

City of Manassas Manassas, VA



MS4 General Permit Annual Report

Report Period: July 1, 2014 – June 30, 2015

Revised to address DEQ Comments: March 23, 2016

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INTRODUCTION

The City of Manassas consists of approximately ten (10) square miles draining to the Occoquan River. It is composed of primarily urban mixed use land development and surrounded by Prince William County. There are four watershed areas, Broad Run-Rocky Branch, Middle Bull Run, Lower Bull Run, and Occoquan River-Lake Jackson, these watershed areas discharge into the Occoquan River.

This report covers items for year 2 of the City of Manassas MS4 Permit Plan in compliance with Virginia Pollution Discharge Elimination System (VPDES) permit. This MS4 Program Plan will be updated as necessary throughout the permit period so that it remains up to date. This MS4 Plan will remain on the file in the Department of Public Works or through Manassas's stormwater website; <http://www.manassascity.org/DocumentCenter/View/22712>.

BACKGROUND INFORMATION

Name	Citywide Municipal Storm Sewer System
Permit #	VAR040063
Reporting Period:	Year 2; July 1, 2014 – June 30, 2015
Modifications:	N/A
New Outfalls and Associated Acreage by HUC	Zero (0) MS4 Outfalls added

STATUS OF COMPLIANCE (Year II Objectives)

The following summarizes activities performed for each of the six minimum control measures for the City of Manassas as whole during the permit year. Note that specific activities are included in Appendix A.

1. Public Education:

Program Element	Progress
<p>Publish an article that addresses stormwater issues such as recycling, yard waste collection, hazardous waste handling, and illegal discharges</p>	<p>The City has had an excellent year promoting refuse and recycling, HHW and eWaste and Stormwater information.</p> <p>Television spots focused on recycling for Christmas and identifying toxics in the home.</p> <ul style="list-style-type: none"> • 2 television appearances on Fox News DC • 21 articles in local online and print publications • 3 Resident Advisory notices • 10 articles in the City Connection newsletter
<p>Include a section to the newsletter that pertains to stormwater issues related to children</p>	<p>A new newsletter for schools has been developed for school children in grades 1-5. 3,000 children received them during the school year. It was agreed with the schools that the newsletter be delivered 3 times during the school year to coincide with the start of the year, America Recycles Day and Earth Day.</p> <p>The four page newsletter offers, information, games, projects, a reading list, suggested videos and contests to encourage participation.</p>

<p>Develop public education and information brochures related to stormwater management, pet waste management, water quality, and stormwater pollution prevention</p>	<p>All of the materials used for public outreach have been reviewed. New publications have been introduced to clearly explain regulations regarding trash and recycling.</p> <p>Plans for FY2016 include moving toward more social media outlets and videos to reach younger audiences and across language barriers.</p> <ul style="list-style-type: none"> • 2,000 Trash and Recycling brochures in (Spanish and English) • 2,000 Recycling "How-To" flyers • 1,000 Stormwater brochures • 1,000 Urban Runoff information sheets • 3,000 Earth Care A-Z workbooks for children • 1,000 Compost: What it is information sheets • 1,000 Making Compost from Yard Waste leaflets • 1,000 Using Compost in Your Landscape leaflets • 1,000 Building Healthy Soil • 1,000 Stormwater Hotline magnets • 2,000 Stormwater Hotline dog poop bags • 2,000 Trashline magnets • 4,000 reusable shopping bags with trashline number
<p>Provide printed brochures to citizens at various locations around the City to increase knowledge concerning stormwater pollution</p>	<p>All brochures and additional materials were provided to residents at:</p> <ul style="list-style-type: none"> • Customer service counter • City Hall • HHW and eWaste drop off site • Town Hall meetings • City events • HOAs/Community Centers <p>Evidence provided by the Virginia Recycling Association has suggested that the audience for printed material is shrinking and that younger residents are more inclined to use smart phones to access information. Therefore the cost of printed materials will slowly transition into the investment in more valuable forms of outreach relevant to our audience.</p>

<p>Post electronic versions of informational brochures on the City's website or create a web page with a stormwater focus.</p> <p>Place a link to the informational brochure/web page on the City Employee Intranet</p>	<p>Website Stats FY2015</p> <ul style="list-style-type: none"> • 3,784 Hits HHW & eWaste (up 24%) • 6,927 Hits Refuse & Recycling (up 4%) • 847 Hits Stormwater (up 45%) <p>Web pages for Refuse and Recycling and Stormwater information are regularly updated and include public information presentations, videos, links and PDFs of all brochure and reports.</p> <p>The Stormwater webpages also include special pages for children with educational games.</p> <p>A link to the Stormwater page on the Employee Intranet reaches 400 staff on a daily basis.</p>
<p>Continue dissemination of information through new-resident brochure, the "Trash Line", and the City's website. The City currently uses these channels to provide information on recycling, yard waste collection, hazardous waste handling, and illegal discharges</p>	<ul style="list-style-type: none"> • "New Resident" brochures have been replaced with Refuse and Recycling brochures outlining City programs and procedures. 2,000 brochures were distributed in FY2015 • 3,863 calls to the "Trashline." Improved online services and information leaflets have reduced the number of calls to the "Trashline" by 23%. • 6,927 Hits on Refuse & Recycling web page <p>Information is also regularly posted on the City's government access channel and digital billboards located in City Hall and in the Utilities customer service area.</p>
<p>Develop and initiate watershed education programs with a specific focus on stormwater management, water quality, and stormwater pollution prevention for public school students in grades K-5.</p>	<ul style="list-style-type: none"> • 3000 children received workbooks and the new stormwater newsletter on pollution prevention in FY2015. • 200 children received classroom visits. • 150 children participated in the Earth Day Poster contest • 100 children participated in the America Recycles Day video contest. • Ongoing involvement with the Recycling Coordinators group for City schools resulted in regular classroom presentations focusing on all aspects of pollution prevention including stormwater pollution. <p>By allowing students to become involved in the development of relevant outreach materials, greater engagement with schools has led to a really strong increase in outreach. Plans for FY16 include more contests and student led videos aimed at raising awareness and educating friends and family in a positive and fun way.</p>

<p>Evaluate the education and outreach program for appropriateness of high-priority issues and target audiences and effectiveness of message and mechanisms of delivery employed in reaching target audience.</p>	<p>High priority messages:</p> <ul style="list-style-type: none"> • Residents using the storm drain as a trash can. • Dog Walkers using the storm drain to dispose of pet waste. • Street litter, TVs and HHW at the curb. <p>Approximately 25,000 residents have been reached in FY15 through the following efforts:</p> <ul style="list-style-type: none"> • 11,000 residential and commercial utility customers the City Connection newsletter • 3,000 students in grades 1 -5 through the school newsletters • 10,000+ people reached through articles in advance of and information provided at RecycleFest and Spring RecycleFest. Records are also being kept now regarding HHW and eWaste drop off day attendance. • 1,000 people reached through City events and Town Hall meetings
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The following table provides estimates for the number of people/households reached for each high-priority water quality issue during the 2014-2015 reporting period:

Message	# people reached	% of population
Residents using the storm drain as a trash can.	11,000	27.5%
Dog Walkers using the storm drain to dispose of pet waste.	11,000	27.5%
Street litter, TVs and HHW at the curb.	14,000	35%

The following table provides estimates for the number of people/households that will be reached for each high-priority water quality issue during the 2015-2016 reporting period:

Message	# people reached	% of population
Residents using the storm drain as a trash can.	11,000	27.5%
Dog Walkers using the storm drain to dispose of pet waste.	11,000	27.5%
Street litter, TVs and HHW at the curb.	14,000	35%

2. Public Involvement/Participation:

<p>Coordinate with the existing Citizens Advisory Committee (CAC) to share and discuss outreach strategies and public education efforts. The existing CAC will be urged to expand its current interest in solid waste and recycling to stormwater issues. Also develop a strategy for public involvement in removal of trash from local waterways</p>	<ul style="list-style-type: none"> • 11 Citizen’s Advisory meetings were held in FY2014 • 6 committee members consistently attended each meeting • New CAC members include 2 Master Gardeners. One actually does stormwater related work for the VA Cooperative Extension at VA Tech. • The group is very active and attends community events and public meetings with the Refuse and Recycling Coordinator. • Stormwater is a regular agenda item in FY2015 and a strategy for public involvement including awareness raising events continue.
<p>Stormwater telephone hotline and online comment form established for citizens to report a concern regarding spills, illegal dumping, BMP problems, and construction site complaints</p>	<ul style="list-style-type: none"> • 123 calls received regarding stormwater issues in FY2015 • 54 online comments received <p>A Stormwater telephone hotline number has been made available on the Stormwater web pages and an online comment section has been added to the “report a concern form” on the City’s website.</p>
<p>Continue the storm inlet placard program. The City has already initiated this program and will target additional priority areas and new construction areas. A message stating “No Dumping-Drains to Bay” will be used to involve citizens and volunteer groups.</p>	<ul style="list-style-type: none"> • The Public Works Department maintains a list of the priority areas within the City that require stenciling. • The City has stenciled the 96 priority areas that are identified and is continuously working towards placing placards on all of the inlets within the City. 4915 inlets currently have placards. • CAC informed the City that paints on the existing placards start fading away and the City is looking into repainting.

<p>Participate through promotion, sponsorship, or other involvement; in a minimum of four local activities annually, e.g. stream clean-ups, hazardous waste clean-up days</p> <p>Continue to support the Adopt-A-Stream program</p>	<p>6 different outreach activities were held in FY2015. The number of participants ranged between 2 and 500 depending on the actual event and some activities were repeated by groups.</p> <ul style="list-style-type: none"> • 10 HHW & eWaste drop off days; avg. 100 people • 2 RecycleFests; avg. 500 people attending • 2 Town Hall Meetings • 69 Adopt a Street collections with 168 people collecting • 2 community events Fall and Spring City festivals avg is 1000+ attending • Introduced the Adopt a Stream program which is being run through Community Development. <p>The Adopt a Stream program is actually run out of DCR. There has not been any consistent activity with this program in the past. The City has just restarted the partnership with Adopt a Stream and is acting as a sponsor/steward to re launch the program and establish active groups of volunteers who can take over streams once they have been given training and equipment.</p>
<p>Publish MS4 Program Plan and annual reports on the City of Manassas website for download. Also provide printed copies of the MS4 Program Plan and annual reports to any interested parties upon request.</p>	<p>The Stormwater webpage received 847 hits in FY2015. PDFs of the Program Plan and associated reports are available on the site. Hard copies of the Plan and associated reports have been made available at all public meetings.</p>
<p>Continue household hazardous waste collection</p>	<p>10 Household Hazardous Waste and eWaste drop off days were held in FY2015.</p> <p>2 of the drop off days were expanded into RecycleFest days, which included shredding and textile recycling. The events were heavily promoted to the public and well received. This resulted in the collection of just over 20 tons of recycling in November and 15 tons in April.</p> <p>Information regarding regular drop off days was promoted through the City Connection newsletter, government PEG channel, and on the website.</p>

Web links for the annual report and program plan are provided below:

Annual Reports: <http://www.manassascity.org/1791/Stormwater-Plan-Reports-to-State>
Program Plan: <http://www.manassascity.org/DocumentCenter/View/22712>

3. Illicit Discharge Detection and Elimination:

The goal of this minimum control measure is to develop, implement, and enforce a program to detect and eliminate illicit discharges into regulated small MS4s. To meet this goal, operators of a regulated small MS4 must develop and maintain an updated storm sewer map and outfall database; prohibit through ordinance or other legal mechanism non stormwater discharges to the extent allowable by law; develop and implement procedures to detect and eliminate illicit discharges; promote public reporting of potential illicit discharges; and notify any downstream regulated MS4 of physical interconnections. The following BMPs provide information on the tasks and status of the Illicit Discharge Detection and Elimination;

- Enforcement procedures were developed under our Illicit Discharge Ordinance and are enforced and carried out by our Fire Marshal's Office.
- Stormwater GIS development remained at 95% completion due to new developments and redevelopments within the City limits.
- The FMO responds to HazMat incidents to investigate the circumstances of the discharge, including damage to natural gas lines. There were 5 incidents reported in year 2 and these were environmental crimes and hazmat involving dumping into the storm sewer and fuel/hazardous material spills. Illicit discharge reports and investigations conducted in year 2 are summarized in *Appendix C*.
- Household hazardous waste collection events were held 10 times during the reporting year and a schedule of these events is posted on the City website, government PEG channel, and the City Connection newsletters.
- Zero mile of storm sewer was inspected using video inspection over the reporting period due to understaffing. The position has been advertised and opens until filled.
- Flat Branch Tributary No.1 to Flat Branch Tributary C was inspected during the reporting period for a length of approximately 0.7 miles of stream assessed and no illicit discharges observed.
- 96 Priority Areas for Potential Pollution Problems have been identified and a GIS layer has been created. Data will be continuously updated as required by development.
- The City utilizes GIS networking and mapping methods to track illicit discharges and the City is currently working with IT/GIS departments to implement these methods into our GIS.
- The City performs visual inspections of the five (5) City outfalls to check for any illicit discharges that may require immediate attention.
- 123 calls received regarding stormwater issues during the reporting period.
- Written notifications to City of Manassas Park, Prince William County, and Virginia Department of Transportation, the regulated physically interconnected to MS4s, were sent on June 23rd, 2014.
- The Virginia Stormwater Management Program has been adopted by the City Council on June 16th, 2014 and effective as of July 1st, 2014.

4. Construction Site Stormwater Runoff Control

- No calls were received on the complaint line regarding erosion controls.
- The City has required erosion and sediment control plans for any land disturbance greater than 2,500 square feet and all the erosion control devices inspected and approved by the City Inspector prior to the initiation of any land disturbing activity.
- During the reporting period, the City remained fully consistent with the requirements of the Virginia Erosion and Sediment Control Law and Regulations and the Virginia Stormwater Management Regulations. The Department of Community Development is the responsible party for administering the City's E&S Program and there were 14 regulated land-disturbing activities with total disturbed area of 13.83 acres. A total of 255 inspections were conducted and the contractors resolved all the issues within acceptable timeframe. No enforcement actions were taken during the reporting period.
- The City currently holds 4 DEQ E&S certified personnel, these include:
 - 3 - Combined Administrator
 - 1 - Plan Reviewer
- The City currently holds 1 DEQ Stormwater Management Program Combined Administrator certified personnel.

5. Post-construction Stormwater Management:

- BMP Inspection: The City performs visual inspections of the BMP stormwater management facilities after each significant rainfall event to check for debris or any physical failures that may require immediate attention.
- The City has completed our inspection of 20 identified public BMPs and found to be appropriate and effective at this time.
- The City has identified 55 stormwater management facilities or ponds in the City of Manassas. There are 35 private and 20 public facilities and ponds in the year 2. City will provide a list of BMPs placed on the inspection schedule list. *See Appendix D.*
- The City has developed tools to aid in the stormwater management program through databases, GIS, and spreadsheets. These tools are updated on an as-needed basis in order to remain current with field conditions.

6. *Pollution Prevention/Good Housekeeping for Municipal Operations*

- The City has developed and implemented the Standard Operating Procedures (SOP's) of the following:
 - Proper storage of de-icing salt and chemicals
 - Proper street sweeping techniques and debris disposal
 - Shop maintenance/storage and disposal of grease, oil, and chemicals
 - Enforcement regulations as outlined in our adopted Illicit Discharge Ordinance.

This list is complete and is updated as required by changes in operation requirements. At this time there have been no changes to the policy since the last submission to DEQ.

- Training programs have been established and conducted for the following:
 - Hazardous Materials Operations/OSHA Level II
 - Stormwater Pollution Prevention Plan/Spill Prevention, Control, and Countermeasures Plan
 - Spill Response Training
- A total of 14 City employees attended at the training above during the reporting period. Hazardous Materials Operations/OSHA Level II training is scheduled in October for the Public Works Department and Stormwater Pollution Prevention Plan/Spill Prevention, Control, and Countermeasures Plan and Spill Response training are scheduled biennially for the Public Works Department and Water and Sewer Department employees with 1 session occurring in October 2014.
- Three employees completed the required stormwater management training (Basic 4/28/15 & 5/7/15, Inspector, and Plan Reviewer) for Combined Administrator certification and 1 more employee will attend the required training to obtain the appropriate certifications as required under the Virginia Stormwater Management Program (VSMP) regulations. 4 employees will attend the relevant training courses provided by DEQ or by a third party throughout the year in order to maintain and recertify their certification.
- Annual update of the Stormwater pollution prevention plan (SWPPP) at the public works yard has been maintained.
- City identified three (3) municipal high-priority facilities with high potential of discharging pollutants which are the public works yards, regional airport, and the water treatment facility. They are covered under separate VPDES permits and the stormwater pollution prevention plans (SWPPP) have been maintained at each facility.
- 1222 tons of road salt applied.
- 387.58 tons of sand was applied to the roadways
- 10,000 gallons of Ice Ban liquid was applied to the roadways
- Chemical Applications by TruGreen

Fall Visit 2014

- Liquid fertilizer (13-0-6.5) 36.05 acres @ 1.0lbs N per 1,000 sq ft = 1,260.2 gals

- Weed Control 3.25 pints per acre = 14.65 gals of Tri power post emergent broadleaf

Late Fall 2014

- Liquid fertilizer (13-0-6.5) 36.05 acres @ 1.0lbs N per 1,000 sq ft = 1,260.2 gals
- Weed Control 3.25 pints per acre = 14.65 gals of Tri power post emergent broadleaf

Spring Visit 2015

- Liquid fertilizer (17-0-5) 36.05 acres @ .7lbs N per 1,000 sq ft = 630.1 gals
- Weed Control 2.67 pints per acre = 12.03 gals of Escalade post-emergent broadleaf
- Weed Control 1.2 pints per acre = 5.5 gals of Dimension pre-emergent

Late Spring 2015

- Liquid fertilizer (17-0-5) 36.05 acres @ .3lbs N per 1,000 sq ft = 275 gals
- Weed Control 2.67 pints per acre = 12.03 gals of Escalade post-emergent broadleaf
- Weed Control 1.2 pints per acre = 5.5 gals of Dimension pre-emergent

- Chemical Applications: In House

Tri-mec – Broadleaf Herbicide	15 gals.
Round-up Pro – Herbicide	50 gals.
Mosquito larvicide – Vectolex	6 lbs.
Nutricote fertilizer – slow release	120 lbs.
Spreader sticker surfactant	7.5 gals.
Orthene 75% WP – Insecticide	0.5 lb.
Acelepryn	0.75 gallon
Ornamec – Grass Herbicide	2.5 gals.

- A total of 30.74 acres of lands owned and operated by the City where nutrients are applied to a contiguous area greater than one acre is identified as shown in Table 1. Nutrients have been applied on all applicable lands by the TruGreen in accordance with the Virginia Nutrient Management Standards and Criteria.

Table 1: A list of applicable lands where nutrients are applied to a contiguous area of more than one acre.

Land	Acreage	Latitude	Longitude
IBM Ball Fields	16.43	38°44'46.0"N	77°30'40.8"W
Manassas Museum	3.55	38°44'54.9"N	77°28'19.1"W
Jennie Dean Ball Fields	5.73	38°44'42.0"N	77°29'28.4"W
Byrd Park Ball Fields	2.62	38°46'08.1"N	77°28'20.0"W
Public Works Hillside	2.41	38°46'11.7"N	77°27'39.9"W

*Ashton Avenue Medians has been removed from the list because it has been determined that is not a contiguous area of more than one acre.

- Street Sweeping: The number of tons collected during the reporting period was 394 Tons and 1060 lane miles swept, which are based on 7.8 lane miles of sweeping performed 4 times a week for

2/3rds of the year for downtown streets and 253 lane miles of sweeping performed 6.7 times a year for all City streets equaling 1,695 lane miles swept during the reporting period.

- 3.90 miles of downtown sidewalks are cleaned twice a week for 2/3 of the year, resulting in 265 sidewalk miles cleaned over the reporting period.
- Stenciling (Placards) of inlets in priority areas is 100% complete. This program includes inspection and cleaning of City storm structures. The City has a total of 4,915 stenciled inlets and will continue to expand this program in year 3. Also the City has started looking into restoring the existing placards that have faded paints.
- The Virginia E-4 certification designation for the City's Maintenance Garage has been maintained.
- 1056 storm structures were inspected and cleaned during the reporting period.

COLLECTED INFORMATION AND ANALYSIS

- No information was collected and analyzed during the reporting period

PLANNED ACTIVITIES FOR PERIOD 3

- See Appendix B.

BMP MODIFICATIONS

- A public meeting to evaluate opportunities and develop a strategy for stormwater management program will be held continuously next year. This change was made as a result of a tremendous increase in the amount of information made available to residents. The City wishes to provide residents with information regarding the programs current state and obtain their input on future improvements of the program while the education program is still in its early stages.

NOTICE OF EXTERNAL ASSISTANCE:

- The City MS4 Permit and Stormwater program is under the supervision of the City of Manassas Department of Public Works, the department utilizes other departments within the City and Public Works to satisfy several of the permit requirements. At this time, no outsourcing has been utilized by the City for the MS4 Program.

PROPOSED PROGRAMS:

- The City does not currently have any programs that are seeking approval status pursuant to Section II C of the General Permit.

SECTION I B 5 and SECTION I C 2 REQUIREMENTS:

- TMDL Action Plan and Chesapeake Bay TMDL Plan have been prepared in accordance with the terms of General Permit No.VAR040063. The pollutants of concern are nitrogen and phosphorus (nutrients), sediment, and bacteria. See Appendix E for TMDL Action Plan and Appendix F for the Chesapeake Bay TMDL Action Plan
- The City currently has 4 WLAs assigned:

<i>Watershed</i>	<i>Pollutant</i>	<i>WLA</i>	<i>*Est. Watershed Discharge (cu.ft.)</i>	<i>*Est. Pollutant Discharge</i>
Bull Run	Sediment	210 tons	~129499	< 210 tons
Bull Run	E. coli	6.82 E+09 cfu	~129499	< 6.82 E+09 cfu
Broad Run	E. coli	1.15 E+10 cfu	~129499	< 1.15 E+10 cfu
Occoquan River	E. coli	2.95 E+10 cfu	~258999	< 2.95 E+10 cfu

*Quantities derived from average rainfall and drainage area, no field testing was completed.

ILLICIT DISCHARGES

- There were 5 Hazardous Material Incidents, See Appendix C

LAND DISTURBANCE

- During the reporting period, 13.83 acres were disturbed.

PERMANENT STORMWATER MANAGEMENT FACILITIES

- One (1) stormwater management facility added during the reporting period and a list of all stormwater management facilities can be found in Appendix D.

APPENDIX A – Planned Activities for Year 2

APPENDIX B – Updated MS4 Program Plan

APPENDIX C – Fire Marshal’s Report

APPENDIX D – Stormwater Management Facilities and Ponds

APPENDIX E – TMDL Action Plan

APPENDIX F – Chesapeake Bay Action Plan

APPENDIX A

MS4 Planned Activities (Year II)

Permit: VAR040063

**CITY OF MANASSAS NPDES PHASE II STORMWATER PERMIT
VSMP SMALL MS4 PROGRAM PLAN 2013-2018
MINIMUM MEASURES AND BEST MANAGEMENT PRACTICES**

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
Public education	Publish an article that addresses stormwater issues such as recycling, yard waste collection, hazardous waste handling, and illegal discharges	Publish at least 2 articles a year in a local publication	Number of articles/newsletters distributed	Department of Public Works
	Include a section to the newsletter that pertains to stormwater issues related to children	New section added	Number of newsletters distributed with the children section	Department of Public Works
	Develop public education and information brochures related to stormwater management, pet waste management, water quality, and stormwater pollution prevention	Create brochures in print and electronic format by Year 1	Number of brochures developed	Department of Public Works
	Provide printed brochures to citizens at various locations around the City to increase knowledge concerning stormwater pollution	Publish a brochure at least once annually and placed at various locations around the City by Year 2	Number of brochures distributed Number of locations distributed	Department of Public Works
	Post electronic versions of informational brochures on the City's website or create a web page with a stormwater focus.	Posting of information on the website	Number of hits to the website	Department of Public Works
	Place a link to the informational brochure/web page on the City Employee Intranet	Creation of the link	Number of hits to the website	Department of Public Works
	Continue dissemination of information through new-resident brochure, the "Trash Line", and the City's website. The City currently uses these channels to provide information on recycling, yard waste collection, hazardous waste handling, and illegal discharges	Continuous maintenance of these services throughout permit period	Number of new-resident brochures distributed Number of calls to the "Trash Line" Number of hits to the website	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Develop and initiate watershed education programs with a specific focus on stormwater management, water quality, and stormwater pollution prevention for public school students in grades K-5	Create educational materials for distribution to school children by Year 3; Initiate education programs by Year 4 and remain ongoing through the remainder of the permit cycle	Number of sessions conducted each year	Department of Public Works
	Evaluate the education and outreach program for appropriateness of high-priority issues and target audiences and effectiveness of message and mechanisms of delivery employed in reaching target audience.	Evaluate program performance	Estimated number of people reached Estimated percent of the target audiences that are reached	Department of Public Works
Public involvement/participation	Coordinate with the existing Citizens Advisory Committee (CAC) to share and discuss outreach strategies and public education efforts. The existing CAC will be urged to expand its current interest in solid waste and recycling to stormwater issues. Also develop a strategy for public involvement in removal of trash from local waterways	Hold public meetings quarterly	Number of meetings with CAC Number of attendees to the meeting	Department of Public Works
	Stormwater telephone hotline and online comment form established for citizens to report a concern regarding spills, illegal dumping, BMP problems, and construction site complaints	Stormwater telephone hotline and online comment form established	Number of calls to the hotline Number of online comments	Department of Public Works
	Continue the storm inlet placard program. The City has already initiated this program and will target additional priority areas and new construction areas. A message stating "No Dumping-Drains to Bay" will be used to involve citizens and volunteer groups.	Prioritization of areas in the City where stenciling is needed Stencil all of the inlets in the priority areas ongoing through the permit cycle	List of priority areas Number of inlets stenciled	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Participate through promotion, sponsorship, or other involvement; in a minimum of four local activities annually, e.g. stream clean-ups, hazardous waste clean-up days Continue to support the Adopt-A-Stream program	Document the activities that occur each year which relate to the event	Number of activities Number of participants per event	Department of Public Works
	Publish MS4 Program Plan and annual reports on the City of Manassas website for download. Also provide printed copies of the MS4 Program Plan and annual reports to any interested parties upon request.	Report added to website; MS4 Program Plan will be available subsequent to approval by DEQ	Number of hits to the website Number of copies provided	Department of Public Works
Illicit discharge detection and elimination	Maintain storm sewer GIS map and corresponding database to be used for illicit discharge tracking and recording maintenance activities	Continue to update and maintain storm sewer GIS map and database to include all known outfalls, including waters of the US, drainage areas, potential sources of pollution	Number of new structures located	Department of Public Works
	Continue hazardous spill response program	Maintain this program throughout permit period	Number of incidents addressed	Department of Human Resources and Fire Marshal Office
	Continue household hazardous waste collection	Maintain this service throughout permit period	Number of hazardous waste collection events	Department of Public Works
	Perform stream assessments (stream walks) to inspect all City outfalls for unauthorized nonstormwater discharges and update the GIS mapping Continue to identify other points of discharge and notify the downstream MS4 of any known physical interconnection	Assessment of streams and City outfalls Develop inspection schedules for the following year Identify for points of discharge	Number of stream miles assessed Number of outfalls inspected Number of points of discharge identified	Department of Public Works
	Implement TV inspection of storm sewer system and determine if an illicit discharge has occurred or is occurring	Maintain records of TV inspection Identify for possible illicit discharges	Number of miles inspected Number of outfalls that have had apparent illicit discharges	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Continue to identify priority areas in the City for potential pollution problems and monitor those locations to ensure compliance with existing regulations	Update a GIS layer of priority areas Regularly monitor throughout permit cycle	Number of locations identified	Department of Public Works
	Comply with existing regulations that prohibit illicit discharges to storm sewer systems	Track notices of violations and seek to reduce this number by maximum extent practicable	Number of violations requiring enforcement procedures	Department of Public Works and Fire Marshal Office
	Stormwater hotline and online comment form established for citizens to report spills, illegal dumping, BMP problems, and construction site complaints	Stormwater hotline established	Number of calls to the hotline	Department of Public Works
	Notifications to the regulated physically interconnected MS4s	Record the date of written notifications sent in Year 1	Date of notification	Department of Public Works
	Implement and maintain the Virginia Stormwater Management Program	Adopt and implement the Stormwater Management Ordinance in Year 2	Number of inspections performed Number of violations identified	Department of Public Works and Development Services
Construction site stormwater runoff control	Complaint hotline and online comment form established to increase the public knowledge and awareness of issues regarding stormwater runoff from construction sites	Stormwater hotline established for complaints	Number of calls/comments to the hotline	Department of Public Works
	Ensure coverage under the Virginia Stormwater Management Program (VSMP) General Permit for stormwater discharge from construction activities	Continue to require proof of coverage under the VSMP General Permit for Stormwater Discharges from construction activities	Number of VSMP permit coverage letters issued	Development Services
	Maintain DEQ ESC and VSMP plan review, inspection and administration certification for a minimum of 2 City employees	Maintain two certifications throughout the permit period	Number of certifications in the City	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	<p>Ensure contractors comply with the erosion and sediment control regulations and VSMP permit regulations and implement applicable E&S controls</p> <p>Review stormwater management plans prior to land disturbance</p>	Track the number of regulated land-disturbing activities and report the total disturbed acreage	<p>Number of regulated land-disturbing activities</p> <p>Number of inspections conducted</p> <p>Number of total disturbed acreage</p> <p>Summary of the enforcement actions taken</p>	Development Services
Post-construction stormwater management in new development and redevelopment	Continue to inspect and maintain all public BMPs annually to ensure structural stormwater management facilities are maintained and operating properly.	Inspect all public BMPs annually	Number of BMPs inspected each year	Department of Public Works
	<p>Identify all private BMPs and those property owners responsible for maintaining stormwater management facilities</p> <p>Require annual inspection and documentation for privately maintained stormwater facilities</p> <p>Inspect all privately owned stormwater management facilities at least once every 5 years</p>	<p>Identify all private BMPs and the property owners in Year 1</p> <p>Notify those property owners or modify existing maintenance agreement requiring annual inspection from owners in order to comply with regulation by Year 2</p>	<p>Number of private BMPs identified</p> <p>Number of private BMPs inspected</p>	Department of Public Works
	Track and update the City's database of permanent stormwater management facilities	Continue to update its database of all known permanent stormwater management facilities on an ongoing basis each year through the permit cycle	Number of structural, post-construction stormwater management facilities in the City	Department of Public Works
	Evaluate, and update as necessary, the Stormwater Management Ordinance to be consistent with the requirements of the VSMP, as amended.	Initiate a formal review and include recommendations for updates and/or amendments in Year 3	Percent of completion of ordinance review	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
Pollution prevention/good housekeeping for municipal operations	Continue to develop tools and define metrics to manage and track program. These tools can consist of a combination of spreadsheets, database, GIS and work-order software to assist the City in monitoring performance of the program.	Develop and implement tools and define metrics by Year 3	Percent completion of the tools and definition of metrics	Department of Public Works
	Develop and implement written standard operating procedures (SOPs) for all pollution prevention activities.	Continue to develop SOPs and list SOPs to be prepared through the permit cycle	Percent development of the list Number of SOPs prepared	Department of Public Works
	Maintain stormwater pollution prevention, spill response, hazardous waste, illicit discharge, good housekeeping, and safety training programs for City operations	Conduct training biennially as determined by each department through the permit cycle	Number of training sessions conducted Number of City employees attended	Department of Public Works
		Develop annual training plan for the following year	Summary of training or certification program	Department of Human Resources
	Update the Stormwater Pollution Prevention Plan (SWPPP) for the Public Works Yard. The Yard serves a number of City activities and has a VPDES stormwater discharge permit requiring development and annual update of the SWPPP	Evaluate existing SWPPP and determine areas that need additional information in Year 1 Update the SWPPP annually	Percent completion of the update	Department of Public Works
	Monitor municipal high-priority facilities and high potential of discharging pollutants among high-priority facilities not covered under a separate VPDES permit Develop and implement SWPPP for all high-priority facilities	Identify municipal high-priority facilities by Year 1 Develop and implement SWPPP for all high-priority facilities by Year 4	Number of municipal high-priority facilities Number of SWPPP developed and implemented	Department of Public Works
	Monitor performance of snow removal and landscaping chemical application procedures	Maintain records of annual deicing and chemical application	Amounts of materials applied	Street Department Buildings and Grounds Department

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Develop and implement turf and landscape nutrient management plans on all lands owned or operated by the City where nutrients are applied to a contiguous area greater than one acre by Year 5	Identify all applicable lands by Year 1 Not less than 15% of all identified acres covered by turf and landscape nutrient management plans by Year 2 Not less than 40% by Year 3 Not less than 75% by Year 4	Total acreage of lands where turf and landscape nutrient management plans are required Acreage of lands upon which turf and landscape management plan have been implemented	Department of Public Works
	Continue storm inlet cleaning program. The Street Department currently provides cleaning of storm inlets and, as needed, storm sewers and other conveyances. Some of these conveyances could be considered natural drainage ways and the City removes excessive siltation and controls erosion problems in them. In some parts of the City, the inlets are found clogged with grass clippings and other waste materials resulting from illegal dumping. The Sewer Department's vacuum trucks are occasionally used to assist in pipe cleaning.	Identify additional areas in the City for potential pollution problems. Create a GIS layer of priority areas by Year 2 Inspect all storm inlets in the priority areas once per year and clean as necessary	Dates of storm sewer map updates and the current map to be included in the annual report Number of structures inspected and cleaned	Department of Public Works Street Department
	Maintain street sweeping program for all City streets	Sweep 250 lane miles of City streets at least 4 times a year Collect 18 tons of debris per month	Number of lane miles swept and frequency Number of tons of debris collected	Street Department
	Maintain sweeping program for downtown streets and sidewalks	Sweep downtown streets and sidewalks daily	Number of lane miles swept and frequency Number of sidewalk miles swept and frequency	Department of Public Works
	Maintain Virginia DEQ E4 certification for Water Plant and Vehicle Maintenance Facility	Maintain Virginia E4 certification for Water Plant and Vehicle Maintenance Facility every year	E4 certification status for Water Plant and Vehicle Maintenance Facility	Department of Public Works - Maintenance Department of Utilities – Water Department
Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
Public education	Publish an article that addresses stormwater issues such as recycling, yard waste collection, hazardous waste handling, and illegal discharges	Publish at least 2 articles a year in a local publication	Number of articles/newsletters distributed	Department of Public Works
	Include a section to the newsletter that pertains to stormwater issues related to children	New section added	Number of newsletters distributed with the children section	Department of Public Works
	Develop public education and information brochures related to stormwater management, pet waste management, water quality, and stormwater pollution prevention	Create brochures in print and electronic format by Year 1	Number of brochures developed	Department of Public Works
	Provide printed brochures to citizens at various locations around the City to increase knowledge concerning stormwater pollution	Publish a brochure at least once annually and placed at various locations around the City by Year 2	Number of brochures distributed Number of locations distributed	Department of Public Works
	Post electronic versions of informational brochures on the City's website or create a web page with a stormwater focus.	Posting of information on the website	Number of hits to the website	Department of Public Works
	Place a link to the informational brochure/web page on the City Employee Intranet	Creation of the link	Number of hits to the website	
	Continue dissemination of information through new-resident brochure, the "Trash Line", and the City's website. The City currently uses these channels to provide information on recycling, yard waste collection, hazardous waste handling, and illegal discharges	Continuous maintenance of these services throughout permit period	Number of new-resident brochures distributed	Department of Public Works
			Number of calls to the "Trash Line"	
Number of hits to the website				
Develop and initiate watershed education programs with a specific focus on stormwater management, water quality, and stormwater pollution prevention for public school students in grades K-5	Create educational materials for distribution to school children by Year 3; Initiate education programs by Year 4 and remain ongoing through the remainder of the permit cycle	Number of sessions conducted each year	Department of Public Works	

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
Public involvement/ participation	Coordinate with the existing Citizens Advisory Committee (CAC) to share and discuss outreach strategies and public education efforts. The existing CAC will be urged to expand its current interest in solid waste and recycling to stormwater issues. Also develop a strategy for public involvement in removal of trash from local waterways	Hold public meetings quarterly	Number of meetings with CAC Number of attendees to the meeting	Department of Public Works
	Stormwater telephone hotline and online comment form established for citizens to report a concern regarding spills, illegal dumping, BMP problems, and construction site complaints	Stormwater telephone hotline and online comment form established	Number of calls to the hotline Number of online comments	Department of Public Works
	Continue the storm inlet placard program. The City has already initiated this program and will target additional priority areas and new construction areas. A message stating "No Dumping-Drains to Bay" will be used to involve citizens and volunteer groups.	Prioritization of areas in the City where stenciling is needed Stencil all of the inlets in the priority areas ongoing through the permit cycle	List of priority areas Number of inlets stenciled	Department of Public Works
	Continue to support the Adopt-A-Stream program	Document the activities that occur each year which relate to the event	Number of activities	Department of Public Works
	Publish MS4 Program Plan and annual reports on the City of Manassas website for download. Also provide printed copies of the MS4 Program Plan and annual reports to any interested parties upon request.	Report added to website; MS4 Program Plan will be available subsequent to approval by DEQ	Number of hits to the website Number of copies provided	Department of Public Works
Illicit discharge detection and elimination	Maintain storm sewer GIS map and corresponding database to be used for illicit discharge tracking and recording maintenance activities	Continue to update and maintain storm sewer GIS map to include all known outfalls, including waters of the US, drainage areas, potential sources of pollution	Number of new structures located	Department of Public Works
	Continue hazardous spill response program	Maintain this program throughout permit period	Number of incidents addressed	Safety Compliance Office and Fire Marshal Office

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Continue household hazardous waste collection	Maintain this service throughout permit period	Number of hazardous waste collection events	Department of Public Works
	Perform stream assessments (stream walks) to inspect all City outfalls and update the GIS mapping	Assessment of streams	Number of stream miles assessed	Department of Public Works
	Implement TV inspection of storm sewer system and determine if an illicit discharge has occurred or is occurring	Maintain records of TV inspection Identify for possible illicit discharges	Number of miles inspected Number of outfalls that have had apparent illicit discharges	Department of Public Works
	Continue to identify priority areas in the City for potential pollution problems and monitor those locations to ensure compliance with existing regulations	Update a GIS layer of priority areas Regularly monitor throughout permit cycle	Number of locations identified	Department of Public Works
	Comply with existing regulations that prohibit illicit discharges to storm sewer systems	Track notices of violations and seek to reduce this number by maximum extent practicable	Number of violations requiring enforcement procedures	Department of Public Works
	Stormwater hotline and online comment form established for citizens to report spills, illegal dumping, BMP problems, and construction site complaints	Stormwater hotline established	Number of calls to the hotline	Department of Public Works
	Notifications to the regulated physically interconnected MS4s	Record the date of written notifications sent in Year 1	Date of notification	Department of Public Works
	Adopt the Stormwater Management Ordinance pursuant to Article 1.1 of Chapter 6 of Title 10.1 of the Code of Virginia to prohibit illicit discharges and provide enforcement procedures for violations	Implement the Stormwater Management Ordinance in Year 2	Number of violations	Department of Public Works
Construction site stormwater runoff control	Complaint hotline and online comment form established to increase the public knowledge and awareness of issues regarding stormwater runoff from construction sites	Stormwater hotline established for complaints	Number of calls/comments to the hotline	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Ensure coverage under the Virginia Stormwater Management Program (VSMP) General Permit for stormwater discharge from construction activities	Continue to require proof of coverage under the VSMP General Permit for Stormwater Discharges from construction activities	Number of VSMP permit coverage letters received	Development Services
	Maintain DEQ ESC and VSMP plan review, inspection and administration certification for a minimum of 2 City employees	Maintain two certifications throughout the permit period	Number of certifications in the City	Department of Public Works
	Ensure contractors comply with the erosion and sediment control regulations and implement applicable E&S controls	Track the number of regulated land-disturbing activities and report the total disturbed acreage	Number of total disturbed acreage	Development Services Department of Public Works
Post-construction stormwater management in new development and redevelopment	Continue to inspect and maintain all public BMPs every 4 years to ensure structural stormwater management facilities are maintained and operating properly.	Inspect all public BMPs in Year 4	Number of BMPs inspected each year	Department of Public Works
	Identify all private BMPs and those property owners responsible for maintaining stormwater management facilities Require annual inspection and documentation for privately maintained stormwater facilities	Identify all private BMPs and the property owners in Year 1 Notify those property owners or modify existing maintenance agreement requiring annual inspection from owners in order to comply with regulation by Year 2	Number of private BMPs identified Number of private BMPs inspected	Department of Public Works
	Track and update the City's database of permanent stormwater management facilities	Continue to update its database of all known permanent stormwater management facilities on an ongoing basis each year through the permit cycle	Number of structural, post-construction stormwater management facilities in the City	Department of Public Works
	Evaluate, and update as necessary, the Stormwater Management Ordinance to be consistent with the requirements of the VSMP, as amended.	Initiate a formal review and include recommendations for updates and/or amendments in Year 3	Findings of ordinance review and copies of any initiated amendments	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
Pollution prevention/good housekeeping for municipal operations	Continue to develop tools and define metrics to manage and track program. These tools can consist of a combination of spreadsheets, database, GIS and work-order software to assist the City in monitoring performance of the program.	Develop and implement tools and define metrics by Year 3	Percent completion of the tools and definition of metrics	Department of Public Works
	Develop and implement written standard operating procedures (SOPs) for all pollution prevention activities.	Continue to develop SOPs and list SOPs to be prepared through the permit cycle	Percent development of the list Number of SOPs prepared	Department of Public Works
	Maintain stormwater pollution prevention, hazardous waste, good housekeeping, and safety training programs for City operations	Conduct training monthly or annually as determined by each department through the permit cycle	Number of training sessions conducted Number of City employees attended	Department of Public Works
	Update the Stormwater Pollution Prevention Plan (SWPPP) for the Public Works Yard. The Yard serves a number of City activities and has a VPDES stormwater discharge permit requiring development and annual update of the SWPPP	Evaluate existing SWPPP and determine areas that need additional information in Year 1 Update the SWPPP annually	Percent completion of the update	Department of Public Works
	Monitor performance of snow removal and landscaping chemical application procedures	Maintain records of annual deicing and chemical application	Amounts of materials applied	Street Department Buildings and Grounds Department
	Continue storm inlet cleaning program. The Street Department currently provides cleaning of storm inlets and, as needed, storm sewers and other conveyances. Some of these conveyances could be considered natural drainage ways and the City removes excessive siltation and controls erosion problems in them. In some parts of the City, the inlets are found clogged with grass clippings and other waste materials resulting from illegal dumping. The Sewer Department's vacuum trucks are occasionally used to assist in pipe cleaning.	Identify additional areas in the City for potential pollution problems. Create a GIS layer of priority areas by Year 2 Inspect all storm inlets in the priority areas once per year and clean as necessary	Dates of storm sewer map updates and the current map to be included in the annual report Number of structures inspected and cleaned	Department of Public Works Street Department

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Maintain street sweeping program for all City streets	Sweep 250 lane miles of City streets at least 4 times a year Collect 18 tons of debris per month	Number of lane miles swept and frequency Number of tons of debris collected	Street Department
	Maintain sweeping program for downtown streets and sidewalks	Sweep downtown streets and sidewalks daily	Number of lane miles swept and frequency Number of sidewalk miles swept and frequency	Department of Public Works
	Maintain Virginia E4 certification for Water Plant and Vehicle Maintenance Facility	Maintain Virginia E4 certification for Water Plant and Vehicle Maintenance Facility every year	E4 certification status for Water Plant and Vehicle Maintenance Facility	Safety Compliance Office

APPENDIX B
MS4 Updated Program Plan
Permit: VAR040063

**CITY OF MANASSAS NPDES PHASE II STORMWATER PERMIT
VSMP SMALL MS4 PROGRAM PLAN 2013-2018
MINIMUM MEASURES AND BEST MANAGEMENT PRACTICES**

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency	
Public education	Publish an article that addresses stormwater issues such as recycling, yard waste collection, hazardous waste handling, and illegal discharges	Publish at least 2 articles a year in a local publication	Number of articles/newsletters distributed	Department of Public Works	
	Include a section to the newsletter that pertains to stormwater issues related to children	Publish at least 3 articles a year	Number of newsletters distributed with the children section	Department of Public Works	
	Develop public education and information brochures related to stormwater management, pet waste management, water quality, and stormwater pollution prevention	Create brochures in print and electronic format by Year 1	Number of brochures developed	Department of Public Works	
	Provide printed brochures to citizens at various locations around the City to increase knowledge concerning stormwater pollution	Publish a brochure at least once annually and placed at various locations around the City by Year 2	Number of brochures distributed Number of locations distributed	Department of Public Works	
	Post electronic versions of informational brochures on the City's website or create a web page with a stormwater focus.	Posting of information on the website	Number of hits to the website	Department of Public Works	
	Place a link to the informational brochure/web page on the City Employee Intranet.	Creation of the link	Number of hits to the website		
	Continue dissemination of information through the monthly newsletter and City's website or social media. The City currently uses these channels to provide information on recycling, yard waste collection, hazardous waste handling, and illegal discharges		Continuous maintenance of these services throughout permit period	Number of hits to the new residents website	Department of Public Works
				Number of hits to the website	IT Department

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Develop and initiate watershed education programs with a specific focus on stormwater management, water quality, and stormwater pollution prevention for public school students in grades K-6	Create educational materials for distribution to school children by Year 3; Initiate education programs by Year 4 and remain ongoing through the remainder of the permit cycle	Number of sessions conducted each year	Department of Public Works
	Evaluate the education and outreach program for appropriateness of high-priority issues and target audiences and effectiveness of message and mechanisms of delivery employed in reaching target audience.	Evaluate program performance	Estimated number of people reached Estimated percent of the target audiences that are reached	Department of Public Works
Public involvement/participation	Coordinate with the existing Citizens Advisory Committee (CAC) to evaluate trash, recycling, and litter control activity and explore opportunities for improving refuse and recycling services and community outreach	Hold CAC meetings monthly	Number of meetings with CAC Number of attendees to the meeting	Department of Public Works
	Stormwater telephone hotline and online comment form (311GIS) established for citizens to report a concern regarding spills, illegal dumping, BMP problems, and construction site complaints	Stormwater telephone hotline and online comment form established	Number of calls to the hotline Number of online comments	Department of Public Works
	Continue the storm inlet placard program. The City has already initiated this program and will target additional priority areas and new construction areas. A message stating "No Dumping-Drains to Bay" will be used to involve citizens and volunteer groups.	Prioritization of areas in the City where stenciling is needed Stencil all of the inlets in the priority areas ongoing through the permit cycle	List of priority areas Number of inlets stenciled	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Participate through promotion, sponsorship, or other involvement; in a minimum of four local activities , e.g. stream clean-ups, hazardous waste clean-up days, Utility Day Continue to support the Adopt-A-Stream program	Document the activities that occur each year which relate to the event	Number of activities Number of participants per event	Department of Public Works Department of Neighborhood Services
	Publish MS4 Program Plan and annual reports on the City of Manassas website for download. Also provide printed copies of the MS4 Program Plan and annual reports to any interested parties upon request.	Report added to website; MS4 Program Plan will be available within 30 days of the submittal of the annual report to DEQ	Number of hits to the website Number of copies provided	Department of Public Works
Illicit discharge detection and elimination	Maintain storm sewer GIS map and corresponding database to be used for illicit discharge tracking and recording maintenance activities	Continue to update and maintain storm sewer GIS map and database to include all known outfalls, including waters of the US, drainage areas, potential sources of pollution	Number of new structures located	Department of Public Works
	Continue hazardous spill response program	Maintain this program throughout permit period	Number of incidents addressed	Department of Human Resources and Fire Marshal Office
	Continue household hazardous waste collection	Maintain this service throughout permit period	Number of hazardous waste collection events	Department of Public Works
	Perform stream assessments (stream walks) to inspect all City outfalls for unauthorized nonstormwater discharges and update the GIS mapping Continue to identify other points of discharge and notify the downstream MS4 of any known physical interconnection	Assessment of streams and City outfalls Develop inspection schedules for the following year Identify for points of discharge	Number of stream miles assessed Number of outfalls inspected Number of points of discharge identified	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Implement TV inspection of storm sewer system and determine if an illicit discharge has occurred or is occurring	Maintain records of TV inspection Identify for possible illicit discharges	Number of miles inspected Number of outfalls that have had apparent illicit discharges	Department of Public Works
	Continue to identify priority areas in the City for potential pollution problems and monitor those locations to ensure compliance with existing regulations	Update a GIS layer of priority areas Regularly monitor throughout permit cycle	Number of locations identified	Department of Public Works
	Comply with existing regulations that prohibit illicit discharges to storm sewer systems	Track notices of violations and seek to reduce this number by maximum extent practicable	Number of violations requiring enforcement procedures	Department of Public Works and Fire Marshal Office
	Stormwater hotline and online comment form established for citizens to report spills, illegal dumping, BMP problems, and construction site complaints	Stormwater hotline established	Number of calls to the hotline	Department of Public Works and Development Services
	Notifications to the regulated physically interconnected MS4s	Record the date of written notifications sent in Year 1	Date of notification	Department of Public Works
	Implement and maintain the Virginia Stormwater Management Program	Adopt and implement the Stormwater Management Ordinance in Year 2	Number of inspections performed Number of violations identified	Department of Public Works and Development Services
Construction site stormwater runoff control	Complaint hotline and online comment form established to increase the public knowledge and awareness of issues regarding stormwater runoff from construction sites	Stormwater hotline established for complaints	Number of calls/comments to the hotline	Department of Public Works and Development Services
	Ensure coverage under the Virginia Stormwater Management Program (VSMP) General Permit for stormwater discharge from construction activities	Continue to require proof of coverage under the VSMP General Permit for Stormwater Discharges from construction activities	Number of VSMP permit coverage letters issued	Development Services

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Maintain DEQ ESC and VSMP plan review, inspection and administration certification for a minimum of 2 City employees	Maintain two certifications throughout the permit period	Number of certifications in the City	Department of Public Works
	Ensure contractors comply with the erosion and sediment control regulations and VSMP permit regulations and implement applicable E&S controls Review stormwater management plans prior to land disturbance	Track the number of regulated land-disturbing activities and report the total disturbed acreage	Number of regulated land-disturbing activities Number of inspections conducted Number of total disturbed acreage Summary of the enforcement actions taken	Development Services
Post-construction stormwater management in new development and redevelopment	Continue to inspect and maintain all public BMPs annually to ensure structural stormwater management facilities are maintained and operating properly.	Inspect all public BMPs annually	Number of BMPs inspected each year	Department of Public Works
	Identify all private BMPs and those property owners responsible for maintaining stormwater management facilities Require annual inspection and documentation for privately maintained stormwater facilities Inspect all privately owned stormwater management facilities at least once every 5 years	Identify all private BMPs and the property owners in Year 1 Notify those property owners or modify existing maintenance agreement requiring annual inspection from owners in order to comply with regulation by Year 3	Number of private BMPs identified Number of private BMPs inspected	Department of Public Works
	Track and update the City's database of permanent stormwater management facilities	Continue to update its database of all known permanent stormwater management facilities on an ongoing basis each year through the permit cycle	Number of structural, post-construction stormwater management facilities in the City	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Evaluate, and update as necessary, the Stormwater Management Ordinance to be consistent with the requirements of the VSMP, as amended.	Initiate a formal review and include recommendations for updates and/or amendments in Year 3	Percent of completion of ordinance review	Department of Public Works
Pollution prevention/good housekeeping for municipal operations	Continue to develop tools and define metrics to manage and track program. These tools can consist of a combination of spreadsheets, database, GIS and work-order software to assist the City in monitoring performance of the program.	Develop and implement tools and define metrics by Year 3	Percent completion of the tools and definition of metrics	Department of Public Works
	Develop and implement written standard operating procedures (SOPs) for all pollution prevention activities.	Continue to develop SOPs and list SOPs to be prepared through the permit cycle	Percent development of the list Number of SOPs prepared	Department of Public Works
	Maintain stormwater pollution prevention, spill response, hazardous waste, illicit discharge, good housekeeping, and safety training programs for City operations	Conduct training biennially as determined by each department through the permit cycle Develop annual training plan for the following year	Number of training sessions conducted Number of City employees attended Summary of training or certification program	Department of Public Works Department of Human Resources
	Update the Stormwater Pollution Prevention Plan (SWPPP) for the Public Works Yard. The Yard serves a number of City activities and has a VPDES stormwater discharge permit requiring development and annual update of the SWPPP	Evaluate existing SWPPP and determine areas that need additional information in Year 1 Update the SWPPP annually	Percent completion of the update	Department of Public Works
	Monitor municipal high-priority facilities and high potential of discharging pollutants among high-priority facilities not covered under a separate VPDES permit Develop and implement SWPPP for all high-priority facilities	Identify municipal high-priority facilities by Year 1 Develop and implement SWPPP for all high-priority facilities by Year 4	Number of municipal high-priority facilities Number of SWPPP developed and implemented	Department of Public Works

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Monitor performance of snow removal and landscaping chemical application procedures	Maintain records of annual deicing and chemical application	Amounts of materials applied	Street Department Buildings and Grounds Department
	Develop and implement turf and landscape nutrient management plans on all lands owned or operated by the City where nutrients are applied to a contiguous area greater than one acre by Year 5	Identify all applicable lands by Year 1 Not less than 15% of all identified acres covered by turf and landscape nutrient management plans by Year 2 Not less than 40% by Year 3 Not less than 75% by Year 4	Total acreage of lands where turf and landscape nutrient management plans are required Acreage of lands upon which turf and landscape management plan have been implemented	Department of Public Works
	Continue storm inlet cleaning program. The Street Department currently provides cleaning of storm inlets and, as needed, storm sewers and other conveyances. Some of these conveyances could be considered natural drainage ways and the City removes excessive siltation and controls erosion problems in them. In some parts of the City, the inlets are found clogged with grass clippings and other waste materials resulting from illegal dumping. The Sewer Department's vacuum trucks are occasionally used to assist in pipe cleaning.	Identify additional areas in the City for potential pollution problems. Create a GIS layer of priority areas by Year 2 Inspect all storm inlets in the priority areas once per year and clean as necessary	Dates of storm sewer map updates and the current map to be included in the annual report Number of structures inspected and cleaned	Department of Public Works Street Department
	Maintain street sweeping program for all City streets	Sweep 250 lane miles of City streets at least 4 times a year Collect 18 tons of debris per month	Number of lane miles swept and frequency Number of tons of debris collected	Street Department

Minimum Measure	Program Element	Measurable Goal	Metric	Responsible Agency
	Maintain sweeping program for downtown streets and sidewalks	Sweep downtown streets and sidewalks daily	Number of lane miles swept and frequency Number of sidewalk miles swept and frequency	Department of Public Works
	Maintain Virginia DEQ E4 certification for Water Plant and Vehicle Maintenance Facility	Maintain Virginia E4 certification for Water Plant and Vehicle Maintenance Facility every year	E4 certification status for Water Plant and Vehicle Maintenance Facility	Department of Public Works - Maintenance Department of Utilities – Water Department

APPENDIX C

Fire Marshal's Report

Permit: VAR040063

**City of Manassas Fire and Rescue Department
Office of the Fire Marshal - Investigations Log - FY 2015**

14- No CAD entry	09/23/14	Vinnia Court	HazMat	FM response - container of mercury - TOT Household Hazardous Waste
14- No CAD entry	10/01/14	9116 Battle Street	HazMat Investigation	FM response - chemicals left at vacant dry cleaner business - TOT Safety Officer
14-3570492	12/23/14	8980 Mathis Avenue	Hazmat	FM response - fuel leak into sewer - TOT Safety Officer
15-0210305	01/21/15	8510 Signal Hill Road	Hazmat	FM response - broken hydraulic line on an equipment -TOT Safety Officer
15-0890446	03/30/15	8637 Sudley Road	Hazmat	FM response - broken hydraulic line on an equipment -TOT Safety Officer

The Office of the Fire Marshal did not open an investigation or issue any code Notice of Violations or summons during the reporting period. Mid Atlantic Environmental, the City's on-call contactor, responded to the incidents and ensured proper clean up. The spill was contained and properly cleaned under the City supervision. None of these incidents entered any stream or water way.

APPENDIX D

Stormwater Management Facilities and Ponds

Permit: VAR040063

APPENDIX E
Updated TMDL Action Plan
Permit: VAR040063

Updated TMDL Action Plan

In compliance with the Section I B of the MS4 permit, the City is required to address the Special Conditions for approved total maximum daily load (TMDL) other than the Chesapeake Bay TMDL. MS4 permit requires the development and implementation of action plans for impaired streams. The City's MS4 Program Plan has been updated for the BMPs that address six different categories of practices below and have been implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA;

- Public Education and Outreach
- Public Involvement/Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management
- Pollution Prevention/Good Housekeeping for Municipal Operations

The City's MS4 has been allocated wasteloads in the following TMDLs approved before July of 2008;

<i>Watershed</i>	<i>Pollutant</i>	<i>WLA</i>
Bull Run	Sediment	210 tons
Bull Run	E. coli	6.82 E+09 cfu
Broad Run	E. coli	1.15 E+10 cfu
Occoquan River	E. coli	2.95 E+10 cfu

As these TMDLs were approved by the State Water Control Board prior to July of 2008, the City must enhance the public education and outreach and employee training programs to also promote methods to eliminate or reduce discharges of the pollutants identified in the allocated wasteloads. The City will continue to identify all municipal facilities that may be a significant source of pollutants and evaluate the Public Education and Outreach Program by Year 5 of the current permit cycle for the following;

- Appropriateness of the high-priority stormwater issues
- Appropriateness of the selected target audiences for each high-priority stormwater issue
- Effectiveness of the materials being delivered
- Effectiveness of the delivery mechanism(s) employed in reaching target audiences

The BMP analysis documented below will evaluate practices that have been implemented at the City of Manassas for their effectiveness in reducing the pollutants identified in the WLAs and recommendations will be provided for additional BMPs if they are warranted.

Structural BMPs	Non-Structural BMPs
<ul style="list-style-type: none"> • Infiltration systems • Detention systems • Retention systems • Underground detention systems • Filtration systems • Vegetated systems • Minimizing directly-connected impervious surface • Miscellaneous and vendor-supplied systems, existing oil/water separators, and hydrodynamic devices 	<ul style="list-style-type: none"> • Facilitating good housekeeping practices such as proper disposal of automotive wastes, household hazardous waste and pet waste, minimizing the use of lawn chemicals, and managing lawn debris • Good maintenance practices such as catch basin cleaning, sweeping, road and ditch maintenance • Detecting and eliminating illicit discharges • Running educational and outreach programs • Storm drain stenciling • Low impact development and land use planning

Development of a schedule to implement procedures and strategies that address MS4 Program weaknesses, such as timetables to update ordinances and legal authorities, BMPs, policies, plans, procedures and contracts to ensure consistency with the assumptions of the TMDL WLA.

Develop a GIS data layer that includes the locations of TMDL sites.	Development will begin during the Year 2 reporting period. Status of development will be summarized in the annual reports.
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- a. The implementation of testing will occur with our routine BMP inspections which operate on a 5 year cycle. Sampling and testing shall be performed by June 30, 2017. Testing will begin no sooner than January 9, 2016 to allow for budgeting and implementation of any ordinance(s) that may be necessary.
- b. All necessary ordinances have been adopted that are applicable to reducing the pollutant identified in each applicable WLA.
- c. Private BMP maintenance agreement has been updated to reflect the need for addressing TMDL wasteload allocations.

BMP Implementation and Reporting Schedule

BMP Description	Implementation and Reporting Schedule
Periodic site visits to confirm the functionality of the structural BMPs	Site visits to start July 2015. Findings from periodic site visits and required follow up activities will be summarized in the annual report.
Develop an information sheet that includes: basic facts about TMDLs, summary of where TMDLs were historically found at the City, what has been done to eliminate TMDL contamination and what an individual should do to prevent and reduce pollutant discharge. Make information sheet available through the municipal facilities, City website, and annual training on the Stormwater Pollution Prevention Plan.	Information sheet development will begin during the Year 3 reporting period. Implementation to start making the information sheet available at the specified venues will extend through 2017. Status of development and implementation will be summarized in the annual reports.
Perform routine maintenance, as required, for TMDL BMPs.	To be implemented as required by site specific BMPs. Routine maintenance performed will be summarized in the annual reports.

To comply with Section 1.B.2 of the MS4 permit, the following plan documents the sampling necessary. Results from the planned sampling will be included in the Year 4 annual report. Based on the results, the Year 5 Annual Report will also provide details of follow up actions planned for the City and additional sampling will be conducted during the next permit term to estimate pollutant reductions and evaluate the TMDL Action Plans.

- i. The City will perform sampling and testing for the designated pollutant on the outfalls that discharge directly to the impaired surface water. During each sampling event, grab samples will be collected from the five primary sampling locations map as shown on the next page. Should the outfall exceed the designated TMDL, a second sample shall be taken and testing performed. If the results indicate that two samples exceed the designated TMDL, The City shall proceed upstream to the nearest city owned and operated BMP and perform the same testing procedure until the source is discovered. Sampling will be integrated and performed with our routine BMP inspection schedule.
- ii. Once site characterization is complete, the annual report will include an annual characterization that estimates the volume of stormwater discharged and the quality of TMDLs in a unit consistent with the WLA.
- iii. For privately owned BMP's the city shall identify the appropriate watershed and the owner shall be responsible for sampling and testing for the designated pollutant.

This Action Plan will be updated, as needed, to reflect new or revised TMDL requirements that occur as a result of the reissuance of the general permit. If required, an updated Action Plan will be submitted along with the next annual report submitted.

APPENDIX F

Chesapeake Bay TMDL Action Plan

Permit: VAR040063

Chesapeake Bay TMDL Action Plan

In compliance with the Section I C of the MS4 permit, the City is required to address the Special Conditions for the Chesapeake Bay TMDL. The MS4 permit requires the development and implementation of the Chesapeake Bay TMDL Action Plan to reduce the pollutants of concern (POC) determined by the estimation of the annual POC loads discharged from the existing sources as of June 30, 2009, based on the 2009 progress run. The following sections address the requirements of the Special Conditions for the Chesapeake Bay.

a. (1) Review of the MS4 program

The City has reviewed its current MS4 Program Plan and has determined that the existing legal authority and the City’s ability are sufficient to ensure compliance with this special condition.

a. (2) Identification of Legal Authority

No new or modified legal authority has been necessarily identified to meet the requirements of this special condition.

a. (3) Means and Methods to Address New Sources

The City adopted the Virginia Stormwater Management Act requirements into local ordinance in 2014. This included water quantity and water quality requirements being adopted locally and will be utilized to address discharges into the MS4 from new sources.

a. (4) Estimate of the Annual POC loads

An estimate of the annual POC loads discharged from the existing sources as of June 30, 2009, based on the 2009 progress run is provided below;

Table 1: Estimation of Existing Source Loads for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS* Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run
Regulated Urban Impervious	Nitrogen	1395	16.86	23,519.7
Regulated Urban Pervious		3626	10.07	36,513.8
Regulated Urban Impervious	Phosphorus	1395	1.62	2,259.9
Regulated Urban Pervious		3626	0.41	1,486.7
Regulated Urban Impervious	Total Suspended Solids	1395	1,171.32	1,633,991.4
Regulated Urban Pervious		3626	175.8	637,450.8

* EOS – Edge of Stream

a. (5) Determination of the Total Pollutant Load Reduction

A determination of the total pollutant load reductions necessary to reduce the annual POC loads from existing sources utilizing the table provided in the permit based on the Potomac River Basin is provided below;

Table 2: Determination of Total POC Reductions Required During this Permit Cycle for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	First Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required First Permit Cycle (lbs)
Regulated Urban Impervious	Nitrogen	1395	0.08	111.6
Regulated Urban Pervious		3626	0.03	108.8
Regulated Urban Impervious	Phosphorus	1395	0.01	14.0
Regulated Urban Pervious		3626	0.001	3.6
Regulated Urban Impervious	Total Suspended Solids	1395	11.71	16,335.5
Regulated Urban Pervious		3626	0.77	2,792.0

a. (6) Means and Methods to Achieve the Total POC Reductions

The City has an existing and comprehensive water quality improvement program. The means and methods implemented to date include regional stormwater management facility project, stream restoration projects, pond restoration projects, redevelopment-based reductions, street sweeping program, and 2006-2009 ‘historical BMPs.’ The City intends to achieve the required reductions included in Table 2 through the regional stormwater management facility project to meet the first permit term required reductions. This project has been initiated in 2012 and the pollutant reduction credits have been calculated using the approved removal rates for the wet pond developed by the Chesapeake Bay Program Expert Panel. The removal rates are 865.70 lbs./yr for Total Nitrogen, 201.69 lbs./yr for Total Phosphorus, and 255,986.50 lbs./yr for Total Suspended Solids. The construction is anticipated to start in March 2016 and last approximately 18 months.

a. (7) Means and methods to offset the increased loads from new sources initiating construction between July 1, 2009 and June 30, 2014, that disturb one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities

The City identified five projects for new sources initiating construction between July 1, 2009 and June 30, 2014 that disturb one acre or greater and exceeded an average land cover condition of 16% impervious cover for the design of post-development stormwater management facilities. All lands regulated under an Individual Permit were excluded from the City's regulated area. The aggregate accounting method was selected to determine the additional treatment requirements from new sources. This resulted in an increase in the POC loads and the 5% offset from the calculated increased load from the new sources are shown in Table 3 and Table 4 respectively.

Table 3. POC Loads as of July 01, 2014

Subsource	Pollutant	Total Existing Acres Served by MS4 as of 07/01/14	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load as of 07/01/14
Regulated Urban Impervious	Nitrogen	2623.6	16.86	44,233.9
Regulated Urban Pervious		3707.4	10.07	37,333.5
Regulated Urban Impervious	Phosphorus	2623.6	1.62	4,250.2
Regulated Urban Pervious		3707.4	0.41	1,520.0
Regulated Urban Impervious	Total Suspended Solids	2623.6	1,171.32	3,073,075.2
Regulated Urban Pervious		3707.4	175.8	651,760.9

Table 4. Total Load Change from “New Source” between 06/30/09 and 07/01/14 and Additional Reductions Required during first permit cycle

Subsource	Pollutant	Estimated Total POC Load as of 07/01/14	Estimated Total POC Load as of 06/30/09	Load Change	Total Load Change (lbs/yr)	5% Offset (lbs/yr)
Regulated Urban Impervious	Nitrogen	44233.90	44072.04	161.86	65.18	3
Regulated Urban Pervious		37333.52	37430.19	-96.67		
Regulated Urban Impervious	Phosphorus	4250.23	4234.68	15.55	11.62	1
Regulated Urban Pervious		1520.03	1523.97	-3.94		
Regulated Urban Impervious	Total Suspended Solids	3073075.15	3,061,830.48	11244.67	9556.99	478
Regulated Urban Pervious		651760.92	653448.6	-1687.68		

The City implemented the regional stormwater comprehensive plan and accounted for the increased POC loads by reducing the credit taken for the oversized regional BMPs that resulted in over-treatment. City will verify the long-term maintenance and upkeep of stormwater management facilities.

a. (8) Means and methods to offset the increased loads from projects as grandfathered in accordance with 4VAC50-60-48, that disturb one acre or greater that begin construction after July 1, 2014, where the project utilizes an average land cover condition greater than 16% impervious cover in the design of post-development stormwater management facilities.

The City identified three grandfathered projects in accordance with 4VAC50-60-48, that disturb one acre or greater that begin construction after July 1, 2014, where the project utilizes an average land cover condition greater than 16% impervious cover in the design of post-development stormwater management facilities. . All lands regulated under an Individual Permit were excluded from the City’s regulated area. The Site by Site Accounting method was selected to determine the additional treatment requirements from the grandfathered projects. The loading rates of the grandfathered projects are 5.34 lbs/yr for Total Phosphorus, 36.85 lbs/yr for Total Nitrogen, and 2505.53 lbs/yr for Total Suspended Solids. Additional load offsets during this permit cycle are 0.27 lbs/yr for Total Phosphorus, 1.84 lbs/yr for Total Nitrogen, and 125.28 lbs/yr for Total Suspended Solids. The City will apply excess credit from reductions required for existing sources to offset required reductions from the grandfathered projects.

a. (9) TMDL Implementation Plan

The City has updated the TMDL Action Plan and will be addressed as part of the permit reapplication.

a. (10) Future Projects that qualify as grandfathered

Upon review, the City has determined that three projects that qualify as grandfathered in accordance with 4VAC50-60-48 are listed below. Projects associated with lands that are regulated under an Individual Permit and by other jurisdiction are excluded from the list.

Name	Address	Site Area (Acres)
Firestone Complete Auto Care Center	9850 Liberia Ave	2.50
Prescott Court	9214 Prescott Ave	1.62
Grant Corner	Orchard Ln	1.47

a. (11) Expected Costs to implement

The City estimates that it will cost \$5,300,000, including \$1,921,471 in SLAF funding, to meet the existing source reductions during the state permit cycle.

a. (12) The City plans to make the draft Chesapeake Bay TMDL Action Plan available at the City website to provide an opportunity for receipt and consideration of public comment.

The City has currently planned the capital improvement projects to achieve the required reductions for the current and future permit cycles. Nine projects have been identified by the City:

- Prince William Hospital Regional SWM Pond (FY16)
- Cockrell Branch SWM Pond Restoration/Dredging (FY20)
- Hazel Drive Channel Improvements (FY18)
- Sumner Lake SWM Pond Restoration/Dredging (FY16)
- Sills Pond Upgrade (Future)
- Tudor Oaks SWM Pond Restoration (Future)
- Winter's Branch Stream Restoration (Future)
- Flat Branch Stream Restoration (Future)
- Sumner Lake Stream Restoration (Future)

The existing projects identified in this first permit period this plan exceed the required reductions and the additional reductions will be applied toward achieving the additional 35 percent reductions required by the next permit cycles. The City will continue to plan for compliance and the Plan will be updated accordingly.