



Wayne County, Michigan

Annual Report

For Reporting Period January 1, 2015 – December 31, 2015

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

Submitted to:

Michigan Department of Environmental Quality - Water Bureau

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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:

- Reduce the discharge of pollutants to the "maximum extent practicable" (MEP);
- Protect water quality; and
- Satisfy 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, developed by Wayne County's Rouge River National Wet Weather Demonstration Project (Rouge Project), is available on CD/DVD upon request. The *2013 Rouge River Monitoring and Assessment Report*, previously published annually by the Rouge Project and the Alliance of Rouge Communities, is available at <http://www.allianceofrougecommunities.com> and presents the trend analysis of monitoring data through 2013.

A summary of the water quality trends in each of the seven Rouge subwatersheds, based on water quality data collected through 2013 and ecosystem health data collected through 2015, 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 2013 and include continuous monitoring of level and flow at six locations throughout the watershed and continuous monitoring of dissolved oxygen (DO) and temperature at Plymouth Road (US7) in the Main Branch and at Military Road (L05D) in the Lower Branch.

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: Middle 1 for stream flow; Lower 1 for dissolved oxygen; the Middle 1 and Middle 3 for fish community; the Main ½ and Upper Rouge for macroinvertebrates; and the Middle 3 for amphibians. In particular, trend analysis indicates stream flow to be improving or has not changed in 6 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 2015, at least seven of the eight amphibian species monitored were observed in 4 of the 7 watershed management areas.

Water Quality and Flow Monitoring: The most recent water quality monitoring data for the Rouge River was collected in 2013. Water quality monitoring is conducted according to the monitoring program described in the 2012 Rouge River Watershed Management Plan (WMP) prepared by the Alliance of Rouge Communities (ARC). The five-year Rouge River Monitoring Plan for the period 2009 through 2013 included the collection of several types of data throughout the watershed, which were used to measure the improvements in Rouge River water quality and ecosystem health. Precipitation, streamflow, and biological health monitoring data were collected each year of the plan. Collection of monitoring data for dissolved oxygen, temperature, bacteria, and nutrients occurred during at least one year of the plan.

A key element of a healthy river ecosystem is adequate dissolved oxygen (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.

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 Flow ¹	↑↑	↔	↑↑	↓↓	↔	↔	↔
Temperature ²	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑	↑↑
Dissolved Oxygen ³	↑↑	↑↑	↑↑	↔	↑↑	↓↓	↑↑
Total Phosphorus ⁴	↔	↔	↔	↔	↑↑	↑↑	↑↑
E.coli ⁵	↔	↔	↔	↔	↑↑	↔	↔
Fish Community ⁶	↔	NA ⁷	↑↑	↓↓	↓↓	↔	NA ⁷
Habitat ⁸	↔	NA ⁷	↔	↔	↔	↑↑	↔
Macroinvertebrates ⁹	↓↓	↔	↓↓	↑↑	↑↑	↔	↔
Frogs & Toads ¹⁰	↑↑ 8	↔ 6	↑↑ 7	↑↑ 8	↓↓ 5	↑↑ 8	↔ 4

- 1) Trend arrow is based on frequency of peak flow decreasing as reported in *2013 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 Table 1 from the *2013 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 macro-invertebrate monitoring trend analysis spring and fall 2001 – 2015. 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 species heard in the watershed during Friends of the Rouge 2015 Frog & Toad Survey.

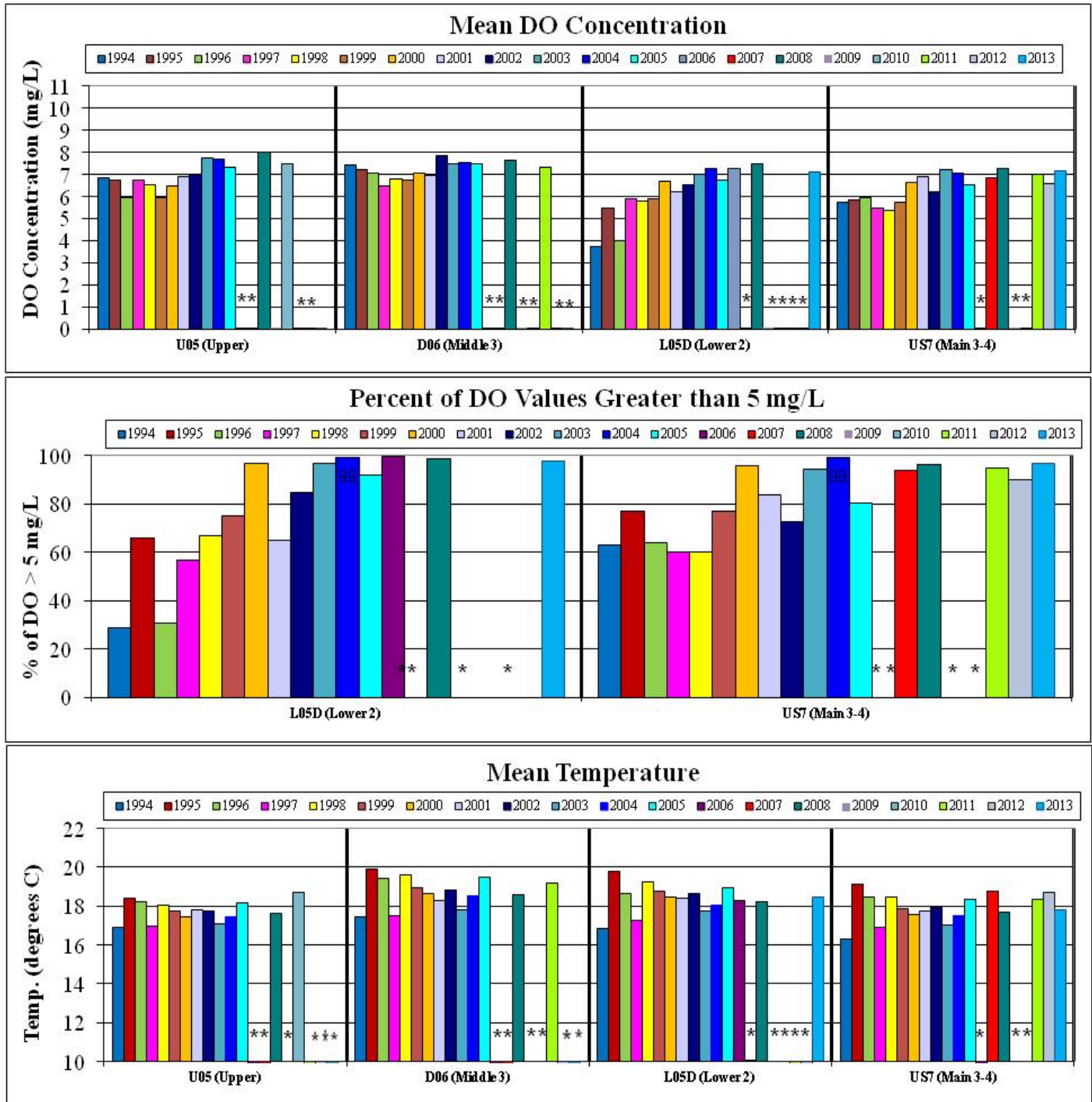
DO has been monitored in the river for almost two decades and is very useful in determining spatial and temporal water quality trends. Prior to 2006, there was at least one continuous DO and water temperature monitoring location in each of the seven Storm Water management Areas (SWMAs) in the Rouge River watershed, and two in the Main 3-4 SWMA. From 2007 through 2012, continuous DO and temperature were monitored in at least one location in the watershed with the exception of 2009. In 2013, DO and temperature were monitored at Plymouth Road (US7) in the Main Branch and at Military Road (L05D) in the Lower Branch.

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 2013 at Telegraph Road (U05), Plymouth Road (US7), Hines Drive/Ford Road (D06), and Military Road (L05D). The percent of the time DO concentrations were in compliance with the minimum 5 mg/L warm water State standard show an upward trend. Based on a rating scale developed by the Rouge Project, since 2008 the DO data at the four previously mentioned monitoring locations are all rated good ($\text{DO} \geq 5 \text{ mg/L}$, $\geq 95\%$ of the time) with the exception of Plymouth Road (US7) in 2012 when the rating was fair ($\text{DO} > 5 \text{ mg/L}$, $< 95\%$, but $> 5 \text{ mg/L}$, $> 75\%$ of the time). 2013 was one of the 5th wettest years since 1960. DO values of less than 5 mg/L at Plymouth Road (US7) in 2013 occurred 13 times: nine times after small rainfall events (ranging from 0.04 inches to 0.67 inches) with water temperatures ranging from 2°C – 8.6 °C above the average water temperature of 17.8°C. Once after a medium rainfall event of 0.86 inches and 0.6°C below the average water temperature of 17.8°C and three times after large rainfall events (ranging from 0.92 inches to 1.39 inches) with water temperature ranging from 2.2°C–7.6°C above the average water temperature of 17.8°C. DO values of less than 5 mg/L at Plymouth Road (US7) were not observed during low flow conditions in 2013.

DO values of less than 5 mg/L at Military Road (LO5D) in 2013 occurred 19 times: 12 times after small rainfall events (ranging from 0.04 inches to 0.39 inches) with water temperatures ranging from 1.4°C below–6.7° C above the average water temperature of 18.5°C. One medium rainfall event of 0.78 inches of rainfall with water temperature ranging from 3.7°C – 4.2°C above the average water temperature of 18.5°C, and one large rainfall event of 0.91 inches with water temperature ranging from 0.6°C -1.1°C below the average water of 18.5°C. DO values of less than 5 mg/L occurred five times under low flow conditions with water temperatures ranging from 0.7°C–5.8°C above the average water temperature of 18.5°C.

Regression analyses (1994 – 2013) of the continuous DO daily averages at Plymouth Road (US7) were updated with 2013 data and as in previous years continued to show improvement. The improvement at Plymouth Road (US7) from 1994 through 2013 is calculated as 0.08 mg/L/year. A regression analysis (May - October 1999 – 2013) of the continuous DO daily averages at Military Road (L05D) was updated with 2013 data and, as in previous years, shows improvement. The improvement at Military Road (L05D) from 1999 through 2013 is calculated as 0.083 mg/L/year. Trend analyses were previously performed on historical continuous daily average DO data collected from 1994 to 2012 (data not collected at each location in all years) at the six other continuous monitoring locations and in general they show improvement or no significant trend (Table 2).

Figure 1
Rouge River Continuous DO and Temperature Annual Mean Data
May – October 1994 – 2013
Stations U05, D06, L05D, US7



Note: * indicates no data available for year.
 2013 DO percent completeness US7=97.3%
 2013 DO percent completeness L05D=99.9%

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, 2011-2013	Improvement of 0.08 mg/L/year
Main 3-4	US8	2001- 2005, 2007	No significant change
Upper	U05	1994-2005, 2008, 2010	Improvement of 0.10 mg/L/year
Middle 1	US10	2003-2005	No significant change
Middle 3	D06	1994-2005, 2008, 2011	Improvement of 0.04 mg/L/year
Lower 1	US9	2002-2006	Degradation of 0.04 mg/L/year*
Lower 2	L05D	1994-2006, 2008, 2013	Improvement of 0.17 mg/L/year**

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

**Excluding data 1994-1998

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 fish habitats. In 2013, continuous flow and level monitoring data were collected at six locations in the 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), Inkster Road (US2), and John Daly Road (US1). Additional continuous flow and level monitoring data were collected May – October at two locations (US9 and L05D) on the Lower Branch by USGS. 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 2013 precipitation totals (as percent of long-term average from 1994 through 2013).

High stream flow 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 3 and Lower Rouge River subwatersheds. However, an increase in the frequency of high flow was calculated in the Middle 1. In the Main and Upper Rouge River, a decrease in the frequency of high flow was indicated.

Table 3
Streamflow Trend Analyses Summary and 2013 Precipitation Totals

SWMA	Site ID	Low Flow (Base Flow)	Average Flow	Peak Flow Exceeding Gage-Specific Threshold ²	Streamflow Period of Record	2013 Precipitation Total (as percent of long-term average, 1994-2013) 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	1951-2013	110.34% (average of gages R15- R20, R30-R33) ³
	US5	↑ to mid 1990s, then ↓ to mid 2000s, then no change	↑ from mid 1960s to mid 1990s, then no change (cyclical)	↑ from mid 1960s to mid 1990s, ↓ begin 2000s, recent cyclical	1959-2013	
	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 ↓ to mid 2000s, then no change	↑ from mid 1960s to mid 1990s, then cyclical	Cyclical	1931-2013	109.01% (average of gages R37-R39) ³
Upper	US3	↑ to mid 1990s, then ↓ in late 1990s, then no change in recent years	↑ since data collection began in 1959	Cyclical	1959-2013	104.17% (average of gages R21, R29) ³
	U05	↓ since mid 1990s	↓ since mid 1990s, but no change in recent years	↓ since mid 1990s	1994-2011	
Middle 1	US10	No change	↑	↑	2002-2005, 2011 (2002 partial year)	106.09% (average of gages R11, R12, R28) ³
Middle 3	US2	↑ since mid 1980s to mid 1990s, then ↓ in late 1990s, then no change since mid 1990s	No change to mid 1990s, then ↑	No change (cyclical) since the mid 1980s	1948-1977 1984-2013	106.09% (average of gages R11, R12, R28) ³
	D06	No change since mid 1990s	No change	No change	1994-2008, 2011	
Lower 1	US9	No change	No change	No change	2001-2006* (2001 partial year)	104.17% (average of gages R13, R14, R27) ³
Lower 2	US1	No change 1948 to 1995, then ↑ in 1996, then ↓	No change to mid 1990s, then ↑ since 1995	↓ 1948 to 1995, then no change (cyclical)	1948-2013*	104.17% (average of gages R13, R14, R27) ³
	L05D	No change since 1996	No change since 1996	No change since 1996	1994-2006, 2008, 2013*	

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.

²The discharge exceeded 1% of the time (calculated in the mid-1990s over the period of record).

³Partial month not included in calculation of average.

A goal for the watershed defined in the 2012 WMP is to control the volume of urban storm water runoff as well as the flow rate. The ARC's Rouge River Monitoring Plan (2009-2013) included monitoring of continuous river level and flow, which was used to evaluate progress of the best management practices towards establishing stable streamflow and habitat conditions that are supportive of diverse aquatic life communities. The ARC received a Stormwater, Asset Management, and Wastewater (SAW) grant from MDEQ in October 2015, and it is anticipated that the funding will be used in part to for watershed monitoring efforts starting in 2016.

Rouge River Macroinvertebrate Monitoring: The Wayne County Water Quality Management Division (WQMD) continues its partnership with the Friends of the Rouge (FOTR) to complete benthic macroinvertebrate monitoring at numerous locations in the Rouge River on behalf of the Alliance of Rouge Communities (ARC). Winter Stonefly Searches were held in February 2015. Seventy-seven volunteers braved the snow and bitter cold during Friends of the Rouge's 2015 Winter Stonefly Search on February 14 to sample a total of 23 sites, volunteer efforts on additional days sampled an additional seven sites. WQMD sampled an additional five sites in February for a total of 35 sites sampled in winter 2015. Stoneflies were found at six of the 35 sites (17%). The majority of stoneflies found were slender winter stoneflies, family Capniidae, found at four sites in the Johnson Creek watershed. Perlodid stoneflies, family Perlodidae, were found at two sites, one in Fellows Creek, a Lower Rouge tributary, and the other at Sump Creek, a Johnson Creek tributary. Stoneflies were collected at one of the twelve sites sampled in the Lower Rouge subwatershed, Five of the nine Johnson Creek sites sampled had stoneflies. No stoneflies were found at the four sites sampled in the Upper Rouge watershed.

In the spring of 2015, macroinvertebrates were monitored at 60 sites (39 by FOTR, seven by volunteers and local colleges, and 14 sites by the Wayne County WQMD). Approximately 134 volunteers participated in the spring event, held April 18, 2015. Figure 2 identifies the site locations and ratings for the spring 2015 monitoring. In fall 2015, macroinvertebrates were monitored at 48 sites (34 by FOTR volunteers and 14 by WQMD). Approximately 103 volunteers participated in the fall event held on October 27, 2015. The volunteers braved cold rain and winds to sample their sites. Some volunteers reported snowflakes in the air. Figure 3 identifies the locations and site ratings for the fall 2015 monitoring.

Notable Rouge River watershed macroinvertebrate findings for 2015 include:

- *2015 Winter Stonefly Search:* Stoneflies were found at six of the 35 sites sampled during the winter Stonefly Search. Temperatures were colder than what is typical, and below freezing. As a result, some sites were frozen over and team leaders had to break through the ice to sample. Slender winter stoneflies (Family Capniidae) were the most common type found, collected at four sites. Perlodid stoneflies (Family Perlodidae) were found at two sites: in the Fellows Creek (a Lower Rouge tributary), and in Sump Creek (a Johnson Creek tributary).
- *2015 Spring Bug Hunt:* Six sensitive families were found at 13 sites. The sensitive families are: Stoneflies (families Capniidae and Perlodidae), Pronggill mayflies (family Leptophlebiidae), free living caddis flies (Family Rhyacophilidae) and Gomphid dragonflies (family Gomphidae). Nine Johnson Creek sites had at least one sensitive family present, and one site had three sensitive families present. Freelifving caddisflies, first documented in the Lower Rouge in spring 2003, continue expanding their range and were found in the Johnson Creek and in the Lower Rouge. Sensitive caddisflies known as the saddle-case makers (family Glossomatidae) were collected at two sites, both in Johnson Creek.

- *2015 Fall Bug Hunt:* Four sensitive families were found at three sites. Pronggill mayflies (family Leptophlebiidae) were found at two Johnson Creek sites. Net-tube caddisflies (family Psychomyiidae) were found at one site in the Johnson Creek, expanding their range by an additional site. Dobsonfly larvae (family Corydalidae) were collected at Bridge Road, a Main Rouge site, and the farthest downstream that the Dobsonflies have been found to date. Dobsonflies were collected at seven sites in the Rouge River in past samplings.

Rouge River Macroinvertebrate Data Trend Analysis: Trend analysis was performed on the Rouge River benthic macroinvertebrate data collected 2001 - 2015. The data were subdivided into the seven primary Rouge River subwatersheds and the Johnson Creek subwatershed for analysis. Johnson Creek is recognized as a coldwater stream and therefore unique from the rest of the Rouge River system. The data analyzed was the Stream Quality Index (SQI) which is the score that is calculated by combining the number and type of macroinvertebrates found. The higher the SQI the better the water quality is at the site. 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. 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. If there is no statistical significant trend, either positive or negative, the subwatershed trend is considered stable. Table 4 summarizes the results of the data trend analysis since FOTR/WQMD macroinvertebrate monitoring began in 2001. Table 4 also presents the average score calculated from all scores for each subwatershed and the subsequent water quality rating. The ratings are based on the following: >48=Excellent, 34-48=Good, 19-33=Fair, <19=Poor. All eight Rouge River subwatersheds have average scores in at least the “Fair” rating range, in both the spring and fall seasons. The Johnson Creek has a subwatershed average score in the “Good” rating range for both seasons.

Figure 2: Rouge River Benthic Monitoring Sites and Scores, Spring 2015

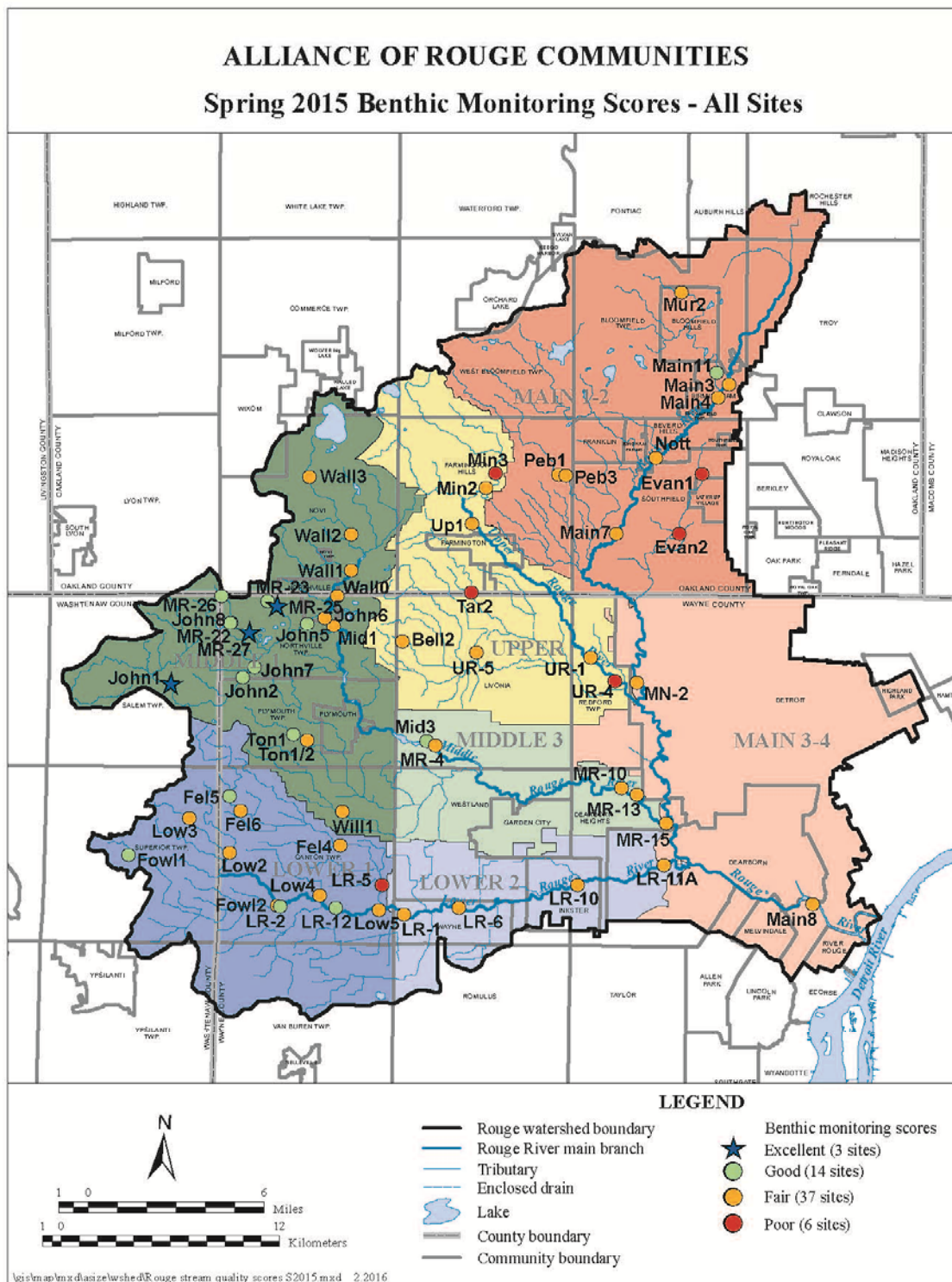


Figure 3: Rouge River Benthic Monitoring Sites and Scores, Fall 2015

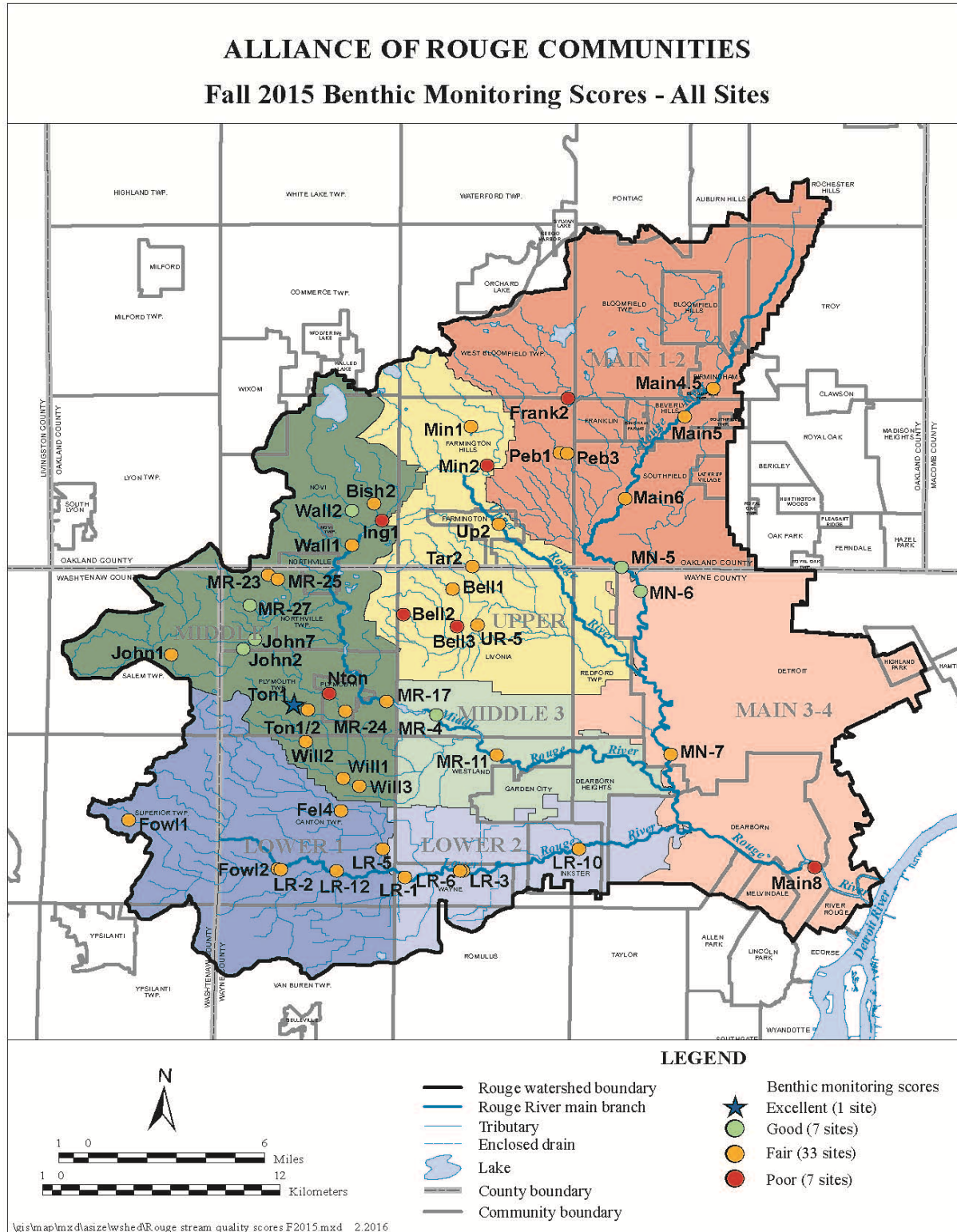
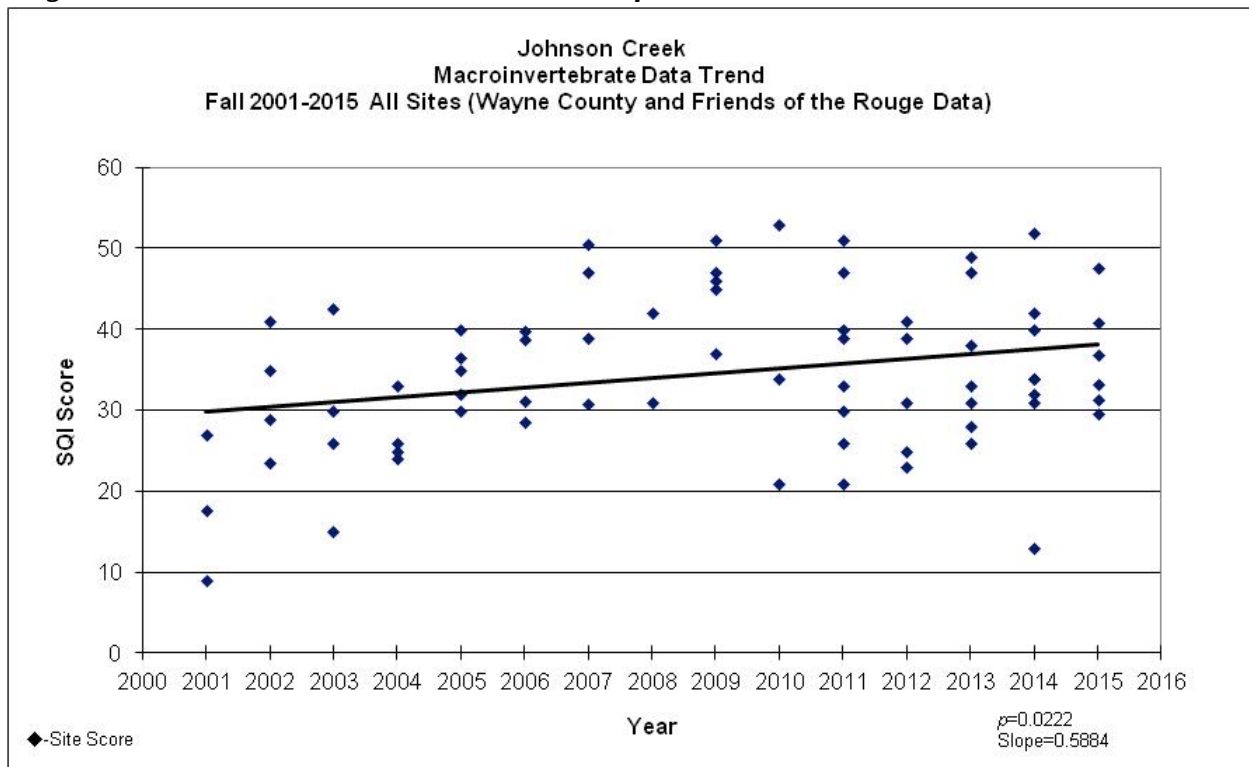


Table 4: Rouge River Macroinvertebrate Trend Analysis, 2001 – 2015

Spring Data Trend				Subwatershed Average Score (SQI)	Water Quality Rating
Subwatershed	slope	p-value	Significant trend		
Main 1-2	0.2025	0.1836	Stable	27	Fair
Upper	-0.0608	0.7470	Stable	24	Fair
Johnson Creek	0.7301	0.0027	Yes, positive	39	Good
Middle 1	0.7332	0.0044	Yes, positive	29	Fair
Middle 3	0.8640	0.0191	Yes, positive	20	Fair
Lower 1	0.1440	0.4785	Stable	30	Fair
Lower 2	0.0353	0.7714	Stable	26	Fair
Main3-4	-0.3969	0.1836	Stable	25	Fair
Fall Data Trend				Subwatershed Average Score (SQI)	Water Quality Rating
Subwatershed	(SQI)	p-value	Significant trend		
Main 1-2	-0.4879	0.0254	Yes, negative	30	Fair
Upper	-0.4634	0.0074	Yes, negative	25	Fair
Johnson Creek	0.5884	0.0222	Yes, positive	35	Good
Middle 1	0.0674	0.7521	Stable	32	Fair
Middle 3	0.7885	0.0003	Yes, positive	22	Fair
Lower 1	-0.2328	0.2378	Stable	29	Fair
Lower 2	-0.1299	0.6361	Stable	26	Fair
Main3-4	-1.0146	0.0948	Stable	28	Fair

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 2001-2015 (see *Section 1: List of Attachments* for the linear regression graphics for the spring and fall data analysis for each of the subwatersheds). Based on this analysis, three of eight subwatersheds are showing significant improving trends for spring macroinvertebrate monitoring data. Two of eight subwatersheds have significant improving data trends for fall monitoring, and two have significant declining data trends. One of the subwatersheds (the Upper Rouge) had a significant declining data trend in fall 2015. Detailed information about the 2015 macroinvertebrate sampling in the Rouge River is available online at <http://www.therouge.org/our-work/volunteer/benthic-macroinvertebrate-sampling>.

Figure 4: Fall Macroinvertebrate Data Trend for Johnson Creek Subwatershed, 2001-2015



Rouge Fish Monitoring: WQMD also assisted Friends of the Rouge (FOTR) with fish survey work within the Lower Rouge subwatershed during 2015 as part of an evaluation of the fish populations in the Rouge River watershed being conducted by FOTR staff and volunteers with grant support from the University of Michigan Water Center. Forty species were found during sampling beginning May 2013 through August 2015. In 2015, three species were found in the Lower Branch for the first time: northern logperch (*Percina caprodes semifasciata*), blacknose shiner (*Notropis heterolepis*), and blackside darter (*Percina maculata*). Evaluation of the fish populations includes tracking the migration of the Round Goby (*Neogobius melanstomus*), an invasive fish. The goby has moved 10 miles upstream on the Lower Rouge within 35 months. The round goby was also discovered in the Middle Rouge River. It is likely the gobies were introduced in the Middle Rouge as fishing bait. Reports are available on the FOTR website at <http://www.therouge.org/our-work/volunteer/fish-monitoring>.

Rouge River Insecticide Monitoring Project: This project, funded by a grant from the Michigan Department of Environmental Quality (MDEQ), under the Clean Michigan Initiative – Clean Water Fund, will enable the WQMD to collect water column and sediment samples throughout the Rouge River watershed to determine if insecticides commonly used on pets and around the home are making their way into the Rouge River at concentrations that are toxic to macroinvertebrates. As of December 2015, the request for quotes for laboratory services has been drafted and a draft Quality Assurance Project Plan (QAPP) has been submitted to MDEQ for review.

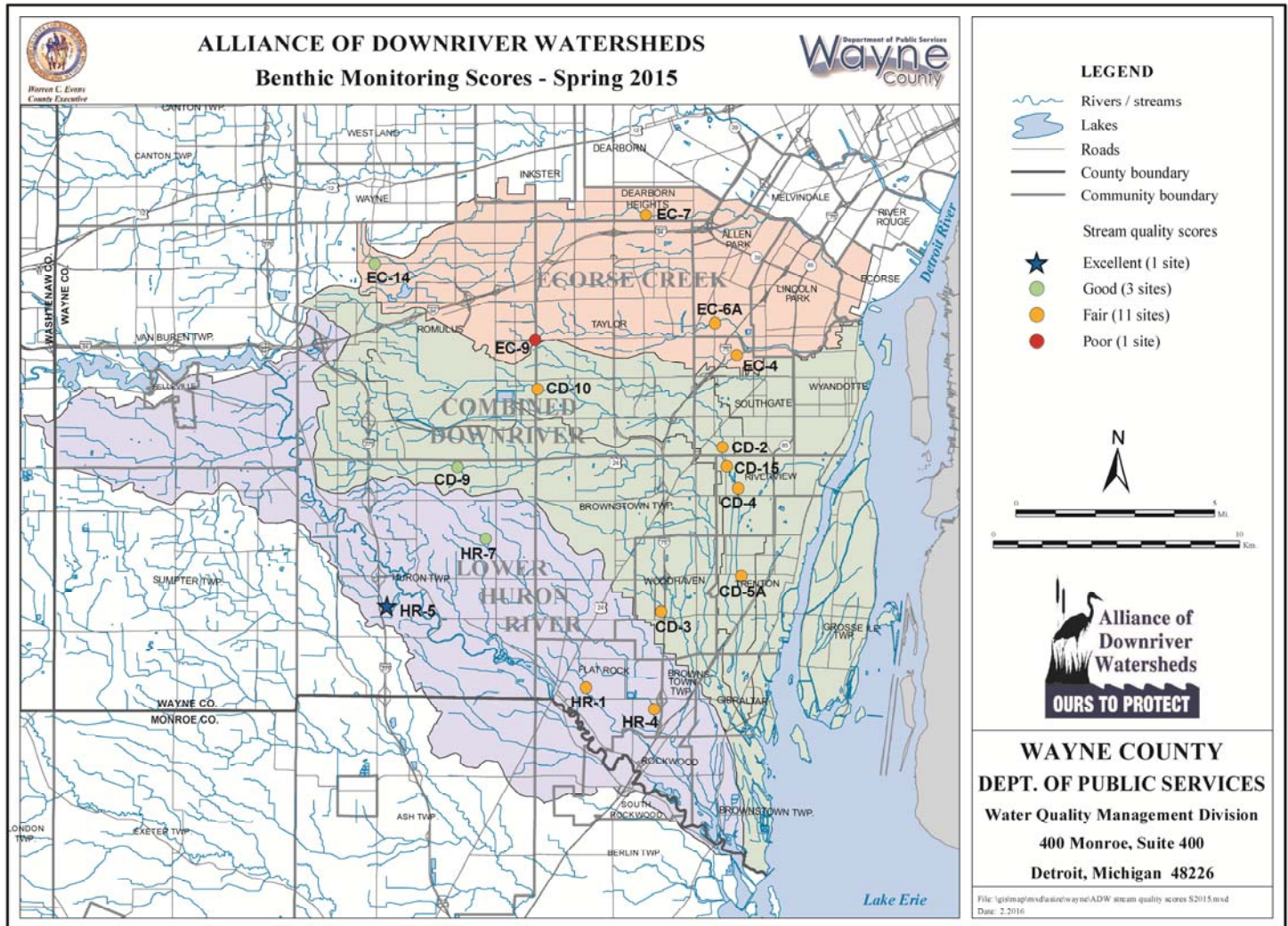
Downriver Watersheds. During 2015, Wayne County WQMD continued its partnership with the Downriver teachers and the Huron River Watershed Council (HRWC) to implement environmental indicator monitoring on behalf of the Alliance of Downriver Watersheds (ADW).

Downriver Watersheds Macroinvertebrate Monitoring: On January 17, 2015, the HRWC Winter Stonefly Search took place. HRWC volunteers sampled four sites in the Lower Huron River watershed. Stoneflies were found at two of the four sites, one Woods Creek site in the Lower Huron Metropark and the Huron River at Huroc Park in Flat Rock. One stonefly family was collected, the broadback winter stonefly (family Taenioptergiidae). WQMD did not conduct an ADW winter stonefly search in 2015.

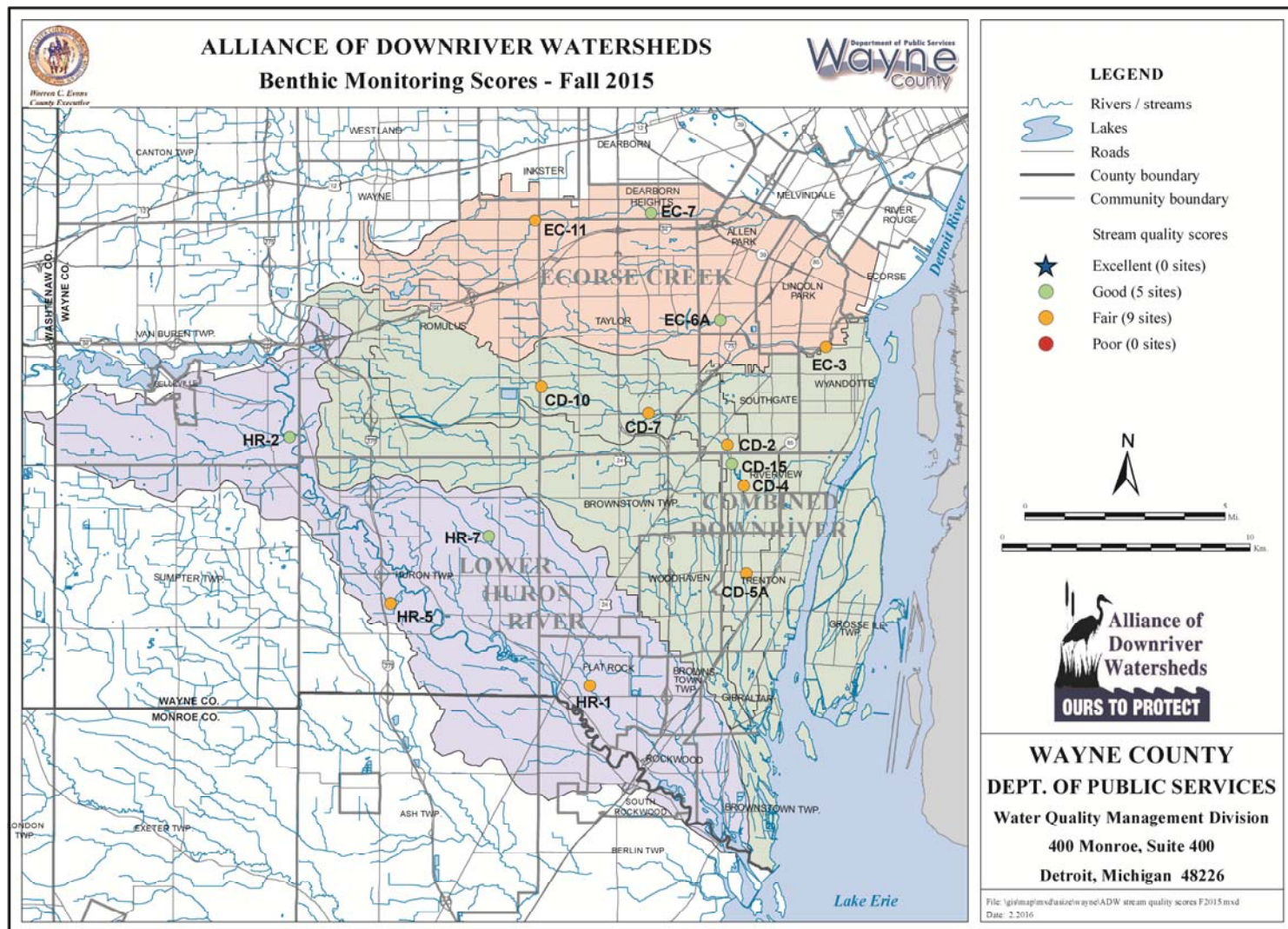
In spring 2015, macroinvertebrate monitoring was performed by WQMD and HRWC at 19 locations in the ADW watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River during April-May. Fifteen ADW sites were monitored by WQMD, including 10 sites with student volunteers assisting. Southgate Anderson High School, Southgate Creative Montessori, Flat Rock High School, Sietz Middle School, Pardee Elementary, Riverview High School, Barnes Elementary, and Trenton High School participated in the monitoring, providing 220 student volunteers. One school sampled two different sites. Figure 5 identifies the spring 2015 locations and their site ratings for the 15 sites monitored by WQMD. The HRWC sampled four additional Lower Huron River watershed sites with River Roundup volunteers on April 18, 2015. Two HRWC sites scored ‘fair’, one site “good,” and one site “poor.”

In fall 2015, macroinvertebrate monitoring was performed by WQMD and HRWC at 17 locations in the ADW watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River during October. Fourteen ADW sites were monitored by WQMD, including eight sites with student volunteers assisting. Flat Rock High School, Southgate Anderson High School, Pardee Elementary, Barnes Elementary, Sietz Middle School, Brown Elementary, and Trenton High School participated in the monitoring, providing 165 student volunteers. Figure 6 identifies the fall 2015 locations and their site ratings for the 14 sites monitored by WQMD. The HRWC sampled three additional Lower Huron River watershed sites with River Roundup volunteers on October 3, 2015. One site scored “good,” one “fair,” and one “poor.”

**Figure 5: Downriver Watersheds,
Benthic Monitoring Sites and Scores, Spring 2015**



**Figure 6: Downriver Watersheds,
Benthic Monitoring Sites and Scores, Fall 2015**



Notable macroinvertebrate findings in the Downriver Watersheds during 2015 include:

- Two of the fifteen sites sampled had sensitive families, one in the Lower Huron and the other at a new site in the Ecorse Creek watershed.
- Sensitive Dobsonflies, or Hellgrammites, (family Corydalidae) were collected at a new site in the Ecorse Creek watershed in spring 2015. This is the second time Hellgrammites were collected in the Ecorse Creek watershed.
- The Silver Creek at King Road site had Perlodid stoneflies (family Perlodidae), a sensitive family, present in spring 2015. A net-tube caddisfly (family Psychomyiidae) was found for the first time at the ADW Wayne County sites. Silver Creek is a Lower Huron River tributary.
- A hoodcase maker caddisfly (family Mollannidae) a unique specimen, was collected in the Reagan Drain in the Lower Huron River watershed.

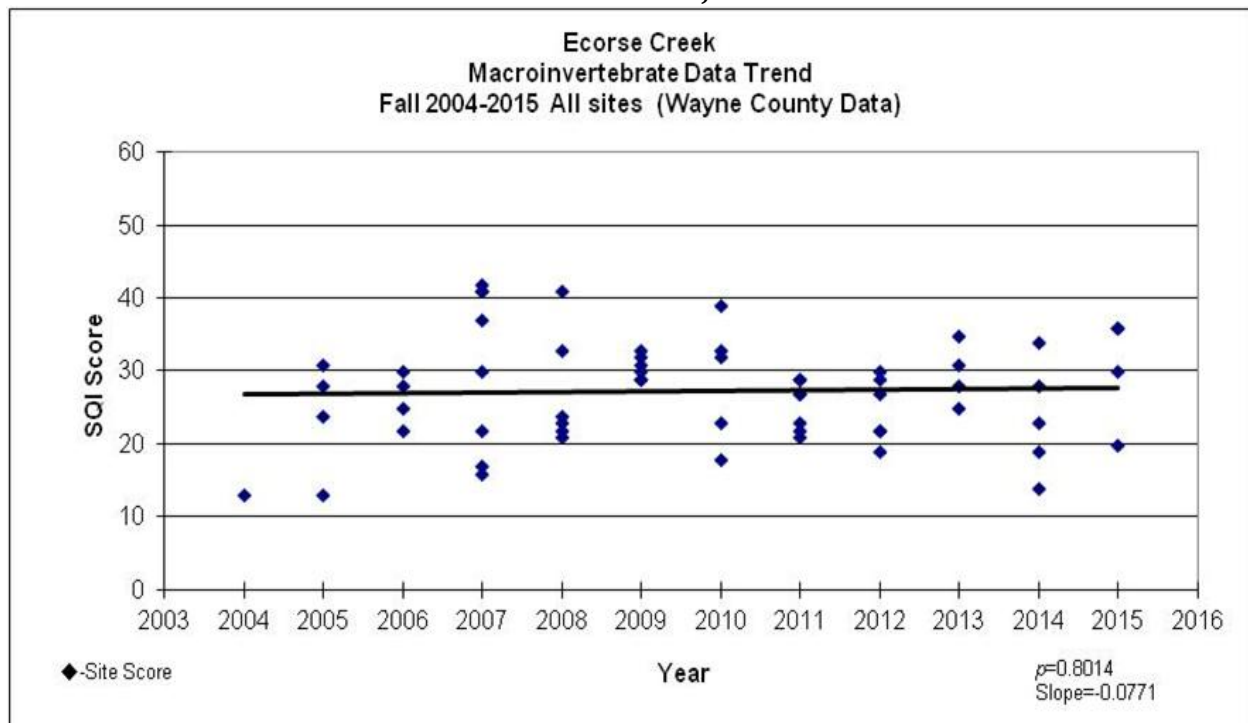
Downriver Watersheds Macroinvertebrate Data Trend Analysis: Trend analysis was performed on the macroinvertebrate data collected during 2004 – 2015 in the ADW watersheds. The data were subdivided into the three primary watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River for analysis. The data analyzed is the Stream Quality Index (SQI) which is the score that is calculated by combining the number and type of macroinvertebrates found. The higher the SQI the better the water quality is at the site. 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. 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. If there is no statistical significant trend, either positive or negative, the subwatershed trend is considered stable. Table 5 summarizes the results of the data trend analysis since ADW macroinvertebrate monitoring began in 2004. Table 5 also contains an average of all water quality rating site scores in each watershed and a water quality rating based on the following water quality rating: >48 =Excellent, $34-48$ =Good, $19-33$ =Fair, <19 =Poor. Ecorse Creek and the Combined Downriver watersheds have a Fair water quality rating in both seasons (spring and fall). The Lower Huron River is rated as Good for the spring and Fair for the fall 2015. Two of the three watersheds (Ecorse Creek and Combined Downriver) demonstrate a statistically significant positive trend in spring 2015.

Table 5: Downriver Watersheds Macroinvertebrate Trend Analysis, 2004-2015

Spring Data Trend				Watershed Average Score (SQI)	Water Quality Rating
Watershed	slope	p-value	Significant trend		
Ecorse Creek	0.6901	0.0263	Yes, Positive	22	Fair
Combined Downriver	0.9895	0.0016	Yes, Positive	24	Fair
Lower Huron River	0.7602	0.2273	No trend	38	Good
Fall Data Trend				Watershed Average Score (SQI)	Water Quality Rating
Watershed	slope	p-value	Significant trend		
Ecorse Creek	0.0771	0.8014	stable	27	Fair
Combined Downriver	0.0394	0.8828	stable	28	Fair
Lower Huron River	-0.1187	0.6707	stable	33	Fair

Figure 7 presents a graphic representation of the linear regression analysis completed for the macroinvertebrate monitoring data collected in the Ecorse Creek watershed during fall conditions. *Section 6: List of Attachments* presents 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 2015 is provided in the report *2015 Monitoring Report Alliance of Downriver Watersheds* available online at <http://www.allianceofdownriverwatersheds.com/initiatives/>.

Figure 7: Fall Macroinvertebrate Data Trend
Ecorse Creek Watershed, 2004 – 2015



Wayne County SAW Grant Monitoring. In 2015, WQMD began implementing monitoring under the County’s Stormwater, Asset Management, and Wastewater (SAW) grant received from MDEQ. Work included water chemistry monitoring across the southern Wayne County watersheds which included Ecorse Creek, the Combined Downriver, Huron River and Swan Creek. Macroinvertebrate monitoring was conducted in the Swan Creek watershed.

SAW Water Chemistry Monitoring: Twenty-one sites were sampled on a monthly basis throughout the sampling season (April-September 2015) across the southern Wayne County watersheds. Monitoring parameters sampled were: dissolved oxygen, conductivity, *E. coli* and total dissolved solids (TSS). The data are being analyzed and will be utilized in selecting future monitoring sites and potential IDEP investigation priority areas for 2016 and beyond.

SAW Swan Creek Macroinvertebrate Monitoring: The first bug hunt in the Swan Creek watershed was performed on April 21, 2015 at three sites: one site in the Big Swan Consolidated Drain, one site in the Desbrow Consolidated Drain, and one site in the Bradshaw Intercounty Drain. The same three sites were also sampled in October 2015. During the spring 2015 sampling, all three sites sampled scored “Good” with scores ranging from 48-43. Twenty different taxa were collected at two of the three sites. Four sensitive families were collected at two different sites: freelifing caddisflies (family Rhyacophilidae). Clubtail dragonflies (family Gomphidae), pronngill mayflies (family Leptophlebiidae), and Perlodid stoneflies (Family Perlodidae), were also found. One site had two sensitive families (SSC-2 Bell Road Big Swan Creek), and one had three (SSC-6 Oakville Waltz on the Bradshaw Consolidated). During the fall 2015 sampling, two sites scored “Good” and the third scored “Excellent” (SSC-2). The scores at the three sites sampled ranged from 50-37 and one sensitive family was found at SSC-

6, the Skimmer dragonfly (family Gomphidae). The data will be used to establish baseline macroinvertebrate data for the three waterways similar to the baseline data that has been established in the Alliance of Rouge Communities (ARC) and Alliance of Downriver Watershed (ADW) municipal separate storm sewer system (MS4) areas and will be used in preparing the Storm Water Management Plan to be developed under the SAW grant.

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.

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, 2015 – December 31, 2015**, 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 6 presents a summary of the results of Wayne County's IDEP.

Table 6
Environmental Concerns Investigated/Illicit Discharges Identified by Wayne County,
January 1 through December 31, 2015

<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	999	NT
Water Quality Complaints into DPS-Water Quality Division	52	16
Drainage Complaints directly into DPS-FMD Drain Office	132	NT
Environmental Complaints directly into DPS-LRMD (7 SESC)	73	NT
OSDS Complaints directly into EHD Office	1	NT
<i>Subtotal, Complaints Handled</i>	258	16
Types of Environmental Concerns or Illicit Discharges Identified during Complaint Investigations (WQMD, FMD and LRMD)		
Illicit Discharge Concern - Grease/Oil/Fuel	19	6
Illicit Discharge Concern - Sewage/Grey Water	2	2
Illicit Discharge Concern – Other	11	7
Requesting Information/Technical Assistance	4	1
Soil Erosion Sedimentation Control	20	0
Landfill Odor	50	0
Illegal Dumping	6	0
Logjams/Woody Debris	80	0
Catch basin/Manhole Issue	3	0
Flooding/Poor Drainage	8	0
OSDS	1	0
Excessive vegetation	13	0
Miscellaneous – track out, noise, excessive vegetation	41	0
<i>Subtotal, Complaint Investigation</i>	258	16
Emergency Spill Response		
<i>Subtotal, Emergency Spill Response</i>	0	0

Table 6 (Continued): 2015 Wayne County Environmental Concerns/Illicit Discharges

Environmental Concerns Identified during Routine Field Operations	Number Handled or Investigated	Number of Confirmed Illicit Discharges
Illegal Dumping (Parks)	3	3
Excessive Erosion (Roads, LRMD)	4	4
Illicit Discharge (Roads, Risk Mgt, LRMD)	4	4
<i>Subtotal, Field Operations</i>	11	11
Illicit Discharges Identified during Facility Dye Test and Onsite Sewage Disposal System Inspections		
Floor Drains/Trench Drains	4	4
Sink/Utility	1	1
Swimming Pool backwash drain (indoor pool)	1	1
Onsite Sewage Disposal System Failures (EHD)	32	32
<i>Subtotal, Facility Inspections</i>	38	38
Pollution Prevented or Removed by Activity	<i>Amount</i>	<i>Sites/Events</i>
Pollutant Load Reductions from Dye-Testing (WQMD)	973 lbs/yr 156,960 gals/yr	6
Pollutant Load Reductions from Onsite Sewage Disposal System Program (EHD)	25,632 lbs/yr 2,321,400 gals/yr	32
Cleanup of illegal dump sites (LRMD - C.L.E.A.N. program)	1,800 cu yds including 6,489 tires	22
Household Hazardous Waste Collection Days (5 days – LRMD)	468.9 tons (937,800 lbs)	5
Cleanup of material dumped on County property, street sweepings and catch basin spoils (DPS-Roads)	14,096 tons (28,192,000 lbs) 3,421 miles swept	NT
County Drain debris disposal (FMD)	171.63 tons (343,260 lbs)	26
TOTAL POLLUTION PREVENTED AND/OR ILLICIT DISCHARGES IDENTIFIED	29,499,665 lbs¹	>65²

NT = Not Tracked separately

DPS = Department of Public Services

LRMD = Land Resource Management Division

FMD = Facilities Management Division

WQMD = Water Quality Management Division

EHD = Environmental Health Division, Wayne County Department of Health, Veterans and Community Wellness

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

OSDS = Onsite Sewage Disposal System

SESC = Soil Erosion and Sedimentation Control

1 - Does not include activities reported in cubic yards.

2 – Number of confirmed illicit discharges, does not include number of LRMD or FMD cleanup/collection events.

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. During the reporting period, 999 calls were handled through the WCDPS Environmental Hotline as follows:

- 125 calls required technical assistance;
- 33 calls were referred to outside agencies;
- 874 inquiries were addressed by staff over the telephone, without need for a field investigation; and
- 11 calls 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). As summarized below, complaints regarding environmental matters are also received directly by these WCDPS divisions as well as by the Wayne County Environmental Health Division and Roads Division.

Coordinated Complaint Response

The WQMD handled a total of 52 complaints during the reporting period as follows: 15 were referred to other agencies or County Departments (2 illicit discharges: 1 was a landfill issue that was referred to LRMD the other a Water of the State that was referred to the community) and 37 were investigated by WQMD. Of the 37 investigated by WQMD, 30 were illicit discharge complaints with 17 being confirmed as illicit discharges as follows: oil spill at gas station, oil in a County Drain, power washing equipment, green dye in a County Drain, leaking vents, oil in utility company manhole, road slag in road ditch, dumping tire wash in storm drain, sanitary sewer overflow (SSO), road tar dumping, landfill leachate release, yard waste, carwash hose to storm drain, dumping cooking grease in storm drain, and drywall dust to storm drain. All 17 confirmed discharges have been removed or referred to others for correction follow-up.

The Facilities Management Division (Drain Office) handled a total of 132 complaints concerning County Drains during the reporting period, categorized as follows: log jams/woody debris – 80, Illegal dumping – 1, debris –1, catch basin/manhole – 3, flooding/poor drainage – 8, sink hole – 1, excessive vegetation – 13, erosion – 10, and miscellaneous - 15.

LRMD received and responded to 73 complaints in 2015, categorized as follows: 50 landfill odors, 7 soil erosion sedimentation control, 5 illegal dumping, and 11 miscellaneous/other. Additionally, LRMD staff responded to numerous information requests regarding the recycling and/or disposal of household hazardous waste materials.

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 four watersheds during 2015: Rouge River, Ecorse Creek, Lower Huron River, and Combined Downriver. Plumbing fixtures at 75 facilities were dye-tested, resulting in the identification of three illicit connections at three facilities, and three

environmental concerns at two facilities. One illicit discharge was discovered at a facility after this discharge was confirmed corrected during a previous follow up investigation. During the reporting period, corrective actions of identified illicit connections, illicit discharges, and environmental concerns were verified at 12 facilities.

Table 7 provides a summary of the facility dye test inspections by watershed. Table 8 summarizes the types of illicit connections and illicit discharges found by Wayne County during facility inspections for this reporting period. Table 9 presents a summary of illicit discharge investigations performed independently of facility dye testing activities. Table 10 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 2015 by dye-test (WCIDEP #2) and onsite sewage disposal system inspections (WCIDEP #5) are eliminated. Wayne County's 2015 illicit discharge elimination efforts (WC IDEP #2 and #5) will prevent over 26,600 pounds of pollutants and over 2.47 million gallons of polluted water per year from entering Wayne County waterways.

**Table 7: Wayne County Watersheds Facility (Dye Test) Inspection Summary
January 1 through December 31, 2015**

	Annual Total	Watershed			
		Rouge River Watershed	Ecorse Creek Watershed	Combined Downriver Watershed	Huron Watershed
Number of Facilities Inspected	76	54	10	11	1
Number of Facilities with Illicit Connections	4	1	2	0	1
Number of Illicit Connections	6	1	4	0	1
Number of Facilities with Illicit Discharges	2*	1	1	0	0
Number of Illicit Discharges	2*	1	1	0	0
Number of Environmental Concerns	4	3	1	0	0
Number of Facilities with Environmental Concerns	3	2	1	0	0
Number of Facilities with Confirmed Corrections	12	10	2	0	0
Number of Illicit Connections Corrected	8	8	0	0	0
Number of Illicit Discharges Corrected	7	6	1	0	0
Number of Environmental Concerns Corrected	6	5	1	0	0

*An illicit discharge was discovered during a follow up inspection at a facility with a previously reported illicit discharge. The pollutant loadings were not recalculated for this illicit discharge.

Since the inception of the Illicit Discharge Elimination Program in 1987, Wayne County staff have inspected 9,974 facilities and identified 2,599 illicit connections at 653 facilities. WQMD confirmed corrections of illicit connections, illicit discharges and environmental concerns at a

total of 626 facilities through 2015. Assuming correction of all illicit discharges identified to date, Wayne County's illicit discharge elimination efforts since 1987 have prevented over 918,782,888 gallons of polluted water 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. Corrections of outstanding illicit connections, illicit discharges, and environmental concerns were confirmed at 12 facilities during 2015. Table 2.1 provided in Section 6: List of Attachments; Section 2 summarizes these corrections. Table 2.2 provided in Section 6; Section 2 is a list of facilities with outstanding illicit connections, illicit discharges, and environmental concerns. Confirmation of corrective action is pending at 48 facilities. Four of these facilities are vacant and two were referred to the local community or appropriate state agency for enforcement action.

Table 8
Types of Illicit Discharges Found Within Wayne County
During Facility (Dye-Test) Inspections January 1 through December 31, 2015

<i>Type of Illicit Connection</i>	<i>Percent of Total Identified</i>	County Total	WATERSHED		
			Rouge River	Ecorse Creek	Huron River
Floor/Trench drains	67	4	1	3	
Sink/Utility	17	1		1	
Swimming pool backwash drain	16	1			1
TOTAL	100	6	1	4	1
<i>Type of Illicit Discharge</i>	<i>Percent of Total Identified</i>	County Total	Rouge River	Ecorse Creek	Huron River
Oil/fuel from towing yard	50	1		1	
Grease dumpster/trash compactor discharge	50	1	1		
TOTAL	100	2	1	1	

Table 9
Summary of Illicit Discharge Investigations Performed Independently of Wayne County
Facility Dye Testing Activities: January 1 through December 31, 2015

	Annual Total 2015	WATERSHED			
		Rouge River	Ecorse Creek	Combined Downriver	Swan Creek
Number of Onsite Sewage Disposal Systems (OSDS) with Illicit Discharges	32	NT	NT	NT	NT

NT: Not Tracked. EHD tracks OSDS by community and not by watershed

Table 10
Summary of Illicit Connections and Estimated Pollutant Load Reductions to Wayne
County Watersheds: January 1, 2015 through December 31, 2015

Parameter	Estimated Amount of Polluting Material Prevented from Entering Wayne County Waterways (annually in pounds)*		
	Annual Loads Pounds/year	Facility Dye-Testing	Failed OSDS
Surfactant	318	57	261
Potassium	125	9	116
Suspended Solids	4,843	146	4,697
Total Phosphorus	307	133	174
Total Solids	13,966	628	13,338
Total Organic Carbon	909	0	909
Ammonia	164	0	164
Biochemical Oxygen Demand	4,272	0	4,272
Fats, Oils and Grease	1,701	0	1,701
Total Annual Pounds per Year	26,605	973	25,632
Flow (gallons/year)	2,478,360	156,960	2,321,400

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

OSDS = Onsite Sewage Disposal System

Rouge Watershed Facility Inspections (Dye-Testing)

In 2015, WQMD performed 54 facility dye test inspections in the Rouge River watershed (see Table 7 above). Dye testing was performed in the Wayne County communities of Livonia, Northville Township, Plymouth (City), Plymouth Township, Westland and Wayne. Wayne County confirmed corrections of eight illicit connections, six illicit discharges and one

environmental concern previously identified at ten facilities. Communities where follow up inspections were performed include Canton Township, Livonia, Northville, Plymouth (City), Plymouth Township and Wayne. At the end of 2015, there were 27 facilities with outstanding illicit discharges (including illicit connections) and environmental concerns in the Rouge River watershed. Eleven of these facilities are municipal and the respective communities are proceeding with corrections to be in compliance with their storm water permit. Two of the facilities were vacant at the time of the follow up inspection. One facility is pending confirmation of all of its corrections with Wayne County and MDEQ staff. (See Table 2.2 in the Attachments for further details).

Alliance of Rouge Communities Dry Weather Screening

WQMD staff utilized funding from the ARC funding to perform field screening in priority areas identified by the ARC Technical Committee based on previous investigations. Wayne County identified sites for monitoring, procured laboratory services and collected samples at 55 sites resulting in 61 samples analyzed for *Escherichia coli* (*E. coli*). Dissolved oxygen, conductivity, and water temperature parameters were also collected at the sites. Sites sampled were located in the Upper, Middle and Lower Rouge within the communities of Livonia, Plymouth (City), Plymouth Township, Wayne, Westland and Canton Township. The data collected was utilized in identifying priority IDEP investigative areas for the Rouge River Collaborative IDEP Plan dated March 23, 2016.

Alliance of Rouge Communities Advanced Investigations

In response to the elevated *E. coli* concentrations at sites identified during the dry weather screening, WQMD performed several advanced investigations in the City of Plymouth. These investigations led to the identification of several illicit discharge sources in the City of Plymouth, specifically the Park Street outfall and the Harvey Street outfall. Facility dye testing was conducted in one of the Park Street outfall drainage area and is included in investigations reported in the dye testing section above. WQMD also performed facility 12 facility dye test inspections in the City of Wayne (8 commercial and 4 municipal) in an area that is tributary to monitoring site G97 on the Lower Rouge River. These inspections are included in the summary of Rouge Watershed Facility Inspections above. An investigative plan was developed and submitted to the ARC for review, approval and implementation in 2016.

Alliance of Downriver Watersheds (ADW Dye-Testing)

Under contract to the ADW, WQMD staff assessed municipal facilities of select ADW members for illicit connections and illicit discharges during 2015. The results of this effort, along with other dye-testing efforts are described below by watershed.

- *Ecorse Creek Watershed*

No ADW municipal facilities were inspected in 2015 within the Ecorse Creek watershed. Ten commercial facilities were inspected, all in the City of Romulus, as part of complaint investigations. Four illicit connections, one illicit discharge and one environmental concern were found at four facilities. WQMD also performed follow up facility inspections to confirm corrections of outstanding illicit connections and discharges in the community of Taylor. Corrections were confirmed at two facilities one illicit discharge and one environmental concern (see Table 7, above). At the end of 2015, there were seven facilities with outstanding illicit discharges and environmental concerns located within the Ecorse

Creek watershed (see Table 2.2 in the Attachments). Correction of remaining outstanding violations will be pursued in 2016.

- *Combined Downriver Watershed Facility Inspections (Dye Testing)*

Eleven dye test inspections were performed in 2015. Four inspections were municipal or community school owned facilities (Grosse Ile Township and Woodhaven Community Schools). Inspections occurred in the communities of Brownstown Township, Grosse Ile Township, Taylor, and Woodhaven within the Combined Downriver watershed. No illicit connections were found at these facilities. Currently there are seven facilities with outstanding illicit connections, illicit discharges or environmental concerns in the Combined Downriver Watershed (see Table 2.2 in the Attachments). Two of these facilities are vacant and one was referred to MDEQ for follow up. Correction of these outstanding violations will be pursued in 2016.

- *Lower Huron River Watershed (Dye Testing)*

WQMD inspected one facility within the Lower Huron River watershed in 2015. This facility, a Woodhaven Community Schools high school pool, has an illicit connection, the swimming pool backwash drain is connected to the storm sewer. There is one facility with outstanding illicit discharges in the Lower Huron River watershed and that is the pool. The pool area, and another section of the school is scheduled for renovation in 2016 at which time the illicit connection will be corrected as part of the construction project.

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 Section 6: Attachments – Section 2 provides a listing of outstanding facilities. Beginning in 2016 contact is being made with all the facilities to update the table and identify an expected date of compliance for each facility with unresolved illicit discharges. If voluntary compliance efforts fail, the County enlists 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. The local communities are responsible for compliance of the outstanding illicit discharges that were identified at their respective facilities during inspections performed by WQMD during this reporting period.

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 2,329 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.

In 2012, WQMD and the Alliance of Rouge Communities staff revised and shortened the full day *Combined Basic/Advanced IDEP Training Workshop* to a half day session titled *Illicit Discharge Investigators Training*. In 2013, the five year Southeast Michigan Regional IDEP Training Plan was developed and recommends that the *IDEP Investigator Training* program be offered in the years 2013, 2015 and 2017. *Illicit Discharge Recognition & Reporting* along with *Municipal Good House Keeping Training* is to be provided in years 2014 and 2016. As planned, Washtenaw County Water Resources Commission hosted the *IDEP Investigator Training* workshop in 2015. The workshop was held at the Washtenaw Community College, Ypsilanti, Michigan, on September 30, 2015. Sixty-nine people attended. The majority of responses from attendees on the workshop evaluation survey were positive. Certificates of completion were prepared and mailed to all registered attendees.

Table 11
2015 Attendance
Wayne County Illicit Discharge Elimination Program Training Workshops

Community/Agency	Number
Wayne County community staff	13
Oakland County community staff	19
Oakland County staff	1
Macomb County staff	1
Washtenaw County community staff	14
Washtenaw County staff	4
Consultants representing communities	1
School District staff	1
University/community college staff	11
Others not classified	4
2015 Total	69

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

In 2015, 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)

During 2015, the Environmental Health Division (EHD) of the Wayne County Department of Health, Veterans and Community Wellness continued implementation of the Wayne County Onsite Sewage Disposal Systems (OSDS) Evaluation and Maintenance Ordinance (Enrolled Ordinance 99-527). In 2015, a total of 32 failed systems were identified by EHD via complaints, repair permit evaluations, and “time of sale” inspections. From Table 12, there were 133 “time of sale” evaluations of onsite sewage disposal systems performed during 2015, 32 of these

systems were identified as failing, and with 29 systems. The three systems that were not repaired were vacant at the time this report was generated. Each system will be required to be repaired prior to occupancy. Eighteen inspectors were certified to perform OSDS “time of sale” evaluations in Wayne County during 2015.

Table 12
Summary of Onsite Sewage Disposal System Evaluations Performed
January 1, 2015 - December 31, 2015

Type of OSDS Inspection	Number of Inspections	Number of Failures
Time of Sale	133	32
Totals	133	32

As summarized in Table 13, the Wayne County EHD requires permits for the construction of new OSDS and for repair/replacement of existing OSDS. In 2015, a total of 95 new and repaired system permits were issued by Wayne County.

Table 13
Summary of Onsite Sewage Disposal System Permits Issued
January 1, 2015 - December 31, 2015

Permit Type Issued	Number of Permits
New Construction	20
Repair or Replace	75
Total	95

Table 14 provides a summary of OSDS-related complaints investigated in 2015.

Table 14
Summary of Onsite Sewage Disposal System Related Complaints Investigated
January 1, 2015 - December 31, 2015

Number of Complaints	1
Number of Complaints identified as failing OSDSs	0
Number of Complaints Resolved	1

As described in WCPEP#32 of this report, educational materials about proper maintenance of OSDS are distributed to homeowners at the time of permit issuance. Septage haulers have a responsibility under Ordinance #99-527 to file OSDS evaluation reports for all pump outs in Wayne County. One hundred eighty-four (184) reports were received in 2015; there were no significant findings to report. Table 15 summarizes the estimated pollutant loading reductions to Wayne County watercourses from the 32 failed OSDS that were identified in 2015 as illicit discharges.

Table 15
Summary of Estimated Pollutant Load Reductions to Wayne County Watersheds from
Onsite Sewage Disposal Systems: January 1, 2015 through December 31, 2015

Parameter	Loading Reductions (<i>lbs/year</i>)¹
Total Solids	13,338
Total Suspended Solids	4,697
Biochemical Oxygen Demand	4,272
Ammonia	164
Total Phosphorus	174
Surfactant	261
Potassium	116
Total Organic Carbon	909
Fats, Oils & Grease	1,701
Total pollutant reduction	25,632
Flow reduction (gals/year)	2,321,400

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

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 spill or other “emergency” water quality issues that required investigation assistance from Wayne County.

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 2015, the program conducted 12 neighborhood clean-ups and tire sweeps and 10 additional scrap tire collection events. A total of 1,800 cubic yards of waste and 6,489 scrap tires were cleaned up as a result of these events. Preventive efforts at these sites include neighborhood watch programs, volunteer clean up days, community gardens, 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 115 community groups, seeking their participation in the program. Approximately 200 CLEAN Program brochures were distributed in 2015 through direct mailings to every

community in Wayne County, community organizations, neighborhood block clubs and churches. Distribution also took place and numerous block club meetings and public events.

Five household hazardous waste (HHW) collection events were conducted by Wayne County in 2015. A total of 468.853 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 the results of Wayne County's HHW and E-Waste collection days for 2015 is shown in Tables 16 and 17.

Table 16
Summary of Wayne County's
2015 Household Hazardous Waste and E-Waste Collection Days

Date	Location	Number of Participants
April 4, 2015	Romulus Civic Center	982
May 12, 2015	Flat Rock Community Fields	1,004
June 20, 2015	Henry Ford Community College	2,118
August 15, 2015	Westland Shopping Center	2,539
October 10, 2015	Wayne County Community College	1,980
Totals	5 events	8,623

Table 17
Summary of Material Collected During
Wayne County's 2015 Household Hazardous Waste and E-Waste Collections

Materials	2015 (Tons)
Hazardous Waste	
Acids	2.7275
Aerosols	11.955
Antifreeze	6.2565
Batteries, lead acid	7.752
Batteries, Lithium	0.408
Batteries, mixed/household	8.1795
Bio-medical sharps	1.081
Caustics/Oxidizers	3.0565
Electronic Equipment	173.0265
Expired medicines/pharmaceuticals	1.878
Fire Extinguishers	2.9055
Flammable Liquid	12.936
Fluorescent Lamps	3.808
Herbicides & Pesticides	16.2345
Mercury Devices	0.0525
Oil	21.8065
Paint, latex	139.0905
Paint, oil	32.409
PCB Ballast	0.295
Propane cylinder	3.373
Smoke detectors	0.1005
Toxic Products	19.082
Reactives	0.058
Other Cylinders	0.3815
TOTAL TONNAGE	468.853

Land Resource Management Division Illegal Dumping Reports

Land Resource Management Division did not report any illegal dumping events during this reporting period.

Roads Division Illegal Dumping Reports

Roads did not report any illegal dumping events during this reporting period.

Engineering Division – Field Engineering

Minor construction debris, broken concrete and building materials were dumped on several road construction sites during the reporting period. The materials were hauled off site to a licensed landfill by the construction contractor.

Parks Division Illegal Dumping Reports

There were multiple incidents of dumping in various Wayne County parks areas that were reported by Parks staff or by the Sheriff Park Patrol. The debris was immediately cleaned up by Parks maintenance staff for proper disposal.

Facilities Management Division Illegal Dumping Reports

There were no incidents of illegal dumping recorded by Facilities Management Division (FMD) staff in 2015. As part of their regular duties, maintenance was performed by FMD on 26 County Drains resulting in the removal and proper disposal of 171.63 tons of material from County Drains in 2015.

Swimming Pool Inspections (WCIDEP #8):

The Environmental Health Division (EHD) of the Wayne County Department of Health, Veterans and Community Wellness is responsible for inspections of public swimming pools located within Wayne County (excluding the City of Detroit). These inspections are performed each spring prior to opening for the swimming season. During the 2015 swimming season, EHD inspected 566 swimming pools.

EHD cooperates with the MDEQ in the issuance of 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.

WQMD inspected two swimming pools during 2015 under the ADW Municipal/School dye testing inspections in the City of Brownstown, at Brownstown Middle School and in Woodhaven at the Woodhaven High School. The drains for the Middle School pool were determined to be connected to the sanitary sewer. The drain(s) for the high school swimming pool were connected into a storm drain and will be corrected in 2016 under a bond renewal for capital improvements at the high school. A re-inspection of the renovations and/or repairs to the swimming pool drain line will be conducted upon completion of the improvements project.

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 2015, WQMD performed follow-up pollution prevention (P2) inspections at the following Wayne County Road Division Maintenance Yards: Central Maintenance Yard, Merriman Yard, and Phoenix Yard. In addition, follow-up P2 inspections were completed at all five Wayne County Parks maintenance yards during 2015: Crosswinds Marsh, Elizabeth Park, Lola Valley, Parkview and Wallaceville.

Visual Inspections During Routine Field Operations (WCIDEP #10)

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 Department of Public Services (Facilities Management, Engineering, Roads, Parks, Land Resources, and Water Quality Management) and the Department of Health, Veterans and Community Wellness (Environmental Health Division). Table 18 presents a summary of the environmental concerns identified during routine Wayne County field operations. Table 19 summarizes the results of the follow up investigations to routine field operation reports. Descriptions of select investigations are summarized below:

- Risk Management staff reported a pool of tar or oil like product on the Phoenix Yard property not far from the river. WQMD staff investigated and found a 10’x10’ area of the black tar like material. This area appears to have been a bin used to store road shoulder material. The area was excavated down to a depth of approximately two and half to three feet. The yard to the west of the emulsion was scraped down six to eight inches. Approximately 50 yards of the material was excavated. The material was disposed of properly through the Roads Divisions’ industrial waste contractor. Referral closed.
- Roads Division staff reported a fueling vehicle fire that was occurring in New Boston on private property. WQMD contacted the Huron Township Public Works supervisor who relayed that Huron Township Fire Department contained the fire and most of the fuel on the site, some product did enter the storm drains and reached a detention pond on the private property. An estimated 50-70 gallons of fuel was spilled. Huron Township personnel checked the detention pond outlet and stated that the water level in the pond was not close to the outlet and that the spilled material was being contained in the pond and had not released to the nearby Reagan Drain. The company was aware of the issue and informed that it was their responsibility to ensure clean up to prevent the product from leaving the private property and discharging into the waters of the state. If any release to surface water/drain occurred, or if additional assistance was needed, Huron Township was asked to notify WQMD. No further action needed; referral closed.
- On June 2, 2015 a direct discharge of leachate to the Frank and Poet drain was observed by LRMD staff at the Riverview Land Preserve Landfill. A contractor working at the site had pumped leachate from an excavation trench into the Frank and Poet Drain. The discharge was brought to the attention of site personnel and was immediately halted. The facility was issued a violation notice by Wayne County and the MDEQ. Among the compliance activities undertaken as a result of the violation notices, the Riverview Land Preserve Landfill updated their site operations plan to require contractor education and training regarding storm water and leachate discharges prior to working at the site.
- LRMD staff observed a discharge of sediment from two residential construction projects in Dearborn Heights into the Middle Branch of the Rouge River. This discharge was the result of the failure to establish adequate soil erosion controls by the property owners as required by Wayne County’s Soil Erosion and Sedimentation Control Ordinance. Stop Work Orders were issued at both construction sites. Plans have been submitted for these projects and restoration work has begun. At year end 2015, the incidents remain under investigation and active enforcement.

Table 18
Types of Environmental Concerns “Identified” during Routine Field Operations
January 1, 2015 - December 31, 2015

<i>Type of Environmental Concern</i>	
Soil Erosion Sedimentation Control (LRMD)	4
Illicit Discharge (Roads, Risk Management, LRMD)	4
TOTAL*	8

* Numbers do not include issues identified via complaints or illegal dumping reported in WCIDEP #7.

Table 19
Environmental Concern Investigations Resulting from Routine Field Operations
January 1, 2015 - December 31, 2015

Reporting Division	Environmental Concerns Reported	Verified by WQMD	Source/Cause Identified	Referred To	Corrections Confirmed
DPS-LRMD	6	0	6	MDEQ	6 ¹
DPS– Risk Mgt	1	1	1	NA	1
DPS – Roads	1	0	1	NA	1
TOTAL	8	1	8		8

1 – Referred to and under the responsibility of MDEQ and counted as confirmed correction.

County Drain Inspections

There were no County Drain inspections reported in 2015.

IDEP Training for Volunteers (WCIDEP #11)

In 2008, 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 orientation sessions for volunteers, teachers and team leaders. In 2015, FOTR held nine different training and/or volunteer monitoring sessions that provided IDEP training to approximately 366 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 that scheduled inspections of points of discharge are not a safe nor 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 6* and particularly *Table 10: Summary of Illicit Connections and*

Estimated Pollutant Load Reduction to Wayne County Watersheds: 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 Systems (WCIDEP #15)

Alliance of Rouge Communities (ARC) Outfall Mapping

As part of the ARC Technical Committee's Collaborative IDEP Action Plan development process, in 2009 WQMD staff began accepting ARC member data regarding known municipal separate storm water sewer system (MS4) discharge points. A watershed-wide GIS map of discharge points to "Waters of the State" in the Rouge River watershed was initiated along with 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. A map of the data compiled for the Rouge River watershed through 2015 is included within the attachments for Section 2 of this report.

Alliance of Downriver Watersheds (ADW) Outfall Mapping

As part of the ADW's Collaborative IDEP Action Plan development process, in 2013 WQMD staff began accepting ADW member data regarding known municipal separate storm water sewer system (MS4) discharge points. A watershed-wide GIS map of discharge points to "Waters of the State" in the Downriver Watersheds was initiated along with 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 ADW members as well as improve compliant response and suspicious discharge source tracking efforts. A map of the data compiled through 2015 for the Downriver Watersheds is included within the attachments for Section 2 of this report.

Wayne County Updated Storm Water System Map

An updated GIS map of Wayne County's storm water system including latest coverage of County Drains, County Roads, County Parks and maintenance yards was performed and is included within the attachments for Section 2 of this report.

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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, 2015 – December 31, 2015** 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 Systems 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, #22 and #26.

Educate Public Regarding Animal Waste (WCPEP #2)

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

Educate Public Regarding Pavement or Power Washing (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: Through outreach efforts performed under contract with the ARC and ADW, the WQMD provided over 1,000 pieces of public information materials relating to water pollution issues to numerous individuals and groups within the Rouge River and downriver area during 2015. The materials included tree seedlings, *Value of Trees* flyer; *Rouge River* bookmark; *Tree Planting Instructions*, *ARC Information Flyer* as well as the ADW's 2016 calendar *A Year of Waterways – 12 Ways You Can Protect Our Water*.

Wayne County distributed additional educational materials at community events or festivals, staff training sessions, workshops, leadership presentations, departmental presentations, or office display racks. During the reporting period, over 20,000 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; *Riparian Corridor Management Principles and Practices* brochure, 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. Wayne County also supports the ADW's Pet Waste Outreach Program (see <http://www.allianceofdownriverwatersheds.com>) by distributing educational materials.

During 2015, LRMD staff distributed the *Resource Recovery Guide (RRG) Booklet*, *Disposal Tips for Home Medical Waste & Pharmaceuticals* brochure, the *Mercury Information* brochure, *Compost “Black Gold”* 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*. WCDPS-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 placed by communities for over 1,000 public education items for subsequent distribution to others.

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 publication in County or community newsletters. These included the *Hines Park Green Infrastructure (GI) Volunteer Work Day, 2015 Green Schools Program*, and the ADW and ARC *Trees for Green Schools* summaries. These summaries were provided to the communities via the ARC and ADW websites (<http://www.allianceofrougecommunities.com/index.html> and <http://www.allianceofdownriverwatersheds.com/>, respectively) and included the Water Environment Federation’s *Water is Life* ad graphic.

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

During 2015, the WQMD planned, coordinated, promoted and/or participated in various community events, meetings, seminars and workshops with environmental displays and educational information, including:

- *Canton Home Expo*, March 7-8, 2015;
- *Detroit River Water Festival*, April 30, 2015;
- *Grosse Ile Schools*, May 1 -22, 2015;
- *18th Annual Rouge River Water Festival at University of Michigan-Dearborn*, May 7, 2015;
- *Grosse Ile Township*, May 22 – June 2, 2015;
- *Grosse Ile Islandfest*, May 29-31, 2015;
- *Melvindale City Hall*, June 3-18, 2015;
- *Melvindale Days Festival*, June 4-7, 2015;
- *Gibraltar City Hall*, June 24 – July 24, 2015;
- *Wyandotte Street Fair*, July 15 - 18, 2015;
- *3rd Annual Rouge-A-Palooza*, City of Wayne, October 10, 2015.

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 WCDPS-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. In addition, the hotline number is advertized on the County's website www.waynecounty.com.

Advertisements (WCPEP #9)

Due to funding limitations, stormwater/watershed management advertisements were not placed by Wayne County during 2015.

Point of Sale Education (WCPEP #10)

During 2015, Wayne County continued its involvement and support of the *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 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. Stickers were provided to the Grosse Ile Nature Land Conservancy to initiate a local hardware effort. The Healthy Lawn Care Program for Watershed Protection was also promoted via websites and program flyer distribution.

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.

ARC Green Infrastructure Workshops

Wayne County was once again an integral partner in the successful Green Infrastructure Education Campaign established by the ARC to assist with implementation of green infrastructure (grow zone) workshops. During 2015, the ARC workshop sub-committee scheduled and held three (3) *Caring for Land Along the River* green infrastructure workshops. A total of 38 people attended the workshops held in September and October 2015 at the following locations:

- September 24 in Canton;
- September 29 in Franklin; and
- October 6 in Novi.

ARC Septic System Maintenance Workshop

Seventeen people participated in the December 2, 2015 *Septic System Maintenance* workshop held in Northville Township Community Room. This workshop focused on informing ARC members and others on topics including how a septic system works, what can harm a septic system, how to maintain a septic system, and risks and costs of a malfunctioning septic system.

Middle Rouge Riparian Corridor Management: Bennett Arboretum Grow Zone Work Day

Wayne County Parks and WQMD again partnered with Wayne County Commissioner Terry Marecki to hold the seventh annual *Hines Park Green Infrastructure Volunteer Work Day* in

May of 2015. WQMD provided technical guidance to the Commissioner's staff prior to the event and Parks Division provided comfort station access and trash disposal in support of the event.

Middle Rouge Riparian Corridor Management: The Youth Connection Program

WQMD partnered with Wayne County Parks Division in 2015 to implement three green infrastructure workday events with The Youth Connection, a private non-profit agency based in Detroit. The Youth Connection receives funding from the Michigan Department of Natural Resources to employ youth in summer programs connected to parks and natural resources. The green infrastructure workday events were as follows:

- July 22: The first GI workday event was held at the Bennett Arboretum. Activities included pulling out buck-thorn under the oak collection; cutting back overgrowth around the wetland overlook; replacing gravel in an area washed out by storm water runoff; and weeding around the information kiosks.
- July 29: The workday consisted of river monitoring and signage placement. The Youth Connection joined WQMD staff to perform physical, chemical and biological monitoring of the Middle Rouge River. The team met at Waterford Bend and learned how benthic macro-invertebrates are used to monitor water quality. Samples were collected from the river and the team sorted through the samples and identified the macro-invertebrates collected. The stream quality score of the site was a 47, a "good" water quality rating. Two types of fish were also collected: mottled sculpins and rainbow darters. Water chemistry (dissolved oxygen), and habitat assessment of the site was performed and the team discussed how land uses and human activities may impact water quality. When working at Newburgh Pointe, the team collected water samples and measured dissolved oxygen in Newburgh Lake using test kits and the meter. WQMD staff installed invasive species signs at the boat launches at Newburgh Pointe, Sumac Pointe and Nankin Lake. Replacement Grow Zone signs were installed at the Inkster Road Oxbow site (2 signs) and at the Ford/Outer Drive site (1 sign) across from the Parkland recreation area.

Wayne County Michigan Green Schools Program

Wayne County's WQMD staff has been working with the Wayne County Regional Educational Service Agency (Wayne RESA) since 2007 to promote and grow Wayne County's Green Schools Program. In 2015, 129 schools were recognized as "Wayne County Green Schools". These schools earned at least 10 points under the Michigan Green School legislation for implementing specific energy-saving and environmental activities within the 2014-15 academic year. Under Wayne County's Green School program, the activities are set up in four categories (A-D): Recycling, Energy Saving, Environmental Protection and Miscellaneous. A fifth category (E) allows schools to propose their own activity. Points can be accumulated in any combination of categories, as long as there is a minimum of two from each Category A-D. Additional points can be earned from Category E. Emerald School designation can be achieved by successfully participating in 15 points and the Evergreen designation is achieved by successfully participating in 20 points. Information on Wayne County's Green Schools Program is available online at <http://www.waynecounty.com/doe/1136.htm>

Trees for Rouge Green Schools Program

With financial support from the ARC, the *Trees for Rouge Green Schools Program* was again implemented in 2015, with 60 trees purchased for distribution to 2015 Michigan Green Schools

located within the Rouge River watershed. The tree species offered were all native to Michigan and included eastern redbud, sugar maple, basswood and tulip tree. Wayne County offered the trees to 74 schools that were new to the Green School program or earned an Evergreen status during the 2015 program. These schools were located in the Oakland and Wayne County portions of the Rouge River watershed. Thirty-two schools accepted a tree. The remaining 28 trees were offered to ARC members; seven ARC members accepted the offer and were given four trees each.

ARC Tree Seedling and P2 Literature Distribution

in conjunction with a City of Farmington Hill's community event, individual tree seedlings and pollution prevention (P2) literature were distributed on August 22, 2015. The seedlings were provided as bare root seedlings. Informational material including planting instructions, the *Value of Trees* flyer, *Rouge River bookmark*, ARC flyer and instructions on registering the tree through the ARC's website were provided for each seedling.

Trees for Downriver Green Schools Program

With financial support from the ADW, the *Trees for Downriver Green Schools Program* was again implemented in 2015. Twenty trees were purchased and distributed to the 2015 Michigan Green Schools located in the Downriver watersheds. The tree species offered were all native to Michigan and included eastern redbud, tulip tree, basswood and sugar maple. Wayne County offered trees to the 26 recognized green schools within the ADW, and 18 schools accepted trees.

Riparian Corridor Management Technical Advisory Committee and Work Group (WCPEP #12)

Although there were no meetings of the Corridor Management Technical Advisory Committee (RCM TAC) in 2015, 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. The Rouge Water Trail Partnership is also a vehicle for continuing the intent and purpose of the RCM TAC and Work Group.

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. WQMD staff participated in the HL&G TAC meeting held March 18, 2015 where agenda items included the Michigan Fertilizer Act, Healthy Lawn Care Program for Watershed Protection and the Earth Friendly Fertilizer Sticker Program. Informational materials for healthy lawn care are available online from the County website at <http://waynecounty.com/doe/1047.htm>.

River Day/Rouge Rescue (WCPEP #14)

Wayne County actively promoted participation in and provided funding for the Friends of the Rouge (FOTR) Rouge Rescue held May 30, 2015 (see <http://www.therouge.org/our-work/rouge-rescue> for a description of activities and program results). In addition, WQMD staff provided services and support for Rouge Rescue 2015. Kesh Raizada from WQMD served as the site coordinator at the Meadows of Canton site (the Canton Temple and Fellows Creek at Palmer Road); with WQMD staff Susan Thompson providing event support. Over 62 volunteers assisted in catch basin stenciling, benthic macro-invertebrate monitoring trash removal, and bird box

building. WQMD's *Frog & Toad* and *7 Steps* displays were set-up and a variety of educational material was provided to all volunteers. Five bags of trash (0.9 cubic yards) were removed from 2.42 acres in and around Fellows Creek. Attendees learned about life in the river through a presentation and with live benthic macroinvertebrate samples.

The third annual *Rouge A Palooza* was held in the City of Wayne's Goudy Park on Saturday October 10, 2015. The celebration was organized by dedicated City of Wayne volunteers to promote the cleanup and restoration of the Lower Rouge in the City of Wayne. The third annual *Logjam Classic* canoe race, a three mile dash along the Lower Rouge River through Wayne kicked off the activities on a beautiful fall day. The winning team completed the route slower than last year due to lower water levels created by a dry summer. The trophies given to the winners were carved from a log recovered from the Rouge River. A public canoe trip organized by FOTR began after the canoe race, with 29 people and 18 boats completing the route. Both events ended in Goudy Park in the City of Wayne, where the *Rouge A Palooza* event was staged and open to the public from 1:00-8:00pm. The celebration included food and drink, live music, a paper boat race, a rubber duck race, fun activities for kids, and displays by local governments and community groups, including Wayne County Parks, WQMD and FOTR. Visitors to the event assisted WQMD in looking for benthic macro-invertebrates by sorting samples collected from the Lower Rouge River at Goudy Park and learned about how benthic macroinvertebrates are used to determine water quality. A tank with native fish collected in the Lower Rouge by FOTR volunteers was set up to complement the benthic macro-invertebrate display. The "Our Actions" tabletop display and water quality public education material was also on hand. Attendees visiting the WQMD displays picked up 35 "Seven Simple Steps" tip cards, "Storm Drains Aren't Garbage Cans," and Wayne County 24 hour hotline brochures to take home.

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

Wayne County continued to support the Rouge Frog & Toad Survey implemented by FOTR in 2015. While there weren't any training workshops in 2015 due in part to the Rouge Project funding ending in 2014, WQMD helped secure the data analysis funding that FOTR obtained via the ARC's MDEQ Public Advisory Council grant and participated in data review report and comment (see <http://www.therouge.org/our-work/rouge-frog--toad-survey/frog-toad-data> 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 2015 as follows:

- *FOTR Winter Stonefly Search:* WQMD staff served as team leaders for the FOTR Winter Stonefly Search held February 14, 2015. Over 77 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 2015 winter stonefly search are summarized in Section 1.
- *FOTR Spring Bug Hunt:* WQMD staff served as team leaders for this event held April 18, joining approximately 134 volunteers in benthic macro-invertebrate sampling at 60 sites throughout the Rouge River watershed. Volunteers including WQMD staff collected and identified benthic macro-invertebrates for the purposes of gauging Rouge River water quality. The results of the 2015 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 17, leading volunteers in the collection and identification of benthic macro-invertebrates for the purpose of using the data to gauge the water quality of the Rouge River. Over 100 people from around the Rouge Watershed participated and sampled 29 sites. See Section 1 of this report for a summary of the water quality scores from this monitoring event.
- *WQMD Spring Student Bug Hunt:* WQMD performed a bug hunt with 130 students from East Middle School students at Lions Park in the City of Plymouth over two days, May 29 and June 1, 2015. The Tonquish Creek in Plymouth Township was sampled and the students sorted the samples to obtain a water quality score. Both samples scored “Excellent”.
- *WQMD Fall Student Bug Hunt:* WQMD performed a bug hunt with East Middle School students at Lions Park in the City of Plymouth on October 2. A total of 55 students participated. The Tonquish Creek in Plymouth Township was sampled and the students sorted the samples to obtain a water quality score “Excellent” water quality rating for the site.

Volunteer Monitoring: Bug Hunts, Downriver Watersheds (WCPEP #17)

During 2015, WQMD (with ADW financial support) continued its partnership with the Downriver Citizens for a Clean Environment “Stream Team” teachers and students and the Huron River Watershed Council (HRWC) and volunteers to implement macro-invertebrate monitoring at locations throughout the downriver watersheds of Ecorse Creek, Combined Downriver and the Lower Huron River watersheds. Over 220 student volunteers assisted with monitoring at 15 sites during the spring sampling, and almost 165 student volunteers assisted with sampling at 15 sites during the fall effort. The results of these monitoring efforts are presented in Section 1 of this report.

Rouge Education Project (WCPEP #18)

WQMD staff participates on the FOTR Public Involvement Advisory Task Force, which meets on nearly a monthly basis throughout the year.

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). In 2016, Wayne County will continue to offer these stencils to schools and community groups and promote the use of decals for labeling storm sewers within residential areas and at facilities inspected as part of our Illicit Discharge Advanced Investigation and Correction (WCIDEP #2).

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

In 2015, WCDPS staff advised DPS-Road yard staff through P2 follow-up inspections to maintain 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: Public Information and Education Committee (WCPEP #21)

WQMD staff participated in all 2015 Alliance of Rouge Communities Public Information and Education (PIE) Committee meetings and activities (see the 2015 Executive Director Annual Report available at www.allianceofrougecommunities.com for more detailed information). In addition, Wayne County participated in all 2015 activities of the Alliance of Downriver

Watersheds, Public Education Committee (see the ADW Bi-Annual Report 2014-2015 available at <http://www.allianceofdownriverwatersheds.com/initiatives/> for more detailed information).

Information Dissemination via Websites (WCPEP #22)

In 2015, the website for Wayne County's Rouge River National Wet Weather Demonstration Project (www.rougeriver.com) experienced over 2.02 million hits and 383,182 site visits from citizens, students, university staff, businesses, community groups, municipalities, and others interested in obtaining information on the Rouge River and the Rouge River Project. In addition, the ARC (www.allianceofrougecommunities.com) and ADW websites (www.allianceofdownriverwatersheds.com) and the Wayne County website (www.waynecounty.com) are also used to inform and involve the public in storm water management and watershed awareness activities. Examples of storm water public education information available from the Wayne County website includes but is not limited to:

- Riparian Corridor Management: <http://waynecounty.com/doe/1146.htm>
- River Friendly Lawn Care: <http://waynecounty.com/doe/1138.htm>
- Grow Zones Initiative: <http://waynecounty.com/doe/1148.htm>
- Green Infrastructure: <http://waynecounty.com/doe/1152.htm>
- Native Plants: <http://waynecounty.com/doe/1154.htm>
- Recreational Vehicle Pump Out Stations in Metro Detroit: <http://waynecounty.com/doe/1144.htm>
- Proper disposal of household hazardous waste, home medical sharps, etc: <http://waynecounty.com/doe/1062.htm>
- Onsite Sewage Disposal Systems: <http://waynecounty.com/hhs/onsitesewage.htm>

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 8 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. Table 20 summarizes the educational publications placed by WQMD at County offices in 2015. This information was supplemented by additional materials placed at County offices by other departments (e.g., Section WCPEP #31, Integrate Public Education into Parks Operations, describes additional educational materials placed by Parks).

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/1062.htm> and is also distributed at all public events in which LRMD participates including the HHW and electronic waste collection events. Other materials to educate the public about pollution prevention include *Disposal Tips for Home Medical Waste & Pharmaceuticals* brochure, *Mercury Information* brochure, flyers for HHW and Electronic Waste collection events, and the *CLEAN Program* brochure. These materials are also available, along with home composting tips, from the website shown above. Table 21 summarizes the

educational materials related to proper waste disposal that were distributed at public events during the reporting period.

Table 20
Storm Water Educational Materials Available at County Offices
January 1 – December 31, 2015

Location	Date Refreshed	Materials
DPS Roads Division main office, Central Maintenance Yard, Romulus	4/26/15 & 10/23/15	<i>Hotline brochure, Storm Drains, 7 Simple Steps tip cards, Rouge Watershed recreation maps</i>
DPS Parks Division headquarters, Nankin Mills, Westland	4/26/15 & 10/23/15	<i>Hotline brochure, Storm Drains, 7 Simple Steps tip cards, Rouge Watershed recreation maps, Riparian Corridor Management Principles and Practices brochure</i>
DPS Engineering Division WC Permit Office, Wayne	4/29/15& 10/23/15	<i>7 Simple Steps tip cards, Hotline brochure, Storm Drains Aren't Garbage Cans brochure, Rouge Watershed recreation maps</i>
640 Temple, Detroit	4/29/15 & 10/23/15	<i>7 Simple Steps tip cards, Hotline brochure, Storm Drains Aren't Garbage Cans brochure, Rouge Watershed recreation maps</i>
Environmental Health Division offices, Wayne	10/23/15	<i>Hotline brochure, Storm Drains Aren't Garbage Cans brochure, 7 Simple Steps tip cards, Riparian Corridor Management Principles and Practices brochure</i>
DPS WQMD office, 3600 Commerce Court, Wayne	As Needed	<i>Hotline brochure, Storm Drains, 7 Simple Steps tip cards, Rouge Watershed recreation maps, Riparian Corridor Management Principles and Practices brochure, Resource Recovery Guide, Disposal Tips for Home Medical Waste & Pharmaceuticals brochure, Mercury Information brochure, flyers for HHW and Electronic Waste collection events, CLEAN Program brochure, Compost "Black Gold" brochure; Soil Erosion, Sediment Pollution and Your Home brochure; ADW Pet Waste educational materials</i>
DPS Environmental Services Group administration office, 400 Monroe, Suite 400, Detroit	As Needed	<i>Hotline brochure, Storm Drains, 7 Simple Steps tip cards, Rouge Watershed recreation maps, Riparian Corridor Management Principles and Practices brochure</i>

Table 21
Distribution of Educational Materials for Proper Waste Disposal
January 1 – December 31, 2015

Educational Item	Quantity Distributed	Distribution Methods
<i>Resource Recovery Guide</i>	9,850	• HHW Events • Community groups/events • County participating events • Municipalities for distribution • Presentations
<i>Disposal Tips For Home Medical Waste and Pharmaceuticals</i>	200	• Community groups/events • County participating events • Municipalities for distribution • Presentations
HHW/E-waste collection event flyers	700	• Direct mailings • Community groups/events • Presentations
Recycled pencils and bags	NT	• Students via recycling presentations including Rouge River Watershed Festival
CLEAN Program brochures	NT	• Direct mailings
Compost “Black Gold” brochure	25	• Schoolcraft Community College Earth Day Fair
“Soil Erosion, Sediment Pollution and Your Home” brochure	50	• Community • Walk in SESC permit applicants
Homeowner’s Guide to Septic Systems	NT	• Distributed at time of sale inspections and upon completion of new or repair of septic systems
Wayne County OSDS Evaluation and Maintenance Brochure	NT	• Distributed at time of sale inspections and upon completion of new or repair of septic systems
Michigan Environmental Health Association “Home Sewage Disposal System” Pamphlet	NT	• Distributed at time of sale inspections and upon completion of new or repair of septic systems
Wayne County Storm Water Standards Manual	NT	• Email distribution • Available online
Maintaining Your Detention Basin	NT	• Email distribution • Available online

NT – Not tracked.

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 115 community groups in Wayne County. Approximately 200 CLEAN Program brochures were distributed in 2015 through direct mailings to every community in Wayne County, community organizations, neighborhood block clubs and churches. Distribution also took place and numerous block club meetings and public events.

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 22 and 23 for the Department of Public Services and Environmental Health Division, respectively.

Table 22
Wayne County Department of Public Services Staff Training
in Environmental Issues During 2015

Training Topic	Number of Staff Trained
Pesticide Applicators	10
De-icing Equipment Calibration	NT
Soil Erosion and Sedimentation Control Certification	1
Native Plant Seed Harvesting	1
Use of ESRI Mobile GIS	1
Engineering Society of Detroit Solid Waste Conference and Training	6
Michigan Recycling Coalition Conference	2

Table 23
Wayne County Environmental Health Division
Staff Training in Environmental Issues During 2015

Training Topic	Number of Staff Trained
None Reported	

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. There is also a WCDPS newsletter that is distributed to staff and posted online at www.waynecounty.com. This newsletter was issued once in 2015 and included various articles regarding environmental restoration and protection projects and potential individual activities.

Signage (WCPEP #26)

Watershed, stream crossing awareness, and grow zone signage are made available to communities and the general public at cost through the Wayne County Publication Clearinghouse. In 2015, WQMD processed 25 grow zone signs for 2 customers located in Canton and 1 grow zone sign for AT&T for a rain garden in Southfield. Since 2002, Wayne County has facilitated the placement of over of 488 signs to raise public awareness and encourage green infrastructure for water quality and habitat improvement.

Signage – Aquatic Invasive Species Awareness (MDNR): Three aquatic invasive species awareness signs were placed at the public boat launch areas in the Middle Rouge impoundments, one sign each at: Newburgh Pointe; Sumac Pointe and Nankin Lake all located in Hines Park.

Signage – Alliance of Downriver Watersheds (ADW) Tree Planting Project (Temporary Tree Planting Signs): Over 30 temporary tree planting signs were installed and re-collected over several weeks at several locations in the communities of Riverview, Taylor, Trenton and Wyandotte in the ADW watershed during the fall of 2015. Since 2002, Wayne County has facilitated the placement of over of 488 signs to raise public awareness and encourage green infrastructure for water quality and habitat improvement.

Local Presentations (WCPEP #27)

Children’s Education: The *Don’t Bug Me* presentation was given to participants at Water Festivals as follows:

- 53 students from one Detroit school at the Detroit River Water Festival held on Belle Isle in the City of Detroit April 30; and
- 111 fifth grade students from five classes at the Rouge River Water Festival held May 8 at UM Dearborn. The five schools were from communities throughout the Rouge River watershed.

Wayne County Green Infrastructure Implementation: WQMD gave a presentation at the January 28, 2015 meeting of SEMCOG’s Regional Transportation Coordinating Council regarding the County’s implementation of green infrastructure focusing on the lessons learned and the connection with roads.

Other: See *Naturalist Programming – Nankin Mills Interpretive Center* and *Crosswinds Marsh* activity summaries under *Integrate Public Education into Parks Operations (WCPEP #31)* below.

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 continued its support of the Rouge Gateway Partnership during 2015. For example, in 2015 Wayne County supported a successful grant application submitted by the ARC to complete design of a long planned fish passage around the dam at Henry Ford Estate. Because the fish passage will be constructed on Wayne County property, WQMD and Parks Division staff are assisting with design of the project.

Friends of the Rouge: Wayne County actively supported and provided funding for several FOTR efforts during 2015 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 2015 Bug Hunts; 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 River Advisory Council: Wayne County staff participated in and supported efforts of MDEQ's Rouge River Advisory Council (RRAC) during the reporting period. Activities included response to MDEQ information requests regarding potential Rouge River Area of Concern (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.

Detroit River Area of Concern Public Advisory Committee: In 2015, Wayne County staff continued participation in the Committee to assist with watershed management and river restoration efforts in the Detroit River.

Southeast Michigan Illicit Discharge Elimination Program (IDEP) Work Group

The work group was initiated in 2011 to facilitate the networking of individuals in Southeast Michigan responsible for implementing Illicit Discharge Elimination Programs, including staff from the Counties of Wayne, Oakland, Washtenaw, Macomb and St Clair; SEMCOG; and other municipal and university staff. WQMD is currently serving as Chair of the group, which meets quarterly to discuss common issues/ problems and collaboration on efforts beneficial to all. In 2013, the group developed a five year regional IDEP training plan for municipal staff. The plan calls for a five year rotation of IDEP training sponsored by Oakland, Wayne, Washtenaw, St, Clair and Macomb Counties, Alliance of Rouge Communities, Alliance of Downriver Watersheds, and Southeast Michigan Council of Governments. Each of these agencies signed an agreement committing themselves to their role in the plan. IDEP Investigator Training will have three sessions as follows: 2013 (Wayne County), 2015 (Washtenaw County), and 2017 (Macomb County). The Good Housekeeping/Illicit Discharge Recognition Training will have two sessions: 2014 (St. Clair County) and 2016 (Oakland County). The sponsoring County is responsible for facility procurement, registration, refreshments, etc.

As planned, Washtenaw County Water Resources Commission hosted the *IDEP Investigator Training* workshop in 2015. The workshop was held at the Washtenaw Community College, Ypsilanti, Michigan, on September 30, 2015. Sixty-nine people attended.

Stream Team/Friends of Detroit River/Riverkeeper: In 2015, 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.

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

- WQMD gave a presentation at the January 28, 2015 meeting of SEMCOG's Regional Transportation Coordinating Council regarding the County's implementation of green infrastructure focusing on the lessons learned and the connection with roads.
- In February 2015 the Office of the Great Lakes, MDEQ published the Michigan State of the Great Lakes 2014 publication which included an article prepared by WQMD regarding the revitalization of the Rouge River. See page 17 within the report available at: https://www.michigan.gov/documents/deq/State_of_the_Great_Lakes_2013_opt_442885_7.pdf

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

Information Dissemination: Approximately 50 copies each of the following handouts were distributed: *About Wastewater Treatment* and *Protect the Rouge River at Home* were distributed to participants in wastewater treatment facility tours.

Industrial Pretreatment Excellence Award and Zero Discharge Club: The County's Industrial Pretreatment Program (IPP) for the Downriver Wastewater Treatment Facility recognized 26 industrial waste water dischargers as members of the *Zero Violations Club* during 2015.

Facility Tours: Two tours of the Downriver Wastewater Treatment Facility were given in 2015. Approximately 50 people attended.

Other: Wayne County is an active member of the Michigan Association of County Drain Commissioners and the Michigan Water Environment Association. Staff attend and periodically make presentations at the annual conferences hosted by these professional organizations for in-depth education, training and networking opportunities related to management of the County's waterways and watersheds.

Integrate Public Education into Public Services, Roads Division Operations (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 specified to be retained/replaced on road reconstruction project plans.

Adopt-a-Road Program: Thirty-seven (37) groups adopted approximately 156 miles of County Road in 2015.

Integrate Public Education into Public Services, Parks Division 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 24 presents a summary of the environmental educational information distributed by the naturalists at Nankin Mills during 2015.

Table 24
Environmental Educational Information
Distributed from Nankin Mills Parks Office During 2015

Educational Item	Approximate Number Distributed
Rouge Watershed Public Recreation Areas Map and Index	50
Holliday Nature Preserve Map & History	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

Educational Item	Approximate Number Distributed
Animal Tracks, activity flyer	400
Pond Benthics and Water Quality flyer	300
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, 9 am – 4 pm. 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 identifying 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.
- Seasonal photographs of wildlife and plant life in Holliday Nature Preserve.

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, and endangered species are also displayed.

Nankin Mills Interpretive Center Grounds: Native plants in the Butterfly Garden established on the site are identified by labels contributed by the Southeastern Michigan Butterfly Association (SEMBA).

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 River:

<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 25, over 13,100 people attended a natural and cultural history interpretive program provided by Wayne County Parks during 2015.

Table 25
2015 Attendance at Nankin Mills Interpretive Programs

Number of Interpretive Programs Provided	353
Number of Children Attending	7,503
Number of Adults Attending	5,649
Total Number Attending	13,152

Nankin Mills Interpretive Center Natural Resource Related Programs: Nankin Mills Interpretive Center offered various groups a variety of interpretive programs in 2015 as listed below.

Nankin Mills School Field Trip and Outreach Programs included:

<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>Flood Plain Tree Identification</i>
<i>Michigan State Symbols & Natural Resources</i>	<i>Beginning Astronomy</i>
<i>Henry Ford Water-Powered Sites on the Rouge</i>	<i>Maple Sugaring</i>
<i>Underground Railroad History on the Rouge</i>	

Nankin Mills Scout Badge Workshop Programs included:

<i>Astronomy</i>	<i>Environmental Science</i>	<i>Water/Soil Conservation</i>
<i>Sharing World w/Wildlife</i>	<i>Forester</i>	<i>Nature Crafts</i>
<i>Naturalist</i>	<i>Birds</i>	<i>Geologist</i>
<i>Your Living World</i>	<i>Map and Compass</i>	<i>Geocache</i>
<i>Animal Habitats</i>	<i>Hiker</i>	<i>Bugs</i>
<i>Into the Woods</i>	<i>Into the Wild</i>	<i>Fur, Feathers, Ferns</i>
<i>Adventures in Science</i>	<i>Trees</i>	<i>Michigan</i>

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

<i>Astronomy: Our Solar System</i>	<i>Maple Sugaring</i>	<i>Michigan Copper Mining</i>
<i>Michigan Geology</i>	<i>Winter Campfire&Hike</i>	<i>Nature Jeopardy</i>
<i>Herps of the Rouge</i>	<i>Animal Tracks in Winter</i>	<i>Leaf Prints/Tree I.D.</i>
<i>All Things Michigan</i>	<i>Owls of Michigan</i>	<i>Bird Watching</i>
<i>Natural Plant Dyes</i>	<i>Raising Butterflies/Host Plants</i>	
<i>Native American History of the Great Lakes-Living with the Land</i>		

Natural Programs for the Whole Family included:

<i>Maple Sugaring at Cass Benton</i>	<i>Halloween Forest Fun Hike: Rouge Wildlife</i>
<i>Wildlife Safari</i>	<i>An Afternoon with Frogs</i>
<i>Family Fun: Leaves and Cider</i>	<i>Invasive Plants</i>
<i>Butterflies of Michigan</i>	<i>Wildflower Folklore</i>
<i>Geocaching</i>	<i>Family Nature Hike (offered twice)</i>
<i>White-tailed Deer Through the Seasons</i>	

The 2015 Adult Botany Hike Series included:

Spring Wildflowers & Folklore, Cowan Holliday Nature Preserve
Deciduous Tree Collections of Bennett Arboretum
Fern and Flora Hike, Koppernick Section Holliday Nature Preserve
Conifer Tree Collections of Bennett Arboretum

SEMBA Monthly Adult Butterfly Programs included:

Butterfly Gardening
Lives of Butterflies
Butterfly Life History of Lycaenidae Family
Metamorphosis: Raising Caterpillars
Insect and Flower Pollination Relationship
Outdoor Photography
Plantings for Butterflies
Butterfly Movie Night
Seed Collection and Exchange

Outreach Library, Summer Camp and Community Center Programs for Families included:

<i>Animal Tracks</i>	<i>Live Reptiles and Amphibians of the Rouge.</i>
<i>Michigan Geology</i>	<i>Leaf Print T-shirts & Hike</i>
<i>Owls of Michigan</i>	<i>Native American History – Living with Nature</i>
<i>Beginning Astronomy</i>	<i>All Things Michigan</i>
<i>Rouge Watershed Water Quality</i>	<i>Bird Watching</i>

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 2015, two staff presented *Live Reptiles and Amphibians of the Rouge*. Wayne County naturalists also participated in the 2015 Rouge-A-Palooza by staffing a booth with nature-related display topics.

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

- Nankin Mills Department Manager worked with the Southeastern Michigan Butterfly Association to maintain a Butterfly Garden with native plants next to the building. In addition, the Nankin Mills Interpretive Center Naturalist hosts monthly meetings of the SEMBA that include educational presentations about butterflies and butterfly gardening.
- Nankin Mills Naturalists worked with Youth Connection High School students for six weeks in the summer on various projects such as removal of invasive plants and planting native plants on the Nankin Mills grounds, fish seining for the Interpretive Center's native fish display, program presentations, and caring for the live reptiles and amphibians in the Interpretive Center.
- Nankin Naturalist met with volunteers to inventory and clean out bluebird nesting boxes in Grow Zone areas.
- Nankin Naturalist performed several garlic mustard pulls in Ellsworth Section entrance to Holliday Nature Preserve, and also worked with scout volunteer groups to pull garlic mustard in Ellsworth Section.
- Nankin Mills hosted the Rouge Water Trail Partners meetings throughout 2015.

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 as well as the Friends of Nankin Mills website. Schools also spread the information by word of mouth.
- *Outreach programs:* A flyer is available in the Nankin Mills lobby and programs are listed in the Wayne County Parks brochure and on the Parks Division and Friends of Nankin Mills websites. 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 and Friends of Nankin Mills websites. Registration dates are displayed on the electronic sign on Hines Drive. Scout organizations also advertise our programs.
- *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, and on the Parks Division and Friends of Nankin Mills websites, 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 and Friends of Nankin Mills sends press releases. Programs are displayed on the Park electronic sign on Hines Drive. Sometimes reporters attend and photograph events or publish articles about our programs.
- *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, on the Parks Division section of the County website, and on the Friends of Nankin Mills website. Programs are displayed on the Park electronic sign on Hines Drive. Home school networking groups also advertise our programs.
- *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. Press releases are sent out and often reporters attend these events and publish newspaper articles.
- Co-sponsored events are advertised by the event co-sponsor. For example, Native American Day receives radio coverage and is listed in Native American publications.

In addition to the 13,152 visitors who came to Nankin Mills Interpretive Center to visit and attend an interpretive program in 2015, an additional 3,668 people visited the Interpretive Center exhibits without attending an interpretive program, for a total of 16,820 visitors in 2015.

Since opening in January 2001, nearly 245,000 people have visited the Interpretive Center as follows:

2001:	15,664	2008:	16,589
2002:	15,112	2009:	18,932
2003:	17,804	2010:	16,355
2004:	22,055	2011:	11,276
2005:	19,509	2012:	12,387
2006:	17,524	2013:	13,816
2007:	17,233	2014:	13,591
		2015:	16,820

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 26 presents a summary of the environmental educational information distributed from the Crosswinds Marks Parks Office during 2015.

Table 26
Environmental Educational Information Distributed From Crosswinds Marsh, 2015

Educational Item	Approximate Number Distributed
The Fish of Crosswinds Marsh	180
2015 Fishing Guide	270
Eat Safe Fish (pamphlet)	180
Buy Safe Fish (pamphlet)	180
Hooked on Fish (booklet)	180
Natural History of the Beaver (info sheet)	80
Natural History of the Muskrat (info sheet)	80
Poisonous Plants and Animals of MI (booklet)	95
Conservation of the Kirtland's Warbler (booklet)	95
Poisonous Plants and Animals of Michigan (booklet)	140
The Benefits of Trees (booklet)	100
Tree Identification Guides (booklet)	100
Forest Plants (info sheet)	100
Seed Dispersal (booklet)	50
Natural History of Michigan Owls (booklet)	120
Michigan Frogs (booklet)	170
Michigan Frogs (coloring sheet)	170
Frog Facts (bookmark)	170
Frog Calls (info sheet)	85
Birds of Crosswinds (bookmark)	45

Educational Item	Approximate Number Distributed
Wetland Bingo (info sheet)	50
Animal Tracks (info sheet)	40
Animal Signs (info sheet)	110
What to Pack for a Hike (info sheet)	40
Leave No Trace (info sheet)	75
Outdoor code (info sheet)	75
Ways to Reduce Waste (info sheet)	35
Recipes for Composting (info sheet)	35
Determining the Age of a Tree (info sheet)	40

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 3,509 children and 1,306 adults participated in one of the educational programs offered by the naturalists stationed at Crosswinds Marsh and listed below. Approximately 28,000 people visited Crosswinds Marsh in 2015.

Crosswinds Marsh School Programs:

Michigan Frogs and Toads
Spring Fling
All About Birds
Canoe Hike
Wonders of Water and Wetlands
Insect Incognito
Michigan Trees
Self Guided Canoe Hike
Scientist

Fall Frolic
Wetland Field Investigation
Wetland Homes and Habitats
Wetland Plant and Animal Adaptations
Marsh Mammals
Michigan Owls
Michigan Reptiles and Amphibians
Nature Detective

Crosswinds Marsh Outreach Programs:

All About Birds
Fall Frolic
Insect Incognito
Michigan Frogs and Toads
Scientist

Nature Detective
Michigan Reptiles and Amphibians
Wetland Plant and Animal Adaptations
Michigan Owls

Crosswinds Home School Programs:

Wildlife Tracking
Animal Architects

Splendid Spiders *Sensational Seed Dispersal*
Dabblers and Divers

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

<i>*Family Fishing Fun Day</i>	<i>Bats Friend or Fiend</i>
<i>*Nature Fest</i>	<i>Nature Tots</i>
<i>*Hobby Day</i>	<i>Spring Bird Hike</i>
<i>Fall Marsh Hike</i>	<i>Michigan Owls</i>
<i>You're Never Too Old to be a Kid</i>	<i>Time Out for Seniors</i>
<i>Leave the Men at Home</i>	<i>Alien Invaders</i>

Crosswinds Marsh Boy Scout Badge Programs:

<i>Backyard Jungle ((Tiger)</i>	<i>Make it Move (Bear)</i>
<i>Tigers in the Wild (Tiger)</i>	<i>Castaway (Webelos)</i>
<i>Council Fire (Wolf)</i>	<i>Walkabout (Webelos)</i>
<i>Grow Something (Wolf)</i>	<i>Naturalist, Activity Badge (Webelos)</i>
<i>Finding Your Way (Wolf)</i>	<i>Forester, Activity Badge (Webelos)</i>
<i>Paws on the Path (Wolf)</i>	<i>Scientist, Activity Badge (Webelos)</i>
<i>Digging in the Past (Wolf)</i>	<i>Into the Wild (Webelos)</i>
<i>Motor Away (Wolf)</i>	<i>Into the Woods (Webelos)</i>
<i>Fur, Feathers, & Ferns (Bear)</i>	<i>Adventures in Science (Webelos)</i>
<i>A Bear Goes Fishing (Bear)</i>	<i>Nature (Merit Badge)</i>

Crosswinds Marsh Girl Scout Badge Programs:

<i>Bugs (Brownie)</i>	<i>Animal Habitats (Junior)</i>
<i>Home Scientist (Brownie)</i>	<i>Geocacher (Junior)</i>
<i>Hiker (Brownie)</i>	<i>Flowers (Junior)</i>

Nature Tots Nature Series (ages 3-4):

<i>Be a Bug</i>	<i>Dirt Detectives</i>
<i>Pond Critters</i>	<i>Nature games</i>

Crosswinds Marsh Naturalists also participates in the *Rouge River Water Festival*, the *Clinton River Water Festival* and the *Detroit River Water Festival* in 2015. These events provide river and watershed education for school children throughout southeastern Michigan. For 2015, two staff presented *Aquatic Invertebrates of the Rouge Watershed* and *Wetland Plants and Animals* for approximately 410 students and 68 adults.

Crosswinds Marsh Wetland Interpretive Preserve – Workshops and Other Events

- Naturalists are currently working with an Eagle Scout on one project to install a new bulletin display board near the vehicle parking lot and enlarge the bulletin board near the horse trailer parking lot.
- Naturalists continued their partnership with Trenton Parks and Recreation to conduct their *Nature Nook Program Series and Nature Day Camp*.
- Naturalists continue their partnership with Van Buren Parks and Recreation to conduct spring, summer and fall programs.
- Naturalists established a partnership with Canton Parks and Recreation to conduct a series of Nature Programs.

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.

Educational and Volunteer Events at Detroit River International Wildlife Refuge Gateway site:

- Students from Summit Academy spent three days at the Refuge Gateway performing tree maintenance (removing tree wrap and stakings), GPS'ing tree planting locations and assessing individual tree health on 331 trees inside the Refuge Gateway with an internally-produced questionnaire.
- In September students and alumni from Madonna University installed deer guards on the Refuge Gateway's trees to protect them from deer antler shedding activities ("deer rub") that would occur without proper protection.
- In late October, students and faculty from Wayne State University toured the Refuge Gateway site to learn about the history and function of the Monguagon wetland.
- Volunteers from Lowes Home Improvement continued boardwalk construction activities at the Monguagon artificial wetland, enhancing the interpretive potential of the restoration site.
- Construction began on the Boat Dock and Fishing Pier project. The dock and pier will provide free fishing access as well as the boat docking location of the Michigan Sea Grant school ship. The 700' long boardwalk and 200' pier will offer excellent viewing opportunities of the Detroit River as well as of the bird and aquatic fauna present.

Parks Website: The Wayne County Parks website (<http://www.waynecounty.com/dps/2138.htm>) promotes and advertises the Interpretive and Naturalist programming offered by the County.

Signage – Don't Feed the Geese: Eleven signs are in place near the Middle Rouge impoundments, five signs are at Elizabeth Park and eight signs are installed at Crosswinds Marsh.

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

Signage – Crosswinds Marsh:

- Thirty-four (34) new “No Fishing” signs were painted/stenciled on existing boardwalk railings.
- Six “No Fishing” signs have been installed in restricted areas.
- Six “No Bicycles Beyond This Point” have been installed in restricted areas.
- Six “Endangered Species” signs are installed near the bald eagle nest.

Twenty-four Interpretive Trail signs identifying various wetland types, plants and habitats are being developed by naturalists and will be installed as an Eagle Scout project in 2016. Signs explaining the negative impacts of zebra mussels and why no personal watercraft are allowed at Crosswinds are also being developed and will be installed in 2016.

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 Grow Zone signs are installed at all Middle Rouge Grow Zones and temporary Grow Zone boundary marker signs.

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.

Staff Training: Parks staff did not report any environmental training in 2015.

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 issued 26 Zero Violations certificates to industrial dischargers during 2015.

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). Materials distributed include:

- Homeowner reference guide for on-site sewage disposal,
- A copy of the homes sewage disposal system permit,
- A copy of the final inspection report,
- A copy of the disposal system evaluation report,
- *Wayne County OSDS Evaluation and Maintenance Ordinance* brochure,
- *Rouge River DemoInfo – Septic Systems* brochure, and
- Michigan Environmental Health Association *Home Sewage Disposal* pamphlet.

Materials are provided to new owners of new on-site systems. Current owners are provided information when they have their on-site system evaluated. Materials are also provided to patrons at public educational events such as the annual Rouge River Water Festivals in Dearborn Michigan at the University of Michigan campus.

Land Resources Management Division – Soil Erosion Permits: Approximately 50 *Soil Erosion and Your New Home* brochures were distributed in 2015 to owners of newly constructed homes. 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. Substantial updates to the Wayne County Storm Water Standards Manual were published in July 2015.

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/1122.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. Storm water magazines and other engineering magazines related to environmental issues are in the Permit Office reception area for clients to read.

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, 2015 – December 31, 2015** 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 2015, proper outlet stabilization techniques were utilized for outlets replaced as part of road construction projects identified in Table 27 below or as part of County Drain improvement projects.

BMP Implementation: Treatment Controls for 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 2015, maintenance of these sites was completed with a Green Infrastructure work day held at the Bennett Arboretum in May; Youth Connection work days at Newburgh Pointe Rain Garden and Grow Zone, Sumac Pointe and Newburgh Dam site; through Nankin Mills Naturalist Program activities; and through the County's grow zone restoration and maintenance contractor.

Restoring the Rouge AOC from Mowed Down to Grown Up Project

Utilizing funding from a grant from the U.S. EPA under the Great Lakes Restoration Initiative (EPA-GLRI), approximately 15 acres of new grow zone were established in Wayne County Parks along the Lower Rouge River and within Lola Valley (Upper Rouge River) during 2012. Funding was 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 2015 the invasive species management plan and project evaluation efforts continued. Spring, fall and winter macroinvertebrate monitoring efforts were conducted as part of the *Rouge River Macroinvertebrate Monitoring* (see Section 1). Long-term invasive species management resulted in 21 acres

receiving treatment by the County's grow zone restoration and maintenance contractor, including prescribed burns on 12 acres at six sites and herbicide treatment on 13 acres at 11 sites.

Restoring the Lake Erie Corridor Through Green Streets Project

Under the *Restoring the Lake Erie Corridor Through Green Streets Project* funded through the EPA-GLRI, approximately 16 acres of grow zone within County and MDOT road right of ways was designed. Seven of the 16 acres of grow zone were constructed at two sites: Ecorse Road Boulevard (Van Buren Township) and Morton Taylor (Canton Township). Turf grass was converted to deep rooted native grasses, wildflowers and shrubs to reduce and filter polluted storm water runoff. Storm water catch basins were also raised to increase infiltration and reduce the volume of polluted storm water entering our open water courses during small storm events. In 2015, WQMD staff monitored site performance and completed maintenance activities including spot treatment of reed canary grass at the Morton Taylor site and a prescribed burn at the Ecorse Road Boulevard.

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*. A total of 435 trees were planted at 16 different locations. In 2015, staff continued to maintain these planting areas as part of the routine road right of way maintenance efforts.

Restoring Community Trees in an Urban Watershed Project

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*. This grant funded the installation of 1,102 trees within County rights-of-way and properties within the ARC watershed area as follows: 250 trees were planted by WC Roads Forestry in 2012, 651 trees were planted by WC Roads Forestry and 135 were planted by WC Parks in 2013, and 65 trees were planted by WC Parks in 2014. During 2015, WQMD staff placed signage and photo documented the plantings and prepared the final landscaping plan documenting the plantings to close out the grant. Independent of this grant project, Roads Division also planted 10 new trees in 2014 and removed over 1,780 dead or diseased trees.

Restoring Tree Canopy in the Rouge River AOC Project

In 2014, WQMD partnered with the ARC to secure a US Forest Service GLRI grant funded to purchase approximately 25 trees on County Parks property within the Rouge River watershed. As of December 2015, WQMD had initiated tree procurement efforts for a spring 2016 planting.

Emerald Ash Restoration and Urban Reforestation in the ADW Grant Project

In 2014, WQMD partnered with the Alliance of Downriver Watersheds (ADW) to secure a US Forest Service GLRI grant funded to purchase approximately 430 trees for planting across the downriver watersheds area within county road right of ways and within Elizabeth Park. As of December 2015, WQMD completed sign placement and photo documentation of the 175 trees planted by WC DPS Roads Division in November 2015.

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. 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. In 2015, WQMD staff coordinated with the Parks, Roads, and Facilities Management division staff regarding potential GI project sites, short and long-term maintenance and outreach efforts. WQMD staff also managed and coordinated with a design contractor to complete the preparation of construction plans and specifications for 3 priority project sites. Conceptual plans and cost estimates have been prepared for more than 15 sites. The final project fact sheet and project summary documents were also prepared and submitted to MDEQ to close out the grant in October of 2015.

Collaborative Invasive Species Control in the Rouge and Detroit River Areas of Concern (AOC)

In 2014, WQMD partnered with Friends of the Rouge, Friends of the Detroit River, Student Conservation Association, Alliance of Rouge Communities, Alliance of Downriver Watersheds, City of Farmington Hills, City of Southfield, SEMCOG and Marathon Petroleum to secure a \$634,756 grant from USEPA to enable Wayne County and project partners to establish and begin implementing an effective, efficient and environmentally sound program of vegetative invasive species control in the Rouge and Detroit River Areas of Concern. As of December 2015, sub-grant agreements were in place with three subcontractors, and WQMD staff completed and submitted the Semi-Annual Progress Report to USEPA as required under the grant.

Road Construction – DPS Field Engineering Office: Table 27 summarizes the Wayne County road construction projects administered by the Field Engineering Office in 2015. 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 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.

Each of the road projects administered by WCDPS – Field Engineering has a plan for Soil Erosion and Sediment Control during construction. Each project has a certified storm water operator that maintains a “Soil Erosion & 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 Gibraltar Road project shown in Table 27 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.

Table 27
Wayne County 2015 Road Construction Projects

Project Name	Project Limits	Type	BMPs Installed
Allen Road WO# 46949	North Line Road to Goddard	resurfacing	inlet protection
Base Line Rd WO# 46963	Meadowbrook to Newburgh	concrete patching	inlet protection
Base Line Parapet Walls WO# 46997	Over CSX Railroad	parapet wall replacement	inlet protection
Beck Road WO# 46950	Warren to Ann Arbor Trail	Road Reconstruction	outlet stabilization, Vortech Swirl Concentrators, streambank stabilization, culvert replacement
Chandler Park WO# 46972	Cadieux to Morross	Pavement replacement and resurfacing	inlet protection, stone filter
Cherry Hill WO# 46973	Beck to Canton Center	resurfacing and widenings	inlet protection, check dam, sedimentation trap, silt fence
Geddes WO# 46978	County line to west of Denton	resurface	inlet protection
Greenfield WO#46952	I-94 to Rotunda	resurface	inlet protection, silt fence
Huron River Drive WO#46953	Sumpter to Martinsville	resurface	inlet protection, check dam, silt fence
Inkster Road WO#46897	Plymouth to Schoolcraft	resurface	inlet protection
Jefferson WO#46954	At Grosse Ile Parkway	resurface	inlet protection, banks stabilization, silt fence
Lilley WO#46967	Warren to Joy	resurface	inlet protection, check dam, silt fence
Merriman WO#46969	I-94 to Ecorse	concrete patching	inlet protection
Sheldon WO#46955	Van Born to Yost	resurface	inlet protection, check dam, silt fence
Warren Road WO#46956	Telegraph to Outer Drive	resurface	inlet protection, silt fence

CSO Control Implementation (WCSWM #3)

During the reporting period, 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)

During the reporting period, 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 continues to improve site mapping of storm sewer system and on-site pollution prevention awareness at maintenance yards and facilities. In 2015, pollution prevention site revisits and updated P2 Action Plans were completed along with follow-up inspection memos issued for the following maintenance yards operated by the DPS:

- Roads Division: Central Maintenance Yard, Merriman Yard and Phoenix Yard; and
- Parks Division: Crosswinds Marsh Maintenance Facility, Elizabeth Park Maintenance Facility, Lola Valley Maintenance Facility, Parkview Park Maintenance Facility, and Wallaceville Park Maintenance Yard

A P2 training presentation and additional P2 workshops will be made available to all WCDPS-Roads and WCDPS-Parks staff in 2016. Table 28 presents the DPS-Roads and DPS-Parks maintenance yards, by watershed, for which follow-up inspections were completed during 2015.

Table 28
2015 Pollution Prevention Action Plan Inspections at
Wayne County Department of Public Services Maintenance Yards

Wayne County DPS Maintenance Yards	Watershed			
	Rouge River Watershed	Combined Downriver Watershed	Detroit River Watershed	Lower Huron Watershed
Central Maintenance Yard Facility (Roads)		X		
Merriman Yard Maintenance Facility (Roads)	X			
Phoenix Yard Maintenance Facility (Roads)	X			
Crosswinds Marsh Park Maintenance Facility (Parks)				X
Elizabeth Park Maintenance Facility (Parks)			X	
Lola Valley Park Maintenance Facility (Parks)	X			
Parkview Park Maintenance Facility (Parks)	X			
Wallaceville Park Maintenance Facility (Parks)	X			

A summary of pollution prevention activities undertaken on properties operated by WCDPS Roads (including all Roads maintenance yards) is as follows:

- 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 catch basin cleanings are taken to an industrial waste processor for proper disposal.
- 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.
- Certified Storm Water Operators: 9 Roads Division employees are certified storm water operators through the MDEQ's Operator Training and Certification Unit.
- 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 used for disposal of trash and waste from the yards and roads. The contractor responds on demand to empty the dumpsters.
- Maintaining Landscaped Areas: The Forestry unit has 10 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:
 - o At the MDOT Pump Stations operated by DPS – Roads, all floating objects such as foam and plastic containers are to be removed prior to any maintenance at the station that requires de-watering to clean and remove sand and dirt from the sump bottom.
 - o 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.
 - o Quarterly P2 Action Plan inspections by the Department Managers at all County Maintenance Yards within separated storm sewer area and an annual inspection by the Forestry Department Manager are to be conducted.

WCDPS – Parks maintenance yards are routinely inspected by Parks Foreman and Department Managers to ensure compliance with waste management, pollution prevention and safety requirements as outlined by Wayne County Risk Management and the P2 Action Plans developed by WQMD.

Staff Training (WCSWM #6)

WQMD conducted two (2) Pollution Prevention and Best Management Practices educational training sessions for WCDPS-Road staff during the 2015 reporting period. The first session was conducted at the Central Maintenance Yard (CMY) on April 24, 2015 and was attended by personnel from CMY and Sibley Yard from New Boston. The second session was conducted on May 15, 2015 at the South Wayne Road Yard. This training session included yard personnel from the South Wayne Yard, Wayne and Norton Yard, Livonia. This presentation consisted of PowerPoint presentation and a BMP road yard video designed for those maintenance yards located in separate sewer areas. All remaining WCDPS-Road yards will have this training session conducted during the 2016 reporting period. It is also anticipated that the training sessions will be made available to the WCDPS-Parks Yards during the 2016 reporting period.

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/update process, contracts for maintenance of County facilities are reviewed for opportunities to include specifications for pollution prevention activities and/or identify training opportunities.

P2: Fertilizer, Pesticide and/or Herbicide Applications (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 P2 Action Plans development/update process, landscaping practices at individual County facilities (done in house or under contract) are reviewed for opportunities to minimize or improve fertilizer, pesticide and herbicide application practices.

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

As part of the Wayne County road improvement projects identified in Table 29, all existing catch basins and storm water manholes associated with the roads in the project 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. Additional cleaning of catch basins associated with storm sewers owned by Wayne County Roads Division is performed on an as-needed basis. During 2015, the Wayne County DPS-Roads Division removed and properly disposed of 14,096 tons of material from catch basins, storm sewers, roadside ditches and other features. The Roads Division has policies, procedures and a contractor in place 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 29 presents a summary of roadway sweeping for this reporting period.

Table 29
2015 Roadway Sweeping Summary: Wayne County Roads Division

Type of Roadway	Cycles	Total Road Miles Swept
Urban Freeway	1.5	1,310
Non-urban Freeways	1	538.8
County Primary Roads	1	1,572.1
County Local Roads	0	0
Total		3,420.9

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

P2: Snow Removal and Storage (WCSWM #11)

Consistent with the PIPP developed for each County maintenance facility, 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 stores all deicing equipment, supplies, and chemicals in shelters that prevent spill and leaks that could enter the storm drain system. Roads staff are trained on winter safety and salt operations. Salt truck equipment is calibrated routinely to minimize over application. Salt brine-making machines have now been installed at all six Roads maintenance yards. Roads Division continued to use salt brine as anti-icing agent for pre-treating roads for snow and ice clearing. This practice can result in up to 25% saving in salt usage which reduces damage to roadside vegetation and reduces chloride discharged to the storm water system and surface waters.

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

The eight oil-water separators installed at County maintenance yards are routinely cleaned and the material properly disposed.

Goose Control Program (WCSWM #14)

The program to control Canada Geese populations (egg replacement) in Wayne County Parks continued in 2015. A total of 264 eggs were replaced at 7 locations.

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 June of 2011. 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 eight Certified Storm Water Operators and two Certified Soil Erosion & Sedimentation Control staff.

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 2015, the Permit Office reviewed development projects to ensure compliance with applicable County regulations. Six hundred thirty-one (631) projects were reviewed for compliance. Five hundred eight-six (586) construction permits were issued. Three hundred thirty (330) construction projects were completed in 2015, and 256 projects were still in construction at the end of the calendar year. The Field Engineering Office provides inspection of all approved projects to ensure compliance with approved construction plans and the Wayne County Storm Water Management Ordinance, Administrative Rules, and Standards.

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 elements 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)

Illegal dumping is prohibited under the Wayne County Solid Waste Ordinance No. 2004-787 and the Wayne County Litter Control Ordinance No. 97-297. 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 2015, five Municipal Civil Infraction notices; two Stop Work Orders and two Notices of Determination notices were issued for violations of Wayne County's Soil Erosion and Sedimentation Control Ordinance. A total of \$4,250 in fines was collected as a result of these violations.

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 (IPP) continued implementation of the Sewer Use Ordinance (Chapter 101 of Wayne County Code of Ordinances) during the reporting period. At the end of 2015, the Downriver Wastewater Treatment Facility (DWTF) had 42 Significant Industrial Users (SIU's) of which 18 are categorical industrial users (CIU). The DWTF also had 11 are special condition industrial users. Spill/slug plans for each of these facilities are reviewed/revised once every two years. All 42 SUI's were inspected in 2015. Thirty-nine (39) Letters of Violation were sent to facilities not meeting their discharge limits according to their permit. Five facilities were issued Notice of Non-Compliance letters which required a conciliation meeting with the DWTF IPP staff. Users implemented corrective actions that resulted in return to compliance.

Under the DWTF pollution minimization plan, IPP staff inspected and sampled facilities which are potential sources of mercury. Mercury was detected in only four of the 88 samples taken. Enforcement action was taken to bring these facilities back into compliance. In addition two DWTF interceptors were sampled and both results were Not Detectable.

In addition, Wayne County reviewed 42 applications during 2015 for the design and construction of wastewater facilities within the County that discharge wastewater directly or indirectly to a Wayne County sewer for compliance with the Sewer Use Ordinance and with Part 41, Sewerage Systems, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.

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 35 of the 43 local communities within Wayne County (The City of Plymouth was added in 2015). In 2015, LRMD issued 254 soil erosion control and sedimentation permits, and inspections were performed at all sites. Five Municipal Civil Infraction notices were issued including two Stop Work Orders and two Notices of Determination. 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)

Enforcement of Wayne County's Storm Water Management Ordinance (Enrolled Ordinance No. 2000-652), Administrative Rules (Resolution No. 2000-653), and Standards Manual is implemented through the existing review and permit processes of the Permit Office of the Wayne County Department of Public Services, Engineering Division. As described in WCSWM #17, the

Permit Office reviewed 631 development projects in 2015 to ensure compliance with the Wayne County Storm Water Ordinance. The Field Engineering Office provides inspection for all approved projects.

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

There are typically numerous log jams in the Rouge River as it winds through Wayne County Parks. Wayne County Parks removed four log jams in the Middle Rouge in February of 2015. One in particular was affecting the stability of a pedestrian bridge.

WC Parks and WQMD continue to support Friends of the Rouge and City of Wayne volunteers to establish a canoe route along the Lower Rouge River using woody debris management techniques described in the riparian corridor management brochures available online at the County's website <http://waynecounty.com/doe/1146.htm>. WC Parks also maintains the woody debris that occasionally obstructs the spillway dam at the Crosswinds Marsh.

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

In 2015, WCDPS – FMD continues to require the use of native seed mix for drain restoration projects. See also activities summarized above in WCPEP #11, WCSWM #2, WCSWM #24 and WCSWM #25.

Habitat Restoration and 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.

Wayne Road Dam Removal and Habitat Restoration Project: In 2011, Wayne County partnered with the 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 and restore habitat on the Lower Rouge River at Wayne Road within the City of Wayne. The project consisted of removing the low-head dam at Wayne Road, stabilizing the stream bank using a combination of green infrastructure and structural controls, and improved fish passage using a system of pool-riffle in-stream rock structures. A dedication ceremony for the completion of the project was held in the spring of 2013. In 2015, project evaluation efforts continued and included spring, fall and winter macro-invertebrate monitoring conducted as part of the *Rouge River Macroinvertebrate Monitoring* (see Section 1) activities. The site also hosted the 3rd Annual Rouge-a-Palooza.

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. In 2015, the site continues to serve as a monitoring location for the WQMD and FOTR and was the launch point for the Friends of the Rouge/City of Wayne Lower Rouge River Canoe Race and Canoe Trip in conjunction with the 2nd Annual Rouge-A-Palooza.

Detroit River International Wildlife Refuge:

- Wayne County Parks is an active partner in the Detroit River International Wildlife Refuge. The Detroit River International Wildlife Refuge is currently in the process of building a Visitor Center to orient and welcome regional residents and students to the Detroit River. Ground was officially broken for this 12,000 square foot structure in November 2013. In 2015 contractors completed foundation work on the building and took construction vertical, completing exterior walls and a portion of the roof, as well as beginning excavation work on the buildings detention ponds. Work is scheduled to continue through 2016 with the building opening to the public in the spring of 2017. Once open, the Visitor Center will operate as a destination point for and provide environmental education opportunities to hundreds of thousands of projected visitors from the approximately 7 million people in the Detroit-Toledo-Windsor region within a 45 minute drive of the site. The Visitor Center will have LEED Silver accreditation, including photovoltaic solar roof panels, greywater detention ponds, brownfield redevelopment, light pollution reduction, water-efficient landscaping (no irrigation), optimized energy performance, on-site renewable energy contributing to a 13% minimum renewable ~Energy standard, construction waste recycling and salvaging, low emitting materials: paints and coatings, flooring, adhesives and sealants, outdoor air delivery modeling, enhanced refrigerant modeling, recycled and regional materials, and regional priority credits.
- Tree maintenance work at the Refuge Gateway included in Section 5 included removal of tree's wrapping and stake to allow for their continued growth and the later installation of plastic barriers on approximately 300 trees to discourage trunk-damaging deer rub through thier antler shedding season.
- Federal Fish & Wildlife Service staff conducted an invasive plant species survey on the Refuge Gateway as part of their Comprehensive Weed Management Agreement (CWMA) work, noting where invasive species are present for later elimination.

Nankin Mills Interpretive Center:

- Bluebird and wood duck nesting boxes that were established by Eagle Scouts and Girl Scouts are being maintained in the Grow Zone areas, Holliday Nature Preserve and Bennett Arboretum.
- Nankin Mills Department Manager and volunteers continued to maintain the native plant butterfly garden at the Nankin Mills site. See other projects identified under WCPEP#31 above and, working with the Design Office staff, bat house roosting sites were installed by an Eagle Scout in 2015.
- Nankin Mills naturalists continued removal of invasive garlic mustard in different sections of Holliday Nature Preserve with scouts and volunteers.

Crosswinds Marsh Wetland Interpretive Preserve:

- Crosswinds Naturalists continue to monitor, clean and repair existing 50 blue bird nesting boxes installed by an Eagle Scout.
- Crosswinds Naturalists continue to monitor, clean and repair existing 28 bat houses.
- Crosswinds Naturalists continue to implement an invasive species control program for autumn olive, phragmites, purple loosestrife and Eurasian water milfoil.
- Crosswinds Naturalists continue to implement the control program for cottonwood trees 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.
- Crosswinds maintains no mow barriers between the wetlands and picnic/public use areas.
- In 2015, Crosswinds in cooperation with The Nature Conservancy will begin efforts to restore Lake Plain Prairie remnants located at Crosswinds.
- In 2016, Crosswinds in cooperation with The Nature Conservancy began efforts to restore Oak Savannah habitat at Crosswinds Marsh.

Elizabeth Park Greenway and Shoreline Restoration Project: This project includes the implementation of a non motorized greenway and shoreline restoration at Elizabeth Park in Trenton, MI. The first key component is the proposed construction of the greenway which will be a 10 ft. wide pathway along the park canal's entire 4000 ft. western shoreline. The pathway would serve as a connector from the Grosse Ile Parkway to downtown Trenton. The other focus of this project is the proposed shoreline stabilization. The canal is the final section of shoreline at Elizabeth Park in need of restoration and stabilization. This includes the removal of invasive plant species, naturalization, and use of soft engineering design applications that will protect sensitive ecosystems, improve natural habitat and as well as minimize flooding and erosion. This restoration effort will replace natural habitat for a variety of fish and wildlife species that has been lost over time. Habitat restoration will be achieved by systematically removing approximately 1.9 acres of invasive plant species and by adding 4.9 acres of shoreline and upland habitat. This project will also provide access for canoeing and kayaking along the canal and there will be five designated fishing locations. By introducing access to the canal, we are also promoting the Detroit Heritage River Water Trail. A Michigan Natural Resources Trust Fund grant for this project was received and the project is slated for construction in the summer of 2016.

Ellsworth Boardwalk and Trailhead Parking: WC Parks has a grant award for a boardwalk and parking area that will provide universal access to the Holliday Nature Preserve. A 460 foot boardwalk will allow visitors to explore the nature preserve. The Ellsworth entrance area often floods making the Preserve inaccessible and unusable for many of the Naturalist Programming activities scheduled out of Nankin Mills. The project will included constructing a car parking lot and will include bioswales to manage the stormwater generated by the parking lot. Construction is planned for the fall of 2016.

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 include active water-based recreation use within Wayne County Parks, summarized below for 2015:

- 537 people participated in two fishing derbies/contests conducted at Crosswinds Marsh.
- 579 people participated in guided and self-guided interpretive canoe trips at Crosswinds.
- Repairs/reconstruction of one of the fishing docks and on sections of the 1.8 miles of boardwalk at Crosswinds Marsh was completed in 2014.
- 747 canoe rentals occurred on Newburgh Lake in Hines Park.
- Planning the locations of kayak/canoe launches in the Lower Rouge Parkway along the Lower Rouge River is underway; these projects are proposed for implementation in 2016-2017.

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, 2015 – December 31, 2015** 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. For the period 2008-2015, Wayne County executed 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 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 2015 Annual Report* which is available at www.allianceofrougecommunities.com.

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

Rouge River Advisory Council (RRAC): Wayne County staff continued their active participation on the RRAC and any subcommittee that may be active. During 2015, Wayne County staff continued to actively participate 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 as well as active participation and support to the RRAC's Habitat Priority Projects Work Group.

Wayne County Rouge River National Wet Weather Demonstration Project. In 2014, federal support of Wayne County's Rouge River National Wet Weather Demonstration Project (Rouge Project) was completed. Since its inception in 1992, there has been continued and substantial progress toward restoring the Rouge River and preserving it for future generations. *Rouge River Progress Reports* were published annually and an overall project summary was prepared in 2014. All reports are available from [www. http://waynecounty.com/doe/rouge/index.htm](http://www.waynecounty.com/doe/rouge/index.htm).

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.

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, 2014-2015 Bi-Annual Summary of Activities/Accomplishments* which is available at www.allianceofdownriverwatersheds.com.

Activities in the Lake St. Clair (Direct Drainage) Watershed

Wayne County actively participates in the Lake St. Clair Watershed Advisory Group facilitated by the Macomb County Public Works Office. A Watershed Management Plan developed to meet Clean Michigan Initiative and 319 requirements was 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.

Activities in the Detroit River Area of Concern

Wayne County participates in the Detroit River Area of Concern Public Advisory Committee, whose efforts are targeted to the goal of removing the Loss of Fish and Wildlife Habitat Beneficial Use Impairment in the Detroit River. Information about this effort, including Detroit River Area of Concern Public Advisory Committee remedial action plans, updates and progress reports are available on the U.S. EPA's Great Lakes Area of Concern website: <http://www.epa.gov/glnpo/aoc/detroit/index.html>. Progress reports for restoration projects managed by the Friends of the Detroit River (FDR) are available online at the FDR website, <http://www.detroitriver.org>.

SECTION 6
LIST OF ATTACHMENTS/SUPPLEMENTAL MATERIALS
Wayne County Annual Report: January 1, 2015 – December 31, 2015

SECTION 1: DETERMINATION OF EFFECTIVENESS

- The *2013 Rouge River Ecosystem Monitoring and Assessment Report*, along with reports from previous years, is available online at: http://www.allianceofrougecommunities.com/PDFs/technical/2013_RREMAR_FINAL.pdf
- 2015 Rouge River Macro-invertebrate Data Trend Graphics
- 2015 Alliance of Downriver Watersheds (ADW) Macro-invertebrate Data Trend Graphics
- Alliance of Downriver Watersheds 2015 Monitoring Report will be available online at: <http://www.allianceofdownriverwatersheds.com/initiatives/>.

SECTION 2: ILLICIT DISCHARGE ELIMINATION PLAN

- Table 2.1: Facilities with Confirmed Corrections (2015)
- Table 2.2: Facilities with Outstanding Illicit Discharges (2015)
- Alliance of Rouge Communities (ARC) Outfall Map: April 2016
- Alliance of Downriver Watersheds (ADW) Outfall Map: April 2016
- Updated Wayne County Storm Water System Map: March 2016

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/1062.htm>.
- WQMD pollution prevention public education materials can be found at <http://www.waynecounty.com/doe/1130.htm>
- Information on Wayne County's Green Schools Program is available online at <http://www.waynecounty.com/doe/1136.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/>

SECTION 4: ADDITIONAL STORM WATER MANAGEMENT ACTIVITIES

- Wayne County Storm Water Management Program materials are available online at: <http://www.waynecounty.com/doe/1122.htm>

SECTION 5: WAYNE COUNTY WATERSHED PLANNING

- Alliance of Rouge Communities *Executive Director 2015 Annual Report* is available online at: <http://www.allianceofrougecommunities.com/documents.html>. The updated *Rouge River Watershed Management Plan* is also available at this website.
- Annual *Rouge River Progress Reports* are available online at: www.rougeriver.com

- *Alliance of Downriver Watersheds Biennial Reports* are available online at: <http://www.allianceofdownriverwatersheds.com/initiatives/>. The *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/lakeandclair>

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@waynecounty.com with any questions or inquiries regarding the content of this report.