Appendix I: Second Public Involvement and Stakeholder Meeting

Trail Creek Watershed Management Plan
Public and Stakeholder Meeting
Agenda – Meeting 2 of 4
June 29, 2006

1. **Introduction – Alan Walus, Sanitary District of Michigan City**
2. **Review of the "The Basics"/Background**
3. **Watershed Sampling**
4. **Summary of TMDL for Trail Creek**
5. **Watershed Land-use and Mapping**
6. **Areas of Concern**
7. **Goals and Solutions**
8. **Future Meetings**

"The Basics"

Watershed:
A watershed is all of the landscape that drains to a specific point. Depending on the scale of the discussion, you could refer to the watershed of the Mississippi River or the watershed of a farm pond. You may hear terms like "river basin" or "drainage" used interchangeably with "watershed".

Hydrologic Unit or HUC:
Hydrologic unit codes were developed by the US Geological Survey in cooperation with the US Water Resource Council and the USDA Natural Resource Conservation Service. Most federal and state agencies use this coding system. HUCs are a way of cataloguing portions of the landscape according to their drainage. Landscape units are nested within each other and described as successively smaller units. The hydrologic code attached to a specific watershed is unique, enabling different agencies to have common terms of reference and agree on the boundaries of the watershed. These commonly understood boundaries foster understanding of how landscapes function, where water quality problems should be addressed, and who needs to be involved in the planning process.

Nonpoint source pollution or NPS:
Pollution of ground and surface water results from the variety of ways that humans use the land. Unlike pollution from factories and sewage treatment plans (point sources), NPS comes from many diffuse widespread sources. Soil particles, fertilizers, animal manure, pesticides, oil, road salt, fecal material from failing septic systems, pet waste, and debris from paved areas are transported over the landscape by storm runoff, snow melt, and wind. Eventually entering streams, wetlands and lakes, or penetrating into groundwater, these pollutants damage aquatic habitat, harm aquatic life, and reduce the capacity of water recourses to be used for drinking water and recreation. Because NPS does not come out of a pipe that is easily located, it has to be managed differently than facilities with site-specific permits. That is why so many of the measures directed at controlling NPS are voluntary, and why so many people are involved.

Planning:
An orderly, logical process by which a diverse group of people can reach defensible decisions based on objective data. Done right, planning prevents jumping from the problem directly to the solution without stopping at reality on the way. In the case of watershed planning, planning also means recording the decisions made by the group, along with enough information that the community at large can understand what the group is doing and why they are doing it.

Trail Creek Watershed Plan - Status:

The Sanitary District held the first Public Meeting in February to introduce the Watershed Plan. Water quality sampling was completed from January 2005 through May 2006 for 12 sample locations within the watershed. The Steering Committee and sub-committees have met several times to order to determine potential problem areas within the watershed, issues of concern, review the data collected, and recommend potential solutions to identified problems.

Draft Watershed Plan should be completed by early fall and submitted to IDEM by the end of the year. A third public meeting will be held to review the draft plan.

Watershed Sampling

Sampling Protocol and Testing

12 Sample Locations

- East Branch 3 locations
- West Branch 3 locations
- Main Branch 6 locations

Sampling Protocol

Water Quality Analysis: Twice monthly during the winter (November through March) and weekly during the summer (April through October) at each of the 12 sample locations.

- conductivity,
- pH,
- temperature,
- dissolved oxygen,
- turbidity,
- total suspended solids (TSS),
- nitrogen ammonia,
- ortho phosphorus,
- total phosphorus,
- *E. coli*,
- biological oxygen demand (BOD) (once monthly)
- TKN,
- and nitrate/nitrite

Biological and Habitat Analysis: One late summer sampling; one storm event at 4 of the 12 sample locations.

Purpose:

The goal of this study is to closely identify potential sources of non-point pollutants (both biological and physical), quantify the extent of that pollution, and evaluate potential programs to effectively reduce pollutant loading within the Trail Creek watershed, as identified in the TMDL and other studies completed within the watershed. Data collected will be utilized to identify potential sources of pollutants and establish baseline conditions of the watershed against which the success of the prevention and remediation methodologies that will be developed may be measured.

Data:

Completed sampling from January 2005 through May 2006. Collected wet and dry weather samples.
Summary Tables are attached.

Sample Site	Field Analysis					Concentration Data Statistics For Trail Creek Watershed Sampleing Points (watersheds)							
	uS	U	°C	mg/l	NTU	TSS mg/l E1	Nitrogen Ammonia (mg/l) E1	Ortho Phosphorus (mg/l)	Total Phosphorus (mg/l) E1	E coli col/100 E1	BOD (mg/l) E1	TKN (mg/l) E1	Nitrate - Nitrite (mg/l) E1
E 1													
Averages	545.9361702	8.153191	12.03851	10.2766	12.18723	12.27234043	0.061914894	0.013574468	0.043829787	696	0.761702128	0.519148936	0.384893617
MAX	753.30	9.40	22.10	19.70	168.00	134.00	0.21	0.08	0.46	4100.00	4.50	2.10	1.36
MIN	261.00	7.00	1.90	7.60	2.93	1.80	0.03	0.02	0.02	40.00	2.00	0.50	0.19
E2													
Averages	510.8510638	8.178723	12.26936	10.31277	10.20213	11.2	0.059148936	0.018297872	0.043617021	837.212766	0.719148936	0.488510638	0.38106383
MAX	703.00	9.60	21.90	19.80	123.30	78.00	0.25	0.06	0.32	5060.00	3.80	1.60	1.24
MIN	269.00	7.80	0.90	8.00	3.30	1.90	0.03	0.02	0.02	20.00	2.00	0.50	0.19
E3													
Averages	529	8.12766	12.09787	10.22553	11.75106	14.31914894	0.053404255	0.019361702	0.044255319	663.3851064	0.727659574	0.471276596	0.385319149
MAX	725.30	8.50	20.90	18.90	192.00	172.00	0.20	0.08	0.46	5050.00	4.20	1.90	1.24
MIN	285.00	7.00	1.20	7.90	3.30	1.60	0.03	0.02	0.02	20.00	2.00	0.50	0.04
M1													
Averages	509.2765957	8.042553	12.87021	9.67234	22.20851	25.34893617	0.060425532	0.015957447	0.053617021	768.8723404	0.763829787	0.494680851	0.293829787
MAX	745.00	8.60	23.50	17.40	605.00	552.30	0.24	0.05	0.94	6440.00	5.80	2.40	1.10
MIN	279.00	7.60	1.30	7.50	3.40	1.80	0.04	0.02	0.02	65.00	2.00	0.50	0.14
M2													
Averages	541.3191489	8.187234	12.93617	10.08511	22.73404	26.39574468	0.064680851	0.017446809	0.059148936	719.7234043	0.846808511	0.557659574	0.333829787
MAX	758.00	8.50	23.60	20.10	553.00	516.00	0.21	0.07	1.00	5440.00	5.90	3.30	1.60
MIN	274.00	7.90	1.00	7.40	3.70	1.60	0.02	0.02	0.02	40.00	2.00	0.50	0.16
M3													
Averages	551.8085106	8.178723	13.14468	9.959574	21.22128	24.90638298	0.074042553	0.016382979	0.05787234	900.5531915	1.013638298	0.582978723	0.357234043
MAX	761.00	8.50	24.00	20.20	436.00	428.00	0.28	0.06	0.88	9100.00	8.20	3.10	1.90
MIN	298.00	7.90	0.20	7.00	3.40	1.80	0.04	0.02	0.02	40.00	2.00	0.50	0.10
M4													
Averages	545.6808511	7.983362	13.43617	9.391499	19.5766	27.8893617	0.06787234	0.014680851	0.074255319	536.9787234	0.785106383	0.501276596	0.337021277
MAX	758.00	8.70	23.80	13.90	425.00	556.00	0.25	0.03	3.90	3540.00	5.40	2.70	2.10
MIN	304.00	7.70	1.80	6.50	3.70	1.80	0.05	0.02	0.02	53.00	2.00	0.50	0.10
M5													
Averages	532.6808511	8.076596	13.88723	9.565957	17.77894	16.94680851	0.076382979	0.053404255	0.1	385.4680851	0.85106383	0.55	1.527234043
MAX	795	6.4	25	19	424	358	0.27	0.21	0.74	6100	5.9	2.5	4.4
MIN	351	6.9	2	6.6	3.4	1.8	0.04	0.03	0.05	15	2	0.5	0.5
M6													
Averages	557.1702128	8.104255	14.52553	9.755745	10.45745	11.4	0.09212766	0.037659574	0.07	293.1702128	0.757446809	0.574468085	1.370851064
MAX	631	8.7	26.5	18.7	156	144	0.36	0.12	0.32	2050	4.2	2.2	4.4
MIN	342	6.8	0.5	6.4	2	1.8	0.04	0.02	0.05	10	2	0.5	0.1
W1													
Averages	532.0638298	8.193617	16.28936	10.07872	27.51915	27.27234043	0.096382979	0.018297872	0.082978723	2637.085106	0.791489362	0.6	0.262765957
MAX	846	8.5	199.3	18.7	403	264	0.4	0.09	0.74	9000	5.6	2.7	1.73
MIN	237	7.6	1.5	7.7	4.4	1.8	0.32	0.02	0.03	70	2	0.5	0.1
W2													
Averages	468.0851064	8.234043	11.4617	10.4	28.59574	33.88510638	0.048085106	0.014255319	0.045808511	402.4893617	0.736170213	0.434468085	0.205531915
MAX	696	8.7	19.5	15.2	784	732	0.2	0.05	0.98	2900	3.6	2.3	0.99
MIN	255	7.6	2.8	8.1	3.2	1.8	0.03	0.02	0.02	16	2	0.5	0.1
W3													
Averages	477.3191489	7.942553	11.78936	9.342553	10.5766	21.31489362	0.03893617	0.015744681	0.027021277	224.9574468	0.680851064	0.354680851	0.078085106
MAX	374	8.3	18.2	14.6	46.3	153	0.16	0.35	0.13	1250	2	1.1	0.43
MIN	278	7	4.6	7.5	4.2	1.8	0.03	0.02	0.02	2	2	0.5	0.04

Total Maximum Daily Load

A TMDL (Total Maximum Daily Load), established under section 303(d) of the federal Clean Water Act, is a calculation of the maximum amount of pollutant that a water body can receive and still meet water quality standards, and allocates pollutant loadings among point and non-point sources. The calculation must include a margin of safety, which accounts for scientific uncertainty and future growth. Seasonal variations are also included. The TMDL is calculated using the following equation:

TMDL = WLA + LA + MOS + SV

Where:

WLA - Waste Load Allocations (point sources)

LA - Load Allocations (non-point sources)

MOS - Margin of Safety

SV - Seasonal Variation

What is the TMDL Process? A TMDL is a tool for implementing water quality standards and is based on the relationship between pollutant sources and in-stream water quality conditions. The TMDL establishes the allowable loadings or other quantifiable parameters for a water body and thereby provides the basis to establish water quality-based controls. These controls should provide the pollutant reduction necessary for a water body to meet water quality standards.

The TMDL process provides a flexible assessment and planning framework for identifying load reductions or other actions needed to attain water quality standards (i.e. water quality goals to protect aquatic life, drinking water, and other water uses). The process has three steps:

1. Identify Quality Limited Waters - States must identify and prepare a list of waters that do not or are not expected to meet water quality standards after applying existing required controls (e.g. minimum sewage treatment technology).
2. Establish Priority Waters/Watersheds - States must prioritize waters/watersheds and target high priority waters/watersheds for TMDL development.
3. Develop TMDLs - For listed waters, States must develop TMDLs that will achieve water quality standards, allowing for seasonal variations and an appropriate margin of safety. A TMDL is a quantitative assessment of water quality problems, contributing sources, and load reductions or control actions needed to restore and protect individual water bodies.

States are responsible for implementing the TMDL process. EPA reviews and approves lists of quality-limited waters and specific TMDLs. If EPA disapproves lists or TMDLs, EPA is required to establish the lists and/or TMDLs. Landowners, other agencies, and other stakeholders can often assist States or EPA in developing TMDLs for specific watersheds.
http://www.state.in.us/idem/water/planbr/wqs/tmdl/documents.html

TMDL for E. coli in Trail Creek, December 2003
Permitted and Non-point Sources

Permitted Sources of E. coli

- J. B Gifford Wastewater Treatment Plant (Michigan City)
- Friendly Acres Mobile Home Park
- Autumn Creek Mobile Home Park
- Indian Springs Subdivision

Non-point Sources

- Agricultural drainage and run-off
- Livestock
- Failing septic systems
- Illicit connections/non-permitted discharges
- Urban stormwater runoff
- Natural sources

Non-point sources are a function of rainfall, land use, soil type, and source.

Target Concentrations for E. coli are (125 cfu/100 ml monthly geometric mean and 235 cfu/100 ml – daily maximum).

Point Sources: Waste Load Allocation 5.72×10^{10}

If all permitted point sources operate within their permit limitations the waste load allocation will meet the TMDL.

Non-Point Sources: Load Allocation 9.18×10^{10} to 4.91×10^{10}

Exceeds Load Allocation

Total TMDL: 1.49×10^{11} to 5.48×10^{11}

Data Collected as part of Watershed Management Plan: 3.76×10^{10} to 9.57×10^{14}

East Branch Watershed Sampling Data Analysis Results

Sample Site E1 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	203.18	1790.18	2.81	1.07	6.16	4.97E+14	28.00	18.44
Min Load (tons/yr)	14.28	24.05	0.00	0.27	0.27	4.88E+12	0.08	2.54
Median Load (tons/yr)	124.24	163.95	1.27	0.40	0.60	5.79E+13	9.42	6.55
Mean Target Load	93.52	400.79	2.00	0.67	1.00	4.06E+13	13.36	133.60
Median Reduction Needed (%)	N/a	71.76	58.85	37.50	28.57	61.05	16.67	No Reduction Needed

Sample Site E2 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	363.36	1392.02	4.46	1.07	5.71	8.19E+14	28.35	22.13
Min Load (tons/yr)	142.77	32.12	0.54	0.36	0.36	3.24E+12	8.92	3.30
Median Load (tons/yr)	164.19	199.80	1.34	0.46	1.07	7.45E+13	12.94	8.57
Mean Target Load	124.93	535.39	2.67	0.89	1.34	5.42E+13	17.85	176.40
Median Reduction Needed (%)	N/a	29.99	45.86	16.67	40.07	56.77	12.86	No Reduction Needed

Sample Site E3 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	394.71	3592.09	4.18	1.87	10.02	9.57E+14	37.59	25.90
Min Load (tons/yr)	162.90	37.69	0.63	0.42	0.42	3.79E+12	10.44	0.84
Median Load (tons/yr)	196.31	299.04	1.46	0.63	0.94	5.09E+13	14.41	16.02
Mean Target Load	146.19	626.53	3.12	1.04	1.57	6.35E+13	20.88	208.84
Median Reduction Needed (%)	N/a	47.91	41.51	16.67	44.44	51.36	16.67	No Reduction Needed

Main Branch Watershed Sampling Data Analysis Results

Sample Site M1 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	203.18	1790.18	2.81	1.07	6.16	4.97E+14	28.00	18.44
Min Load (tons/yr)	14.28	24.05	0.00	0.27	0.27	4.88E+12	0.08	2.54
Median Load (tons/yr)	124.24	163.95	1.27	0.40	0.60	5.79E+13	9.42	6.55
Mean Target Load	93.52	400.79	2.00	0.67	1.00	4.06E+13	13.36	133.60
Median Reduction Needed (%)	N/a	71.76	58.85	37.50	28.57	61.05	16.67	No Reduction Needed

Sample Site M2 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	1195.49	30850.16	12.49	4.76	69.48	2.94E+15	196.27	96.16
Min Load (tons/yr)	440.13	107.06	1.19	1.19	1.19	2.16E+13	29.74	9.52
Median Load (tons/yr)	559.08	1509.64	5.35	1.19	2.97	2.27E+14	44.91	22.60
Mean Target Load	416.34	1784.31	6.90	2.97	4.46	1.81E+14	59.48	594.77
Median Reduction Needed (%)	N/a	36.98	56.73	28.57	47.22	39.31	28.57	No Reduction Needed

Sample Site M3 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	1252.91	20546.71	17.37	3.72	54.58	5.12E+15	192.20	117.85
Min Load (tons/yr)	474.18	111.65	2.48	1.24	1.24	2.25E+13	31.01	0.00
Median Load (tons/yr)	570.63	1544.82	5.58	1.24	3.10	2.03E+14	44.97	24.31
Mean Target Load	434.18	1860.75	6.28	3.10	4.65	1.80E+14	62.03	620.26
Median Reduction Needed (%)	N/a	38.46	53.30	16.67	47.22	60.12	30.34	No Reduction Needed

Sample Site M4 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	1239.87	34041.61	15.58	1.87	56.07	2.00E+15	108.22	130.84
Min Load (tons/yr)	404.38	112.15	3.12	1.25	1.25	3.00E+13	31.15	0.00
Median Load (tons/yr)	551.40	1775.42	5.61	1.25	3.12	1.98E+14	44.94	16.82
Mean Target Load	430.14	1869.15	6.32	3.12	4.67	1.89E+14	62.31	623.05
Median Reduction Needed (%)	N/a	48.52	57.46	No Reduction Needed	44.44	49.99	19.87	No Reduction Needed

Sample Site M5 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	1390.70	31034.59	19.78	10.37	54.16	4.05E+15	182.99	369.06
Min Load (tons/yr)	483.09	131.75	2.93	2.20	3.66	9.96E+12	36.60	36.60
Median Load (tons/yr)	644.11	1482.27	7.32	2.93	6.88	3.45E+14	58.19	175.67
Mean Target Load	512.36	2195.84	10.95	3.66	5.49	2.22E+14	73.19	731.95
Median Reduction Needed (%)	N/a	42.73	61.18	50.00	64.29	52.73	23.05	No Reduction Needed

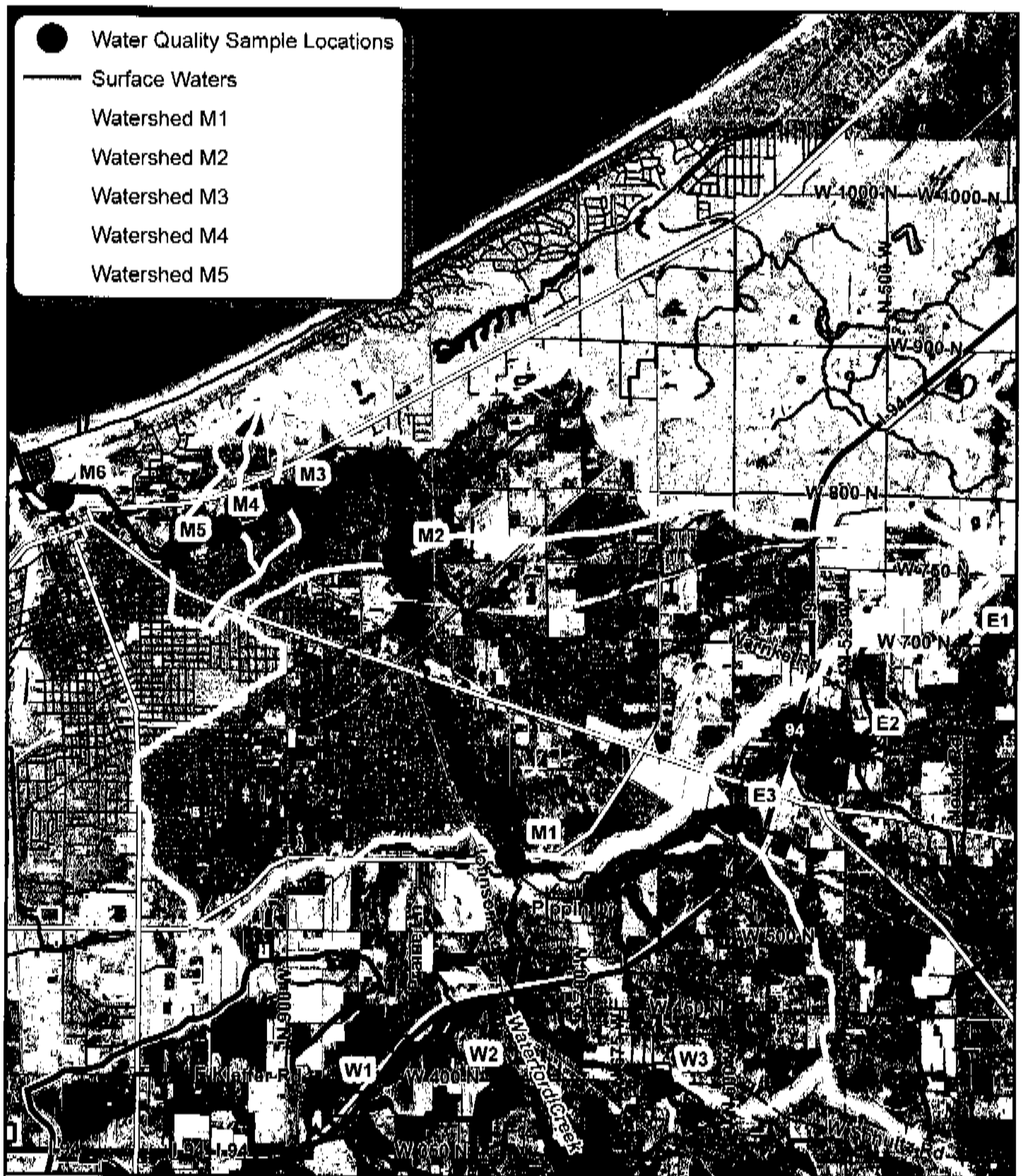
Sample Site M6 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	2701.31	9801.22	54.98	5.58	31.08	2.15E+15	288.23	413.18
Min Load (tons/yr)	13.50	8.26	0.10	0.04	0.07	1.35E+11	0.69	0.07
Median Load (tons/yr)	451.25	790.37	6.28	2.48	6.20	5.08E+13	47.10	132.34
Mean Target Load	377.39	1617.38	6.97	2.70	15.49	1.04E+14	53.91	539.13
Median Reduction Needed (%)	N/a	28.83	50.11	28.57	52.27	57.70	22.62	No Reduction Needed

West Branch Watershed Sampling Data Analysis Results

Sample Site W1 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	288.93	4079.03	0.18	1.24	11.43	1.26E+15	41.72	28.73
Min Load (tons/yr)	118.07	27.81	0.31	0.31	0.46	9.81E+12	7.73	1.33
Median Load (tons/yr)	142.15	421.38	2.47	0.39	0.93	2.07E+14	13.29	4.87
Mean Target Load	108.16	463.53	2.31	0.77	1.16	4.70E+13	15.45	154.51
Median Reduction Needed (%)	N/a	46.92	37.39	27.08	37.50	87.32	10.87	No Reduction Needed

Sample Site W2 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	77.68	1736.34	0.85	0.21	4.15	1.11E+14	12.28	3.04
Min Load (tons/yr)	34.30	7.62	0.13	0.08	0.08	8.15E+11	2.12	0.42
Median Load (tons/yr)	41.93	79.23	0.28	0.08	0.11	8.07E+12	2.14	1.23
Mean Target Load	29.64	127.05	0.63	0.21	0.32	1.20E+13	4.23	42.35
Median Reduction Needed (%)	N/a	68.42	41.89	#NUM!	92.01	34.65	56.44	No Reduction Needed

Sample Site W3 Descriptive Statistics	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	E. coli (cfu/year)	TKN	Nitrate + Nitrite
Max Load (tons/yr)	30.26	317.10	0.33	0.10	0.27	2.35E+13	2.28	0.89
Min Load (tons/yr)	15.54	3.73	0.08	0.04	0.04	3.76E+10	1.04	0.08
Median Load (tons/yr)	17.82	44.18	0.12	0.04	0.06	2.63E+12	1.04	0.21
Mean Target Load	14.51	62.16	0.31	0.10	0.16	6.30E+12	2.07	20.73
Median Reduction Needed (%)	N/a	41.61	37.28	No Reduction Needed	37.50	22.87	9.08	No Reduction Needed



Trail Creek Watershed Plan

AMERICAN CONSULTING

Main Branch
Trail Creek Watershed

SCALE:

NOT TO SCALE

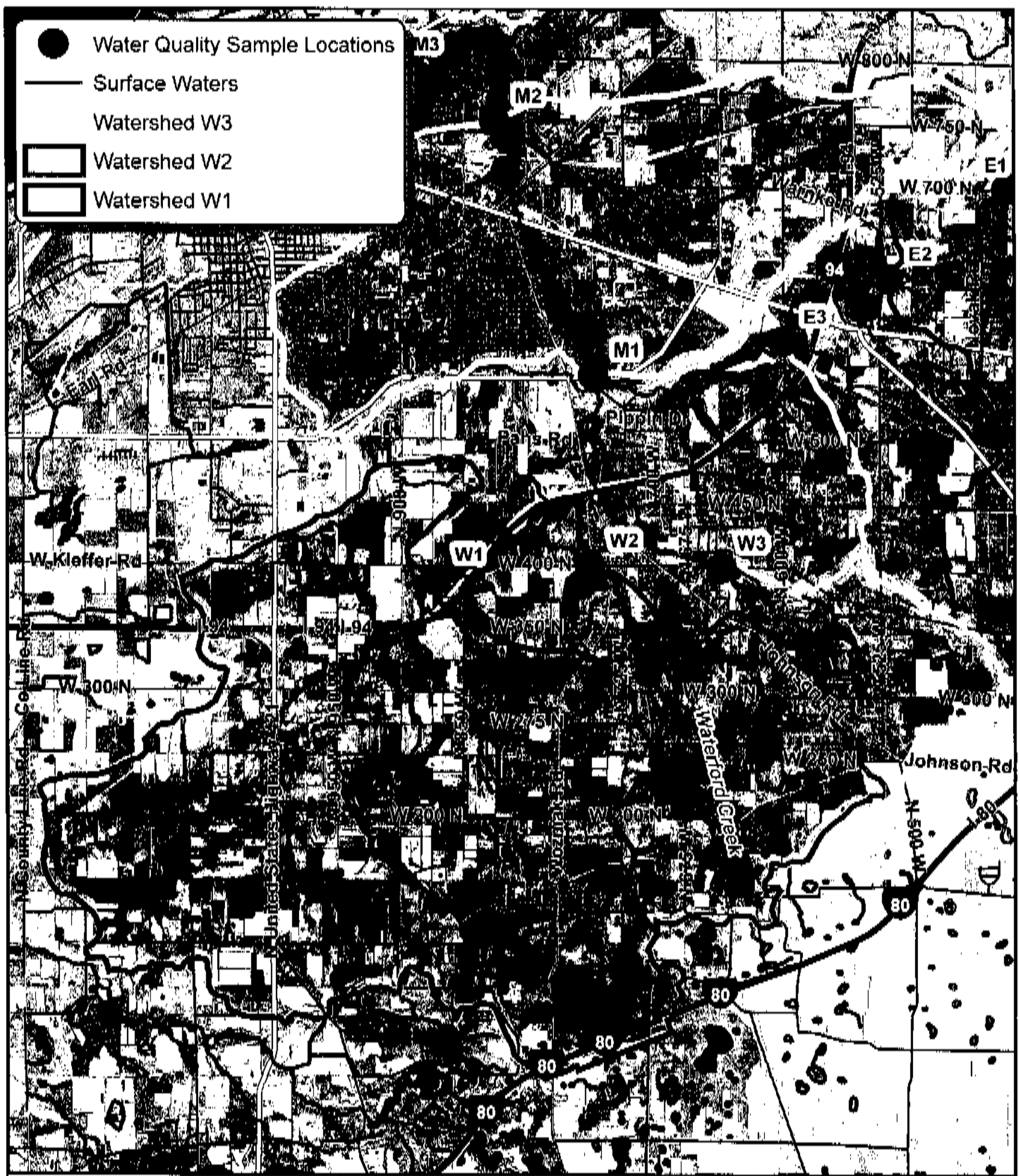
Watershed Location

County: La Porte

State: Indiana

Sheet: 2 Date: 06/29/06

N



Trail Creek Watershed Plan

AMERICAN CONSULTING

Architects
Consultants
Engineers

West Branch
Trail Creek Watershed

SCALE:

NOT TO SCALE

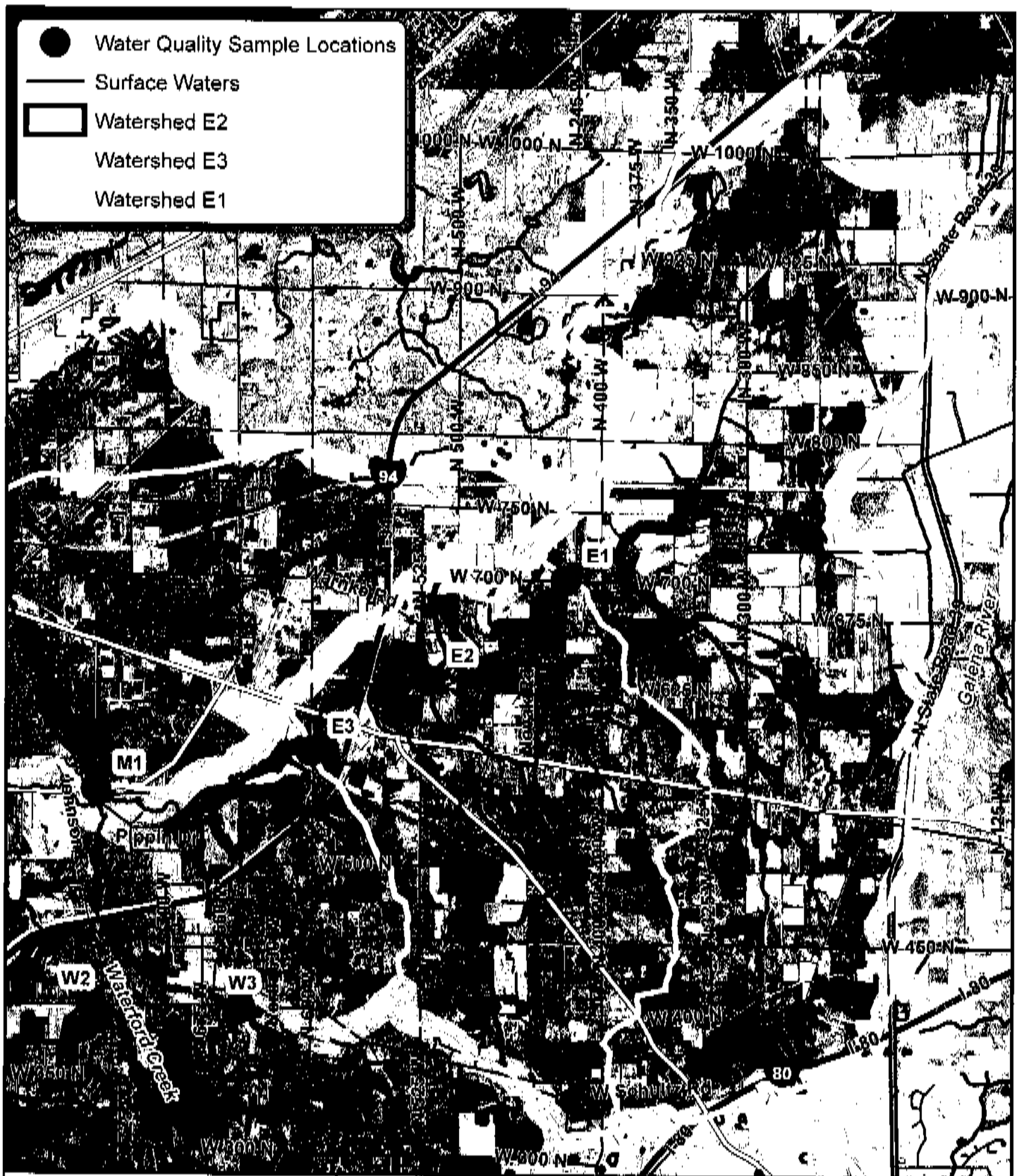
Watershed Location

County: La Porte

State: Indiana

Sheet: 3 Date: 06/29/06

N



Trail Creek Watershed Plan

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East Branch Trail Creek Watershed

SCALE:

NOT TO SCALE

Watershed Location

County: La Porte

State: Indiana

Sheet: 4 Date: 06/29/06

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Watershed	Total Acres	Trail Creek Land Use Data: Land Use Type	Acres	% Watershed	Wetland Type	Acres	% Wetlands
Trail Creek		Developed Agriculture Pasture/Grassland	4974.53	13.13%	Palustrine emergent	453.23	1.20%
		Developed Agriculture Row Crop	9657.30	25.48%	Palustrine forested	2804.27	7.40%
		Developed Non Vegetated	533.94	1.41%	Palustrine scrub/shrub	209.90	0.55%
		Developed Urban High Density	1360.46	3.59%	Palustrine submergent	5.78	0.02%
		Developed Urban Low Density	1567.46	4.14%	Ponds	25.94	0.07%
		Palustrine Forest Deciduous	3470.64	9.16%	Riverine	9.31	0.02%
		Palustrine Herbaceous Deciduous	286.72	0.75%			
		Palustrine Shrubland Deciduous	20.37	0.05%			
		Palustrine Woodland Deciduous	3.15	0.01%			
		Terrestrial Forest Deciduous	14251.35	37.60%			
		Terrestrial Forest Evergreen	208.63	0.55%			
		Terrestrial Forest Mixed	82.46	0.22%			
		Terrestrial Shrubland Deciduous	684.48	1.81%			
		Terrestrial Woodland Deciduous	402.57	1.06%			
		Unclassified Cloud/Shadow	234.54	0.62%			
		Water	160.68	0.42%			
	Total Acres		37898.27			3508.43	
	Percentage of Trail Creek Watershed		100.00%		Percentage of Trail Creek Watershed Containing Wetlands	9.26%	
Main Branch of Trail Creek		Developed Agriculture Pasture/Grassland	896.65	10.43%	Palustrine emergent	60.99	0.71%
		Developed Agriculture Row Crop	1067.30	12.41%	Palustrine forested	654.17	7.61%
		Developed Non-Vegetated	173.34	2.02%	Palustrine scrub/shrub	36.96	0.43%
		Developed Urban High Density	1213.18	14.11%	Palustrine submergent	2.22	0.03%
		Developed Urban Low Density	1353.46	15.74%	Ponds	3.96	0.05%
		Palustrine Forest Deciduous	802.14	9.33%	Riverine	9.31	0.11%
		Palustrine Herbaceous Deciduous	21.02	0.24%			
		Palustrine Woodland Deciduous	3.15	0.04%			
		Terrestrial Forest Deciduous	2770.09	32.21%			
		Terrestrial Forest Mixed	2.86	0.03%			
		Terrestrial Shrubland Deciduous	97.69	1.14%			
		Terrestrial Woodland Deciduous	126.48	1.47%			
		Water	71.61	0.83%			
	Total Acres		8598.97			767.70	
	Percentage of Trail Creek Watershed		22.69%		Percentage Sub-Watershed containing Wetlands	8.93%	
West Branch Of Trail Creek		Developed Agriculture Pasture/Grassland	1521.60	10.91%	Palustrine emergent	210.47	1.51%
		Developed Agriculture Row Crop	3876.38	27.78%	Palustrine forested	1330.28	9.54%
		Developed Non-Vegetated	152.67	1.09%	Palustrine scrub/shrub	36.39	0.26%
		Developed Urban High Density	20.10	0.14%	Palustrine submergent	1.89	0.01%
		Developed Urban Low Density	63.10	0.45%	Ponds	6.60	0.05%
		Palustrine Forest Deciduous	1620.26	11.61%			
		Palustrine Herbaceous Deciduous	129.83	0.93%			
		Palustrine Shrubland Deciduous	6.42	0.05%			
		Terrestrial Forest Deciduous	5756.76	41.27%			
		Terrestrial Forest Evergreen	126.88	0.91%			
		Terrestrial Forest Mixed	29.66	0.21%			
		Terrestrial Shrubland Deciduous	254.80	1.83%			
		Terrestrial Woodland Deciduous	93.72	0.67%			
		Unclassified Cloud/Shadow	229.07	1.64%			
		Water	68.81	0.49%			
	Total Acres		13950.08			1585.83	
	Percentage of Trail Creek Watershed		36.81%		Percentage Sub-Watershed containing Wetlands	11.37%	
East Branch Of Trail Creek		Developed Agriculture Pasture/Grassland	2556.28	16.66%	Palustrine emergent	181.77	1.18%
		Developed Agriculture Row Crop	4713.82	30.71%	Palustrine forested	819.82	5.34%
		Developed Non-Vegetated	207.93	1.35%	Palustrine scrub/shrub	136.55	0.89%
		Developed Urban High Density	127.17	0.83%	Palustrine submergent	1.66	0.01%
		Developed Urban Low Density	150.90	0.98%	Ponds	15.19	0.10%
		Palustrine Forest Deciduous	1048.24	6.83%			
		Palustrine Herbaceous Deciduous	134.86	0.88%			
		Palustrine Shrubland Deciduous	13.95	0.09%			
		Terrestrial Forest Deciduous	5721.49	37.30%			
		Terrestrial Forest Evergreen	81.74	0.53%			
		Terrestrial Forest Mixed	49.94	0.33%			
		Terrestrial Shrubland Deciduous	332.00	2.16%			
		Terrestrial Woodland Deciduous	182.37	1.19%			
		Unclassified Cloud/Shadow	5.47	0.04%			
		Water	20.26	0.13%			
	Total Acres		15349.21			1154.98	
	Percentage of Trail Creek Watershed		40.50%		Percentage Sub-Watershed containing Wetlands	7.52%	

Trail Creek Land Use Data

Watershed		Land Use Type	Acres	% of Watershed	Wetland Type	Acres	% of Wetland
Trail Creek Watershed East Branch			37898.27				
		Developed Agriculture Pasture/Grassland	2556.78	16.65%	Palustrine emergent	181.77	1.18%
		Developed Agriculture Row Crop	4713.67	30.71%	Palustrine forested	819.82	5.34%
		Developed Non Vegetated	207.93	1.35%	Palustrine scrub/shrub	136.55	0.89%
		Developed Urban High Density	127.17	0.83%	Palustrine submergent	1.66	0.01%
		Developed Urban Low Density	150.90	0.98%	Ponds	15.10	
		Palustrine Forest Deciduous	1048.24	6.83%			
		Palustrine Herbaceous Deciduous	134.86	0.88%			
		Palustrine Shrubland Deciduous	13.95	0.09%			
		Terrestrial Forest Deciduous	5724.49	37.30%			
		Terrestrial Forest Evergreen	81.74	0.53%			
		Terrestrial Forest Mixed	49.94	0.33%			
		Terrestrial Shrubland Deciduous	332.00	2.16%			
		Terrestrial Woodland Deciduous	182.37	1.19%			
		Unclassified Cloud/Shadow	5.47	0.04%			
		Water	20.26	0.13%			
	Total		15349.21			1154.96	
	Percentage	Of Trail Creek Watershed	40.50%		Of wetlands in Sampling Watershed	7.62%	
E1							
		Developed Agriculture Pasture/Grassland	828.98	10.51%	Palustrine emergent	148.10	1.88%
		Developed Agriculture Row Crop	2652.71	33.63%	Palustrine forested	1026.21	13.00%
		Developed Non-Vegetated	42.81	0.54%	Palustrine scrub/shrub	35.04	0.44%
		Developed Urban High Density	15.49	0.20%	Palustrine submergent	0.38	0.00%
		Developed Urban Low Density	23.66	0.30%	Ponds	3.93	0.05%
		Palustrine Forest Deciduous	1251.93	15.87%			
		Palustrine Herbaceous Deciduous	98.16	1.24%			
		Terrestrial Forest Deciduous	2436.82	30.89%			
		Terrestrial Forest Evergreen	57.85	0.73%			
		Terrestrial Forest Mixed	14.13	0.18%			
		Terrestrial Shrubland Deciduous	159.17	2.02%			
		Terrestrial Woodland Deciduous	65.31	0.83%			
		Unclassified Cloud/Shadow	228.78	2.90%			
		Water	11.98	0.15%			
	Total		7887.77			1212.65	
	Percentage	Of Trail Creek Watershed	20.81%		Of wetlands in Sampling Watershed	15.37%	
E2							
		Developed Agriculture Pasture/Grassland	1105.23	10.49%	Palustrine emergent	186.18	1.77%
		Developed Agriculture Row Crop	3385.68	32.13%	Palustrine forested	1152.10	10.93%
		Developed Non Vegetated	67.27	0.64%	Palustrine scrub/shrub	35.08	0.33%
		Developed Urban High Density	15.29	0.15%	Palustrine submergent	1.80	0.02%
		Developed Urban Low Density	38.69	0.37%	Ponds	6.31	0.06%
		Palustrine Forest Deciduous	1418.45	13.46%			
		Palustrine Herbaceous Deciduous	111.33	1.06%			
		Terrestrial Forest Deciduous	3719.96	35.30%			
		Terrestrial Forest Evergreen	111.81	1.06%			
		Terrestrial Forest Mixed	19.62	0.19%			
		Terrestrial Shrubland Deciduous	219.87	2.09%			
		Terrestrial Woodland Deciduous	72.44	0.69%			
		Unclassified Cloud/Shadow	229.91	2.18%			
		Water	21.50	0.20%			
	Total		10536.94			1381.86	
	Percentage	Of Trail Creek Watershed	27.80%		Of wetlands in Sampling Watershed	13.11%	
E3							
		Developed Agriculture Pasture/Grassland	1310.14	10.63%	Palustrine emergent	205.60	1.67%
		Developed Agriculture Row Crop	3670.73	29.77%	Palustrine forested	1262.83	10.24%
		Developed Non Vegetated	134.41	1.09%	Palustrine scrub/shrub	35.02	0.28%
		Developed Urban High Density	20.05	0.16%	Palustrine submergent	1.89	0.02%
		Developed Urban Low Density	42.39	0.34%	Ponds	6.78	0.05%
		Palustrine Forest Deciduous	1539.36	12.48%			
		Palustrine Herbaceous Deciduous	118.03	0.96%			
		Terrestrial Forest Deciduous	4767.04	38.67%			
		Terrestrial Forest Evergreen	111.81	0.91%			
		Terrestrial Forest Mixed	19.63	0.16%			
		Terrestrial Shrubland Deciduous	244.71	1.98%			
		Terrestrial Woodland Deciduous	87.20	0.71%			
		Unclassified Cloud/Shadow	229.11	1.86%			
		Water	35.01	0.28%			
	Total		12330.51			1512.13	
	Percentage	Of Trail Creek Watershed	32.54%		Of wetlands in Sampling Watershed	12.26%	

Watershed		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Trail Creek Watershed							
Main Branch (M5)			37808.2078				
		Developed Agriculture Pasture/Grassland	190.65	0.10	Palustrine emergent	60.09	0.01
		Developed Agriculture Row Crop	1007.30	0.12	Palustrine forested	974.17	0.08
		Developed Non-Vegetated	173.34	0.02	Palustrine scrub/shrub	36.00	0.00
		Developed Urban High Density	1213.48	0.14	Palustrine submergent	2.22	0.00
		Developed Urban Low Density	1353.46	0.10	Ponds	3.36	0.00
		Palustrine Forest Deciduous	396.14	0.00	Riverine	0.31	0.00
		Palustrine Herbaceous Deciduous	21.02	0.00			
		Palustrine Woodland Deciduous	3.15	0.00			
		Terrestrial Forest Deciduous	2770.00	0.32			
		Terrestrial Forest Mixed	2.80	0.00			
		Terrestrial Shrubland Deciduous	97.89	0.01			
		Terrestrial Woodland Deciduous	120.48	0.01			
		Water	73.01	0.01			
	Total		8698.07			787.61	
	Percentage	Of Trail Creek Watershed	22.69%		Of wetlands in Sub-watershed	8.93%	
M1							
		Developed Agriculture Pasture/Grassland	4081.98	0.14	Palustrine emergent	396.14	0.01
		Developed Agriculture Row Crop	8605.25	0.29	Palustrine forested	2179.83	0.07
		Developed Non Vegetated	303.04	0.01	Palustrine scrub/shrub	172.80	0.01
		Developed Urban High Density	159.47	0.01	Palustrine submergent	3.55	0.00
		Developed Urban Low Density	319.97	0.01	Ponds	22.00	0.00
		Palustrine Forest Deciduous	2608.26	0.09			
		Palustrine Herbaceous Deciduous	208.88	0.01			
		Palustrine Shrubland Deciduous	20.37	0.00			
		Terrestrial Forest Deciduous	11509.07	0.39			
		Terrestrial Forest Evergreen	208.03	0.01			
		Terrestrial Forest Mixed	79.56	0.00			
		Terrestrial Shrubland Deciduous	589.05	0.02			
		Terrestrial Woodland Deciduous	270.29	0.01			
		Undesignated Cloud/Shadow	239.01	0.01			
		Water	10.00	0.00			
	Total		29384.20			2766.43	
	Percentage	Of Trail Creek Watershed	77.63%		Of wetlands in Sampling Watershed	9.41%	
M2							
		Developed Agriculture Pasture/Grassland	4022.53	0.14	Palustrine emergent	430.00	0.01
		Developed Agriculture Row Crop	9394.17	0.27	Palustrine forested	2001.71	0.07
		Developed Non-Vegetated	500.56	0.01	Palustrine scrub/shrub	183.01	0.01
		Developed Urban High Density	624.79	0.02	Palustrine submergent	3.78	0.00
		Developed Urban Low Density	1124.06	0.03	Ponds	22.70	0.00
		Palustrine Forest Deciduous	3224.77	0.09	Riverine	0.07	0.00
		Palustrine Herbaceous Deciduous	396.17	0.01			
		Palustrine Shrubland Deciduous	20.37	0.00			
		Terrestrial Forest Deciduous	13400.42	0.39			
		Terrestrial Forest Evergreen	208.00	0.01			
		Terrestrial Forest Mixed	82.43	0.00			
		Terrestrial Shrubland Deciduous	670.84	0.02			
		Terrestrial Woodland Deciduous	394.30	0.01			
		Undesignated Cloud/Shadow	234.00	0.01			
		Water	113.57	0.00			
	Total		35116.83			3263.86	
	Percentage	Of Trail Creek Watershed	92.86%		Of wetlands in Sampling Watershed	9.27%	
M3							
		Developed Agriculture Pasture/Grassland	4900.08	0.14	Palustrine emergent	402.00	0.01
		Developed Agriculture Row Crop	9836.36	0.28	Palustrine forested	2760.60	0.08
		Developed Non Vegetated	529.28	0.01	Palustrine scrub/shrub	210.30	0.01
		Developed Urban High Density	884.79	0.02	Palustrine submergent	3.78	0.00
		Developed Urban Low Density	1198.99	0.03	Ponds	20.01	0.00
		Palustrine Forest Deciduous	3456.93	0.09	Riverine	0.31	0.00
		Palustrine Herbaceous Deciduous	208.00	0.01			
		Palustrine Shrubland Deciduous	20.37	0.00			
		Terrestrial Forest Deciduous	14113.94	0.39			
		Terrestrial Forest Evergreen	208.00	0.01			
		Terrestrial Forest Mixed	82.60	0.00			
		Terrestrial Shrubland Deciduous	884.18	0.02			
		Terrestrial Woodland Deciduous	400.21	0.01			
		Undesignated Cloud/Shadow	235.41	0.01			
		Water	143.15	0.00			
	Total		38821.02			3403.30	
	Percentage	Of Trail Creek Watershed	96.63%		Of wetlands in Sampling Watershed	8.64%	
M4							
		Developed Agriculture Pasture/Grassland	4070.84	0.14	Palustrine emergent	432.02	0.01
		Developed Agriculture Row Crop	9047.92	0.29	Palustrine forested	2804.72	0.08
		Developed Non Vegetated	529.50	0.01	Palustrine scrub/shrub	210.21	0.01
		Developed Urban High Density	729.02	0.02	Palustrine submergent	3.78	0.00
		Developed Urban Low Density	1214.00	0.03	Ponds	20.00	0.00
		Palustrine Forest Deciduous	3470.85	0.09	Riverine	0.31	0.00
		Palustrine Herbaceous Deciduous	208.00	0.01			
		Palustrine Shrubland Deciduous	20.37	0.00			
		Palustrine Woodland Deciduous	1.53	0.00			
		Terrestrial Forest Deciduous	14167.42	0.39			
		Terrestrial Forest Evergreen	208.00	0.01			
		Terrestrial Forest Mixed	82.43	0.00			
		Terrestrial Shrubland Deciduous	884.40	0.02			
		Terrestrial Woodland Deciduous	400.33	0.01			
		Undesignated Cloud/Shadow	236.21	0.01			
		Water	119.07	0.00			
	Total		36788.38			3508.84	
	Percentage	Of Trail Creek Watershed	97.07%		Of wetlands in Sampling Watershed	9.54%	
M5							
		Developed Agriculture Pasture/Grassland	4075.51	0.13	Palustrine emergent	431.10	0.01
		Developed Agriculture Row Crop	9692.37	0.26	Palustrine forested	2804.80	0.08
		Developed Non Vegetated	533.53	0.01	Palustrine scrub/shrub	210.04	0.01
		Developed Urban High Density	892.61	0.02	Palustrine submergent	3.78	0.00
		Developed Urban Low Density	1328.33	0.04	Ponds	20.00	0.00
		Palustrine Forest Deciduous	3471.01	0.09	Riverine	0.31	0.00
		Palustrine Herbaceous Deciduous	280.57	0.01			
		Palustrine Shrubland Deciduous	20.37	0.00			
		Palustrine Woodland Deciduous	3.15	0.00			
		Terrestrial Forest Deciduous	14227.88	0.38			
		Terrestrial Forest Evergreen	208.50	0.01			
		Terrestrial Forest Mixed	82.43	0.00			
		Terrestrial Shrubland Deciduous	884.42	0.02			
		Terrestrial Woodland Deciduous	400.71	0.01			
		Undesignated Cloud/Shadow	236.17	0.01			
		Water	141.82	0.00			
	Total		37074.88			3500.09	
	Percentage	Of Trail Creek Watershed	97.83%		Of wetlands in Sampling Watershed	9.40%	

Watershed		Land Use Type	Acres	% of Watershed	Wetland Type	Acres	% of Wetlands
Trail Creek Watershed			37808.27				
West Branch							
		Developed Agriculture Pasture/Grassland	1521.60	10.91%	Palustrine emergent	210.47	1.51%
		Developed Agriculture Row Crop	3878.38	27.79%	Palustrine forested	1330.28	9.54%
		Developed Non-Vegetated	162.67	1.16%	Palustrine scrub/shrub	36.36	0.26%
		Developed Urban High Density	20.10	0.14%	Palustrine submergent	1.09	0.01%
		Developed Urban Low Density	63.10	0.45%	Ponds	6.80	0.05%
		Palustrine Forest Deciduous	1620.26	11.61%			
		Palustrine Herbaceous Deciduous	129.63	0.93%			
		Palustrine Shrubland Deciduous	6.42	0.05%			
		Terrestrial Forest Deciduous	5756.76	41.27%			
		Terrestrial Forest Evergreen	126.88	0.91%			
		Terrestrial Forest Mixed	29.66	0.21%			
		Terrestrial Shrubland Deciduous	254.80	1.83%			
		Terrestrial Woodland Deciduous	93.72	0.67%			
		Unclassified Cloud/Shadow	229.07	1.64%			
		Water	55.81	0.40%			
	Total		13950.08			1685.83	
	Percentage	Of Trail Creek Watershed	36.81%		Of Wetlands in Sub-watershed	11.37%	
W1							
		Developed Agriculture Pasture/Grassland	1534.44	16.82%	Palustrine emergent	120.87	1.32%
		Developed Agriculture Row Crop	3520.36	38.59%	Palustrine forested	639.64	7.01%
		Developed Non Vegetated	159.08	1.74%	Palustrine scrub/shrub	112.35	1.23%
		Developed Urban High Density	49.34	0.54%	Palustrine submergent	1.49	0.02%
		Developed Urban Low Density	20.51	0.22%	Ponds	13.22	0.14%
		Palustrine Forest Deciduous	793.83	8.70%			
		Palustrine Herbaceous Deciduous	91.40	1.00%			
		Palustrine Shrubland Deciduous	13.95	0.15%			
		Terrestrial Forest Deciduous	2536.43	27.79%			
		Terrestrial Forest Evergreen	28.37	0.31%			
		Terrestrial Forest Mixed	44.41	0.49%			
		Terrestrial Shrubland Deciduous	182.17	2.00%			
		Terrestrial Woodland Deciduous	116.65	1.27%			
		Unclassified Cloud/Shadow	5.44	0.06%			
		Water	20.20	0.22%			
	Total		9122.58			887.58	
	Percentage	Of Trail Creek Watershed	24.07%		Of wetlands in Sampling Watershed	9.73%	
W2							
		Developed Agriculture Pasture/Grassland	317.38	12.69%	Palustrine emergent	20.33	0.81%
		Developed Agriculture Row Crop	311.30	12.46%	Palustrine forested	112.25	4.49%
		Developed Urban Low Density	18.30	0.73%	Palustrine scrub/shrub	3.88	0.16%
		Palustrine Forest Deciduous	128.00	5.12%	Palustrine submergent	0.16	0.01%
		Palustrine Herbaceous Deciduous	9.49	0.38%	Ponds	0.73	0.03%
		Terrestrial Forest Deciduous	1010.08	04.71%			
		Terrestrial Forest Evergreen	22.80	0.91%			
		Terrestrial Forest Mixed	2.20	0.09%			
		Terrestrial Shrubland Deciduous	42.82	1.71%			
		Terrestrial Woodland Deciduous	30.05	1.20%			
	Total		2500.43			137.40	
	Percentage	Of Trail Creek Watershed	6.60%		Of Wetlands in Sampling Watershed	5.49%	
W3							
		Developed Agriculture Pasture/Grassland	139.74	11.42%	Palustrine emergent	0.95	0.08%
		Developed Agriculture Row Crop	267.38	21.85%	Palustrine scrub/shrub	11.33	0.93%
		Developed Urban Low Density	2.12	0.17%	Ponds	1.00	0.08%
		Palustrine Forest Deciduous	16.40	1.34%			
		Terrestrial Forest Deciduous	724.04	59.17%			
		Terrestrial Forest Evergreen	19.97	1.63%			
		Terrestrial Forest Mixed	3.28	0.27%			
		Terrestrial Shrubland Deciduous	45.15	3.69%			
		Terrestrial Woodland Deciduous	5.02	0.40%			
	Total		1223.68			13.28	
	Percentage	Of Trail Creek Watershed	3.23%		Of wetlands in Sampling Watershed	1.09%	