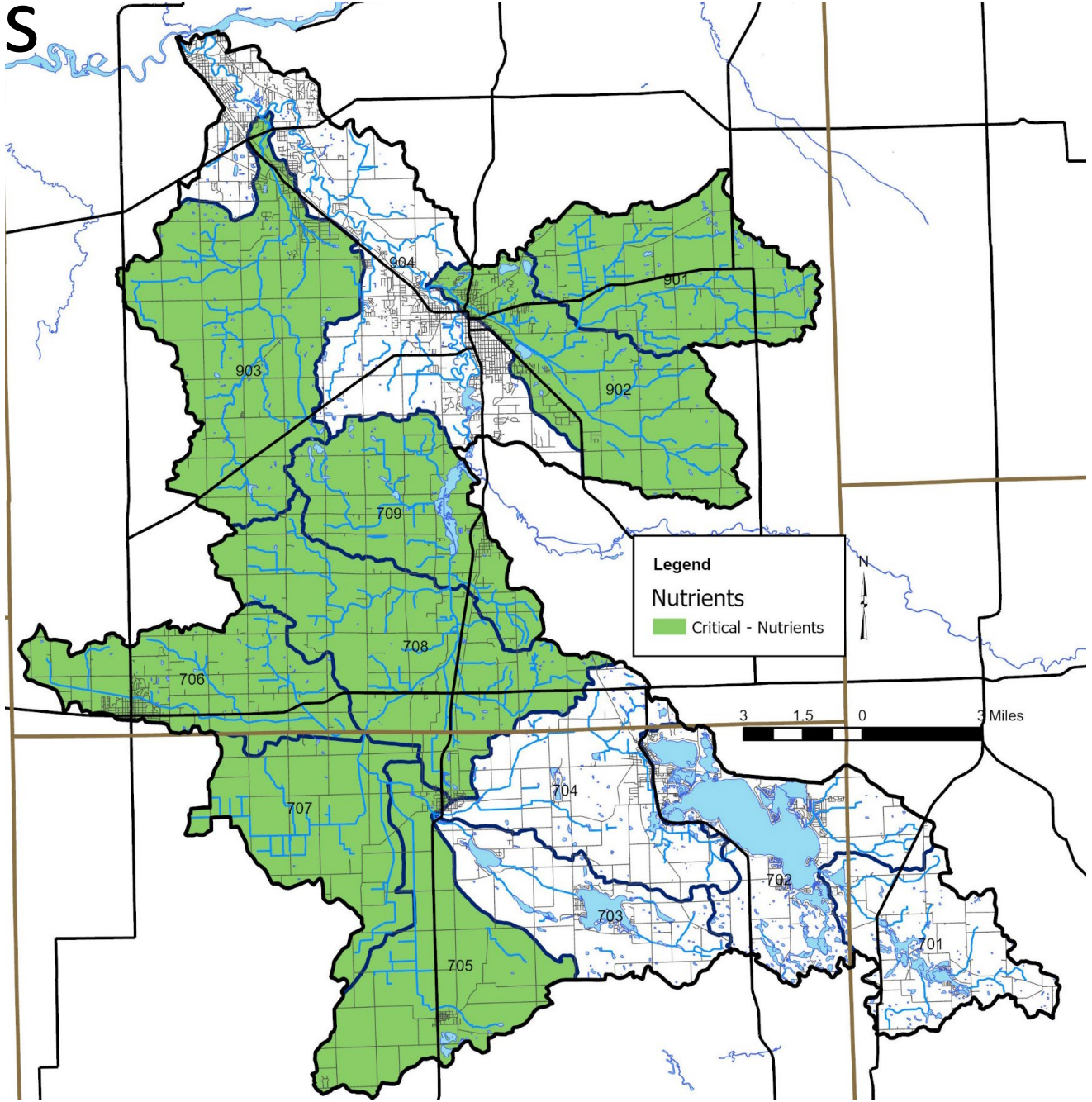
3 Miles

Nutrients

- Livestock access
- Septic limitation (very)
- Ag land
- Urban land
- N&P current, historic
- Manure volume
- Impaired - nutrients

Subwatershed Name	HUC	Impaired nutrients	Septic VL	Manure estimate	Livestock access	Ag - Row +Pasture	Urban	N historic	N current	TP historic	TP current	Score	Revised Score
Berlin Ct. Ditch	706	1	3	7		6	3	3	1		1	3.43	4.40
Coppes Ditch-Turkey Creek	705	13	6	8		2	10		1		8	6.67	6.50
Dausman Ditch-Turkey Creek	708	13	5	5		4	8	6	13	1	6	7.71	5.60
Goshen Dam Pond-Elkhart River	904	13	11	13		12	1	9	1	3	3	8.57	9.20
Headwaters Yellow Creek	903	13	8	4	1	7	5	8	1	1	2	5.88	6.40
Hoopingarner Ditch-Turkey Creek	704	13	9	10		9	6		1		8	8.00	8.50
Hoover Ditch-Rock Run Creek	901	13	1	3	2	3	11		1		3	4.86	4.50
Horn Ditch-Rock Run Creek	902	13	7	9		11	2	5	1	4	5	6.86	6.80
Lake Wawasee	702	13	13	12		13	4	10	1	8	8	9.43	10.40
Omar-Neff Ditch-Turkey Creek	707	13	2	1		1	13	1	1		8	4.57	3.60
Swoveland Ditch-Turkey Creek	709	13	4	2	3	5	7	6	1	6	6	5.13	4.80
Village Lake-Turkey Creek	701	13	10	11		8	12	4	1	7	8	8.43	9.00
Wabee Lake-Hammond Ditch	703	13	12	6		10	9	1	1	5	8	7.43	7.60

Nutrients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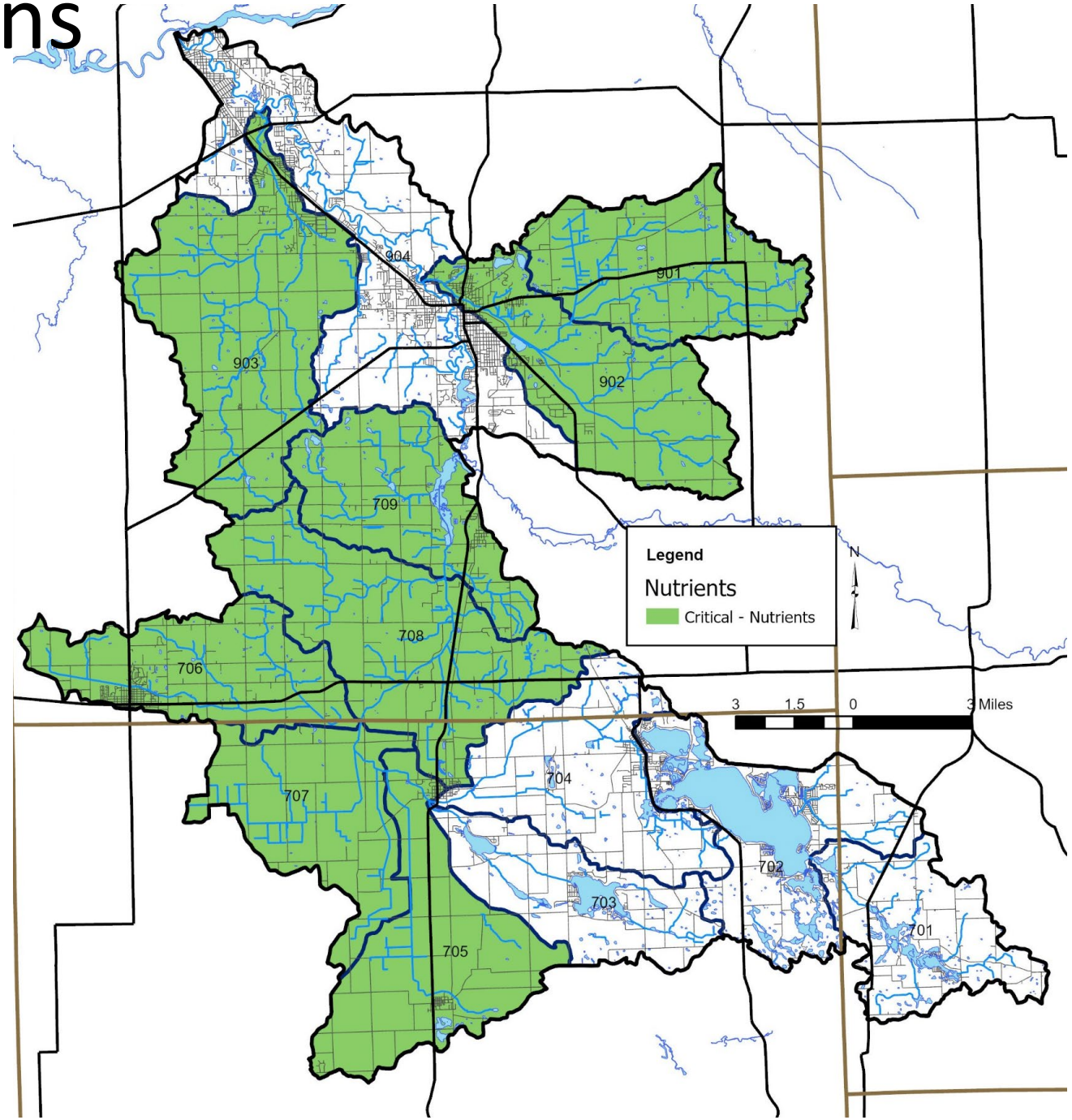
Pathogens

- Septics – very limited
- Manure volume
- Ecoli current, historic
- Impaired – Ecoli

Subwatershed Name	HUC	Impaired Ecoli	Septic VL	Manure estimate	Ecoli historic	Ecoli current	Score
Berlin Ct. Ditch	706	6	3	7	9	4	5.80
Coppes Ditch-Turkey Creek	705	10	6	8	1	11	7.20
Dausman Ditch-Turkey Creek	708	2	5	5	5	6	4.60
Goshen Dam Pond-Elkhart River	904	5	11	13	11	10	10.00
Headwaters Yellow Creek	903	9	8	4	4	5	6.00
Hoopingarner Ditch-Turkey Creek	704	1	9	10	10	3	6.60
Hoover Ditch-Rock Run Creek	901	4	1	3	1	2	2.20
Horn Ditch-Rock Run Creek	902	8	7	9	3	8	7.00
Lake Wawasee	702	11	13	12	12	13	12.20
Omar-Neff Ditch-Turkey Creek	707	3	2	1	7	6	3.80
Swoveland Ditch-Turkey Creek	709	7	4	2	6	1	4.00
Village Lake-Turkey Creek	701	11	10	11	8	12	10.40
Wabee Lake-Hammond Ditch	703	11	12	6	12	8	9.80

Pathogens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Nutrients
Critical - Nutrients
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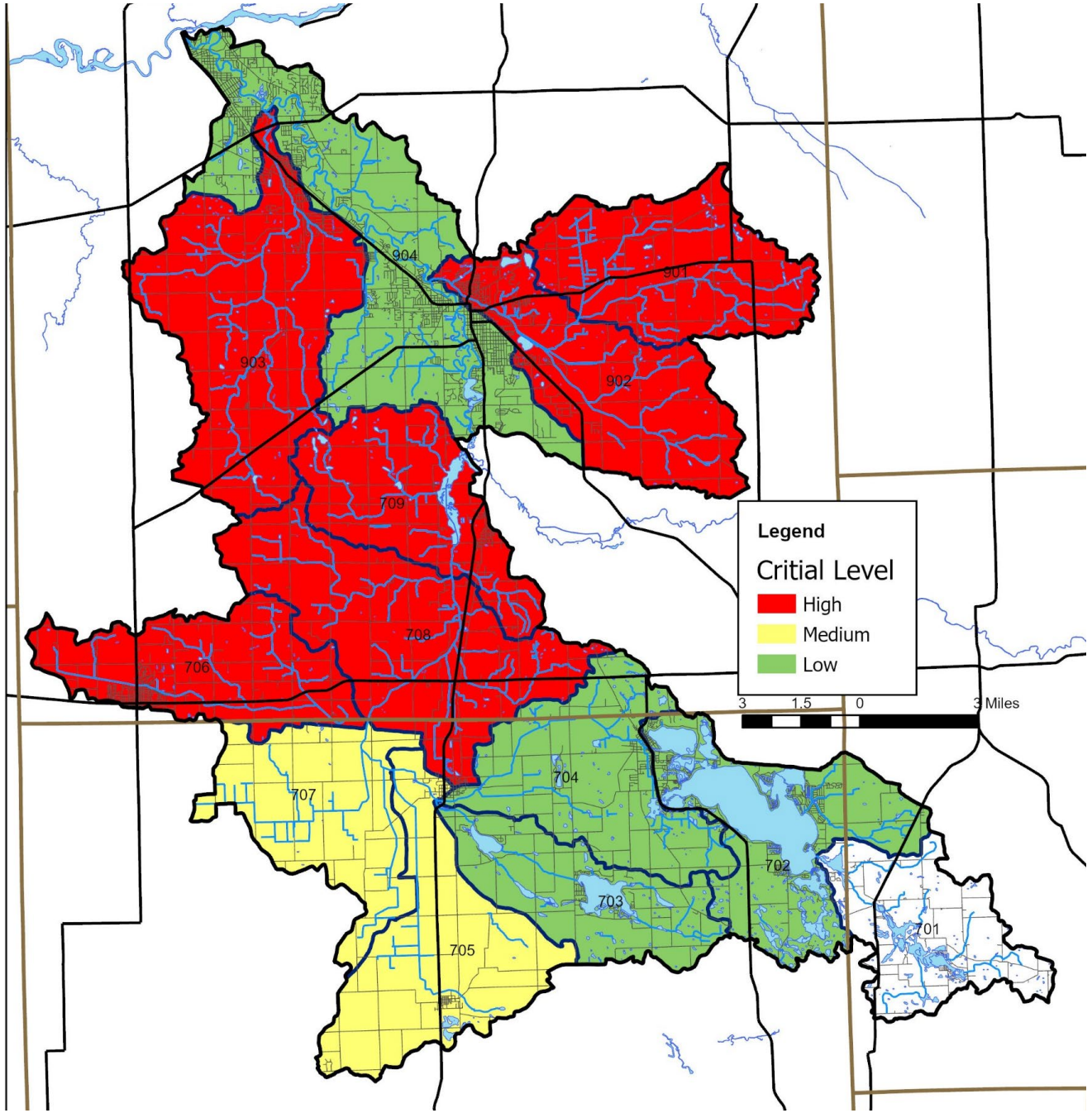
Critical Ratings (yes=7 or less)

Subwatershed	HUC	Sediment score	Sediment rating	Nutrient score	Nutrients rating	Ecoli score	Ecoli rating	Count	
Berlin Ct. Ditch	706	4.67	yes	4.40	Yes	5.80	yes	3	High
Coppes Ditch-Turkey Creek	705	6.20	yes	6.50	yes	7.20		2	Medium
Dausman Ditch-Turkey Creek	708	4.83	yes	5.60	yes	4.60	yes	3	High
Goshen Dam Pond-Elkhart River	904	7.00	yes	9.20		10.00		1	Low
Headwaters Yellow Creek	903	5.83	yes	6.40	yes	6.00	yes	3	High
Hoopingarner Ditch-Turkey Creek	704	8.75		8.50		6.60	yes	1	Low
Hoover Ditch-Rock Run Creek	901	6.00	yes	4.50	yes	2.20	yes	3	High
Horn Ditch-Rock Run Creek	902	4.83	yes	6.80	yes	7.00	yes	3	High
Lake Wawasee	702	7.00	yes	10.40		12.20		1	Low
Omar-Neff Ditch-Turkey Creek	707	7.33	yes	3.60	yes	3.80	yes	2	Medium
Swoveland Ditch-Turkey Creek	709	6.50	yes	4.80	yes	4.00	yes	3	High
Village Lake-Turkey Creek	701	8.50		9.00		10.40		0	
Wabee Lake-Hammond Ditch	703	6.80	yes	7.60		9.80		1	Low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High
Medium
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Watershed Plan Goals

Problem	Potential Cause(s)	Potential Goal:
Sediment: area streams are cloudy/turbid	Suspended Sediment concentration levels exceed the target set by this project	Reduce total suspended sediment loading by X lb/year by 2054.
Nutrients: Area streams have nutrient levels exceeding the target set by this project	Nutrient levels exceed the target set by this project	Reduce nitrogen and phosphorus loading by X lb/year by 2054.
E. coli: Area streams are impaired for recreational contact by IDEM's 303(d) list	E. coli levels exceed the recreational contact water quality standard	Reduce E. coli loading by X lb/year by 2054.
Recreation	Unsafe water for swimming and boating (recreational contact); concerns for long-term negative impacts to recreation (impediments to public access, lack of recreation access points).	Increase recreational access through increased river access points, ability to paddle from (IDEAL ACCESS POINT?) to the watershed outlet to the St Joseph River and improve habitat connectivity/natural land preservation across the watershed within 30 years.
Drainage patterns impact water quantity	Humans altered the natural drainage pattern. Balance should be restored.	Reduce flooding impacts by reducing flow peaks and volume (stormwater impact reduction; floodplain restoration) and increasing storage and infiltration increase acreage of buffers and wetlands) across the watershed.
Wildlife impacts	Habitat modification, both historic and present day, altered the watershed use and impacted biological communities.	Improve habitat connectivity by restoring forest land, grassland, wetland; consider filter strip installation, tree/prairie planting, floodplain or wetland restoration.
Education and cohesion is lacking	Focused cohesive education and outreach activities and promotion of activities is needed to build public awareness and create a sense of place. Local regulations are key to minimizing the impacts from development in the watershed.	Create cohesive education and outreach program focused on increasing public awareness and building as sense of place. Build support for the Lower Elkhart River WMP from all affected government bodies to build support for funding, cohesive regulations and long-term viability of watershed-focused efforts.

	Nitrate	Current	Target	Load Reduction	% Reduction
Village Lake-Turkey Creek	1	99,151.8	25,413.8	73,738	74%
Lake Wawasee-Turkey Creek	2	410,929.6	61,174.0	349,756	85%
Wabee Lake-Hammond Ditch	3	61,622.6	25,245.8	36,377	59%
Coppes Ditch-Turkey Creek	4+5	664,970.6	155,219.6	509,751	77%
Omar Neff Ditch-Turkey Creek	6	572,294.6	184,106.3	388,188	68%
Berlin Court Ditch	7	145,535.3	28,294.5	117,241	81%
Hoopingarner Ditch-Turkey Creek	8	404,357.9	94,897.0	309,461	77%
Dausman Ditch-Turkey Creek	9	643,085.7	268,268.0	374,818	58%
Swoveland Ditch-Turkey Creek	10	1,444,815.6	930,527.2	514,288	36%
Headwaters Yellow Creek	11	170,332.2	52,548.1	117,784	69%
Hoover Ditch-Rock Run Creek	12	140,878.4	34,415.9	106,463	76%
Horn Ditch-Rock Run Creek	13	245,348.1	69,303.9	176,044	72%
Goshen Dam Pond-Elkhart River	14	5,234,957.8	1,118,743.2	4,116,215	79%
	TP	Current	Target	Load Reduction	% Reduction
Village Lake-Turkey Creek	1	1,359.2	2,033.1	-674	-50%
Lake Wawasee-Turkey Creek	2	3,253.8	4,893.9	-1,640	-50%
Wabee Lake-Hammond Ditch	3	1,409.3	2,019.7	-610	-43%
Coppes Ditch-Turkey Creek	4+5	8,407.3	12,417.6	-4,010	-48%
Omar Neff Ditch-Turkey Creek	6	9,792.5	14,728.5	-4,936	-50%
Berlin Court Ditch	7	4,718.1	2,263.6	2,454	52%
Hoopingarner Ditch-Turkey Creek	8	5,047.5	7,591.8	-2,544	-50%
Dausman Ditch-Turkey Creek	9	20,602.2	21,461.4	-859	-4%
Swoveland Ditch-Turkey Creek	10	66,885.4	74,442.2	-7,557	-11%
Headwaters Yellow Creek	11	9,764.3	4,203.8	5,560	57%
Hoover Ditch-Rock Run Creek	12	6,768.7	2,753.3	4,015	59%
Horn Ditch-Rock Run Creek	13	12,980.9	5,544.3	7,437	57%
Goshen Dam Pond-Elkhart River	14	139,216.9	89,499.5	49,717	36%

	TSS	Current	Target	Load Reduction	% Reduction
Village Lake-Turkey Creek	1	537,505.2	381,207.5	156,298	29%
Lake Wawasee-Turkey Creek	2	673,764.0	917,610.6	-243,847	-36%
Wabee Lake-Hammond Ditch	3	281,532.3	378,686.9	-97,155	-35%
Coppes Ditch-Turkey Creek	4+5	1,653,910.4	2,328,294.5	-674,384	-41%
Omar Neff Ditch-Turkey Creek	6	2,423,275.2	2,761,593.9	-338,319	-14%
Berlin Court Ditch	7	639,473.8	424,417.4	215,056	34%
Hoopingarner Ditch-Turkey Creek	8	933,805.3	1,423,454.8	-489,649	-52%
Dausman Ditch-Turkey Creek	9	4,284,016.5	4,024,019.7	259,997	6%
Swoveland Ditch-Turkey Creek	10	12,163,880.6	13,957,908.1	-1,794,027	-15%
Headwaters Yellow Creek	11	2,074,972.6	788,220.9	1,286,752	62%
Hoover Ditch-Rock Run Creek	12	675,472.3	516,238.5	159,234	24%
Horn Ditch-Rock Run Creek	13	1,440,507.4	1,039,558.6	400,949	28%
Goshen Dam Pond-Elkhart River	14	27,242,541.7	16,781,148.2	10,461,394	38%
	Ecoli	Current	Target	Load Reduction	% Reduction
Village Lake-Turkey Creek	1	1.68E+13	2.71E+13	-1.03E+13	-61%
Lake Wawasee-Turkey Creek	2	1.72E+13	6.53E+13	-4.81E+13	-279%
Wabee Lake-Hammond Ditch	3	4.22E+13	2.69E+13	1.52E+13	36%
Coppes Ditch-Turkey Creek	4+5	2.21E+14	1.66E+14	5.53E+13	25%
Omar Neff Ditch-Turkey Creek	6	1.84E+14	1.96E+14	-1.22E+13	-7%
Berlin Court Ditch	7	3.86E+14	3.02E+13	3.56E+14	92%
Hoopingarner Ditch-Turkey Creek	8	3.10E+14	1.01E+14	2.09E+14	67%
Dausman Ditch-Turkey Creek	9	6.57E+14	2.86E+14	3.71E+14	56%
Swoveland Ditch-Turkey Creek	10	9.07E+14	9.93E+14	-8.51E+13	-9%
Headwaters Yellow Creek	11	2.52E+14	5.61E+13	1.96E+14	78%
Hoover Ditch-Rock Run Creek	12	1.30E+14	3.67E+13	9.36E+13	72%
Horn Ditch-Rock Run Creek	13	2.77E+14	7.39E+13	2.03E+14	73%
Goshen Dam Pond-Elkhart River	14	4.23E+15	1.19E+15	3.03E+15	72%

Potential BMPs

Access Control

Alternate Watering System

Animal Mortality Facility

Bioreactor

Bioretention – Rain Garden, Bioswale

Clearing Ditches

Composting Facility

Conservation Tillage: Residue and Tillage Management, No till/Strip till/Direct Seed

Consider soil characteristics to minimize runoff

Cover Crop

Curb Openings/Curbless Design

Diversion structures

Drainage Water Management

Drivable Grass

Fencing

Field Border or Filter Strip

Field ditch

Flow Splitter

Forage and Biomass Planting

Grade Stabilization Structure

Grassed Waterway

Green Roof

Greenways and Trails

Habitat Corridor Identification and Improvement

Heavy Use Area Protection

Infrastructure Retrofits

Lined Waterway or Outlet

Livestock Restriction/Prescribed Grazing

Livestock Pipeline

Manure Management Planning

Mulching

Nutrient and/or Pest Management

Pervious Pavement

Phosphorus Free Fertilizer Usage

Point Source Discharge Reduction

Rain Barrel

Regular soil tests

Potential BMPs

Septic System Care and Maintenance

Streambank Stabilization

Subsurface Drain (Agricultural)

Subsurface Infiltration (urban)

Tree Box Filter

Threatened and Endangered Species Protection

Tree/Shrub Establishment

Two Stage Ditch

University fertilization recommendations

Variable rate application

Vegetated Swale

Waste Storage Facility

Waste Utilization

Water and Sediment Control Basin

Wetland Creation, Wetland Enhancement, Wetland Restoration