

BALTIMORE CITY MS4 ANNUAL REPORT

Reporting Period: January 1 to June 30, 2014



STEPHANIE
RAWLINGS-BLAKE
MAYOR

cleanwaterbaltimore
www.cleanwaterbaltimore.org

BALTIMORE CITY

DPW

DEPARTMENT OF PUBLIC WORKS
RUDOLPH S. CHOW, P. E.
DIRECTOR

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1 Introduction

This report includes the progress of compliance for the period of January 1, 2014 through June 30, 2014, in association with Baltimore City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (Permit Number: 11-DP-3315, MD0068292). The current permit was issued on December 27, 2013. Annual report periods follow the City's fiscal calendar: July 1 to June 30. This Annual report has been formatted to match the reporting requirements as listed in Part V of the permit.

1.1 Permit Administration

Designation of individual to act as a liaison between the City and MDE for the implementation of this permit:

Kimberly L. Grove, P.E.
Chief, Office of Compliance and Laboratories
3001 Druid Park Drive, Rm 232
Baltimore, MD 21215
410-396-0732
Kimberly.grove@baltimorecity.gov

During the time period of January 1, 2014 to June 30, 2014, the following changes occurred within the organization of Department of Public Works (DPW) related to the conditions of the MS4 permit:

- Mr. Rudolph S. Chow, P.E. was appointed as the new Director of Public Works on February 1, 2014. The position has previously been held by Mr. Alfred H. Foxx.
- Mr. Kumasi Vines was designated as the acting Head of the Bureau of Water and Wastewater.
- The Surface Water Management Division was re-organized on February 21. The engineering sections were transferred to the Engineering and Construction Division, which was elevated to Office of Engineering and Construction on May 31, reporting directly to the Director of DPW.
- The remaining sections of the Surface Water Management Division were combined with the existing DPW laboratories to form the Environmental Compliance and Laboratories.
- The organization chart (as of June 30, 2014) is provided in Appendix A of this report.

1.2 Legal Authority

The City maintained adequate legal authority in accordance with NPDES regulations 40 CFR 122.26(d) (2) (i) during the period of this report (January 1, 2014 through June 30, 2014).

2 Implementation Status

The following table is a summary of the status for implementing the components of the stormwater management program that are established as permit conditions.

Table 1: Summary of Implementation Status

Permit Condition	Component	Due	Status as of June 30, 2014
Part IV.C. Source Identification	GIS Data	Baseline by 12/27/14. Update annually .	Initiated evaluation of existing data. Water quality improvement projects were pending the completions of Restoration WIP. Available data are included in Appendix B, database tables A to E and associated GIS shape files.
Part IV.D.1 Stormwater Management	Identification problems and modifications of ESD to MEP	Annual report	No problems identified.
	Modification to ordinances to eliminate impediments to ESD to MEP	Annual report	No modifications identified.
Part IV.D.2 Erosion and Sediment Control	Responsible personnel certification 3 / year	Annual Report	Two training sessions conducted on October 20 and March 20, and then MDE's on-line course was established. Local training was no longer conducted.
	Inventory of projects > 1 acre	Initial 4/1/14 then quarterly	See Appendix C.
Part IV.D.3 Illicit Discharge Detection and Elimination	Alternative program for MDE submittal	12/27/14	The City is using the same alternative analysis (Ammonia Screening) as reported since 1998.
	Annual visual surveys of commercial and industrial areas	Annual	FOG program continued.
Part IV.D.4 Trash and Litter	Inventory and evaluation all solid waste operations	12/27/14	Initiated the inventory
	Public education and outreach strategy	12/27/14	Initiated the public education
	Evaluation of effectiveness of education program	Annual Report	Evaluation will be performed following the submittal of the public education strategy.
Part IV.D.5 Property Management and Maintenance	NOIs and SWPPPs submitted for NPDES stormwater general permit coverage for industrial permits	6/30/14	NOIs were submitted for the solid waste facilities and wastewater treatment plants.
	Alternative maintenance program	12/27/14	No alternative maintenance program is being proposed.

Permit Condition	Component	Due	Status as of June 30, 2014
Part IV.D.6 Public Education	Maintain a compliance hotline for water quality complaints	Annual Report	Modifications proposed to 3-1-1 system to include 2 new customer service requests
Part IV.E.1 Watershed Assessment	Detailed watershed assessments of entire City	12/27/18	Evaluation of existing assessments performed in preparation of the MS4 WIP.
Part IV.E.2 Restoration Plans	Impervious surface assessment consistent with MDE methods = baseline	12/27/14	Initiated GIS efforts, incorporating data received from stormwater utility.
	Restoration of 20% of City's impervious surface area	12/27/18	Initiated development of implementation plan (WIP).
	Restoration Plan for each WLA approved by EPA prior to the effective date of the permit	12/27/14	Initiated development of WIP as consolidated plan with 20% restoration.
	Restoration Plan for of subsequent TMDL WLA	One year of approval	No new TMDLs were issued during this time.
Part IV.E.4. TMDL Compliance	Annual assessment to evaluate the effectiveness of the City's restoration plans	Annual Report	Since "Baltimore City MS4 and TMDLWIP" was in development. No evaluation was performed with reference to this plan for this time period.
Part IV.F. Assessment of Controls	Continue assessments	Annual Report	Completed for FY 14. See Appendix D.
Part IV.G. Program Funding	Fiscal analysis of the capital, operation, and maintenance expenditures necessary to comply with all conditions of this permit	Annual Report	Completed for FY 14, further information provided in IV of the Annual Report.

3 Narrative Summary of Data

3.1 Stream Impact Sampling

DPW continued the Stream Impact Sampling program, which includes monthly sampling at 36 outfall locations. The results of the sampling event for this reporting period are included in the Access database in Appendix D. This sampling program was initiated in 1997; the results are available on-line at the City’s Cleanwater Baltimore website. The sampling program includes sampling results for nutrients, sediment, bacteria, metals and other health indicators.

The following table shows the evaluation of historic nutrient analysis (2009 through the reporting period), following a convention that the State used in its Maryland Water Quality Inventory, 1993-1995. A water quality level was assigned for each station’s sample sets: “normal” (shown by light green highlight) if the percentage was less than 11%; “elevated” (shown by light yellow highlight) if it was between 11% and 25%; and “high” (shown by rose highlight) if it was greater than 25%. Although the stations may still be assigned a “high” level of phosphorus, the percentage of occurrences has decreased. Using the 2012 MS4 Annual Report as a reference, two years of additional data has reduced the average percentage of samples exceeding 0.1 mg / L from 41% to 31%.

Table 2: Summary of Nutrient Analysis for SIS Program

Station	Total Phosphorus ≥0.1 mg/L	Total Nitrogen ≥3 mg/L
<i>Back River Watershed / Herring Run Sub-watershed</i>		
PERRING PKWY	23%	2%
MT. PLEASANT GC	32%	9%
CHINQUAPIN RUN	21%	20%
TIFFANY RUN	12%	5%
HARFORD RD.	21%	7%
WRIGHT AVE.	30%	2%
PULASKI HWY.	12%	9%
<i>Back River Watershed / Moores Run Sub-watershed</i>		
MARY AVE.	44%	20%
HAMILTON AVE.	38%	43%
RADECKE AVE.	23%	15%
BIDDLE ST. & 62ND ST.	39%	2%
<i>Jones Falls Watershed</i>		
SMITH AVE.	29%	2%
WESTERN RUN	28%	5%
LINKWOOD	28%	40%
STONY RUN	24%	31%
LOMBARD ST.	37%	8%
<i>Gwynns Falls Watershed</i>		
POWDER MILL	31%	15%
PURNELL DR.	28%	2%

Station	Total Phosphorus ≥0.1 mg/L	Total Nitrogen ≥3 mg/L
DEAD RUN DNST.	37%	0%
GWYNNS FALLS PKWY.	39%	13%
GRUN HILTON ST.	37%	13%
GF HILTON ST.	32%	0%
MAIDENS CHOICE	32%	9%
GRUN CARROLL PARK	63%	49%
WASHINGTON BLVD.	27%	2%
<i>Baltimore Harbor Watershed</i>		
LINWOOD & ELLIOTT ¹	40%	73%
LINWOOD AVE.	75%	50%
LAKWOOD & HUDSON ¹	33%	93%
LAKWOOD AVE.	53%	36%
CENTRAL & LANCASTER	48%	14%
LIGHT ST.	50%	13%
WARNER & ALLUVION	49%	24%
WATERVIEW AVE.	32%	17%
JANEY RUN	37%	17%
<i>Patapsco River Watershed</i>		
REEDBIRD AVE.	40%	13%
¹ Sampling began at LINWOOD & ELLIOTT and LAKWOOD & HUDSON in March 2013.		

DPW measures fecal bacteria with e. coli most probable number (MPN) counts at twenty-three (23) stations. The following table lists the e. coli MPN count geometric mean and the percentage of surface water dry weather grab samples collected from November 2008 to June 2014, with a reference to the prescribed thresholds for the infrequent full body contact recreation guideline (576 MPN/100 ml) for each freshwater sampling station. Using the 2012 MS4 Annual Report as a reference, all stations (except for Gwynns Fall Parkway) showed a decrease in geometric mean. The average decrease was on the order of 280 MPN/ 100 ml. The largest decreases (894 to 1,793 MPN/ ml) were at Mount Pleasant Golf Course, Gwynns Run Hilton Street, and Gwynns Run Carroll Park.

Table 3: Summary of e. Coli Sampling for SIS Program

Station	ID	Number of Samples	Number of Samples Used for Geometric Mean	Geometric Mean (MPN/100 ml)	Samples At or Below Infrequent Full Body Contact Recreation (576 MPN/100 ml)
<i>Back River Watershed / Herring Run Sub-watershed</i>					
PERRING PKWY	HR-1	58	58	766	47%
MT. PLEASANT GC	HR-2	58	58	909	38%
CHINQUAPIN RUN	HR-3	58	58	579	50%
TIFFANY RUN	HR-4	58	58	536	59%
HARFORD RD.	HR-5	58	58	843	45%
WRIGHT AVE.	HR-6	58	58	666	50%
PULASKI HWY.	HR-7	58	58	475	60%
<i>Back River Watershed / Moores Run Sub-watershed</i>					
MARY AVE.	MR-1	57	55	2,935	14%
HAMILTON AVE.	MR-2	58	57	2,503	14%
RADECKE AVE.	MR-3	58	58	1,333	34%
BIDDLE ST. & 62ND ST	MR-4	58	58	586	47%
<i>Jones Falls Watershed</i>					
SMITH AVE.	JF-1	62	62	108	82%
WESTERN RUN	JF-2	62	61	709	52%
STONY RUN	JF-3	62	62	300	77%
<i>Gwynns Falls Watershed</i>					
POWDER MILL	GF-1	62	62	653	48%
PURNELL DR.	GF-2	59	59	580	56%
DEAD RUN DNST.	GF-3	58	58	230	78%
GWYNNNS FALLS PKWY.	GF-4	59	59	224	71%
GRUN HILTON ST.	GF-5	59	59	2,506	19%
GF HILTON ST.	GF-6	58	58	423	64%
MAIDENS CHOICE	GF-7	58	58	431	67%
GRUN CARROLL PARK	GF-8	58	56	9,207	2%
WASHINGTON BLVD.	GF-9	58	58	2,226	10%

DPW has measured fecal bacteria with enterococci most probable number (MPN) counts at eleven (11) stations. Two more stations were added in March 2013. The following table lists the enterococcus MPN count geometric mean and the percentage of surface water dry weather grab samples collected from April 2009 to June 2014, with a reference to the prescribed thresholds for the frequent and infrequent full body contact recreation guideline for each saltwater sampling station. No significant trends have been shown.

Table 4: Summary of Enterococci Sampling for SIS Program

Station	Number of Samples	Number of Samples Used for Geometric Mean	Geometric Mean (MPN/100 ml)	Samples At or Below Frequent Full Body Contact Recreation (104 MPN/100 ml)	Per Cent At or Below Infrequent Full Body Contact Recreation (500 MPN/100 ml)
<i>Patapsco River Watershed SIS Stations</i>					
REEDBIRD AVE.	112	111	183	43%	66%
<i>Baltimore Harbor Watershed SIS Stations</i>					
WATERVIEW AVE.	111	110	356	23%	59%
WARNER & ALLUVION	111	108	1,150	8%	26%
LIGHT ST.	111	111	175	39%	68%
CENTRAL & LANCASTER	112	111	1,054	7%	35%
LAKEWOOD & HUDSON	36	36	1,663	11%	19%
LAKEWOOD AVE.	116	112	1,342	4%	27%
LINWOOD & ELLIOTT	37	37	2,122	3%	11%
LINWOOD AVE.	116	113	3,859	2%	13%
JANEY RUN	112	110	216	36%	58%
<i>Jones Falls Watershed SIS Stations</i>					
LOMBARD ST.	105	105	1,010	6%	28%

3.2 Watershed Assessment at Moore's Run

Six base flow events and four storm events were monitored at the Radecke Avenue and Hamilton Avenue stations associated with the long-term discharge characterization for the Moores Run during this reporting period. The results of the monitoring events, including event mean concentration estimates, are provided in Appendix D of this report.

DPW performed a habitat assessment survey of the upper Moores Run watershed on September 2013. The results were included in the Annual Report for the reporting period of July 1, 2013 to December 31, 2013. No additional assessment was performed during this reporting period. The next assessment is scheduled for August 2014; the results will be included in the Annual Report for FY 2015. The City did not conduct a hydrogeomorphological assessment of the Moores Run during this reporting period.

3.3 Stormwater Management Assessment at Stony Run

DPW continued to collect biological and chemical monitoring data in Stony Run during this reporting period. The results of the biological monitoring (assessment macroinvertebrate) were still in progress at the time of this report. The results will be included in the Annual Report for FY 2015.

Significant storm events occurred in 2011 and moved some of the structural elements of stream restoration project at the Middle Stony Run project. The repair of these elements is scheduled for 2015. The physical survey of the stream profile and of permanently monumented cross-sections in the Stony Run to evaluate channel stability will be postponed until the repairs are completed.

4 Expenditures and Proposed Budget

As shown in the organization charts in Appendix A, DPW is predominantly responsible for compliance with the City's MS4 permit. Although the results of other City agency services are reported in this Annual Report for permit conditions like property maintenance, inspections and enforcement, the expenditure and budget information shown in the table below is strictly limited to DPW services.

Table 5: Fiscal Analysis

Description of Total Annual Cost	FY 14 Expenditure	FY 15 Proposed Budget
Legal authority	\$0	\$0
Source ID	\$121,115	\$283,484
Stormwater management	\$840,054	\$1,100,831
Erosion and sediment	\$396,893	\$1,004,844
Illicit detection/elimination (IDDE)	\$1,765,662	\$2,120,269
Trash elimination	\$1,301,384	\$1,584,866
Property management	\$5,469	\$5,332
Inlet cleaning	\$4,319,011	\$5,467,298
Street sweeping	\$4,217,840	3,264,308
Road maintenance - other	\$0	\$0
Public education	\$278,159	\$499,563
Watershed assessment	\$149,784	\$299,368
Watershed restoration (all projects)	\$1,960,750	\$5,928,296
Chemical monitoring	\$104,543	\$195,924
Biological monitoring	\$8,857	\$11,191
Physical assessment	\$0	\$0
Design manual monitoring	\$0	\$0
TMDL assessment	\$59,653	\$71,363
Total NPDES program	\$15,529,175	\$21,836,937

The expenditures listed are for the entire fiscal year 2014. The entire fiscal year expenditures were listed for the purpose of comparison with the proposed budget. The reporting period accounts for half of the fiscal year, therefore the expenditure for the reporting period may be estimated as half of the listed annual expenditure.

The activities listed in the above table are funded from a combination of water, wastewater, and stormwater utilities. The stormwater utility is an enterprise fund, established in 2013, to protect the use of revenue received from the stormwater restoration fee and other miscellaneous fees related to the technical plan review and inspection penalties associated with stormwater management and erosion and sediment control. The stormwater restoration fee was established in the City Code in June 2013; the first bills were issued in September 2013. Approximately \$ 2 million of the IDDE activity is funded by the water and wastewater utilities. In FY 2015 budget, about half of the street sweeping activity will be funded by the general fund (revenue from property taxes).

The above table lists both operation and capital fiscal information. The contracted amounts, associated with the FY 14 capital expenditures and FY 15 proposed budget, are on the order of \$1.1 and \$3.5 million, respectively. The other portions of the capital program are associated with restoration projects and funded by a combination of the stormwater utility, county transportation bonds, general obligation bonds, and grant funding.

5 Enforcement Actions, Inspections and Public Education

5.1 Stormwater Management Program

Programmatic and implementation information for the period of this Annual Report (January 1, 2014 to June 30, 2014) is as follows:

- Number of Concept Plans received: 78
- Number of Site Development Plans received: 43
- Number of Final Plans received: 43
- Number of Redevelopment projects received: 12
- Numbers of Stormwater exemptions issued: 83

DPW received and approved as-built drawings for 6 stormwater management BMPs between January 1, 2014 and June 30, 2014. The required data for these BMPs are listed in Table D in Appendix B of this report.

A summary of waivers and variances for this time period is provided in the following table:

Table 6: Summary of waivers and variances

Description	Requested	Granted
Quantitative Control Waiver	18	18
Qualitative Control Waiver	6	6
Redevelopment Waiver	12	12
Phased Development Waiver	2	2
Administrative Waiver	0	0
Variance	2	2
Total	40	40

No changes to the City’s ordinance or code related to the stormwater management program (Article 7, Division II) were pursued during this time.

During this reporting period, 1,791 inspections were conducted of the ESD treatment practices and stormwater management facilities during their construction phase. A total of 303 violation notices were issued by the City, resulting in a sum of \$20,651.00 received as penalty fines.

During this reporting period, 173 ESD treatment practices and structural stormwater management facilities were inspected as part of preventive maintenance inspections. One full-time inspector is dedicated to this effort. This is about 26% of the total practices that the City has received and approved as-built documentation, demonstrating the City is on schedule for the tri-annual post-construction inspection schedule. A total of 121 inspections required a follow-up inspection; however, no violation notices were issued.

5.2 Erosion and Sediment Control

Two responsible personnel certification training courses were provided by DPW on October 30 and March 20. A total of 69 people received certification. A list of the certified personnel is included in Appendix C of this report.

After the March class, MDE converted the process to an on-line training course on MDE's website. Training courses conducted by the City were no longer required. Although listed as an MS4 permit condition, Table J of the Attachment A of the MS4 permit will not be submitted in future MS4 Annual Reports since the certification training is administered and documented by MDE.

The summary of information regarding earth disturbances exceeding one acre are included in Appendix C of this report.

No changes to the City's ordinance or code related to the erosion and sediment control program (Article 7, Division III) were pursued during this time. Two inspectors were hired within this reporting period.

5.3 Illicit Discharge Detection and Elimination (IDDE)

DPW relies on ammonia screening (AS) and stream impact sampling (SIS) to initiate pollution source tracking (PST) investigations. DPW has utilized this alternative method of IDDE since 1998, which allows a routine field analysis of 47 outfalls in the City covering a total drainage area of approximately 38,000 acres within the City limits (about 73% of the City). The monitoring results from the surveys for the AS and SIS programs from January 1, 2014 through June 30, 2014, are included in Appendix D of this report. These monitoring results, plus historic data, were made available on-line in 2014 at the Cleanwater Baltimore website. DPW will continue to provide this information on-line, following submittals to MDE.

During this reporting period, a total of 71 PST investigations were initiated. As a result of the PST investigations, the following illicit discharges were identified:

- 3 sanitary discharges of unknown origin (SDUO): no abatement was completed during this reporting period. 4 previously identified SDUOs were abated.
- 13 dry weather sanitary sewer overflows (SSO) from the public sewer: all abated within this reporting period.
- 2 indirect illicit discharges (dry weather SSOs) from private properties: all abated within this reporting period.
- 7 drinking water transmission loss: all abated within this reporting period.

In June 2014, Blue Water Baltimore (BWB) initiated an outfall screening blitz (OSB) along Chinquapin Run and Herring Run. OSB is a volunteer water quality monitoring program. In June, DPW received notifications from BWB showing the results of 38 outfall screenings. The results of 25 outfalls screenings showed elevated levels of ammonia or fluoride, indicative of an illicit discharge. DPW performed supplemental investigations. The OSB program continued through the summer. A report of the results received from BWB and the results of DPW's supplemental investigations will be included in the FY 15 Annual Report.

In November 2013, DPW initiated an inspection program to reduce fats, oils and grease (FOG) within the sanitary system. Three additional inspectors were hired to perform the inspections and educate customers about FOG best management practices. The Program has a two-pronged approach that manages FOG from both the private and public sides of the property line by:

- Requiring all food services establishments that have the potential to discharge FOG-laden wastewater to have an adequate grease control device, and
- Abating fats, oils and grease in the sewer lines using a commercial grade degreaser.

The FOG program includes collaboration with the City's Health Department and the Department of Housing and Community Development (HCD). The Health Department issues and renews food licenses, routinely providing DPW a list of licensed food service establishments. During this reporting period DPW has created and maintains an inventory of grease control devices. In addition, the Health Department performs inspections for compliance with the Health Code; inspections by both departments are coordinated to minimize the impact to customers.

The Department of Housing and Community Development enforces the Baltimore City Plumbing Code so any violations of the plumbing code are referred to HCD for further action. Grease control devices are required by the International Plumbing Code, which has been adopted by the City.

FOG education efforts been focused on both residents and owners of food service establishments. Flyers were included with water bills. Outreach at festivals and community meetings included distribution of education materials. All education materials are available on the Cleanwater Baltimore website.

With the creation of the Utility Asset Management Division, DPW has initiated root-cause analysis of reported sanitary sewer chokes and SSOs. Using this information, analysts are able to determine which specific assets are involved, and the likely causes of the issues at the assets. This analysis then allows targeted remediation to correct the issue at the source.

An estimation of the nutrient and bacteria loading reductions, plus equivalent impervious area restoration, due to the above IDDE efforts is planned to be initiated in FY 15. The evaluation will incorporate the results of the Chesapeake Bay Program technical work groups and any assessment methods approved to MDE within that reporting period.

5.4 Property Management and Maintenance

5.4.1 Street Sweeping and Trash Reduction

From January through June 2014, the street sweepers operated by DPW- Bureau of Solid Waste removed 5,378 tons of debris while sweeping 47,414 miles of street surface. In April 2014, DPW launched an expanded street sweeping program. Significant increases in debris collection were reported in the first three months of the increased services; but long-term monitoring is needed to determine any long-term trends.

In June 2014, DPW initiated a pilot program in the Belair-Edison and Four by Four neighborhoods in northeast Baltimore and several neighborhoods in the Greater Mondawmin area on the west side. Residents were given one 65-gallon municipal trash container (with an attached lid) per address with an embedded RFID chip, as well as a recycling container. The City will also monitor rat rubout 311 calls, dirty alley requests, litter surveys, and recycling rates. The results of the pilot program will be included in the FY 15 Annual report.

5.4.2 Inlet Cleaning

The Utility Maintenance Division (UMD) of the Bureau of Water and Wastewater removed 298 tons of debris from the City's storm drain system from January through June 2014.

5.4.3 Exterior Lead Paint Removal Waste Control Program

This program is administered by the Pollution Control Section of the Environmental Services Division of the Bureau of Water and Wastewater. From January through June 2014, there were 113 permitted sites. Inspectors made 97 site visits and issued 6 stop work notices. There were no documented illegal discharges to the storm drain system.

5.4.4 Integrated Pest Management

The Department of Transportation (DOT) applies herbicides from May through September annually. During May through June 2014, DOT applied approximately 40 gallons of Brushmaster and 40 gallons of Prosecutor Pro (Lesco brand equivalent of Round Up). The Department of Recreation and Parks applied approximately 63 gallons of Round Up (or an equivalent product) from January through June 2014.

5.4.5 Deicing Materials

The Department of Transportation applied 63,724 tons of sodium chloride between July 2013 and June 2014 (Fiscal Year 2014). The Department of Transportation did not report how much of this amount was applied specifically between January and June 2014 (the period covered by this report); however, the weather events (snow and ice) which would require the application of deicing materials were predominantly after January 1, 2014.

5.5 Public Education and Outreach

An inventory of the City’s public outreach and education programs is included in Appendix E of this report. This inventory is specifically related to the environmental topics listed in IV.D.6 of the MS4 permit. A summary of outreach events is provided in the table below:

Table 7: Summary of Outreach Activities for the Reporting Period

Description	Details
Public Presentations on the Stormwater Fee Credit Program (encouraging the public to install stormwater practices)	<ul style="list-style-type: none"> • Interfaith Partners for the Chesapeake (3/30/14) • York Road Partnership (4/2/14) • Sustainability Commission Town Hall (4/22/14) • Power in Dirt (4/23/14)
School presentations providing information on trash reduction, recycling, rats, and storm drains, related to the health of the harbor	<ul style="list-style-type: none"> • 24 presentations • 11 schools • 1,041 students • Post-presentation testing
Community events where DPW provided educational materials on environmental topics	<ul style="list-style-type: none"> • Prettyboy Dam Day • Big Truck Day • Mayor’s Spring Cleanup • African American Heritage Festival • Mayor’s Cabinet in the Community • Mayor’s Public Safety Meetings • Various community meetings
Incentives related to trash reduction	<ul style="list-style-type: none"> • Extended hours instituted at three trash drop-off centers (May 2014) • Expanded collections of hazardous household wastes (e.g. bleach, ammonia, batteries) from once or twice a year to the first Friday and Saturday of every month from April through October at the popular Sisson Street Convenience Center. • Recycling bins sales on St. Patrick’s Day, Big Truck Day, and Independence Day • Grant from Dr. Pepper Snapple Group/Keep America Beautiful (KBA) Public Park Recycling Bin Grant Program (April 2014) to install six recycling containers at Cylburn Arboretum • Provide disposal service for the Water Wheel, a public-private project at the Jones Falls outfall to the Inner Harbor. The Water Wheel was launched in May 2014.

Baltimore's stormwater restoration fee has a credit program, which includes a fee reduction for participation in registered stormwater participation events. These include community clean-ups, stream and harbor clean-ups, tree plantings, and installation of community BMPs. Outreach efforts and information promoting these types of trash reduction efforts and BMP installations have included posting on the Cleanwater Baltimore web site and DPW's Facebook page, providing flyers at DPW attended events, reminders sent to City Council members for distribution, and at community and partner meetings attended by DPW liaisons. The results of the registered stormwater participation events, as reported to DPW, are as follows:

- 59 stormwater participation events completed
- 1,876 volunteers participated
- 23.5 tons of trash collected
- 863 trees planted

6 Water Quality Improvements

During this reporting period, the City expanded street sweeping, completed a stream restoration project at Leakin Park, and approved as-built documentation for stormwater facilities installed on private property. The estimated water quality improvements, achieved during this reporting period, are shown in the following table:

Table 8: Summary of Water Quality Improvements

Description	Reference Metric	Impervious Area Restored (ac)	Estimated Removal		
			Nitrogen (lb/ yr)	Phosphorus (lb / yr)	Suspended Solids (lb / yr)
<i>Projects</i>					
Leakin Park (Gwynns Falls)	2,080 LF restored	31	156	141	62,400
Volunteer tree program	863 trees (assume on grass)	3.3	7	0.33	80
Development BMPs	See Appendix B, Table B	3.5	17	1.7	1,435
Projects Sub-Total:		37.8	180	143	63,915
<i>Programs</i>					
Street Sweeping	Total Wt.: 5,378 tons Est. Dry: 4,065 tons	1,506	13,175	5,270	1,581,017
Inlet Cleaning	Est. Dry: 298 tons	119	1,043	417	125,173
Programs Sub-Total:		1,625	14,218	5,687	1,706,190

Estimates for water quality improvements will be included in the City’s MS4 Restoration and TMDL Watershed Implementation Plan (WIP). Following the approval of the WIP, the above table will be modified to show a comparison of the proposed and actual loading reductions per proposed project or program. The data will also be detailed to show reductions per watershed for projects.

Currently, records for street sweeping and inlet cleaning are not geographically referenced so the estimated reduction per watershed would not be accurate. This accuracy will be improved pending modifications of the data collection for these two programs. As street sweeping and inlet cleaning are continuous activities, the removal estimates for these activities will be shown as a historic trend to account for any impacts due education, outreach, or enforcement.