



Wayne County, Michigan

Annual Report

For Reporting Period January 1, 2011 – December 31, 2011

Certificate of Coverage MIG610040 General Storm Water Discharge Permit (MIG619000)

Submitted to:

Michigan Department of Environmental Quality - Water Bureau

April 3, 2011

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SECTION 1
DETERMINATION OF EFFECTIVENESS

Background

Under the federal Clean Water Act, the Phase II regulations for small municipal storm sewer systems (MS4) state that operators of small MS4s must obtain coverage under an NPDES storm water permit which requires development and implementation of a storm water management program that “must:

- Reduces the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protects water quality; and
- Satisfies the appropriate water quality requirements of the Clean Water Act.

MEP is a standard that establishes the level of pollutant reductions those MS4 operators must achieve through implementation of a storm water management program. The definition of "MEP" should adapt continually to both current conditions and BMP effectiveness, but ultimately, successive iterations of the mix of BMPs and measurable goals should be made to achieve the objective of meeting water quality standards”.

“...identifying overarching goals for your entire storm water management program is also useful. Establishing objectives for each of the minimum measures can help put each program component into perspective within the framework of your overall program. One way to evaluate program success at either the minimum measure- or overall program-level is through the use of environmental indicators.

Useful indicators are often indirect or surrogate measurements where the presence of the indicator points to a likelihood that the program area was successful. Indicators can be a cost-effective method of assessing the effectiveness of a program because direct measurements sometimes can be too costly or time-consuming to be practical.” (EPA, “Measurable Goals Guidance for Phase II Small MS4s”,

<http://cfpub.epa.gov/npdes/stormwater/measurablegoals/index.cfm>)

Michigan General Storm Water Discharge Permit (MIG619000) requires a determination of the effectiveness of the various public education activities (Section A.3.b), illicit discharge elimination activities (Section A.3.a), the watershed management plan(s) (Section B.1) and the Storm Water Pollution Prevention Initiative (Section B.2). The methods for evaluation of progress “may include chemical or biological indicators, flow measurements, erosion indices, and public surveys”.

Effectiveness of Wayne County's Storm Water Management Program

Wayne County uses an innovative combination of measurable goals for some watershed management activities and evaluations through ecosystem health monitoring programs to assess the effectiveness of our storm water management program implemented under our Certificate of Coverage MIG610040. Sections 2 through 5 of this report present a summary of the implementation of watershed management activities and other BMPs. Evaluations of improvements in ecosystem health in Wayne County watersheds are presented below.

Rouge River Watershed. The Rouge River Watershed Monitoring Database, maintained by Wayne County's Rouge River National Wet Weather Demonstration Project (Rouge Project), is available at www.rougeriver.com/database. There are several publications that present trend analysis for the monitoring data, including the *Rouge River Ecosystem Monitoring and Assessment Report* (RREMAR), published annually by the Rouge Project and the Alliance of Rouge Communities.

A summary of the water quality trends in each of the seven Rouge subwatersheds, based on water quality data collected through 2010 and ecosystem health data collected through 2011, is presented in Table 1. As noted in the footnotes to Table 1, data for various water quality parameters were collected at different time periods. The most recent data reflected in the table were collected in 2010 and include continuous monitoring of level and flow at seven locations throughout the watershed and continuous monitoring of dissolved oxygen (DO) and temperature at one location in the Upper Branch of the Rouge River at Telegraph Road (U05).

From Table 1, all of the watershed areas show either a "no change" or "improving" trend for the monitored parameters of stream flow, temperature, dissolved oxygen (DO), total phosphorus, E.coli bacteria, fish communities, stream habitat, macroinvertebrates, and amphibians, with the following exceptions: Lower 1 for dissolved oxygen; the Middle 1 and Middle 3 for fish community; and the Upper Rouge for macroinvertebrates. In particular, trend analysis indicates stream flow to be improving or has not changed in 7 of the 7 Rouge subwatershed areas. DO trend analysis shows improvement or no change in 6 of the 7 subwatershed areas and E.coli trend analysis indicates an improving or no change in all 7 watershed management areas. In 2011, seven to eight species of amphibians monitored were observed in 3 of the 7 watershed management areas. The next four subsections provide additional information about the ecosystem health monitoring completed in the Rouge River watershed.

Water Quality and Flow Monitoring: The most recent water quality monitoring of the Rouge River for which data is available was in 2010. Water quality monitoring is conducted according to the five-year monitoring program described in the 2009 Rouge River Watershed Management Plan (WMP) prepared by the Alliance of Rouge Communities (ARC). The 2009 Rouge River WMP is a five-year plan, which encompasses the years from 2009 through 2013. The plan includes the collection of several types of data throughout the watershed, which will be used to measure the improvements in Rouge River water quality and ecosystem health. Precipitation, streamflow, and biological health monitoring data will be collected each year of the plan. Collection of monitoring data for dissolved oxygen, temperature, bacteria, and nutrients is planned during at least one year of the plan.

Table 1: Analysis of Rouge River Conditions
Developed from *Rouge River Ecosystem Monitoring and Assessment Reports*

Parameter	Rouge Subwatershed						
	Main ½	Main ¾	Upper	Middle 1	Middle 3	Lower 1	Lower 2
Stream Flow¹	↑↑	⇔	↑↑	⇔	⇔	⇔	⇔
Temperature²	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Dissolved Oxygen³	↑↑	↑↑	↑↑	⇔	↑↑	↓↓	↑↑
Total Phosphorus⁴	⇔	⇔	⇔	⇔	↑↑	↑↑	↑↑
E.coli⁵	⇔	⇔	⇔	⇔	↑↑	⇔	⇔
Fish Community⁶	⇔	NA ⁷	↑↑	↓↓	↓↓	⇔	NA ⁷
Habitat⁸	⇔	NA ⁷	⇔	⇔	⇔	↑↑	⇔
Macroinvertebrates⁹	↑↑	NA ⁷	↓↓	↑↑	↑↑	⇔	⇔
Frogs & Toads¹⁰	⇔ 5-6	↑↑ 5-6	↑↑ 7-8	↑↑ 7-8	⇔ 3-4	↑↑ 7-8	↑↑ 5-6

- 1) Trend arrow is based on frequency of peak flow decreasing as reported in *2010 Rouge River Ecosystem Monitoring and Assessment Report*.
- 2) Michigan water quality standards for temperature, developed to protect warm water fisheries are established only for streams receiving heated effluents with 29.4°C being the maximum temperature allowed during any month. Up arrow indicates continuous temperature monitoring did not exceed this value as reported in *2007 Rouge River Ecosystem Monitoring and Assessment Report*.
- 3) Arrow is based on daily average DO trend analysis as reported in *2010 Rouge River Ecosystem Monitoring and Assessment Report* of the most downstream monitoring station
- 4) Arrow is based on Total Phosphorus trend analysis as reported in *2007 Rouge River Ecosystem Monitoring and Assessment Report*.
- 5) Arrow is based on the majority of sampling points having an improving trend as reported in *2007 Rouge River Ecosystem Monitoring and Assessment Report*.
- 6) Trend arrow is based on comparing reported MDNR 1995 fish community survey results to MDEQ 2005 fish community survey results as reported.
- 7) Not Applicable - Lack of data to perform trend assessment.
- 8) Trend arrow was established by comparing MDEQ 2000 study ratings with MDEQ 2005 study ratings.
- 9) Arrow was established based on Friends of the Rouge and Wayne County macroinvertebrate monitoring trend analysis spring and fall 2001 – 2011. Arrows reflect a significant trend in either spring or fall data. **Bold arrows** reflect a significant trend in both spring and fall.
- 10) Arrow indicates either an increase or decrease in number of species heard in the watershed from the prior year or minimum 7-8 species heard in the watershed during Friends of the Rouge 2010 Frog & Toad Survey.

A key element of a healthy river ecosystem is adequate DO. Instream DO concentrations (over 5 mg/L) are essential for healthy fish and other aquatic life. Even brief declines in DO concentrations to levels below 5 mg/L can have a detrimental effect on aquatic organisms. In general DO and temperature are in compliance with minimum water quality standards on a routine basis throughout the watershed and have remained fairly stable at most locations.

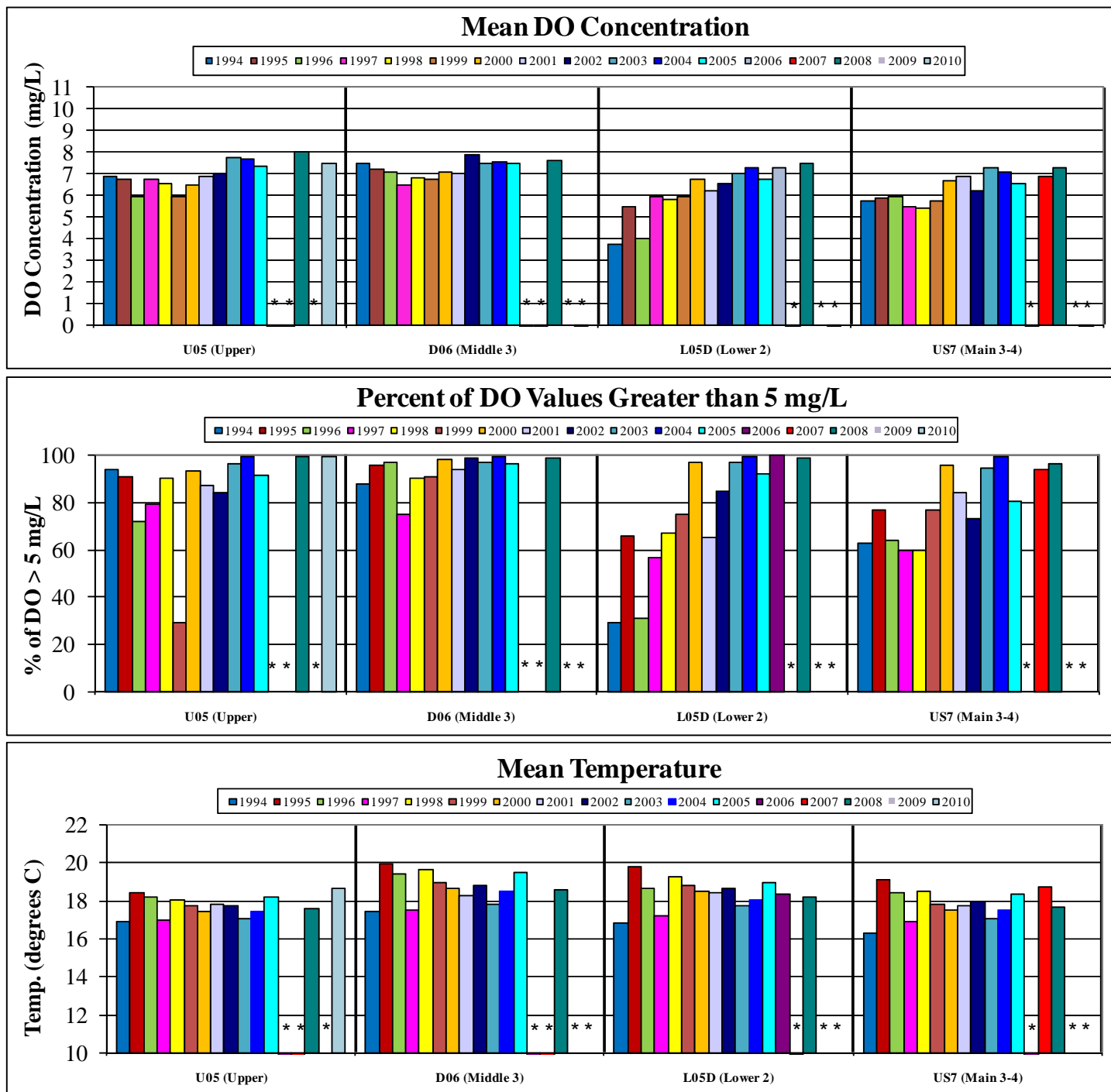
DO has been monitored in the river for over a decade now and is very useful in determining spatial and temporal water quality trends. Prior to 2006 there was at least one continuous DO and water temperature monitoring location in each of the seven SWMAs in the Rouge River watershed, and two in the Main 3-4 SWMA. From 2007 through 2010 continuous DO and temperature was monitored in at least one location in the watershed with the exception of 2009. In 2010, as part of the 2009 through 2013 Five Year Monitoring Plan, continuous monitoring of DO and temperature was performed at Telegraph Road (U05) in the Upper Branch of the Rouge River. Monitoring in each of the other three branches is planned for subsequent years at one location in each of the branches of the Rouge River; Plymouth Road (US7), Hines Drive/Ford Road (D06), and Military Road (L05D).

Figure 1 shows the mean DO values, the percent of DO values greater than 5.0 mg/L, and the mean temperature values from 1994 through 2010 at Telegraph Road (U05), Plymouth Road (US7), Hines Drive/Ford Road (D06), and Military Road (L05D). The percent of the time dissolved oxygen concentrations were in compliance with the minimum 5 mg/L warm water State standard show an upward trend and based on a rating scale developed by the Rouge Project the DO data at the 2008 continuously monitored locations and the one 2010 location were all rated good ($DO \geq 5$ mg/L, $\geq 95\%$ of the time). The DO values of less than 5 mg/L at Telegraph Road (U05) in 2010 occurred after a small rainfall event (less than 0.20 inches) when the water temperature was 1.2 -5.4 °C above the average water temperature of 18.7 °C.

A regression analysis (1994 – 2010) of the continuous DO daily averages at Telegraph Road (U05) was updated with 2010 data and showed an improvement of 0.10 mg/L/year. In addition to the Telegraph Road (U05) trend analysis, trend analyses were previously performed on historical continuous daily average DO data collected from 1994 to 2009 (data not collected at each location in all years) at the seven other continuous monitoring locations and in general they show improvement or no significant trend (see Table 2).

Rouge River Flow Monitoring: Moderate, stable streamflows are generally best for aquatic life and stream habitats. Extreme variation of flow rate and volume during storm events can result in severe bank erosion and sediment resuspension, which can significantly degrade game fish habitats. In 2010, continuous flow and level monitoring data were collected at seven locations throughout the Rouge River watershed by the United States Geological Survey (USGS). Data were collected in cooperation with Oakland County and the Michigan Department of Environmental Quality (MDEQ) at Maple Road (US4), Beech Road (US5), Plymouth Road (US7), Shiawassee Road (US3), Telegraph Road (U05), Inkster Road (US2), and John Daly Road (US1). Flow and level monitoring was discontinued by the USGS in October 2009 at Evans Ditch (US6). A tabular summary by SWMA of the streamflow data for the period of record are shown in Table 3 as well as the 2010 precipitation totals (as percent of long-term average from 1994 through 2009).

Figure 1
Rouge River Continuous DO and Temperature Annual Mean Data
May - October 1994 – 2010
Stations U05, D06, L05D, US7



Note: * indicates no data available for year.

Table 2
Trend Analyses: Rouge River Daily Average Dissolved Oxygen Concentrations

Daily Average DO Trend Analyses for the Rouge River Watershed			
SWMA	Site ID	Period of Record	Trend
Main 1-2	US5	1997-2005	Improvement of 0.15 mg/L/year
Main 3-4	US7	1994-2005, 2007, 2008	Improvement of 0.12 mg/L/year
Main 3-4	US8	2001- 2005, 2007	No significant trend
Upper	U05	1994-2005, 2008, 2010	Improvement of 0.10 mg/L/year
Middle 1	US10	2003-2005	No significant trend
Middle 3	D06	1994-2005, 2008	Improvement of 0.06 mg/L/year
Lower 1	US9	2002-2006	Degradation of 0.04 mg/L/year*
Lower 2	L05D	1994-2006, 2008	Improvement of 0.22 mg/L/year

*Since data collection began at US9 in 2001 (May – Oct) DO mean has been ≥ 7.7 mg/L and the percent ≥ 5 mg/L has been 100%.

High streamflow variability continues to negatively impact the water quality and ecosystem health of the Rouge River Watershed. Trend analyses generally indicate that the frequency of high flow is holding steady in the Middle and Lower Rouge River whereas in the Main and Upper Rouge River a decrease in the frequency of high flow was indicated. A goal of the ARC in the updated WMP is to control the volume of urban storm water runoff as well as the flow rate. The ARC's current Five Year Monitoring Plan (2009-2013) includes monitoring of continuous river level and flow, which will be used to evaluate progress of the best management practices towards establishing stable streamflow and habitat conditions that are supportive of diverse aquatic life communities.

Rouge River Macroinvertebrate Monitoring: Wayne County Water Quality Management Division (WQMD) continued its partnership with the Friends of the Rouge (FOTR) to complete benthic macroinvertebrate monitoring at numerous locations in the Rouge River during spring and fall 2011. Forty-seven sites were monitored (30 by FOTR and 17 sites by the Wayne County WQMD) in the spring. Figure 2 identifies the site locations and ratings for the spring 2011 monitoring. In the fall of 2011, 52 sites were monitored (31 by FOTR volunteers and 21 by WQMD). Figure 3 identifies the locations and site ratings for the fall 2011 monitoring.

Table 3
Rouge River Streamflow Trend Analyses Summary and 2010 Precipitation Totals

Streamflow Trend Analyses Summary and 2009 Precipitation Totals for the Rouge River Watershed						
SWMA	Site ID	Base Flow	Average Flow	Peak Flow Exceeding Gage-Specific Threshold	Streamflow Period of Record	2010 Precipitation Total (as percent of long-term average, 1994-2009) ¹
Main 1-2	US4	↑↑ to mid 1990s, then ↓↓	↑↑ from mid 1960s to mid 1990s, then no change	↑↑ from mid 1960s to mid 1990s, then no change	1951-2010	98.62%
	US5	↑↑ to mid 1990s, then ↓↓	↑↑ from mid 1960s to mid 1990s, then ↓↓	↑↑ from mid 1960s to mid 1990s, then ↓↓	1959-2010	
	US6	↑↑ to mid 1990s, then ↓↓	↑↑ from mid 1960s to mid 1990s, then no change	↑↑ from mid 1960s to mid 1990s, then ↓↓	1959-2009	
Main 3-4	US7	↑↑ from mid 1960s to mid 1990s, then ↓↓	Cyclical, but no change in recent years	Cyclical	1931-2010	113.04%
Upper	US3	↑↑ to mid 1990s, then no change in recent years	↑↑ since data collection began in 1959	Cyclical	1959-2010	112.00%
	U05	↓↓ since mid 1990s	↓↓ since mid 1990s, but no change in recent years	↓↓ since mid 1990s	1994-2010	
Middle 1	US10	No change	↑↑	No change	2002-2005 (2002 partial year)	128.25%
Middle 3	US2	↑↑ since mid 1980s to mid 1990s, then no change since mid 1990s	No change to mid 1990s, then ↑↑	No change since the mid 1980s	1948-1977 1984-2010	128.25%
	D06	No change since mid 1990s	No change	No change	1994-2008	
Lower 1	US9	No change	No change	No change	2001-2006* (2001 partial year)	106.71%
Lower 2	US1	1948 to 1995 ↑↑, then ↓↓	No change since 1948	↓↓ 1948 to 1995, then no change	1948-2010*	106.71%
	L05D	No change since 1996	No change since 1996	No change since 1996	1994-2008*	

Note: ↑↑=increasing trend, ↓↓=decreasing trend, *YCUA WWTP began discharging in upstream end of Lower Rouge in 1996.

¹Rouge River Watershed Rain gages used for calculation of precipitation totals.

Figure 2: Rouge River Benthic Monitoring Sites and Scores, Spring 2011

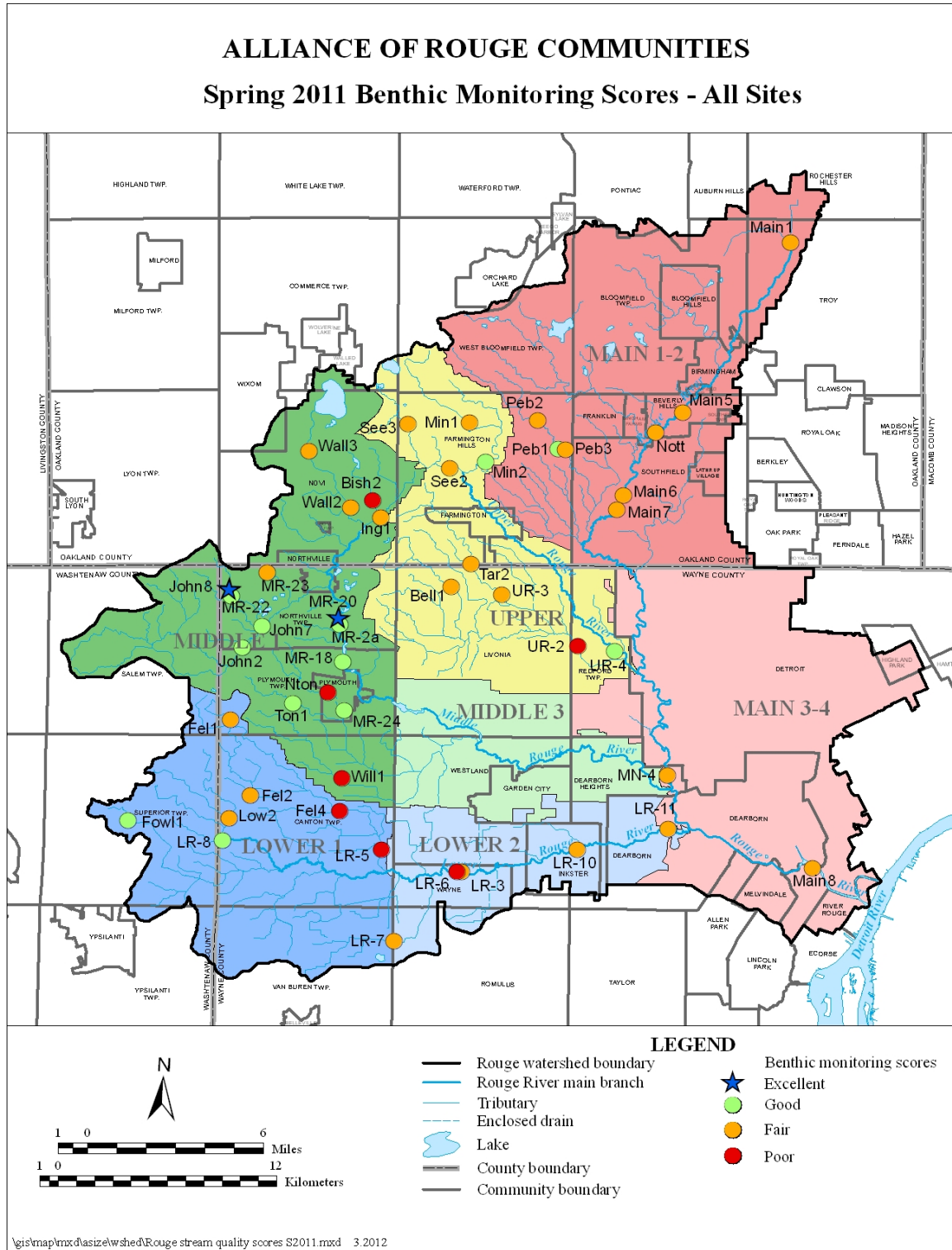
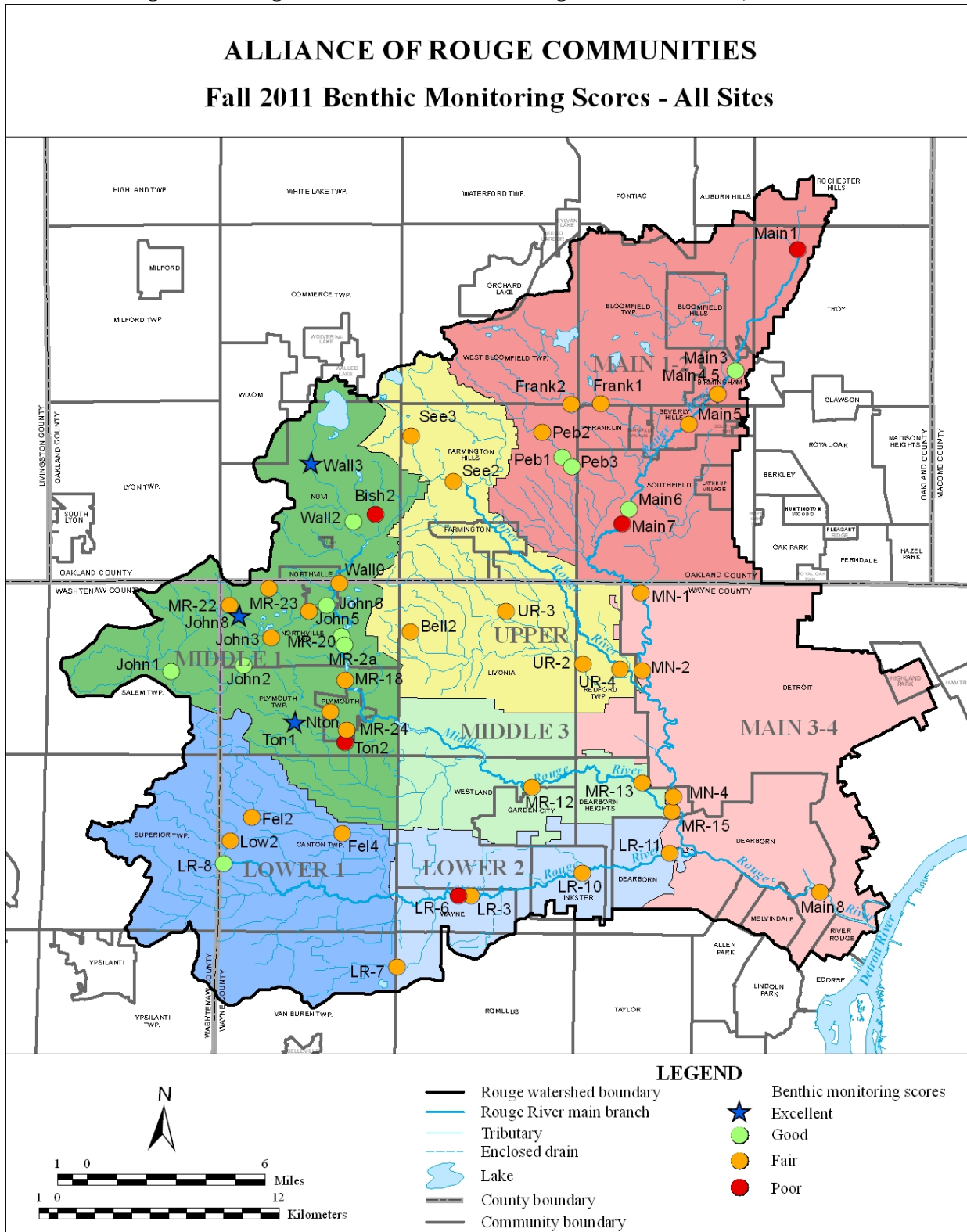


Figure 3: Rouge River Benthic Monitoring Sites and Scores, Fall 2011



\\gis\map\rnx\d\size\wshed\Rouge stream quality scores F2011.mxd 3.2012

Notable Rouge River watershed macroinvertebrate findings during 2011 include:

- Stoneflies were found at 5 of the 29 sites sampled during the January 22, 2011 FOTR winter Stonefly Search. Severe weather conditions hampered sampling efforts this year, with many of the sites completely frozen over, limiting access. Slender Winter Stoneflies were the only stonefly found.
- The spring 2011 Bug Hunt was challenging due to high water generated by the rainy spring, making deeper sites difficult or impossible to sample. High water did not prevent the discovery of another new find for the Rouge: a new family of caddis fly (Family Lepidostomatidae), a sensitive family. They are found in small cool streams and indicators of clean water. The specimens were found in Johnson Creek. Family Lestidae, spread winged dragonflies, are a tolerant type of dragonfly, but new to the Rouge River, were found this spring in the Lower Rouge Fellows Creek tributary. Six sensitive families were found at seven sites: Stoneflies (Families Nemouridae, Perlodidae, Capniidae) Pronggill mayflies (Family Leptophlebiidae), free living caddis flies (Family Rhycophilidae) and Lepidostomatid caddis flies (Family Lepidostomatidae).
- Clubtail dragonflies, a member of the dragonfly family Gomphidae which is very sensitive to water quality, were found at on the Main Rouge (Firefighters Park) in Troy during the Fall 2011 bug hunt. Also collected during the fall 2011 bug hunt were a Dobsonfly, or Hellgrammite, was also found on Danvers Pond on Pebble Creek, a Main Rouge Tributary. The Dobsonfly is a member of the family Corydalidae, also very sensitive to water quality.
- Pronggill mayflies, another insect family sensitive to water quality, were found at four Johnson Creek sites in fall 2011.
- Perlodid stoneflies (Family Perlodidae), a water quality-sensitive family were also collected at a Johnson Creek site this fall.

Rouge River Macroinvertebrate Data Trend Analysis: A trend analysis was performed on the Rouge River benthic macroinvertebrate data collected 2001 - 2011. The data were subdivided into the seven primary Rouge River subwatersheds and the Johnson Creek subwatershed for statistical analysis. Johnson Creek is recognized as a coldwater stream and therefore unique from the rest of the Rouge River system. A standard significance test ($p < 0.05$) was applied to the linear regression analysis to determine trend significance. The slope of the linear regression trend line is expressed as a number, either positive or negative. A positive slope suggests an upward (improving) trend in the data. A negative slope suggests a downward (declining) trend in the data. The direction of the trend line is recognized as significant if the p-value is equal to or less than 0.05. Table 4 summarizes the results of the data trend analysis since FOTR/WQMD macroinvertebrate monitoring began.

Figure 4 presents a graphic representation of the linear regression analysis completed for macroinvertebrate data collected in Johnson Creek during the fall for the period 2001-2011 (see *Section 6: List of Attachments* for the linear regression graphics for the spring and fall data analysis for each of the subwatersheds).

Table 4: Rouge River Macroinvertebrate Trend Analysis, 2001 - 2011

Spring Data 2001-2011			
Subwatershed	slope	<i>p</i> -value	Significant Trend
Main 1-2	0.7404	0.0056	yes, improving
Upper	0.3945	0.2346	no
Johnson Creek	0.8523	0.1093	no
Middle 1	1.5981	0.0002	yes, improving
Middle 3*	1.6287	0.0428	yes, improving
Lower 1	0.5064	0.2189	no
Lower 2	1.1860	0.0679	no
Main3-4	NA	NA	NA
Fall Data 2001-2011			
Subwatershed	slope	<i>p</i> -value	Significant Trend
Main 1-2	-0.4321	0.2242	No trend
Upper	-0.7679	0.0185	yes, declining
Johnson Creek	1.4091	0.0013	yes, improving
Middle 1	0.8406	0.0222	yes, improving
Middle 3	0.8141	0.0323	yes, improving
Lower 1	0.4931	0.2606	No trend
Lower 2	-0.2741	0.5865	No trend
Main3-4	NA	NA	NA

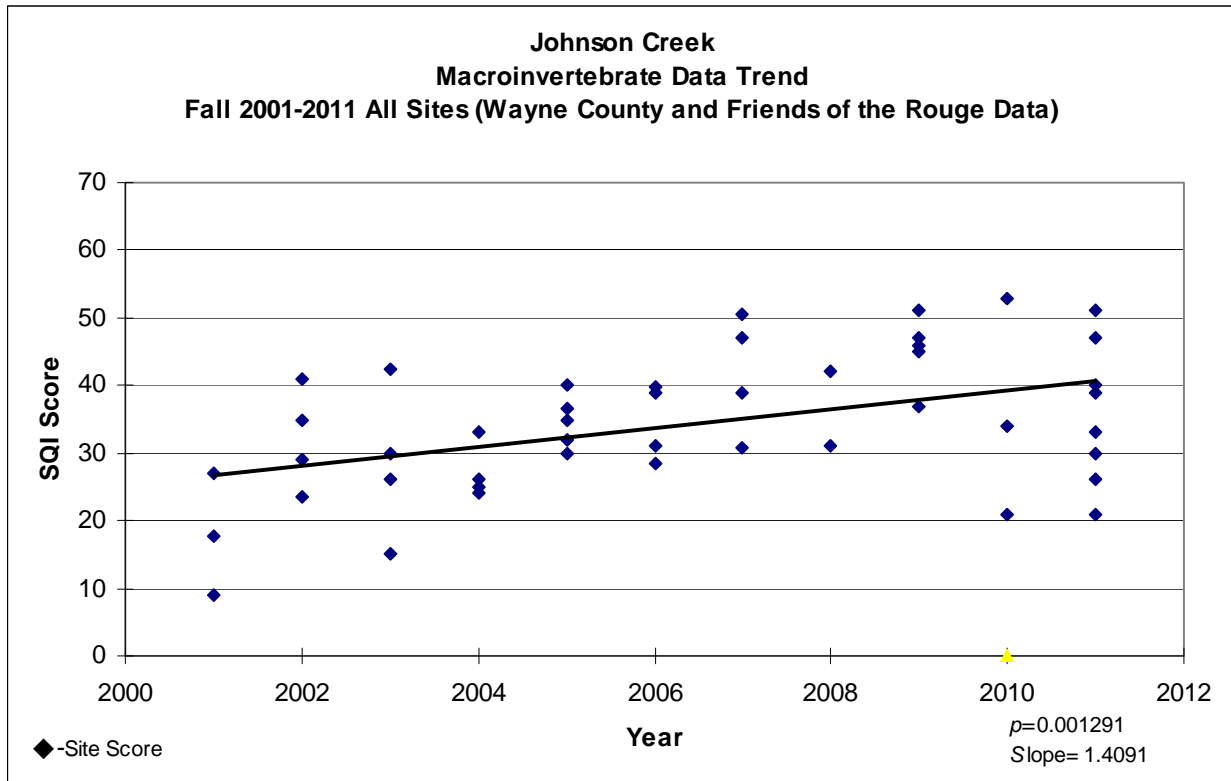
* Trend based on 2001 – 2010 data. Water levels prevented spring 2012 monitoring

NA – not applicable, not enough data to perform analysis.

Based on this analysis, three of eight subwatersheds are showing significant improving trends for spring macroinvertebrate monitoring data. Due to high water levels no sites within the Middle 3 subwatershed were sampled in spring 2011. Therefore this trend is based on 2001-2010 monitoring. Three of eight subwatersheds have significant improving data trends for fall monitoring. One of the subwatersheds (Upper Rouge) had a significant declining data trend in both spring and fall 2011.

Detailed information about the 2011 macroinvertebrate sampling in the Rouge River is available online at <http://therouge.org/index.php?id=687847>.

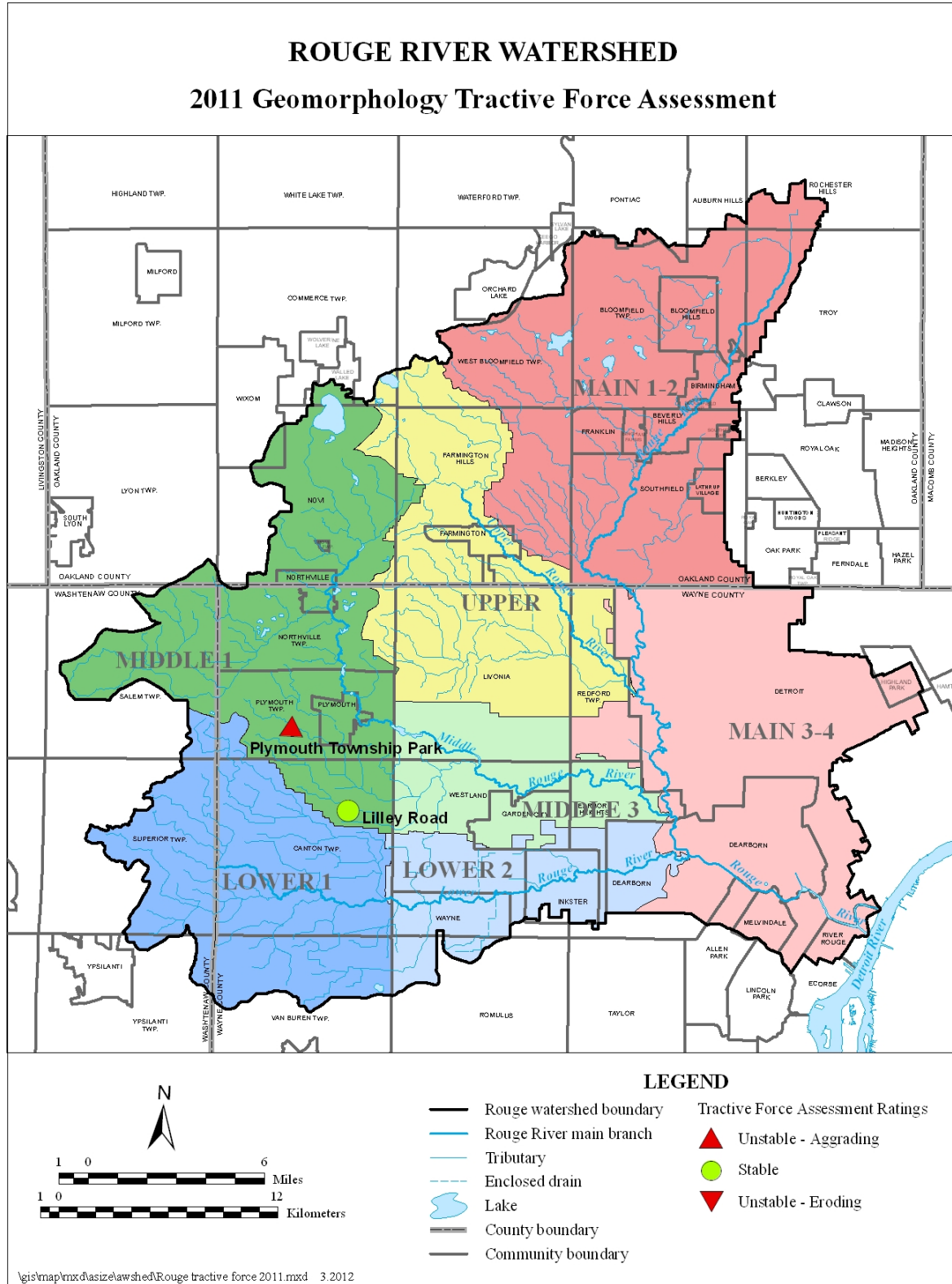
Figure 4: Fall Macroinvertebrate Data Trend for Johnson Creek Subwatershed, 2001-2011



Rouge River Geomorphology Assessments: WQMD staff completed surveys at two Rouge River geomorphology sites in 2011. The two sites were located in the Middle Rouge River watershed and were previously surveyed in 2010. The tractive force ratio, which estimates stability of a stream based on a ratio calculated from the bankfull depth, channel slope and the size of particles found on the stream bed, was calculated for the sites. Based on the rating scale that WQMD has proposed, the tractive force ratio was stable for Lilley Road and changed slightly toward aggrading at the Plymouth Township Park site. Figure 5 identifies the location and scores for each site based on the calculated tractive force ratio.

The tractive force ratio and associated geomorphology ratings for sites are indicative of long term trends and thus are not anticipated to change within a relatively short (e.g., 12 month) period. Resurveys of sites were conducted within 12 months in both the Rouge River and Alliance of Downriver watersheds to confirm the reliability of the geomorphology assessments. Based on the resurvey experience in these watersheds, the tractive force ratio appears to be reasonably reliable with 4 of 5 resurveyed sites maintaining their original rating.

Figure 5: Rouge River Geomorphology Assessment Results – 2011



Downriver Watersheds.

During 2011, Wayne County WQMD continued its partnership with the Downriver Citizens for a Clean Environment “Stream Team” and the Huron River Watershed Council (HRWC) to implement environmental indicator monitoring in the Alliance of Downriver Watersheds (ADW).

Downriver Watersheds Macroinvertebrate Monitoring: Spring and fall macroinvertebrate (benthic) monitoring was performed by WQMD and HRWC at 23 locations in the downriver watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River. In the spring, sixteen ADW sites were monitored in spring 2011 by WQMD, including seven sites with student volunteers assisting. Southgate Anderson High School, Southgate Creative Montessori, Ecorse High School, Huron High School, Gudith Middle School and Trenton High School participated in the monitoring, providing 175 student volunteers. Figure 6 identifies the Wayne County spring 2011 macroinvertebrate monitoring site locations and site ratings.

Figure 6: Wayne County Downriver Watersheds, Benthic Monitoring Sites and Scores, Spring 2011

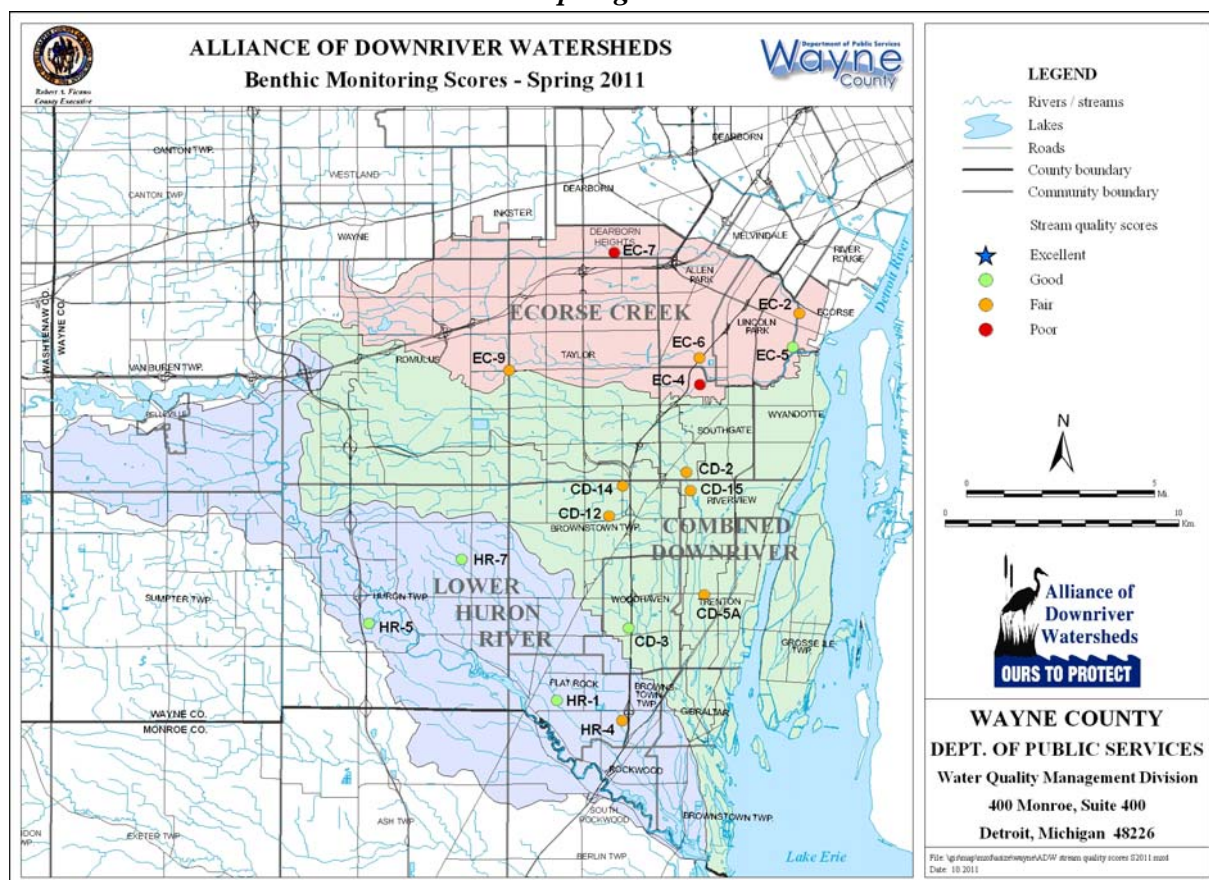
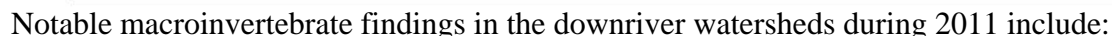


Figure 7: Wayne County Downriver Watersheds, Benthic Monitoring Sites and Scores, Fall 2011



- Wayne County Annual Report
-
- January 1, 2011 – December 31, 2011
-
- MDEQ Storm Water General Permit

Downriver Watersheds Macroinvertebrate Data Trend Analysis: A trend analysis was performed on the macroinvertebrate data collected 2004 – 2011 in the downriver watersheds. The data were subdivided into the three primary watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River for statistical analysis. Evaluation of the data to determine trends is accomplished by evaluating spring and fall data separately and for sites with a minimum of three years of data. Table 5 summarized the data trends for each watershed and season:

Table 5: Downriver Watersheds Macroinvertebrate Trend Analysis, 2004-2011

Spring 2004-2011	
Watershed	Significant Trend
Lower Huron	Yes, improving
Ecorse Creek	Yes, improving
Combined Downriver	Yes, improving
Fall 2004-2011	
Watershed	Significant Trend
Lower Huron	No trend
Ecorse Creek	No trend
Combined Downriver	No trend

Figure 8 presents a graphic representation of the linear regression analysis completed for the macroinvertebrate monitoring data collected in the Lower Huron River during spring conditions. *Section 6: List of Attachments* presented the linear regression graphics for the spring and fall data analysis for the Ecorse Creek, Combined Downriver, and Lower Huron River. Detailed information about the watershed health monitoring conducted during 2011 is provided in the report *2011 Monitoring Report Alliance of Downriver Watersheds* available online at http://www.allianceofdownriverwatersheds.com/adw_info.

ADW Geomorphology Monitoring: Using stream channel geomorphology field measurement techniques acquired during Rouge River watershed work, WQMD staff assessed stream channel stability within the Combined Downriver, Ecorse Creek, and Lower Huron River Watersheds and began establishing baseline data across these watersheds. This is being done to geospatially assess channel stability as well as assess stabilizing or destabilizing trends over time. Three sites, one in each subwatershed, originally evaluated in 2010, were resurveyed in 2011 (Figure 9). These sites are the South Branch Ecorse Creek at Beech Daly, Frank and Poet at Southland Mall, and Smith Creek at Flat Rock Community Center in the Lower Huron River watershed. Two sites, Smith Creek at the Flat Rock Community Center and the South Branch Ecorse Creek at Beech Daly, were rated to “unstable” with eroding characteristics and one site, the Frank and Poet at Southland Mall, was rated “stable”. These 2011 ratings were the same as the 2010 results.

**Figure 8: Spring Macroinvertebrate Data Trend
Lower Huron River Watershed, 2004 - 2011**

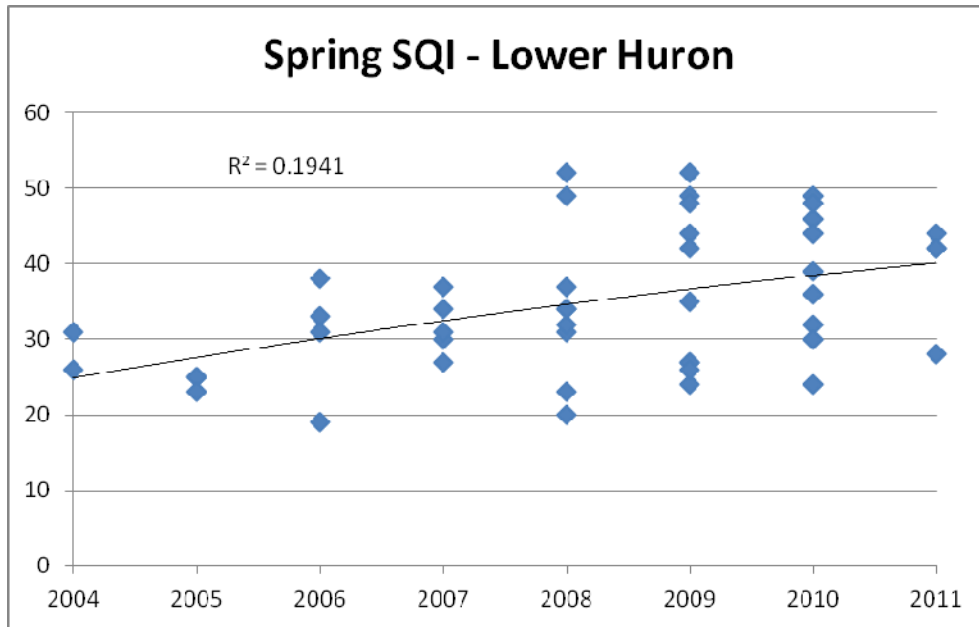
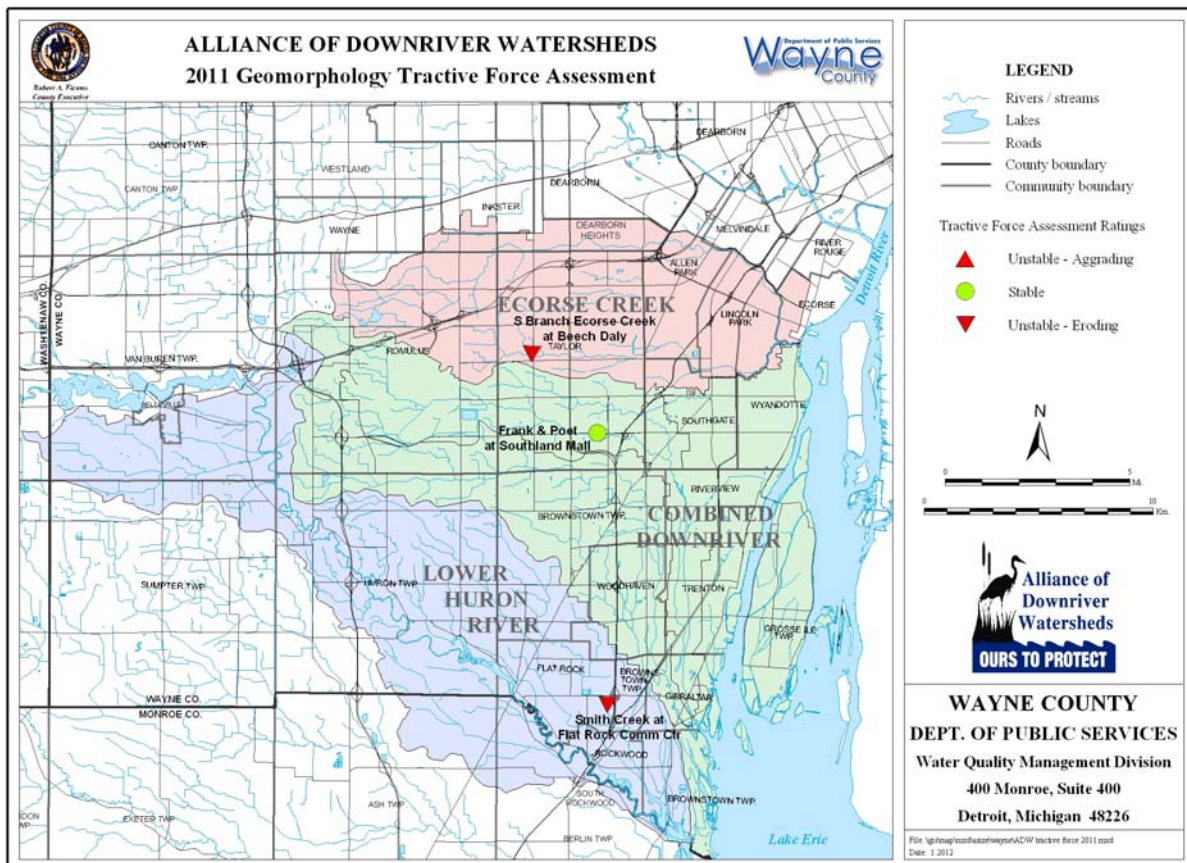


Figure 9: Geomorphology Assessment Results for Downriver Watersheds – 2011



The tractive force ratio and associated geomorphology ratings for sites are indicative of long term trends and thus are not anticipated to change within a relatively short (e.g., 12 month) period. Resurveys of sites were conducted within 12 months in both the Rouge River and Alliance of Downriver watersheds to confirm the reliability of the geomorphology assessments. Based on the resurvey experience in these watersheds, the tractive force ratio appears to be reasonably reliable with 4 of 5 resurveyed sites maintaining their original rating.

Flow Monitoring in Downriver Watersheds: Flow monitoring was conducted at nine sites within the ADW during 2011. Two sites were located in the Ecorse Creek watershed, one site along the South Branch and one site at the United States Geological Survey (USGS) gage station on the North Branch. Data from the USGS station were utilized for the stream flow analysis. WQMD collected data at three Combined Downriver sites: one on the Frank and Poet Drain, one on the Blakely Drain, and one on the Brownstown Creek. The Huron River Watershed Council (HRWC) collected data at three sites in the Lower Huron River watershed. Monitoring involved the collection of continuous water level data at a fixed point using a pressure sensor, accompanied by regular discharge measurements across a range of flow conditions to calibrate water level to stream discharge. Discharge was measured during the growing season (approximately April through October) at seven sites over two years. Statistics are computed to determine the stream's flashiness, peak and base flows over that time period.

Table 6 is an extract from the *2011 Monitoring Report Alliance of Downriver Watersheds* that presents a summary of the flow characteristics for the locations monitored in the ADW. Based on this analysis all of the water courses monitored are in the 4th (flashiest) quartile of Michigan streams with the exception of Woods Creek in the Lower Huron watershed (2nd quartile) and Brownstown Creek (3rd quartile). These statistics will be used to assess trends over time with the goal being to realize decreases in the streams' flashiness and peak flows and increased base flows. The *2011 Monitoring Report Alliance of Downriver Watersheds* contains more analysis for each of the parameters monitored in the ADW and should be available online soon at http://www.allianceofdownriverwatersheds.com/adw_info.

Lake St. Clair (Direct Drainage) Watershed. As described in Section 5, the Lake St. Clair Watershed Advisory Group developed a watershed management plan for the area which was approved by the Michigan Department of Environmental Quality on June 27, 2008. The methods of assessing progress of watershed plan implementation are under development by the Advisory Group. In 2011, the group initiated updating the Watershed Management Plan by developing an online survey tool to gauge public opinion for necessary plan revisions.

**Table 6: Flow Characteristics
Ecorse Creek, Combined Downriver, and Lower Huron River Watersheds**

Site	Period Monitored†	Drainage Area (sq. mi.)	Median Flow (cfs)	Peak Flow* (cfs) (Event Precip. (in))	Minimum flow* (cfs)	Flashiness (Quartile)
1. Frank & Poet	2008-11	27	4.33	754 (3.07)	0	0.56 (4)
2. Blakely	2008-11	32	2.80	252 (2.36)	0	0.53 (4)
3. Brownstown	2008-11	27	2.73	214 (3.07)	0	0.45 (3)
4. SB Ecorse	2008-11	12	3.82	290 (0.49)	0.33	0.58 (4)
5. NB Ecorse	2008-11	18	1.2	408 (2.59)	0.16	0.88 (4)
5. NB Ecorse (full record)	2002-11 (all months)	18	2.3	446^	0.08	0.83 (4)
6. Woods	2008-10	21	1.66	68.9 (2.6)	0	0.31 (2)
8. Silver	2009-11	7.9	1.26	334 (1.0)	0	0.76 (4)
9. Smith	2011	9.0	3.39	163 (2.36)	0.19	0.74 (4)

† For all but NB Ecorse Creek (a USGS station), flow was measured from late spring into early fall, roughly May through October.

* Peak flow and minimum flow are extracted from the complete, sub-daily flow record, whereas the other statistics are based on mean daily discharge.

^ Peak flow occurred in 2004, prior to precipitation records obtained by the author.

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SECTION 2
WAYNE COUNTY
ILLICIT DISCHARGE ELIMINATION PLAN
SUMMARY OF ACTIVITIES

This section summarizes Illicit Discharge Elimination Plan (IDEP) activities completed by Wayne County during the time period **January 1, 2011 – December 31, 2011**, in compliance with the County's Certificate of Coverage MIG610040 under the Michigan Department of Environmental Quality (MDEQ) General Storm Water Discharge Permit MIG619000. All activities were conducted County-wide, unless otherwise noted. Table 7 presents a summary of the results of Wayne County's IDEP.

Table 7: Environmental Concerns Investigated
January 1 through December 31, 2011

<i>Method of Identification and Type of Illicit Connection</i>	<i>Number Handled or Investigated</i>	<i>Number of Confirmed Illicit Discharges</i>
Total Number of Environmental Concerns Handled or Investigated		
Calls into Wayne County Hotline	2,400	NT
Water Quality Complaints into DPS-Water Quality Division	49	2
Drainage Complaints directly into DPS-FMD Drain Office	152	4
Environmental Complaints directly into DPS-LRMD	54	NT
<i>Subtotal, Complaints Handled</i>	255	6
Types of Environmental Concerns or Illicit Discharges Identified during Complaint Investigations (WQMD, FMD and LRMD)		
Illicit Discharge Concern - Grease/Oil/Fuel	8	0
Illicit Discharge Concern - Sewage/Grey Water	4	0
Illicit Discharge Concern – Other	15	2
Requesting Information/Technical Assistance	3	0
Soil Erosion Sedimentation Control	14	3
Landfill Odor	48	0
Odor – Other (referred to MDEQ Air Quality)	4	0
Illegal Dumping	6	1
Logjams/Woody Debris	61	0
Vegetation	22	0
Flooding	25	0
Debris	14	0
Misc.	31	0
<i>Subtotal, Complaint Investigation</i>	255	6
Emergency Spill Response	0	0
<i>Subtotal, Emer. Spill Response</i>	0	0

Table 5 (Continued): Illicit Discharges Found Within Wayne County

Environmental Concerns Identified during Routine Field Operations	<i>Number Handled or Investigated</i>	<i>Number of Confirmed Illicit Discharges</i>
Illegally dumping	7	7
Illicit discharges	6	6
Suspicious Pipe	1	0
Missing manhole cover	1	0
Excessive Erosion	6	6
<i>Subtotal, Field Operations</i>	21	19
Illicit Discharges Identified during Facility (Dye Test) Inspections		
Floor Drains		1
Sinks		
Milk Tanker Discharge		
Trash Compactor		
Inappropriate Floor Wash Water Disposal		6
Outdoor Power Washing (equipment)		5
Outdoor Mat Washing		1
Onsite Sewage Disposal System Failures (EHD)		57
<i>Subtotal, Facility Inspections</i>		70
Pollution Prevented or Removed by Activity	<i>Amount</i>	<i>Sites/Events</i>
Pollutant Load Reductions from Dye-Testing (WQMD)	5,334 lbs; 2,522,234 gals/yr	NA
Pollutant Load Reductions from Onsite Sewage Disposal System Program (EHD)	44,854 lbs; 4,062,176 gals/yr	NA
Cleanup of illegal dump sites (LRMD - C.L.E.A.N. program)	1,301 cu yds; 4,192 tires	22
Computer/Computer Peripheral Waste Collection Days (4 days - combined with Household Hazardous Waste collection events – LRMD)	349.4 tons (698,888lbs)	11
Household Hazardous Waste Collection Days (4 days – LRMD)	313.4 tons (626,800lbs)	4
Cleanup of material dumped on County property, street sweepings and catch basin spoils (DPS-Roads)	16,600 cu. yds	7
County Drain debris disposal (FMD)	1,484 cu. yds	46
TOTAL POLLUTION PREVENTED AND/OR ILLICIT DISCHARGES IDENTIFIED	1,375,876 lbs	95

NT = Not Tracked separately

NA = Not Applicable

DPS = Department of Public Services

LRMD = DPS-Land Resource Management Division

FMD = DPS-Facilities Management Division

WQMD = DPS-Water Quality Management Division

C.L.E.A.N = County Lending Environmental Assistance to Neighborhoods program

EHD = Department of Public Health-Environmental Health Division

County-Based 24-Hour Hotline and Coordinated Complaint Response (WCIDEP #1)

24 Hour Hotline/Complaint Response

The Wayne County Department of Public Services (WCDPS) maintained the County's telephone "Environmental Hotline" (888-223-2363) during the reporting period. The hotline is operated 24 hours per day seven days a week, to log and coordinate responses to environmental concerns and information requests of all types. In 2011, approximately 2,400 calls were handled through the WCDPS Environmental Hotline. Of these calls approximately 2,291 were not valid calls into the WCDPS Environmental Hotline. One hundred nine (109) were valid calls to the WCDPS Environmental Hotline. Twelve of the valid calls were referred to appropriate outside agencies and 97 were transferred to WCDPS field operations staff in the Land Resource Management Division (LRMD), the Facilities Management Division (FMD) or the Water Quality Management Division (WQMD). Citizen complaints regarding environmental matters are also received directly by these different divisions in WCDPS as well as by the Wayne County Environmental Health Division. These efforts are summarized below.

Coordinated Complaint Response

The WQMD handled a total of 49 complaints during the reporting period. Of these, 24 were various illicit discharge-related calls, three involved a soil erosion issue, three requested information or technical assistance, and 15 others were miscellaneous concerns. Of the 49 complaints, four were referred to other agencies or County Departments, and 44 were investigated by WQMD. Of the 44 investigated by WQMD, six were fuel/oil related, 17 were other types of illicit discharges, three requested information or technical assistance, and 18 involved miscellaneous topics. Of the 44 complaints investigated by WQMD, two were confirmed illicit discharges (one leaking transformer; one overflowing grease storage unit). For the confirmed illicit discharges identified in 2011, one discharge has been removed, and one was referred to others for correction follow-up.

The Facilities Management Division (Drain Office) handled a total of 152 complaints concerning County Drains during the reporting period, categorized as follows: illegal dumping – 4, log jams/woody debris – 61, debris – 14, flooding – 25, standing water – 2, erosion – 11, and miscellaneous – 35.

LRMD received 48 landfill odor complaints, two illegal dumping complaints and four complaints that were referred to the MDEQ-Air Quality Division.

County-Based Illicit Discharge Advanced Investigation and Correction (WCIDEP #2)

Illicit Discharge Investigations, Facility (Dye-Test) Inspections

Dye-testing of facilities to identify improper connections of plumbing fixtures to the storm sewer system/waterways took place in three watersheds during 2011: Rouge River, Ecorse Creek, and Combined Downriver. Plumbing fixtures at 226 facilities were dye-tested, resulting in the identification of one illicit connection at one facility and 12 illicit discharges from 12 facilities. During the reporting period, corrective actions of identified illicit connections, illicit discharges, and environmental concerns were verified at seven facilities.

Table 8 provides a summary of the facility dye test inspections by watershed. Table 9 summarizes the types of illicit connections and illicit discharges found by Wayne County during facility inspections for this reporting period. Table 10 presents a summary of illicit discharge investigations performed independently of facility dye testing activities. Table 11 presents an estimate of the pollutant loading reductions to Wayne County waterways that will be achieved per year when all of the illicit discharges identified in 2011 are eliminated. Wayne County's illicit discharge elimination effort for 2011 prevents over 50,000 pounds of pollutants and approximately 6.6 million gallons of polluted water per year from entering Wayne County waterways. These pollutant loading reduction estimates include illicit discharges identified during all 2011 Wayne County illicit discharge investigations.

**Table 8: Wayne County Watersheds Facility (Dye Test) Inspection Summary
January 1 through December 31, 2011**

	Annual Total	Watershed			
		Rouge River Watershed	Ecorse Creek Watershed	Combined Downriver Watershed	Lower Huron Watershed
Number of Facilities Inspected	226	100	80	46	0
Number of Facilities with Illicit Connections	1	1	0	0	0
Number of Illicit Connections*	1	1	0	0	0
Number of Facilities with Illicit Discharges	12	11	1	0	0
Number of Illicit Discharges	12	11	1	0	0
Number of Environmental Concerns	3	2	1	0	0
Number of Facilities with Environmental Concerns	3	2	1	0	0
Number of Facilities with Confirmed Corrections	7	3	3	1	0
Number of Illicit Connections Corrected	14	3	7	4	0
Number of Illicit Discharges Corrected	3	0	3	0	0
Number of Environmental Concerns Corrected	2	1	1	0	0

**Table 9: Types of Illicit Discharges Found Within Wayne County
During Facility (Dye-Test) Inspections January 1 through December 31, 2011**

<i>Type of Illicit Connection</i>	<i>Percent of Total Identified</i>	Watershed			
		<i>County Total</i>	Rouge River	Ecorse Creek	Combined Downriver
Floor Drains	100	1	1	0	0
Sinks					
Other					
TOTAL	100	1	0	0	0
<i>Type of Illicit Discharge</i>	<i>Percent of Total Identified</i>	<i>County Total</i>	Rouge River	Ecorse Creek	Combined Downriver
Outdoor Equipment washing	42	5	5	0	0
Inappropriate Floor Wash Water Disposal	50	6	5	1	0
Sump Pump	0	0	0	0	0
Outdoor Mat Washing	8	1	1	0	0
Onsite Sewage Disposal System	0	0	0	0	0
TOTAL	100	12	11	1	0

Table 10: Summary of Illicit Discharge Investigations Performed Independently of Wayne County Facility Dye Testing Activities: January 1 through December 31, 2011

	Annual Total 2011	Watershed		
		Rouge River Watershed	Ecorse Creek	Combined Downriver Watershed
Number of Onsite Sewage Disposal Systems (OSDS) with Illicit Discharges	57	NA	NA	NA
Number of Illicit Connections	0	0	0	0
Number of Illicit Discharges	0	0	0	0
Number of Illicit Connections Corrected	0	0	0	0
Number of Illicit Discharges Corrected	0	0	0	0

NA: Not Applicable as WCHD-EHD tracks OSDS by community and not by watershed

Table 11: Summary of Illicit Connections and Estimated Pollutant Load Reduction to Wayne County Watersheds: January 1, 2011 through December 31, 2011

Parameter	Estimated amount of polluting material prevented from entering Wayne County Waterways annually in pounds*				
	Annual Loads	Facility Inspections by Watershed			Failed OSDS
	Pounds/year	Rouge River	Huron River	Combined Downriver	
Surfactant	1,352	883	1	11	457
Potassium	993	785	1	4	203
Suspended Solids	8,965	600	0	145	8,220
Total Phosphorus	372	56	0	12	304
Total Solids	25,820	2,057	0	423	23,340
Total Organic Carbon	1,737	115	0	32	1,590
Ammonia	322	29	0.005	5	288
Biochemical Oxygen Demand	7,600	0	0	125	7,475
Fats, Oils and Grease	3,027	0	0	50	2,977
	50,188				
Total Annual Pounds per Year	50,188	4,525	2	807	44,854
Flow (gallons/year)	6,584,410	2,443,665	2,555	76,014	4,062,176

*These loading reductions assume the removal of all illicit discharges identified during the reporting period.

OSDS = Onsite Sewage Disposal System

Since the inception of the Illicit Discharge Elimination Program in 1987, Wayne County staff have inspected 9,323 facilities and identified 2,528 illicit connections at 616 facilities. WQMD confirmed corrections of illicit connections and illicit discharges at a total of 566 facilities through 2011. Assuming correction of all illicit discharges identified to date, Wayne County's illicit discharge elimination efforts since 1987 have prevented over 440,120,000 gallons of polluted water per year from entering Wayne County waterways.

Environmental concerns are material storage / handling and housekeeping issues that have the potential for creating illicit discharges. These items are identified and depending on the severity may be referred to the MDEQ for enforcement or if the owner agrees to correct the deficiencies, WQMD may perform a follow up inspection to ensure corrective action. A list of these facilities is provided within Section 2.1 of Section 6: Attachments. Confirmation of corrective action is pending at 38 facilities. Seven of these facilities are vacant and were referred to the local community or appropriate state agency for enforcement action. Corrections of outstanding illicit connections, illicit discharges, and environmental concerns were confirmed at nine facilities during 2012. A listing of these facilities and their status is presented in the Attachments for Section 2.2. Illicit discharge facility inspection activity is summarized by watershed in the following subsections.

Rouge Watershed Facility Inspections (Dye-Testing)

Under contract with the ARC, WQMD staff assessed the municipal facilities of select ARC members for illicit connections and illicit discharges. Community municipal facilities assessed

were located in the cities of Southfield, Westland and in the townships of Bloomfield and Canton. The results of this effort are included in the summary of Rouge River Watershed facility inspections presented in the next paragraph.

In 2011, WQMD performed 100 facility dye test inspections in the Rouge River watershed. Dye testing was performed in the Wayne County communities of Canton Township, Inkster, Plymouth Township and the Westland. Facility dye test inspections were performed in the Oakland County communities of Bloomfield Township and Southfield. One illicit connection was found and 11 illicit discharges were discovered. WQMD staff confirmed corrections of three illicit connections, one illicit discharge and one environmental concern previously identified at three facilities. Communities where follow up inspections were performed include Canton Township, Dearborn Heights, Livonia, Northville, Redford Township, Wayne, and Westland. There are 25 facilities with outstanding illicit discharges in the Rouge River watershed. Four of the facilities were vacant at the time of the follow up inspection. Corrections of illicit discharges were verified at six facilities visited during 2012, and one is pending confirmation of all of its corrections with WQMD and MDEQ staff. These facilities are listed in the Attachments Table 2.2.

Ecorse Creek Watershed Facility Inspections (Dye-Testing)

During the reporting period, WQMD performed 80 facility dye test inspections in the communities of Lincoln Park and Taylor within the Ecorse Creek watershed. No illicit connections were found at any facilities. One illicit discharge was discovered at one facility. During the reporting period, WQMD performed follow up facility inspections to confirm corrections of outstanding illicit connections and discharges in the communities of Lincoln Park, Romulus, and Taylor within the Ecorse Creek watershed. Corrections of three illicit discharges one environmental concern and seven illicit connections were verified at three facilities. There are nine facilities with outstanding illicit discharges located within the Ecorse Creek watershed. One of the facilities, located in Lincoln Park, was confirmed demolished at the time of the follow up inspection in 2012. These facilities are listed in Table 2.2 in the Attachments.

Combined Downriver Watershed Facility Inspections (Dye Testing)

Forty-six facilities in the communities of Southgate and Taylor within the Combined Downriver watershed were dye tested during the reporting period. None of these facilities had illicit connections, illicit discharges or environmental concerns at the time of the inspection. One of the facilities was involved in a spill response in 2010 and the investigation is subject to ongoing MDEQ compliance activity. One facility with outstanding illicit connections was visited to determine the status of illicit connections and the four illicit connections at this facility were confirmed corrected. There are no facilities with outstanding illicit connections or illicit discharges in the Combined Downriver Watershed (see Table 2.2 in the Attachments).

Lower Huron River Watershed (Dye Testing)

WQMD did not inspect facilities in the within the Lower Huron River watershed in 2011. There are no facilities with outstanding illicit discharges in the Lower Huron River watershed. Environmental concerns were identified at two facilities in 2010 and follow up visits in 2012 confirmed their correction (see Table 2.2 in the Attachments).

Additional Investigation on Behalf of Communities:

Rouge River Watershed

City of Inkster Advanced Investigations

WQMD met with the City of Inkster Department of Public Works (DPW) Director concerning suspicious sewer taps discovered during sewer televising in a residential area near the streets of John Daly, Leheigh, and Hopkins Streets during March 2011. WQMD conducted an investigation and performed dye tests at nine residences in the area selected by the City of Inkster. The plumbing fixtures in three residences were dye tested and confirmed to be properly connected to the sanitary sewer. Plumbing fixtures in three additional residences were connected to a pipe that was originally believed to be a storm sewer but subsequently determined to be a combined sewer. Access to the remaining three residences was not achieved. WQMD also assisted the City of Inkster in December 2011 to confirm plumbing connections at a commercial facility. The facility was determined to be properly connected to the sanitary sewer.

Perrin Drain Residential Areas City of Inkster

Elevated IDEP parameters, including elevated *E. coli*, were identified in a segment of the Perrin Drain located in the City of Inkster during a monitoring project conducted on behalf of the City of Inkster. A follow up investigation plan was developed and implemented to isolate the source(s) of elevated *E. Coli* in the Perrin Drain. In December 2010, WQMD staff performed additional investigation of the Perrin Drain in the City of Inkster and surveyed storm sewer manholes and collected nine samples. Elevated IDEP parameters were again found in the Magnolia Street storm sewer. Additional investigation of this area took place on June 27, 2011. A total of seven samples were collected from manholes and inlets on Magnolia Street. Elevated *E. coli* concentrations were again found at the Magnolia Street inlet into the Perrin Drain. WQMD contacted the City of Inkster about follow up dye testing or televising of the Magnolia Street storm sewer.

Lower Rouge City of Inkster

WQMD received a report of discolored discharges from several outfalls identified by FOTR volunteers and staff during the Lower Rouge exploratory canoe trip completed during the weekend of October 7-9, 2011. Two outfalls with suspicious discharges were in the City of Inkster. One of the outfalls is downstream of Combined Sewer Overflow (CSO) regulator L-42 operated by Wayne County under NPDES permit. WCDOE-FMD staff investigated and determined that the City of Inkster installed a storm sewer line downstream of the CSO regulator. The second outfall is owned by the City of Inkster. The City of Inkster was informed of Wayne County's findings for both outfalls.

City of Dearborn

WQMD received a report of discolored discharges from several outfalls identified by FOTR volunteers and staff during the Lower Rouge exploratory canoe trip completed during the weekend of October 7-9, 2011. One of the suspicious outfalls was in the City of Dearborn. WQMD performed a follow up investigation of the outfall during a rain event; leafate discharge was occurring at the time of the investigation. The outfall is owned by the City of Dearborn, who was notified of these findings.

City of Plymouth, Tonquish Creek

WQMD continues its follow up investigations of outfalls identified as suspicious during maintenance surveys. On June 27, 2011 additional investigation of two of the City of Plymouth outfalls was performed. Five samples were collected upstream of these outfalls in the storm sewer system. One of the outfalls and a manhole upstream of Outfall 24 had elevated *E. coli* concentrations and further investigation is planned for 2012.

City of Plymouth, Goldsmith Street investigation

During IDEP investigations in 2009, one of the manholes sampled on Goldsmith Street exhibited excessively high *E. coli* concentrations. This manhole was resampled on June 27, 2011. WQMD requested the City of Plymouth's assistance with characterizing the manhole as associated with a storm sewer or a sanitary sewer. If the manhole is a storm sewer, WQMD plans to continue its investigation of the area, which is located near Goldsmith and Sheldon Roads. WQMD staff and the City of Plymouth staff plan to meet in the field to survey the Goldsmith sewer line and discuss progress in the City's street replacement project.

Plymouth Township, Tonquish Creek

WQMD continues its follow up investigations of outfalls identified as suspicious during maintenance surveys. A sampling plan was developed for follow up of outfalls in Plymouth Township. Two outfalls in Plymouth Township were sampled. The samples from these outfalls contained less than 1000 *Escherichia coli* (*E. coli*) colony forming units per 100 milliliters of water (CFU/100mL). One commercial facility, located in the drainage area of these outfalls in Plymouth Township, was inspected and no illicit connections or illicit discharges were discovered at the facility.

Canton Township, Truesdell Drain

One outfall in Canton Township on the Truesdell Drain was sampled on June 21, 2011 and *E. coli* concentrations in this sample were 2,100 CFU/100mL. This outfall was investigated again on June 27, 2011, when investigators tracked upstream of the outfall. The outfall, located in the I-275 rest area, drains a swale and ditch line parallel to the rest area. The swale receives drainage from the rest area, freeway, and a residential area. The outfall was dry on June 27, 2011. There were persons walking dogs along the pathway in the rest area. The ditch did contain some algal growth near some outfalls from the rest area. The algal growth may be due to nutrient loading from the adjacent turf and the rest area dog run. This issue was referred to the Michigan Department of Transportation (MDOT) with an encouragement that public information signage about water quality may be placed adjacent to the dog run area to promote proper pet waste disposal.

Ecorse Creek Watershed

City of Taylor-German Drain

During 2009, WQMD assisted EHD with the dye test inspection of residential homes in the City of Taylor with suspected failed onsite sewage disposal systems (OSDSs). Four of five homes investigated have direct discharges to the German Drain, an Ecorse Creek tributary. These discharges are entering the Drain through two separate drainage pipes. This arrangement is

considered a failing OSDS. One home was condemned for residential use by the City of Taylor and currently is being used for storage. The remaining four homes are currently on a temporary pump and haul corrective action and scheduled for replacement of the OSDS in May 2012.

Combined Downriver Watershed

Grosse Ile Township Outfall #41

WQMD continued to assist Grosse Ile Township with investigations of two outfalls discharging directly to the Detroit River. The outfalls were sampled initially in August 2010 by WQMD. Additional investigation of one outfall was performed on June 29, 2011 with elevated *E. coli* concentrations were found at one storm sewer manhole from an inlet discharging into Bellevue Road storm sewer. The Township tentatively scheduled additional investigation/dye testing in the Outfall #41 drainage area in the summer of 2012.

Grosse Ile Township was also performing investigations in additional areas. The first area is near Bellevue and 3rd Street, and the second area at outfall #2 near Byromar Lane. Sampling results identified the storm sewer on Byromar Lane as an investigation priority and in October 2011, the storm sewer was televised and residences dye tested. The Township confirmed illicit connections at two single family residential properties. One residence has a sanitary lead cross connection and the second residence has basement plumbing (a washtub) connected to the storm sewer. On January 19, 2012, the Township eliminated the illicit sanitary cross connection. Further investigation is necessary at the second residence to determine if all the sources are identified.

Compliance Plan

WQMD continues follow up visits to facilities with outstanding illicit discharges and continues its efforts to achieve voluntary compliance. Table 2.2 “Facilities with Outstanding Illicit Discharges” within the Attachments – Section 2 identifies an expected date of compliance for each facility with unresolved illicit discharges. If voluntary compliance efforts fail, the County will enlist the assistance of the local community to seek compliance through their plumbing code. The County may also initiate enforcement under its civil infraction ordinance. If voluntary compliance and local enforcement efforts are unsuccessful, the facility will be referred to the MDEQ.

IDEP Training Workshops (WCIDEP #3)

In 1999, the WQMD initiated a program designed to provide training for county and local community staff responsible for locating and eliminating illicit discharges to surface waters. To date, five modules and two specialty sessions have been developed and presented to 1,809 municipal staff and other interested parties. The five modules are: (A) *Overview*, (B) *Basic Investigations*, (C) *Construction-Related Illicit Connections*, (D) *Advanced Investigations*, and (E) *Combined Basic/Advanced Investigation Training*. The *Specialty Training Session I: Recognizing and Reporting Illicit Discharges*, and *Specialty Training Session II: IDEP Problem Solving Exercise* were also developed. Each module or session includes key messages, technical information, an examination, and a certificate of successful completion. Our 24 years of experience with administering an illicit discharges detection and elimination program were coordinated with anticipated abilities and needs of local communities in designing and refining the program.

In 2011, WQMD presented the *Combined Basic/Advanced IDEP Training Workshop* on two occasions: October 27th in the City of Ypsilanti (under contract with Eastern Michigan University) and December 8th in Canton Township (under contract with the ARC). Table 12 identifies the number of staff (89) and community/agency that participated in the training. The training workshops were promoted by distributing flyers via Watershed Alliances, watershed management planning committees, local communities, County Water Resources Commissioners, MDEQ, and internal County distribution mechanisms. WQMD staff also participated in the April 20th Municipal Good Housekeeping SEMCOG University held in Canton Township by making the *Recognizing and Reporting Illicit Discharges* presentation. One hundred thirteen municipal staff attended this workshop.

Table 12: Wayne County 2011 IDEP Training Workshop Attendance

Community/Agency	Number
Wayne County communities	34
Wayne County staff	1
Oakland County communities	17
Washtenaw County communities	13
Washtenaw County staff	2
St. Clair County staff	0
Consultants representing communities	4
School Districts	1
University (community college)	3
University	8
Eaton County staff	2
Eaton County communities	1
Others not classified	3
Number of Participants Southeast Michigan	89
2011 Total	89

Minimize Infiltration of Seepage from Sanitary Sewers (WCIDEP #4)

In 2011, Wayne County continued to minimize seepage of sanitary sewage by training field staff to identify and report suspicious discharges (WCIDEP#3), by training citizen volunteers to identify and report suspicious discharges (WCIDEP#11), and by continued operation and maintenance of our sanitary sewer systems and implementation of sanitary sewer overflow (SSO) elimination activities as specified under the NPDES permit and consent agreements for the sanitary sewer systems operated by Wayne County.

Minimize infiltration of Seepage from Onsite Sewage Disposal Systems (WCIDEP #5)

The Wayne County Department of Public Health, Environmental Health Division (EHD) continued implementation of the Wayne County Onsite Sewage Disposal Systems (OSDS) Evaluation and Maintenance Ordinance (Enrolled Ordinance 99-527) in 2011. As shown in

Table 13, 121 “time of sale” evaluations of onsite sewage disposal systems were performed. Thirty of these systems were identified as failing. Twenty three of the 30 systems were repaired in 2011. An additional eleven facilities were evaluated at the request of the Michigan Department of Human Services (MDHS), Office of Children and Adult Licensing, none were failing. In 2011, a total of 57 failed systems were identified by EHD via complaints, repair permit evaluations, “time of sale” inspections, and MDHS requested evaluations. Thirty-three failing systems were repaired in 2011. Since program inception in February 2000 through December 2011, 1,684 OSDS have been inspected under the “time of sale” provision of the ordinance, with 360 OSDS identified as failing. Twenty-four inspectors were certified to perform OSDS “time of sale” evaluations in Wayne County during 2011.

**Table 13: Summary of OSDS Evaluations Performed
January 1, 2011 through December 31, 2011**

Type of OSDS Inspection	Number of Inspections	Number of Failures	Percent (%) of Failures
Time of Sale	121	30	25%
MDHS Licensed ⁽¹⁾	11	0	0%
Totals	132	30	23%

1: Facilities licensed under the state MDHS program; inspection of the facility, including any OSDS, is completed upon request by the agency.

As summarized in Table 14, the Wayne County EHD requires permits for the construction of new OSDS and for repair/replacement of existing OSDS. In 2011, a total of three new and repaired systems were installed in Wayne County. Forty-six inspections were made during and/or after construction.

Table 15 provides a summary of OSDS-related complaints investigated in 2011. A complaint received by EHD concerning failed or improperly placed OSDS systems in Taylor was investigated. It was found that two systems were partially on neighboring property. In addition, one of the systems was found to have a failed holding tank. The systems are required to be moved and repaired by May 2012.

The previously reported discharges from five homes in southern Taylor with a common cheater pipe to a waterway are now controlled. One home was condemned as unfit for residential use by the City of Taylor and is currently being used for storage. The remaining four homes are currently on a temporary pump and haul corrective action and OSDS replacement is scheduled for May 2012.

**Table 14: Summary of OSDS Permits Issued
January 1, 2011 through December 31, 2011**

Permit Type Issued	Number of Permits	Percent (%) of Permits
New Construction	3	6%
Repair or Replace	46	94%
Total	49	100%

**Table 15: Summary of OSDS-Related Complaints Investigated
January 1, 2011 through December 31, 2011**

Number of Complaints	9
Number of Complaints identified as failing OSDSs	3
Number of Complaints Resolved*	6

* Includes carry over from 2010

As described in the PEP# 9 section of this report, educational materials about proper maintenance of OSDS are distributed to homeowners at the time of permit issuance. The EHD continues to add files of previously issued permits to the database. Currently over 18,300 permits have been put into the database. Septage haulers have a responsibility under Ordinance #99-527 to file septic tank evaluation reports for all pump outs in Wayne County. Two hundred and ninety reports were received in 2011; there were no significant findings to report.

Table 16 summarizes the estimated pollutant loading reductions to Wayne County watercourses from the 57 failed OSDS that have been defined as illicit discharges. This estimate assumes that all the failed OSDS are corrected.

Response to Emergency Spills to Waterways (WCIDEP #6)

In an effort to prevent pollution from entering County Drains and waters of the State, Wayne County has continued to assist with investigations of major oil spills, illegal dumping, odors, and other “emergency” water quality issues. During the reporting period, there were no major spills or other “emergency” water quality issue that required investigation assistance from Wayne County.

Table 16: Summary of Estimated Pollutant Load Reduction to Wayne County Watersheds from Onsite Sewage Disposal Systems: January 1, 2011 through December 31, 2011

Parameter	Loading Reductions (lbs/year)¹
Total Solids	23,340
Total Suspended Solids	8,220
Biochemical Oxygen Demand	7,475
Ammonia	288
Total Phosphorus	304
Surfactant	457
Potassium	203
Total Organic Carbon	1,590
Fats, Oils & grease	2,977
Total pollutant reduction	44,853
Flow reduction (gals/year)	4,062,176

1. These loading reductions assume the repair of the failed OSDS identified during the reporting period.

Illegal Dumping Control (WCIDEP #7)

The Wayne County Lending Environmental Assistance to Neighborhoods “C.L.E.A.N.” program, managed by the DPS-Land Resources Management Division (LRMD), is the centerpiece of the Wayne County’s efforts to control and clean-up illegal dumping. The County physically removes the waste illegally dumped at a site, and the local community then implements measures to stop future dumping. In 2011, the program conducted 22 total clean up projects including 12 illegal dumping site clean ups and 10 community scrap tire collection events. A total of 1,301 cubic yards of waste and 4,192 scrap tires were collected and properly disposed as a result of these projects. Preventative efforts at these sites include neighborhood watch programs, volunteer clean up days, signage and fencing. LRMD mails out C.L.E.A.N. project application packages twice a year to every mayor, township supervisor, clerk and public works director in Wayne County as well as 107 community groups, seeking their participation in the program.

Four household hazardous waste (HHW) and 11 computer/computer peripheral (E-Waste) waste collections were conducted by Wayne County in 2011. A total of 313.4 tons of HHW and E-Waste was collected. For all events, informational flyers and press releases were sent to the news media and representatives of all Wayne County communities (e.g., mayors, managers, public works departments, and clerks). Notices were placed on the Wayne County website and on the LRM phone mail system. A summary of Wayne County’s household hazardous waste (HHW) collection days for 2011 is shown in Tables 17, 18A and 18B.

Table 17
Summary of Wayne County's
2011 Household Hazardous Waste and E-Waste Collection Days

Date	Location	No of Participants
March 26 th	Belleville	1,155
June 18 th	Dearborn	1,607
August 27 th	Taylor	1,465
November 5 th	Redford Twp	1,247
Totals	4 – events	5,474

Table 18A
Summary of Material Collected During
Wayne County's E-Waste Collections, 2011

E-Waste Unit	Weight (pounds)
Computers	103,776
Monitors	157,497
Printers	75,252
Televisions	219,749
Eligible Electronics Device (EED) under State recycling program	135,992
Non EEDs	6,622
TOTAL	698,888

Table 18B
Summary of Material Collected During
Wayne County's Household Hazardous Waste and E-Waste Collections, 2011

Hazardous Waste Materials	2011 (Tons)
Acids	1.6
Aerosols	6.7
Antifreeze	5.4
Batteries, lead acid	8.2
Batteries, mixed/household	6.9
Bio-medical sharps	0.4
Caustics/Oxidizers	2.4
Electronic Equipment	97
Medicines/pharmaceuticals	0.6
Fire Extinguishers	1.2
Flammable Liquid	14
Fluorescent Lamps	6.2
Herbicides & Pesticides	11
Mercury Devices	0
Neutral Products	12.4
Oil	16.7
Paint, latex	98.3
Paint, oil	21.5
Propane - 1# cylinder	0.9
Propane - 20# cylinder	1.3
Smoke detectors	0
Other	0.1
Other	0.5
Other	0.1
TOTAL TONNAGE	313.4

LRMD Illegal Dumping Reports

On January 11, 2011 a pile of 40-50 illegally dumped scrap tires was identified by LRMD staff on E. Robinwood Street in the City of Detroit. This incident was reported to Detroit Department of Public Works (DPW) who subsequently removed and properly disposed of the tires.

On June 2, 2011 LRMD staff reported a large quantity of illegally dumped materials on Military Street just north of McGraw Street in the City of Detroit. This incident was reported to Detroit DPW who subsequently removed and properly disposed of the waste materials.

On August 10, 2011 LRMD staff reported an illegal dump site behind a business located at 15359 Stoepel in the City of Detroit. This incident was referred to Detroit DPW and Detroit Department of Environmental Affairs for follow up and enforcement.

On August 29, 2011 LRMD staff reported a pile of illegally dumped tires on Dexter Avenue in the City of Detroit. This incident was referred to Detroit DPW who subsequently removed and properly disposed of the tires. The issue was also referred to MDEQ as it was suspected that the tires may have come from a nearby scrap tire business.

On November 28, 2011 LRMD staff reported a pile of illegally dumped tires at 4700 Burlingame in the City of Detroit. This incident was reported to the Detroit DPW who subsequently removed and properly disposed of the tires.

Roads Division Illegal Dumping Reports

A compliant was logged in District IV from Huron Township regarding people dumping garbage on Prescott Road east of Vining. The dumping has been on the County's maintenance right of way and the property owned by the Airport Authority and/or Wayne County EDGE. These complaints/reports were reported in mid January and have been forwarded to DPS Administration and to Wayne County EDGE. The material dumped was building material and tires. The items that were dumped in the County right-of-way were picked up by a patrol truck and properly disposed.

The local community logged a complaint for illegal dumping on Van Born Road between Beck Road and Belleville Road. District.III has requested enforcement by local agency.

Parks Division Illegal Dumping Reports

Illegal dumping from Kroger parking lot into Hines Park east of Middlebelt Road continues. Efforts to work with City of Westland to require the store to put up preventative fencing have been unsuccessful thus far.

On December 28, 2011 various debris including old stove, building materials and plastic bags were discovered in the Venoy Dorsey Park area. Parks staff cleaned up and properly disposed of the material.

FMD Illegal Dumping Reports

On April 18, 2011, FMD staff received a referral from a citizen regarding a property in Southgate (HR 3093.) FMD staff investigated and found several yards of broken concrete in and along the banks of the unnamed natural watercourse. Staff documented the illegal dumping and referred this to the City of Southgate for followup and enforcement.

In 2011 forty-six designated County Drains received maintenance. Approximately 1,484 cubic yards of material including typical urban litter was removed from the County drainage system through these maintenance activities.

Swimming Pool Inspections (WCIDEP #8):

The Wayne County Department of Public Health Environmental Health Division (EHD) is responsible for inspections of public swimming pools located within separated sewer areas within Wayne County. These inspections are performed each spring prior to their opening for the swimming season. During the 2011 swimming season, EHD inspected 543 swimming pools.

EHD issues permits for proposed new public swimming pools or for existing pools proposing extensive modifications. During the process of reviewing plans and specifications for these facilities, EHD specifically reviews the sewer connections to ensure that the modifications will not result in illicit connections. For this reporting period, four newly constructed pools were inspected and the proper connection of the backwash water system to the sanitary sewer system for each was confirmed.

Prevention of illicit discharges at public swimming pools is also part of WCDPS-WQMD's facility inspection activities. During the current reporting period, two public pool facilities, one in the City of Lincoln Park and one in the City of Bloomfield (Oakland County), were tested as part of the WQMD facility dye test program. These swimming pools were confirmed to be properly connected to the sanitary sewer.

County-Owned Building Inspections (County-wide) (WCIDEP #9)

WQMD staff has previously completed dye-test inspections of all County-owned buildings that are located in areas of the County served by separate sanitary sewers. In 2011, pollution prevention good housekeeping inspections continued as part of the process for developing site specific pollution prevention action plans (P2 Action Plans). Six facilities were inspected with technical assistance from SEMCOG staff. Pollution Incident Prevention Plans (PIPPs) have been updated for all of the DPS – Roads Yards, and P2 Action Plans have been have now been developed for eight DPS - Road Yards and two DPS - Parks Yards. In 2012, follow up site visits will be conducted to assist with implementation of the P2 Action Plans.

Visual Inspections During Routine Field Operations (WCIDEP #10)

Pursuant to our Certificate of Coverage, Wayne County "field" staff have been trained to identify and report potential illicit discharges and other environmental concerns in the course of their duties. Training has been provided to personnel from the Departments of Public Services (FMD, Engineering, Roads, WQMD), Health (EHD) and Wayne County Airport Authority. Table 19 presents a summary of the environmental concerns identified during routine Wayne County field operations. Table 20 summarizes the results of the follow up investigations to routine field operation reports.

Roads staff identified and/or responded to one suspicious discharge incident in 2011, on Western at Cross (west of Denton Road and south of Michigan Avenue) in Van Buren Township. Repair to be scheduled by District III. In addition, Roads staff identified and responded to two incidents of illegal dumping in 2011 (see previous section). Roads staff also identified and responded to five incidents of excessive erosion in 2011:

- Eastbound Seven Mile Road, west of Orchard Drive. Erosion caused by storm water runoff. District II repaired area with a rock check dam using M-7 lime and installed a silt fence at the bottom of check dam. Completed 10/2011.

**Table 19: Types of Environmental Concerns “Identified” during Routine Field Operations
January 1 through December 31, 2011**

<i>Type of Environmental Concern</i>	
Illegal Dumping	7
Illicit discharge	6
Suspicious Pipe	1
Excessive Erosion	6
Missing Manhole cover	1
TOTAL	21

**Table 20: Environmental Concern Investigations Resulting from
Routine Field Operations
January 1 through December 31, 2011**

Reporting Division	Environmental Concerns Reported	Verified by WQMD	Source/Cause Identified	Referred To	Corrections Confirmed
WC Clerk	1	No	NA	NA	NA ¹
DPS– LRMD	7	7 – No	2 – Yes 5 - No	4 – Local Community 2 - MDEQ	6-Yes 1- No ²
DPS – Roads	8	1 - Yes 7– No	1 – NA ³ 7 – Yes	1- MDOT	5 – Yes 1-Repair is scheduled in 2012 1 – NA ⁴
DPS – Parks	2	2 – No	2 – No	1 - LRMD	1 – Yes 1 – No
Wayne County Administration	1	Yes	Yes	EHD	Scheduled for May 2012
DPS-WQMD	1	1	1	WC Engineering	Yes
DPS Engineering	1	No	Yes	NA	Yes

1 - Caller reported material is no longer present

2 - Referred to and under the responsibility of MDEQ

3 - No evidence of discharge

4 - Referred to MDOT

- Eastbound Six Mile Road, west of Haggerty. Erosion caused by storm water runoff. Repairs made by District II; completed 10/2011.
- Westbound Schoolcraft, west of Haggerty Road. Erosion caused by storm water runoff. District II repaired location by finding a buried structure (catch basin), repairing the cross tile that leads to river, raising the catch basin, and adding a “beehive” lid to facilitate the storm water discharge into the storm sewer. The eroded area was stabilized with broken concrete, M-7 slag, M-1 limestone and dressed with clean topsoil and grass seed. Completed 12/05/11.
- Eastbound Ecorse Road at I-94 reported to MDOT on January 2012.
- Hamtramck Drive bank erosion, west of Conrail tracks. District I to schedule repair of the erosion with broken concrete/large stones and dress with clean topsoil and grass seed to stabilize the bank. Work to be scheduled in 2012.

As reported in the previous section, Parks staff identified and responded to two incidents of illegal dumping in 2011. LRMD field staff identified and responded to five incidents of illegal dumping in 2011. LRMD staff also identified two incidences of suspicious discharges to surface waters in 2011.

- Landfill leachate from Countywide Landfill into the Brownstown and Frank & Poet Drains. This is an on-going discharge and has been active off and on during 2011. The discharge has been reported to the MDEQ-Waste Management Division who is working on an engineering solution to the issue. Due to the bankruptcy of Countywide the landfill is currently being managed by MDEQ.
- In September 2011, leafate from the Taylor Compost Facility was observed being discharged into a natural water course that flows into the Shetrum Drain. The MDEQ Waste Management and Water Bureau were notified. The discharges were halted after joint inspections by the LRMD staff and MDEQ. The City of Taylor was cited for being in violation of their NPDES permit by MDEQ. The City continues to work on a long term plan to better manage storm water and the leafate generated on site.

County Drain Inspections

The WCDPS FMD Drain Office contributes to the prevention of storm water pollution to waterways by inspecting and/or maintaining County Drains. In 2011, twenty-two County Drains and approximately 51 miles of drain have received visual inspection for suspicious discharges and obstructions. WQMD inspected approximately 21 miles of 12 drains including the Christine, Cummings, Erdman, Chase, Bradshaw, Clark No. 2, Botson, Lange, Cicotte, Burnap, Clark No. 1, and the Chapman. These Drain inspections were completed in the Rouge River Watershed (in Canton Township and the City of Westland), Combined Downriver Watershed (in the Cities of Romulus, Taylor, and Brownstown Township), Lower Huron River Watershed (in the City of Flat Rock and Van Buren Township), and Swan Creek Watershed (Sumpter Township). No suspicious outfalls were identified. A complete inspection report including map and GPS coordinates of outfalls and other drain features were prepared for these drains. FMD staff, as part of its aggressive preventative maintenance program, visually inspected 10 County Drains (approximately 30 miles) that included sections of the Ecorse Creek, sections of the Frank & Poet, the Hannan, Tonquish Creek, Head & Branches, Reynolds, Torrey, Bell & Branches, Barlow, and the Harris & Curtis.

IDEP Training for Volunteers (WCIDEP #11)

WQMD staff prepared and provided a presentation regarding illicit discharge identification and reporting to the Friends of the Rouge (FOTR). The brief presentation introduces illicit discharges, contains suspicious discharge example photos, explains how important it is to report illicit discharges, and provides contact information for Wayne County and other local agencies. FOTR has incorporated this presentation into their orientations for volunteers, teachers and team leaders. In 2011, FOTR held 14 different training and/or volunteer monitoring sessions that provided IDEP training to 557 people.

Methods to Evaluate Effectiveness – Storm Water Point Source Inspection – Alternative vs Traditional IDEP Comparison (WCIDEP #12)

Wayne County participated in and helped finance the Alliance of Rouge Communities (ARC) report "Comparison Analysis of Finding Illicit Discharges to Storm Water Systems", submitted to MDEQ on May 22, 2007. Based on the findings of this analysis, it is the position of Wayne County and the ARC that scheduled inspection of points of discharge are not an effective method for evaluating the effectiveness of illicit discharge elimination activities.

Methods to Evaluate Effectiveness – Performance Tracking of IDEP Activities (WCIDEP #13)

Please refer to *Table 5* and particularly *Table 9: Summary of Illicit Connections and Estimated Pollutant Load Reduction to Wayne County Watersheds: 2011* for an overall summary of the performance of Wayne County's IDEP Activities.

Methods to Evaluate Effectiveness – Instream Monitoring/Environmental Indicator Monitoring (WCIDEP #14)

Please refer to Section 1 of this report, "Determination of Effectiveness", for a summary of this activity.

Updated Map of Known Storm Water Point Sources and Respective Receiving Waters or Drainage System (WCIDEP #15)

Wayne County Annual Drain Inspections

During annual inspections of Wayne County Drains, storm water outfalls to the drains are located, mapped and noted for any sign of illicit discharges. As shown in Table 21, over 9 miles of County drain inspections were completed in 2011 and a total of 87 outfalls identified during these inspections.

**Table 21: Summary of Outfalls Identified Through Drain Inspections
January 1 through December 31, 2011**

Drain	Miles	Community	Number of Outfalls
Botson	1.31	Sumpter	8
Bradshaw	1.30	Van Buren Twp	6
Burnap	2.4	Sumpter	12
Chapman	0.34	Taylor	1
Chase	0.72	Flat Rock	15
Clark No.1	1.38	Brownstown/Taylor/Huron	34
Erdman	1.06	Westland/Canton	0
Lange	1.05	Taylor/Romulus	11
Total Miles	9.56	Number of outfalls	87

Alliance of Rouge Communities (ARC) Outfall Mapping

As part of the ARC Technical Committee's Collaborative SWPPI Action Plan (CAP) development process, WQMD staff began accepting ARC member data regarding known municipal separate storm water sewer system (MS4) discharge points in 2009. Pursuant to the draft CAP, compiling this data initiates the development of a watershed-wide GIS map of discharge points to "Waters of the State" and begins to develop a central warehouse for digital storm sewer maps. Centralizing this data is intended to simplify NPDES permit compliance and reporting efforts for the MDEQ and ARC members as well as improve compliant response and suspicious discharge source tracking efforts. The map of the data compiled thus far (through 2011) is included within the attachments for Section 2 of this report (see Section 6 for a listing of all attachments).

Wayne County Updated Storm Water System Map

Section 6 of this report includes an updated GIS map of Wayne County's storm water system including latest coverage of County Drains, County Roads, County Parks and maintenance yards. Please note that the map includes County data for both combined sewer areas as well as separated sewer areas.

SECTION 3

WAYNE COUNTY PUBLIC EDUCATION PLAN

SUMMARY OF ACTIVITIES

The following Public Education Plan (PEP) activities were completed by Wayne County during the reporting period **January 1, 2011 – December 31, 2011** in compliance with the County's Certificate of Coverage MIG610040 under the MDEQ General Storm Water Discharge Permit MIG619000.

Educate Public Regarding Location of Residential Storm Drainage System and Waters of the State (WCPEP #1)

Nearly all of the activities performed by the County to comply with the Public Education Section of our SWPPI address this topic; see, in particular, the reports for activities WCPEP #4, #6, #7, #9, #11 and #22.

Educate Public Regarding Animal Wastes (WCPEP #2)

WCPEP activities #4, #6, #7, #11 and #22 address this topic.

Educate Public Regarding Pavement or Powerwashing (WCPEP #3)

WCPEP activities #4, #6, #7, and #22 address this topic.

Distribute Pollution Prevention Literature and Messages (WCPEP #4)

Pollution Prevention Literature and Messages: Under contract to the ARC and the ADW, the Water Quality Management Division provided over 13,702 pieces of public information materials and information relating to water pollution issues to communities within the ARC and the ADW for their use. The materials included *Household Hazardous Waste Collection Event* flyer; *Landscape* tip card; *Value of Trees* flyer; *Guidelines for Home Rain Gardens*; *Rouge River bookmark*; *Rouge Watershed tattoo*; *tip cards Save Water, Storm Drains, Car Care and Pet Waste*; *24 hour Hotline brochure*; *Healthy Lawn brochure*; *Get Bugged about Water Quality note*; *Stream Insects ID*; *Our Actions flyer*; *Macro Invertebrate key*; and *Bio-assessment flyer*.

FMD distributed to the public twelve copies each of the following brochures: *Riparian Corridor Management (RCM) Principles and Practices*; *Woody Debris Management (WDM) 101 – The Clean and Open Method*; *WDM 201 – Habitat and Structure Method*; *RCM Streambank Management 101*; *RCM Streambank Management 201*; *Naturescaping*; and *Site Preparation for Small Planting Areas*. This information can also be found on the Wayne County Website. FMD also meets with the public regularly for County Drain improvement petition-related meetings and at County Drain service request inspections; other information is provided via US Mail or over the phone.

Wayne County distributed additional educational materials at community events or festivals, staff training sessions, workshops, leadership presentations, departmental presentations, or office display racks. In 2011, over 2,100 pieces of Storm Water Public Education Handout information were distributed to fill requests via phone calls, fax, website, e-mail, and letters for either public education materials or technical information. Examples of the Storm Water Public Education

Handout materials were submitted with previous annual reports and include the *Storm Drains Aren't Garbage Cans* brochures and bags; the *WCDPS 24-Hour Environmental Hotline* brochure; *Our Actions Affect the River* flyers; the *Rouge River Activity Book*, *River Friendly* brochure series; *7 Simple Steps to Clean Water* tip cards; and others. The *Storm Drains Aren't Garbage Cans* brochure, the *Rouge Watershed Recreational Map and Index*, and the *WCDPS 24-Hour Environmental Hotline* brochures are nearly always delivered and available with the *Our Recreational Resource Displays*, the *Our Actions Affect the River Display* and the *7 Simple Steps to Clean Water Display*. See WCPEP #6 & #7 below.

LRMD staff distributed the *Resource Recovery Guide (RRG) Booklet*, *Disposal Tips for Home Medical Waste & Pharmaceuticals* brochure, the *Mercury Information* brochure, and the *CLEAN Program* brochure (see WCPEP #24 for more detail).

Publication Clearinghouse: The *Wayne County Publication Clearinghouse* was established to produce and distribute public information materials to local communities at cost. All communities have the option of using the “Rouge Products CD” to produce their own materials or they can order them at cost from the *Clearinghouse*. WQMD warehouses a large supply of the most requested items so that delivery takes place as the items are ordered. The *Clearinghouse* can also produce community specific products if the order is large enough to justify doing so. During the reporting period, the *Clearinghouse* filled orders for 385 items from communities for subsequent distribution to others or for display purposes (e.g. signage).

Newsletter Articles and Advertisements (WCPEP #5)

During this reporting period, the WQMD produced several public education and involvement activity summaries for posting to websites and publishing in County or community newsletters. These included the *Down River Operations Managers (DROM) Display*; *Hines Park Green Infrastructure (GI) Volunteer Work Day*, *Trees for Green Schools*, and the *ADW GI Literature Distribution* summaries. These summaries were provided to the communities via the ARC and ADW and included the Water Environment Federation’s *Water is Life* ad graphic.

Displays-Community/Agency Events (WCPEP #6) and Static (WCPEP #7)

During 2011, the WQMD planned, coordinated, promoted and/or participated in various community events, meetings, seminars and workshops with environmental displays and educational information relating to storm water/watershed management, including:

- *Shiver on The River*, Detroit, February 5, 2011;
- *Flat Rock City Hall*, February 5 – March 3, 2011;
- *Canton Home Expo*, March 5 – 6, 2011;
- *Frog & Toad Survey Workshop*, Canton, March 2011;
- *Frog & Toad Survey Workshop*, Livonia, March 2011;
- *Frog & Toad Survey Workshop*, Bloomfield Township, March 2011;
- *14th Annual Rouge River Water Festival at University of Michigan-Dearborn*, May 5, 2011;
- *Canton River Day*, June 4, 2011;
- *Wyandotte Street Fair*, July 4 - 8, 2011;
- *Wyandotte City Hall*, July 11 – August 16, 2011;
- *Sumpter Township City Hall*, August 10 – September 31, 2011;

- *Wayne County Household Hazardous Waste Collection Event*, Southland Mall, Taylor, August 27, 2011;
- *Gibraltar City Hall*, September 1, 2011 – October 31, 2011;
- *Cranbrook Water Festival at the Cranbrook Institute of Science*, September 14 – 15, 2011;
- *Clinton River Review at Oakland University*, Rochester, September 30, 2011;
- *New Boston Apple Fair*, October 1 – 8, 2011;
- *Chrysler Engine Plant Health Fair*, Trenton, October 19, 2011; and
- *Wayne County Household Hazardous Waste Collection Event*, Redford Township DPW, November 5, 2011.

WCDPS Environmental Information Line (WCPEP #8)

Wayne County continues to promote the use of its *24-Hour Environmental Hotline* (888-223-2363) for water quality complaints throughout the County. A variety of products are used to educate the public about the *24-Hour Environmental Hotline*, including magnets (with the “Storm Drains Aren’t Garbage Cans” message, the Environmental Hotline number, and the WQMD web page address) several departmental and division brochures and the Wayne County website. During the reporting period, these materials were distributed at display events, workshops, and presentations.

Advertisements (WCPEP #9)

Due to funding limitations, stormwater/watershed management advertisements were not placed during 2011.

Point of Sale Education (WCPEP #10)

Wayne County continued its involvement and support of the *2011 Earth-Friendly Fertilizer Sticker Program* in cooperation with the Southeastern Oakland County Water Authority (SOCWA). Efforts are targeted at educating the public about environmentally friendly home lawn and garden maintenance and included program planning and development, development and distribution of promotional flyers, and window sign, retailer recruitment and training support, and website promotions and information. During the reporting period, listings of the approved fertilizers and participating retailers were maintained and made available through the Wayne County (www.waynecounty.com) and Rouge River National Wet Weather Demonstration Project (www.rougeriver.com) websites. Flyers listing the approved fertilizers and participating retailers were also distributed at many of the display events.

Workshops and Demonstration Projects (WCPEP #11)

Wayne County co-sponsors and participates in numerous workshops each year to educate various stakeholders on a variety of topics related to managing storm water and protecting the environment. A summary of the Wayne County co-sponsored environmental education workshops or demonstration activities held during the reporting period follows.

Green Infrastructure Program

Wayne County was once again an integral partner in the successful 2011 Green Infrastructure Education Campaign established by the ARC to assist with implementation of green infrastructure (grow zone) projects in the Rouge watershed. The ARC Grow Zone Subcommittee received eight proposals and funded all eight projects. The ARC and Wayne

County staff provided design, plant material and signage for the approved projects, which included two wetland enhancements, a rain garden, a native plant garden, a riparian buffer, a schoolyard habitat native plant garden and meadow, riparian buffer, native plant garden, and a native plant meadow. Locations and activities are summarized as follows:

- Birney Elementary School: Schoolyard habitat/native meadow and to replace mowed turf on school grounds.
- Addams Elementary School: Schoolyard habitat/native meadow and garden to replace mowed turf on school grounds.
- Canton Township: Riparian buffer around ponds at Heritage Park
- Shiawassee Park, City of Farmington: riparian buffer - replace existing riparian turf area with native plants.
- Riverside Park, Beverly Hills: Native plant garden.
- Founders Park, City of Farmington Hills: riparian buffer - replace existing riparian turf area with native plants.
- Henry Ford Community College: replace existing turf with native plant meadow.
- Glen Oaks Golf Course: Riparian buffer around pond.

Middle Rouge Riparian Corridor Management: Bennett Arboretum Grow Zone Work Day
Wayne County Parks, WQMD, Wayne County Commissioner Laura Cox, and the Wayne County Master Gardeners continued their partnership to host the fifth Annual *Hines Park Green Infrastructure Volunteer Work Day* on May 7, 2010. Over 56 volunteers participated in efforts that included: The Stewardship Networks Garlic Mustard Challenge; weeding around the trees, kiosk, and interpretive signs; and hauling 5 yards of cedar mulch to be properly place around the trees, kiosk and signs. Twelve bags (12) garbage bags and 27 bags of garlic mustard were collected.

Wayne County Michigan Green Schools Program

Wayne County's WQMD staff has been working with the Wayne County Regional Educational Service Agency (Wayne RESA) for several years to promote and grow Wayne County's Green Schools Program. In 2011, 141 schools were recognized as "Wayne County Green Schools". These schools earned at least 10 of the 20 points designated under the Michigan Green School legislation for implementing specific energy-saving and environmental activities within the 2011 academic year. Under Wayne County's Green School program, an additional 17 environmental points are available for schools to receive higher designations, with the Emerald School designation achieved by successfully participating in 15 points and the Evergreen designation achieved by successfully participating in 20 points. Information on Wayne County's Green Schools Program is available online at

http://www.waynecounty.com/doe_wqm_res_greenschools.htm

Trees for Rouge Green Schools Program

With financial support from the ARC, the *Trees for Rouge Green Schools Program* was again implemented in 2011. Seventy-five trees were purchased and distributed to the 2011 Michigan Green Schools located in the Rouge River watershed. Wayne County offered trees to 55 recognized Green Schools and Oakland County offered trees to 20 Green Schools in the Rouge Watershed. Of the 83 Wayne County schools, 31 schools (37%) accepted a tree and 5 of these accepted two trees. Of the 43 Oakland County schools, 11 schools (25%) accepted a tree and

they all accepted two trees. Each school was provided tree planting instructions, the *Value of Trees* flyer, Guideline of Home Rain Gardens flyer and information on registering the tree through the ARC website.

ARC Tree Seedling and P2 Literature Distribution

Distribution of tree seedlings and pollution prevention (P2) literature occurred on July 9th in conjunction with ARC's Rain Barrel sale in Southfield; July 30th in conjunction with ARC's Rain Barrel sale in Westland; August 27th in conjunction with ARC's City of Southfield's Summer Event; September 24th in conjunction with ARC's Rain Barrel Sale in Novi; and November 9th via the Wayne County Greens Schools tree giveaway. Over 2,600 conifer tree seedlings were distributed along with 4,620 pieces of literature to Rouge watershed residents that attended the events.

ADW Green Infrastructure Workshop

The *Grow Zones Across the Alliance of Downriver Watersheds* and the *Wayne County Green Schools Program* displays were stationed at the *Down River Operations Managers (DROM) 3rd Annual Expo and Conference* in June 2011. The DROM is an association of school district facility operation managers that has formed to assist each other with operational issues. The Expo and Conference, theme "Your Keys to Success", was held to allow the school facility operation managers and staff to come together and interact with various speakers and vendors that offer maintenance support services to the school districts. Approximately 600 people viewed the displays and picked up information regarding green infrastructure, green schools and storm water management. A seminar on the Storm Water Permit including Illicit Discharge Elimination Program, Public Education and the advantages of grow zones/schoolyard habitats to comply with storm water requirements was presented by WQMD staff.

ADW Green Infrastructure Maintenance Meeting & Workshop

An ADW Grow Zone Managers meeting was held in August 2011 at Brownstown Middle School to discuss Green Infrastructure maintenance training needs. Topics of discussion included: a photo summary packet of each site; maintenance issues; problem solving; and opportunities for hands-on Green Infrastructure Stewardship workshops/days. Based on the meeting, two hands-on Green Infrastructure Stewardship workshops/days were scheduled. The first was at the municipal grow zone at Huroc Park in Flat Rock in September 2011. The workday participants included twelve maintenance staff from seven different municipalities. The event staff summarized the purpose and benefits of green infrastructure and specifically municipal grow zones, identified various methods for maintenance of grow zones, provided listing of online resources for native plant and invasive species identification, identified site specific invasive species and demonstrated (hands-on) invasive species removal. A second workshop/day will be at the Gudith School grow zone in spring 2012.

ADW Tree Seedling and P2 Literature Distribution

Distribution of tree seedlings and pollution prevention (P2) literature occurred on June 23rd in conjunction with ADW's DROM Expo in Flat Rock; August 27th in conjunction with the Wayne County Household Hazardous Waste Collection Event at Southland Mall in Taylor; September 23rd in conjunction with Green Infrastructure Conference at Lawrence Technological University; October 19th for the StayWell Wellness Fair in Trenton and November 7th in conjunction with

Wayne County Green Schools. Over 1,550 conifer tree seedlings were distributed along with over 5,280 pieces of literature to Rouge watershed residents that attended the events.

RCM Technical Advisory Committee (TAC) and Work Group (WCPEP #12)

Although there were no meetings of the RCM TAC in 2011, WQMD continued to support the intent of RCM TAC and Work Group by coordinating, co-sponsoring, promoting and/or participating in the above workshops and demonstration projects as described in WCPEP #11 as well as WCPEP #14.

Healthy Lawn and Garden Technical Advisory Committee (HL&G TAC) (WCPEP #13)

WQMD continued to support the HL&G TAC efforts as described above in WCPEP #10 as well as by coordinating, co-sponsoring, promoting and/or participating in the WCPEP #11 activities.

River Day/Rouge Rescue (WCPEP #14)

Wayne County actively promoted participation in and provided funding for the Friends of the Rouge (FOTR) River Day held June 4, 2011 (see <http://therouge.org/index.php?id=687629> for a description of activities and program results). In addition, WQMD staff provided services and support for Rouge River Day 2011, with Kesh Raizada from WQMD serving as the site coordinator at Canton Township Site #2 (Fellows Creek at Palmer and Lotz Road near the Meadows of Canton subdivision). WQMD staff Peter Benz and Susan Thompson provided event support. Over 107 volunteers assisted in storm stenciling, benthic macro-invertebrate monitoring and trash removal from 1.5 miles of the Lower Rouge River. WQMD's *Frog & Toad* and *7 Steps* displays were set-up and a variety of educational material was provided to all volunteers.

Volunteer Monitoring – Frog & Toad Surveys, Rouge Watershed (WCPEP #15)

Wayne County actively promoted participation in and provided funding for the Rouge Frog & Toad Survey conducted in 2011 by FOTR (see <http://therouge.org/index.php?id=687624> for a description of activities and program results).

Volunteer Monitoring – Bug Hunts, Rouge Watershed (WCPEP #16)

In support to the ARC and FOTR, WQMD staff participated in multiple volunteer monitoring events in 2011 as follows:

- *FOTR Winter Stonefly Search.* WQMD served as team leaders for the FOTR Winter Stonefly Search held January 22nd. Over 100 people from around the Rouge Watershed went out into the cold to sample for the stonefly, a macro invertebrate species whose presence indicates high water quality. The results of the 2011 winter stonefly search are summarized in Section 1.
- *FOTR Spring Bug Hunt.* WQMD served as team leaders for this event held April 30th, joining approximately 49 volunteers in benthic macroinvertebrate sampling at 95 sites throughout the Rouge River watershed. Volunteers and WQMD staff collected and identified benthic macroinvertebrates for the purposes of gauging Rouge River water quality. The results of the 2011 Spring Bug Hunt are summarized in Section 1.
- *FOTR Fall Bug Hunt.* WQMD participated as team leaders for the FOTR fall “bug hunt” sampling event held October 15th, leading volunteers in the collection and identification of benthic macroinvertebrates for the purpose of using the data to gauge the water quality of the

Rouge River. Over 90 people from around the Rouge Watershed participated. See Section 1 of this report for a summary of the water quality scores from this monitoring event.

Volunteer Monitoring – Bug Hunts Downriver Watersheds (WCPEP #17)

During 2011, WQMD (with ADW financial support) continued its partnership with the Downriver Citizens for a Clean Environment “Stream Team” and the Huron River Watershed Council to implement macroinvertebrate monitoring at locations throughout the downriver watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River watersheds. The results of these monitoring efforts are presented in Section 1 of this report. Sixteen ADW sites were monitored in spring 2011 by WQMD, including seven sites with student volunteers assisting. Southgate Anderson High School, Southgate Creative Montessori, Ecorse High School, Huron High School, Gudith Middle School and Trenton High School participated in the monitoring, providing 175 student volunteers. Four sites were sampled in the Lower Huron River watershed, and six each in the Ecorse Creek and Combined Downriver watersheds respectively during Spring 2011.

The ADW’s Fall 2011 macroinvertebrate monitoring occurred in September and October. Eighteen sites were sampled: seven in the Ecorse Creek Watershed, seven in the Combined Downriver Watershed, and four in the Lower Huron River Watershed. Eight schools were volunteer partners, assisting in the monitoring efforts were Ecorse High School, Southgate Creative Montessori Middle School, Wilson Middle School, Southgate Anderson High School, Trenton High School, Gudith Elementary School, Riverview High School, and Huron High School. Approximately 181 student volunteers participated.

Rouge Education Project (WCPEP #18)

WQMD coordinated T-shirt delivery for the FOTR Rouge Education Project (REP) Spring Monitoring Day held May 4th and participated on the FOTR Public Involvement Advisory Task Force.

Storm Sewer System Labeling WCPEP #19)

WQMD supported storm sewer stenciling in Canton Township subdivision streets as part of their annual River Day activities (see also report for WCPEP#14). WQMD staff also provided stencils to the City of Riverview for their use. In 2012, Wayne County will continue to offer these stencils to schools and community groups for volunteer use as well as labeling storm sewers at our sponsored River Day sites.

Storm Sewer System Labeling – County Facilities (WCPEP #20)

In 2011, WCDPS staff continued spray painting and/or otherwise maintaining marking the location of storm sewers throughout the County’s Road Division maintenance yards including storm sewers located in unpaved areas.

Alliance of Rouge Communities – PIE Committee (WCPEP #21)

WQMD staff participated in all 2011 Alliance of Rouge Communities Public Information and Education (PIE) Committee meetings and activities (see the 2011 Executive Director Annual Report available at www.allianceofrougecommunities.com for more detailed information). In addition, Wayne County participated in all 2011 activities of the Alliance of Downriver

Watersheds, Public Education Committee (see the 2011 ADW Annual Report available at www.allianceofdownriverwatersheds.com/adw_info.htm for more detailed information).

Information Dissemination via Websites (WCPEP #22)

In 2011 the website for Wayne County's Rouge River National Wet Weather Demonstration Project (www.rougeriver.com) experienced over 1.5 million hits from citizens, students, university staff, businesses, community groups, municipalities, and others interested in obtaining information on the Rouge River and the Rouge River National Wet Weather Demonstration Project. In addition, the ARC website (www.allianceofrougecommunities.com) and ADW website (www.allianceofdownriverwatersheds.com) as well as the main Wayne County website (www.waynecounty.com) are also used to inform and involve the public in storm water management and watershed awareness activities.

Information Dissemination from County Buildings (WCPEP #23)

Storm Water Public Education Handout information continues to be available at County-owned facilities for Wayne County employees, businesses and the general public. Information racks are maintained at 11 Wayne County offices including: Department of Public Services (three locations), Environmental Health Division, Mental Health Department, Parks Headquarters, Permit and Field Engineering Office, and Roads-Central Maintenance Yard.

Education: Waste Disposal Locations (WCPEP #24)

The LRMD continues to maintain and distribute listings of approved disposal points for various materials including motor oil, antifreeze, gasoline, transmission fluid, travel trailer waste disposal and mercury recycling/disposal facilities. These listings are in the *Resource Recovery Guide* (RRG). The RRG is available to download from the DPS - ESG website http://www.waynecounty.com/doe_lrm_prog_swplanning.htm and is also distributed at all public events in which LRMD participates including the HHW and computer collections. Other materials to educate the public about pollution prevention include *Medical Waste brochure*, *Mercury Pamphlet*, *HHW flyers*, *CLEAN Program brochure*. These materials are also available, along with home composting tips, from the website shown above. Table 22 summarizes the educational materials related to proper waste disposal that were distributed at public events during the reporting period.

Additionally, as described in the report for WCIDEP#7, two mailings were made to all Wayne County Commissioners, Mayors, Township Supervisors, Clerks and Public Works Directors seeking their participation in the C.L.E.A.N program. The mailings consisted of C.L.E.A.N. information pamphlets and applications for assistance. This information was also sent to over 107 community groups in Wayne County.

Table 22
Distribution of Educational Materials for Proper Waste Disposal
January 1 – December 31, 2010

Educational Item	Quantity Distributed	Distribution Methods
<i>Resource Recovery Guide</i>	7,000	<ul style="list-style-type: none"> • HHW Events • Community groups/events • County participating events • Municipalities for distribution • Presentations
<i>Disposal Tips For Home Medical Waste and Pharmaceuticals</i>	400	<ul style="list-style-type: none"> • Community groups/events • County participating events • Municipalities for distribution • Presentations
Mercury pamphlet	345	<ul style="list-style-type: none"> • Community groups/events • County participating events • Healthcare Providers
HHW/E-waste collection event flyers	600	<ul style="list-style-type: none"> • Direct mailings • Community groups/events • Presentations
Medical Sharps Poster	50	<ul style="list-style-type: none"> • Local pharmacies
Recycled Pencils	1,300	<ul style="list-style-type: none"> • Students via recycling presentations including Rouge River Watershed Festival
CLEAN Program Brochures	500	<ul style="list-style-type: none"> • Direct mailings
Your Septic System: A Reference Guide for Homeowners	Not Tracked	<ul style="list-style-type: none"> • Distributed with new permit approvals and at Community Health Fairs
On-site Sewage Disposal Ordinance	Not Tracked	<ul style="list-style-type: none"> • Distributed with new permit approvals
Protect Your Septic System postcard	Not Tracked	<ul style="list-style-type: none"> • Distributed with new permit approvals and at Community Health Fairs.
Homeowner's Guide to Septic Systems	Not Tracked	<ul style="list-style-type: none"> • Distributed with new permit approvals and at Community Health Fairs.

Staff Education and Training (WCPEP #25)

Staff Training: The participation of Wayne County staff in “environmental” training programs during the reporting period is shown in Tables 23 and 24 for the Department of Public Services and Environmental Health Division, respectively.

Table 23
WCDPS Staff Training in Environmental Issues

Training Topic	Number of Staff Trained
Pesticide Applicators	17
Storm Water Operator Training	78
De-icing Equipment Calibration	159
Stormwater Inspection and Maintenance – Forester University	3
Roadside Vegetation Management Webinar	1
Green Infrastructure Conference at Lawrence Tech	4
Hazardous Waste and Emergency Response (HAZWOPER)	14
Soil Erosion and Sedimentation Control Certification	1
Freshwater Mussel Identification	1
Michigan Recycling Coalition Conference including E-Waste Workshop	1

Table 24
WCEHD Staff Training in Environmental Issues

Training Topic	Number of Staff Trained
State Sponsored Proper Well Installation	2
State Sponsored OSDS Soils Training	4

Staff Education and Awareness: During this reporting period, the WCDPS arranged for the County’s electronic mail (e-mail) system to periodically post watershed/storm water management messages to all County employees during the reporting period. For example, all Wayne County employees with email accounts received messages encouraging their participation in the County’s Office HHW Collection events and Computer/Computer Peripheral Waste Collection events and the WC office paper recycling program. There is also a WCDPS newsletter that is distributed to staff and available to the public via the website at <http://www.waynecounty.com/dps/index.htm>. This newsletter was issued three times in 2011 and includes various articles regarding environmental restoration and protection projects and potential individual activities.

Signage (WCPEP #26)

Watershed, stream crossing awareness and grow zone signage is made available to communities at cost through the Wayne County Publication Clearinghouse. There were no new orders for watershed or stream crossing signs in 2011; however, delivery of the 2010 ADW watershed and stream crossing sign order was completed in 2011. Grow zone signage orders in 2011 were Friends of the Rouge River (3), Henry Ford Community College (12) and Clinton Township Municipal Offices (150). See also signage information reported under WCPEP #31.

Local Presentations (WCPEP #27)

Two waste disposal/recycling workshop presentations were co/sponsored by Wayne County and the National Association of Professional Organizers in 2011 to educate the public on recycling in the kitchen and the garage. Presentations were held at the Canton Public Library on two evenings with approximately 25 people in attendance at each event.

In April, WQMD staff presented the *Importance of Green Infrastructure* presentation at Friends of the Rouge Native Plants workshop held April 13th in Southfield the *IDEP Awareness and Suspicious Discharge Reporting* presentation at the April 20th Municipal Training workshops co-sponsored by SEMCOG.

In June WQMD staff presented “Protecting Our Water Resources” at the 3rd Annual Downriver Operations Managers (DROM) Expo. The presentation included the illicit discharge identification and reporting, pollution prevention good housekeeping and the advantages of green infrastructure. The DROM is an association of over 20 school district facilities and operations managers in Wayne and Monroe counties

WQMD staff also developed an update to the Rouge Gateway Master Plan, and presented it to the Gateway Partnership at their meeting on June 23rd at the University of Michigan Dearborn. A presentation on the Great Lakes Legacy Act was given by EPA at the meeting, which included both existing and potential partners from the business sector.

WQMD staff developed a Best of the Grow Zones photo presentation and provided it to SEMCOG staff for potential use in upcoming presentations.

Children’s Education: The “Don’t Bug Me” an interactive water quality presentation was given to five classes at the Rouge River Water Festival at UM Dearborn May 5th. The five schools were from the communities of Canton Township, Livonia, Allen Park, Dearborn, and Dearborn Heights. Approximately 140 students participated in the presentations.

LRMD staff made recycling presentations to 60 students at Fordson High School in Dearborn; 70 7th grade students at OLG School in Plymouth; and 77 3rd grade students at Keystone Academy in Belleville. In total approximately, 207 children participated in the presentations and received the handout materials.

Graduate Level Education: WQMD staff prepared and presented an update on the water quality improvements and public education activities of the Rouge Project to the geosciences graduate

class at the University of Michigan – Dearborn. Approximately 18 students attended the presentation.

Develop/Maintain Partnerships (WCPEP#28)

Wayne County participates in numerous partnership activities each year for the purpose of managing storm water and protecting the environment. Described below are a number of the highlights or new activities performed during the reporting period.

Rouge Gateway Partnership: The Rouge River Gateway Partnership was formed in the summer of 1999 to represent the interests in the lowest section of the Rouge River in Dearborn, Melvindale, Allen Park, Detroit, and River Rouge. Officials from these communities, together with leaders representing cultural institutions, private business, and Wayne County make up the partnership. A Master Plan for the Gateway Corridor of the Rouge Watershed was developed to serve as a guide to advance, extend, and coordinate current planning and redevelopment projects in order to achieve the goals of ecosystem restoration, heritage preservation, increased recreation, and economic development along the Rouge River. Under the Partnership's guidance, many projects from the Rouge Gateway Master Plan are underway or have been completed.

Wayne County continues work with the Detroit District COE regarding potential restoration of the paved channel section of the Rouge. Meetings between the COE, Wayne County and Gateway Partners continue to be held periodically to implement the scope of work. In June 2011, Wayne County reviewed and concurred with the "Draft Detailed Project Report and Environmental Assessment, Project Modification for Improvement of the Environment, Section 1135, Upper Rouge River, Wayne County, Michigan". This report was forwarded from the Detroit District COE to their regional district for review and approval.

Additionally, Wayne County developed an update to the Rouge Gateway Master Plan, and presented it to the Gateway Partnership at their meeting on June 23 at the University of Michigan Dearborn. This presentation was also given to the Alliance of Rouge Communities at their August 24th meeting.

Friends of the Rouge: Wayne County actively supported and provided funding for several FOTR efforts including Rouge River Day, Rouge Education Project (REP), Public Outreach Workshops, Rouge Frog & Toad Survey and Macro-invertebrate Volunteer Monitoring. Specific activities completed in support of FOTR included setting up public information displays at FOTR sponsored workshops throughout the watershed; supporting the Winter Stonefly Search and the Spring and Fall 2011 Bug Hunts; coordinating t-shirt delivery for the REP School Monitoring Day; coordinating a River Day site in Canton Township; posting promotional flyers for FOTR events to the Rouge Project and Wayne County websites; and participating on the Public Involvement Projects Task Force.

Rouge RAP Advisory Council: Wayne County staff participated in and supported efforts of MDEQ's Rouge RAP Advisory Council (RRAC) during the reporting period including serving as vice-Chair of the RRAC. Activities included response to MDEQ information requests regarding potential Rouge AOC Delisting project ideas and opportunities; letters of support to various communities, agencies or non-profits or the ARC for grant projects within the Rouge

AOC; development of public advisory council support grant applications and implementation of awarded grant projects.

Lawrence Technical University: In 2011, Wayne County continued its partnership with professor Donald Carpenter and the Alliance of Downriver Watersheds via the *Water Quality Improvements Project in the Alliance of Downriver Watersheds*. Activities include the Green Infrastructure Low Impact Development virtual tour located at www.ltu.edu/lid/, the Fall 2011 Green Infrastructure Conference hosted by LTU and storm water quality monitoring of the green roofs constructed by the Woodhaven Brownstown School District under the Clean Michigan Initiative grant.

Regional PE Committee – Southeast Michigan Partners for Clean Water: WQMD has been actively participating in this initiative since its inception. In 2011, WQMD staff participated in nearly all of the Committees meetings and provided input to all of the Partners' activities. See the document *Southeast Michigan Partners for Clean Water, Community Annual Report Information, October 2009 - September 2011* presented in Section 6 of this report.

Stream Team/Friends of Detroit River/Riverkeeper: In 2011, Wayne County continued its partnership with *The Stream Team* and *Friends of the Detroit River and Riverkeeper* to assist with watershed management in the downriver area through three major efforts: stream monitoring, riparian corridor/green infrastructure management projects and watershed management public awareness education. The intent of the partnership is to assist local communities, public school districts and the County with compliance under the Storm Water Permit while educating students using the local natural environment and current issues as the classroom. Stream Team teachers, with assistance and support from WQMD, work with high school students empowering them to identify, evaluate and solve real world problems using real world techniques and technology.

Regional/National Outreach Activities: Wayne County participated in several national outreach activities/events/meetings during the reporting period to exchange information about storm water and watershed management, including:

- Wayne County's Rouge River National Wet Weather Demonstration Project was recognized by the State of the Lakes Ecosystem Conference (SOLEC) as a 2011 SOLEC Success Story Honoree for exceptional performance and dedication to improving the Great Lakes.
- Wayne County staff received an inquiry and provided information to Herra Consultants, Seattle, WA about Wayne County's IDEP training group problem solving exercise.
- Wayne County participated in Green Infrastructure Program and Tour on June 30 hosted by DWSD for DEQ and EPA to highlight green infrastructure implantation in Detroit and SE MI. The grow zones at Newburgh Pointe in the Rouge Watershed were included on the tour, and other information about Rouge watershed GI activities was also discussed.
- The WQMD Director participated in a program about the Rouge River restoration, produced by Dearborn public television. The program was broadcast during August 2011.

- On August 16, Wayne County hosted staff from Cincinnati, OH to a half day of tours and discussions about the Rouge Project CSO control program. Sites visited include Inkster CSO retention treatment basin, and Redford CSO retention treatment basin.
- Wayne County's Rouge Project IDEP efforts highlighted in "Reducing Sewage Contamination in Stormwater: Southeast Michigan Success Stories" presented at the Healing our Waters conference in Detroit October 12-14th hosted by the Great Lakes Coalition as part of Great Lakes Week. Rouge Project IDEP efforts also highlighted in article prepared by Great Lakes Echo on the "Reducing Sewage Contamination in Stormwater: Southeast Michigan Success Stories" presentation, available online at <http://greatlakesecho.org/>.
- Wayne County received inquiries from the Northern Michigan Waterways Hazardous Materials Spill Planning Committee (NoSpills), regarding the possibility of presenting the IDEP Problem solving exercise at the NoSpills technical conference in Traverse City, Michigan January 2012. Approximately 200 persons are expected to attend this conference. The theme of the conference is "Emerging Technologies to Safeguard our Waters."

Integrate Public Education into Facilities Management Division (WCPEP #29)

Information Dissemination: Facilities Management Division (FMD) has a number of handouts and other materials used to educate the public on topics which may result in pollution prevention. These materials can also be found on the Wayne County website and include: *Riparian Corridor Management Principles and Practices*, *Woody Debris Management 101 – The Clean and Open Method*, *Woody Debris Management 201 – Habitat and Structure Method*, *Riparian Corridor Management Streambank Management 101*, *Riparian Corridor Management Streambank Management 201*, *Naturescaping*, and *Site Preparation for Small Planting Areas*. These documents were distributed in response to twelve citizen requests. FMD staff meet with the public regularly for drain improvement petition related meetings and at service request inspections.

Industrial Pretreatment Excellence Award and Zero Discharge Club: The County's Industrial Pretreatment Program (IPP) for the Downriver Wastewater Treatment Facility recognized 24 industrial waste water dischargers as members of the *Zero Violations Club* during 2011.

Integrate Public Education into Roads Division (WCPEP #30)

Information Dissemination: As described in WCPEP #23, an informational display rack is set up at the Wayne County Roads Division Central Maintenance Yard and numerous environmental education materials are available to employees and the general public.

Watershed Awareness Signage: The Roads Division fabricates river crossing signs for the WQMD Clearinghouse described in WCPEP#26. Existing river crossing and watershed entry signs are being called out to be retained on road reconstruction project plans.

Adopt-a-Road Program: One hundred thirty-seven (137) groups adopted approximately 166 miles of County Road in 2011.

Integrate Public Education into Parks Operations (WCPEP #31)

Information Dissemination from Nankin Mills: The Parks Administration office at Nankin Mills continues to supply the public with educational and informational brochures developed by Parks staff, by WQMD staff, Friends of the Rouge and others. Table 25 presents a summary of the environmental educational information distributed by the Parks Division, Nankin Mills Naturalists during 2011.

Table 25
Environmental Educational Information Distributed from Nankin Mills Parks Office
During 2011

Educational Item	Approximate Number Distributed
Rouge Watershed Public Recreation Areas Map and Index	50
Holliday Nature Preserve Map	300
Holliday Nature Preserve Association newsletters	200
Southeastern Michigan Butterfly Association flyers	200
Bennett Arboretum History brochure	200
Bennett Arboretum Trail Map and Interpretive Guide	200
Bluebird Nesting Box Information flyer	100
How to Build a Bat Box instruction packet	50
How to Build an Owl Nesting Box instructions	50
Wildlife Rehabilitators contact information	50
What is a Floodplain? Park Information Bulletin	200
Herps of the Rouge Interpretive flyer	500
Owls of Michigan Interpretive flyer	400
Match Animal to Habitat flyer	200
Fish of the Rouge River activity flyer	150
Trees of the River Floodplain activity flyer	150
Geology of Michigan flyers	600
Poisonous Plants and Animals flyers	150
Animal Tracks, activity flyer	400
Pond Benthics and Water Quality flyer	300
Animal Hibernation flyer	200
Michigan State Symbols flyer	300
Maple Sugaring History/Instructions/Resource flyer	400
Bird List – Holliday Nature Preserve	200
Trees of the Floodplain List – Holliday Nature Preserve	200
Wildflower List – Holliday Nature Preserve	100
Mammals List – Holliday Nature Preserve	100
WCDPS 24-Hour Environmental Hotline	100
WCDPS How to Be a River Friendly Gardener	100
WCDPS Fertilizer Selection and Application	100
WCDPS Storm Drains Aren't Garbage Cans	100
Our Actions Affect Our Rivers	100

Nankin Mills Interpretive Center – Stormwater/Watershed Displays: The theme of the Nankin Mills Interpretive Center, opened in January 2001, is “The Rouge River Runs Through History”. The Center is free to the public, and open Monday through Saturday, 9am – 4pm. Featured are a variety of exhibits designed to foster visitor appreciation for the role the Rouge River has played in the natural and cultural history of our area, as well as the role that people have today in protecting this valuable resource. Permanent exhibits include:

- A diorama of wildlife of the Rouge floodplain, past and present;
- An early Potawatomi village scene depicting the many uses of the river by their culture;
- Gristmill exhibits describing the crucial role the Rouge River waterpower played in powering early mills in the early settlement of southeastern Michigan; and
- Exhibits featuring Henry Ford’s Village Industry project, which relied on water power of the rivers in southeastern Michigan to run his small industries using hydroelectric generators.

Permanent displays supporting environmental restoration/protection at Nankin Mills Interpretive Center include:

- Animals of the Rouge River floodplain diorama – Past and Present (conveying the message: it’s a habitat, and explaining why some animals no longer live here)
- Changing Currents: Public Efforts to Restore the Rouge River
- CSOs: What are they and how are they being eliminated?
- Newburgh Lake clean up project
- Industry takes a proactive role
- Volunteer groups on the Rouge River
- Computer kiosk filled with Rouge River information
- Four touch-screen interactive computer programs focusing on our daily activities, and seeing how the results of our choices impact the Rouge River.
- Kid’s Map of the Rouge River Watershed: Know Your Watershed
- Live reptiles and amphibians of the Rouge floodplain, interpretive panel depicting all native reptiles and amphibians in Michigan and highlighting those that live in the Rouge River watershed.
- Live fish aquarium highlighting fish of the Rouge River, interpretive panel listing all species of fish living in the Rouge River and pictures of many species including those in the aquarium for identification.
- Owls of Michigan guessing game.
- How the Rouge River was used in the past – Native American diorama
- How the Rouge River was used in the past – Settlement era displays
- How the Rouge River was used in the past – Henry Ford exhibits
- The Rouge River 1920s – 1970s: Troubled Waters
- Turtles of the Rouge River with interpretive panel above the live turtle tanks for identification of the ten Michigan species.
- Songbirds of Michigan with over 50 bird mounts on display with labels identify each species.
- A seasonal exhibit is displayed in the spring and summer highlighting the life cycles of native butterflies, with live butterflies.
- Nature Touch Table.

The Nankin Mills Interpretive Center also has a temporary “Storm Water/Watershed” display in the classroom which includes a map of the watersheds in southeastern Michigan and the posters “Use Your Head, You Live in a Watershed”, “We are all part of the solution”, “Storm Drains Aren’t Garbage Cans”, etc. Posters of the live frogs, salamanders, turtles and snakes of Michigan, butterflies, birds, endangered species are also displayed.

Nankin Mills Interpretive Center Grounds: Labels have been made to identify native plants in the Butterfly Garden established on the site by the Southeastern Michigan Butterfly Association.

Motor Cities Heritage Trail: Interpretive signage has been fabricated and installed to interpret the Rouge River history of Henry Ford’s waterpower sites on the Middle Rouge:

<i>Henry Ford’s Nankin School</i>	<i>Newburgh Village Industry</i>	<i>Waterford Village Industry</i>
<i>Haggerty Station</i>	<i>Wilcox Village Industry</i>	<i>Phoenix Village Industry</i>
<i>Nankin Mills Village Industry</i>	<i>Northville Village Industry</i>	<i>Nankin Miller’s House</i>
<i>Gunsolly Mill</i>		

Naturalist Programming at Nankin Mills: Nankin Mills Interpretive Center offers natural and cultural history programming about the Rouge River watershed for school groups, scout groups and families. In addition, naturalists provide Outreach Programming at local schools, libraries, scout pack meetings and other recreation facilities. As shown in Table 26, almost 8,000 people attended a natural and cultural history interpretive program provided by Wayne County Parks during 2011.

Table 26
2011 Attendance at Nankin Mills Interpretive Programs

Number of Interpretive Programs Provided	306
Number of Children Attending	4,822
Number of Adults Attending	2,938
Total Number Attending	7,760

Nankin Mills Interpretive Center Natural Resource Related Programs: Nankin Mills Interpretive Center offered the School Field Trip and Outreach Programs highlighting natural resource topics listed below during 2011.

<i>History of the Rouge River</i>	<i>Animals in Winter/Tracks</i>
<i>Reptiles and Amphibians of the Rouge Floodplain</i>	<i>Animal Mysteries/Skulls & Scat</i>
<i>Habitat Hike</i>	<i>The Rouge River Watershed</i>
<i>Insect Adventures</i>	<i>Land and Water Connections</i>
<i>Michigan Geology</i>	<i>Bird Adaptations</i>
<i>Owls of Michigan</i>	<i>Pond Life</i>
<i>Poisonous Plants and Animals of Michigan</i>	<i>Fall Frolic: Flood Plain Tree Identification</i>
<i>Michigan State Symbols & Natural Resources</i>	<i>Beginning Astronomy</i>
<i>Maple Sugaring</i>	

Nankin Mills Scout Badge Workshop Programs Featuring Natural Resources included the following in 2011:

<i>Watching Wildlife</i>	<i>Earth Connections</i>	<i>All About Birds</i>	<i>Wildlife Conservation</i>
<i>Earth is Our Home</i>	<i>Finding Your Way</i>	<i>Eco-Action</i>	<i>Astronomy</i>
<i>Animals</i>	<i>Outdoor Creativity</i>	<i>Orienteering</i>	<i>Environmental Science</i>
<i>Plants</i>	<i>Plants and Animals</i>	<i>Outdoor Survival</i>	<i>Water/Soil Conservation</i>
<i>Eco-Explorer</i>	<i>Rocks Rock</i>	<i>Wildlife</i>	<i>Sharing World w/Wildlife</i>
<i>Space Explorer</i>	<i>Sky Search</i>	<i>Forester</i>	<i>Nature Crafts</i>
<i>Earth and Sky</i>	<i>Water Wonders</i>	<i>Naturalist</i>	<i>Birds</i>
<i>Outdoor Adventurer</i>	<i>Wildlife</i>	<i>Geologist</i>	<i>Your Living World</i>
<i>Water Everywhere</i>	<i>Outdoor Surroundings Map and Compass</i>	<i>Leaf Hike</i>	

Nankin Mills Monthly Home School Series Natural Resource Related Programming in 2011 included:

<i>Astronomy: Our Solar System</i>	<i>White Pine: Our State Tree</i>	<i>Maple Sugaring</i>
<i>Michigan Geology</i>	<i>Astronomy Beyond our Solar System</i>	
<i>Herps of the Rouge</i>	<i>Animal Tracks in Winter</i>	<i>Leaf Prints/Tree I.D.</i>
<i>Pond Life</i>	<i>Animal Signs and Skulls</i>	<i>Owls of Michigan</i>
<i>Build A Birdhouse</i>	<i>Rouge Underground RR</i>	<i>Saving Energy</i>
<i>Butterfly Gardening/Rearing</i>	<i>Cranbrook Star Lab</i>	<i>Garlic Mustard Pull</i>
<i>Bird Watching</i>	<i>Fish of the Rouge</i>	<i>Ways of the Whitetail</i>
<i>Free Fishing Day Newburgh Lake</i>	<i>Tree Keying</i>	<i>Leaf Litter Critters</i>

Natural Resource Related Nankin Mills Family Programs in 2011 included:

<i>Nature Birthday Parties</i>	<i>Maple Sugaring</i>	<i>Secret Lives of Butterflies</i>
<i>Wildlife Safari</i>	<i>Halloween Forest Fun Hike: Rouge Wildlife</i>	
<i>Pond Life/Live Herps</i>	<i>SE Michigan Butterfly Association Family Day</i>	
<i>Caterpillars of Michigan</i>	<i>Native Garden Designs</i>	<i>Blues & Moths</i>
<i>Rearing Favorite Caterpillars</i>	<i>Handling & Tagging Monarchs</i>	
<i>Overwintering Butterflies</i>	<i>Seed Collecting</i>	<i>Butterfly Q & A</i>
<i>Animal Mysteries Outreach</i>	<i>Container Gardening</i>	<i>Butterfly Life Cycles</i>
<i>Live Reptiles/Amphibians Outreach</i>	<i>Owls of Michigan Outreach</i>	<i>Insect Adventures</i>
<i>Adult Botany Hike/Ferns Koppernick HNP</i>		

Summer camp sessions at Nankin Mills offer different age groups an opportunity to experience firsthand outdoor nature activities. In 2011, natural resource related topics were included in the Nankin Mills Summer Nature History Day Camp for Kindergarten – Sixth Grade. Camp topics were *Wetland Adaptations*, *Birds of Prey*, *Nature Sketching*, *Live Reptiles & Amphibians*, *History of the Rouge River*, *Cranbrook Star Lab*.

Wayne County naturalists participate as instructors at the Rouge River Water Festival each year on University of Michigan Dearborn campus. This annual event provides river and watershed education for hundreds of school children throughout southeastern Michigan. For 2011, two staff presented *Live Reptiles and Amphibians of the Rouge*. Wayne County naturalists also gave

this presentation at the Westland Therapeutic Recreation Picnic, and many local public library summer camp programs.

Workshops and other events related to watershed management held at the Nankin Mills Interpretive Center during the reporting period include:

- Nankin Naturalist met with six boy scouts regarding planning projects for their Eagle Scout rank. Working in partnership with Holliday Nature Preserve Association four of the projects involved building and installing large sections of boardwalk on the trails in the Koppernick Section of Holliday Nature Preserve; Bat houses at Lola Valley. The Nankin Mills Naturalist also worked with the scouts to clear, design and plant a native plant garden on the grounds of Nankin Mills.
- Nankin Naturalist continued to work with Southeastern Michigan Butterfly Association to maintain a Butterfly Garden with native plants next to the building.
- Nankin Naturalist met with volunteers to inventory and clean out bluebird nesting boxes in Grow Zone areas.
- Nankin Naturalists performed several garlic mustard pulls in Ellsworth Section entrance to Holliday Nature Preserve. Also worked with scout volunteer groups to pull garlic mustard in Ellsworth Section.
- Nankin Naturalist maintains a bird feeding station on site.
- Wayne County Parks Nankin Mills Interpretive Center Naturalist hosts monthly meetings of the Southeastern Michigan Butterfly Association with educational presentations about butterflies and butterfly gardening.

Activities to promote and advertise Nankin Mills Interpretive Center Programs during the reporting period included:

- *School programs:* A brochure listing school interpretive programs is available in the lobby and programs are listed in Wayne County Parks brochure and on the Parks Division section of the County website. Schools also spread the information by word of mouth.
- *Outreach programs:* A flyer is available in Nankin lobby and programs are listed in the Wayne County Parks brochure and on the Parks Division section of the County website. The outreach program flyer is also electronically mailed to local libraries and Recreation Departments.
- *Scout programs:* A scout flyer and brochure with program information is electronically mailed to scouts on the Parks mailing list twice a year for walk-in registration dates. Information is also available in the lobby, in Wayne County Parks brochure and on the Parks Division section of the County website.
- *Family programs:* A seasonal family program flyer is electronically mailed to those on the Parks mailing list and available in the lobby. Programs are also listed in the Wayne County Parks brochure, in the Parks Division section of the County website, and an illustrated advertisement is made and displayed on an announcement board in the Park Office lobby. The Parks Division sends out press releases to local papers. Programs are displayed on the Park electronic sign on Hines Drive.
- *Home school programs:* An annual flyer is electronically mailed to those on the Parks mailing list, available in the Nankin Mills lobby, and program offerings are listed in the Wayne County Parks brochure and on the Parks Division section of the County website.

- *Large Family Events:* Flyers are electronically mailed to those on the Parks mailing lists, local libraries and Recreation Departments. These events are also advertised in the Wayne County Parks brochure, in the Parks Division section of the County website, and an illustrated advertisement is displayed on an announcement board in the Parks Office lobby and on the Parks electronic sign on Hines Drive.
- Co-sponsored events are advertised by the event co-sponsor. For example, Native American Day, gets radio coverage and is listed in Native American publications.

In addition to the 7,760 visitors who came to Nankin Mills Interpretive Center to visit and attend an interpretive program in 2011, an additional 3,516 people visited the Interpretive Center exhibits without attending an interpretive program, for a total of 11,276 visitors in 2011. Total Interpretive Center attendance since opening in January 2001:

2001:	15,664
2002:	15,112
2003:	17,804
2004:	22,055
2005:	19,509
2006:	17,524
2007:	17,233
2008:	16,589
2009:	18,932
2010:	16,355
<u>2011:</u>	<u>11,276</u>
Total:	188,053

Information Dissemination from Crosswinds Marsh: The DPS-Parks office at Crosswinds Marsh continued to supply the public with educational and informational brochures during the reporting period. Table 27 presents a summary of the environmental educational information distributed from the Crosswinds Marks Parks Office during 2011.

Table 27
Environmental Educational Information Distributed From Crosswinds Marsh

Educational Item	Approximate Number Distributed
The Fish of Crosswinds Marsh	175
2010 Fishing Guide	150
Wetland Ecology (info sheet)	50
Natural History of the Beaver (info sheet)	125
Natural History of the Muskrat (info sheet)	125
Rocks and Minerals Guide (Booklet)	140
Poisonous Plants and Animals of MI (booklet)	255
Conservation of the Kirtland's Warbler (booklet)	255
The Benefits of Trees (booklet)	225
Recycling Guidelines (info sheet)	150
Nature's Recycling Coloring Book (booklet)	150
Tree Identification Guides (booklet)	150

Educational Item	Approximate Number Distributed
Wildflower Identification Guide (booklet)	45
Natural History of Michigan Owls (booklet)	500
Michigan Frogs (booklet)	200
Michigan Frogs (Coloring Sheet)	200
Frog Facts (Bookmark)	200

Bulletin Board Display at Crosswinds Park Entrance: *What is a Wetland, Benefits of Wetlands, Wetland Conservation, Wetland Animals, All About Beaver, Bald Eagles of Michigan, Wildflowers of Crosswinds, etc.*

Naturalist Programming – Crosswinds Marsh: The Parks Division continued to provide and expand educational programming focused on the natural environment for scout troops, school groups and families at Crosswinds Marsh. During the reporting period, approximately 2,794 children and 740 adults participated in one of the educational programs offered by the naturalists stationed at Crosswinds Marsh and listed below.

Crosswinds Marsh School Programs:

Michigan Frogs and Toads

Spring Fling

All About Birds

Canoe Hike

Geologic Wonders of Michigan

Marsh Mammals

Michigan Owls

Michigan Reptiles and Amphibians

Nature Detective

Predators and Prey

Wetland Field Investigation

Wetland Homes and Habitats

Wetland Plant and Animal Adaptations

The Wonders of Water and Wetlands

Insect Incognito

Michigan Trees

Self Guided Canoe Hike

Fall Frolic

Crosswinds Marsh Outreach Programs:

All About Birds

Fall Frolic

Insect Incognito

Michigan Frogs and Toads

Michigan Owls

Nature Detective

Predators and Prey

Wetland Plant and Animal Adaptations

Winter Tracks

Michigan Reptiles and Amphibians

Crosswinds Marsh Family Programs (* indicates large family event):

**Family Fishing Fun Day*

**Nature Fest*

Marsh Hike

Cattail Kids

Michigan Frogs and Toads

Spring Bird Hike

Michigan Bigfoot

Crosswinds Marsh Scout Badge Programs:

Birds, Elective #13

Fishing (Wolf), elective #19

Tall Tales, Achievement #4

Your Living World, Achievement #7

American Indian Life, Elective #24

Sharing your World with Wildlife, Achievement #5

<i>Naturalist</i>	<i>Scientist</i>
<i>Forester</i>	<i>Geologist</i>
<i>Wildlife Conservation (Academics & Sports)</i>	<i>Fishing (Academics & Sports)</i>
<i>Map and Compass (Academics & Sports)</i>	<i>Insect Study (Merit Badge)</i>
<i>Nature Crafts, Elective #12</i>	

Cattail Kids Summer Nature Series (ages 6-10):

Super Spiders
Native Life
Dino Mania
Nature Fun and Games

Crosswinds Marsh Naturalists also participate in the *Rouge River Water Festival*, held each year on University of Michigan Dearborn campus. This event provides river and watershed education for school children throughout southeastern Michigan. For 2011, two staff presented *Aquatic Invertebrates of the Rouge Watershed* for approximately 200 students and 50 adults.

Crosswinds Marsh Wetland Interpretive Preserve – Workshops and Other Events

- Naturalists are currently working with an Eagle Scout on two projects to construct. One project is to install Interpretive Trail signs along the boardwalks and trail system. The other is to install a new bulletin display board near the vehicle parking lot as well as repair and enlarge the bulletin board near the horse trailer parking lot.
- Naturalists established a partnership with Trenton Parks and Recreation to conduct their *Nature Nook Program Series and Nature Day Camp*.
- Naturalists established a partnership with Van Buren Parks and Recreation are currently conducting spring, summer and fall programs, as well as an *Urban Tree Curriculum Series*.
- Naturalists established a partnership with Flat Rock Parks and Recreation and are currently conducting a summer camp program in July.

Crosswinds Marsh Wetland Interpretive Preserve – Promotion and Advertisement of Nature Programming and other Environmental Programs:

- *Crosswinds Marsh School and Outreach Programs:* An annual *Parks Events and Interpretive Programs* brochure listing all interpretive School and Outreach Programs is available at the entrance to the Park. This brochure is also distributed to local schools and other individuals on our mailing list. All programs are listed on the bulletin board at the entrance to the park and on the Parks Division section of the Wayne County website. E-mail mailing lists are also used to distribute school and outreach program information.
- *Crosswinds Marsh Scout Programs:* Flyers and the *Parks Events and Interpretive Programs* brochure listing all Scout Badge Programs is available at the entrance to the Park. Brochures (200) are distributed to the Detroit Area Boy Scouts of America Council. All programs are listed on the bulletin board at the entrance to the park and on the Parks Division section of the Wayne County website. E-mail mailing lists are also being used to distribute scout program information.
- *Crosswinds Marsh Family Programs and Large Family Events:* The *Parks Events and Interpretive Programs* brochure listing all Family Programs is available at the entrance to the Park. This brochure is also distributed to individuals on our mailing list. All programs are

listed on the bulletin board at the entrance to the park and on the Parks Division section of the Parks website. A Press Release for each program is sent to the local newspapers.

Parks Website: The Wayne County Parks website promotes and advertises the Interpretive and Naturalist programming offered by the County.

Signage – Don't Feed the Geese: Six signs remain in place near the Middle Rouge impoundments, two signs are at Elizabeth Park and 6 signs are installed at Crosswinds Marsh.

Signage - Holliday Nature Preserve: Preserve map and rule signage are at Nature Preserve trailheads.

Signage - Bennett Arboretum: Welcome kiosk and the *Oak Collection*, *Wetlands* and *Bennett Arboretum Wildflower Area* interpretive signs remain at the Bennett Arboretum. Native plant beds were maintained as part of the May 2011 work day.

Signage – Crosswinds Marsh:

- Six “No Fishing” signs have been installed in restricted areas.
- Five “No Bicycles Beyond This Point” have been installed in restricted areas.
- Two Endangered Species signs are installed near the bald eagle nest.

Signage - Grow Zone Areas: Interpretive Grow Zone signs remain at the Nankin Mills Grow Zone, the Bennett Arboretum Grow Zone and the Newburgh Pointe Rain Garden. Permanent GZ signs are installed at all Middle Rouge Grow Zones and temporary Grow Zone boundary marker signs were replaced throughout the Grow Zones installed in Edward Hines Park.

Signage – Stream Bank Stabilization: The interpretive signs highlighting biotechnical stream bank stabilization methods remain at the Northville Recreation Area, the Levan Knoll Bike Path and the Valley View stream banks stabilization sites.

Signage – Parks Design Section: Parks Design Section continues to initiate environmental restoration and protection initiatives through the permit process. In locations where construction is taking place that impacts Parks property, we require small interpretive signs that recognize the damage and identify the measures that are to be taken to restore and enhance the surrounding ecology and wildlife habitat upon project completion.

Staff Training: Six Parks staff members participated in the April 2011 Municipal Good Housekeeping training workshop held in Canton.

Integrate Public Education with County-Issued Permits (WCPEP #32)

Facilities Management Division, Industrial Pretreatment Program (IPP) Permits: Wayne County's Industrial Pretreatment Program routinely works with industrial/commercial facilities to prevent adverse impacts on the Downriver Wastewater Treatment Facility and to the environment. Examples of implemented programs are: slug/spill control plan evaluation, mercury reduction plans and investigation of spills into sewers/drains. The County's Industrial

Pretreatment Program for the Downriver Wastewater Treatment Facility recognized 24 industrial dischargers as members of the *Zero Violations Club* during 2011.

Environmental Health Division – Onsite Sewage Disposal System (OSDS) Permits: Wayne County’s Environmental Health Division (EHD) continues to provide educational materials to owners of onsite sewage disposal systems in conjunction with the Wayne County OSDS Evaluation and Maintenance Ordinance (Enrolled Ordinance 99-527). These materials come in a packet that includes the “Septic Systems Record Keeping folder”, “Important if You are Selling Your Home” brochure, a “Your Septic System” reference guide for homeowners brochure, and an “Evaluator Recommendations” checklist. These materials are provided to all property owners requesting OSDS permits (new or repair) and to homeowners who have their disposal systems evaluated by Wayne County EHD. These materials are also provided to those individuals who become certified OSDS inspectors under the ordinance. The EHD implemented a webpage (June 2001) within the County’s website which offers information regarding OSDS operation and maintenance as well as information summarizing services and programs offered by the EHD. The site established links to the WQMD webpage and to other environmental education sites.

Land Resources Management Division – Soil Erosion Permits: Approximately 100 *Soil Erosion and Your New Home* brochures were distributed to communities in Wayne County for distribution to residents. The brochure was also distributed via County office information racks and upon request.

Engineering Division – Storm Water Permits: Wayne County developed our *Storm Water Management Standards Manual* and publishes it in conjunction with the County’s Storm Water Management Ordinance and Administrative Rules. This manual provides a “plain English” explanation of the ordinance and administrative rules, user-friendly guidance for design of different storm water management facilities, and other useful information. The *Wayne County Storm Water Management Standards Manual* also addresses topics such as pollution prevention through storm water management, pollution prevention through soil erosion control, and management of riparian lands. Wayne County routinely updates the guidance in the manual based on emerging technologies and other factors.

The ordinance, administrative rules, and standards manual are available online from Wayne County’s website <http://www.waynecounty.com>. These documents and periodic updates, along with supplemental materials not included in the Standards Manual but which may be helpful in implementing the Wayne County Storm Water Management Program, are available at in the “storm water program” section of the county website at http://www.waynecounty.com/doe_wqm_res_stormwmm.htm. Links to other useful information are also provided on this page. For example, Wayne County has established a registry of Storm Water and Water Quality Practices Constructed/Implemented in Southeast Michigan that include project summaries, photos, location and contact information, weblinks, and other information for a variety of storm water and watershed management practices constructed/implemented in southeast Michigan in the following categories: Bioretention / Low Impact Development / Native Landscaping; Manufactured Treatment Systems and Underground Detention; Detention

Ponds/Constructed Wetlands; Streambank Stabilization; Woody Debris Management; and Green Buildings.

Hard copy versions of the manual are available from the Permit Office (33809 Michigan Avenue, Wayne, MI). Staff from DPS-WQMD and DPS-Engineering routinely respond to requests for information about the County's storm water management program. These requests are from developers, communities, engineers, and citizens.

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SECTION 4 WAYNE COUNTY ***ADDITIONAL STORM WATER MANAGEMENT ACTIVITIES***

The following storm water management activities relate to Wayne County's Storm Water Pollution Prevention Initiative (SWPPI). These activities were completed by Wayne County during the reporting period **January 1, 2011 – December 31, 2011** for compliance with the County's Certificate of Coverage MIG610040 under the MDEQ General Storm Water Discharge Permit MIG619000.

Outlet Stabilization: County Projects (WCSWM #1)

Routine maintenance of existing outlets from County storm water systems to surface waters includes stabilization if necessary. Proper outlet stabilization techniques are included in design documents for any projects where new outlets from County storm water systems to surface waters were created. In 2011, this included all County Drain improvement projects as well as the County project in Canton Township at Sheldon Center over Willow Creek.

BMP Implementation: Treatment Controls – County Projects (WCSWM #2)

Low Impact Development/Green Infrastructure Projects:

Rouge River Riparian Corridor Management Project

Wayne County Parks and WQMD continued their partnership to implement the *Rouge River Riparian Corridor Management Project* within Hines Park. Twenty-nine green infrastructure sites within Hines Park and along the Middle Rouge River have been constructed and are being managed in a way that reduces storm water runoff and pollution, promotes biodiversity, increases wildlife habitat, while also providing or improving passive recreational opportunities. The sites include 13 biotechnical stream bank stabilization projects, two bioretention cells, two detention pond native plant retrofits, and 12 native plant grow zones. In 2011, maintenance of the sites was completed with a Green Infrastructure work day held at the Bennett Arboretum in May, through Nankin Mills Naturalist Program activities and a Livonia citizen routinely volunteers her time to maintain Grow Zones 7 & 8a.

Restoring the Rouge AOC from Mowed Down to Grown Up Project

In 2010, DPS-WQMD and Parks staff partnered with the ARC to secure a grant from the U.S. EPA under the Great Lakes Restoration Initiative (EPA- GLRI). Through this grant approximately 15 acres of new grow zone will be established in Wayne County Parks along the Lower Rouge River and within Lola Valley (Upper Rouge River). Funding is also included in the grant to develop and begin implementation of an invasive species management plan for the Wayne County grow zones and for in-stream macroinvertebrate (bug hunt) monitoring to evaluate project implementation. In 2011, the Lower Rouge Parkway and Lola Valley grow zones were designed, a construction contractor was hired and construction was initiated. Spring and fall macro-invertebrate monitoring efforts were also carried out. Construction will be completed in spring 2012 and the long-term invasive species management plan will be developed

and a short-term grow zone restoration strategy will be implemented to complete this grant project.

Restoring the Lake Erie Corridor Through Green Streets Project

In 2010, Wayne County partnered with SEMCOG to secure the *Restoring the Lake Erie Corridor Through Green Streets Project* also funded through the EPA-GLRI. Through this grant, design of approximately 16 acres of grow zone and bid for construction approximately 5 acres of grow zone within County road right of ways will be completed. In 2011, the grow zone design and engineering services contractor was hired, conceptual designs prepared for 12 sites and final designs developed for 7 sites. The construction invitation for bids was drafted. Construction of the anticipated 5 acres of grow zone will occur in 2012.

Tree Enhancements on Publicly-Owned Priority Urban Areas Project

In 2010, WQMD and Roads Division staff partnered with SEMCOG to secure a US Forest Service GLRI grant entitled: *Tree Enhancements on Publicly-Owned Priority Urban Areas Project*. WCDPS will receive in grant funding to participate in the green infrastructure analysis planning and install approximately 350 trees within County road right of ways at priority locations within the ARC and ADW watershed areas. In 2011, WCDPS participated in all project advisory committee meetings held by SEMCOG and also planned for, installed and documented the planting of 175 trees. Nine different tree species were used and tree planting occurred within the County road right of ways at 4 distinct locations. Installation of the remaining 175 trees will occur in fall of 2012.

Restoring Community Trees in an Urban Watershed

In 2011, WQMD and Roads Division staff partnered with the Alliance of Rouge Communities (ARC) to secure a US Forest Service GLRI grant entitled: *Restoring Community Trees in an Urban Watershed*. Through this grant, WCDPS will receive funding to participate in green infrastructure analysis planning and install approximately 900 trees within County rights-of-way and properties at priority locations within the ARC and ADW watershed areas.

Wayne County Storm Water Green Infrastructure (GI) Planning

In 2011, WQMD staff worked with MDEQ staff to secure non-competitive Clean Water Act 205J Planning grant through the USEPA. Grant funding has been offered to assist Wayne County with developing a long-term green infrastructure capital improvement and operation and maintenance plan. A scope of work, budget, and project timeline were negotiated with MDEQ in late 2011 and the contract was forwarded for Wayne County approval. Work is anticipated to begin in February 2012 and conclude in July 2014. Tasks under this planning grant include GI retrofit planning on County properties, GI operation & maintenance efficiencies and training, GI policy and financing strategies, and public education and outreach strategy.

Wayne Road Dam Removal and Habitat Restoration Project

In 2011, WQMD staff worked with ARC, the City of Wayne and the Rouge RAP Advisory Council to secure a GLRI grant through the National Oceanic and Atmospheric Administration to remove the dam on the Lower Rouge River at Wayne Road within the City of Wayne. This grant will provide funding for the ARC and Wayne County to remove the low-head dam at Wayne Road, stabilize the stream bank using a combination of green infrastructure and structural

controls, and improve fish passage using a system of pool-riffle in-stream rock structures. In 2011 planning and design was completed with Rouge River National Wet Weather Demonstration Project funding and the necessary permit secured from the State of Michigan. Construction of the project is anticipated to begin in June 2012 and conclude in October 2012.

Road Construction – DPS Field Engineering Office: Table 28 summarizes the Wayne County road construction projects administered by the Field Engineering Office in 2011. Except as noted below, these projects consisted primarily of an asphalt overlay of an existing concrete or asphalt roadway. Most projects also required removal (of years) of soil build-up (overburden) above the roadway curb and approximately five feet behind the curb. After removal of these excess soils, the areas were stabilized with sod, thus preventing the existing soils from washing into the roadway drainage system in the future. Erosion control protection filters were provided at storm drain structures, as needed, to prevent sedimentation from entering the roadway drainage system during construction.

The Sheldon Center Road project was an entire road reconstruction project. Erosion control protection filters were provided at storm drain structures to prevent sedimentation from entering the roadway drainage system during construction. Four VortechTM units were installed as part of the Sheldon Center Road project to provide for on-going storm water pollution control.

Table 28
Wayne County 2011 Road Construction Projects

Project Name	Project Limits	Project Name	Project Limits
Allen Road	Sibley to Pennsylvania	Wayne Road	Goddard to Wick
Joy Road	Southfield to Greenfield	Greenfield Road	Tireman to Joy
Seven Mile Road	Inkster to Grand River	Inkster Road	Ford to Hines Drive
Judd Road	At Clark Road Intersection	Palmer Road	Lilley to Haggerty
W. Jefferson	Eureka to Northline	Sheldon Center Road	Warren to Joy

CSO Control Implementation (WCSWM #3)

Wayne County continued operation and maintenance of combined sewer overflow control facilities in Dearborn Heights, Harper Woods (Milk River Retention Treatment Basin), Inkster, Redford, River Rouge and Wyandotte (Southgate-Wyandotte system). Operation of these facilities and planning for any additional facilities required for CSO control in Wayne County is completed pursuant to the NPDES permits for these systems.

SSO Control Implementation (WCSWM #4)

Wayne County continued operation and maintenance of the sanitary sewer interceptor system tributary to the County's Downriver Wastewater Treatment Facility and those tributary to the Detroit Wastewater Treatment Plant (Rouge Valley and Northeast Sewage Disposal Systems). Any sanitary sewer overflow (SSO) control activities necessary for these systems are defined in the NPDES permits for these systems.

Pollution Prevention (P2): General Public Facilities Management (WCSWM # 5)

WQMD has previously dye-tested all County facilities within the separated storm sewer system area of the County and has stenciled the storm sewer manholes within maintenance yards and parking lots. Efforts continued in 2011 by DPS to develop Pollution Prevention (P2) Action Plans for County Roads and Parks maintenance yards as described in the County's Storm Water Pollution Prevention Initiative. An inspection checklist and template P2 Action Plan was developed with technical support from SEMCOG and inspections continued in 2011 (see WCIDEP #9). In 2011, P2 Action Plans were completed and issued for the following facilities. DPS Roads Division Yards: Merriman, Wayne, Sibley, New Boston, Phoenix and Norton. DPS Parks Division Yards: Wallaceville and Parkview. In 2012, on-going review and implementation of these P2 Plans will continue and P2 Action Plans for Central Maintenance and Goddard (DPS Roads Division) yards as well as Lola Valley, Crosswinds Marsh and Elizabeth Park (DPS Parks Division) will be completed and issued. In 2011 DPS Roads also updated the Pollution Incident Prevention Plans (PIPPs) for each of their yards. Table 29 presents the DPS maintenance yards, by watershed, for which inspections and P2 Action Plans were completed during 2010-2011.

Table 29
Pollution Prevention (P2) Action Plan Inspections: 2010-2011
Wayne County Department of Public Services

Wayne County Facility	Watershed			
	Rouge River Watershed	Ecorse Creek Watershed	Combined Downriver Watershed	Lower Huron Watershed
Central Maintenance Yard Facility			X	
Goddard Yard Maintenance Facility		X		
Merriman Yard Forestry Facility	X			
New Boston Yard Maintenance Facility				X
Norton Yard Maintenance Facility	X			
Phoenix Yard Maintenance Facility	X			
Sibley Yard Maintenance Facility			X	
South Wayne Yard Maintenance Facility	X			
Elizabeth Park Maintenance Garage			X	
Crosswinds Marsh Maintenance Garage			X	
Lola Valley Yard	X			
Parkview Yard	X			
Wallaceville Yard	X			

In addition, the following pollution prevention activities are undertaken at all Roads maintenance yards operated by WCDPS:

- Cleaning Up Spills and Leaks: Each Roads maintenance yard has a Pollution Prevention Incident Plan (PIPP) and a Hazardous Waste Contingency Plan.
- Cleaning of Paved Surfaces is accomplished with road sweepers as described in WCSWM#10. Spills of materials on County roads are handled by an environmental cleanup company under contract to Wayne County. The Michigan Department of Transportation is notified of spills on State trunk lines and contracts with a clean up contractor for removal of the material.
- Storing and Disposing of Wastes: Spills of hazardous materials on County roads are handled by an environmental cleanup company under contract to Wayne County. Scrap tires from various Roads yards are picked up by a contractor for proper disposal. Street sweeping material and trash is hauled to a Type II landfill.
- Storing and Handling of Inventory: Materials for Roads operations are stored in a climate controlled building with storage of containerized liquids on bases with overflow spill protection. Bulk storage is typically undercover and on impervious surfaces.
- Dumpster and Loading Dock Maintenance: Thirty cubic yard and six cubic yard dumpsters are placed at Roads maintenance yards by a contractor. These dumpsters are provided for disposal of trash and waste from the yards and roads. The contractor responds on demand to empty the dumpsters.
- Cleaning Equipment- Wayne County Roads Division: The waste water from the truck wash building at Central Maintenance yard flows into an oil water separator and then into a sanitary sewer. Oil water separators are in place at all maintenance yards and truck wash areas are constructed of impervious asphalt and drained into a sanitary sewer.
- Maintaining Landscaped Areas: The Forestry unit has 16 certified pesticide applicators and is actively seeking opportunities and funding to replace lost trees and to safely implement grow zones along County roads.
- Miscellaneous Activities: At the MDOT Pump Stations operated by DPS – Roads, all floating objects such as foam and plastic containers are removed prior to any maintenance at the station that requires de-watering to clean and remove sand and dirt from the sump bottom. All three of the draw bridges maintained by the County have installed electric toilets. These electric toilets have eliminated the direct discharge of sewage from these facilities into the Rouge River and Trenton Channel. Four roadway sites with excessive erosion were repaired with 21 AA or S2 aggregate or by flowable fill concrete.

Staff Training (WCSWM #6)

In cooperation with SEMCOG WQMD completed planning and implemented the Pollution Prevention Municipal Operations Training in Canton Township in April 2011. Under contract with Eastern Michigan University, WQMD held an Illicit Discharge Elimination Program (IDEP) training workshop on October 27th. Fifty-nine people participated, including one person from Wayne County Parks Division. With partial funding from the ARC, WQMD held an IDEP training workshop for ARC member staff on December 8th. Thirty people participated. See Activities reported under WCIDEP #3 and WCPEP #25.

P2: Training and Inspection Program for Contractors (WCSWM #7)

Wayne County contracts require contractor compliance with all applicable local, state and federal regulations. WQMD has previously dye-tested all County facilities within the municipal separated storm sewer system area and has stenciled the storm sewer manholes within maintenance yards and parking lots. As part of the P2 Action Plan development process, contracts for maintenance of County facilities are being reviewed for opportunities to include specifications for pollution prevention activities and/or identify training opportunities.

P2: Fertilizer, Pesticide and/or Herbicide Application (WCSWM #8)

Fertilizers are not used on the majority of Wayne County properties. All pesticide and herbicides are applied by state certified pesticide/herbicide applicators according to product labels and certified applicator training. As part of the process to develop P2 Action Plans for Wayne County facilities described previously, individual facility landscaping practices (done in house or under contract) are being reviewed for opportunities to minimize or improve fertilizer, pesticide and herbicide application practices.

P2: Storm Sewer Operation and Maintenance (O&M) (WCSWM #9)

During 2011, the Roads Design Office and Field Engineering of the WCDPS-Engineering Division generated plans and specifications for the construction of 10 road improvement projects in Wayne County. Along with improving the ride-ability of these roads, all catch basins and storm water manholes were cleaned, including the sumps, to improve the efficiency of conveying the storm water from the roadway to the designated outlet. Cleaning of the sumps allows particles to settle and not be carried into ditches, streams and rivers. The cleaning of catch basins associated with storm sewers owned by Wayne County is also performed on an as-needed basis. During 2011, the Wayne County DPS-Roads Division removed and properly disposed of 16,600 cubic yards of material from catch basins, storm sewers, roadside ditches and other features. The Roads Division has a policy to ensure that hazardous materials spilled on the roadways are appropriately disposed of and reported.

P2: Road Maintenance and Sweeping (WCSWM #10)

The WCDPS-Roads Division sweeps the curbed roadways under its maintenance responsibility. Table 30 below presents a summary of roadway sweeping for this reporting period.

Table 30
2011 Roadway Sweeping Summary
Wayne County Roads Division

Type of Roadway	Cycles	Road Miles
Urban Freeway	2	939.8
State Trunk Lines	1	562.0
County Primary Roads	1	1,231.3
County Local Roads	0	0

See WCSWM #9 for volume of material collected and disposed of properly.

P2: Snow Removal and Storage (WCSWM #11)

Consistent with each facility's PIPP, Wayne County will continue to store and handle all snow removal equipment, supplies, and chemicals such as salt and calcium chloride in shelters and that prevent spill and leaks that could enter the storm drainage system. Chemicals will continue to be stored in containers that are properly labeled to reduce the chance of using the wrong material and accidental mixtures. Where possible, chemicals will be eliminated by substituting non-hazardous or less hazardous materials. Snow that is removed from roads and stored on site will be properly disposed of if contaminated with chemicals or other hazardous materials, otherwise, snow will be allowed to melt and drain into sanitary and or storm drains.

P2: Deicing Practices and Storage (WCSWM #12)

The WCDPS-Roads Division will continue to practice environmental friendly methods of deicing and store all deicing equipment, supplies, and chemicals in shelters that prevent spill and leaks that could enter the storm drain system. Staff are trained annually on winter safety and salt operations. Salt truck equipment is calibrated routinely to minimize over application.

Oil and Grease Traps – County Implemented (WCSWM #13)

Oil-water separator tanks at maintenance yards are routinely cleaned and the material properly disposed.

Goose Control Program (WCSWM #14)

The program to control Canada Geese populations in Wayne County Parks has been suspended.

Soil Erosion and Sedimentation Control Implementation - County Projects (WCSWM #15)

As an Authorized Public Agency (APA) the WCDPS-Field Engineering Office follows the Soil Erosion and Sedimentation Control (SESC) Procedures and supplemental manual, as approved by MDEQ in July of 2005. The Field Engineering Office is responsible for the Construction Administration of approximately 15 to 20 Wayne Road improvement projects annually. Each project has a plan for Soil Erosion and Sedimentation Control during construction. Each project has a certified storm water operator that maintains a "Soil Erosion and Sedimentation Controls Inspection Log". Observations are recorded after each storm event and at least once a week. The Contractor is then directed to make corrections if control measures are found to be inadequate. The Field Engineering Office currently has 12 Certified Storm Water Operators and four Certified Soil Erosion & Sedimentation Control staff. MDEQ performed a review of the WCDPS-Field Engineering Office SESC program in 2011 and approved of the program. Several areas, were however, identified for improvement.

The WCDPS-FMD Field Operations is an Authorized Public Agency under Part 91, Act 451. FMD Field Operations oversees SESC activities relating to their work within County Drains in conjunction with DPS- Permits in accordance with its' APA requirements.

Construction of capital improvements to County wastewater and storm water facilities and systems is conducted in accordance with all applicable local, state and federal regulations, including SESC regulations.

Streambank Stabilization – Projects Subject to County Storm Water Ordinance (WCSWM #16)

The Wayne County Storm Water Management Program is performance-based, with requirements for both flood control and water quality protection. The developer may choose from a variety of best management practices (BMPs) or combinations of BMPs to meet the performance standards defined in the Ordinance and Administrative Rules. Design guidance for Stream bank stabilization is provided in the *Storm Water Management Standards (v3.0)* Chapter 8.4 within the *Wayne County Storm Water Standards Manual*.

BMP Implementation Treatment Controls – Projects Subject to County Storm Water Ordinance (WCSWM #17)

In 2011, the Permit Office reviewed development projects to ensure compliance with applicable County regulations. Six hundred twenty construction permits were approved. Of these, 120 development projects to ensure compliance with the Wayne County Storm Water Ordinance. Three hundred projects were completed in 2011 and 90 were still in construction at the end of the calendar year. The Field Engineering Office provides inspection for approved projects.

Outlet Stabilization – Projects Subject to County Storm Water Ordinance (WCSWM #18)

The Wayne County Storm Water Management Program is performance-based, with requirements for both flood control and water quality protection. The developer may choose from a variety of best management practices (BMPs) or combinations of BMPs to meet the performance standards defined in the Ordinance and Administrative Rules. Design guidance for Conveyance including Outlet Design is provided in the *Storm Water Management Standards (v3.0)* Chapter 8.3 within the *Wayne County Storm Water Standards Manual*.

Ordinance Enforcement: Illegal Dumping Ordinance (WCSWM #19)

See the report under *WCIDEP #7*.

Ordinance Enforcement: Municipal Civil Infractions Ordinance (WCSWM # 20)

Wayne County's Municipal Civil Infraction Ordinance (Enrolled Ordinance No. 2001 - 404) (MCI) provides opportunities for addressing violations of Wayne County environmental ordinances. This ordinance addresses enforcement of elements of the County's IDEP such as the Illegal Dumping Ordinance (Enrolled Ordinance 96 - 100), the Sewer Use Ordinance (Chapter 101 of Wayne County Code of Ordinance) and the Wayne County's Storm Water Management Ordinance (Enrolled Ordinance No. 2000 - 652). The goal of the MCI is to correct violations of the ordinance where "guilt" or "criminal incarceration" would not be applicable. The Municipal Civil Infraction Bureau (MCIB) is authorized to accept admissions of responsibility for a Municipal Ordinance Violation Notice (ticket) issued and served by authorized County officials and to collect fines and penalties for violation of an environmental ordinance.

In 2011, there were two (2) violation notices from the Industrial Pretreatment Program issued under Wayne County's Municipal Civil Infraction Ordinance.

Ordinance Enforcement: OSDS Evaluation and Maintenance Ordinance (WCSWM #21)

See the report under *WCIDEP #5*.

Ordinance Enforcement: Sewer Use Ordinance (WCSWM #22)

The WCDPS-FMD Industrial Pretreatment Program continued implementation of the Sewer Use Ordinance (Chapter 101 of Wayne County Code of Ordinances). Two industrial users were issued municipal civil infractions (see report under WCSWM #20) for violation of the Sewer use Ordinance in 2011.

Ordinance Enforcement: Soil Erosion and Sedimentation Control Ordinance (WCSWM #23)

The WCDPS Land Resources Management Division (LRMD) administers Part 91 (Soil Erosion and Sedimentation Control) (SESC) of the Michigan Natural Resource and Environmental Protection Act as the CEA within 33 of the 43 local communities within Wayne County. During the reporting period, LRMD issued 192 soil erosion control permits. Six hundred sixty-four inspections were conducted in 2011 and 44 major violation notices were issued. Corrections have been made or are underway for all violations. An MDEQ program audit was performed in 2011 and the program received the highest achievable rating in each program review area. LRMD staff participates in the Wayne County Storm Water Ordinance Workgroup.

Ordinance Enforcement: Storm Water Management Ordinance (WCSWM #24)

Wayne County's Storm Water Management Ordinance (Enrolled Ordinance No. 2000-652) and Administrative Rules (Resolution No. 2000-653), adopted in October 2000 and revised in August 2003, requires that storm water runoff from regulated development projects must meet certain performance standards for flood protection and water resources protection. There is a companion document, Wayne County Standards Manual, to assist with compliance with the Storm Water Ordinance and Administrative Rules. The Wayne County Storm Water Work Group (consisting of representatives from DPS-Administration, DPS-Engineering, DPS-Permits, DPS-Parks, WCDPS-LRMD, Corporation Counsel, and chaired by the WCDPS-WQD) periodically publishes a document entitled "Program Clarifications, Errata, And Revisions", along with other miscellaneous guidance.

The Wayne County Storm Water Management regulations are implemented through the existing review and permit processes of the Permit Office of the Wayne County Department of Public Services, Engineering Division. Efforts to publicize these regulations are ongoing (see PEP#9) and include periodic mailings to local communities, developers, and other interested parties; posting of materials on the Wayne County website and workshops with developers, communities, and other interested parties. Copies of the ordinance, rules, and standards manual are available from the Permit Office (33809 Michigan Avenue, Wayne, MI), or from the Wayne County website <http://www.waynecounty.com>.

As described in WCSWM #17), the Permit Office reviewed 120 development projects in 2011 to ensure compliance with the Wayne County Storm Water Ordinance. The Field Engineering Office provides inspection for approved projects.

Flow Obstruction Prevention/Removal and Woody Debris Management (WCSWM #25)

WCDPS-FMD staff implemented woody debris management as part of all 2011 County Drain maintenance activities. Every maintenance project undertaken by FMD staff that involves management of woody debris is evaluated for the potential use of WDM 101 and WDM 201

techniques. Staff regularly uses banking of material as well as the clean and open method as an option in daily drain maintenance activities.

Stream Bank Stabilization Efforts – County Implemented (WCSWM #26)

Stream banks stabilization was included in the following projects whereby improvement of County Drains was conducted by petition from property owners in the drainage district:

- Winslow Drain Petition Project (1.12 miles). This project removed sediment from the drain channel, restoring the drain to its proper capacity. Multiple small culverts were replaced. All outlets were stabilized using rip rap. All bank restoration on this project utilized a native wildflower and grass seed mix.
- Wolfe Drain Petition Project (1.21 miles). This project removed sediment from the drain channel, restoring the drain to its proper capacity. Multiple small culverts were replaced. All outlets were stabilized using rip rap. All bank restoration on this project utilized a native wildflower and grass seed mix.

See also activities summarized above in WCPEP #11, WCSWM #2, WCSWM #24 and WCSWM #25.

Habitat Restoration (Protection) (WCSWM #27)

Grow Zone Initiative: As described in WCPEP #11 and WCSWM#2, DPS-Parks, Roads, Drains, and Water Quality Management Divisions continue efforts to expand grow zones in County park areas, along County Roadways, and along County Drains in support of storm water management and improvement of riparian corridors along river tributaries.

Detroit River International Wildlife Refuge: Wayne County Parks is an active partner in the Detroit River International Wildlife Refuge. The first phase of development of the Refuge Gateway site was completed in 2009 with the day-lighting of the Monguagon Drain as it bisects the Gateway site. This project collects storm water runoff and discharges it into a sedimentation basin. The water then flows into a wetland and ultimately into the Detroit River. This project was funded in part through a MDEQ Clean Michigan Initiative grant to Wayne County.

Wayne County Native Plant and Backyard Composting Demonstration Site: WQMD continues to maintain a native plant and backyard composting demonstration site at its Commerce Court office location in the City of Wayne. This site was created in 2003 as a staff training effort, a public education effort and as a habitat restoration effort. The site has also served as a monitoring location for the FOTR Rouge Education Project.

Collaboration with the Detroit District US Army Corps of Engineers (COE): Wayne County continues to collaborate with the US Army Corps of Engineers to improve riverine habitat along the paved channel section of the Rouge River, from Michigan Avenue to the confluence with the Detroit River. In June 2011, Wayne County reviewed and concurred with the “Draft Detailed Project Report and Environmental Assessment, Project Modification for Improvement of the Environment, Section 1135, Upper Rouge River, Wayne County, Michigan”. This report was forwarded from the Detroit District COE to their regional district for review and approval.

Nankin Mills Interpretive Center: Bluebird nesting boxes are being maintained in the Grow Zone areas. The (mostly native plant) butterfly garden was maintained on the Nankin Mills site. See other projects identified under WCPEP#31 above.

Crosswinds Marsh Wetland Interpretive Preserve:

- Crosswinds Naturalists continue to monitor, clean and repair 50 blue bird nesting boxes installed by an Eagle Scout.
- Crosswinds Naturalists continue to monitor, clean and repair 28 bat houses previously installed.
- Crosswinds Naturalists continue to implement our invasive species control program for autumn olive, phragmites, purple loosestrife and Eurasian water milfoil.
- Crosswinds Naturalists continue to implement our control program for Cottonwoods and other woody vegetation in the wet meadow and wildflower areas.
- Crosswinds conducts prescribed burns bi-annually on two threatened and endangered plant species sites.

River Day Participation (WCSWM #28)

See activities reported under WCPEP #14.

Assessment of County Implemented Flood Control Projects (WCSWM #29)

The Wayne County Drain Commissioner annually receives petitions for drain improvement projects. These projects can include drain improvements for flood control projects. Drain improvement petition projects include natural channel design and other storm water management measures where practical and where allowable under the Michigan Drain Code.

Other Activities And Projects

Other activities and projects of importance to watershed management, pollution prevention and habitat restoration are summarized below.

Active water-based recreation use within Wayne County Parks:

- 400 participants in Crosswinds Fishing Derby
- Approximately 3,865 people went fishing at Crosswinds Marsh in 2011.

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SECTION 5

WAYNE COUNTY WATERSHED PLANNING

SUMMARY OF ACTIVITIES

The following Watershed Planning activities were completed by Wayne County during the reporting period **January 1, 2011 – December 31, 2011** in compliance with the County's Certificate of Coverage MIG610040 under the MDEQ General Storm Water Discharge Permit MIG619000.

Activities in the Rouge River Watershed

As described below, Wayne County is a very active participant in watershed planning and management activities in the Rouge River watershed.

Alliance of Rouge Communities: In December 2005, the Rouge watershed communities and counties formed the *Alliance of Rouge Communities* (ARC) to guide the Rouge River restoration into the future as the federal grant funding diminishes. The ARC is a legal public entity under the Watershed Alliance Act, Public Act 517 of 2004, and succeeded the voluntary Rouge River Watershed Local Management Assembly which operated 2002-2005. The ARC operates under approved bylaws and has an annual budget on the order of \$600,000 per year, used to fund: 1) watershed-wide monitoring; 2) sampling data analyses and reports; 3) the coordination of public education and involvement activities, all of which are required by local units of government under the Michigan watershed-based storm water permit. In addition, the funds are used to provide technical guidance and facilitation for the ARC its committees and the seven Subwatershed Advisory Groups. Wayne County served as fiduciary for the ARC during 2006, 2007 and 2008 under inter-agency agreements. Fiduciary duties for 2009 were transferred to the ARC via an interagency agreement executed in December 2008. Since 2008, Wayne County is executing inter-agency agreements with the ARC on an annual basis to provide Rouge Project grant funding to the ARC.

Much of the work of the ARC is happening through the standing committees: Finance, Technical, Public Involvement/Education (PIE) and Organization. Wayne County was a founding member of the ARC, is an active participant on every committee, serves as co-chair of the Organization Committee, and provides many of the services being provided to ARC members. Wayne County participated in virtually every activity described in the *ARC Executive Director's 2011 Annual Report* which will soon be available at www.allianceofrougecommunities.com.

In addition, Wayne County continues to take a leadership role in revising and implementing the *Watershed Management Plan for the Rouge River*. Revisions to the draft Watershed Management Plan (available at <http://www.allianceofrougecommunities.com>) were submitted to the MDEQ in 2011.

Rouge RAP Advisory Council: Wayne County staff continued their active participation on the RRAC and any subcommittee that may be active. During 2011, Wayne County staff served as Vice Chair of the RRAC and actively participated in on-going efforts of the group. This activity

included coordinating and providing letters of support to numerous Great Lakes Restoration Initiative grants submitted by Rouge Watershed stakeholders. Wayne County also assisted RRAC, and the Alliance of Rouge Communities (ARC), in the development and implementation of two Public Advisory Council Support Grants for Michigan Areas of Concern (AOC) as described below.

Developing a Strategy to Delist Beneficial Use Impairments (BUIs) in the Rouge River AOC

This grant from the Great Lakes Commission to the ARC is to refine and prioritize the list of activities recommended in 2008 to remove the loss of fish and wildlife habitat BUIs. The Rouge River Watershed Management Plan and other sources were also utilized to identify and categorize projects to develop *The Rouge River Area of Concern Beneficial Use Impairments Delisting Strategy*. This report was submitted to MDEQ in 2011 and utilized to develop the Stage 2 Remedial Action Plan for the Rouge AOC. These documents will and are being used by USEPA, and other federal funding agencies, administering Great Lakes Restoration Initiative grant funding.

Developing a Coordinated Effort to Address Rouge AOC BUIs

This grant was awarded to the ARC from the Great Lakes Commission to improve and refine *The Rouge River Area of Concern Beneficial Use Impairments Delisting Strategy* and create a *Subwatershed Delisting Strategy Template for the Upper Rouge Subwatershed*. This document will be used to help identify and prioritize projects identified in the Rouge River Delisting Strategy at the subwatershed level and will serve as a template for the other Rouge Subwatershed for creating delisting strategies.

Rouge Subwatershed Advisory Group (SWAG) Participation: Wayne County participates in the meetings held by the six Rouge Subwatershed Advisory Groups (SWAGs) in the County.

Wayne County Rouge River National Wet Weather Demonstration Project. Wayne County continues to manage the Rouge River National Wet Weather Demonstration Project (Rouge Project). Since its inception in 1992, there has been continued and substantial progress toward restoring the Rouge River and preserving it for future generations. *The 2010 Rouge River Progress Report* was published in 2011 and is available from www.rougeriver.com. Many projects completed or underway with Rouge Project funding in 2010 focused on the variety of topics needed to restore the river: getting people involved, implementing flow and pollution controls, and improving access to recreational opportunities along the river. Watershed communities, businesses and residents are involved in ways big and small, and have formed innovative partnerships, such as the Alliance of Rouge Communities (ARC), to leverage ideas and resources to achieve common environmental goals. Water quality continues to improve, and the numbers and variety of wildlife living in the river and the watershed increases each year. During 2010, watershed stakeholders implemented a wide range of activities to manage storm water, control combined sewer overflows (CSOs) and sanitary sewer overflows (SSOs), address streambank erosion, improve habitat, and increase recreational opportunities throughout the watershed. During 2010, there were 23 Rouge River restoration projects funded under Round IX and X Rouge Project subgrants that undertaken by watershed communities and agencies. Four Rouge Project funded river restoration projects were completed, with approximate total project costs of \$468,000. All projects met one or more of the goals of the Rouge River Watershed

Management Plan and also met the requirements of a community's NPDES stormwater permit or wastewater system NPDES permit. The variety of projects undertaken in 2010 reflects the varying needs of communities and actions taken to address Rouge River pollution at the source. Watershed-wide activities implemented by Wayne County, the Rouge Program Office, and the Alliance of Rouge Communities during 2010 to assist the overall effort to restore and protect the Rouge River included: water quality and ecosystem health monitoring and data analysis, illicit discharge investigations, numerous public education and involvement activities, ongoing management of a geographic information and data management system for the Rouge watershed, storm water management initiatives such as continued implementation of Green Infrastructure (Grow Zones) throughout the watershed, and overall management of the grants and coordination of efforts conducted by various stakeholders.

Activities in Wayne County Downriver Watersheds

The Inter-Municipality Committees (IMCs) for the Ecorse Creek Watershed, Combined Downriver Watershed, and Lower Huron River Watershed successfully operated for over two years under the Memoranda of Agreement establishing the Committees. The Inter-Municipality Committees Act, PA 1957, No. 200 (MCL 123.631, et seq.) under which the existing IMCs were formed does not provide for implementing some of the required activities under the watershed management plans. There was broad interest in forming a permanent watershed organization under the new Watershed Alliance legislation, and Wayne County facilitated a subcommittee to draft bylaws. In October 2006, the 14th eligible entity approved the bylaws, officially forming the Alliance of Downriver Watersheds (ADW). The first meeting of the new ADW was held on January 18, 2008. In 2008, Huron Township and City of Inkster joined bringing the total membership up to 26 of the 26 potential ADW member communities.

Wayne County was a founding member of the ADW, is an active participant on every committee, has served as ADW fiduciary since its inception, and provides many of the services being provided to the ADW. Wayne County and ADW activities are summarized in the report, *Alliance of Downriver Watersheds - 2011 Summary of Activities/Accomplishments* which is available at www.allianceofdownriverwatersheds.com.

In addition, Wayne County continues to take a leadership role in revising and implementing the Watershed Management Plans for the three ADW Watersheds: Ecorse Creek, Combined Downriver, and Lower Huron River. In 2010, the ADW members began the process of revising their three watershed management plans under a Nonpoint Source grant from the MDEQ. A significant effort took place in 2011 to meet with individual ADW members and the ADW as a whole to update the Master Plans, and draft revised plans were submitted to the MDEQ in April 2011. Work is underway to address DEQ comments on these plans, which are available at <http://www.allianceofdownriverwatersheds.com>.

Activities in Lake St. Clair (Direct Drainage) Watershed

Wayne County actively participates in the Lake St. Clair Watershed Advisory Group facilitated by Macomb County Public Works Office. The watershed management plan was developed to meet Clean Michigan Initiative and 319 requirements and submitted to MDEQ on November 1, 2006 and approved in June 2008. In 2010, Wayne County executed the Operating Agreement for the Lake Saint Clair Watershed group, formally committing County participation in the

group. Throughout 2011, WQMD staff worked with Macomb County, the consultant and the other watershed partners to initiate updating of the *Lake St. Clair Direct Drainage Subwatershed Plan*, available online from <http://www.crwc.org/watershed/subwatersheds/lakestclair>. The first step was to develop an online survey tool.

SECTION 6 LIST OF ATTACHMENTS

Wayne County Annual Report: January 1, 2011 – December 31, 2011

SECTION 1: DETERMINATION OF EFFECTIVENESS

- The *2010 Rouge River Ecosystem Monitoring and Assessment Report*, along with reports from previous years, is available online at: http://www.allianceofrougecommunities.com/PDFs/technical/2010_RREMAR_110811.pdf
- The Rouge Watershed Monitoring Database is available online at: <http://online2.cdm.com/detroit/rougeriver/query/query.cfm>
- Rouge River Macroinvertebrate Data Trend Graphics
- Ecorse Creek, Combined Downriver and Lower Huron River Macroinvertebrate Data Trend Graphics
- Alliance of Downriver Watersheds 2010 Monitoring Report and 2011 Monitoring Report is available online at: http://www.allianceofdownriverwatersheds.com/adw_info.htm

SECTION 2: ILLICIT DISCHARGE ELIMINATION PLAN

- Table 2.1: Facilities with Confirmed Corrections (2011)
- Table 2.2: Facilities with Outstanding Illicit Discharges (2011)
- Alliance of Rouge Communities (ARC) Outfall Map
- Updated Wayne County Storm Water System Map

SECTION 3: PUBLIC EDUCATION PLAN

- The *Resource Recovery Guide* as well as additional information regarding Wayne County's Household Hazardous Waste Collection events can be found at http://www.waynecounty.com/doe_lrm_prog_swplanning.htm
- WQMD pollution prevention public education materials can be found at http://www.waynecounty.com/doe_wqm_res_pp.htm
- Information on Wayne County's Green Schools Program is available online at http://www.waynecounty.com/doe_wqm_res_greenschools.htm
- Information on the numerous public education and involvement activities of Friends of the Rouge activities completed with Wayne County's active support is available at <http://www.therouge.org/>
- Southeast Michigan Partners for Clean Water, *Community Annual Report Information, October 2010 - September 2011*.

SECTION 4: ADDITIONAL STORM WATER MANAGEMENT ACTIVITIES

- Wayne County Storm Water Management Program materials are available online at: http://www.waynecounty.com/doe_wqm_res_stormwm.htm

SECTION 5: WAYNE COUNTY WATERSHED PLANNING

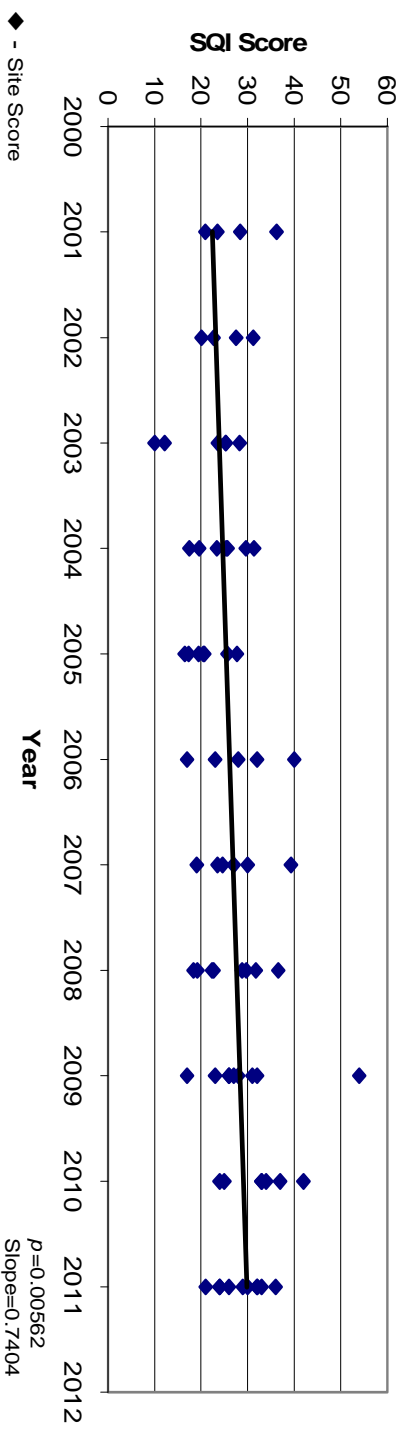
- Alliance of Rouge Communities *Executive Director 2011 Annual Report* will be available online at: <http://www.allianceofrougecommunities.com>. The draft *Rouge River Watershed Management Plan* is also available at this website
- The *2010 Rouge River Progress Report*, along with reports from previous years, is available online at: www.rougeriver.com.
- *Alliance of Downriver Watersheds - 2011 Summary of Activities/Accomplishments* available online at: <http://www.allianceofdownriverwatersheds.com>. The draft revised *Watershed Management Plans* for Ecorse Creek, Combined Downriver and Lower Huron River are also available at this website.
- *Lake St. Clair Direct Drainage Subwatershed Plan* is available online from <http://www.crwcc.org/watershed/subwatersheds/lakestclair>

Additional materials and documentation can be made available to substantiate statements made in this report. Contact Mr. Noel Mullett at (734) 326-4486 or email him at nmullett@co.wayne.mi.us with any questions or inquires regarding the content of this report.

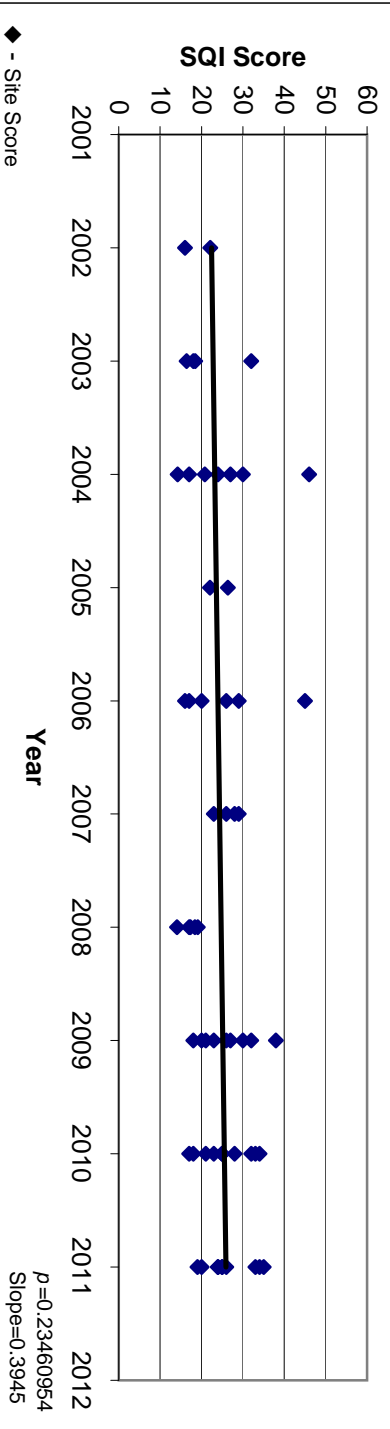
SECTION 1: DETERMINATION OF EFFECTIVENESS

- Rouge River Macroinvertebrate Data Trends
- Alliance of Downriver Watersheds Macroinvertebrate Data Trends

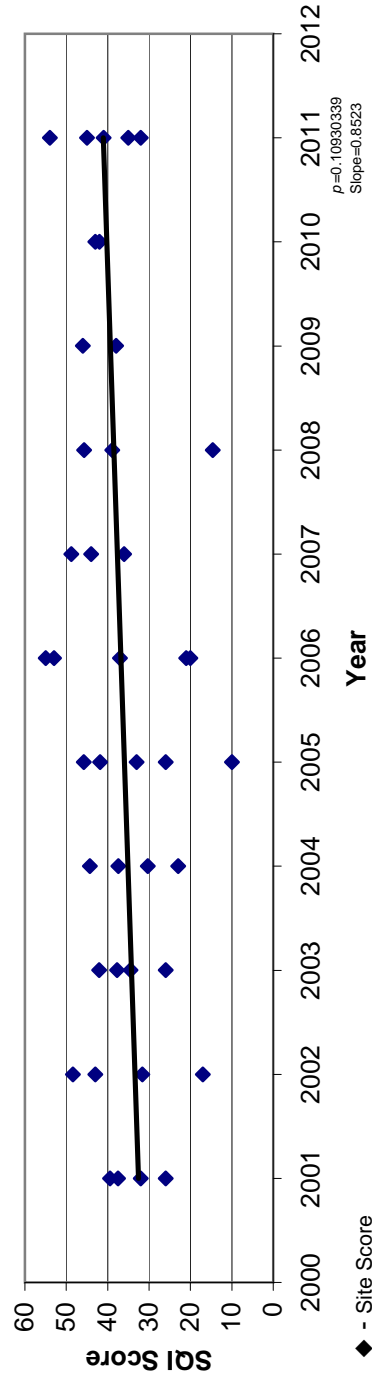
Main 1-2 Storm Water Management Area
Macroinvertebrate Data Trend
Spring 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)



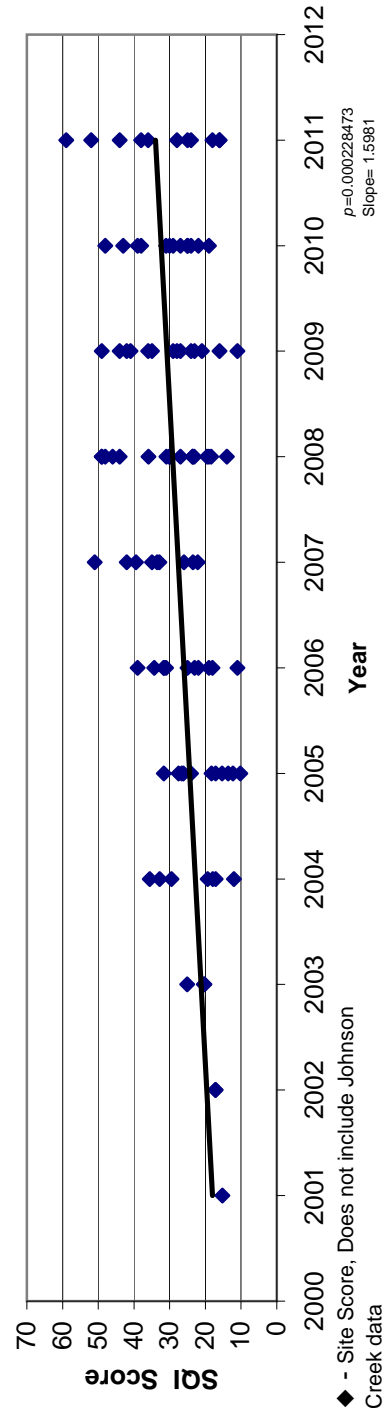
Upper Storm Water Management Area
Macroinvertebrate Data Trend
Spring 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)

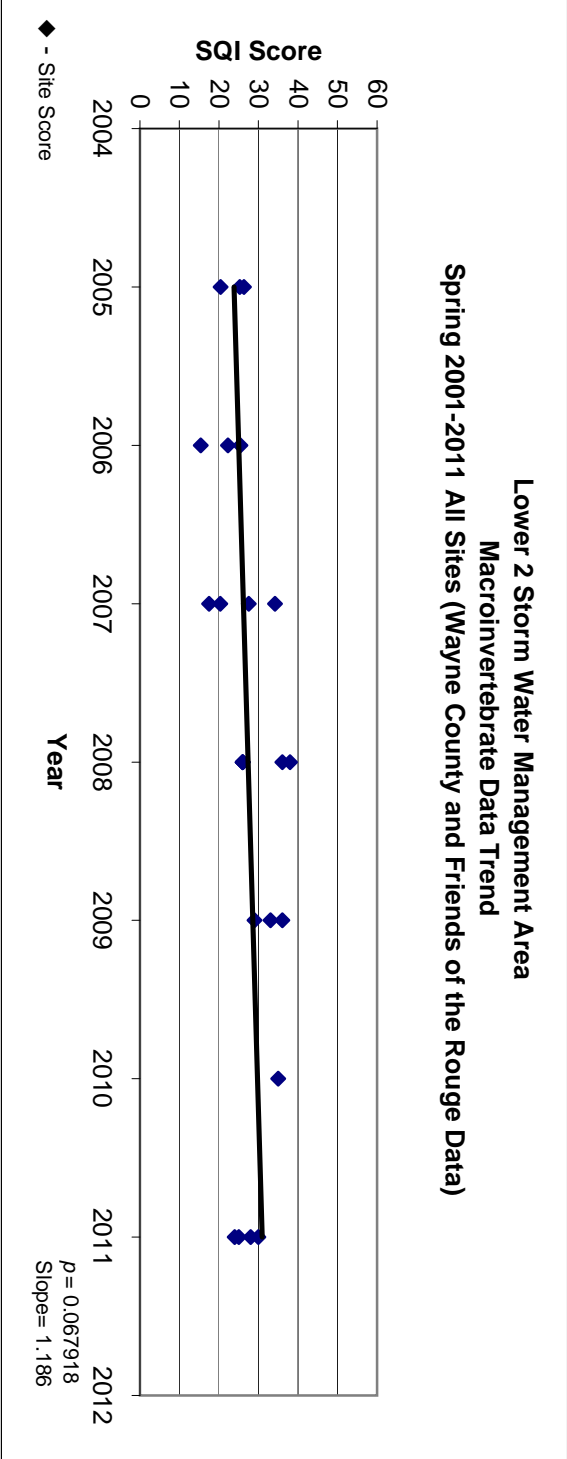
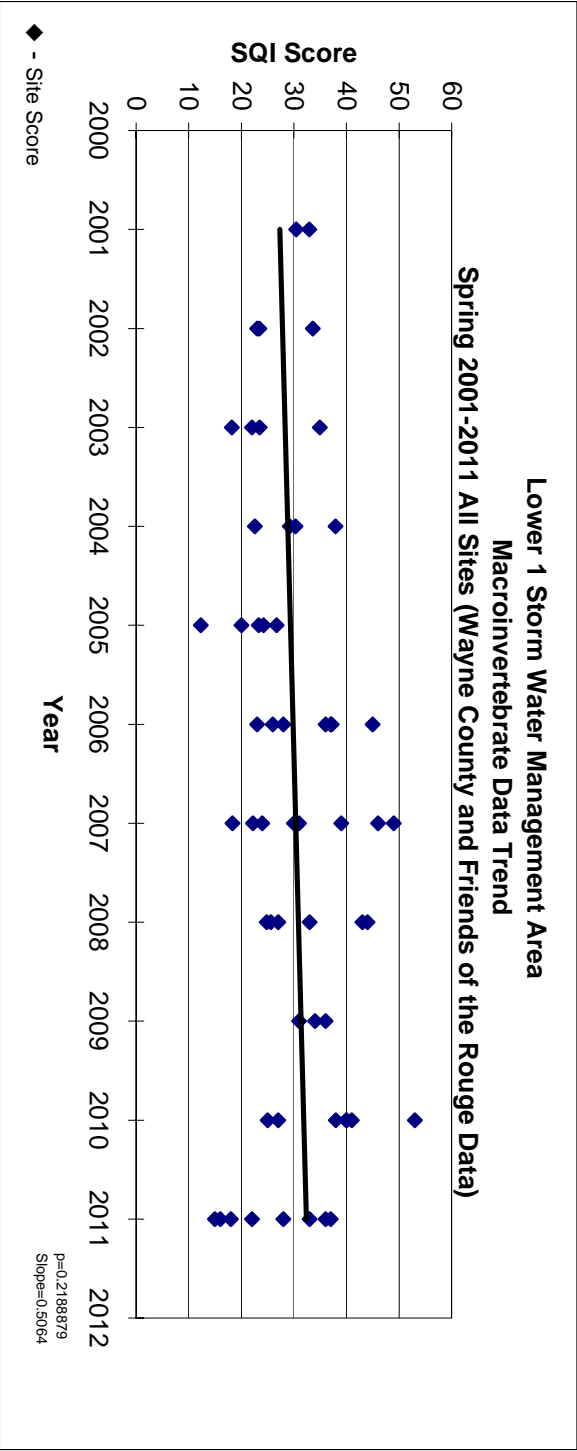


Johnson Creek Middle 1 Storm Water Management Area
Macroinvertebrate Data Trend
Spring 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)

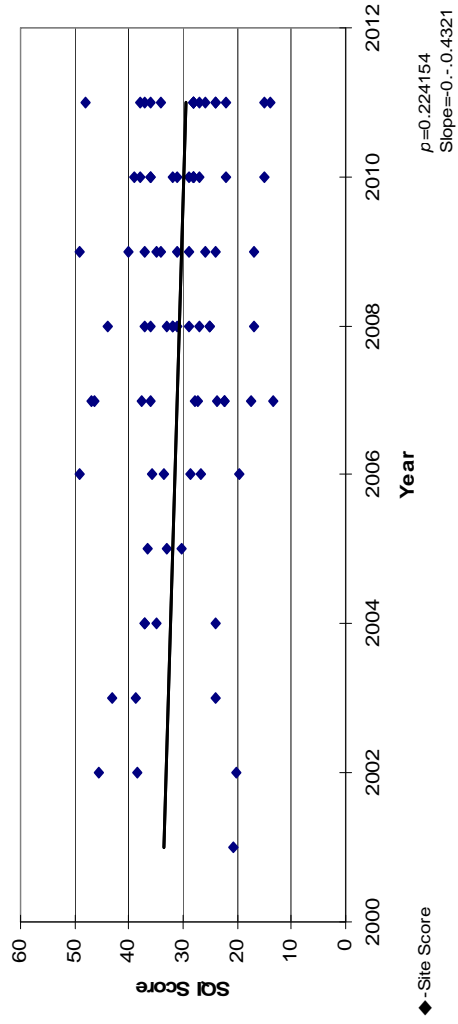


Middle 1 Storm Water Management Area
Macroinvertebrate Data Trend
Spring 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)

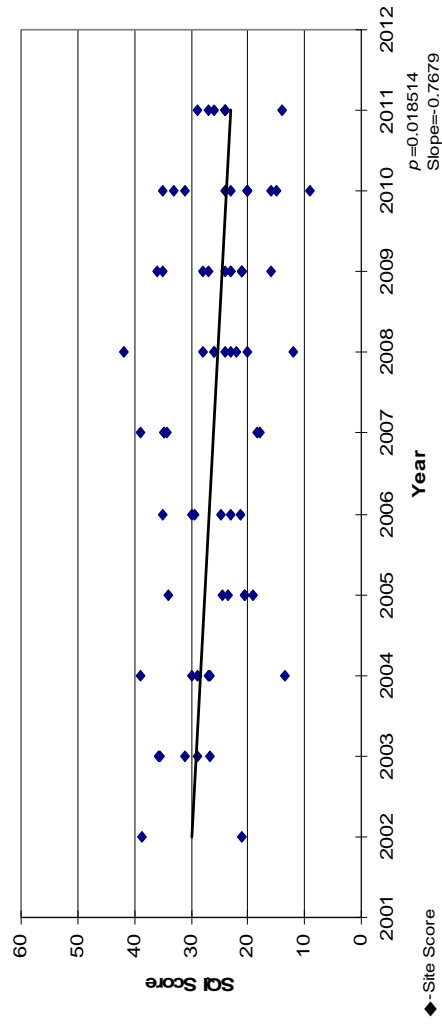




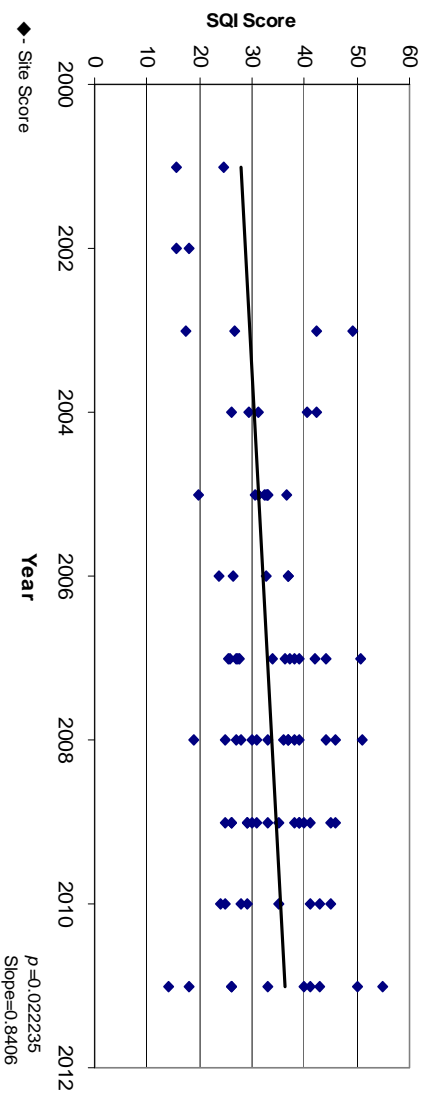
Rouge Main 1/2 Storm Water Management Area
Macroinvertebrate Trend
Fall 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)



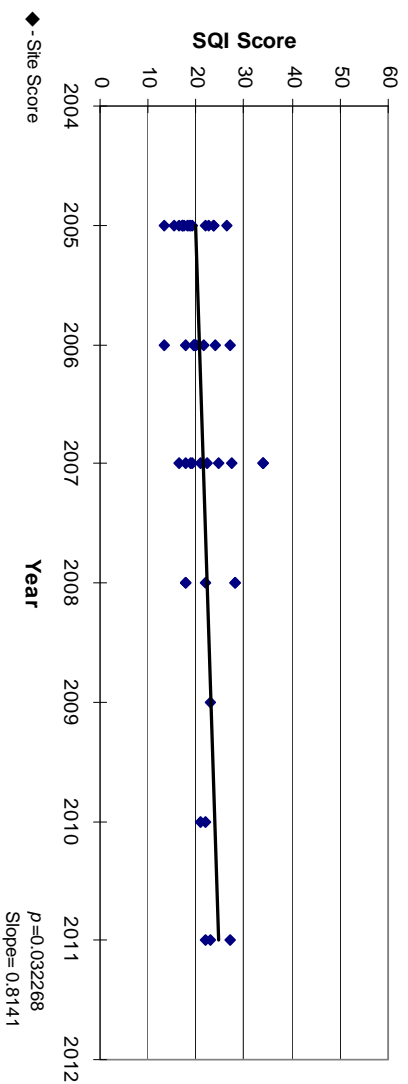
Rouge Upper Stormwater Management Area
Macroinvertebrate Data Trend
Fall 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)



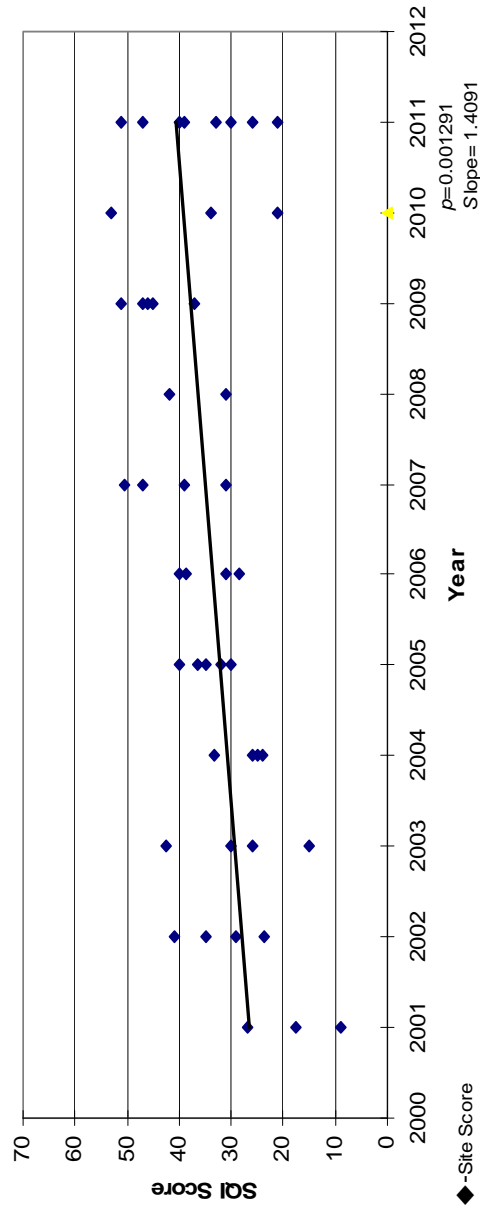
Rouge Middle 1 Stormwater Management Area
Macroinvertebrate Trend Fall 2001-2011
All Sites
(Wayne County and Friends of the Rouge Data)



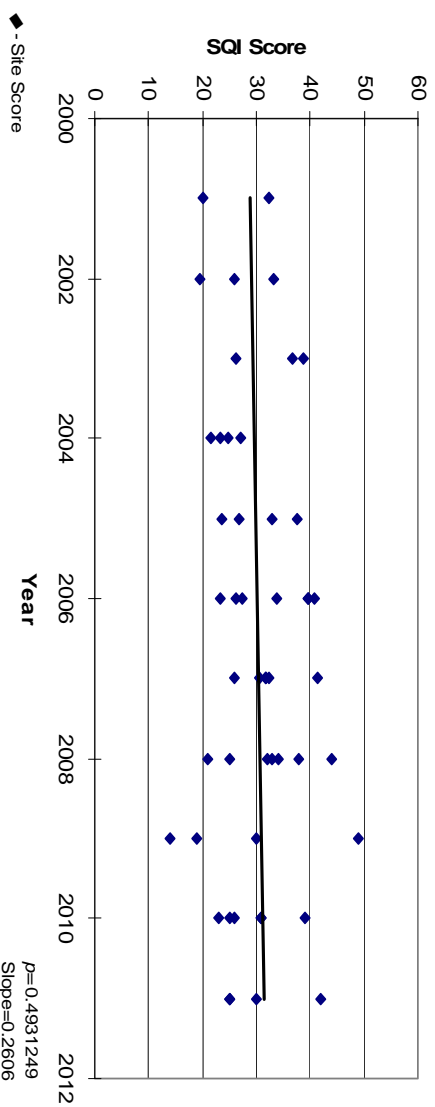
Rouge Middle 3 Storm Water Management Area
Macroinvertebrate Data Trend
Fall 2001-2011 All sites (Wayne County and Friends of the Rouge Data)



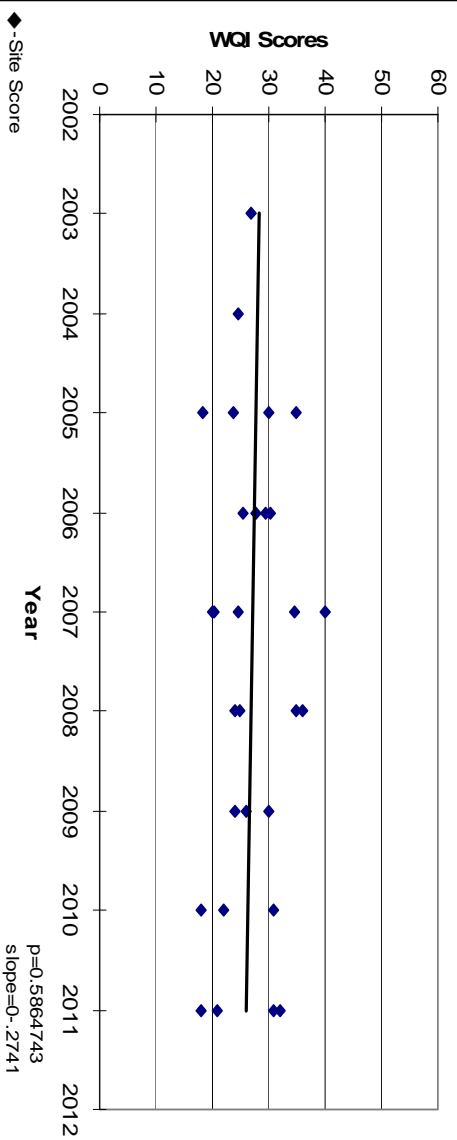
Johnson Creek
Macroinvertebrate Data Trend
Fall 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)

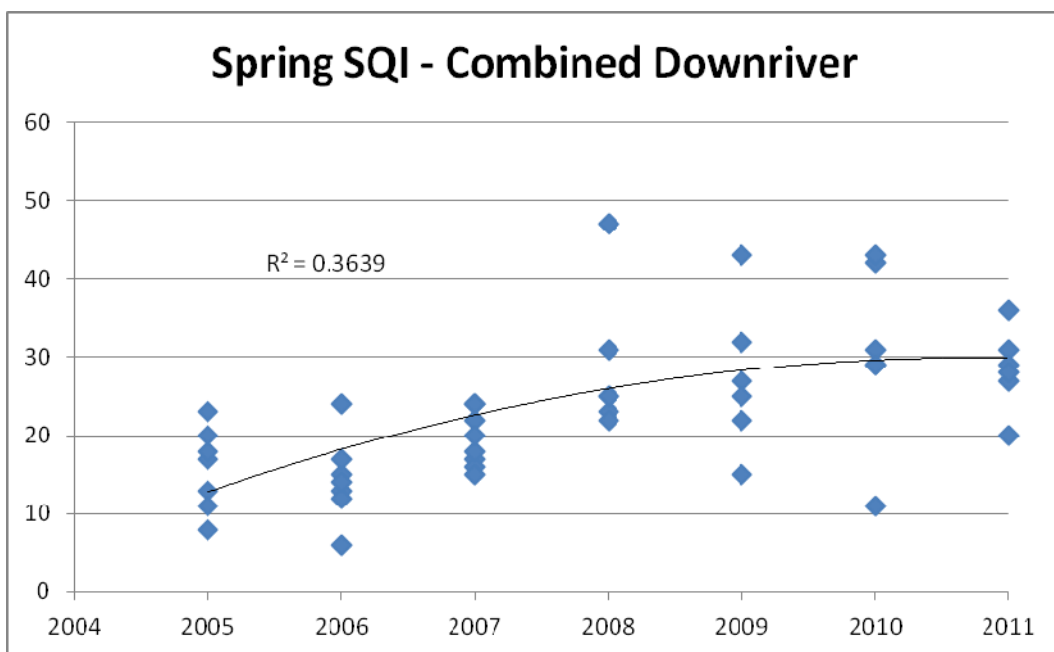
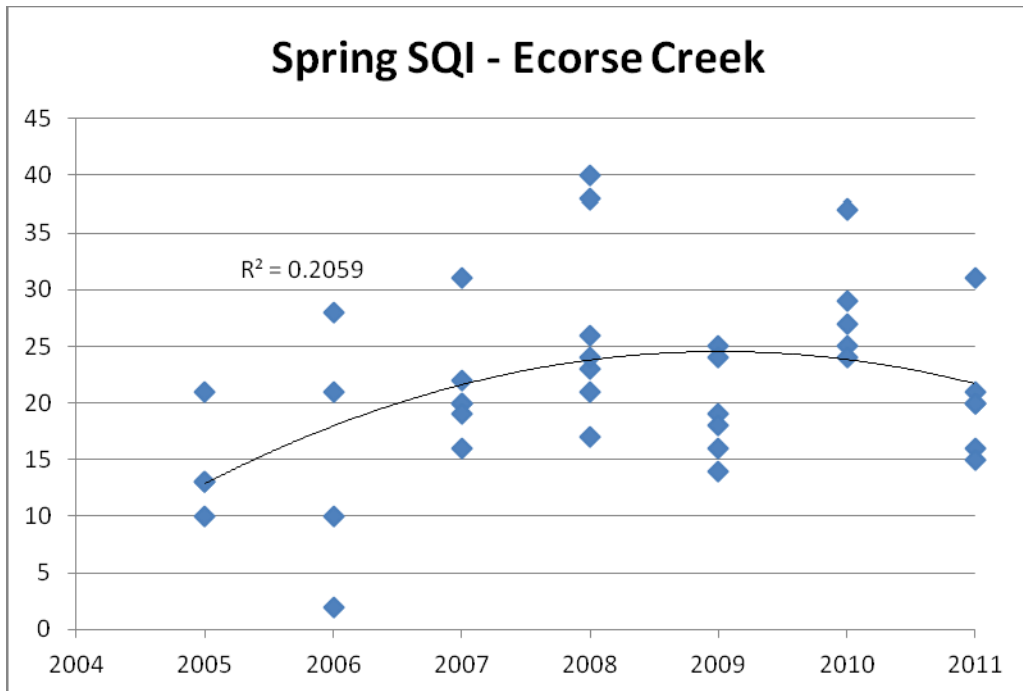


**Rouge Lower 1 Stormwater Management Area
Macroinvertebrate Data Trend
Fall 2001-2011 All Sites (Wayne County and Friends of the Rouge Data)**

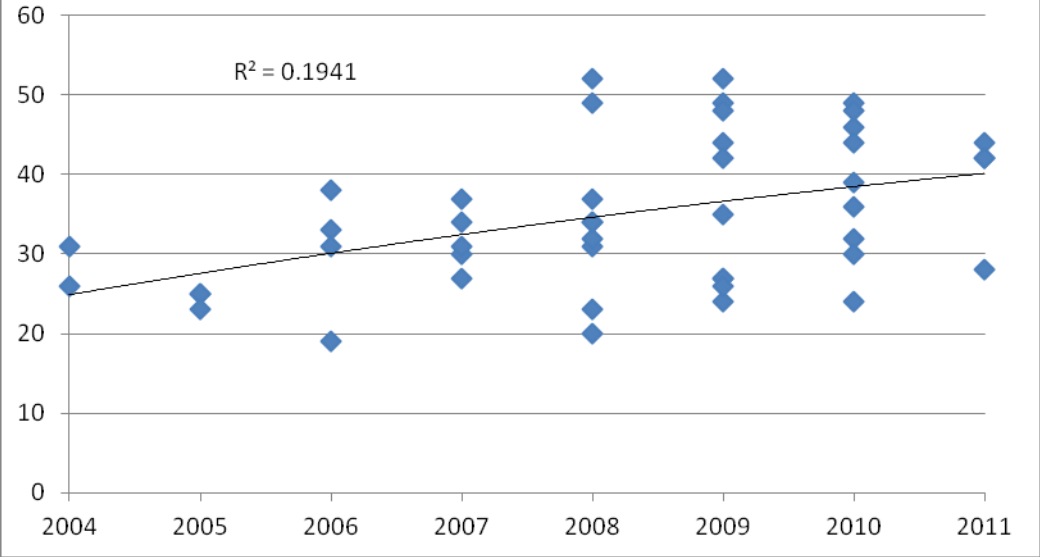


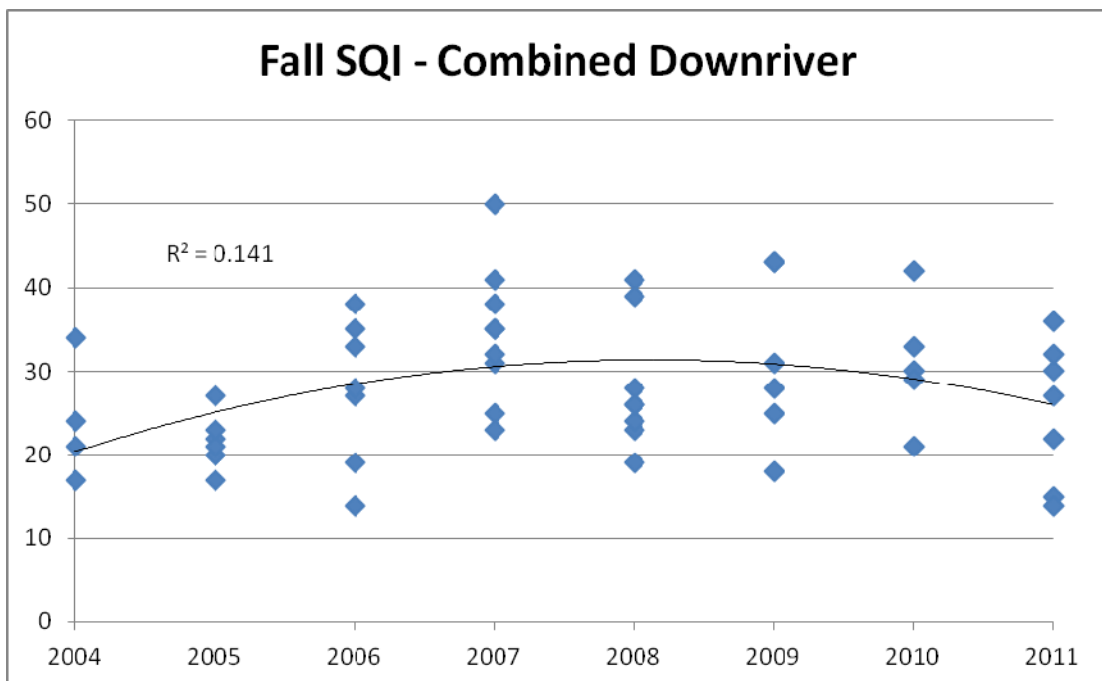
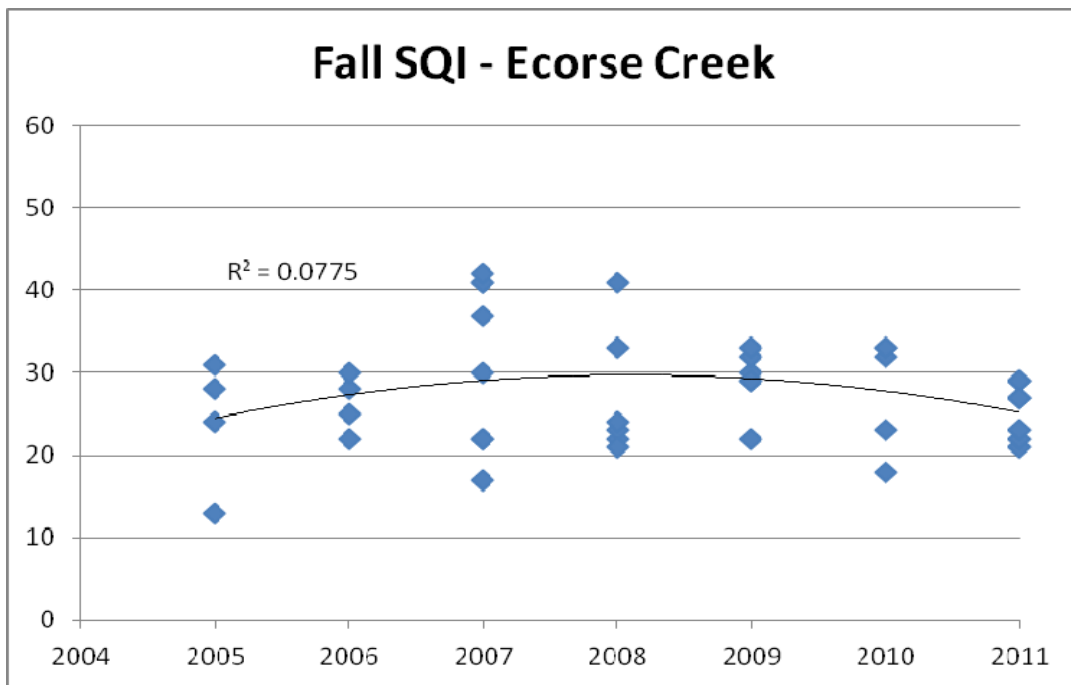
**Rouge Lower 2 Stormwater Management Area Macroinvertebrate Data
Trend Fall 2001-2011 All Sites
(Wayne County and Friends of the Rouge Data)**

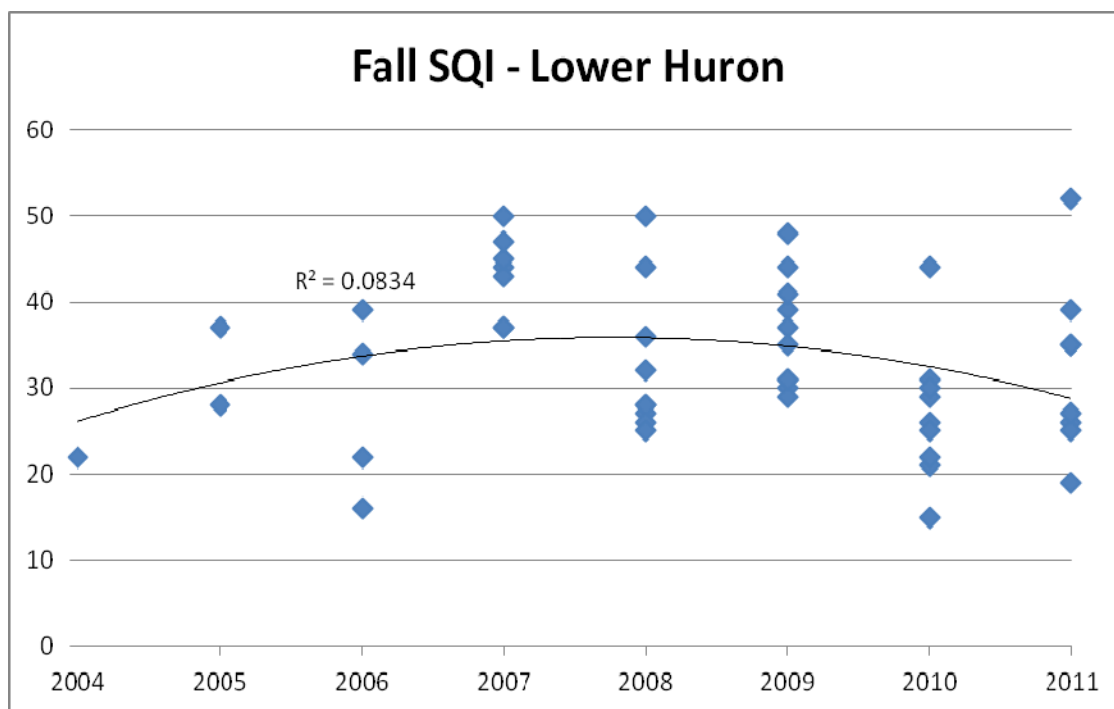




Spring SQI - Lower Huron







SECTION 2: ILLICIT DISCHARGE ELIMINATION PLAN

- Table 2.1: Facilities with Confirmed Corrections (2011)
- Table 2.2: Facilities with Outstanding Illicit Discharges (2011)
- Alliance of Rouge Communities (ARC) Outfall Map
- Updated Wayne County Storm Water System Map

Table 2.1
Facilities with Illicit Connections/Discharges Resolved
2011

List generated 3/12/12

INSPECTION DATE	FACILITY NAME	FACILITY ADDRESS	CITY	IC #	IC TYPE	ID #	ID TYPE	EC #	EC TYPE	WATERSHED	STATUS
8/23/07	VINYLIFE HOSE CO	28565 HILDEBRANDT RD	ROMULUS	4	3 CB 1 SUMP					COMBINED DOWNRIVER	CONFIRMED CORRECTED 2/15/11
8/10/10	CALDER DAIRY	1020 SOUTHFIELD RD	LINCOLN PARK			1	MILK TANKER DISCHARGE			ECORSE CREEK	CONFIRMED CORRECTED 2/14/11
11/16/10	BLESSED HOPE CHURCH	1706 FORT ST	LINCOLN PARK			1	MOP BUCKET DUMPING			ECORSE CREEK	CONFIRMED CORRECTED 2/14/11
1/30/04	CLIFFORD PRODUCE (FORMERLY STONE SYSTEMS OF DETROIT)	6726 METROPLEX DR	ROMULUS	7	MISC IC	1	RECLAMATION UNIT	1	MATERIAL STORAGE/HANDLING	ECORSE CREEK	CONFIRMED CORRECTED 12/15/11
9/18/09	BUCA DI BEPPO	38888 SIX MILE RD	LIVONIA			1	OUTDOOR MAT WASHING	1	GREASE STORAGE AREA	ROUGE	CONFIRMED CORRECTED 2/15/11
8/2/02	DYNATEST	5950 EXECUTIVE DR	WESTLAND	1	CB					ROUGE	CONFIRMED CORRECTED 2/15/11
8/2/02	DYNATEST	5950 EXECUTIVE DR	WESTLAND	2	1CB/1 SUMP					ROUGE	CB CONFIRMED CORRECTED 2/15/11; SUMP FOUND DURING FOLLOW UP VISIT CORRECTED 12/13/11

Abbreviations:

IC: Illicit Connection

ID: Illicit Discharge

EC: Environmental Concern

TD: Trench drain CB: Catch basin

FD: Floor drain

DF: Drinking fountain

Table 2.2
Facilities with Outstanding Illicit Discharges
2011

List generated 3/12/12

INSPECTION DATE	FACILITY NAME	FACILITY ADDRESS	CITY	IC #	IC TYPE	ID #	ID TYPE	EC #	EC TYPE	WATERSHED	STATUS	NOTES
5/17/10	QUANTA	15801 HURON ST	TAYLOR					3	MATERIAL STORAGE/HANDLING	COMBINED DOWNRIVER	PENDING	
4/5/10	K&S	20401 GLADWIN RD	TAYLOR					2	MATERIAL STORAGE/HANDLING/ DISCHARGE PIPE*	COMBINED DOWNRIVER		MDNRE ENFORCEMENT
4/1/03	TAYLOR FIRE STATION #1	11101 PINE ST	TAYLOR	4	DF,CB,TD, FD					ECORSE CREEK	PENDING	FOLLOW UP 2/27/12 INCOMPLETE
4/20/11	ROCKY TOWN PARTY SHOPPE	4236 DIX RD	LINCOLN PARK			1	MOP BUCKET DUMPING			ECORSE CREEK	PENDING	
10/5/10	MOOSE LODGE	1600 FORT ST	LINCOLN PARK			1	WASHING OUTSIDE			ECORSE CREEK	PENDING	FOLLOW UP 2/14/11
8/25/10	CARR ELEMENTARY	3901 FERRIS ST	LINCOLN PARK	3	FD					ECORSE CREEK	PENDING	FOLLOW UP 2/9/11
8/25/10	MEIJER	3710 DIX RD	LINCOLN PARK			1	TRASH COMPACTOR			ECORSE CREEK	PENDING	FOLLOW UP 2/9/2011
08/18/10	KEPPEN ELEMENTARY	661 MILL ST	LINCOLN PARK			1	MOP BUCKET			ECORSE CREEK	PENDING	FOLLOW UP 2/9/11
08/13/10	JAMES FOOTE ELEMENTARY SCHOOL	3250 ABBOTT ST	LINCOLN PARK	2	FD					ECORSE CREEK	PENDING	FACILITY INSPECTION INCOMPLETE
8/6/10	LINCOLN PARK HIGH SCHOOL STADIUM GARAGE	1701 CHAMPAIGN ST	LINCOLN PARK	3	2 FD/1 SINK					ECORSE CREEK	PENDING	CONFIRMED BUILDING DEMOLISHED 2/27/12
07/20/10	LINCOLN PARK HIGH SCHOOL	1701 CHAMPAIGN ST	LINCOLN PARK	23	21FD/2 SINKS					ECORSE CREEK	PENDING	FOLLOW UP 2/9/11

Abbreviations:

IC: Illicit Connection
ID: Illicit Discharge
EC: Environmental Concern
TD: Trench drain CB: Catch basin
FD: Floor drain
DF: Drinking fountain

Table 2.2
Facilities with Outstanding Illicit Discharges
2011

INSPECTION DATE	FACILITY NAME	FACILITY ADDRESS	CITY	IC #	IC TYPE	ID #	ID TYPE	EC #	EC TYPE	WATERSHED	STATUS	NOTES
12/08/10	SHEEL'S CONCRETE	27710 TELEGRAPH RD	FLAT ROCK					1	CONCRETE MIXING AREA	LOWER HURON RIVER	PENDING	CONFIRMED CORRECTED 1/24/12
12/08/10	FLAT ROCK DPW	28103 ARSENAL RD	FLAT ROCK					1	SALT STORAGE AREA	LOWER HURON RIVER	PENDING	CONFIRMED CORRECTED 1/24/12
08/18/11	LOAF & POUND	34815 FORD RD	WESTLAND			1	OUTDOOR MAT WASHING			ROUGE	PENDING	CONFIRMED CORRECTED 1/30/12
08/08/11	DOS HERMANOS	34707 FORD RD	WESTLAND			1	MOP BUCKET DUMPING			ROUGE	PENDING	CONFIRMED CORRECTED 1/4/12
7/28/11	EL RINCON MEXICAN FOOD	5983 WAYNE RD	WESTLAND			1	MOP BUCKET DUMPING			ROUGE	PENDING	CONFIRMED CORRECTED 2/20/12
7/25/11	J.J. NAILS	5939 WAYNE RD	WESTLAND			1	MOP BUCKET DUMPING			ROUGE	PENDING	CONFIRMED CORRECTED 2/21/12
7/14/11	RANI HAIR SALON	34775 FORD RD	WESTLAND			1	MOP BUCKET DUMPING			ROUGE	PENDING	
5/27/11	MICHIGAN TRUCK PARTS	38658 FORD RD	WESTLAND			1	PARTS WASHING			ROUGE	PENDING	
10/7/02	ADVANCED COMMUNICATIONS	6034 EXECUTIVE DR	WESTLAND	1	CB					ROUGE	PENDING	FOLLOW UP 12/13/11.
7/26/05	ADVANCE MATERIAL PROCESS (NOW AMERIGAS)	3850 HOWE RD	WAYNE			2	COOLING WATER; OIL IN CB	4	MATERIAL STORAGE/HANDLING	ROUGE	VACANT	CONFIRMED VACANT 12/20/11. REFERRED TO MDNRE-AIR QUALITY FUGITIVE DUST
11/12/01	WEIS /ROBERT PARTITIONS/FORD WAREHOUSE	3737 VENOY RD	WAYNE	2	SUMP DRAINS					ROUGE	PENDING	CONFIRMED CORRECTION 1/25/12.
11/28/11	SOUTHFIELD PARKS MAINTENANCE YARD	26000 EVERGREEN RD	SOUTHFIELD			1	EQUIPMENT WASHING			ROUGE	PENDING	

Abbreviations:
IC: Illicit Connection
ID: Illicit Discharge
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TD: Trench drain CB: Catch basin
FD: Floor drain
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Table 2.2
Facilities with Outstanding Illicit Discharges
2011

List generated 3/12/12

INSPECTION DATE	FACILITY NAME	FACILITY ADDRESS	CITY	IC #	IC TYPE	ID #	ID TYPE	EC #	EC TYPE	WATERSHED	STATUS	NOTES
9/16/11	BEECH WOOD GOLF COURSE MAINT. SHOP	22200 BEECH WOOD RD	SOUTHFIELD	1	FD					ROUGE	PENDING	
3/26/91	PRO COLLISION	12300 INKSTER RD	REDFORD	13	MISC IC					ROUGE	PENDING	SITE VISIT 12/9/11. CONSULTATION
10/26/00	DIAMOND AUTO SALES	1250 S. MAIN ST	PLYMOUTH	1	CB					ROUGE	PENDING	FOLLOW UP 4/15/2010
5/7/04	MCDONALD FORD	560 S. MAIN ST	NORTHVILLE	5	3 FD, 1 SINK, 1 WASHING MACHINE					ROUGE	VACANT	CONFIRMED VACANT 12/8/11
2/1/04	NORTHVILLE DOWNS ** 38 of 66 ILICIT CONNECTIONS CORRECTED	301 S. CENTER ST	NORTHVILLE	66	49 BARN FD; 1DF; 16 FD	11	HORSE WASHING, MANURE HANDLING			ROUGE	PENDING	JOINT COMPLIANCE EFFORT WITH MDNRE ONGOING
11/20/09	TECHNICOLOR	36121 SCHOOLCRAFT RD	LIVONIA			1	FLOOR WASH MACHINE DUMPING			ROUGE	PENDING	FOLLOW UP 2/22/11
8/26/09	XPEDX	28401 SCHOOLCRAFT RD	LIVONIA	3	CB	1	FLOOR WASH MACHINE DUMPING			ROUGE	PENDING	FOLLOW UP 2/22/11
10/5/05	PRO RADIUS	32013 PLYMOUTH RD	LIVONIA			1	MOP BUCKET DUMPING			ROUGE	VACANT	CONFIRMED VACANT 2/15/11
12/7/11	FLIGHT CLUB	29709 MICHIGAN AVE	INKSTER			1	MOP BUCKET DUMPING			ROUGE	PENDING	
03/03/08	DEARBORN HEIGHTS ICE ARENA	2100 KINLOCH RD	DEARBORN HEIGHTS	2	CB					ROUGE	PENDING	FOLLOW UP 12/15/11
9/23/11	CANTON FELLOWS CREEK GOLF COURSE MAINT SHOP	2963 LOTZ RD	CANTON			1	GOLF CART WASHING			ROUGE	PENDING	
9/21/11	CANTON PHEASANT RUN GOLF COURSE	46500 SUMMIT PARKWAY	CANTON			1	GOLF CART WASHING			ROUGE	PENDING	
9/21/11	CANTON PARKS MAINT	HERITAGE PARK RD	CANTON			1	EQUIPMENT WASHING			ROUGE	PENDING	

Abbreviations:

IC: Illicit Connection
ID: Illicit Discharge
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Table 2.2
Facilities with Outstanding Illicit Discharges
2011

INSPECTION DATE	FACILITY NAME	FACILITY ADDRESS	CITY	IC #	IC TYPE	ID #	ID TYPE	EC #	EC TYPE	WATERSHED	STATUS	NOTES
6/14/04	DE-STA-CO	50625 CHERRY HILL RD	CANTON			1	DIRECT DISCHARGE OSDS			ROUGE	VACANT (A)	CONFIRMED VACANT 2/23/12
4/30/96	BILL'S AUTO SERVICE	35522 FORD RD	CANTON	2	TD					ROUGE	PENDING	CONFIRMED CORRECTED 1/4/12
	A) REFERRED TO MDNRE GROUNDWATER IN 2007. SANITARY SEWER AND WATER REQUIRED FOR REDEVELOPMENT	* FACILITY HAS AN INTERIOR PVC PIPE EXITING THE BUILDING. IT IS NOT CONNECTED TO ANY FIXTURE. FACILITY REQUESTED TO REMOVE THE PIPE AND SEAL WALL.										

Abbreviations:
 IC: Illicit Connection
 ID: Illicit Discharge
 EC: Environmental Concern
 TD: Trench drain CB: Catch basin
 FD: Floor drain
 DF: Drinking fountain

SECTION 3: PUBLIC EDUCATION PLAN

- Southeast Michigan Partners for Clean Water, *Community Annual Report Information, October 2010 - September 2011.*

SEMCOG Information

Southeast Michigan Partners for Clean Water Community Annual Report Information October 2010-August 2011

The purpose of this report is to provide communities with updated information related to SEMCOG stormwater management activities. This information may help communities meet the federal Phase II Stormwater Regulations reporting requirements.

Ours to Protect Campaign

The goal of the “Our Water. Our Future. Ours to Protect” water quality public education campaign is to provide Southeast Michigan residents with simple actions they can take to help protect our water resources. The campaign was launched in April 2004 and continues to be used by local communities to educate their residents and send one consistent message on water quality protection throughout Southeast Michigan.

Business and Government Outreach

In order to target our key messages to particular audiences, we work with businesses and local governments to reach the general public. Businesses and local governments are listed in the outreach table.

Large events are used to educate residents in a public venue. Some of the events were more regional. Since these events reach such a large number of attendees, take credit for these events even if they are not in your specific community. Key annual events that we attended are listed in the event table.

Appendix One

Event	Organization	City	Date
Automotive Education Day	Auto Show	Detroit	1/11
Michigan Home and Garden Expo		Pontiac	3/11
Detroit Zoo Earth Day	Detroit Zoo	Royal Oak	4/11
Ann Arbor Earth Day	City of Ann Arbor	Ann Arbor	5/11
Green Street Fair	City of Plymouth	Plymouth	5/11
Farmington Green Expo	City of Farmington	Farmington	6/11
Detroit River Days		Detroit	6/11
Founder’s Day Festival	City of Farmington Hills	Farmington Hills	7/11
St. Clair Shores Green Fair	City of St.Clair Shores	St. Clair Shores	8/11

Materials

“Seven Simple Steps to Clean Water” materials (including tip cards and posters) are a great way to get the clean water message out to Southeast Michigan. Some of the additional ways we reached out to local communities with our materials this year was by presenting the program at televised city council meetings and during one-on-one meetings with local elected officials and staff describing the program and leaving them with tip cards for distribution.

- Approximately 20,000 items were distributed.

Appendix Two

City	Organization/Business	Material
Auburn Hills	Oakland Community College	Tip cards
Detroit	Butzel Long	Tip cards
Detroit	Wayne State University	Tip cards
Farmington Hills	Duo Guard	Tip cards
Farmington Hills	Oakland Community College	Tip cards
Ferndale	City of Ferndale	Tip cards
Flat Rock	City of Flat Rock	Tip cards
Gibraltar	City of Gibraltar	Tip cards
Highland Lakes	Oakland Community College	Tip cards
Highland Park	Budco	Tip cards
Novi	City of Novi	Tip cards
Plymouth Township	Plymouth Township	Tip cards
Southfield	Oakland Community College	Tip cards
Southgate	City of Southgate	Tip cards
Taylor	City of Taylor	Tip cards
Trenton	City of Trenton	Tip cards
Troy	Microfocus	Tip cards
Troy	Delphi	Tip cards

Social Media

SEMCOG maintains and updates Ours to Protect Facebook and Twitter pages. The Facebook page has 28 “likes” and the Twitter page has 55 people “following” it.

Web site

The Ours to Protect Web site (<http://www.semcog.org/OursToProtect.aspx>) includes actions the public can take to protect our water resources. The Web site currently receives approximately 800 hits per month.

Media

During 2010 and 2011, the key messages included in the “Seven Simple Steps to Clean Water” were made available to the media via SEMCOG’s *Regional Update*, public service announcements and videos online, press releases. The videos are:

- Scoop your pooch’s poop
- Easy lawn-care tips
- Household hazardous waste drop-off tips
- Save water with earth-friendly landscaping
- Car-care solutions to water pollution
- Protect our environment: save water
- Help keep pollution out of storm drains

Press releases:

Appendix Three

6/4/2011	Water Week, June 5-13, celebrates Southeast Michigan's vast water resources
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Municipal Training

In July 2006, SEMCOG initiated a program to train municipal employees on good housekeeping practices at municipal facilities. Since then, the training program has evolved to assist communities in meeting all elements of federal stormwater regulations while continuing to help communities protect our valuable water resources.

One training session was held this year in five separate locations that specifically related to local government compliance with environmental regulations (*see attached Appendices for attendance lists*):

- Municipal Operations: How small changes can make big improvements in water quality, March 17, March 24, April 4, April 5, and April 20, 2011
<http://www.semcog.org/ProgramsProjects.aspx?id=4294970442>

SEMCOG Staff Stormwater Services

SEMCOG works to provide efficient and effective stormwater services directly to the region's local governments to help improve our local water resources and to meet permit requirements. In 2010/2011, SEMCOG has helped to provide this service in two ways:

- 1) Performing environmental audits of municipal properties for SWPPP and PIPP development, and good housekeeping recommendations.
- 2) Performing Stormwater Events through facilitating meetings, giving presentations, and participating in workgroups on behalf of the region.

Appendix Four

Environmental Audits Performed

Environmental Audit Event	Organization
Environmental walk-through of facility, PIPP development	City of Auburn Hills
Environmental walk-through of facility, SWPPP development	Village of Clarkston
Environmental walk-through of three facilities, SWPPP development	Commerce Township
Environmental walk-through of facilities, SWPPP and PIPP development	City of Dearborn Heights
Environmental walk-through of three facilities SWPPP and PIPP development	Village of Dexter
Environmental walk-through of maintenance facility, SWPPP and PIPP development	Monroe County Community College
Environmental walk-through of facility, SWPPP and PIPP development	City of Northville
Environmental walk-through of facilities, SWPPP and PIPP development	City of Rochester
Environmental walk-through of facilities, SWPPP and PIPP development	City of Rochester Hills
Environmental walk-through of three facilities,	City of Saline

SWPPP and PIPP development as needed	
Environmental walk-through of facilities, SWPPP and PIPP development	City of Sterling Heights
Environmental walk-through of two facilities, SWPPP and PIPP development	City of Trenton
Environmental walk-through of facilities, SWPPP and PIPP development	City of Troy
Environmental walk-through of four facilities, SWPPP and PIPP development as needed	City of Warren
Environmental walk-through of facilities, SWPPP and PIPP development	Washtenaw County Road Commission
Environmental walk-through of facilities, SWPPP development	Washtenaw County Drain Commission
Environmental walk-through of road and parks facilities, Pollution Prevention Plan development	Wayne County Department of Public Services
Environmental walk-through of facility, SWPPP and PIPP development	City of Woodhaven
Environmental walk-through of four facilities, SWPPP and development	Ypsilanti Township

Appendix Five

Stormwater Educational Outreach

Stormwater Event	Organization	City	Date
Facilitated three Southeast Michigan Partners for Clean Water Meetings	SEMCOG with communities	Detroit, MI	2/3/11, 4/4/11, 8/10/11
Presented at the Michigan Forestry and Parks Association annual meeting on incorporating LID practices in urban forestry settings	MFPA	Okemos, MI	4/13/11
Presented at the APWA workshop on Fleet Maintenance Issues regarding the Phase II permit and municipal operations	APWA	Bellaire, MI	5/24/11
An onsite stormwater training was developed and presented to the Monroe County Community College Maintenance Staff	MCCC	Monroe, MI	7/13/11
Attended four Downriver Community Conference Meetings to educate members on water quality education programs and initiatives (such as environmental audits, upcoming trainings, etc.)	DCC	Southgate, MI	1/11/11, 2/8/11, 4/12/11, 8/9/11

SEMCOG regularly participates in the Downriver Community Conference (DCC) to make connections between stormwater, roads, and DPW operations and to provide stormwater updates to Department of Public Works staff of the following communities. The DCC meets monthly and consists of the following communities:

Appendix Six

Downriver Community Conference Member Communities

Community	Regular Member
Allen Park	Doug Morton, Director of Public Services
Brownstown Twp.	Mark Gahry, Director of Public Services
Dearborn	Jim Murray, DPW Director
Dearborn Heights	Jack Franzil, City Administrator
Ecorse	Scott Davidson, DPW Director
Flat Rock	Bruce Hammond, Director of Public Services
Gibraltar	Mark Kibby, City Administrator

Grosse Ile Twp.	Barry Sedlock, Director of Public Services
Huron Township	Bruce Wood, DPW Director
Lincoln Park	Robert Bartok, DPS Superintendent
Melvindale	Randy Burns, DPW & Water Supply
River Rouge	William Campbell, DPW Superintendent
Riverview	Larry Hunter, Director of Public Works
Rockwood	Adam Grabetz, DPW Director
Romulus	Tom Wilson, DPW Director
Southgate	Keith Tackett, DPW Director
Taylor	Dave Mackie, DPW Executive Director
Trenton	Eric Witte, Director of Public Works
Woodhaven	Scott Foland, Director of Engineering & Public Services
Wyandotte	Gary Ellison, DPS Superintendent



**Municipal Operations: How small changes can make big improvements
in water quality**

**March 17, 2011
9:00 a.m. – Noon**

**St. Clair County Administration Building
Donald E. Dodge Auditorium
200 Grand River
Port Huron, MI 48060**

Last Name	First Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Ames	Richard	Dir. of Utilities	City of Marine city	X
Anderson	Craig	Director for Maintenance	Centerline Public Schools	
Barnowski	Eric	DPW Asst. Superintendent	Ira Township	
Cornwell	Jerry	Maintenance Worker	St. Clair County	
Crawford	Robert	Clerk	Fort Gratiot Township	X
Dahlgren	Peter	Environmental Engineer	Arch Environmental Group	
Demick	Lou	Mechanic	Centerline Public Schools	
Donovan	Thomas	Director of Physical Plant	SC4	X
Dunlap	Dennis	Airport staff	St. Clair County Airport	X
Faust	Sheri	Environmental Educator	SCCHD	
Grybowski	Patrick			
Habalewsky	Ruth	Sanitarian	SCC Health Dept.	
Hall	Eric	DPW Employee	City St. Clair	X
Harrington	Mike	Director DPW	City St. Clair	X
Hohf	Kraig	Supervisor DPW	City of Marysville	
Huddas	Amanda	Storm water coordinator	City of Port Huron	
Ignash	John	Maintenance Worker	St. Clair County	
Jurs	Kristen O.	Storm Water Coordinator	SCCHD	
Kenner	Nathan			X

Last Name	First Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Marsh	Ron	Maintenance Director	St. Clair County	
Martin	Jill	Operations Clerk	Algonac Community Schools	
Meldrum	William	DPW	City of Algonac	
Moser	William	Garage Supervisor	Port Huron Area School District	X
Orchard	Randy	Maintenance Employee	SCC	
Orr	Bill	Planning Commissioner	Kimball Township	
Ostling	Eric	Engineering Group Manager	Huron Consultants	
Posey	Thomas	DPW Foreman	City of Marine city	
Rhein	Dan	Drain Inspector	SCC Drain Office	X
Riess	Angela		SEMCOG	
Sharp	Matthew	Park Operations Supervisor	SCC Parks and Recreation	
Shortall	Tom	Park Manager	East China Township	
Simons	Larry	Trustee	East China Township	
Stein	Debbie			
Sweeney	William	Maintenance Employee	SCC	
Thibodeau	Todd	DPW	Fort Gratiot Township	X
Tresick	Joseph	Asst. Superintendent	Clinton Township Water & Sewer	
Vandewarker	Dale	Maintenance I	Port Huron Area School District	X
Wallace	Adam		Port Huron Township	
Warren	Brent		City of St. Clair	
Warshefski	Debora	Sanitarian	St. Clair County Health Department	X
Woolum	Luke	Airport staff	St. Clair County Airport	X



**Municipal Operations: How small changes can make big improvements
in water quality**

**March 17, 2011
9:00 a.m. – Noon**

**Washtenaw County Intermediate School District
1819 S. Wagner Rd.
Ann Arbor, MI 48106**

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training	3/17 Attendance
Jeff	Allen	Director of Residential Svcs	Ypsilanti Township	y	x
Kurt	Augustine	Foreman	Village of Dexter	y	x
Janis	Bobrin	Water Resources Commissioner	Washtenaw County	n	x
Matt	Bolang	Environmental Specialist	Livingston County Drain Commissioner's Office	y	x
Meghan	Bonfiglio	Senior Environmental Planner	Washtenaw County	y	x
Mike	Britton	DPW Mechanic	City of Wayne	y	x
Bill	Brunner	Project Engineer	City of Lansing	n	x
Darrin	Burns	Field Supervisor	Livingston County Drain Comm.	y	x
Dan	Cobb	Parks Maintenance Tech II	Pittsfield Township Parks and Recreation	n	x
Todd	Cox	Soil Erosion Inspector	Livingston County Drain Comm.	n	x
Timothy	Cullen	Manager	University of Michigan	n	x
Andrea	Dorney	tech operations mgr	Dexter Water Utilities	n	x
Jane	Dykema	Assistant City Engineer	City of Lansing	n	x
Kevin	Ernst	supervisor	City of Ann Arbor	y	x
David	Esch	Asst. Superintendent	Barton Hills Village	n	x
Jan	Esch	Deputy Clerk	Barton Hills Village	n	x

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training	3/17 Attendance
Richard	Farrell	Maintenance Supervisor	Washtenaw County FM	y	x
Ron	Gamble		Huron Clinton Metroparks	y	x
Sabrina	Gross	Stormwater Management Liasion	Pittsfield Charter Township	n	x
Tim	Gruszczynski	Supervisor	Ann Arbor Public Schools	y	x
Chuck	Hannah	DPW Equip. Oper.	City of Wayne	y	x
Jeff	Harms		Washtenaw County Water Resources Commissioners Office	y	x
Steve	Hasbrouck	Supervisor	Livingston County Drain Commission	y	x
Mark	Hathaway	Soil Erosion Inspector	Livingston County Drain Comm.	n	x
Kim	Hiller	Permits and Utilities Engineer	Livingston County Road Commission	n	x
Jerry	House	District Foreman	Livingston County Road Commission	n	x
Craig	Hupy	Field Operations Unit Mgr	City of Ann Arbor	n	x
John	Johnson	Field Specialist	MI Turfgrass Environmental Stewardship Program	y	x
Dean	Johnson	City Engineer	City of Lansing	n	x
Joe	Jolly	Maint Supv	Huron Clinton metroparks	y	x
Joseph	Jurasek	Industrial Hygienist	VA Ann Arbor Healthcare System	n	x
Kelly	Karll		SEMCOG	y	x
John	Kosco	Environmental Specialist	University of Michigan	n	x
Mary	Kowalski		Washtenaw County	y	x
Jennifer	Lawson	Water Quality Manager	City of Ann Arbor	y	x
Ric	Lawson		Huron River Watershed Council	n	x
Tom	Lewis	Zoning Admin	Putnam Township	n	x
Rich	Luttman	Equipment Operator	Livingston County Drain Comm.	n	x
David	Mackie	Executive Director	City of Taylor DPW	y	x
Alec	Malvetis	Assistant City Engineer	City of Lansing	n	x
Mike	Maroney	Crew Chief	Ann Arbor Public Schools	y	x
Rusty	Matthews	Equipment Operator	Livingston County Drain Comm.	n	x
Charles	McDiarmid		Huron Clinton Metroparks	n	x
John	McDonald	Manager,	Arch Environmental Group	n	x

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training	3/17 Attendance
		cleanWATER Division			
Gerald	McNett	Environmental Engineer	Veterans Affairs	n	x
Tom	Barron	Equipment Supervisor	Livingston County Road Commission	n	x
Scott	Mills	municipal water supply operator	Pinckney DPW	y	x
Ken	Mroczkowski	Environmental Quality Analyst	DEQ	y	x
Pete	Randazzo	Crew Leader	City of Grosse Pointe	n	x
Ken	Recker	Chief Deputy Drain Commissioner	Livingston County Drain Comm.	n	x
Angela	Riess		SEMCOG	y	x
Mike	Ryan	Parks and Recreation Facilities Maintenance Supervisor	Pittsfield Township Parks and Recreation	n	x
Paul	Weitzel	Public Service Supervisor	City of Grosse Pointe	n	x
Eric	Schwiderson	Associate Engineer	ECT, Inc.	n	x
Rod	Soos	Soil Erosion Inspector	Livingston County Drain Comm.	n	x
Scott	Spooner	Superintendent - Leslie Park Golf Course	City of Ann Arbor	n	x
Scott	Strudgeon	Maintenance Supervisor	HCMA	y	x
Bill	Trotter	Drain Maintenance Worker	Livingston County Drain Comm.	n	x
Billy	Weirich	Utilities Superintendent	Pittsfield Charter Township	n	x
Tom	Winebrenner	Sanitarian	Washtenaw County Environmental Health	y	x
Dan	wooden	Field Operations Supervisor	City of Ann Arbor	y	x
Nichole	Woodward	Field Operations	City of Ann Arbor	y	x



**Municipal Operations: How small changes can make big improvements
in water quality**

**April 4, 2011
9:00 a.m. – Noon**

Macomb County Intermediate School District
44001 Garfield Rd.
Clinton Township, MI 48038

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Michele	Alexander	Grounds	Romeo Community Schools	
Warren	Allard	Environmental Program Special	Chrysler Group	
Ben	Arndt	Maintenance	Romeo Community Schools	
George	Battaglia	Maintenance	Romeo Community Schools	
Bob	Baulch	Laborer	St. Clair Shores Sewer Dept.	
Terry	Baumgarten		Clinton Township Water and Sewer	
Mark	Baumgarten		Clinton Township Water and Sewer	
Charles	Bellmore	Utilities Director	City of Mount Clemens	
Gary	Bierl	DPW Director	City of Roseville	
Charlie	Bohm	Supervisor	Ray Township	
Tony	Bollini	Inspector	Clinton Township Water & Sewer	
Bill	Burton	Crew Leader	St. Clair Shores Sewer Dept.	
Jason	Castor	Civil Engineer	City of Sterling Heights	x
Leo	Ciavatta	Asst. Superintendent	Macomb County Department of Roads	
Don	Coddington		Chesterfield Twp. DPW	
Ronald	Demski	Laborer	St. Clair Shores Sewer Dept.	
Dino	DiCicco	Asst. Foreman	Macomb County Department of Roads	
Marcuz	Dilbert	Foreman	Village of New Haven	x
Jon	Frazho	Laborer	St. Clair Shores Sewer Dept.	
Jim	Gabrysh		Clinton Township Water and Sewer	
Jerome	Gage	Groundskeeper	Macomb County Facilities and Operations	

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Julie	Gonyeau		Chesterfield Twp. DPW	x
Dennis	Hester	Maintenance	Romeo Community Schools	
Jay	Hunt	Transportation	Romeo Community Schools	
Raymond	Hurt	Groundskeeper	Macomb County Facilities and Operations	
Paul	Jalbert		Clinton Township Water and Sewer	
Bretton	Joldermsa		DEQ	x
Don	Kettlewell	D.P.W. Superintendent	Village of New Haven	x
Patricia	Kusiak	Assistant to DPW Director	Shelby Township DPW	
Luanne	Laemmerman	Environmental Unit Chief	Macomb County Prosecutor's	
Laura	Lawniczak	Asst. Supervisor of Operations	Clintondale Community Schools	x
Mark	Lietaert	Maintenance Supervisor	Huron-Clinton Metroparks	
Brian	Love		City of Lansing	x
Andrew	Madry	Laborer	St. Clair Shores Sewer Dept.	
Stacey	McFarlane		Macomb County Health Department	
Gary	McKinney	DPW Superintendent	Center Line	
Dave	Miller	Assistant DPW Director	Shelby Township DPW	
Tom	Mitchell		Clinton Township Water and Sewer	x
Tim	Montney	Groundskeeper	Clintondale Community Schools	
Ben	Nabors	DPW	City of Warren	
Chris	Niemasz	Maintenance	Romeo Community Schools	
Ken	Paige	Foreman	Macomb County Department of Roads	
Anthony	Perigitone	Transportation	Romeo Community Schools	
Meghan	Price	Senior Associate Scientist	ECT, Inc.	
Jason	Quintano	Laborer	St. Clair Shores Sewer Dept.	
Bill	Remer	Maintenance Foreman	Stoney Creek Metropark	
Angela	Riess		SEMCOG	
Jim	Rogers	Foreman	Macomb County Department of Roads	
Nick	Schaefer	DPW	City of Fraser	x
Jeffrey	Schmidt	DPW Supervisor	City of Roseville	
Tim	Scislowicz	Foreman	Macomb County Department of Roads	
Lynne	Seymour	Environmental Engineer	Macomb County Public Works Office	x
Nancy	Shirkey		Anderson, Eckstein and Westrick	x
Brandy	Siedlaczek	Storm Water Manager	City of Southfield	
Daniel	Smith	DPW	City of Warren	
Kory	Stevens	Project Consultant	Arch Environmental Group, Inc.	
Norman	Stone		Chesterfield Twp. DPW	
Randy	Tromley		Clinton Township Water and Sewer	
Cheryl	Vanderport		Clintondale Schools	

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Gary	Voss	Water/Waste Water	U.S. Army Garrison Detroit Arsenal	
Don	Wilson		Chesterfield Twp. DPW	x
Mark	Zuhlke	Grounds	Romeo Community Schools	



Municipal Operations: How small changes can make big improvements in water quality

**March 23, 2011
9:00 a.m. – Noon**

Oakland County Executive Office Building Conference Center
East and West Oakland Rooms
2100 Pontiac Lake Rd., Bldg. 41 West
Waterford, MI 48328

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Megan	Anderson			
Tracey	Balint	Project Engineer	City of Rochester Hills	X
John	Balint		City of Pontiac	
James	Berti	Building Supervisor	Oakland Schools Technical Campus - Southwest	
Mike	Boyd	Park Supervisor	Oakland County Parks and Recreation	
Deanna	Burns	Deputy Supervisor	Charter Township of Oxford	
Patrick	Castillo		Road Commission for Oakland County	
John	Chasteen	Supervisor - Lyon Oaks	Oakland County Parks and Recreation	
Joe	Chevalier		Huron Clinton Metroparks	
Kirk	Conger		Washington Township	
Jack	Crowley	DPW Foreman	City of Rochester DPW	
Jason	Dickinson		City of Rochester DPW	
Tony	Dombrowski		Nowak & Fraus	
Kathleen	Dougherty	Education Resource Specialist	Oakland County Parks and Recreation	
Gary	Eichen		Mike's Tree Surgeons, Inc.	
Ron	Fadoir		Oakland County WRC	
Richard	Fairfield		Lyon Township	
Rod	Gallero	Crew Leader	City of Rochester Hills	
Jacy	Garrison	Environmental Planner	Oakland County WRC	

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Tom	Gibbs	Supervivser II	Oakland County Parks and Recreation	
Willis	Greer	Superintendent	Road Commission for Oakland County	
Dennis	Gregory	Manager of Operations	Southfield Public Schools	
Kara	Grisamer	Maintenance Engineer	Road Commission for Oakland County	
Dan	Gross	Leader	City of Troy	
Doug	Haselhuhn	Crew Leader	City of Rochester Hills	
Ryan	Higuchi	Associate Scientist II	ECT, Inc.	
Gary	Hohf	Crew Leader	City of Rochester Hills	
Jerry	Jehle	Project Engineer	Road Commission for Oakland County	
Kelly	Karll		SEMCOG	
David	Kirbach	maintenance supervisor	Huron Clinton Metroparks	X
Dave	Kolasz	Lake Tech	Oakland County WRC	
Bill	Labadie		Road Commission for Oakland County	
Bill	Loncar		Huron Clinton Metroparks	
Sue	Malone	Environmental Concerns Coordinator	Road Commission for Oakland County	
Ankita	Mandelia	Senior Engineer Technician	ECT, Inc.	X
Kerri	Martin	Administrative Assistant	City of Rochester DPW	
Lester	Mason		Oakland Schools	
Steve	Mason	MMII	Oakland County WRC	
Paul	Matthews	Parks and Property Maintenance Coordinator	City of Birmingham	
Patrick	McKeown	public works supervisor II	City of Southfield	X
Bill	Midkiff	Inspector	Road Commission for Oakland County	
Jim	Miller		Road Commission for Oakland County	
Jim	Morris	Crew Leader	City of Rochester Hills	
Carmelo	Moyet, Jr.	Facilities Engineer	Oakland County - Facilities Management	
Greg	Nelson		City of Orchard Lake	
Lisa	New	Project Engineer	Road Commission for Oakland County	
Patrick	O'Donnell	Maintenance supervisor	Charter Township of Commerce	X

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Jim	Owens	Crew Leader	City of Rochester Hills	
Tim	Pollizzi	Engineering Tech.	City of Rochester Hills	X
Rod	Porritt	MMII	Oakland County WRC	
Angela	Riess	Environmental Planner	SEMCOG	
John	Roda	Environmental Manager	West Bloomfield Twp.	
Jeff	Rudd	Crew Leader	City of Rochester Hills	
Mike	Sackner	Division Supervisor	City of Troy	X
Johanna	Schwensen	Permit Agent	Michigan Department of Transportation	X
Steve	Sebert	Maintenance Foreman	Huron Clinton Metroparks	
Al	Selberg	Facilities Manager	Oakland Schools	
Robert	Shenk	Supervisor	City of Troy	X
Shawn	Shilling		City of Birmingham	X
Charles	Smith	Property Manager	Oakland Schools	
Paul	Smith	Asst. Director of Public Services	City of Farmington	X
Tim	Stewart	Assistant Director	Village of Milford	X
Amy	Sullivan	Village Administrator	Village of Franklin	
Sue	Tepatti	Wetland Specialist	Giffels-Webster Engineers	
Brad	Tipolt	Building supervisor OSTC-NE	Oakland Schools NE campus	
George	Ward	Project Engineer	Road Commission for Oakland County	
Joe	Washburn	Crew Leader	Oakland County WRC	
Richard	Wayne		City of Orchard Lake	
Tom	Wittke	MMII	Oakland County WRC	
Steve	Wood	Building Supervisor	Oakland Schools NW Campus	



**Municipal Operations: How small changes can make big improvements
in water quality**

**April 20, 2011
9:00 a.m. – 12:00 p.m.**

Summit on the Park Banquet and Conference Center
46000 Summit Parkway
Canton, MI 48188

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Kim	Anderson	Department Manager	Wayne County Roads	X
Nathan	Antieau			
Doug	Barr	Foreman	Wayne County Roads	
Robert	Belair		Canton Township	
Clark	Brussow		Canton Township	
Randy	Burns	Water Director	City fo melivindale	
Lee	Byrd	Department Manager	Wayne County Roads	X
Bill	Cain	DPW	City of Gibraltar	
Duane	Carter	Department Manager	Wayne County Roads	X
Tom	Casari		Canton Township	
Mel	Chapman	Utilities Supervisor	City of East Lansing	
Hershal	Clover			X
Alan	Colter		Wayne County Safety Unit	
Bob	Courter	DPW	Plymouth Township	X
Bernard	Cranford	Foreman	Wayne County Roads	X
Randy	Daniels	Foreman	Wayne County Roads	X
Kurt	Dovensiep		City of Troy	X

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Gary	Ellison	DPS Superintendent	City of Wyandotte	
Tim	Faas	Director of Municipal Services	Canton	
Kelly	Fedele	Assistamt City Engineer	City of Trenton	X
Jason	Ferrall	Environmental Consultant	Arch Environmental Group	
Allan	Feyes		Orion Township	
Michael	Flowers	Environmental Specialist	Wayne County DPS-WQMD	
James	Gallogly	Public Works Director	City of Northville	
John	Gibson	Foreman	Wayne County Roads	X
Ray	Glenn		WC Parks	
Adam	Grabetz	director of public works	City of Rockwood	
Fred	Greene	Department Manager	Wayne County Roads	X
Nancy	Gregor			
Kevin	Gunn	Department Manager	Wayne County Roads	X
Bruce	Haarala	Supervisor of Maintenance and Grounds	Plymouth-Canton Community Schools	X
Omar	Hassan	Foreman	Wayne County Roads	X
Martin	Hendges	Env. Quality Analyst	MDEQ	
Jeff	Hinojosa	DPW	Charter Township of Huron	
Richard	Hodges			X
Bill	Hogan	City Engineer	City of Trenton	X
Will	Jackson	Foreman	Wayne County Roads	
Jeff	Johnson			X
SAMI	KHALDI	PERMIT ENGINEER	WAYNE COUNTY DPS	X
Jessica	Koerner		DEQ	
Thomas	Konja	Associate Scientist	ECT	X
David	Koska	HVAC/Skilled Trades	Allen Park Public Schools	X

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Mozaffar	Lakhani		Inkster	
John	LaPine			
Richard	Lawrence	DPW Equip. Oper.	City of Wayne	X
Lonnie	Lee	Department Manager	Wayne County Roads	X
Eugene	Lewis	Department Manager	Wayne County Roads	X
David	Mackie	Executive Director DPW	City of Taylor	
Wayne	Maguire		City of Trenton	X
LeDon	Majors	Foreman	Wayne County Roads	
Rudy	Marinez	Streets Supervisor	City of East Lansing	
Denis	Martin			X
Brian	Martin	Foreman	Wayne County Roads	
Mike	McGrath	Foreman	Wayne County Roads	
Cathy	Morse	Chairman	City of Romulus Environmental Protection Bd.	X
Sean	Moylan	Transportation Superintendent	City of Dearborn Heights	X
Joe	Myerchalk		WC Parks	
Tammie	Neazlit		Arch Environmental Group	
Tim	Neighbors	Supervisor	City of Woodhaven	
Paul	Newby	Forestry Supervisor	Wayne County Roads	
Richard	Newman		Canton Township	
Mark	Norgren	Foreman	Wayne County Roads	
Jeff	Opperman		WC Parks	
Vertis	Park	Department Manager	Wayne County Roads	X
Kirk	Pennington	Field Ops Supervisor	City of Ann Arbor	
Rodney	Plant	Forestry Supervisor	Wayne County Roads	
Robert	Podulka	Foreman	Northville Twp Water	X
Dale	Poplin	Department Manager	Wayne County Roads	X
Derrin	Powell	Foreman	Wayne County Roads	X
Greg	Pyle		Canton Township	
Angela	Riess			
Chris	Roggero	Foreman	Wayne County Roads	

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Paul	Rubbel	Foreman	Wayne County Roads	
Kevin	Ruby		City of Rockwood	X
Mike	Saka	Department Manager	Wayne County Roads	X
David	Schmidt	DPW Equip. Oper.	City of Wayne	X
Derrick	Schueller	Asst. DPW Director	City of Romulus	
John	Selmi	DPS Director	Redford Township	X
Jenna	Sendra	Environmental Consultant	Arch Environmental Group	
William	Serchak		Canton Township	
Brad	Sharp		Canton Township	
Joe	Shaw		WC Parks	
Steve	Sheridan	Foreman	Wayne County Roads	
Ron	Shotwell	Foreman	Wayne County Roads	
Randall	Shropshire	Foreman	Wayne County Roads	
Jason	Smalls	Foreman	Wayne County Roads	
Steve	Smeal	Crew Leader	Northville Twp Water	X
larry	Stec	Foreman	Wayne County Roads	X
Matt	Sype	Asst. Director of Public Services	City of Flat Rock	
Kevin	Szczepanski	Department Manager	Wayne County Roads	X
James	Taylor	Utility Manager	City of Dearborn	X
Tim	Teifky		City of Troy	
James	Thomas	DPW	Plymouth Township	X
Susan	Thompson	Environmental Specialist	Environmental Specialist	
Pete	Toma	Foreman	Wayne County Roads	X
Joe	Tomocik	Foreman	Wayne County Roads	
Dennis	Trapp		WC Parks	
Rob	Trombley	Foreman	Wayne County Roads	
Dean	Tuomari	Department Manager IV Water Quality	Wayne County Dept of Public Services	
William	Turner	DPS Operations Coordinator	City of Lincoln Park	X
Paul	Vanhoosen		Wayne County	
Abe	Vinitski		Canton Township	
Kurt	Vovensiep			
Ron	Wade	Foreman	Wayne County Roads	

First Name	Last Name	Title	Organization	DEQ Industrial Stormwater Operator Training
Rhonda	Washington	Foreman	Wayne County Roads	
Dawn	Wasik	Foreman	Wayne County Roads	
Matt	Watson	Foreman	Wayne County Roads	
Arthur	Wenzel	DPW	Village of South Rockwood	
Franklin	Wenzel	DPW/Certified Water Operation	Village of South Rockwood	
Dave	Wheeler		WC Parks	
Eric	Witte	Director of Public Works	City of Trenton	
Rich	Wojtala	Foreman	Wayne County Roads	
Don	Zilka	Foreman	Wayne County Roads	

DEQ Industrial Stormwater Operator Training only

First Name	Last Name	Title	Organization
Steve	Moceri	Fleet Manager	City of Trenton
Frank	Weber	Sanitation Supervisor	City of Trenton