On October 30, 2012 the Trail Creek Watershed Group convened to prioritize areas within the watershed to target its efforts for Section 319 grant dollars. Previously the critical areas were identified by use of aerial photos and common knowledge of the watershed. These previous critical areas were never "ground truthed" to assess their accuracy. The group determined that is was difficult to systematically focus its efforts for the Section 319 grant without some hard data to justify its decisions. Table 9 "Trail Creek Watershed Sampling Data Analysis Results Using Calculated Peak Flow Data (Loads calculated in tons per year)" was utilized as a ranking tool to determine priority areas for implementation. The "Mean Reduction Needed (%)" for each parameter selected was utilized to identify the area most critical for the installation of best management practices. The parameters focused on were e.coli, total phosphorus and total suspended solids. These parameters were chosen to reflect the first three of the four specific water quality goals identified in the Trail Creek Watershed Management Plan. These goals are:

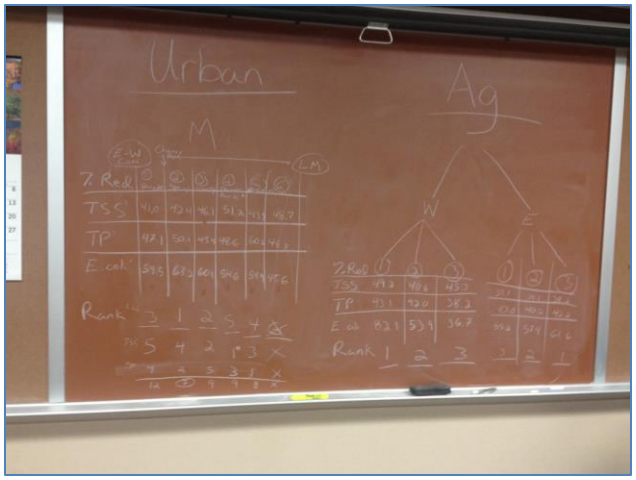


Figure 1- Reprioritization Chart of Critical Areas

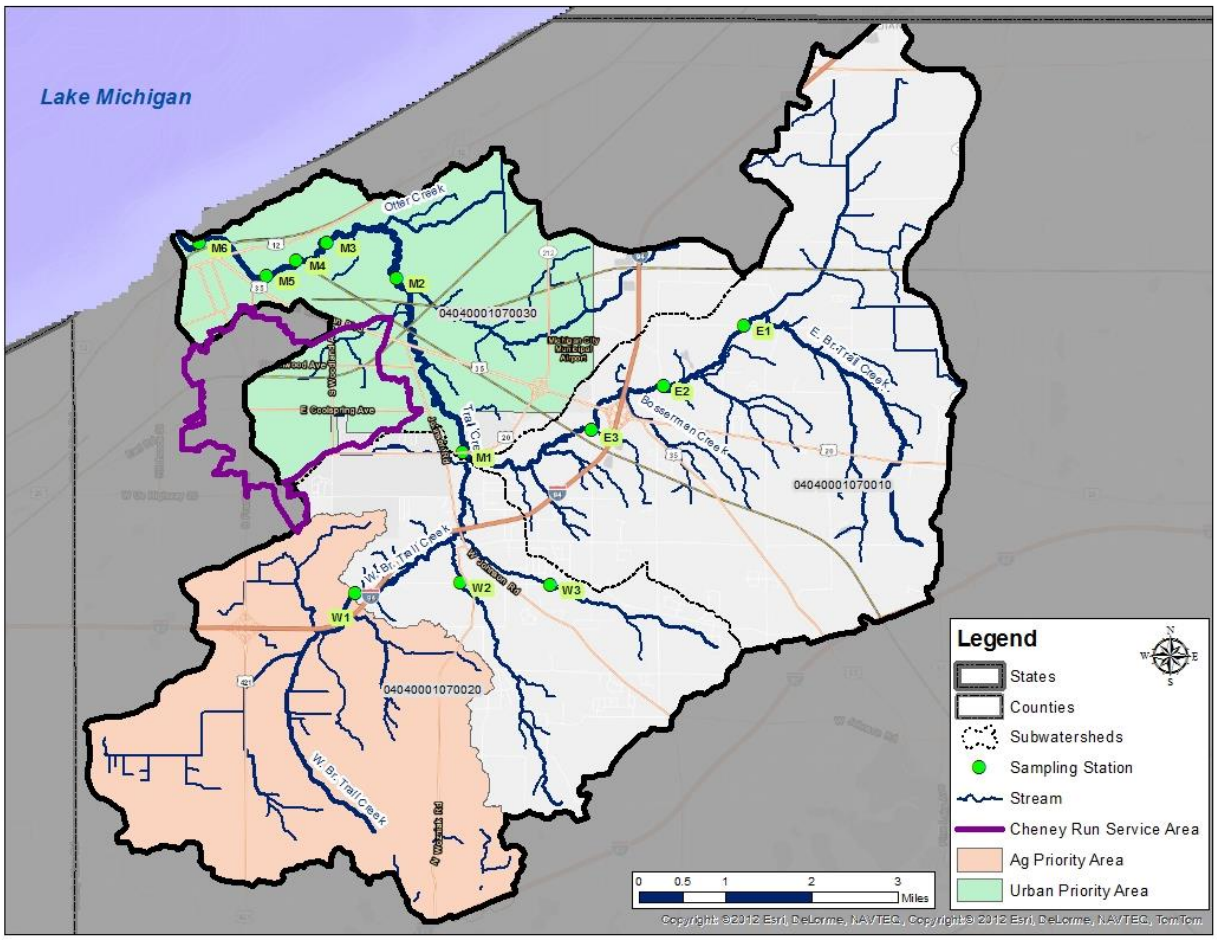
1. Meet the State Water Quality Standard for E.coli of a monthly geometric mean of 125 cfu/100 ml and a maximum daily standard of 235 cfu/100 ml.
2. Decrease sedimentation and dredging of the navigable channel. Total Suspended Solid goal of 15 mg/l.
3. Decrease nutrient loading in Trail Creek to the target concentrations of 0.05 mg/L ortho-phosphorus, 0.05 mg/L total phosphorus, 0.25 to 0.1 mg/L nitrogen ammonia, 1.0 mg/L TKN, and 10 mg/L nitrate-nitrite OR reduce pollutant loading by 50%.

The "Mean Target Reduction Needed" was looked at for each sampling point and ranked. (see above photograph) This method captured a snapshot of where contaminants were entering the stream and what measures, if any, could be used to minimize contamination. Each reach was given a numerical value with the loading being ranked 1 and continuing on down numerically in decreasing levels of loading.

A follow up meeting occurred on January 25, 2013 at the Northwest Indiana Regional Planning Commission to finalize the locations of the critical areas within the Trail Creek Watershed. Based on land-use, the east and west branches were consolidated into one large area and is now defined as the "agricultural zone". The main stem and its watershed are now defined as the "urban zone". A new map was created outlining these areas and will be added as an update to the Trail Creek Watershed Plan.

The critical area within the agricultural zone will include all the land and tributaries that drain to the first sampling point (W1) of the west branch of Trail Creek. The area was deemed critical as it has the highest percent reductions needed to meet water quality standards for total suspended solids, e. coli and total phosphorus within the agricultural zones. Additionally, it has the greatest number of potential willing landowners. Previous windshield surveys also indentified several areas of cattle in streams. It is within this boundary that best management practices specific to agriculture will be implemented.

The critical area for the urban zone will be all the land and tributaries that drain into the main branch of Trail Creek that are completely within the corporate city limits of Michigan City, Indiana. This area is critical as the water quality data clearly shows that the highest percent reductions needed to meet water quality standards occur in this area. Additionally, the density of people and impervious surface is highest here and these factors contribute to large amounts of storm water run-off. The City of Michigan City is the largest land holder within the urban critical area and is committed to reducing its storm water impact along the main branch of Trial Creek. With this large willing landowner, we anticipate a high level of success with our implementation program.



Trail Creek Urban and Agricultural Critical Areas 1-25-2013

THIS LINE USED FOR RANKING

Table 9: Trail Creek Watershed Sampling Data Analysis Results Using Calculated Peak Flow Data (Loads calculated in tons per year)

Sample Site E1	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	*E. coli* (cfu/year)	TKN	Nitrate + Nitrite
Max Load	252.33	1716.35	8.20	3.12	17.96	4.97E+14	81.97	53.87
Min Load	97.35	23.06	1.17	0.78	0.78	4.85E+12	19.52	7.42
Mean Load	131.63	157.19	3.79	1.20	2.68	8.62E+13	31.75	23.54
Mean Target Load	89.66	192.13	5.37	1.95	2.93	4.06E+13	39.04	390.36
Mean Reduction Needed (%)	N/A	33.08	49.47	37.50	9.95	55.52	24.68	N/A
Sample Site E2	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	338.73	1334.39	4.28	1.03	5.47	7.85E+14	27.37	21.21
Min Load	136.86	30.79	0.51	0.34	0.34	3.10E+12	8.55	3.25
Mean Load	176.43	191.61	1.59	0.49	1.17	1.30E+14	13.09	10.21
Mean Target Load	119.75	256.61	2.35	0.86	1.28	5.20E+13	17.11	171.08
Mean Reduction Needed (%)	N/A	34.08	44.50	16.67	40.59	57.42	18.09	N/A
Sample Site E3	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	378.37	3443.36	4.00	1.60	9.61	9.17E+14	36.04	24.82
Min Load	156.15	36.04	0.60	0.40	0.40	3.63E+12	10.01	0.80
Mean Load	204.71	286.66	1.67	0.61	1.39	1.20E+14	14.78	11.46
Mean Target Load	140.14	300.29	2.56	1.00	1.50	6.08E+13	20.02	200.20
Mean Reduction Needed (%)	N/A	38.18	43.11	23.61	42.16	61.63	23.40	N/A
Sample Site M1	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	830.03	26331.84	11.45	2.39	44.84	2.79E+15	114.49	52.47
Min Load	357.77	85.86	1.91	0.95	0.95	2.81E+13	23.85	6.68
Mean Load	471.43	1235.50	4.67	1.23	4.15	3.40E+14	38.24	22.72
Mean Target Load	333.92	715.54	6.87	2.39	3.58	1.02E+14	47.70	477.03
Mean Reduction Needed (%)	N/A	40.95	39.44	N/A	47.14	59.49	25.85	N/A
Sample Site M2	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	1145.88	29416.65	11.97	3.99	57.01	2.81E+15	188.13	91.21
Min Load	421.87	102.62	1.14	1.14	1.14	2.07E+13	28.50	9.12
Mean Load	574.94	1504.80	5.78	1.56	5.28	3.72E+14	49.81	29.23
Mean Target Load	399.06	855.14	8.32	2.85	4.28	1.22E+14	57.01	570.09
Mean Reduction Needed (%)	N/A	42.41	37.56	28.57	50.11	63.20	32.76	N/A
Sample Site M3	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	1200.86	25444.06	16.65	3.57	52.31	4.91E+15	184.29	112.95
Min Load	416.14	107.01	2.38	1.19	1.19	2.16E+13	29.72	5.94
Mean Load	592.08	1480.65	6.90	1.53	5.39	4.86E+14	54.30	33.27
Mean Target Load	416.14	891.73	8.58	2.97	4.46	1.27E+14	59.30	594.49
Mean Reduction Needed (%)	N/A	46.08	47.18	16.67	45.43	60.13	38.57	N/A
Sample Site M4	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	1188.51	33206.65	14.93	1.79	53.75	1.92E+15	161.26	125.42
Min Load	388.21	107.50	2.99	1.19	1.19	2.87E+13	29.86	5.97
Mean Load	573.09	1701.88	6.57	1.42	7.19	3.25E+14	48.52	32.62
Mean Target Load	418.07	895.86	8.35	2.99	4.48	1.27E+14	59.72	597.24
Mean Reduction Needed (%)	N/A	51.18	47.38	N/A	48.57	54.55	27.95	N/A
Sample Site M5	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	1143.54	25519.10	16.25	12.64	44.54	3.33E+15	150.47	264.82
Min Load	397.23	108.34	2.41	1.81	3.01	8.19E+12	30.09	30.09
Mean Load	575.74	1218.84	7.20	5.04	9.43	3.74E+14	52.80	144.01
Mean Target Load	421.31	902.80	11.38	3.01	4.51	1.28E+14	60.19	601.87
Mean Reduction Needed (%)	N/A	43.42	42.77	48.38	60.15	54.87	29.00	N/A
Sample Site M6	**Dissolved Oxygen**	**Total Suspended Solids**	**Ammonia**	**Ortho Phosphorus**	**Total Phosphorus**	***E. coli* (cfu/year)**	**TKN**	**Nitrate + Nitrite**
Max Load	1149.77	8853.86	23.98	7.38	9.22	1.14E+15	116.82	270.53
Min Load	393.50	110.67	2.46	1.23	1.23	5.58E+12	30.74	6.15
Mean Load	602.29	700.93	8.55	3.17	5.59	1.50E+14	49.43	116.03
Mean Target Load	430.40	922.28	4.66	3.07	4.61	1.31E+14	61.49	614.85
Mean Reduction Needed (%)	N/A	48.67	38.95	33.84	48.80	45.75	27.32	N/A

Table 9 (continued)

Sample Site W1	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	*E. coli* (cfu/year)	TKN	Nitrate + Nitrite
Max Load	276.87	3908.68	5.92	1.18	10.96	1.21E+15	39.98	25.61
Min Load	114.00	26.65	0.30	0.30	0.44	9.40E+12	7.40	1.42
148.06Mean Load	149.22	403.78	2.24	0.42	1.46	3.54E+14	13.92	6.56
Mean Target Load	103.64	222.08	2.06	0.74	1.11	3.16E+13	14.81	148.06
Mean Reduction Needed (%)	N/A	49.22	43.66	27.08	43.06	82.11	26.08	N/A
Sample Site W2	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	*E. coli* (cfu/year)	TKN	Nitrate + Nitrite
Max Load	73.95	2974.07	0.81	0.20	3.98	1.07E+14	11.78	3.78
Min Load	32.91	7.31	0.12	0.08	0.08	5.90E+11	2.03	0.41
Mean Load	42.25	137.67	0.31	0.09	0.30	1.48E+13	2.77	1.31
Mean Target Load	28.44	60.94	0.51	0.20	0.30	8.66E+12	4.06	40.63
Mean Reduction Needed (%)	N/A	40.64	33.26	N/A	92.01	53.94	56.44	N/A
Sample Site W3	Dissolved Oxygen	Total Suspended Solids	Ammonia	Ortho Phosphorus	Total Phosphorus	*E. coli* (cfu/year)	TKN	Nitrate + Nitrite
Max Load	29.01	304.04	0.32	0.10	0.26	2.25E+13	2.19	0.85
Min Load	14.90	3.58	0.06	0.04	0.04	3.61E+10	0.99	0.08
Mean Load	17.97	42.36	0.12	0.05	0.08	3.69E+12	1.10	0.24
Mean Target Load	13.91	29.81	0.21	0.10	0.15	4.24E+12	1.99	19.87
Mean Reduction Needed (%)	N/A	45.28	35.02	N/A	38.18	36.65	9.09	N/A

THESE PARAMETERS USED FOR RANKING (TSS, Total P, E.coli)

Documentation of Calculations Made:

Sample Site	TSS-% reduction needed	TP-% reduction needed	E.coli-% reduction needed	RANK-TSS	RANK-TP	RANK-E.coli	TOTAL	RANK-overall
M1	40.1	47.1	59.5	5	4	3	12	5
M2	42.4	50.1	63.2	4	2	1	7	1
M3	46.1	45.4	60.1	2	5	2	9	4
M4	51.2	48.6	54.6	1	3	5	9	3
M5	43.4	60.2	54.9	3	1	4	8	2
M6	48.7	48.8	45.8	THROWN OUT	THROWN OUT	THROWN OUT	THROWN OUT	THROWN OUT

MAIN STEM TRAIL CREEK-Urban

M6-Thrown out due to the fact that it is the mouth of the river. There is considerable mixing with Lake Michigan at this point, and we don't feel as if this site is indicative of overall water quality trends.

Sample Site	TSS-% reduction needed	TP-% reduction needed	E.coli-% reduction needed	RANK-TSS	RANK-TP	RANK-E.coli	TOTAL	RANK-overall
W1	49.2	43.1	82.1	1	2	1	4	1
W2	40.1	92.0	54.0	3	1	2	6	2
W3	45.3	38.2	36.7	2	3	3	8	3

WEST BRANCH TRAIL CREEK-Agricultural

Sample Site	TSS-% reduction needed	TP-% reduction needed	E.coli-% reduction needed	RANK-TSS	RANK-TP	RANK-E.coli	TOTAL	RANK-overall
E1	33.1	10.0	55.5	3	3	2	8	3
E2	34.1	40.6	57.4	2	2	3	7	2
E3	38.2	42.2	61.6	1	1	1	3	1

EAST BRANCH TRAIL CREEK-Agricultural